

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.

Thursday, June 16, 2011

**Tenue à :**

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

le jeudi 16 juin 2011



### Errata for the Transcript of Hearings on June 16, 2011

Page	Line	Error	Correction
13	1	velocity in substrate	velocity and substrate
23 – 32		Cross-exam of Mr. Prowse	Cross-exam by Mr. Spiegelman
26	12	and myself of these river-type	and myself have of these river-type
26	15	prolonged or protected	prolonged and protracted
41	2	in the particular form	in this particular forum
46	46	Mariah	Maria
47	13	OHEP	OHEB
47	1	Mariah	Maria
48	2	Dr. Rempel response	Dr. Rosenau response
56	34	definitely like to rectify as to	definitely like to rectify is to
63	23	locations where floor profiles	locations where flood profiles
78	15	146 (document reads 146,000)	146 (sic)
92	45	one	on
93	29	oversea and land use	oversee land use

## **APPEARANCES / COMPARUTIONS**

Wendy Baker, Q.C. Micah Carmody	Senior Commission Counsel Counsel
Jonah Spiegelman Geneva Grande-McNeill	Government of Canada ("CAN")
Clifton Prowse, Q.C. Boris Tyzuk, Q.C.	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
No appearance	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
No appearance	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
No appearance	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Tim Leadem, Q.C.	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
No appearance	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

**APPEARANCES / COMPARUTIONS, cont'd.**

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

**APPEARANCES / COMPARUTIONS, cont'd.**

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

**TABLE OF CONTENTS / TABLE DES MATIERES**

	PAGE
PANEL NO. 46 (cont'd):	
MARVIN ROSENAU	
In chief by Ms. Baker	1/5/13/17
Cross-exam by Mr. Spiegelman	24/27
Cross-exam by Mr. Prowse	33/34
Cross-exam by Mr. Leadem	35/38/39/42/46/48
Cross-exam by Ms. Gaertner	53/54/55/57/63/64
Cross-exam by Ms. Schabus	64/65
Re-exam by Ms. Baker	70
LAURA REMPEL	
In chief by Ms. Baker	4/6/14/17
Cross-exam by Mr. Spiegelman	23/25/31
Cross-exam by Mr. Prowse	33/34
Cross-exam by Mr. Leadem	35/36/38/46/47/48
Cross-exam by Ms. Gaertner	53/54/55/56/58/63
Cross-exam by Ms. Schabus	65
Cross-exam by Mr. Spiegelman (cont'd)	69
PANEL NO. 47:	
JASON HWANG	
In chief by Ms. Baker	75
Cross-exam by Mr. Spiegelman	90
Cross-exam by Mr. Leadem	100/102/103/105
Cross-exam by Ms. Schabus	108
JULIA BERARDINUCCI	
In chief by Ms. Baker	73/84
Cross-exam by Mr. Prowse	93
Cross-exam by Mr. Leadem	101/102/103/105
Cross-exam by Ms. Schabus	106

**EXHIBITS / PIECES**

<u>No.</u>	<u>Description</u>	<u>Page</u>
1075	Morrison et al, Species Composition, Utilization and Overwintering Survival of Fishes in Off-Channel Habitats of FR, Hope BC, May 2011	3
1076	Letter of Agreement, Lower Fraser Gravel Removal Plan	7
1077	Letter of Agreement, Lower Fraser Gravel Removal Plan - 2009	7
1078	Governance Structure for Fraser River Gravel Removal	8
1079	DFO Screening Report - 2009	10
1080	Authorization from DFO for Works or Undertaking Affecting Fish	10
1081	DFO Screening Report - 2011-06-16	10
1082	DFO Permit, Tranmer Bar	10
1083	Tranmer Approval Application Report	11
1084	Tranmer approval documents	11
1085	Letter from Michael Church to Ann Griffin dated March 30, 2010	18
1086	Report entitled, "Sediment Management in Lower Fraser River" by Michael Church	18
1087	Fraser River Sediment Removal Surveys, Statistical Meta-Analysis (2004-2008)	18
1088	Document entitled, "Sediment Transport Along the Lower Fraser"	27
1089	Email between Laura Rempel and DFO sockeye experts	32
1090	Environmental Monitor's 30 Day Post-Construction Report for the December 2010 Outlet Channel Construction at Little Big Bar, Fraser River	35
1091	Report entitled, "Inspection of Gravel Bars in the Lower Fraser Gravel Reach and Commentary on Recent Past Mining Impacts," dated December 17, 2010, by Otto Langer	44
1092	<i>Curriculum vitae</i> of Julie Berardinucci	74
1093	Letter of Agreement - Lower Fraser River Sediment Removal Program - April 2010	76

<u>No.</u>	<u>Description</u>	<u>Page</u>
1094	Fraser Gravel - Issues and Considerations for how DFO manages the file - April 21, 2010	80
1095	Minutes of Fraser River Gravel Reach Sediment Management Long Term Planning Meeting - March 14, 2011	81
1096	Water Stewardship Report on an Approval Application	87
1097	Application for approval to make changes in and about the Fraser River at Tranmer Bar - February 6, 2009	87
1098	Reason for Decision - Application for Approval of Gravel Removal from Tranmer Bar - February 6, 2009	88
1099	British Columbia Flood Protection Program Presentation to BCWF - April 11, 2008	94
1100	Letter to Sue Farlinger from Doug Konkin dated July 30, 2010	94
1101	Flood Protection Infrastructure Program spreadsheet	95
1102	Flood Protection Infrastructure (Mission to Hope) spreadsheet	96
1103	Fraser River Gravel Removal Plan Proposed Tranmer Bar Extraction - 2009	96

#### **EXHIBITS FOR IDENTIFICATION / PIÈCES POUR L'IDENTIFICATION**

<u>No.</u>	<u>Description</u>	<u>Page</u>
CC	Report entitled, "Review of DFO Actions and Decisions on Gravel Removal on the Lower Fraser River as Related to the 2007-2008 Spring Bar Project," by Mr. Otto Langer	42
DD	Report entitled, "Juvenile Sockeye Use of the Lower Fraser River and its Estuary," by Otto Langer	44
EE	Comments on Policy and Practices Report, Gravel Removal in the Lower Fraser River, May 20, 2011 by Marvin Rosenau	53

- viii -

<u>No.</u>	<u>Description</u>	<u>Page</u>
------------	--------------------	-------------



FF

Comments on PPR - Gravel Removal In the Lower  
Fraser River prepared by Dr. Rempel and Jason  
Hwang

70

1  
PANEL NO. 46  
In chief by Ms. Baker (cont'd)

1 Vancouver, B.C./Vancouver  
2 (C.-B.)  
3 June 16, 2011/le 16 juin 2011  
4

5 THE REGISTRAR: The hearing is now resumed.

6 MS. BAKER: Thank you. Mr. Commissioner, we're back  
7 dealing with gravel. It's Wendy Baker and Micah  
8 Carmody for the Commission.  
9

10 EXAMINATION IN CHIEF BY MS. BAKER, continuing:  
11

12 Q I'd like to refer to the document which was marked  
13 as Exhibit 1074 at the end of the day which is a  
14 document that you prepared, Dr. Rosenau. Just to  
15 recap, this was a document setting out your  
16 findings or observations when you were on the  
17 gravel bar in December 2010.

18 I wonder if you could just tell us what you  
19 found and if you could turn to page 13 of this  
20 document. There's a sketch that's been done of  
21 the Tranmer Bar. That may help tell us what you  
22 found when you did this examination in December  
23 2010.

24 DR. ROSENAU: Okay. The group that I was with, again,  
25 took a ride up the Fraser River. We were  
26 basically trying to get a bit of an overview, a  
27 quick scoping assessment of some of the gravel,  
28 removal sites, the past gravel removal sites and  
29 the potential ones of which Tranmer was one of  
30 them.

31 We knew from the 2007 assessment, the field  
32 trip in 2007, that these long groundwater channels  
33 which are sometimes referred to as channel nooks  
34 have sockeye. So we went into the most northerly  
35 channel which is connected to the river which you  
36 can see on the diagram as 1, 2, 3 and 4. We  
37 basically beached the boat on the shore, took out  
38 the seine, and at the first location that we ran  
39 the seine through, we got some juvenile sockeye.

40 Again, those particular channels, in my  
41 opinion, are somewhat different than a lot of the  
42 channels insofar as there's clearly a lot of  
43 groundwater percolating through the channels.  
44 There was quite a bit of algae on the bottom of  
45 those channels. In addition to the sockeye that  
46 we found, there was a fairly strong complexity of  
47 other species including juvenile whitefish and

June 16, 2011

2

PANEL NO. 46

In chief by Ms. Baker (cont'd)

1           some suckers and minnows.

2       Q     All right. And earlier yesterday, we heard about  
3           some work that your students have done looking at  
4           species using the gravel bars. Can you just  
5           describe what some of that work has been?

6       DR. ROSENAU: You're referring to the BCIT studies?

7       Q     Yes.

8       DR. ROSENAU: Is that correct?

9       Q     Yes.

10      DR. ROSENAU: I have my students doing what are called  
11           year-long projects. What they actually are is  
12           eight-month long projects looking at the  
13           distribution abundance, species composition and  
14           survival rates of juvenile fish and other size  
15           ranges of fish that inhabit off-channel habitat.

16           So just to kind of give you a quick thumbnail  
17           perspective, over the year of the Fraser River,  
18           during the wintertime, the low flow period, the  
19           river is confined to roughly the main channel.  
20           Then during the spring, as the snow melt occurs,  
21           the channels become progressively more flooded.  
22           The water spills out over the floodplain and often  
23           what happens is the fish that are living in the  
24           main channel, the water is too fast, the water is  
25           very turbid and so the conditions probably aren't  
26           all that good. So the fish migrate out into the  
27           floodplain and often live in some habitats that  
28           aren't really gravel bar habitats.

29           When the water goes down, they become gravel  
30           bar inhabiting fish, but during these very - I'll  
31           call them tough times - they spill out into the  
32           floodplain and use this as a refugia. As the  
33           water surface elevation goes down as the  
34           floodwaters recede, in some cases, because the  
35           habitat is so nice in these floodplain areas,  
36           these fish that would normally be on gravel bars  
37           get trapped. So these are the fish that my  
38           students are studying, the fish that end up  
39           getting trapped in these isolated ponds.

40           What we found with respect to sockeye - we  
41           find a whole complexity of species in these ponds  
42           - but what we find is that sockeye do utilize  
43           those ponds and we know that they utilize these  
44           off-channel habitats before they go back to,  
45           presumably, the bars, because they're isolated,  
46           they're trapped over winter, they can't escape,  
47           they can't out-migrate to the sea.

June 16, 2011

1           In 2008/2009, one pond in particular, about  
2           1000 sockeye were enumerated. The next year the  
3           floodwaters weren't as high, about 100 sockeye,  
4           and then this past year, 2010/2011, only fish that  
5           had been trapped the previous year, because they  
6           could neither -- new fish could not get in, and  
7           the older fish could not get back out. They were  
8           isolated in these ponds.

9           So with respect to sockeye, we're seeing this  
10          behaviour, as the floodwaters increase and then  
11          decrease, of fish moving out into the sides, the  
12          perimeters of the river, and then moving back out,  
13          in some cases clearly onto gravel bars. Other  
14          species may actually stay in the ponds.

15         Q     Tab 29 of the Commission documents has a report  
16               that was prepared by one of your students, Christy  
17               Morrison. Is this the most -- this is dated May  
18               2011. Does this include a review of some of the  
19               earlier work that was done as well?

20         DR. ROSENAU: That is correct.

21         MS. BAKER: I'd like to have this marked, please.

22         THE REGISTRAR: Exhibit 1075.

23  
24               EXHIBIT 1075: Morrison et al, Species  
25               Composition, Utilization and Overwintering  
26               Survival of Fishes in Off-Channel Habitats of  
27               FR, Hope BC, May 2011  
28

29         MS. BAKER:

30         Q     Now, these are papers or reports that were done by  
31               your students at BCIT. They're not peer-reviewed;  
32               is that right?

33         DR. ROSENAU: That's correct.

34         Q     But you consider the information that's in these  
35               documents to be of use in understanding sockeye  
36               use of the gravel reach?

37         DR. ROSENAU: I do, and if I might add, the Department  
38               of Fisheries and Oceans, I believe in 2000, found  
39               the same thing. So they're sort of multiple lines  
40               of evidence that this is a real phenomenon.

41         Q     This is a question for both witnesses, and I'll  
42               start with you -- I'm going to ask the question to  
43               both of you, so you can maybe answer this question  
44               and fill in with anything else you want to add,  
45               which is has there been sufficient work done to  
46               understand how sockeye are using the gravel reach  
47               in your view? I'll start with you, Dr. Rempel.

1 DR. REMPEL: Sorry, if I may just return back to some  
2 of the points that Dr. Rosenau made just to  
3 provide a bit of additional context to these  
4 studies that his students have done. DFO  
5 recognizes the value of them for improving our  
6 understanding of juvenile sockeye use of this  
7 stretch of river. But the habitats that these  
8 students focused on are entirely unaffected by  
9 gravel mining. These sites are located at the  
10 very most upstream end of the gravel reach at the  
11 town of Hope where there's no net gravel  
12 accumulation, where the province has identified no  
13 flood risk to my knowledge, and where there is no  
14 gravel mining activity.

15 These off-channel habitats, they're  
16 engineered habitats, and DFO has been involved in  
17 the enhancement of these habitats for fisheries  
18 value, but they have no connection to the Sediment  
19 Removal Program that the province runs.

20 I'd also just like to mention that in  
21 relation to the nooks on Tranmer Bar that Dr.  
22 Rosenau sampled, DFO was already aware of those  
23 nooks. We've considered them in our work at  
24 Tranmer Bar. As well, in my Ph.D. research, these  
25 nook features I found to be ubiquitous throughout  
26 the gravel reach. At any single gravel bar, you  
27 will find these features, and during the winter  
28 sampling which I did extensively over three years,  
29 it would be common to find algal growth in a very  
30 rich community of fish feeding on this very  
31 productive habitat.

32 So we in no way discount the contribution  
33 that Dr. Rosenau's sampling made, but I'd just  
34 like to point out that the observations he made at  
35 Tranmer I don't believe to be unique for that  
36 site.

37 So I'm just now getting to counsel's  
38 question. If I could ask that you just repeat it  
39 quickly for me. Thank you.

40 Q Do you think there has been sufficient work done  
41 to understand the use of the gravel reach by  
42 Fraser River sockeye, whether rearing at unique  
43 river-type sockeye or the use of the bars by  
44 migrating salmon?

45 DR. REMPEL: I do believe that we have adequate  
46 information in hand to appreciate the relative use  
47 by sockeye of habitats in this reach. I think

1 speaking from an academic perspective as a  
2 scientist, there's considerably more information  
3 that we would like to know to understand better  
4 the particular habitat characteristics that these  
5 fish are honing in on, and more importantly, the  
6 overall importance of these habitats to river-type  
7 juvenile sockeye which have been identified  
8 numerically as being very rare on the grand scheme  
9 of the overall sockeye population, but that may  
10 have conservation and ecological importance.

11 From a point of view of adult migrating  
12 sockeye, I also believe that from the context of  
13 sediment management in the gravel reach, we  
14 adequately understand the habitats they require to  
15 migrate through the reach.

16 Q And Dr. Rosenau, how would you respond, I guess,  
17 to some of the comments made by Dr. Rempel in  
18 relation to the work that you had discussed, and  
19 then also on whether there's an adequate  
20 understanding of the use of the gravel reach by  
21 sockeye.

22 DR. ROSENAU: Okay. I guess in regards to the work  
23 done by the BCIT students, the one point that's, I  
24 think, really crucial is the lack of understanding  
25 what these riverine-rearing juvenile sockeye are  
26 doing during freshet periods, so the high  
27 discharges roughly above 5000 cubic metres per  
28 second. And the fact that these ponds are  
29 trapping I would say significant numbers of fish  
30 over a period of a number of years suggests to me  
31 that there's a lot more fish, a lot more juvenile  
32 sockeye in the river during the high discharge  
33 periods, so above 5000 cubic metres per second to  
34 10,000 or whatever peak flows are on very high  
35 years.

36 So we don't have a very good handle, and the  
37 fact that these ponds act as *de facto* sampling  
38 mechanisms is -- well, it was a surprise to all of  
39 us that were working on it over the last three  
40 years, and in fact what made it even more  
41 surprising in 2010/2011 was that the sockeye were  
42 now two-year-olds in that high elevation pond.  
43 What that said to me was fish are flooding into  
44 these highwater habitats and then moving back out.  
45 There's a lot more fish out there than we really  
46 understand.

47 In respect to our knowledge, then, I would

1 suggest that particularly at high discharge flows,  
2 we don't have a very good handle on it. I think  
3 there's a lot more that we need to know,  
4 particularly with regards to these young - not the  
5 big smolts that come out of the lakes - but these  
6 river-rearing sockeye. We had the fish examined  
7 from a DNA perspective, and the two stocks that  
8 were predominant, consistently predominant amongst  
9 years or between years, were Late Stuart and  
10 Stellako.

11 So for some reason or another, those two  
12 stocks seemed to show up again and again, albeit a  
13 relatively small sample size. So again, another  
14 sort of piece in the puzzle that we really don't  
15 understand very well in my view.

16 Q Dr. Rempel indicated that the sampling area  
17 location where your students did there work was in  
18 Hope, and there's no gravel removal happening in  
19 that area. Does that diminish the importance of  
20 this work in your view?

21 DR. ROSENAU: No. The point of bringing this to the  
22 attention of the Commission is not that the ponds  
23 are near a gravel removal site or not. Actually,  
24 one of the sites was a gravel removal site. It  
25 was a very large borrow pit for the Coquihalla  
26 Highway in the 1980s. So the picture that you're  
27 looking at is actually a gravel removal site.  
28 It's a big large gravel removal site; not a main  
29 channel gravel removal site, but it was a gravel  
30 removal site.

31 But the real key information here is the  
32 ubiquity of sockeye throughout the floodplain and  
33 the movements over the duration of the freshet,  
34 and the fact that by winter 2010, December 17th,  
35 we were still finding them there. So we really  
36 don't understand, in my opinion, what these fish  
37 are doing, particularly during the freshet periods  
38 and on the high tops of these gravel bars when  
39 it's really difficult and dangerous to sample.

40 Q Right. Thank you. Dr. Rempel, I just wanted to  
41 get a few mechanics out of the way. From 2004 to  
42 2009, gravel management in the Fraser was  
43 addressed through a federal/provincial agreement;  
44 is that right?

45 DR. REMPEL: That's correct.

46 MS. BAKER: And that's at Tab 4 of the Commission  
47 documents.

7  
PANEL NO. 46  
In chief by Ms. Baker (cont'd)

1 Q That's the agreement?

2 DR. REMPEL: That's correct.

3 MS. BAKER: I'll have that marked, please.

4 THE REGISTRAR: Exhibit 1076.

5

6 EXHIBIT 1076: Letter of Agreement, Lower

7 Fraser Gravel Removal Plan

8

9 MS. BAKER:

10 Q And then that agreement was renewed after it  
11 expired in 2009 for a one year period, and that  
12 document is at Tab 5. If we could just confirm  
13 that?

14 DR. REMPEL: Yeah, correct.

15 MS. BAKER: Okay. I'll have that marked, please.

16 THE REGISTRAR: Exhibit 1077.

17

18 EXHIBIT 1077: Letter of Agreement, Lower

19 Fraser Gravel Removal Plan - 2009

20

21 MS. BAKER:

22 Q Now, this extension agreement or document extended  
23 only into 2010. How is the province and the  
24 federal government working with respect to gravel  
25 removal in the Fraser River, notwithstanding the  
26 fact that this -- there's no agreement in place  
27 right now.

28 DR. REMPEL: Currently, since the expiry of this  
29 letter, we've been more or less working under the  
30 spirit, the intent of the previous agreement.

31 Q And as part of the management of gravel removal in  
32 the Lower Fraser, there's a Technical Committee  
33 and a Management Committee set up that includes  
34 various people from both the federal and  
35 provincial governments; is that right?

36 DR. REMPEL: That's correct.

37 MS. BAKER: And a document setting out that structure  
38 is set out in Tab 6 of the Commission's documents.  
39 There it is.

40 Q Do you recognize that?

41 DR. REMPEL: Yes, I do.

42 Q Now, there's been some changes in all the  
43 different provincial ministry names which I'll  
44 cover with the provincial witness, but the people  
45 on that list still are in place wearing those  
46 hats, is that right, for the most part?

47 DR. REMPEL: Yes.

June 16, 2011



8

PANEL NO. 46

In chief by Ms. Baker (cont'd)

1 Q Okay. And you show up there for DFO on the  
2 Technical Committee?

3 DR. REMPEL: Correct.

4 MS. BAKER: Thank you. I'll have that marked, please.

5 THE REGISTRAR: Exhibit 1078.

6

7 EXHIBIT 1078: Governance Structure for  
8 Fraser River Gravel Removal

9

10 MS. BAKER:

11 Q And what is the work that the Technical Committee  
12 does on this committee and specifically what you  
13 do on this committee?

14 DR. REMPEL: I serve on the committee as a  
15 representative of DFO and representing fish and  
16 fish habitat interests. The function of the  
17 Technical Committee is to receive very preliminary  
18 sediment removal proposals related to the gravel  
19 reach and for each of the members of that  
20 committee to represent their interests in  
21 providing advice and information to the proponent  
22 in regards to these very preliminary proposals, to  
23 assist the proponent in narrowing down what  
24 usually starts off as a list of several candidate  
25 gravel removal sites, and narrow that list down to  
26 one or two sites where both the risks to fish and  
27 fish habitat might be minimized, and based on  
28 information from other Technical Committee members  
29 where the flood hazard benefit might be greatest.

30 So the proponent takes the advice provided by  
31 each of the Technical Committee members speaking  
32 within their own mandates, and rolls that up to  
33 decide upon what sites they might pursue for  
34 application to remove gravel in any given year.

35 Q And the proponent is what entity on this group?

36 DR. REMPEL: The proponent is represented on both  
37 committees, and that's the Emergency Management  
38 British Columbia is the provincial government  
39 branch, and Ann Griffin is the project manager and  
40 you can see her name on both committees.

41 Q Okay. So it's actually Emergency Management B.C.  
42 that is the proponent for all gravel removal since  
43 what year?

44 DR. REMPEL: Since December of 2007, they took over the  
45 program.

46 Q Okay. And I just need you to help me make one  
47 correction into the PPR if you could, paragraph

June 16, 2011

1 37, which is page 19. Thank you.

2 It sets out what the Technical Committee  
3 does, and in the second bullet it says:

4  
5 Identify sites for sediment removal.  
6

7 Based on what you said today, would it be more  
8 appropriate to say that the Technical Committee  
9 reviews sites for sediment removal that have been  
10 identified by EMBC?

11 DR. REMPEL: That's correct, yeah.

12 Q Okay. Thank you. Both paragraphs 36 and 37  
13 footnote draft terms of reference for these two  
14 committees. Are those terms of reference still in  
15 draft, or have they been signed off on by all  
16 parties?

17 DR. REMPEL: The terms of reference for both the  
18 committees were drafted by Emergency Management  
19 B.C., and have not been signed off because we're  
20 still under negotiation to finalize and refine  
21 these terms of reference.

22 Q Thank you. So in terms of the process for gravel  
23 removal, there has to be authorizations from the  
24 federal government and approvals from the  
25 provincial government; is that right?

26 DR. REMPEL: That's correct.

27 Q Okay. And just to put some examples on the table  
28 here, B.C. has put in their documents, a complete  
29 set of approval and authorization documents for  
30 2009 and 2011 for the Tranmer Bar, so I'll use  
31 those as examples.

32 MS. BAKER: Tab 3 of the BC list of documents has a  
33 screening report under **CEAA** which is listed with  
34 Fisheries and Oceans being the proponent at the  
35 top -- or the lead agency, excuse me, at the top.

36 Q Can you just identify that this is a screening  
37 report prepared in support of an authorization?

38 DR. REMPEL: That's correct.

39 MS. BAKER: Okay. And then the actual authorization  
40 issued for this is at Tab 10 of the B.C.  
41 documents.

42 Q That's correct?

43 DR. REMPEL: That's correct.

44 Q And they're both for the 2009 year.

45 MS. BAKER: And I'd have those both marked, please, as  
46 the next exhibits.

47 THE REGISTRAR: Exhibit 1079.

10  
PANEL NO. 46  
In chief by Ms. Baker (cont'd)

1 MS. BAKER: Is that Tab 3?

2 THE REGISTRAR: That's correct. And 1080.

3

4 EXHIBIT 1079: DFO Screening Report 2009

5

6 EXHIBIT 1080: Authorization from DFO for  
7 Works or Undertaking Affecting Fish

8

9 MS. BAKER: The screening report for 2011 is at Tab 16  
10 of province's documents.

11 Q Again, this is the Tranmer Bar 2011 screening  
12 report?

13 DR. REMPEL: Yeah, correct.

14 MS. BAKER: Okay, I'll have that marked, please.  
15 Sorry, are you okay? Should be Tab 16 of the  
16 province's documents.

17 THE REGISTRAR: Okay. That will be 1081.

18 MS. BAKER: Thank you.

19

20 EXHIBIT 1081: DFO Screening Report 2011

21

22 MS. BAKER: And immediately following at Tab 17 is the  
23 authorization issued by DFO for 2011 Tranmer Bar.

24 DR. REMPEL: Correct.

25 Q And the authorizations that we've now marked as  
26 exhibits, 1080 and 1082, are issued under the  
27 **Fisheries Act**; is that right?

28 THE REGISTRAR: That should be 1081. That was the last  
29 one marked, 1081.

30 MS. BAKER: Oh, sorry, have we not marked Tab 17 yet?

31 THE REGISTRAR: Not yet, no.

32 MS. BAKER: Sorry, I'm ahead of everybody here.

33 THE REGISTRAR: Tab 17 you want marked?

34 MS. BAKER: Yes, please.

35 THE REGISTRAR: That will be 1082.

36

37 EXHIBIT 1082: DFO Permit, Tranmer Bar

38

39 MS. BAKER:

40 Q So Tabs -- Exhibits 1082 and 1080 are the  
41 authorizations issued under the **Fisheries Act**?

42 DR. REMPEL: Correct.

43 Q I'll just get you to identify the provincial  
44 authorizations. I'm not going to ask you  
45 questions about them, but just so that the  
46 Commissioner has the full picture.

47 MS. BAKER: Tab 12 of the province's documents has the

1 application which I'm not going to mark, but this  
2 is an application for Tranmer by EMBC, followed by  
3 an approval application report at Tab 13.  
4 Q I'm not sure why that's sideways on the screen,  
5 but you can see it there.  
6 DR. REMPEL: Yeah, correct.  
7 Q All right. And that supports the actual  
8 authorization which you see at Tab 15?  
9 MS. BAKER: Maybe go past the first page, Mr. Lunn, or  
10 past the second page. There.  
11 Q So those are the two documents, the application  
12 report that's prepared by staff, and then the  
13 final approval is at Tab 15; is that right?  
14 DR. REMPEL: I believe so, yes.  
15 MS. BAKER: Okay. I'll have those two marked as well,  
16 please, Tab 12 as the next exhibit and then  
17 followed by Tab 15.  
18 THE REGISTRAR: You referred to Tab 13.  
19 MS. BAKER: I'm not marking Tab 13. Tab 12 -- Tab 13,  
20 sorry. I was going too fast. I apologize. Tab  
21 13 is the application for approval. That will be  
22 the next exhibit.  
23 THE REGISTRAR: So you want that marked as 1083?  
24 MS. BAKER: Yes, please.  
25  
26 EXHIBIT 1083: Tranmer Approval Application  
27 Report  
28  
29 THE REGISTRAR: And Tab 15?  
30 MS. BAKER: And the next is Tab 15.  
31 THE REGISTRAR: That will be 1084.  
32  
33 EXHIBIT 1084: Tranmer approval documents  
34  
35 MS. BAKER: Thank you.  
36 THE REGISTRAR: Are you going to refer to Tab 12?  
37 MS. BAKER: No, I'm not. Thank you.  
38 THE REGISTRAR: Thank you.  
39 MS. BAKER:  
40 Q We've talked about gravel removal and here we have  
41 the authorizations that allow that gravel removal  
42 to happen, but what we haven't talked about are  
43 the methods that are used to remove gravel on the  
44 Fraser River gravel beds and, Dr. Rempel, could  
45 you explain in just an overview sense what those  
46 methods typically are?  
47 DR. REMPEL: Sure. Most typically, gravel removal is

1 carried out during the months of January through  
2 March when the river is at its lowest level and  
3 the gravel bars are dry, they're exposed. The  
4 sediment is taken off by a method called scalping,  
5 and that's typically using equipment like front-  
6 end loaders and excavators to scalp to a certain  
7 design depth over a particular set-out footprint  
8 over the tops of these exposed gravel bars.  
9 Equipment accesses the bars either directly from a  
10 dike access road if the bar is a point bar sort of  
11 laterally attached to the riverbank, or in other  
12 cases, either a causeway or a bridge might need to  
13 be installed to allow the equipment to move onto  
14 these gravel bars and remove the sediment from  
15 them.

16 There are a few instances where in-stream  
17 dredging has occurred in the past, but that's not  
18 a common practice. Bar scalping is the  
19 predominant method for removal.

20 Q All right. And what are the impacts, the  
21 potential impacts that might be made to sockeye  
22 salmon habitat through gravel removal?

23 DR. REMPEL: There's a number of potential impacts to  
24 fish habitat generally that might arise from  
25 gravel mining and there've been studies carried  
26 out all over the world that document some of these  
27 impacts which might include increased turbidity  
28 from sands and silts that are mobilized off the  
29 removal site and that become deposited in  
30 downstream habitats. There's cases where riparian  
31 habitat has been either impacted or lost as a  
32 result of gravel mining. There's cases where  
33 gravel mining has gone to such a deep depth and  
34 changed the gradient locally around the pit that  
35 headward erosion of the pit occurs which degrades  
36 and erodes away upstream habitats.

37 In the construction of causeways and bridges,  
38 there's potential impact to the in-stream habitat  
39 where pilings might be driven and where habitat  
40 might be temporarily infilled for the construction  
41 of these causeways. Causeways have the potential  
42 as well to either block the movement of water,  
43 which might cause the dewatering of habitats  
44 downstream or might cause the blockage of fish  
45 movement to required habitats downstream.

46 There's also the potential for indirect  
47 impacts to habitat by way of the modification to

1 depth and velocity in substrate characteristics of  
2 the site which, prior to the removal, might have  
3 been preferred and favourable for sockeye, and  
4 after the removal, as a result of the change in  
5 habitat characteristics, makes the site less  
6 favourable.

7 So those are examples of the spectrum of  
8 potential impacts from gravel removal. And  
9 specific to the Fraser gravel reach and specific  
10 to sockeye, some of those potential impacts we  
11 mitigate for and can more or less be ruled out in  
12 our impact assessment. Those include riparian  
13 impacts. We always require -- typically require  
14 the proponent to avoid all riparian habitat, and  
15 if that's impossible, then to replant and re-  
16 establish those areas.

17 We identify, as best we can with the  
18 available knowledge, habitats of significance and  
19 importance to sockeye and require the proponent  
20 and their contracted engineers to design the  
21 removal in such a way to, as best as possible,  
22 minimize or prevent and avoid the impacts to those  
23 habitats.

24 An example of how we've considered that sort  
25 of information on sockeye habitat use is the  
26 Tranmer Bar, 2011, see the screening report which  
27 you showed earlier. So it's, I guess, a portrayal  
28 of the potential impacts that might occur from  
29 gravel mining. But, as I say, most of those  
30 impacts we believe we can mitigate for through the  
31 planning, best practices and due diligence by the  
32 contractors who are carrying out the removal and  
33 in the design of the removal itself.

34 Q And, Dr. Rosenau, you have observed some of the  
35 gravel removal that's been taken out of Tranmer  
36 Bar in 2009, I think. Do you have any views on  
37 whether or not the impacts that have been  
38 identified by Dr. Rempel actually describe all of  
39 the potential impacts and whether they have been  
40 mitigated satisfactorily?

41 DR. ROSENAU: Well, I guess the one thing that is key  
42 is that the gravel bars are very high in  
43 elevation, and what Laura has described here is  
44 that scalping typically lowers the surface of the  
45 bar elevation by up to a couple of metres or  
46 perhaps more. Some of the studies that have been  
47 done -- and I'm not sure if Ashley Perkins'

1 thesis, 2007, was included in the list.

2 Q No, it wasn't.

3 DR. ROSENAU: It was cited in the Rempel and Church  
4 paper which was listed.

5 In any event, as you get above 4000 cubic  
6 metres per second, these high-top gravel bar  
7 habitats become less and less available. In other  
8 words, as the water becomes higher and the water  
9 becomes swifter, these key bar habitats become  
10 naturally less abundant. And probably at some  
11 point, they're crucial habitats or key habitats.  
12 What gravel mining does is lower the tops of these  
13 gravel bars by, again, up to two metres or  
14 sometimes a little bit more. So that high water,  
15 high discharge habitat is lost. I think that's a  
16 really key element.

17 With regard specifically to the Tranmer 2011  
18 approvals, both by the province and by the federal  
19 government, in 2009 - and the question was with  
20 respect to 2009 - has there been recovery?  
21 Apparently, according to one of the reports that I  
22 saw, an engineering firm, about a quarter or third  
23 of the gravel had come back into the 2009 site  
24 over two freshets.

25 The 2011 site, though, I might add, was  
26 summarily rejected during the 2009 deliberations  
27 by the Assistant Water Manager in his engineering  
28 report, and basically what he said was the 2011  
29 site, which they discussed in 2009, was far too  
30 valuable a habitat and therefore, for Tranmer  
31 2009, they moved the extraction to a location  
32 which now, in 2011, they've approved. So it kind  
33 of gives you a sense of the confusion, perhaps,  
34 that's involved in this.

35 Q The authorizations under the **Fisheries Act** do set  
36 out the monitoring work that's done to support  
37 gravel removal; is that right, Dr. Rempel?

38 DR. REMPEL: Correct.

39 Q And if we turn to Exhibit 1082, this shows the  
40 monitoring requirements for Tranmer starting at  
41 page 5 of 18, and that goes on for several pages?

42 DR. REMPEL: Correct.

43 Q And that can be compared with a more modest plan  
44 that you see in the 2009 approval, which is  
45 Exhibit 1080. That monitoring plan appears to  
46 begin at paragraph 25 -- or paragraph 23, sorry,  
47 there, and it goes on for just two pages.

1 DR. REMPEL: That's correct, although I would like to  
2 point out that I think as an agency, as DFO  
3 continues to better understand the potential  
4 impacts from the Sediment Management Program, and  
5 as more information is brought to bear about  
6 habitat used by fish and sensitive habitats for  
7 particular species, we are, as best we can,  
8 refining the monitoring requirements, and so I  
9 think the 2011 authorization you showed formerly  
10 better reflects the current monitoring standard.  
11 In that list of monitoring requirements, we do  
12 specifically require of the proponent to do fairly  
13 sophisticated monitoring of the removal sites to  
14 directly address the concern raised -- raised by  
15 myself but also emphasized by Dr. Rosenau, and  
16 that's the potential loss of this high-bar habitat  
17 which represents rearing habitat for juvenile fish  
18 at the most highest water levels.

19 So we require of the proponent that they  
20 specifically carry out monitoring to try to assess  
21 the loss of that habitat and recovery rate of that  
22 habitat and provide us an overall habitat balance,  
23 considering the magnitude and duration of loss of  
24 this high-bar habitat at removal sites.

25 Q And is habitat mapping done pre-removal or post-  
26 removal, or both?

27 DR. REMPEL: Both.

28 Q And the monitoring reports that are required, who  
29 receives those reports?

30 DR. REMPEL: The monitoring reports are received from  
31 the contractor to the proponent, and the proponent  
32 distributes those to Fisheries and Oceans and to  
33 the provincial permitting agency.

34 Q And does Fisheries and Oceans review the  
35 consultant's work when they do these monitoring  
36 reports?

37 DR. REMPEL: In past years, going back quite a ways, in  
38 some cases we didn't always have the capacity to  
39 review the reports as carefully and thoroughly as  
40 we would have liked, but in recent years, DFO has  
41 increased the capacity or the workforce on this  
42 file, and we do as careful a job as we can to  
43 review these reports.

44 MS. BAKER: Thank you. If I can also now ask you to  
45 turn to Tab 11 of the Commission documents which  
46 is a document entitled "Fraser River Sediment  
47 Removal Survey, Statistical and Meta-Analysis."



1 Q Are you familiar with this document?

2 DR. REMPEL: I am.

3 Q Why was this commissioned and who was it  
4 commissioned by?

5 DR. REMPEL: The study was commissioned jointly by the  
6 proponent, Emergency Management B.C., and  
7 Fisheries and Oceans. It was commissioned for a  
8 couple of reasons, one of which -- at the time of  
9 this work there was a lot of interest and momentum  
10 behind developing a more long-term plan for  
11 sediment management, 'cause currently the  
12 framework we follow is a year-by-year planning  
13 process, and that poses a lot of challenges on  
14 different levels. This was supposed to lay a  
15 foundation for designing a long-term and more  
16 comprehensive monitoring program for gravel  
17 removals.

18 As well, it was commissioned because we were  
19 at a stage in the Sediment Removal Program post  
20 the moratorium where we'd been carrying out  
21 monitoring for several years, but there hadn't  
22 been really an opportunity for any one agency to  
23 look at the data coming in from the monitoring and  
24 assess what this data might be telling us about  
25 potential impacts and recovery time. So this  
26 report was intended to give us as best a picture  
27 as the data would portray to us what the impacts  
28 of gravel mining were having on the reach.

29 Q And the conclusion of the report was that the  
30 study actually could not adequately address  
31 questions of magnitude of effect, and that the  
32 results were simply inconclusive because of the  
33 data that was available; is that right?

34 DR. REMPEL: That's one of the generalized findings. I  
35 think there's some detailed findings that were  
36 valuable that came out of the study, but one of  
37 the over-arching conclusions was the monitoring  
38 program was not being executed very diligently.

39 Q Are you aware of any cumulative effects  
40 assessments that have been done to assess the  
41 impacts of different removals throughout the  
42 entire system as opposed to on a bar-by-bar basis?

43 DR. REMPEL: That's a difficult question to answer.  
44 Under legislation and through the **CEAA, Canadian**  
45 **Environmental Assessment Act** review process, DFO  
46 carries out a cumulative effects assessment, but  
47 that's carried out according to the scope of the

1           proponent's project. We are challenged by the  
2           fact that the proponent's program currently is  
3           planned on a year-by-year basis, and so we aren't  
4           able to, in my opinion, do an effective cumulative  
5           effects assessment as DFO would like to because we  
6           aren't able to forecast, with any predictability,  
7           what sort of removals might be tabled in years to  
8           come. So that's part of why Fisheries and Oceans  
9           has been pushing for a longer term or  
10          comprehensive management program for this reach.  
11        Q       And in fact, just to echo that, at page 15 of  
12           Exhibit 1081, which is the **CEAA** screening report  
13           for 2011. Turn to page 15, there's a cumulative  
14           effects section which looks like there's a lot of  
15           information in it, but when you actually read it,  
16           it essentially says that the cumulative effects  
17           are most likely where extraction rates  
18           persistently exceed the natural rate of sediment  
19           recruitment and there's some generalized  
20           statements. Then there's some recitation of the  
21           fact that Dr. Church and others have recommended  
22           that there be a large-scale assessment of the  
23           impacts on the gravel reach, but there's not  
24           really an assessment in there other than pointing  
25           to the fact that you don't have the tools right  
26           now to do it; is that fair?  
27        DR. REMPEL: I think that's reasonably fair.  
28        Q       Okay. And I think you've said that DFO thinks  
29           that's necessary.  
30           Dr. Rosenau, do you agree that a cumulative  
31           effects assessment of the impacts on the Fraser  
32           reach is important?  
33        DR. ROSENAU: I would agree wholeheartedly.  
34        MS. BAKER: And then the last -- I'm sorry to have to  
35           race through this so fast, but the last thing I  
36           want to take you to are two exhibits -- or two  
37           tabs in our materials, Tab 14 and Tab 15.  
38           Tab 14 is a document dated March 30, 2010.  
39           It's in the Commission's documents, not -- I meant  
40           provincial documents. It is entitled, "Sediment  
41           Management in the Lower Fraser River." It's by  
42           Dr. Church. Tab 15 is a cover letter which  
43           enclosed that report. It's from Dr. Church to Ann  
44           Griffin who's the Emergency Management B.C.  
45           manager.  
46        Q       You see both those documents?  
47        DR. REMPEL: Yes.

18  
PANEL NO. 46  
In chief by Ms. Baker (cont'd)

1 Q And you're familiar with them both?

2 DR. REMPEL: I am.

3 MS. BAKER: Okay. Can I have -- I guess the letter  
4 probably should be marked first, and then followed  
5 by the report.

6 THE REGISTRAR: That would be Tab 11?

7 MS. BAKER: Tab 15 should be the first one which is the  
8 letter.

9 THE REGISTRAR: Tab 15 is the letter. Okay, that's  
10 1085.

11  
12 EXHIBIT 1085: Letter from Michael Church to  
13 Ann Griffin dated March 30, 2010  
14

15 THE REGISTRAR: Tab 11?

16 MS. BAKER: Tab 14 should be the report.

17 THE REGISTRAR: Tab 14, 1086.

18 MS. BAKER: Thank you.

19  
20 EXHIBIT 1086: Report entitled "Sediment  
21 Management in Lower Fraser River" by Michael  
22 Church  
23

24 THE REGISTRAR: Tab 11?

25 MS. BAKER: Not Tab 11. I'm not sure where that's  
26 coming from.

27 MR. LUNN: I had it up earlier.

28 MS. BAKER: Oh, did I not mark Tab 11?

29 MR. LUNN: (Indiscernible).

30 MS. BAKER: Oh, yes, that needs to be marked. Thank  
31 you.

32 THE REGISTRAR: Do you wish that marked?

33 MS. BAKER: Yes, please.

34 THE REGISTRAR: Exhibit 1087.

35  
36 EXHIBIT 1087: Fraser River Sediment Removal  
37 Surveys, Statistical Meta-Analysis (2004-  
38 2008)  
39

40 MS. BAKER:

41 Q All right. I'll start with the report we have,  
42 Exhibit 1086. First of all, do you know why this  
43 report was prepared?

44 DR. REMPEL: This report was prepared principally on  
45 request from the Technical Committee to the  
46 proponent. We were at a stage where the letter of  
47 agreement between the province and DFO had

June 16, 2011

1 expired, and the Technical Committee had in hand  
2 several different sediment budgets that have been  
3 calculated that estimate gravel accumulation in  
4 the reach. All of them had been authored by  
5 either Dr. Church or had been sort of expert-  
6 reviewed by Dr. Church.

7 The Technical Committee was concerned that we  
8 didn't have a clear understanding of what the  
9 annual accumulation rate of gravel in the reach  
10 was, and that we had several sediment budgets  
11 available to us with slightly different  
12 accumulation estimates, and so we requested that  
13 the proponent commission this report to give us  
14 clear and more definitive guidance on what an  
15 appropriate removal rate might be for the reach,  
16 and as well, very importantly, to lay out a  
17 framework or a strategy for approaching a long-  
18 term plan for the reach.

19 Q Okay. Thank you. If you could turn to the  
20 Executive Summary starting at page 2. The second  
21 half of the page, if that could just be brought  
22 up, you'll see that there's two different  
23 strategies identified for sediment removal.  
24 Number 1 is described as "profile maintenance" and  
25 number 2 is described as "profile control".

26 Has there been a decision made as to which of  
27 these strategies will be pursued in the Fraser  
28 reach?

29 DR. REMPEL: Based on the recommendation from Dr.  
30 Church, as I understand it, the province has  
31 adopted the strategy of profile maintenance to  
32 rationalize the Sediment Management Program. In  
33 simple terms, it indicates that gravel removal is  
34 not looked at as a means for trying to reduce  
35 flood risk or lower the flood profile, but instead  
36 is considered as a means for maintaining the water  
37 surface profile elevation by keeping up with the  
38 influx of gravel, taking out some portion or all  
39 of that annual accumulation of gravel in the  
40 reach.

41 Q Right.

42 DR. REMPEL: So that's number one.

43 Q Thank you. And then the next page sets out  
44 recommendations made by Dr. Church.

45 MS. BAKER: If you can just stop there, Mr. Lunn.  
46 Thank you.

47 Q The second bullet says that -- well, just taking

1 in the introductory language here:  
2

3 ...a sustainable long-term program of  
4 sediment removal for the Fraser River in the  
5 gravel-bed reach...[requires] the following  
6 circumstances and criteria.  
7

8 So they're not recommendations, but they're  
9 observations of the circumstances and criteria  
10 that are necessary for a sustainable long-term  
11 program of removal.

12 The criteria he identifies, he says:  
13

14 It will recognize that for the program to  
15 operate in the long-term in a sustainable way  
16 additional information is required, in  
17 particular more precise knowledge of the  
18 sediment budget --  
19

20 And we haven't had time to go into this in any  
21 detail, but for the Commissioner's benefit, the  
22 sediment budget is what?

23 DR. REMPEL: The sediment budget is an estimate of the  
24 net accumulation of sediment, core sediment,  
25 that's building up in the reach and it's usually  
26 expressed in cubic metres per year. So it's an  
27 annual estimate of gravel influx to the reach.

28 We're able to calculate the sediment budget  
29 for this reach because it's more or less fact that  
30 gravel does not move past the town of Mission  
31 based on a change in river gradient where the  
32 river no longer has the power to move that size or  
33 calibre of material. So we know that the net  
34 transport of gravel past the town of Mission is  
35 zero. By comparing surveys completed in different  
36 years, we compare the volume changes along the  
37 length of the reach and calculate a sediment  
38 budget up to the influx of gravel at Hope. So we  
39 come up with a net influx into the gravel reach on  
40 a yearly basis.

41 Q Okay. So, thank you. So just to follow on, it  
42 says:  
43

44 ...in particular more precise knowledge of  
45 the sediment budget needs to be developed and  
46 knowledge of the annual pattern of fish  
47 activities within the reach needs to be

1 detailed. The program should proceed only if  
2 there is a commitment to conduct the research  
3 to acquire this knowledge.  
4

5 So my question is whether there has been that  
6 commitment made by the Committee, if that's the  
7 appropriate place, or by either the province or  
8 DFO to conduct the research necessary to acquire  
9 the knowledge to understand the sediment budget  
10 and the annual pattern of fish activities in the  
11 reach?

12 DR. REMPEL: Well, I guess commitment could be taken a  
13 few different ways. Is there a financial  
14 commitment to do this? Partially. Is there an  
15 interest and a desire to do it? I think so. I  
16 think wholeheartedly the Technical Committee  
17 especially would like to have in hand more  
18 information and more reliable information to base  
19 its recommendations on.

20 But as Dr. Church points out in his report,  
21 working on a river the size of the Fraser is very  
22 expensive. The types of data he's referring to  
23 and gathered in such a way that they would be  
24 meaningful and informative to decision-making  
25 would be very expensive. I know speaking as a  
26 fisheries expert, I don't feel we know as much as  
27 we should to be able to manage a long-term program  
28 that the province would like to see occur.

29 But there is a commitment that they've made  
30 to carrying out some of the monitoring activities  
31 we've recommended. One such monitoring activity  
32 is a \$300,000 sturgeon monitoring program that  
33 they carry out annually. This isn't related to  
34 sockeye, but it does reflect the fact that the  
35 Technical Committee is pushing as best we can for  
36 the proponent to conduct both habitat and  
37 fisheries-related monitoring to support the  
38 program, and they prioritize species and issues as  
39 best they can, and they are hearing what we have  
40 to say. We don't have maybe as much information  
41 as we'd like, but we have some in hand.

42 Q Thank you. Then turning to the letter which is  
43 Exhibit 1085, Dr. Church -- when did you receive  
44 this or how did you receive this letter?

45 DR. REMPEL: We received the report probably after his  
46 completion of the contract in April 2010. We  
47 didn't receive this letter until - I don't know

1           accurately - but until some time in the late fall  
2           or winter, and it was received to us through an  
3           environmental non-government organization that  
4           submitted it as part of an ATIP report.

5       Q     So it wasn't given to you by Ann Griffin at the  
6           time?

7       DR. REMPEL: No, that's correct.

8       Q     And the observations made by Dr. Church in this  
9           cover letter, he does includes some caveats as to  
10          various aspects of the program. I take it you  
11          would defer to his analysis on the different  
12          caveats that are set out in this letter?

13      DR. REMPEL: Yeah, as an agency, we hold the advice Dr.  
14          Church provides to us in very high regard. Yes,  
15          we would, yeah.

16      Q     All right. And just to go to one of those on page  
17          2 at the very bottom and over to page 3, it says:

18  
19           The sediment management program to this point  
20           has been operated with only a minimal  
21           information gathering component...This no  
22           doubt is related to the cost of the program.  
23           I think there may have been some thought at  
24           the outset that the program might be revenue  
25           neutral. It's clear now that it cannot be.  
26           However, for effective monitoring and  
27           especially for increase of knowledge so that  
28           the program can be confidently carried [out]  
29           on, a substantial increase in expenditures  
30           will be required. The most expensive (and  
31           urgent) need is to improve knowledge of the  
32           aquatic ecosystem beyond site scale studies  
33           in the immediate environs of sediment  
34           removals and a limited number of control  
35           sites. It is evident that we need to know  
36           details about how fish use various parts of  
37           the river at various times of the year before  
38           reasoned objectives to sediment removal  
39           proposals may be overcome.

40  
41           First of all, you agree with that suggestion?

42      DR. REMPEL: Yes, speaking as a scientist, that's my  
43          opinion as well.

44      MS. BAKER: Thank you. Mr. Commissioner, unfortunately  
45          I'm going to have to stop now because my friends  
46          have lots of questions for these witnesses.

47      THE COMMISSIONER: Thank you.

1 MS. BAKER: The first person would be Jonah Spiegelman  
2 for Canada.

3 MR. SPIEGELMAN: Good morning. For the record, it's  
4 Jonah Spiegelman for the Government of Canada. I  
5 am going to try and move through my questions  
6 quite quickly to accommodate the limited time, so  
7 I hope that works well.

8

9 CROSS-EXAMINATION BY MR. SPIEGELMAN:

10

11 Q First of all, we've heard a little bit of evidence  
12 about the dynamic nature of the gravel reach of  
13 the Fraser River and how it has quite a year-by-  
14 year dynamic physical environment.

15 MR. SPIEGELMAN: I wonder if I can call up Tab 3 from  
16 Canada's list. My mistake. Oh, sorry, Tab 2. I  
17 apologize.

18 Q Dr. Rempel, this is an article written in 1999.  
19 Are you familiar with the article?

20 DR. REMPEL: I am.

21 Q And as I read the abstract, these authors conclude  
22 that approximately 5.5 million tonnes of sediment  
23 are transported through the gravel reach annually.  
24 Is that your understanding of the scale of  
25 physical changes?

26 DR. REMPEL: Yeah, relating to sediment, suspended  
27 sediment transport, yes.

28 Q Thank you.

29 MR. SPIEGELMAN: Now, I'd like to pull up Exhibit 1070,  
30 please.

31 Q This is an article you wrote with Dr. Church and  
32 it was based on the field work conducted during  
33 your Ph.D.; is that correct?

34 DR. REMPEL: That's correct.

35 Q And can you please tell the Commissioner what the  
36 primary findings were from this study in terms of  
37 the response by aquatic organisms to gravel  
38 removal?

39 DR. REMPEL: Yes. This study was done during my Ph.D.  
40 on one single removal that was done at Harrison  
41 Bar in the gravel reach. We applied a monitoring  
42 program, carried out both before and several years  
43 after the removal to try to detect or examine what  
44 the both physical and habitat and ecological  
45 response to the removal was.

46 What we found was that the signal from  
47 aquatic invertebrates, that being insects living



1 at the sort of surface water in interface that  
2 fish predominantly feed on, juvenile fish  
3 predominantly feed on, that these organisms  
4 recolonized the removal site within one year after  
5 the removal. So after one freshet cycle, one  
6 flood cycle, the community structure and  
7 abundances of benthic organisms was not different  
8 at the removal site compared to reference sites.

9 We found with the fish community, we found a  
10 similar pattern, but we also found, I think more  
11 importantly, that the amount of variation and  
12 natural variation in the data really handicapped  
13 the study's ability to definitively make any  
14 conclusion at all about what the impacts to fish  
15 directly might have been.

16 We found that the habitat itself, thinking  
17 about this high-bar habitat that Dr. Rosenau and I  
18 have both spoken to, we found that two modest  
19 flood cycles after the removal did not recruit any  
20 new gravel to the removal site and so, in that  
21 way, there was no recovery detected or rebuilding  
22 of this high-bar habitat, but after a larger flood  
23 event, we saw a 30 percent replenishment of gravel  
24 to the site and a partial rebuilding of this high-  
25 bar habitat.

26 Q Thank you.

27 MR. SPIEGELMAN: I would like to bring up Exhibit 735,  
28 please, in particular page 3, the second full  
29 paragraph.

30 Q The second full paragraph, it begins with,  
31 "Increasing population size...". Now, as I read  
32 this technical report that was produced by the  
33 Commission, the very last sentence is what I would  
34 like to draw your attention to in particular.  
35 These authors conclude that less than one percent  
36 of Fraser sockeye populations are this river type,  
37 and that 99 percent are lake-type sockeye. Is  
38 that consistent with your understanding, or do you  
39 have any objections to that?

40 DR. REMPEL: No objection.

41 DR. ROSENAU: Are you talking to Laura, or...?

42 MR. SPIEGELMAN:

43 Q Oh, either of you.

44 DR. ROSENAU: Well, the run of Harrison fish this year,  
45 according to my colleagues with the Pacific Salmon  
46 Commission, was either 1.2 or 1.3 million fish, so  
47 maybe that one percent is a bit off.

- 1 Q Okay. Thank you. That's helpful.  
2 DR. REMPEL: Are you speaking to river-type Harrison  
3 fish or the --  
4 DR. ROSENAU: Yeah, my understanding is that the  
5 Harrison Rapids fish, which are known to be river-  
6 type fish, the run size, the escapement was  
7 between 1.2 or 1.3 million. I'm just saying --  
8 Q Thank you. I appreciate that. Those Harrison  
9 River fish would likely spend a portion of their  
10 life cycle rearing in the gravel reach; is that  
11 correct?  
12 DR. ROSENAU: That is my understanding, yes.  
13 Q And so you would agree that this population is  
14 doing quite well in terms of productivity and  
15 abundance in spite of the gravel mining that's  
16 occurred over the last 60 years. Would you agree  
17 with that?  
18 DR. ROSENAU: There's a long history with the Harrison  
19 stock, so to say that it's doing well, I guess is  
20 sort of a larger question. The last two or three  
21 years it has been doing well, but most of the big  
22 gravel mining that we've seen to date is actually  
23 upstream of the confluence of the Harrison.  
24 Q Okay. Thank you. Aside from the Harrison,  
25 though, the stream-rearing population of sockeye  
26 is on the order of this one percent or less.  
27 Would you agree with that?  
28 DR. ROSENAU: My guess is that in fact it is -- again,  
29 to reiterate, the Salmon Commission did a genetic  
30 stock analysis of the fish that my students caught  
31 up at Hope and those were Stellako and Late  
32 Stuart. To my knowledge, they've never been  
33 identified as river-rearing sockeye, so maybe  
34 we've actually found something new that will  
35 change that one percent.  
36 But, as far as I know, one percent still  
37 stands.  
38 Q Thank you. Dr. Rempel, in reviewing the PPR that  
39 was marked yesterday, do you have any comment on  
40 the overall emphasis of these stream-rearing  
41 sockeye as it pertains to this issue of gravel  
42 removal impacting the declining of the Fraser  
43 sockeye overall?  
44 DR. REMPEL: Yeah, I think one of the comments I had,  
45 sort of more over-arching comments on the PPR, was  
46 that I felt that this river-type sockeye ecotype  
47 was over-emphasized in the context of sediment

1 removal. I don't discount for a second the  
2 importance of these river-type sockeye, but  
3 thinking specifically in the context of sediment  
4 removal and sediment management in the gravel  
5 reach, I did feel that in the PPR it was over-  
6 emphasized.

7 I think it's not unlikely that these river-  
8 type sockeye are using habitats in the gravel  
9 reach as they make their sort of protracted  
10 downstream migration from the spawning grounds to  
11 the estuary, but the understanding that experts  
12 within DFO and myself of these river-type sockeye  
13 is some of them will be moving through the reach  
14 relatively quickly, and some of them might have a  
15 more prolonged or protected migration, but that  
16 overall, the period of interaction between any  
17 gravel mining impacted habitats and considering  
18 the relative rarity of these river-type sockeye in  
19 the context of the overall total sockeye  
20 population, it makes the issue much less so than  
21 is portrayed in the PPR.

22 Q Thank you. Going to paragraph 13 of the PPR,  
23 there's -- it provides a quotation from Technical  
24 Report 3 that the Commission contracted out. I'm  
25 not going to read it in the interest of time, but  
26 I'll note that it's describing these river-type  
27 sockeye. It says they're relatively rare -- it  
28 notes that they're relatively rare and it also  
29 notes that these river-type populations are more  
30 likely to stray from the natal stream and colonize  
31 new habitats. There's discussion about how  
32 they're more flexible in their habitat  
33 requirements.

34 I wonder if you have any comments on that  
35 sort of flexibility and the general behaviour as  
36 it pertains to how they might respond to impacts,  
37 if any, of gravel mining.

38 DR. REMPEL: Sure, I'll speak first. I think this is  
39 an exciting realm of research, looking into these  
40 river-type sockeye. We've identified that from a  
41 genetic point of view, they have a higher level of  
42 differentiation than lake-type sockeye. They tend  
43 to show more of this flexible strategy that from a  
44 conservation point of view and a basic research  
45 point of view, I think it's very exciting and  
46 informative.

47 What it suggests, though, I think to us is

1 the flexibility lends that ecotype in these river-  
2 type populations, a higher level of adaptability  
3 and tolerance to such things as sediment  
4 management, because they are able to exploit a  
5 range of habitats. They don't show necessarily  
6 the high level of fidelity to either spawning  
7 areas or rearing habitats, and this genetic  
8 differentiation sort of explains that, in that  
9 they haven't had a long-term fidelity to locations  
10 or habitats. That, we see, as lending themselves  
11 a more adaptive strategy.

12 Q Thank you.

13 MR. SPIEGELMAN: I realize I was remiss in getting Tab  
14 2 of my list, the 1999 paper. I didn't get it  
15 marked as an exhibit, so I wonder if I may.

16 THE REGISTRAR: Exhibit 1088.

17  
18 EXHIBIT 1088: Document entitled, "Sediment  
19 Transport Along the Lower Fraser"  
20

21 MR. SPIEGELMAN: Thank you.

22 DR. ROSENAU: You were still looking for a response  
23 from me as well?

24 MR. SPIEGELMAN:

25 Q If you have one.

26 DR. ROSENAU: Well, I guess my view is - and just to  
27 provide kind of an empirical perspective of our  
28 understanding of the gravel reach, gravel mining  
29 and the ecosystem - roughly five years ago the  
30 senior manager that was involved - he's long gone  
31 now - was quite dismissive of the gravel reaches  
32 being anything more than pink salmon habitat.  
33 It's now recognized in the authorizations the  
34 complex and rich nature of the gravel reach and  
35 that is a very large step forward with respect to  
36 gravel mining and the importance of this fish  
37 habitat.

38 I would point out, however, I still believe,  
39 or it is my opinion, that we really do not  
40 understand the role of the gravel reach, vis-à-vis  
41 the sockeye, particularly since the BCIT studies  
42 suggest that the key time period that the riverine  
43 sockeye are using the gravel reach is during these  
44 peak freshet, very difficult periods to sample and  
45 to examine scientifically.

46 So those high-top gravel bars again, in my  
47 view, might provide a very key aspect to these

1 admittedly small populations but potentially  
2 genetically important populations.

3 Q Thank you. I do have a couple of questions for  
4 you on those BCIT studies. I think you said that  
5 the sampling didn't actually occur in the gravel  
6 reach; is that correct?

7 DR. ROSENAU: No, they occur in the gravel reach, but  
8 in the off-channel habitat. So just to give you  
9 kind of a visual perspective, as the water comes  
10 up, the fish start to move away from the gravel  
11 bars because they either are no longer existent,  
12 they are flooded over, or the water is too swift  
13 for them to live along the margins, so they move  
14 out into the floodplain and live in these off-  
15 channel habitats for a while. And then it appears  
16 they move back into the main river. Maybe they go  
17 straight down to saltwater in the estuary, or  
18 perhaps they live within the perimeter of the  
19 gravel bar. Certainly some of them do, because we  
20 find them during the winter and during the lower  
21 flow periods.

22 Q Right. But none of the studies that you were  
23 referring to actually sampled where gravel  
24 extraction is active or contemplated; is that  
25 correct?

26 DR. ROSENAU: Well, not currently, but as I pointed out  
27 that one site that my students did this year was a  
28 large gravel mine. In fact in 1986 or '87, gravel  
29 was taken out of there, but it was off the main  
30 stem site. It wasn't a gravel bar type habitat.

31 Q And so just following that thought, the  
32 rehabilitated gravel mine was found to be quite a  
33 suitable habitat for fish as a result of the  
34 sampling that they undertook in that.

35 DR. ROSENAU: Well, they found a lot of carp. I would  
36 say that that's not particularly suitable. It  
37 certainly was not the riparian habitat that was  
38 there prior. So I guess it's a judgment call as  
39 to whether or not it was suitable or not.

40 MR. SPIEGELMAN: Paragraph 10 of the PPR, Mr. Lunn,  
41 please.

42 Q This paragraph 10 states that:

43  
44 One stewardship group reported to the  
45 Department -substantial numbers of juvenile  
46 stream-rearing sockeye in the gravel reach  
47 ...conducted in November 2008.

1  
2 I understand that that was actually conducted in  
3 2007; is that correct?  
4 DR. ROSENAU: Yes. There was an error in dates there.  
5 I'm not sure who made the mistake, but it was  
6 2007.  
7 Q Fair enough. And you were part of that sampling  
8 effort; is that also correct?  
9 DR. ROSENAU: Yes, that's correct.  
10 Q Now, we had Exhibit 1073 which was the report that  
11 you sent to DFO as a result of that sampling  
12 effort, and I think yesterday you said you found  
13 13 juvenile sockeye that day?  
14 DR. ROSENAU: That's correct.  
15 Q And two out of the ten sets that you made that  
16 day, managed to find a sockeye, correct?  
17 DR. ROSENAU: That's correct.  
18 Q So I guess the term "substantial" is open to some  
19 interpretation, but that was based on one day  
20 sampling?  
21 DR. ROSENAU: Yeah, I would say the word "substantial"  
22 -- I'm not sure whether I used it or who used it,  
23 but substantial is probably not the correct word.  
24 Q Okay.  
25 MR. SPIEGELMAN: Can I get Exhibit 1072, please?  
26 Q This is the email that enclosed the report from  
27 your 2010 sampling, and I note that it was  
28 transmitted to DFO on December 13th, 2010. Is  
29 there a reason for a three-year delay in providing  
30 exciting new results to the Department?  
31 DR. ROSENAU: Well, it's just we have a lot to do and  
32 that was the reason for the delay. It was my  
33 fault.  
34 MR. SPIEGELMAN: Okay. Now, if I can just go to the  
35 second email down in this chain, Mr. Lunn?  
36 Q I note that it states here -- this is an email  
37 also from you:  
38  
39 Key to the work is an undertaking of  
40 examining the extent of Maria Slough  
41 sockeye...rearing on Tranmer Bar.  
42  
43 Is it fair to say that you went out that day  
44 looking for sockeye?  
45 DR. ROSENAU: Yes, that was the objective because we  
46 had seen sockeye in 2007, and so the objective was  
47 to confirm, just to go back to the same site and

1 see if they were still there. And we were quite  
2 clear that the Commission was up and running and  
3 so we felt that it was important to try and put  
4 all the pieces together.  
5 Q So in terms of your results on that day in 2010,  
6 as well as in 2007, to a lesser degree, but in  
7 terms of a sampling design trying to get a  
8 representative sample of how sockeye may use the  
9 reach generally, a targeted sampling effort  
10 couldn't be said to be representative of the  
11 overall reach; is that correct?  
12 DR. ROSENAU: That's correct. It was not intended to  
13 be representative in the least.  
14 Q Thank you.  
15 MR. SPIEGELMAN: Now, if I could pull up 1074, please.  
16 Q This is the submission you prepared summarizing  
17 your 2010 sampling results. I'm correct in that,  
18 right?  
19 DR. ROSENAU: It was basically an abstraction from the  
20 Otto Langer report and so it was quickly done, but  
21 yeah, the words, I take full credit for them.  
22 MR. SPIEGELMAN: Now, can I go to page 15 of this,  
23 please?  
24 Q This is where you set out the catch for your  
25 sampling effort that day, and as I read it, you  
26 found five sockeye that day; is that right?  
27 DR. ROSENAU: That's correct.  
28 MR. SPIEGELMAN: And if we could just go to the  
29 previous page, down a little bit.  
30 Q There they are, the five sockeye that you found.  
31 Is that right?  
32 DR. ROSENAU: That's correct.  
33 Q Okay. So you went out sampling looking for  
34 sockeye in the place that you expected most to  
35 find them. And in a day of sampling, you found  
36 five, correct?  
37 DR. ROSENAU: Well, we didn't sample Tranmer for the  
38 full day. But for this Tranmer sampling, we got  
39 five, that's correct.  
40 Q Now, flipping back to page 1, the bottom paragraph  
41 of this document, you state -- it carries onto the  
42 next page:  
43  
44 The key finding relating to Cohen  
45 Commission...was that this species uses  
46 gravel reach habitat significantly more than  
47 Fisheries and Oceans Canada (DFO) has hitherto

1                   recognized, and the failure is due to a lack  
2                   of appropriate sampling effort.  
3

4                   Dr. Rempel, did the results of this sampling  
5                   exercise or the contents of this report represent  
6                   new information for DFO?

7       DR. REMPEL: DFO certainly recognized the value of  
8                   receiving the information and we're very thankful  
9                   for the efforts Dr. Rosenau and his group made to  
10                  provide them to us. I don't think they are new in  
11                  that they're entirely consistent with the findings  
12                  I found from my Ph.D. thesis which had a  
13                  considerably larger sample effort, almost 100  
14                  times more sampling effort, where we found, in  
15                  over approximately 44,000 fish, we found about 200  
16                  sockeye. So the findings were consistent and not  
17                  new, but we certainly appreciated receiving them  
18                  in the context of the review proposal that we were  
19                  reviewing.

20       Q       Thank you.

21       MR. SPIEGELMAN: Can I call up Tab 9 on Canada's list,  
22                  please? Sorry, this is, once again, the wrong --  
23                  my apologies. Tab 14, my apologies. No, that's  
24                  not it either. It's Tab 7, last try. Otherwise  
25                  I'll move on. There we go.

26       Q       This is an email correspondence between you, Dr.  
27                  Rempel, and other stock assessment scientists at  
28                  DFO. Can you just really briefly explain the  
29                  context and content of this email for us?

30       DR. REMPEL: Sure. So the email -- I put out an  
31                  information request to some of our sockeye experts  
32                  within DFO, both in the Science branch and in the  
33                  Stock Assessment branch, to just ensure that I  
34                  fully understood the context of Dr. Rosenau's  
35                  sampling results, finding sockeye on Tranmer Bar.  
36                  Because, just for context, Tranmer Bar was a site  
37                  where a proposal for gravel mining was to occur  
38                  for 2011.

39                  I wanted to better understand what the origin  
40                  of those sockeye might be and to appreciate  
41                  whether there's a possibility for an actual  
42                  spawning run of sockeye in the Maria Slough which  
43                  borders on Tranmer Bar.

44                  What the expert, I guess, input I received  
45                  from these DFO stock assessment folks and  
46                  scientists was, I guess, summarized in this email  
47                  here, that -- I'm just looking for a sentence that



1           might say it more articulately than I can:  
2

3                     I am confident that we would have detected a  
4                     persistent population...  
5

6           In that area had it existed. That's the final  
7           sentence of that top email.

8                     So that the sightings of spawning sockeye in  
9           the vicinity of Tranmer Bar are more likely to be  
10          strays from other populations. Further down in  
11          the email, Dr. Chris Wood suggests that -- I  
12          believe he suggested in the email; if not, he  
13          suggested it to me directly in conversation --  
14          that this is uncharacteristic of these river-type  
15          sockeye where they're sort of opportunistic in the  
16          sense that they seek out habitat that's favourable  
17          in that year for spawning and utilize it for  
18          spawning and then move into rearing habitats as  
19          young as they find them opportunistically in their  
20          downstream migration.

21          Q          And this information that you gathered through  
22          this inquiry was incorporated into the 2011  
23          screening report that was marked as Exhibit 1081;  
24          is that right?

25          DR. REMPEL: That's right. This information as well as  
26          the findings from Dr. Rosenau are incorporated.

27          Q          Thank you.

28          MS. BAKER: Mr. Commissioner, I hate to do this to my  
29          friends but I don't know how much more you had  
30          planned to cover, but you're at the end of your  
31          time.

32          MR. SPIEGELMAN: I'm finished. Thank you.

33          MS. BAKER: Okay.

34          THE REGISTRAR: I'm sorry, you --

35          MR. SPIEGELMAN: Oh, yeah. One last thing, I'll mark  
36          that email as an exhibit.

37          THE REGISTRAR: That will be marked as 1089. Before we  
38          break, we've noticed that Exhibit 741 and 1053 are  
39          identical including the CAN number. So those will  
40          be cross-referenced on the record.  
41

42                     EXHIBIT 1089: Email between Laura Rempel and  
43                     DFO sockeye experts  
44

45          THE COMMISSIONER: And, I'm sorry, you mentioned this  
46          information was incorporated into what document?

47          MR. SPIEGELMAN: The Exhibit 1981, the screening report

1 for 2011.

2 THE COMMISSIONER: Thank you very much. We'll take the  
3 break. Thank you.

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

6

7 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)

8 (PROCEEDINGS RECONVENED)

9

10 THE REGISTRAR: The hearing is now resumed.

11 MR. PROWSE: Yes, Mr. Commissioner, Cliff Prowse from  
12 the Province of British Columbia. I intend to be  
13 very brief. Mr. Lunn, could you please turn up  
14 Exhibit 12, please?

15 MR. LUNN: Certainly.

16 MR. PROWSE: Yes, and at page 12 of that report, there  
17 should be a graph.

18 MR. LUNN: Is that it?

19

20 CROSS-EXAMINATION BY MR. PROWSE:

21

22 Q So with respect to the Harrison sockeye, this  
23 graph indicates that there has been an increase in  
24 productivity over the last period of time, showing  
25 quite a spike at the right-hand side of the lower  
26 graph; is that correct? I'll ask that to Dr.  
27 Rempel first.

28 DR. REMPEL: Sure. I'm not the author of this, but I  
29 believe it to be true, to the best of my  
30 knowledge.

31 Q All right. Dr. Rosenau, any comment on that?

32 DR. ROSENAU: You're referring specifically to the blue  
33 graph that says "Harrison"?

34 Q That's correct.

35 DR. ROSENAU: It seems reasonable.

36 Q Thank you. My second question is, Dr. Rempel, you  
37 indicated that there was \$300,000 that had been  
38 found for sturgeon research as a matter of  
39 priority, to your knowledge?

40 DR. REMPEL: Yeah, that's an estimate. It's somewhere  
41 in that ballpark that the province --

42 Q And is that a priority that you, as a member of  
43 the Technical Committee, support?

44 DR. REMPEL: It is, yes.

45 Q So Dr. Rosenau, my question to you is if you had  
46 to allocate \$300,000 for research and you had to  
47 choose between sturgeon and Fraser River sockeye

1 salmon, how would you allocate that \$300,000?  
2 DR. ROSENAU: Are you asking that in recognition that  
3 I'm a member of the Fraser River Sturgeon  
4 Conservation Society and I'm on the Science Board,  
5 or the Science Committee of that society? Is that  
6 the context?  
7 Q I think the context is that the Technical  
8 Committee seems to think that sturgeon is the  
9 species that's really most at play with respect to  
10 this gravel removal issue at this bar. And I'm  
11 asking you whether you agree or disagree that if  
12 there has to be a choice, that sturgeon is where  
13 the research fund should go?  
14 DR. ROSENAU: Well, if I may, I would like to put the  
15 sturgeon research into context. That money just  
16 came into being last year for the first time,  
17 despite the fact that gravel removal had taken  
18 place in a major way since the mid-2000s and  
19 sturgeon had not had any money allocated at all.  
20 And a lot of people had said we needed some money.  
21 So in the fact that sturgeon had been left behind,  
22 way behind, I would say that the priority would be  
23 sturgeon at this time, but that wouldn't diminish  
24 the requirement for sockeye to be assessed, as  
25 well.  
26 MR. PROWSE: And Mr. Lunn, could you please turn to  
27 paragraph 19 of the PPR, which, I think, is 16,  
28 the current PPR, the gravel PPR?  
29 Q So the context from paragraph 19 is that there was  
30 a stranding that took place in 2010.  
31 MR. PROWSE: If we could turn, then, to -- Mr. Lunn, to  
32 Tab 25 of the Province's production list for this  
33 hearing? All right.  
34 Q Dr. Rempel, this is, I understand it, the post-  
35 construction monitoring report that was done with  
36 respect to December 2010 construction. Are you  
37 aware of this report?  
38 DR. REMPEL: I am.  
39 Q And were you involved in seeing that this report  
40 was done?  
41 DR. REMPEL: Correct, yes.  
42 MR. PROWSE: And if we turn to page 4, Mr. Lunn?  
43 Q Yes, so the table indicates the extent of the fish  
44 salvage that was done between November 2010 and  
45 January 2011?  
46 DR. REMPEL: Correct.  
47 Q And so it shows six sockeye out of 2,100 and the

1 total?

2 DR. REMPEL: That's right.

3 Q All right.

4 MR. PROWSE: Those are my questions, Mr. Commissioner.

5 THE COMMISSIONER: Thank you, Mr. Prowse.

6 MR. LEADEM: Thank you, Mr. Commissioner. Leadem,  
7 initial G., appearing as counsel for the  
8 Conservation Coalition.

9 MR. PROWSE: I'm sorry. I apologize, Mr. Leadem.

10 MR. LEADEM: Oh.

11 MR. PROWSE: Ms. Gaertner was kind enough to bring to  
12 my attention that I failed to mark the last  
13 document as an exhibit. Might that be the next  
14 exhibit, then, please?

15 THE REGISTRAR: That will be 1090.

16 MR. PROWSE: Thank you very much. Thank you.

17

18 EXHIBIT 1090: Environmental Monitor's 30 Day  
19 Post-Construction Report for the December  
20 2010 Outlet Channel Construction at Little  
21 Big Bar, Fraser River

22

23 MR. LEADEM: Thank you, Mr. Commissioner.

24

25 CROSS-EXAMINATION BY MR. LEADEM:

26

27 Q I want to begin our discussion by examining the  
28 letter which I believe has been marked as Exhibit  
29 1085, the letter that Dr. Church wrote to not  
30 necessarily accompany his report, but perhaps  
31 contain some personal reflections on his part.  
32 Both of you are familiar with that letter, are  
33 you?

34 DR. ROSENAU: I am.

35 DR. REMPEL: I am.

36 Q And I want to start by -- and you have utmost  
37 respect for Dr. Church, you recognize him as an  
38 expert in this field of sediment removal,  
39 particularly with respect to the gravel reach, do  
40 you not, Dr. Rempel?

41 DR. REMPEL: I do.

42 Q And Dr. Rosenau?

43 DR. ROSENAU: I do.

44 Q So I found this letter quite instructive because  
45 it tries to put into a certain perspective some of  
46 the issues and the problems that have beset this  
47 issue over the years. And I want to refer to the

1 letter right at the last paragraph first, and then  
2 I want to take you up into the body of the letter  
3 after that. And so it appears from my reading of  
4 this letter that Dr. Church says at the  
5 penultimate paragraph that:  
6

7 I have written this supplementary letter to  
8 indicate that there is substantial discomfort  
9 in the relevant technical community over the  
10 current trajectory of the sediment management  
11 program, variously expressed as concern that  
12 the program cannot attain the expected goals,  
13 and that insufficient cognisance is being  
14 taken of ecological issues.  
15

16 And I'm going to ask both of you whether or not  
17 you agree with that concept, that there's been  
18 insufficient cognisance taken of ecological issues  
19 with respect to this issue of gravel extraction?  
20 Dr. Rosenau?

21 DR. ROSENAU: I would agree and that is consistent with  
22 a number of documents that have been submitted to  
23 the Commission, including the G3 report that was  
24 discussed a little bit earlier, the Auditor  
25 General's comments on gravel removal, which was  
26 also within the binder that I was given, and the  
27 Technical Committee, March 14th, 2011, basically  
28 reiterate this issue that there's a real problem  
29 with the sapling program and associated issues.

30 Q And Dr. Rempel, turning to you, do you agree with  
31 that there's been insufficient cognisance taken of  
32 the ecological issues that may arise as a result  
33 of the gravel extraction program?

34 DR. REMPEL: I agree that there's an insufficient level  
35 of information for biologists such as myself to  
36 fully assess the potential impacts of this  
37 program, but depending on how, I think, you read  
38 this, I do believe that the Department is working  
39 with what information is available to the best of  
40 our ability to make decisions that minimize  
41 impacts to fish and fish habitat.

42 Q Yes, and I certainly don't fault you for that, but  
43 I would put it to you further that a precautionous  
44 approach to this whole issue would be fundamental  
45 to making sure that we're not disrupting the  
46 environment to such a significant extent that it  
47 may, in fact, be impacting sockeye salmon, and

1 specifically in this Commission's case?

2 DR. REMPEL: I agree that a precautionary approach  
3 would perhaps require us to step back and  
4 reconsider the program and how it's being  
5 conducted, but the layer, I guess, that we haven't  
6 really brought out yet is that this program is  
7 being conducted as a public safety program and  
8 it's outside of DFO's expertise to determine  
9 whether gravel mining will address the flood  
10 hazard, but our provincial counterparts with  
11 expertise in flood management have told us that in  
12 no uncertain terms, that gravel mining is a  
13 requirement of their public safety programming.  
14 So that layer, I think, we have to understand that  
15 we're looking at this program through that lens.

16 Q Yes. And Dr. Church, in the body of his letter  
17 and report, as well, but I'll focus on the letter,  
18 actually refers to that issue. If we examine  
19 page 1 of the letter, for example, and he talks  
20 there, in the third paragraph down, he says:

21  
22 The core problem with sediment in the gravel-  
23 bed reach is not associated with the average  
24 rate of aggradation along the reach ...  
25

26 And he then has some comments in brackets:

27  
28 ... but with the local accumulation of  
29 sediment, which raises water levels at  
30 certain locations along the reach (by more  
31 than a metre in the same period).  
32

33 And then he goes on to say:

34  
35 The purpose of the program, presumably, is to  
36 mitigate the metre scale rises and the public  
37 perception that has been encouraged by the  
38 program is that individual gravel removals  
39 can address this problem and significantly  
40 affect river water levels locally. Hence, if  
41 there are local problems associated with a  
42 low dyke or with perceived gravel buildup,  
43 then gravel removal in the vicinity of the  
44 problem will solve it --  
45

46 And he says:  
47

1                   -- (in my report, this is referred to as  
2                   "profile control").  
3

4                   And then he goes on saying, and this is the  
5                   crucial paragraph:  
6

7                   However, we know from substantial experience  
8                   that individual sediment removals short of  
9                   the order of a million cubic metres will not  
10                   substantially affect local water levels in  
11                   the short term.  
12

13                   And neither of you can dispute that, can you? I  
14                   mean, you take it that Dr. Church is accurate when  
15                   he says that? Is that fair to say?

16 DR. REMPEL: Yeah, I fully agree. Yeah.

17 DR. ROSENAU: I would suggest that based on the  
18                   engineering reports that I've seen and managed,  
19                   that statement is correct. I would question the  
20                   metre rise, though, because none of the  
21                   engineering reports, the hydraulic reports that  
22                   I've seen suggest a metre rise, but maybe he's  
23                   seen something that I haven't seen.

24 Q               All right. He goes on to say:

25                   ... sediment removal on such a scale --

26                   Such as a million cubic metres:

27                   -- would very significantly disrupt the  
28                   aquatic ecosystem.  
29

30                   Both of you would certainly agree with that  
31                   concept, as well, correct?  
32

33 DR. ROSENAU: That's correct.

34 DR. REMPEL: Correct.

35 Q               And, Dr. Rempel, on behalf of DFO, you're  
36                   certainly not going to authorize a large-scale  
37                   removal of gravel from the Fraser River in that  
38                   magnitude, would you?  
39

40 DR. REMPEL: Well, the decision whether or not to  
41                   authorize removal doesn't sit with me. I'm  
42                   thankful for that. But yeah, I --  
43

44 Q               But as a scientist, you certainly would not be  
45                   providing advice to the people who are making the  
46                   decision that you can issue an authorization to  
47                   removal gravel at that magnitude without

1           considerably, significantly disrupting the  
2           ecosystem and the fishery values in that area?  
3   DR. REMPEL: Well, so far DFO has never received a  
4           proposal for removal of the sort of magnitudes Dr.  
5           Church is referring to.  
6   Q       Right. Now, I want to move on from there, from  
7           our comments about Dr. Church, to some of the  
8           documents that I want to tender through one of the  
9           witnesses.  
10  MR. LEADEM: And if I could have Conservation Coalition  
11           document number 10 pulled up on the screen,  
12           please?  
13  Q       This is a report entitled, "Review of DFO Actions  
14           and Decisions on Gravel Removal on the Lower  
15           Fraser River as Related to the 2007-2008 Spring  
16           Bar Project." It's authored by Mr. Otto Langer.  
17  MR. LEADEM: For the record, Mr. Commissioner, Mr.  
18           Langer is one of my clients. He is the only  
19           individual within the Conservation Coalition. And  
20           furthermore to the record, I had indicated to  
21           Commission counsel that I wanted specifically to  
22           have Mr. Langer present evidence on this topic  
23           amongst other topics relating to habitat.  
24  Q       So my question to you, Dr. Rosenau, was are you  
25           familiar with this particular report?  
26  DR. ROSENAU: I've seen it.  
27  Q       And have you read it and are you in a position to  
28           agree with the contents of the report?  
29  DR. ROSENAU: I would say generally, yes. There maybe  
30           the odd sentence that I might have an issue with,  
31           but generally, yes, I do.  
32  Q       All right.  
33  MR. SPIEGELMAN: I rise. Sorry for the interruption.  
34           This report purports to be some kind of an  
35           analysis of some documents that an individual  
36           who's not here today to face cross-examine  
37           allegedly prepared for some purpose by the date --  
38           I'm guessing it was for submission to this  
39           Commission. I'm not sure what the relevance is  
40           and I can wait for questions to object further,  
41           but I will object to this going into evidence as  
42           an exhibit because it's hearsay and if my friend  
43           feels there's relevant documents that were  
44           obtained by Mr. Langer in his ATIP request, I  
45           invite him to tender those documents and not  
46           hearsay analysis by someone who can't face cross-  
47           examination.



1 MR. TYZUK: Boris Tyzuk for the Province. We, too,  
2 object to the introduction of this document into  
3 evidence for the reasons that were expressed by  
4 counsel for Canada.

5 MR. LEADEM: Mr. Commissioner, I'm in your hands.  
6 Essentially, I want to tender this document.  
7 We've had evidence now from Dr. Rosenau that he's  
8 read the report and he says he generally agrees  
9 with the contents. In that way, it's no different  
10 from any scientific report, or any report prepared  
11 by an individual that might not be able to come to  
12 the Commission. I mean, for example, if I had an  
13 author report by Dr. Scott Hinch and put it to  
14 these witnesses and Scott Hinch were not coming  
15 back to this Commission to testify as to it, I  
16 don't think that people would be objecting to it  
17 so much. I mean, it's coming from Mr. Otto  
18 Langer. I would like to call him to actually  
19 present evidence. In lieu of that, I'm trying to  
20 tender this report, and I will make a formal  
21 motion now to tender the report through the  
22 witness who's identified it and has adopted it  
23 generally.

24 THE COURT: Are there any other counsel? Ms. Gaertner?

25 MS. GAERTNER: I haven't read the report, Mr.  
26 Commissioner, but I do say that there have been  
27 many, many reports in this inquiry that have been  
28 tendered in exactly the way Mr. Leadem is asking  
29 this be done so I don't see how there would be an  
30 exception with respect to this report.

31 MR. SPIEGELMAN: With respect, there's a bit difference  
32 between a scientific report that is produced in a  
33 forum that has a purpose that's not this  
34 Commission and a report that is -- or a review of  
35 materials obtained by an ATIP request that  
36 basically has excerpts of materials allegedly  
37 taken from ATIP's documents from DFO, and then an  
38 individual's editorializing on the contents of  
39 those documents put forward for the truth of their  
40 contents. I think that it's hearsay and it's  
41 unfortunate, arguably, that the author is not here  
42 to face cross-examination on his allegations in  
43 this report, but in light of the fact that he's  
44 not here, this document is hearsay and  
45 inadmissible in my submission. Thank you.

46 THE COMMISSIONER: Mr. Tyzuk?

47 MS. BAKER: I don't have anything to add, except to

1 just note that hearsay is not a reason to exclude  
2 documents in this particular form, it's simply a  
3 question of weight, but I'll let my friends argue  
4 about the relevance of this document.

5 MR. TYZUK: Commissioner, one of the issues is that in  
6 going through some of these reports, and it's  
7 really the nature of the editorializing that we  
8 have here which is of the concern in this. Again,  
9 we don't see it all, but you've got comments here  
10 where -- if we turn to page 18, this is just a  
11 flavour where there's a reference to part of an  
12 extraction on December 13, at the bottom of page  
13 17, refers to a report, and then the  
14 editorializing on the top of page 18 says:

15  
16 Why would DFO tell the Seabird ... to contact  
17 MOE to ensure habitat ... is conducted ...  
18 when that's a DFO responsibility ... Did DFO  
19 illegally attempt to delegate ...  
20

21 Well, that's sort of the flavour of the thing,  
22 sir, and we're saying that, really, if he wants to  
23 be here to defend that, but this is very different  
24 from the other types of reports that have been  
25 tendered through this, or a scientific report, or  
26 a summary of what a program may be. This is a  
27 really an attempt at a submission in some ways,  
28 using excerpts of documents, not the whole  
29 documents.

30 MR. LEADEM: Mr. Commissioner, I'm in your hands. I  
31 mean, obviously, if I had my druthers, I would  
32 have Mr. Langer here and he could speak to the  
33 issue, but in lieu of that, I mean, I'm in your  
34 hands in terms of how we proceed.

35 Yes, it's admittedly hearsay. The probative  
36 value of it can be assessed by you, I would  
37 respectfully suggest, and you can deal with it on  
38 that basis.

39 THE COMMISSIONER: Thank you very much to you, Mr.  
40 Leadem and to the other counsel. I think the  
41 solution so we can move forward is to permit this  
42 document to be marked for identification purposes.  
43 You will then be permitted to ask questions of the  
44 witnesses about the document and that still leaves  
45 counsel in the room to raise an objection to your  
46 specific question if they feel that it's not a  
47 fair question to put to these witnesses, or for

1           some other reason, they want to put an objection  
2           on the record.

3           And then in due course, when it comes time  
4           for submissions, I can receive submissions about,  
5           first of all, whether the document should be  
6           marked as an exhibit and otherwise, how much  
7           weight I ought to attach to the document or to the  
8           answers given based on the document.

9           MR. LEADEM: All right. Thank you.

10          THE REGISTRAR: That document will be marked as CC,  
11          double C.

12  
13                   CC FOR IDENTIFICATION: Report entitled,  
14                   "Review of DFO Actions and Decisions on  
15                   Gravel Removal on the Lower Fraser River as  
16                   Related to the 2007-2008 Spring Bar Project,"  
17                   by Mr. Otto Langer

18

19          MR. LEADEM:

20          Q     Dr. Rosenau, just dealing with the provisions of  
21                what we've now marked as Exhibit CC for  
22                Identification, there's headings and I'm going to  
23                scroll through very quickly. There's a heading,  
24                "Introduction of the ecological geomorphological  
25                setting." You follow it through, there's a  
26                heading about historical overview. Keep on going  
27                down, "Recent history of mining in the 'Gravel  
28                Reach' of the Lower Fraser River." It deals with  
29                some fact presentation. And "Present Situation,"  
30                under 1.3, and then ending just before, "The ATIP  
31                file review of DFO actions and decisions."

32                All right. Now, in your review of the  
33                report, given the historical context, most of the  
34                statements, or if not all of the statements  
35                attributable by Mr. Langer with respect to the  
36                historical contents, are those true, to your  
37                knowledge?

38          DR. ROSENAU: To be honest, you'd have to point out  
39                specific statements. I think I need to have a  
40                statement in front of me to agree or not agree.

41          Q     Okay.

42          MR. LEADEM: Well, in the interests of time, Mr.  
43                Commissioner, because I am very limited in terms  
44                of the time and I have a lot more to cover with  
45                this panel, I'm going to move on and I'll deal  
46                with my issues with respect to marking this as the  
47                case may be. I'm going to ask to be pulled up

1 Conservation Coalition document number 19. And I  
2 expect I may get some similar suggestions along  
3 this line, and it's a note for submission to the  
4 Cohen Commission entitled, "Juvenile Sockeye Use  
5 of the Lower Fraser River and its Estuary," also  
6 composed by Mr. Otto Langer.

7 Q And my first question to you, Dr. Rosenau, is have  
8 you read this report?

9 DR. ROSENAU: I have glanced through it. I don't think  
10 I read it in detail, but I have scanned through  
11 it, yes.

12 Q All right. From your brief perusal of the report,  
13 does it tend to corroborate your knowledge with  
14 respect to juvenile sockeye use of the Lower  
15 Fraser River and its estuary?

16 DR. ROSENAU: In terms of river run sockeye, from  
17 recollection, it's generally correct, yeah. And I  
18 think you have to discriminate between the lake  
19 reared smolt-sized fish versus the fish that rear  
20 within the river, within Georgia Strait, within  
21 their first year, also known as river run sockeye,  
22 or river-rearing sockeye.

23 MR. LEADEM: All right. I'm going to ask that this be  
24 marked as the next exhibit.

25 MR. SPIEGELMAN: I'm going to put an objection on  
26 record on the same basis as my last one. This is  
27 hearsay. The witness says he hasn't read it in  
28 any detail and can't adopt its contents. I'm not  
29 sure what the probative value of it is. If  
30 there's particular points to be asked of these  
31 expert witnesses, my friend is free to ask  
32 questions that draws on their knowledge and  
33 experience. Thank you.

34 MR. TYZUK: And the Province takes the same position.

35 THE COMMISSIONER: Again, counsel, I haven't read the  
36 document, myself, so I'm not familiar with the  
37 content, but I think the appropriate step is to  
38 give this a letter for identification, and I can  
39 still receive submissions from counsel as to  
40 whether it ought to be admitted into the body of  
41 evidence, or if it is admitted, how much weight  
42 ought to be attached.

43 MR. LEADEM: All right.

44 THE REGISTRAR: That document will be lettered as DD,  
45 double D.

46  
47 DD FOR IDENTIFICATION: Report entitled,

1 "Juvenile Sockeye Use of the Lower Fraser  
2 River and its Estuary," by Otto Langer  
3

4 MR. LEADEM: Conservation Coalition document number 23,  
5 please? This is a document also authored by Otto  
6 Langer, "Inspection of Gravel Bars in the Lower  
7 Fraser Gravel Reach and Commentary on Recent Past  
8 Mining Impacts," dated December 17, 2010. Now, I  
9 think that this document might be a bit different  
10 than the other two, and let me pursue that with  
11 Dr. Rosenau.

12 Q Were you familiar with this document, Dr. Rosenau?

13 DR. ROSENAU: Yes, I helped Otto edit and, in fact,  
14 some of the stuff, some of the material in this  
15 document is mine, or I provided it to him, and the  
16 document that I wrote that was referred to in  
17 earlier cross-examination was largely taken out of  
18 this document, including some of the errors.

19 Q All right.

20 MR. LEADEM: If I can briefly pull up exhibit number  
21 1074, please?

22 Q Is this the report that you basically took as a  
23 result of a site visit that you made in the  
24 company of Mr. Otto Langer on December 17th, 2010?

25 DR. ROSENAU: That's correct.

26 Q And if we now flip back to the document that I am  
27 trying to get entered into evidence, is that the  
28 report upon which you base some of your report?

29 DR. ROSENAU: That's correct.

30 Q All right.

31 MR. LEADEM: Might this be marked as the next exhibit,  
32 please?

33 THE REGISTRAR: Exhibit 1091:  
34

35 EXHIBIT 1091: Report entitled, "Inspection  
36 of Gravel Bars in the Lower Fraser Gravel  
37 Reach and Commentary on Recent Past Mining  
38 Impacts," dated December 17, 2010, by Otto  
39 Langer  
40

41 MR. LEADEM: If I could have Commission document number  
42 26, please?

43 THE COURT: I'm sorry, did you say Commission document?

44 THE REGISTRAR: Commission, yes. It's already marked  
45 as Exhibit 735.

46 MR. LEADEM: Thank you. I thought it had been, but I  
47 wasn't too sure.

1 Q Dr. Rosenau, are you familiar with this, it's the  
2 2009 Spring Report of the Commission, or of the  
3 Environment and Sustainable Development, otherwise  
4 known as the Auditor General's Report? No, it's  
5 not that.  
6 MR. LEADEM: Conservation Coalition document number 26.  
7 That's it. Thank you, Mr. Lunn.  
8 THE COMMISSIONER: What tab is that, Mr. Lunn?  
9 MR. LUNN: 26. Conservation Tab 26.  
10 THE COURT: 26, thank you.  
11 MR. LEADEM:  
12 Q Dr. Rosenau, earlier in your evidence, I heard you  
13 make mention of the Auditor General's Report with  
14 respect to removal of gravel and scrolling through  
15 this, is that the Auditor General's Report dealing  
16 with observations or recommendations protecting  
17 fish habitat, and there's a reference there to a  
18 case study. If you scroll own, case study number  
19 1.1, Fraser River Gravel Removal Plan Agreement,  
20 is that the Auditor General's Report that you had  
21 in mind?  
22 DR. ROSENAU: I think that's the same one that's -- the  
23 format is different --  
24 Q Yes?  
25 DR. ROSENAU: -- but I think it's the same. And one of  
26 the tabs has the Auditor General's Report.  
27 Q Yes.  
28 DR. ROSENAU: And if it's the same one, then yeah, I am  
29 familiar with it.  
30 Q Okay. If we could just scroll to the next page  
31 because I think this is an excerpt from that  
32 report.  
33 MR. LEADEM: And Mr. Commissioner, for your  
34 edification, the title page of the Auditor  
35 General's Report, I believe that we may have  
36 already marked this as an exhibit way, way back in  
37 October or November.  
38 MS. BAKER: 35.  
39 MR. LEADEM: Thank you. Because I recollect putting  
40 this particular document to the witnesses on the  
41 Deputy Minister Panel.  
42 Q And the excerpt here is actually case study  
43 number 1, the Fraser River Gravel Removal Plan  
44 Agreement, and so what should follow is actually  
45 just the excerpt from that. Is that the report  
46 that you refer to emanating from the Auditor  
47 General's Office?

1 DR. ROSENAU: Yeah, it looks like it. Yeah.

2 Q All right.

3 MR. LEADEM: I believe that this is embodied within  
4 Exhibit 35, Mr. Commissioner, so I'm not seeking  
5 to tender this outside of the confines of  
6 Exhibit 35.

7 Q Now, the questions that were put to you by my  
8 learned colleague, Mr. Spiegelman, dealt with, in  
9 part, only one percent of the total of sockeye  
10 population is reflected by the riverine variety,  
11 as opposed to the lacustrine variety. Do you  
12 recall that evidence or those questions being  
13 asked of you, Dr. Rempel and Dr. Rosenau?

14 DR. ROSENAU: I do.

15 DR. REMPEL: I do.

16 Q All right. And I'm going to --

17 DR. ROSENAU: I guess that means we're married.

18 Q I heard that.

19 DR. ROSENAU: Sorry.

20 Q I don't think the question was to the effect --

21 DR. ROSENAU: It's okay, we're getting old.

22 Q -- do you lawfully take her. I'm not a  
23 commissioner in that respect, nor do I think Mr.  
24 Commissioner is. The question is actually even  
25 though we're only talking about one percent of the  
26 total population, if we look at it from a  
27 conservation, genetics and biodiversity  
28 perspective, that one percent can be very  
29 significant indeed in terms of the genetic  
30 diversity of the sockeye species, correct?

31 DR. REMPEL: I agree, yeah.

32 DR. ROSENAU: Yes, I have no problem with that  
33 statement.

34 Q All right. And so we should not be really just  
35 focussed upon numbers, but rather on conservation  
36 units and we know from having heard evidence from  
37 the Wild Salmon Policy about conservation units,  
38 and some of the conservation units that we've  
39 heard about, such as Weaver Creek, Harrison River,  
40 they're actually riverine conservation units. Do  
41 you know that to be a fact, Dr. Rosenau?

42 DR. ROSENAU: If I don't know it specifically from the  
43 policy statements, as a biologist, I would say  
44 that that is correct and if I can just lead on  
45 here a little bit, the issue surrounding Tranmer  
46 Bar and Mariah Slough was based on a conversation  
47 by habitat biologist, Matt Foy, who said he

1 thought the Mariah Slough fish were possibly  
2 different because the chinook in the slough are  
3 different, the coho are different, and he had  
4 observed over the years this small number of which  
5 might be stragglers, or might not be, so that's,  
6 again, the issue surrounding conservation units,  
7 these small peripheral populations in a biological  
8 sense are very key to the long-term, I'll use the  
9 word, evolutionary maintenance of these species.  
10 Q And your reference there to Matt Foy, does he have  
11 an affiliation with any group, to your knowledge?  
12 DR. ROSENAU: He is a habitat biologist with the Lower  
13 Fraser, I guess, OHEP, Oceans and Habitat  
14 Enhancement Branch.  
15 Q And is that a federal department?  
16 DR. ROSENAU: Fisheries. Department of Fisheries and  
17 Oceans, sorry.  
18 Q Thank you. Do you have any comments further to  
19 that, Dr. Rempel?  
20 DR. REMPEL: Sure, I'll just briefly add, I agree with  
21 what you said. I do think, though, in the context  
22 of this hearing today and what I believe the  
23 Commissioner is interested in, in relating the  
24 ecological value of these river-type sockeye to  
25 gravel mining, we need to keep that in mind and  
26 address what the likelihood is for potential  
27 impacts from gravel mining to these river-type  
28 sockeye regardless of how biologically and  
29 evolutionarily important they are, which I don't  
30 discount for a minute, but I think when we look at  
31 the potential impacts from removals from gravel  
32 mining to those sockeye, I think that's the basis  
33 for my position that these river-type sockeye are  
34 over-emphasized in the context of gravel mining.  
35 Q Okay. Let me put it to you this way. Can you  
36 unequivocally tell me, sitting here today as a  
37 scientist, that gravel mining is not going to  
38 impact sockeye salmon?  
39 DR. REMPEL: No, I cannot. There's not much I can  
40 unequivocally say --  
41 Q Right.  
42 DR. REMPEL: -- because there is a lot of uncertainty  
43 in this program.  
44 Q Exactly. And so really, in order to arrive at a  
45 fundamental conclusion as a scientist, you would  
46 need to have more research done into this area?  
47 DR. REMPEL: Ideally. Ideally.



1 Q And Dr. Rosenau, you would agree with that?

2 DR. REMPEL: I would agree.

3 Q And Mr. Tyzuk for the Province asked you -- or,  
4 sorry, Mr. Prowse for the Province asked you a  
5 question, and he showed you a graph, Dr. Rosenau,  
6 about the Harrison River. I'm not going to pull  
7 it up, it was the blue graph. Are you familiar  
8 with the outmigration pattern of the Harrison  
9 River sockeye?

10 DR. ROSENAU: Only the little bit that I've read, but I  
11 do understand that it is a river-rearing sockeye  
12 population, some of which goes into the Gulf of  
13 Georgia very early in its life history and almost  
14 uses the Gulf of Georgia as a lake, if you can put  
15 it that way. But yeah, the Harrison River or  
16 Harrison Rapids sockeye population is said to be a  
17 non-typical, if I can use that word, sockeye  
18 population vis-à-vis the rest of the Fraser River,  
19 or most of the rest of the Fraser River insofar as  
20 it leaves, the Harrison River goes downstream and  
21 rears in I'll call them non-natal habitats.

22 Q And does that occur, with your knowledge of that  
23 particular conservation unit, as well, Dr. Rempel?

24 DR. REMPEL: Yeah, it does.

25 Q And I'm further advised that in terms of its  
26 eventual outmigration from the Gulf, or from the  
27 Georgia Strait, that it actually exits to the Gulf  
28 of Alaska through the Strait of Juan De Fuca,  
29 rather than through the Broughton Archipelago.  
30 Does that accord with your knowledge, as well?

31 DR. ROSENAU: Are you referring to me?

32 Q Yes.

33 DR. ROSENAU: That's my understanding. There's a paper  
34 that's been written by Department of Fisheries and  
35 Oceans scientists and there's some debate in terms  
36 of the magnitude, but there appears to be a  
37 southward and westward exit through Juan De Fuca,  
38 as opposed to northward through Discovery Channel,  
39 Broughton Archipelago, as apparently do most of  
40 the I'll call them normal lacustrine style or  
41 lacustrine eco-type sockeye from the Fraser River.

42 Q Okay. And the final document I want to put to you  
43 is Conservation Coalition document number 18.

44 MR. LEADEM: If I can have that pulled up onto the  
45 screen? Now, in the interests of time, I'm going  
46 to suggest that this be marked as an exhibit and I  
47 know that Commission counsel is going to take

1 umbrage with me, and if I can just be allowed to  
2 put my position before she speaks, then I'm sure  
3 that she might even, in fact, agree with me.

4 Given the constraints of time, Mr.  
5 Commissioner, let me tell you what this is. It's  
6 essentially a comments on the Policy and Practices  
7 Report, which is an anonymously authored report,  
8 the authors of which have never been produced for  
9 cross-examination. And what Dr. Rosenau has done  
10 is he's gone through the report in fine detail and  
11 he's extracted in bold through the -- you'll see  
12 this in examining this, he's extracted in bold the  
13 actual comments contained from the PPR and he's  
14 put his comments in underneath that, page by page,  
15 and it goes through for the remainder of the body  
16 of this. And in lieu of me taking valuable  
17 Commission time and putting these sequentially to  
18 Dr. Rosenau, I'm going to suggest that it just  
19 simply be marked as an exhibit. Now, I provided  
20 notice to my learned friends that I was doing  
21 this. I provided notice a week in advance by  
22 listing this as my document. Anyone who would  
23 take umbrage with it could possibly have raised  
24 it. And if I were not so constrained, I would  
25 take the time to deliberately go through it step  
26 by step, but we are all being compressed here, Mr.  
27 Commissioner, and in my respectful submission, I  
28 would like to have it just tendered for that  
29 purpose.

30 MS. BAKER: Thank you. And the concern I have is with  
31 respect to the Policy and Practice Reports, the  
32 position of Commission counsel throughout has been  
33 that Policy and Practice Reports, if there's  
34 errors in them, they should be corrected when the  
35 witnesses are in the stand. If there's  
36 submissions to be made on the Policy and Practice  
37 Reports that are not related to evidence, but  
38 simply contextual commentary, that that should be  
39 dealt with in final submission and we made a very  
40 conscious and clear decision on this and have  
41 communicated it and maintained this position  
42 throughout the hearings that we won't receive  
43 written submissions separately throughout on the  
44 PPR. And I know that different parties have  
45 prepared documents like this and we have  
46 consistently refused to put them into evidence for  
47 that reason. So in terms of consistency in the

1           hearings, to allow this to go in now would be  
2           inconsistent with the practice that we've taken  
3           with counsel throughout, and I mean, it's a  
4           difficult situation because of time, I recognize  
5           that, but it is inconsistent with the practice  
6           that we've developed and that we've advised  
7           counsel of so that's my primary concern with this  
8           document going in. And I know that there are  
9           other parties in the room today that would like to  
10          have similar documents entered in and I've also  
11          taken the same position with them, that that is  
12          inconsistent with the process that we have  
13          developed and tried to enforce throughout the  
14          hearings. So that's my primary concern with this  
15          document. I had this document, as well, in  
16          advance, and we were able to, you know, where  
17          there were things of interest that we felt needed  
18          to be dealt with, we could do that. Much of it is  
19          commentary and could be dealt with in argument by  
20          my friends at the end of the hearing. Thank you.

21       MR. SPIEGELMAN: If I may, Mr. Commissioner?  
22       Spiegelman, J. for Canada. I am in a tricky  
23       situation of supporting both of my friends in this  
24       issue. I, too, listed PPR comments prepared by my  
25       clients and put them in my book of documents for  
26       today. Commission counsel informed me that it  
27       wasn't the practice and it wouldn't be acceptable  
28       to tender them as an exhibit and I took that under  
29       advisement and didn't do so. If my friend is  
30       successful in entering this document as an  
31       exhibit, which I have more to say on very briefly,  
32       then I will, in redirect, seek to do the same with  
33       my client's comments on this.

34               Now, going back to this particular document,  
35               in my submission, there are statements made in  
36               this document that are opinions and exceed the  
37               expertise of the author and so there's particular  
38               problems with the document, itself. And, as well,  
39               there's a process issue with how clarity and  
40               context is provided for these PPRs. So I leave it  
41               in your hands as to whether this particular one  
42               goes in over the objections that have been raised  
43               and I will seek leave to do so in redirect with  
44               mine if this one's successful. Thank you.

45       MR. PROWSE: Mr. Commissioner, Cliff Prowse for the  
46       Province. Mine is a slippery slope proposition.  
47       We would have prepared detailed commentary and we

1           made somewhat vigorous submissions to my friend,  
2           Ms. Baker, who firmly told us that any such list  
3           we prepared wouldn't be accepted so we actually  
4           didn't do it and we haven't circulated it, but if  
5           you're going to let Mr. Leadem do it, then we'd  
6           want to do it, too. And there's a bigger issue of  
7           longstanding that I'll just stop on. Thanks.

8       MS. SCHABUS: Mr. Commissioner, Nicole Schabus for  
9           Cheam and Sto:lo Tribal Council. I agree with the  
10          point made by Commission counsel and we have long  
11          respected the rule put into place by Commission  
12          counsel quickly into the hearing. And if this  
13          document was to be filed, I'd have to cross-  
14          examine in detail on it and a lot of it is not  
15          clarification or I think a lot of the  
16          clarification that needed to happen has happened  
17          with the panel, but otherwise, it's opinions  
18          expressed and should not be admissible through  
19          this channel.

20       MS. GAERTNER: Mr. Commissioner, it's Brenda Gaertner  
21          for the First Nations Coalition. I'm just going  
22          to pass on this observation to you. It sounds  
23          like there's there parties in this room who have  
24          significant concerns with this PPR. And what I  
25          have concerns with, sitting back here, is that  
26          apparently these PPRs are to stand as facts. And  
27          so now you've been advised, you've got three  
28          parties saying, "We've got significant concerns,"  
29          that they've responded to the PPR. My suggestion  
30          perhaps, and it's just a suggestion, is that  
31          offline and not during this precious time in the  
32          hearing, we figure out how to deal with this PPR  
33          because there appears to be a fair bit of concerns  
34          around it and we won't have time to go through  
35          every paragraph. We won't have time to go through  
36          every paragraph of this one, or of anybody else's  
37          and it seems to be a live PPR that is not, at this  
38          point in time, comfortable with many of the  
39          parties in the room.

40       MS. BAKER: Just in response to that last comment, the  
41          factual corrections that needed to be made to the  
42          PPR have been made with the witnesses and as have  
43          been identified, many of the comments, for  
44          example, in this document are not -- for example,  
45          here's one correction:

46  
47                   Clearly, DFO simply does not care what

1 happens and is happy to simply authorize  
2 whatever the proponent pushes for.  
3

4 That's not a correction to the PPR, that's a  
5 commentary by the witness and it's his view, but  
6 it's not the kind of thing that we would put in to  
7 a PPR as a correction so in terms of the factual  
8 corrections, my friends have told me what they say  
9 is incorrect and we've corrected those with the  
10 witnesses live, which has been our process  
11 throughout. And so the process that we have  
12 developed throughout has been maintained here.  
13 The fact that people have observations and  
14 commentary that they want to make in respect to  
15 the PPR is really more in the nature of a  
16 submission, which I fully expect to hear in final  
17 argument at the appropriate time. Thank you.

18 MR. LEADEM: Mr. Commissioner, I'm sorry to have made  
19 your job so much more difficult today. And you  
20 know, obviously, there are problems with this  
21 process of PPRs and, obviously, people are going  
22 to be called to give evidence and may have  
23 opinions that differ from that contained in the  
24 PPR and it's a question of how to deal with that.  
25 And I'm just in your hands and I'll be prepared to  
26 abide by whatever ruling you make.

27 THE COMMISSIONER: Thank you very much for that, Mr.  
28 Leadem. I think, at this point, given the  
29 submissions of your learned friends, it would be  
30 inappropriate to have this marked as an exhibit.  
31 I, for one, do not know what's in this document  
32 and so I can't have a comfort zone around the  
33 distinction between factual corrections and  
34 providing commentary or opinion evidence through  
35 this document. So I think it would be fair to all  
36 parties that this document not be marked. That's  
37 not to say that submissions can't be made later  
38 with regard to points that are raised in this  
39 document insofar as they relate to the evidence in  
40 this proceeding. So I'm going to, for the moment,  
41 Mr. Leadem, rule against this document being  
42 marked as an exhibit.

43 MR. LEADEM: Might it be marked for identification  
44 purposes?

45 THE COMMISSIONER: It can be marked for identification.  
46 I think that is appropriate.

47 MR. LEADEM: Thank you.

1 THE REGISTRAR: That will be marked as EE, double E.

2

3

4

5

6

7

8

MR. LEADEM: And I apologize because of the --

9

THE REGISTRAR: Microphone.

10

MR. LEADEM: Thank you. Those are my respectful  
questions, Mr. Commissioner.

11

12

THE COMMISSIONER: Thank you very much, Mr. Leadem.  
Ms. Baker?

13

14

MS. GAERTNER: I'm sorry, I'm not about to start  
dancing for you, Mr. Commissioner, I was just  
checking if I was next.

15

16

17

MS. BAKER: I think it's actually Ms. Schabus who's  
next, if she's ready to go?

18

19

MS. GAERTNER: Okay. Oh.

20

MS. BAKER: Or you could switch it off, whichever is --

21

MS. GAERTNER: We are doing a bit of a dance now. I'm  
happy to go. I'm not sure I'll be finished before  
the lunch hour break, but I'll try my best. I've  
got about 10 to 15 minutes, I think, with this  
panel, and I'll try for 10, if I can, to see if we  
can do it. It's Brenda Gaertner for the First  
Nations Coalition.

22

23

24

25

26

27

28

29 CROSS-EXAMINATION BY MS. GAERTNER:

30

31

Q I've just got a few areas that I'd like to ask  
questions on and I'm only going to take you to one  
document. First of all, it seems clear, and I'm  
just going to state this as a foundation for my  
questions, that as it relates to the gravel reach  
in the Lower Fraser, we've got a very dynamic  
environment and as it relates to species,  
including salmon, I heard the word "ubiquitous"  
today. We've got a number of different species,  
we're learning more as we go along and it include  
just the river-based salmon, but it could also  
include more conservation units than that. Have I  
got a consensus between the panel members on that  
general statement?

32

33

34

35

36

37

38

39

40

41

42

43

44

DR. ROSENAU: Yes.

45

46

DR. REMPEL: Yes.

47

Q All right. And so from my client's perspective,

1 we're looking to see what type of information base  
2 we have and what are the best practices going  
3 forward, and I'd like to take you to Exhibit 1086,  
4 which is the report that is it Dr. Church did in  
5 March of 2010, and we've heard plenty of evidence  
6 on the reliability of Mr. Church. And I'd like to  
7 then go to page 2 of that report, of the Executive  
8 Summary. And on page 2, at the bottom of the  
9 page, in the paragraph beginning, "Experience to  
10 date ...," and I'm just going to ask you this  
11 question. He lists a number of baseline  
12 information challenges or areas in which we could  
13 do some more thinking on and so my question is  
14 what type of baseline information exists or needs  
15 to be developed in order for the Province and the  
16 Federal Government, and I would add First Nations  
17 to better determine where sites for gravel removal  
18 should occur and what sites should be monitored  
19 and over what periods of time? And he mentions,  
20 first of all, that measures of effectiveness are  
21 currently lacking. Would you agree with that?

22 DR. ROSENAU: I would.

23 DR. REMPEL: I would, as well.

24 Q And he suggests that direct observations of water  
25 levels along the river is the most effective  
26 measure of the desired objective. Would you agree  
27 with that?

28 DR. ROSENAU: I couldn't comment on that because that  
29 really is the purview of a water engineer, a  
30 hydraulic engineer and the hydraulic modelling.  
31 Again, I would point out that I had managed a  
32 couple of hydraulic modelling exercises through  
33 UMA, a consulting company, in the early 2000s. I  
34 would also point out that the flood profile had  
35 not been updated since 1999. Apparently, EMBC, in  
36 one of the tabs, there appears to be a move to an  
37 updated dyke profile or flood profile model, but  
38 that's about all I can say in regards to your  
39 question.

40 Q Dr. Rempel?

41 DR. REMPEL: I'm also not an expert in the hydraulic  
42 engineering so I would defer to Dr. Church, if  
43 that's his belief, then I would agree with it.

44 Q All right. And "Measures of habitat quantity and  
45 quality along the river are a second measure, also  
46 assessed over a period of years." Comments on  
47 that?

1 DR. ROSENAU: Go ahead.

2 DR. REMPEL: Yes, I agree.

3 DR. ROSENAU: I would say it would be quite critical to  
4 have that, but I'm not sure that we're there yet  
5 in terms of the database that we have or our  
6 modelling exercises.

7 Q And then he also recommends:

8

9 Site monitoring remains important to ensure  
10 no direct damage to the aquatic ecosystem.

11

12 You'll all agree with that?

13 DR. REMPEL: Correct.

14 Q And then more importantly, on the next page:

15

16 All of these measures are most effectively  
17 appraised on a time scale comparable with the  
18 time scale for morphological and ecological  
19 changes along the river, which is in the  
20 order of 10 years.

21

22 Would you agree with that?

23 DR. REMPEL: That seems reasonable.

24 DR. ROSENAU: I would say that this is where I kind of  
25 take exception and Dr. Church is a fluvial  
26 geomorphologist and I'm a habitat biologist and  
27 the point that I would make is that many of these  
28 sites do not, I'll call it, repair themselves or  
29 heal themselves not only within a 10-year or  
30 within a one or two-year timeframe, or a three-  
31 year timeframe, which has been the assumption that  
32 DFO has often gone on, that we don't have to  
33 provide compensation because the habitat will be  
34 back and intact within two or three, or four  
35 freshets, but, in fact, many of these sites,  
36 Spring Bar is a good example, and some of the  
37 other ones, which I won't name right now, have not  
38 healed themselves in a period of two or three, or  
39 so many years. Going back --

40 Q So you're suggesting something longer than 10  
41 years, is that your suggestion?

42 DR. ROSENAU: Well, given how Spring Bar has  
43 unravelled, I would suggest that it looks to me  
44 it's going to take a long time for that thing to  
45 heal itself. Another bar, Foster's Bar, or Pegleg  
46 Bar, it looks like the mining in 1995, that bar  
47 has still not recovered. And whether that would



1 have changed naturally, or not, is the big  
2 question. But getting back to what I wanted to  
3 make as my original focus was as soon as that  
4 habitat is damaged, right now, once the waters  
5 then cover that gravel pit or the extraction site,  
6 that habitat's gone instantaneously, okay? And so  
7 the real issue for me, as a habitat biologist, a  
8 fish that's living there right and now can't wait  
9 a year, two years, five years, or 10 years for  
10 that habitat to come back because it's gone, okay?

11 And so if particular conservation units have  
12 fidelity to a site, or to a general section of the  
13 river and you repeatedly remove gravel year after  
14 year, after year, and the river doesn't heal  
15 itself within timeframes of less than 10 years,  
16 then you've got a real problem because that  
17 habitat unit has nothing to live in and basically  
18 will, I'll use the word, go extinct, although that  
19 might be a little dramatic.

20 Q All right. We've heard you on that. Mr. Rempel,  
21 I just want to go back to this dynamic environment  
22 of the gravel. It's not just a site specific  
23 overall monitoring that we would need in this  
24 case, is it? It's really more doing an overall  
25 monitoring of the whole area. The river is going  
26 to change on its own, plus whatever changes occur  
27 with gravel removal. So to do the site, we're not  
28 looking just at the site of gravel removal, we're  
29 looking at the whole of the gravel reach; is that  
30 correct?

31 DR. REMPEL: Yeah, I definitely concur, and that's, I  
32 think, a weakness of the current monitoring  
33 program that DFO would definitely like to rectify  
34 as to build into the monitoring program reach-  
35 scale monitoring.

36 Q Thank you. And would you also agree that working  
37 closely with First Nations, both those that whose  
38 homelands these traditional territories includes,  
39 but also those whose have an interest in the fish  
40 that are travelling through there, to properly  
41 monitor the whole of the area and the various  
42 stocks that may be affected by this?

43 DR. REMPEL: So the question's whether they have a --  
44 would they have a role?

45 Q Yes, would it be useful to be working closely with  
46 First Nations when doing this type of monitoring  
47 over long periods of time?

1 DR. REMPEL: Oh, I believe so.

2 Q Anything to add on that one?

3 DR. ROSENAU: I would just point out that both for the  
4 chinook and the sockeye, genetic stock analysis  
5 has shown that the chinook and the sockeye are  
6 upriver stocks so Late Stuart and Stellako sockeye  
7 and Nechako and Stuart River chinook are part of  
8 that matrix. So upriver First Nations are very  
9 definitely impacted and, again, to what degree,  
10 you know, I think needs to be sorted out.

11 Q Thank you. I do have another topic that I do want  
12 to ask questions so this might be the appropriate  
13 time.

14 THE COMMISSIONER: All right.

15 MS. GAERTNER: I tried to finish, but I can't.

16 THE COMMISSIONER: No. Thank you. Thank you very  
17 much. We're adjourned until 1:30, is that  
18 correct, Ms. Baker?

19 MS. BAKER: We are. Mr. Commissioner, Brock Martland  
20 asked me to make an announcement to the  
21 participants which is with respect to tomorrow's  
22 hearing.

23 THE COMMISSIONER: Mm-hmm?

24 MS. BAKER: I understand there's been a death with  
25 respect to a friend of the Commissioner's and that  
26 there will be a funeral tomorrow and that we need  
27 to adjourn early to accommodate that so the  
28 proposal is that we start at 9:00 and finish at  
29 1:00, and take one 20-minute break in the day.  
30 Mr. Martland has calculated that to be a 20-minute  
31 reduction in the overall day time so he'll make  
32 some adjustments to allow that to be done, but he  
33 wanted to give people notice of that adjustment in  
34 the hearing schedule for tomorrow. Thank you.

35 THE COMMISSIONER: Thank you very much.

36 THE REGISTRAR: Also, we might make reference to the  
37 fact that the elevators are locked up until 8:30.

38 MS. BAKER: The elevators, sorry.

39 THE REGISTRAR: So you can come up after 8:30. The  
40 hearing is now adjourned until 1:30.

41 THE COMMISSIONER: Thank you.

42

43 (PROCEEDINGS ADJOURNED FOR NOON RECESS)

44 (PROCEEDINGS RECONVENED)

45

46 MS. GAERTNER: Mr. Commissioner, I'm going to carry on  
47 with page 2 and 3 of Exhibit 1086 and -- oops, I

1           only have one witness -- actually, my first  
2           questions are of Dr. Rempel, so I guess he should  
3           hear it.

4   MS. BAKER: Well, I think he will -- in the interests  
5           of time, if the questions are directed to Ms.  
6           Rempel I -- or Dr. Rempel, excuse me, I think that  
7           that would be fine.

8   MS. GAERTNER: All right. I'll proceed and I realized,  
9           Mr. Commissioner, that I jumped in on the bottom  
10          page of that executive summary and I want to just  
11          take you back before, just to get a context.

12  
13   CROSS-EXAMINATION BY MS. GAERTNER, continuing:

14  
15   Q    Dr. Rempel, in the bullets above on the first part  
16          of the executive summary, Dr. Church lists a  
17          number of lessons learned from the work that's  
18          being done in 2004 to 2009. And having reviewed  
19          them on behalf of my client, I would summarize  
20          them as the following, and I wonder if you'd agree  
21          with that. You have read that list?

22   DR. REMPEL: I have.

23   Q    All right. And so I would summarize that if we're  
24          going to do gravel removal in the gravel bed reach  
25          of the Lower Fraser, it needs to be properly  
26          executed, it needs to be properly planned and it  
27          needs to be properly monitored, knowing that we  
28          still need some baseline information. Those are  
29          sort of key overarching approaches that one could  
30          summarize those bullets; would you agree with me  
31          on that? So properly planned, you know, the first  
32          couple he's talking about the methods that are  
33          used and so we've got to be clear about the  
34          methods, or properly executed, sorry. Properly  
35          planned are all the different -- the following  
36          things, especially as it relates to the effective  
37          environmental monitoring of fish and invertebrate  
38          organisms that need to occur, and then the  
39          monitoring that needs to be done?

40   DR. REMPEL: I'd agree with that. I just -- if I can  
41          add just one brief sort of caveat. Dr. Church  
42          being an academic, he's in a position where he's  
43          able to make these recommendations without also  
44          reconciling the potential urgency to carry on with  
45          this program and that's outside of DFO's mandate.  
46          It's also outside of Dr. Church's mandate, but  
47          being a -- it being a provincial program under the

1           guise of flood protection, DFO may still be in a  
2           position where we have to consider the program  
3           without those things in place if the province  
4           tells us that it's of a public safety nature with  
5           urgency.

6           Q     But DFO, of course, is in a position to suggest to  
7           the province and, in fact, even require the  
8           province do certain things in order for them to  
9           continue with the program?

10          DR. REMPEL: As much as they relate to potential  
11          impacts to fish and fish habitat.

12          Q     Yes. Great. Okay. And so I had -- I took you  
13          this morning to some of the data and work that he  
14          summarizes at the bottom of page 2. Now I'd like  
15          to take you over to page 3. And as I read this  
16          report, what Dr. Church is suggesting is that  
17          given the variability in the environment, you  
18          know, the natural variability in the environment,  
19          and given what we know and what needs to be done,  
20          he's recommending that a ten-year plan as a  
21          minimum, a long-term ten-year plan as I read it,  
22          is the appropriate approach to be doing gravel  
23          removal in this area. And then on page 3, he  
24          lists components of those plans. Would you agree  
25          with that summary so far?

26          DR. REMPEL: yes.

27          Q     All right. And do you agree that a ten-year plan  
28          for removal might be a better way of addressing  
29          the sort of cumulative impacts in the larger scale  
30          monitoring that we need to do?

31          DR. REMPEL: Yes. I think -- I certainly favour the  
32          approach of planning over a longer-term period and  
33          I think what DFO would still want to see in place,  
34          if we put a longer-term planning horizon on this  
35          program, is that we would still have on an annual  
36          basis the ability to review incoming new  
37          information and new proposals for removal because  
38          as you've articulated, it's a very dynamic  
39          environment, so plans that may be in place eight  
40          or nine or ten years out may no longer be  
41          appropriate based on natural changes in the river  
42          or new information that would come to bear about  
43          the ecosystem. We still want to have the ability  
44          to modify that program, given whatever new  
45          information might come out.

46          Q     And given that, let's just start with the two at  
47          the bottom then, because I think that's exactly

1 what Dr. Church is saying when it needs to be  
2 adaptive and precautionary, so taking into  
3 consideration the information as it comes and  
4 adapting as we go along, and then secondly, at the  
5 last bullet he suggests that if you do need to do  
6 special removals for particular purposes,  
7 obviously flood control, that those proceed if  
8 they're properly monitored but they be part of the  
9 overall volume removed for the purposes of the  
10 program.

11 DR. REMPEL: Yes. I agree that that total volume still  
12 needs to be sort of really the cap on the program.

13 Q All right. So those are the last two. I just  
14 want to take you to a couple. The commission  
15 counsel took you to the second to the top. The  
16 first one is the longer-term plan and the third  
17 one you've now agreed that a ten-year period is a  
18 reasonable horizon for planning this; that's  
19 correct?

20 DR. REMPEL: Yes, correct.

21 Q And then we go to the fourth bullet then:

22  
23 Sediment removals will be focused in those  
24 sub-reaches where chronic sediment  
25 accumulation occurs.

26  
27 And you can identify four right now, but that  
28 would need to be clearly watched.

29 DR. REMPEL: Right. Correct.

30 Q You agree with that?

31 DR. REMPEL: Mm-hmm.

32 Q All right. Are you -- I mean, maybe the easiest  
33 way is for you just to briefly review the next  
34 four bullets and see whether or not you agree with  
35 all of those also.

36 DR. REMPEL: You know, I agree with all of them. I  
37 know that the sediment budget itself, which  
38 provides us with this 230,000 cubic metres per  
39 year recruitment estimate, I know that is a moving  
40 target. The sediment budget exercise is  
41 conceptually simple, but depends on information  
42 that's very difficult to get and that the error  
43 bounds around that 230 estimate are fairly  
44 generous and I have spoken with Dr. Church as  
45 recently as a week ago where he's provided me with  
46 -- and some of my DFO colleagues, with information  
47 that he has some level of -- not discomfort, but

1           that he appreciates there's some level of --  
2           there's uncertainties and factors around that 230  
3           volume that still need to be reconciled and so I  
4           guess my point being that this volume target I  
5           would want to see as an adaptable target based on  
6           the best available sediment budget information.  
7           And so that 230 number itself might change over  
8           the ten-year planning horizon.

9           Q     All right. And that would be something the  
10           technical committee would have their eye to?

11          DR. REMPEL: Correct.

12          Q     All right. Now, in the time remaining for me, I  
13           just want to turn to that technical committee and  
14           the work of your technical committee and so I want  
15           to go to Exhibit 1078. Dr. Rempel, I notice that  
16           there are no First Nations representatives or  
17           appointees on that technical committee, and I'm  
18           wondering if you could comment on that and  
19           particular the value of having a First Nations  
20           representative on that technical committee to  
21           review the information that's coming forward,  
22           review something like a ten-year plan for this and  
23           provide input both as it relates to local  
24           ecological knowledge and overall concerns and  
25           interests as it relates to these types of plans.

26          DR. REMPEL: I think on some level First Nations input  
27           at a -- within the technical committee could be  
28           valuable. The technical committee deals with a  
29           lot of issues and not all of them would pertain to  
30           fish and fish habitat, and so DFO itself engages  
31           to a greater or lesser degree on issues depending  
32           on how they pertain to our mandate and so I'm not  
33           sure on all aspects of the program if First  
34           Nations representation would contribute value at  
35           that technical level, but I can see in  
36           circumstances, yes, and also at the management  
37           level perhaps.

38          Q     All right. And then just on that front, who is it  
39           -- is it you or Jason Hwang that determines which  
40           First Nations you are going to engage with as it  
41           relates to the possible implications of gravel  
42           removal?

43          DR. REMPEL: DFO tries to, I guess, cast as broad a  
44           sort of -- casts as broadly as possible requests  
45           for input and information as they pertain to  
46           gravel removal proposals, but the bulk of the  
47           consultation with First Nations is done by the

1 proponent and they take the lead on that and they  
2 carry on consultation throughout the year. And so  
3 we look for information and we request information  
4 from as many First Nations communities as identify  
5 themselves as having an interest, regardless of  
6 where necessarily they lay territorial claim. But  
7 we do defer -- or we look to the proponent to be  
8 the lead on engaging of First Nations.

9 Q All right. I'm going to just -- thank you for  
10 that and we're going to get into a little bit more  
11 detail with the next panel on the management  
12 aspects about this, but I was just curious, at the  
13 technical level, who is it that you consult with?  
14 Who decides which First Nations you're going to  
15 consult? Do you do that yourself or does Jason do  
16 that or who does it?

17 DR. REMPEL: Within DFO it's, I think, a joint  
18 decision.

19 Q All right. So you've been involved in deciding  
20 which First Nations will be engaged with as it  
21 relates to gravel removal?

22 DR. REMPEL: Well, we -- as I said, we look to the  
23 proponent to assist us in carrying on that  
24 engagement throughout the year, and --

25 Q Even as it relates to fish and fisheries habitat  
26 issues?

27 DR. REMPEL: No. No, in that case DFO certainly takes  
28 the lead and we've identified as best we can the  
29 various First Nations groups that might have an  
30 interest in this program and they extend far  
31 beyond the localized gravel reach area, but we're  
32 not at all exclusive in when we're seeking  
33 information or input from First Nations on this  
34 program.

35 Q Are you aware as to when DFO began to engage  
36 Chehalis First Nation as it relates to gravel  
37 removal in this area?

38 DR. REMPEL: I'm not aware of when that would have  
39 began because I inherited this file only a few  
40 years ago from colleagues. So I'm not sure when  
41 it began.

42 Q All right.

43 DR. REMPEL: I'm sorry.

44 Q I think in the interest of time I need to sit down  
45 now, but I'm wondering, Dr. Rosenau, if you have  
46 anything to add to any of the questions and  
47 answers that I've asked of Dr. Rempel?

1 DR. ROSENAU: Yes. I guess the one point going back to  
2 the Dr. Church report relates to the volume which  
3 -- 230,000, which the agencies have basically, in  
4 my opinion, taken as an upset. So in other words,  
5 they'll try and get that target and that goes back  
6 to the fact that, in my opinion, it largely is not  
7 a gravel -- or is not a flood protection  
8 initiative but it is more a gravel removal  
9 initiative for aggregate. And so in that context,  
10 the -- to me, the key issue here should be the  
11 hydraulic profile and certainly given what I've  
12 seen on other committees, engineers will often --  
13 hydraulic engineers will often leave gravel piling  
14 up in areas where there's lots of freeboard or  
15 gravel accumulations do not reduce the freeboard,  
16 so the flood profile is not increased as a  
17 function of the sedimentation, in other words,  
18 there are between dikes so wide at a particular  
19 location, you can actually store gravel in there  
20 and the flood levels won't increase. So I would  
21 argue that the flood plain engineers, the dike  
22 engineers, should not have to take gravel out at  
23 locations where floor profiles will not be  
24 increased or not increasing or never will be  
25 increased, given this volume which is in terms of  
26 the big picture is a relatively small volume vis-  
27 à-vis from Laidlaw to Mission.

28 Q Maybe just one final question. There seemed to be  
29 a little bit of confusion this morning about  
30 fidelity of salmon to certain areas. As I  
31 understand it, the evidence is that the river  
32 sockeye aren't as loyal to certain areas and that  
33 they're quite adaptive; is that the common  
34 understanding between the two of you?

35 DR. ROSENAU: Well, I would say that if somebody can  
36 show me that, I'd like to see the evidence for it.  
37 My personal opinion is I don't think we know.

38 DR. REMPEL: I think in part we don't for sure know,  
39 but the genetic evidence for -- or the genetic  
40 makeup of these river type sockeye suggest that  
41 they are highly more differentiated than lake type  
42 sockeye which would infer that there's more  
43 genetic variability within the river type sockeye  
44 group, implying a less of a fidelity, more of an  
45 adaptive strategy in that --

46 Q And is there any evidence as it relates to the  
47 fidelity of the sockeye that seem to be using the



1 Tranmer area?

2 DR. ROSENAU: Well, I've got tissue samples. We  
3 haven't taken them to the Pacific Salmon  
4 Commission but the understanding is we give them  
5 to the commission and they do the genetic analysis  
6 for us.

7 Q And Dr. Rempel, do you have anything to add about  
8 fidelity in the Tranmer area?

9 DR. REMPEL: What's been passed on to -- I can't speak  
10 first-hand but passed on to me from DFO staff with  
11 expertise in this is that there's no reason to  
12 believe there's a fidelity to Tranmer Bar, that  
13 they're opportunistic and they're making a  
14 protracted downstream migration and  
15 opportunistically using slack water habitats over  
16 a period of days to weeks to months as they move  
17 from their spawning grounds to the estuary and out  
18 to ocean.

19 MS. GAERTNER: Thank you. Those are my questions, Mr.  
20 Commissioner.

21 THE COMMISSIONER: Thank you.

22 MS. SCHABUS: I just have a -- sorry, Mr. Commissioner,  
23 Nicole Schabus for Cheam and Sto:lo Tribal  
24 Council.

25

26 CROSS-EXAMINATION BY MS. SCHABUS:

27

28 Q I just have a follow-up question and it's actually  
29 a clarification regarding the genetic difference.  
30 Now, the five sockeye salmon samples that Dr.  
31 Rosenau, you talked earlier that you had  
32 identified by the Pacific Salmon Commission are  
33 actually -- were actually ID'd as specific  
34 populations, correct?

35 DR. ROSENAU: No, I haven't given the tissue samples to  
36 the commission yet. They would still have to run  
37 the DNA analysis. They're sitting in my freezer.  
38 Haven't gotten around to it yet.

39 Q Okay. But the others that you did have ID'd in  
40 the course of your other study, they were  
41 identified as specific -- from specific groups,  
42 right?

43 DR. ROSENAU: That's correct. The ones from my  
44 students up at Hope, the tissue samples were given  
45 to Greg Latham and -- Steve Latham with the Salmon  
46 Commission and he's the one that relayed back to  
47 me that the predominance of those samples were

1 Late Stuart and Stellako.

2 Q And, Dr. Rempel, that's what you would refer to as  
3 strays from other populations, right, as set out  
4 in the memo?

5 DR. REMPEL: I'm not sure if strays would be  
6 necessarily the right word. It would depend on so  
7 many things because these fish may be moving on a  
8 -- they may be making their downstream migration  
9 from these natal spawning grounds to the estuary  
10 and given the accessibility to the habitats that  
11 were sampled by Dr. Rosenau's students, they moved  
12 into those habitats to take a rest and that's when  
13 they were caught. Or perhaps -- and then were  
14 entrapped with water levels dropping and they  
15 ended up being trapped in there. Or they may have  
16 strayed from those populations. It's just  
17 impossible to know with any certainty, you know,  
18 how -- what those fish were doing there, whether  
19 they were particularly honing in on that habitat  
20 or got trapped there as they were intending to  
21 make their way down. We just don't know.

22 DR. ROSENAU: If I can just clarify, the DNA samples  
23 were done two years running and the same results  
24 were for both years, predominance of Stellako and  
25 Late Stuart.

26 Q And just a follow-up question. My friend has  
27 covered most of the points. When you spoke about  
28 the technical and management committee, now when  
29 it comes to the decision-making process at the  
30 technical committee level, you do not take into  
31 account indigenous knowledge about the area, about  
32 fish habitat or fishing sites?

33 DR. REMPEL: We take that information into account  
34 through the **CEAA** environmental assessment  
35 screening that DFO is normally the lead agency  
36 that carries that out. Transport Canada is often  
37 involved. Environment Canada is often involved.  
38 And in the process of carrying out this  
39 environmental assessment, that's the legislative  
40 process by which we invite and expect input.

41 Q But, again, you don't have a member on the  
42 technical committee that you could interact with  
43 regarding that information, for example, a member  
44 from indigenous peoples from the gravel reach and  
45 you would potentially consider that a positive  
46 factor to have access to that when it comes to the  
47 technical committee processes?

- 1 DR. REMPEL: Yes, DFO certainly sees the positive of  
2 that and requires that by process in conducting  
3 our screening.
- 4 Q Now, when it comes to impacts on sockeye salmon  
5 habitat throughout the Fraser River watershed,  
6 you'd agree with me that there are numerous  
7 impacts, including increased erosion upriver, for  
8 example from increased logging, especially with  
9 the mountain pine beetle epidemic, right?
- 10 DR. REMPEL: That's outside my expertise.
- 11 Q But one of the results is increased accumulation  
12 and aggradation of sediment in the Lower Fraser,  
13 especially in the gravel reach?
- 14 DR. REMPEL: It's a possibility.
- 15 Q Now, in your thesis, Dr. Rempel, you talk about  
16 habitat classification and you get down to the  
17 level of habitat units, correct?
- 18 DR. REMPEL: Correct.
- 19 Q And while there's -- due to the very small number  
20 of sockeye salmon actually encountered in the  
21 gravel reach there isn't that much information but  
22 there is an indication that open nooks, channel  
23 nooks, are what are favourable habitat units,  
24 right?
- 25 DR. REMPEL: Yeah. It's actually channel nooks and  
26 bays, if you follow the classification I have  
27 proposed in my thesis, and all -- entirely all of  
28 the sockeye salmon that I caught over my three  
29 years, that's over 200 sockeye were found in  
30 either channel nooks or bays. And bays  
31 effectively are a large channel nook and they are  
32 both slack water habitats and that's entirely  
33 where all of the sockeye I caught were found and  
34 that's consistent with the sampling that Dr.  
35 Rosenau has done, I believe.
- 36 Q And you also note -- and basically when we are  
37 dealing with the really the vast majority of  
38 sockeye in the gravel reach is really just in the  
39 gravel reach for brief periods of time, correct?
- 40 DR. REMPEL: Brief, you know, is, I guess, a relative  
41 term. They're in there for up to a year of their  
42 life cycle.
- 43 Q Sure and -- but also the ones that are just  
44 migrating either downstream or upstream, for  
45 example, one of the things that the returning  
46 salmon will rely on is eddies, back eddies where  
47 they can rest in their migration up?

1 DR. REMPEL: Correct.

2 Q Now, in your thesis one of the things that you  
3 talked about is that you see fish species also  
4 having -- or you expect fish species to also have  
5 alternative strategies in response to seasonal  
6 flooding in the Fraser River, so using channels  
7 more, et cetera, right?

8 DR. REMPEL: Right.

9 Q Now, the other conclusion specific to your  
10 research that you found when you were working on  
11 the Harrison Bar, which was an area where there  
12 was active gravel extraction, right?

13 DR. REMPEL: Correct.

14 Q What you found is that the availability of  
15 ecologically significant habitats types such as  
16 open nooks, which have the highest density of  
17 juvenile fish increased, right?

18 DR. REMPEL: In that case. That's not always a  
19 consistent finding from every gravel removal, but  
20 in that case.

21 Q In that case. And so prior to the gravel removal,  
22 the bar surface was expansive flood open area,  
23 right?

24 DR. REMPEL: At Harrison Bar it was.

25 Q Yeah. And then after the gravel removal, what  
26 happened is there was actually increased more  
27 availability of ecologically significant habitat,  
28 so it was more diverse, right?

29 DR. REMPEL: At Harrison Bar that was the case, that it  
30 became topographically more complex. There still  
31 is the other side of that in that we had an  
32 overall lowering of bar elevation and so we had an  
33 overall loss of habitat at high flows, shallow  
34 habitat at high flows.

35 Q But at low flows, which is oftentimes when the  
36 fish are migrating through too, you're actually  
37 having some increased diversity in habitat, right?

38 DR. REMPEL: Yes, at moderate --

39 Q And if -- so if gravel removal is conducted to  
40 best standards and well-engineered, then you can  
41 actually build in creating such additional habitat  
42 features, right?

43 DR. REMPEL: To the best that we can within the  
44 constraints of the design, which is primarily  
45 intended to achieve a hydraulic benefit, DFO tries  
46 to add those mitigating features into a removal.

47 Q And so from the perspective of a fish, small and

1 more diverse habitat units that thereby can be  
2 created offer a wider choice in the range of  
3 habitat conditions available and support a greater  
4 number of species, right?

5 DR. REMPEL: Yes, that's the idea, that the greater the  
6 complexity of the habitat, the wider range of  
7 different species with different habitat uses,  
8 that habitat can support.

9 Q And so in that context when it comes -- that also  
10 applies to sockeye salmon and if gravel removal  
11 actually accomplishes that, that can be a  
12 positive, right?

13 DR. REMPEL: Right. Well, we're learning that -- well,  
14 it appears from the data that the sockeye, these  
15 juveniles, are honing in on these particular  
16 channel, nook and bay habitats and so we would  
17 take that information to -- when it came time to  
18 reviewing a removal proposal to ensure that these  
19 proposals don't in any way impact upon existing  
20 bays and channel nooks and to the best that we  
21 can, we might require that the design incorporate  
22 more of those features.

23 Q So from a management perspective when dealing with  
24 gravel removal and sockeye salmon, you are  
25 confident that this can actually be addressed by  
26 identifying habitats of importance to sockeye and  
27 designing gravel removal to avoid impacts on  
28 certain habitats and also potentially creating  
29 additional habitats?

30 DR. REMPEL: I think that might be going a bit far.  
31 I'm not sure we're confident in that because there  
32 still is a lot of uncertainty around the specific  
33 habitat preferences of all life stages of all  
34 species. We recognize that gravel mining changes  
35 the habitat. It lowers the bar surface elevation  
36 in the location the removal takes place, so we --  
37 just by the fact that we require a monitoring  
38 program and we have a compensation clause built  
39 into our authorizations, we are acknowledging the  
40 likelihood that there is some impact and temporary  
41 loss of habitat, but we are uncertain about the  
42 magnitude and duration and that's why the  
43 monitoring is in place.

44 Q Sure. And at the same time, there's also the  
45 possibility of positive impacts, for example with  
46 additional habitats being created, especially at  
47 low flow when a lot of the migration occurs,

1 right?

2 DR. REMPEL: Yes, at certain flow levels there may be  
3 positives.

4 Q So -- and just as a concluding question, you have  
5 actually no empirical evidence to show negative  
6 impact of gravel mining on sockeye salmon  
7 populations?

8 DR. REMPEL: Not on sockeye salmon, no.

9 MS. SCHABUS: Thank you, those are all my questions.

10 MS. BAKER: I don't know if there's any re-exam  
11 expected by either -- by DFO?

12 MR. SPIEGELMAN: For the record, it's Jonah Spiegelman  
13 for the Government of Canada. Can I get document  
14 number 1 on our list, please?

15 MS. BAKER: Mr. Commissioner, this is the Policy and  
16 Practice Report comments that we just went through  
17 this exercise before the break on disallowing for  
18 the Conservation Coalition, so I'm not sure why my  
19 friend's going to it now.

20 MR. SPIEGELMAN: I'm seeking to have them entered for  
21 identification similar to my friend.

22 MS. BAKER: I'm just uncomfortable with this pattern,  
23 because it defeats the purpose of all of the  
24 restrictions we've placed on this particular  
25 process throughout. It's not, in my submission,  
26 proper re-exam. It's -- he asked whatever  
27 questions he wanted to ask of the witness  
28 initially.

29 MR. SPIEGELMAN: With respect, the Commissioner's  
30 ruling on marking the Conservation Coalition's PPR  
31 review comments opened the door to me asking for  
32 equal treatment.

33 MR. LEADEM: And Leadem, initial T., appearing for the  
34 Conservation Coalition. I agree with Mr.  
35 Spiegelman that I opened the door and that he's  
36 entitled to enter.

37 THE COMMISSIONER: I'm sorry, what is this document,  
38 Mr. Spiegelman?

39

40 CROSS-EXAMINATION BY MR. SPIEGELMAN, continuing:

41

42 Q Sorry, Dr. Rempel, can you identify this document?

43 DR. REMPEL: I believe it's Tab 1.

44 THE COMMISSIONER: Your microphone.

45 DR. REMPEL: (Indiscernible - microphone off) but this  
46 is a document that --

47 THE REGISTRAR: Dr. Rempel, your microphone, please.

70

PANEL NO. 46

Cross-exam by Mr. Spiegelman (cont'd) (CAN)

Re-exam by Ms. Baker

1 DR. REMPEL: Oh, I'm sorry. This is a document that  
2 myself and Jason Hwang composed and with comments  
3 on the PPR and I think it's Tab 1 in the  
4 Commission's -- or in the -- in Canada's  
5 submission.

6 THE COMMISSIONER: Right. Well, there's been no ruling  
7 on whether these comments that are being provided  
8 on the PPRs are to be entered as exhibits and  
9 therefore form part of the body of evidence, so  
10 for this purpose we'll simply mark it as  
11 identification purpose, I think.

12 MR. SPIEGELMAN: Thank you.

13 THE REGISTRAR: It will be marked as double-F, FF.

14  
15 EXHIBIT FF FOR IDENTIFICATION: Comments on  
16 PPR - Gravel Removal In the Lower Fraser  
17 River prepared by Dr. Rempel and Jason Hwang  
18

19 MS. BAKER: Thank you, and I do hope this doesn't  
20 become the new pattern because we're going to be  
21 back to a place we didn't want to be initially if  
22 now comments get marked with every hearing  
23 process.

24 THE COMMISSIONER: I think Ms. Gaertner did invite  
25 commission counsel and other counsel to have a  
26 discussion about this, Ms. Baker, which would  
27 probably be a prudent thing to do.

28 MS. BAKER: Thank you.

29  
30 RE-EXAMINATION BY MS. BAKER:

31  
32 Q One last question on -- just I wanted to give Dr.  
33 Rosenau an opportunity to comment on some of the  
34 questions that were just asked of -- by Ms.  
35 Schabus. Do you agree that there are -- that, for  
36 example, in Tranmer Bar where you've seen the  
37 sockeye over a number of years, do you agree that  
38 the habitat has been improved by gravel mining  
39 that happened in 2009?

40 DR. ROSENAU: Yes. Thank you very much. I would take  
41 considerable exception to many of the statements  
42 that Dr. Rempel has said -- has stated with  
43 respect to gravel mining providing a better set of  
44 habitat conditions vis-à-vis what was there before  
45 and what was there after, and I'm not even sure of  
46 the exact tab, but it is -- it refers to the -- I  
47 took it out of it last -- took it out of the

June 16, 2011

1 binder last night. It shows the monomorphic, the  
2 very smooth, the very homogenous shape of the  
3 Tranmer Bar proposal for 2011. It basically is --  
4 you could consider it to be a football field in  
5 shape with a couple of ridges, two or three ridges  
6 and a few little indentations which would be open  
7 nooks.

8 And I don't -- again, the paper or the thesis  
9 by Ashley Perkins in 2007, I don't believe was  
10 entered, but I just relate to you anyways if you  
11 look at her appendix, if somehow or other that can  
12 be entered as evidence, Appendix C, maps of stage-  
13 dependent change of habitat, the diversity on  
14 Tranmer Bar is quite spectacular and as she  
15 indicates old, mature bars that have not been  
16 mined that have not been interfered with from a  
17 human perspective have a lot of habitat, they have  
18 a lot of habitat diversity, and her point is, as  
19 well, is that there's lots of habitat, a lot of  
20 this kind of habitat between, I believe, 2500  
21 cubic metres per second and 4,000 cubic metres per  
22 second and after that, once you get into greater  
23 flows, the amount of habitat becomes less and less  
24 and less.

25 And this is the kind of habitat that the  
26 gravel miners are targeting, the high-elevation,  
27 high-discharge habitats. And basically what  
28 they're doing is they're taking these very complex  
29 bar tops, channel nooks, bay nooks, open nooks,  
30 and they're flattening them, they're lowering them  
31 to a habitat elevation or flow elevation where,  
32 yeah, there might be a lot of habitat after a  
33 freshet or two and you might be able to say hey,  
34 there's more habitat here, but when habitat isn't  
35 limiting at between 2500 cumecs and 4,000 cubic  
36 metres per second, but it is limiting at four and  
37 a half, five, six, seven, then I think you've got  
38 a real problem. And so I think the Department of  
39 Fisheries and Oceans has over the last few minutes  
40 really misstated what is happening with gravel  
41 removal and the loss of -- and I mean considerable  
42 loss of habitat because again, our experience with  
43 Spring bar is that it's a huge hole now and that  
44 high top gravel bar habitat that would be  
45 available at Spring freshets or moderate Spring  
46 freshets has been obliterated.

47 DR. REMPEL: I just would like to follow up if I can.



1 I don't think I have in any way disagreed with Dr.  
2 Rosenau's assertion that gravel mining results in  
3 a localized reduction in the elevation of the bar  
4 top and that translates into reduction in the  
5 availability of shallow water habitat at very high  
6 flows. We don't know for certain that that type  
7 of habitat is limiting in the reach. Limiting  
8 would imply that the demand for that habitat  
9 exceeds the supply and we don't know that's the  
10 case. I also need to contextualize the removal  
11 activities in this reach and I'm not in any way  
12 condoning them, but I think the -- perhaps the  
13 image that's being portrayed is that gravel mining  
14 is occurring on all of the bar tops and they are  
15 all sort of simultaneously being lowered in  
16 elevation and that's not the case. There's at  
17 least 15 intact gravel bars along the reach and  
18 gravel mining tends to occur at one or two,  
19 sometimes as many as three, bars in any one  
20 winter, but it's a fraction of the entire bar that  
21 is mined. Sometimes it's a very small fraction,  
22 sometimes it's a larger fraction, but at a reach  
23 scale, gravel mining is not obliterating, as Dr.  
24 Rosenau suggests, high bar habitat throughout the  
25 reach. There is always this habitat available and  
26 I didn't in any way intend to suggest that gravel  
27 mining has a positive benefit to habitat.

28 But what we saw at Harrison Bar and what  
29 we've seen in other situations is that after a  
30 removal takes place, which typically does leave a  
31 site in a relatively homogenous topographical  
32 state with subsequent freshet events, we see  
33 rebuilding of habitat, we see restructuring and  
34 reconfiguration of the removal surface and what's  
35 that's telling us is that the fluvial processes of  
36 sediment transport and deposition are acting to,  
37 over some period of time, recover that habitat and  
38 it may not be exactly the same habitat as it was  
39 before and it may be less favourable to some  
40 species after removal as compared to before the  
41 removal, but that we are not seeing any indication  
42 that a removal site in several freshet events  
43 after a removal is a sterile, hostile habitat that  
44 doesn't support fish. We aren't seeing that. And  
45 we can't deny those observations that it's still  
46 available habitat to certain species at certain  
47 flow levels.

1 MS. BAKER: Thank you. Mr. Commissioner, those are the  
2 questions I have for this witness unless there's  
3 anything arising that you'd like to cover with  
4 them.

5 THE COMMISSIONER: Yes, thank you. Now you're going to  
6 excuse these witnesses, is that the idea?

7 MS. BAKER: Yes, please. Thank you.

8 THE COMMISSIONER: Thank you very much, Drs. Rempel and  
9 Rosenau for your evidence and for attending here  
10 today and providing us with the benefit of your  
11 knowledge. Thank you.  
12

13 (PANEL NO. 46 EXCUSED)  
14

15 MS. BAKER: Thank you. The next panel will be Jason  
16 Hwang from Department of Fisheries and Oceans and  
17 Julia Berardinucci from the province. So we'll  
18 take just maybe a couple of minutes for them to  
19 switch places but --

20 THE COMMISSIONER: Sure. All right.

21 MS. BAKER: -- we don't need to -- don't anybody go  
22 away.

23 Okay. Thank you. Mr. Hwang's been already  
24 sworn as a witness in these proceedings, so it's  
25 just Ms. Berardinucci that needs to be sworn.  
26

27 JASON HWANG, recalled.  
28

29 JULIA BERARDINUCCI, affirmed.  
30

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

32 MS. BERARDINUCCI: Julia Berardinucci.

33 THE REGISTRAR: Thank you.

34 MS. BAKER: Thank you. Now, Mr. Commissioner, Mr.  
35 Hwang has already testified and his exhibit has  
36 been marked as Exhibit 647, so I'm not going to  
37 take time to go through his c.v. with him.  
38

39 EXAMINATION IN CHIEF BY MS. BAKER:  
40

41 Q Ms. Berardinucci, your c.v. is at Tab 20 of the  
42 materials -- I'll just have that pulled out now.  
43 You can just identify that as your c.v.

44 MS. BERARDINUCCI: Yes, it is.

45 MS. BAKER: Thank you. I'll have that marked, please.

46 THE REGISTRAR: Exhibit 1092.

47 MS. BAKER: Thank you.

1 EXHIBIT 1092: *Curriculum vitae* of Julie  
2 Berardinucci  
3

4 MS. BAKER:

5 Q And just to -- I'll just get through some  
6 background with you, if you don't mind, and then  
7 I'll move back over to Mr. Hwang, I think. Until  
8 December 2010, you were the manager for the Water  
9 Stewardship Division for Ministry of Environment  
10 and you were the designated Regional Water Manager  
11 under the **Water Act**?

12 MS. BERARDINUCCI: That is correct.

13 Q Okay. And you started working with the Ministry  
14 of the Environment in 1998, following your M.Sc.  
15 in resource management and in environmental  
16 studies?

17 MS. BERARDINUCCI: Sorry? Could you repeat the  
18 question?

19 Q You began working with the Ministry in 1998?

20 MS. BERARDINUCCI: Not the Ministry, no, with the  
21 Provincial Government.

22 Q Oh, with the Provincial Government.

23 MS. BERARDINUCCI: I started working with Ministry of  
24 Environment in 2006. Sorry, that was the point I  
25 was --

26 Q Okay. Thank you.

27 MS. BERARDINUCCI: -- put off by.

28 Q Thank you. And you have a Masters in resource  
29 management and environmental studies?

30 MS. BERARDINUCCI: Correct.

31 Q And then since December of 2010 you've been the  
32 District Manager for Metro Vancouver Squamish  
33 which is actually a provincial region, right?

34 MS. BERARDINUCCI: Correct.

35 Q And you're still with the province?

36 MS. BERARDINUCCI: I am.

37 Q All right. And you've been responsible for -- on  
38 the management committee of the Fraser Gravel  
39 Removal Program but you're in the process of  
40 transitioning out of that?

41 MS. BERARDINUCCI: That is correct.

42 Q Okay. And as Regional Water Manager under the  
43 **Water Act**, you issued approvals under that Act for  
44 gravel removal in the Fraser River?

45 MS. BERARDINUCCI: That is correct.

46 Q Thank you. So I'm going to actually come back  
47 over to you, Mr. Hwang, and we'll -- in the

1 interests of time, I'm going to move fairly  
2 quickly through some of the questions I have for  
3 these witnesses so that they can be made available  
4 to the participants.  
5 Since -- Mr. Hwang, since 2009, March, you  
6 have managed the Fraser River Gravel File for the  
7 Department of Fisheries and Oceans; is that right?  
8 MR. HWANG: Yes.  
9 Q Okay. And you are -- sit on the B.C. Canada  
10 Management Committee to address gravel removals?  
11 MR. HWANG: Yes.  
12 Q Okay. And that, just to be clear, that is Exhibit  
13 1078 in these proceedings marked this morning.  
14 You're the DFO chair, right?  
15 MR. HWANG: Yeah. It's a co-chair function between  
16 myself and Julia.  
17 Q Okay. And what is your role on the committee?  
18 MR. HWANG: I'm the DFO representative of the  
19 management committee.  
20 Q Right. And what do you do in that role?  
21 MR. HWANG: In general, we discuss the sediment removal  
22 or sediment management planning as it comes  
23 forward. I represent the DFO interests and likely  
24 path of various statutory decisions and associated  
25 assessments and things like that, and we weigh the  
26 various proposals as they come forward and try to  
27 factor in the considerations of all the respective  
28 agencies and the broader mandates that we  
29 represent.  
30 Q Okay. At Tab -- just to back up, you are  
31 responsible for negotiating the new long-term  
32 agreement to deal with gravel removal; is that  
33 right?  
34 MR. HWANG: I have been. Just so it's clear, I -- like  
35 Julia, I'm also transitioning out of that  
36 function, but up till now that is me.  
37 Q All right. You haven't quite got rid of that  
38 responsibility yet?  
39 MR. HWANG: It's a tough one to shake sometimes.  
40 Q All right. If you can turn to Tab 24 of the  
41 commission's documents, there's a draft of the  
42 current letter of agreement that's being  
43 negotiated; do you see that?  
44 MR. HWANG: Yes.  
45 MS. BAKER: Okay. Could I have that marked, please?  
46 THE REGISTRAR: Exhibit 1093.  
47

1 EXHIBIT 1093: Letter of Agreement - Lower  
2 Fraser River Sediment Removal Program - April  
3 2010  
4

5 MS. BAKER:

6 Q And you'll see at the bottom of the first page and  
7 over to the second page there's a highlighted  
8 section which I take it is still under discussion  
9 -- oh, doesn't appear to be highlighted for some  
10 reason. Oh, it must be on the third page. Sorry.  
11 Third to fourth page. There. It says here:  
12

13 An assessment and monitoring plan, being  
14 developed by DFO and the MoE will guide the  
15 assessment and monitoring activities which  
16 includes data collection for the program.  
17

18 Is that still under discussion?

19 MR. HWANG: Yes.

20 Q And is this the involvement of the Ministry of  
21 Environment in this section, is that referring to  
22 the biologist aspect or the habitat biologist part  
23 within Ministry of Environment?

24 MR. HWANG: I would say that might be subject to  
25 different views. DFO's preference would be that  
26 that would be the most suitable in terms of  
27 getting input as it relates to the fish and fish  
28 habitat side of things, but it's been a matter of  
29 some discussion between ourselves and the other  
30 members of the management committee.

31 Q Okay. And presently, there's not a habitat  
32 biologist from the province who's an official  
33 member of the technical committee; is that right?

34 MR. HWANG: That's correct, but there has been more  
35 recently some more direct engagement from what I  
36 would call generally habitat oriented staff from  
37 the province on the committee, but not as official  
38 sort of standing members.

39 Q You're involved in issuing authorizations,  
40 correct?

41 MR. HWANG: Yes.

42 Q We've already reviewed or had marked a couple of  
43 authorizations issued by -- excuse me, issued  
44 under the **CEAA** this morning and one topic that  
45 actually was just being discussed by the previous  
46 panel is gravel removal and recruitment. In your  
47 view, if gravel removal exceeds recruitment in an

1 area, will that result in habitat loss?

2 MR. HWANG: Well, that's one way. And that would be  
3 probably a longer-term, more long-lasting effect,  
4 but habitat loss can occur even if recruitment  
5 does match removal, even in the temporal basis  
6 until it fills back in again.

7 Q Has DFO required compensation for any habitat loss  
8 relating from gravel removal?

9 MR. HWANG: Not to date. Since the authorization we  
10 issued in -- or for the 2010 works, we have had a  
11 provision in there to have habitat compensation  
12 subject to post-construction monitoring to assess  
13 the duration and magnitude of the negative effects  
14 that were anticipated from the works. So  
15 depending on what the outcomes of that are and  
16 till now, those -- they were not at the point  
17 where we can conclude what the duration and  
18 magnitude of effects are. We have not yet had a  
19 compensation requirement, but we're anticipating  
20 that one will be necessary from the works that  
21 were done in 2010.

22 Q All right. Why did it take until 2010 to include  
23 a compensation feature in the permits -- or the  
24 authorizations?

25 MR. HWANG: Well, I'm speculating a bit, just from  
26 looking at previous history, because I wasn't the  
27 -- part of the decision-making process or involved  
28 for DFO on the file, that it's my understanding  
29 that it was the rationale was that it was expected  
30 that the impacts were fairly short-lived and would  
31 be recovered in terms of natural channel movement  
32 and sediment movement and I think based on  
33 observations over time that indicated that wasn't  
34 happening, that's why Laura and I have built the  
35 provision into the authorizations starting in  
36 2010.

37 Q You're familiar with the 2011 **CEAA** assessment that  
38 was done for Tranmer?

39 MR. HWANG: Yes.

40 Q Right. Why don't I have that pulled up? It's Tab  
41 16, which is -- I'm sorry, I don't have the  
42 exhibit reference written down here, but Tab 16 of  
43 our binder, which looks like it might be 1081.  
44 That's it. Oh, sorry, it's the province's binder,  
45 but it's Exhibit 1081.

46 All right. If you could turn to page 5 and  
47 this talks about the morphology in sedimentation

1 and I just wanted to identify where -- you see  
2 partway down the page where it says Appendix A in  
3 bold? Just on the left-hand side you can see it  
4 -- yeah, there it is. It says in this -- it talks  
5 about the amount of sediment coming into the  
6 proposed removal area as being 325,000 cubic  
7 metres since 1999, 36,000 cubic metres in a year.  
8 And then if you go down to the bottom of the  
9 following paragraph it says:

10  
11 The 2009 removal at Tranmer Bar consisted  
12 of...

13  
14 And it explains the removal and then it says about  
15 146 cubic metres of sediment would be removed.  
16 And the 2011 proposal is to remove 186,000 cubic  
17 metres of sediment. Don't -- doesn't that appear  
18 to be removing more than has been deposited in  
19 that area since 1999, when you combine 2009 and  
20 2011 together?

21 MR. HWANG: You might have to give me a minute to read  
22 the details of this. I could probably give a  
23 shorter answer --

24 Q Yes, sure.

25 MR. HWANG: -- recognizing that time is sort of pressed  
26 here. The assessments that we make are done on  
27 the basis of the annual projects that are brought  
28 forward to us from Emergency Management B.C. We  
29 work actively with them as they bring them  
30 forward, trying to steer them towards things that  
31 are more likely to be viable as opposed to things  
32 that are going to have a lot of work put into them  
33 that won't be viable and we take all the  
34 information that we have available to try to  
35 understand how does this proposed change -- how is  
36 that likely to affect fish and fish habitat both  
37 directly and specifically on that bar, as well as  
38 more broadly in terms of other channel-related  
39 processes. So that the sediment budget for the  
40 reach is a consideration, the deposition patterns  
41 on that bar are a consideration, and largely by  
42 way of evaluating the work that we get from the  
43 proponents and their consulted experts and having  
44 our staff, as well as staff from the other  
45 agencies look at them, we come to a decision as to  
46 whether that proposal is likely to be reasonable,  
47 given the purpose of the works and the anticipated

1 effects.

2 Q All right. But doesn't it -- if 186,000 cubic  
3 metres is proposed to be removed right on two  
4 years after 146,000 cubic metres was removed,  
5 that's a fairly significant amount of sediment  
6 being removed from this bar, is it not?

7 MR. HWANG: It is, and it's -- my understanding and I'd  
8 have to refresh myself on the specific details of  
9 the numbers on this file and if you want me to  
10 take the time to do that, I can, but I would say  
11 that at the time we made the decision to authorize  
12 the works, we were comfortable that we understood  
13 as much as is possible in the context of the  
14 proposals as they came forward. The effects were  
15 not likely to be long-lasting or particularly  
16 negative in terms of a site-specific effect on  
17 that reach. So I do understand your question, but  
18 I would have to sort of take a few minutes to read  
19 the details of what the previous paragraph is  
20 referring to and perhaps check some references to  
21 give you the absolute answer to what you're  
22 asking. And I can do that if you'd like.

23 Q Well, I guess the issue is what, in terms of  
24 habitat compensation, is this the kind of bar  
25 where you would expect there would be compensation  
26 ordered after the removal was permitted?

27 MR. HWANG: I think for the most part what I have seen  
28 is that most bars under our current analysis we  
29 would require some degree of compensation for it  
30 because the effects seem to last at least one  
31 freshet. There seems to be partial recovery, but  
32 unless the removals are exceptionally small, there  
33 is a footprint of that removal that persists for  
34 some time.

35 Q Right. Because it says here that there's 36,000  
36 cubic metres a year which would come in and if  
37 you've taken 186,000 out, it's going to take a  
38 number of years before it's recovered.

39 MR. HWANG: If that's what nature actually delivers,  
40 that would be correct. But it is hard to predict  
41 how it's going to work, and sometimes it's faster  
42 and sometimes it's slower than the models would  
43 suggest.

44 Q All right. Thank you. I wanted to take you to  
45 another memo that was prepared by you. It's at  
46 Tab 13 of the commission documents. Do you  
47 remember why this -- first of all, you prepared



1           this memo?

2       MR. HWANG: Yes.

3       Q     And do you remember why it was prepared?

4       MR. HWANG: It was prepared and in terms of briefing,  
5           director in our organization as to the current  
6           situation with regard to DFO's involvement in this  
7           file as some of the issues that we were dealing  
8           with in that moment in time, as well as looking to  
9           the near term and maybe longer term how we would  
10          engage in managing the file.

11       Q     All right. And you've reviewed this memo before  
12          coming here today?

13       MR. HWANG: Briefly, yes.

14       Q     All right. Is there -- is it -- does it still  
15          represent the sort of state of the project?

16       MR. HWANG: Reasonably so, although on some specific  
17          points there has been progress since the memo was  
18          written.

19       Q     Which issues have progressed since the memo was  
20          written?

21       MR. HWANG: Sorry, I didn't -- I didn't note it that  
22          way. I could --

23       Q     All right. Well, if you don't -- could you just  
24          quickly go through the headings and see if there's  
25          anything that stands out because I'd like to have  
26          this marked as a representative state of the  
27          project.

28       THE REGISTRAR: Exhibit 1094.

29

30                   EXHIBIT 1094: Fraser Gravel - Issues and  
31                   Considerations for how DFO manages the file -  
32                   April 21, 2010  
33

34       MR. HWANG: There's nothing on this page that I think  
35          warrants particular update.

36       MS. BAKER:

37       Q     Okay. Mr. Lunn, could you turn to the next page?  
38          It should be in the binder in front of you at Tab  
39          13, if that's helpful.

40       MR. HWANG: Thanks. I'd say on 5 and 6, while the  
41          status of the letter of agreement and long-term  
42          plan are still open in that we haven't got new  
43          ones in place, there has been a fair amount of  
44          work in particular around discussing the nature of  
45          a long-term plan and meetings as recently as this  
46          Spring amongst the agencies -- a joint meeting of  
47          the technical and management committee did do some

1 work in discussing that and there are future  
2 meetings planned to continue with that.

3 Just on a quick scan here, that would  
4 probably be the most significant thing that I  
5 would mention in terms of an update.

6 Q Thank you. And just following up on that, Tab 21  
7 of the commission documents has a set of minutes,  
8 draft minutes, from a meeting held just in March  
9 of this year. This relates to the development of  
10 a long-term plan for gravel removal; is that  
11 right?

12 MR. HWANG: Yes.

13 Q And you were at this meeting?

14 MR. HWANG: Yes.

15 MS. BAKER: Could I have this marked, please?

16 THE REGISTRAR: 1095.

17  
18 EXHIBIT 1095: Minutes of Fraser River Gravel  
19 Reach Sediment Management Long Term Planning  
20 Meeting - March 14, 2011  
21

22 MS. BAKER:

23 Q What was the intention of this meeting and this  
24 group of people?

25 MR. HWANG: In general it was the -- an assembly of the  
26 technical committee and management committee  
27 jointly to discuss making -- or advancing the  
28 concept of a long-term plan and trying to frame up  
29 what that -- the scope of that would be and what  
30 the specific actions or activities would be  
31 underneath that.

32 Q All right. And you reviewed those minutes?

33 MR. HWANG: Yes.

34 Q And they're accurate?

35 MR. HWANG: There have been a number of comments to  
36 those minutes from different participants at that  
37 meeting and they were never actually finalized so  
38 those comments just live as different views.

39 Q Mm-hmm.

40 MR. HWANG: But they're accurate in general, yes.

41 Q Has there been any follow-up from that meeting?

42 Has there been any further meetings or...?

43 MR. HWANG: Not yet. There have been -- I think we've  
44 tried to schedule a follow-up twice and for  
45 various scheduling reasons, including one  
46 important member being sick for awhile, we haven't  
47 been able to do it yet, but we're still planning

1 to.

2 Q All right. And there's some data gaps that are  
3 discussed in this document and I'll just ask you  
4 about some of them. What about gaps in  
5 monitoring, what gaps in monitoring have been  
6 identified?

7 MR. HWANG: Sorry? Can you direct me to what you're  
8 referring to?

9 Q I'm just trying to go so fast here. I apologize.  
10 And these pages aren't numbered but if you go to  
11 the fourth page, there, at the top it says from  
12 Laura, which I take it was Laura Rempel, our prior  
13 witness, is that right?

14 MR. HWANG: Yes.

15 Q  
16 ...tried to tackle reach or larger-scale  
17 effects. Everything has been site-scale to  
18 date. We need to know cumulative/reach  
19 impacts in order to have any confidence when  
20 authorizing multi-year, reach-wide permits.

21  
22 And then Craig - I'm not sure who that is, says:

23  
24 There are gaps in monitoring as well.

25  
26 Can you -- do you remember the discussion around  
27 that?

28 MR. HWANG: Right now in general, yes. I wouldn't sort  
29 of give a -- I don't want to give an impression of  
30 a total recall here or anything, but --

31 Q No.

32 MR. HWANG: -- I think there are gaps in monitoring in  
33 terms of having a broader understanding of issues  
34 much like what Laura and Marvin were speaking to  
35 this morning. Sockeye is one thing that there is  
36 still room to learn more about. It's not one  
37 that's been high on the radar of the technical  
38 committee or management committee but we're still  
39 in the early learning phases of sturgeon,  
40 especially juvenile sturgeon utilization in the  
41 area. That's been an identified gap. There's  
42 ongoing work in that regard.

43 In, I guess, DFO's opinion there's room for a  
44 lot more in situ monitoring as the works are  
45 undertaken and there's a number of things like  
46 that that if we're able to, DFO would like to see  
47 factored into a new management plan for how these

1 works are undertaken.

2 Q And have any gaps been identified in the  
3 department's understanding of sockeye in the  
4 gravel reach?

5 MR. HWANG: Only in some limited way and it's come  
6 largely out of submissions from the Fraser Gravel  
7 Stewardship Committee, Marvin and others, and a  
8 lot of that information was shown earlier today  
9 with the view that there is more sockeye  
10 utilization in the reach or in particular these  
11 river types that Marvin spoke to and that the  
12 effect may be more significant - I'm using my  
13 interpretation of the point here - and that it  
14 warrants more consideration.

15 I would say that DFO has put its mind to that  
16 and we don't discount it by any means, but in the  
17 scheme of the issues that we're looking at related  
18 to the gravel removal it does not seem to be a  
19 primary one in terms of where we would focus new  
20 and additional monitoring effort at this time.  
21 And it's not to say that it's an issue that we  
22 believe we're fully up to speed on, but as it  
23 relates to other issues, it's not one that jumps  
24 out as a priority in my opinion.

25 Q Thank you. And then the new long-term agreement  
26 or the agreement, I guess it's being talked about,  
27 for the Fraser, will it be a long-term or a multi-  
28 year implementation of that agreement? Will --

29 MR. HWANG: Well, that's still under discussion. I  
30 think from each party's view, we can see the value  
31 in that; whether we're able to structure the  
32 program and get the information, assembly, the  
33 investment in monitoring and plan development and  
34 the associated regulatory procedures lined up to  
35 enable that, I think is still unknown. But I  
36 think we can all see benefits to that in terms of  
37 both the flood risk management, as well as  
38 managing the environmental -- potential  
39 environmental impacts from this work.

40 Q If you were to move to a multi-year plan of some  
41 kind, would that engage a different kind of review  
42 under **CEAA** than what's done now?

43 MR. HWANG: More than likely. It's certainly the scope  
44 of the review would change because the review  
45 currently is scoped as the projects are brought to  
46 us. So if we had a project that was, say, a  
47 multi-year, you know, a ten-year project or

1 something like that, then we would scope to see a  
2 review in that way.  
3 Q And would that be a positive move, do you think,  
4 in understanding larger ecosystem impacts of  
5 gravel removal?  
6 MR. HWANG: Yes, most certainly.  
7 Q Thank you. I'd like to move now to Ms.  
8 Berardinucci. You've already -- the document that  
9 shows the management structure for the gravel  
10 removal committee has already been identified and  
11 you sit on the management committee along with  
12 Jason Hwang as the other co-chair?  
13 MS. BERARDINUCCI: Correct.  
14 Q Okay. And if we can have that document pulled up  
15 again. I think you wanted to make some changes to  
16 the titles of all the departments because the  
17 provincial government has made some changes. So  
18 would you like to just take this time to review  
19 the changes that should be made here? And I'll  
20 just identify that these titles are reflected in  
21 the PPR and those corrections that she will make  
22 here should be incorporated into paragraph 35 of  
23 the PPR, but I won't go to that document right  
24 now.  
25 MS. BERARDINUCCI: I'm assuming you'd just like me to  
26 focus in on the ministerial --  
27 Q Yes.  
28 MS. BERARDINUCCI: -- organizations, as opposed to sub-  
29 regions, et cetera?  
30 Q Right.  
31 MS. BERARDINUCCI: So Alec Drysdale now works for  
32 Ministry of Forests, Lands and Natural Resource  
33 Operations, Julia Berardinucci now works for the  
34 Ministry of Forests, Lands and Natural Resource  
35 Operations, so that's the management committee.  
36 At the technical committee level, Lotte Flint-  
37 Petersen has been identified as MNRO correctly.  
38 Q So those three changes?  
39 MS. BERARDINUCCI: Yes, please.  
40 Q Thank you.  
41 MR. PROWSE: I'm sorry, which is now Forests, Lands  
42 and --  
43 MS. BERARDINUCCI: Oh, sorry, no it's MNRO -- that's --  
44 see, even I can't get it right yet, Forests, Lands  
45 and Natural Resource Operations.  
46 MS. BAKER:  
47 Q That replaces MNRO?

1 MS. BERARDINUCCI: MNRO, yes.

2 Q I'm not even going to try and remember that  
3 myself, so thank you for that. And you heard Mr.  
4 Hwang describe the work done by that committee.  
5 Do you have any additional comments you'd like to  
6 add or is that --

7 MS. BERARDINUCCI: Yes, I generally agree with how he  
8 characterized it. The management committee I  
9 would say, however, is there, its fundamental  
10 purpose is to provide guidance to the proponent to  
11 troubleshoot issues as they come up and to try and  
12 streamline the process as much as possible, so to  
13 seek efficiencies.

14 Q Okay. And what is your role in terms of  
15 authorizations? Earlier today we marked a couple  
16 of provincial documents which I should take you  
17 to. One is now marked as Exhibit 1083, that's an  
18 approval application report and then the document  
19 that goes along with it has been marked - I didn't  
20 write down the exhibit number, sorry. Tab 15.  
21 1084. So those have been marked already.

22 MS. BERARDINUCCI: Yes.

23 Q If you could just describe what your role is in  
24 that.

25 MS. BERARDINUCCI: My role up until a few months ago  
26 was as Regional Water Manager to consider  
27 applications for works in and around the stream  
28 under the **Water Act** and to make decisions  
29 accordingly, which in this case are called  
30 approvals under the Provincial **Water Act**.

31 Q Okay. And what materials do you or a person  
32 sitting in that role look at when making the  
33 decisions on the approval applications?

34 MS. BERARDINUCCI: A number of documents. The key or  
35 first document that one starts with is the water  
36 technical report provided by staff which is a  
37 summative document of -- that which characterizes  
38 what's been applied for and also summarizes all  
39 comments received from referrals.

40 Q Is that -- sorry to interrupt. Is that the same  
41 as 1083, if that can just be put up?

42 MS. BERARDINUCCI: It is.

43 Q Okay. Sorry. Carry on.

44 MS. BERARDINUCCI: Where I was -- talking about  
45 referrals, wasn't I?

46 Q Yes.

47 MS. BERARDINUCCI: Sorry. First Nations are contacted

1 through the referral process and other agencies  
2 which have mandates associated with the  
3 application, as well as local governments, and it  
4 then comes -- concludes with a recommendation on  
5 whether or not to grant an approval or to refuse  
6 an approval.

7 Q Okay. And the -- once that -- if a recommendation  
8 has been made to not approve, what happens?

9 MS. BERARDINUCCI: Then the decision-maker needs to  
10 decide whether they're going to follow that  
11 recommendation or not.

12 Q And who is the decision-maker? That would be you  
13 sitting in that role?

14 MS. BERARDINUCCI: In this case it has been me, yes.  
15 Yeah, the power under the **Water Act** is -- lies  
16 both for approvals with the Assistant Regional  
17 Water Manager and the Regional Water Manager.

18 Q All right. Are there other additional materials  
19 referred to by you as a decision-maker in that  
20 role in addition to the technical report or, in  
21 this case it's called an approval application  
22 report?

23 MS. BERARDINUCCI: Yes, certainly. You try and refer  
24 to whatever you need to come to a point of  
25 decision. In this program, what's been customary  
26 is for the draft screening report to be shared and  
27 reviewed and that's a reciprocal action that we  
28 take with the feds in that we share our draft  
29 water technical report, as well, information, and  
30 then any other studies or information,  
31 presentations that one feels is necessary in order  
32 to assist with coming to a decision.

33 Most times the focus is on -- and the  
34 documents referred to are summarized and the basis  
35 for decision are summarized in the water technical  
36 report.

37 Q Okay. I'd like to take you to a couple of earlier  
38 ones just to set some context. So the -- let me  
39 see if I can get this all done in one place. In  
40 the commission binder, Tab 16, I think it is,  
41 there's an application document similar to what  
42 we've just been looking at for 1009 at Tranmer.

43 MS. BERARDINUCCI: Yes.

44 Q Okay.

45 MS. BERARDINUCCI: Mm-hmm.

46 Q You remember this one?

47 MS. BERARDINUCCI: I do.

87  
PANEL NO. 47  
In chief by Ms. Baker

1 MS. BAKER: I'll have this one marked, please.  
2 THE REGISTRAR: 1096.

3  
4 EXHIBIT 1096: Water Stewardship Report on an  
5 Approval Application  
6

7 MS. BAKER:

8 Q All right. And then the approval that was issued,  
9 I think is at Tab 5 in the B.C. documents. I  
10 apologize for flipping between binders here. In  
11 the Provincial documents, Tab 5. That's it. So  
12 that's the approval that was issued?

13 MS. BERARDINUCCI: Yes, I -- well, that's a cover  
14 letter to an approval.

15 Q Sorry. If you could move down the page, Mr. Lunn,  
16 to the next page? There.

17 MS. BERARDINUCCI: There we go, yes.

18 Q Okay. I'll have that document marked as the next  
19 document.

20 THE REGISTRAR: 1097.

21  
22 EXHIBIT 1097: Application for approval to  
23 make changes in and about the Fraser River at  
24 Tranmer Bar - February 6, 2009  
25

26 MS. BAKER:

27 Q And then you've mentioned that a decision would be  
28 made and I take it that is a decision in writing  
29 and we can see a decision for this approval as in  
30 Tab 6 of the B.C. documents? So that would be an  
31 instance where the underlying report had not  
32 recommended that removal be allowed at Tranmer and  
33 you had to issue a decision that then allowed that  
34 approval to be made?

35 MS. BERARDINUCCI: A reason for decision document would  
36 be written in any instance when a decision-maker  
37 feels they need to provide additional information  
38 further to the technical report to explain what  
39 decision they're making regardless of whether it's  
40 in support of -- or, sorry, in keeping with the  
41 recommendation or in opposition to the  
42 recommendation. But more often than not, it's  
43 written in cases where a decision is made contrary  
44 to what's recommended by the staff in the water  
45 technical report.

46 Q All right. And your decision is fully set out in  
47 this document?

June 16, 2011



1 MS. BERARDINUCCI: Yes, it is.

2 Q Your reserved decision. Okay. In the interests  
3 of time I'm not going to take you to it. It  
4 speaks for itself.

5 I do want to take you, though, to the report  
6 from --

7 THE REGISTRAR: Do you wish that last document marked?

8 MS. BAKER: Oh, sorry, that should be -- yes, I'm  
9 sorry. We probably have a whole bunch to mark  
10 here, don't we? Is it just this one that I  
11 haven't marked?

12 THE REGISTRAR: Tab 6.

13 MS. BAKER: Okay. Yes, please mark that.

14 THE REGISTRAR: It's 1098.

15

16 EXHIBIT 1098: Reason for Decision -  
17 Application for Approval of Gravel Removal  
18 from Tranmer Bar - February 6, 2009  
19

20 MS. BAKER:

21 Q I do want to take you to Dr. Church's report,  
22 which is already marked today and that's Exhibit  
23 number 1086.

24 MS. BERARDINUCCI: Could I ask you for the tab, please?

25 Q It's in the commission's documents at Tab 14.

26 MS. BERARDINUCCI: Thank you kindly.

27 Q All right. So you are familiar with this report?

28 MS. BERARDINUCCI: Very.

29 Q Okay. And we heard from Ms. Rempel that this was  
30 prepared at the request of the Emergency  
31 Management B.C.?

32 MS. BERARDINUCCI: Correct.

33 Q Okay. And there's a letter that goes with it  
34 which is Tab 15 and it's Exhibit 1085. If that  
35 could just be popped up. There you go. All  
36 right. And we heard from Dr. Rempel that this  
37 letter wasn't provided at the time the report was  
38 provided to the committee, was that -- is that  
39 true also for your receipt of the cover letter?  
40 Did you get it at the time the report was prepared  
41 or did you get it at a later date?

42 MS. BERARDINUCCI: I received it at a later date. It  
43 was early this year.

44 Q Okay. And how did you come to get it?

45 MS. BERARDINUCCI: I was provided a copy of it through  
46 Emergency Management B.C. Ann Griffin sent it to  
47 me by email.

1 Q Okay. And just to confirm, Dr. Rempel said going  
2 to the report which is 1086, we looked at the  
3 executive summary of this report, page 2, and she  
4 identified that when you look at the two  
5 strategies that have numbers there on the  
6 executive summary that profile maintenance had  
7 been adopted for gravel removal in the Fraser; do  
8 you agree with that?

9 MS. BERARDINUCCI: I would say it hadn't been formally  
10 adopted per se and made that clear, but I have  
11 been working under that principle in my decision-  
12 making since I started making decisions under the  
13 **Water Act** on approvals for this program.

14 Q Okay.

15 MS. BERARDINUCCI: And that was -- that profile  
16 maintenance describes my understanding of the  
17 program.

18 Q All right. Thank you. And we'd talked with Mr.  
19 Hwang about a meeting that was held on March 14,  
20 2001 and you were at that meeting, as well?

21 MS. BERARDINUCCI: Yes, I was.

22 Q All right. And do you have anything to add to the  
23 comments that Mr. Hwang made about the purpose of  
24 that meeting?

25 MS. BERARDINUCCI: No, other than there are -- when I  
26 read through the draft meeting notes, I would say  
27 it captured the gist of the conversation. There  
28 are a few inaccuracies that I feel still need to  
29 be corrected in the final meeting minutes, but it  
30 was very much an open free-flowing conversation,  
31 trying to scope -- trying to scope in all aspects  
32 to be considered further as we moved through  
33 further discussions on the long-term plan.

34 Q All right. And do you agree with his statements  
35 as to where the planning process is now in terms  
36 of moving on with further meetings and  
37 discussions?

38 MS. BERARDINUCCI: Yes. Actually, there's a joint  
39 technical and management committee meeting  
40 scheduled for end of July at this point in time  
41 and with the invitation to Dr. Church to join us  
42 and discuss this in further detail. So we are  
43 moving along. Unfortunately, a flood got in the  
44 way and many of the staff that are involved here  
45 have had to work on other things, so we've had  
46 delays.

47 MS. BAKER: Okay. Mr. Commissioner, I'm going to turn

1           these witnesses over to my friends because time is  
2           so short, and I don't know if we had a decision on  
3           whether we're taking a break today or not, but I  
4           know that there's a lot of people who would like  
5           to ask questions of these witnesses so if it's at  
6           all possible to skip that today, I would really  
7           hope we could do so.

8           The first questioner will be Mr. Spiegelman.  
9   MR. SPIEGELMAN: Thank you. For the record, Jonah  
10           Spiegelman for the Government of Canada.

11  
12   CROSS-EXAMINATION BY MR. SPIEGELMAN:

13  
14   Q    In the interests of time, I'm going to just ask a  
15        couple of my questions and hope to be very short.  
16        So Mr. Hwang, when you were here giving some  
17        evidence on April 4th and 5th on habitat  
18        management generally you spoke of some  
19        jurisdictional challenges that the habitat  
20        management program faces and the need to maintain  
21        a collaborative and cooperative working  
22        relationship with the Province of B.C. Do you  
23        remember giving that evidence?

24   MR. HWANG: Yes.

25   Q    In your assessment is the gravel removal file an  
26        example of that?

27   MR. HWANG: It's an example of the federal and  
28        provincial government sort of cooperating on a  
29        planning scale. It -- I wouldn't put it forward  
30        as necessarily a perfect model, but it's one  
31        that's better than not cooperating.

32   Q    Thank you. And can you just provide a few brief  
33        comments on how DFO approaches the Fraser River  
34        Sediment Management Program generally?

35   MR. HWANG: Certainly. It -- and I think this is an  
36        important point that I know a number of people  
37        take exception to, but it's important to emphasize  
38        DFO's perspective on this file, and that is that  
39        it comes to us from the Government of British  
40        Columbia from the agency with responsibility for  
41        public safety and within that umbrella flood  
42        management and risk management. So we get that,  
43        again, from a senior level of government as a  
44        public safety priority when we get these sediment  
45        removal requests. So DFO takes them very  
46        seriously and to a degree, we evaluate those  
47        somewhat differently than we would a project that

1 was strictly an economic development project  
2 because the public safety factor weighs quite  
3 heavily in terms of the rationale and the  
4 compelling circumstance for the proposed works.  
5 So, you know, if it was strictly an economic  
6 development proposal, the consequence of DFO  
7 rejecting a proposal because it had a significant  
8 habitat impact would be strictly an economic cost  
9 to the proponent for that. But in this case, if  
10 DFO were to reject a project that came forward,  
11 our understanding is that that would come with  
12 increased risk to public safety, so that puts a  
13 fairly significant emphasis on these projects much  
14 different than a typical development referral that  
15 we would receive.

16 Q Thanks. That's helpful. And can you just discuss  
17 a few of the mitigation measures that DFO requires  
18 of the proponent when considering authorizing  
19 these works?

20 MR. HWANG: Sure. Some of the more significant ones  
21 are ensuring that any sediment removal works are  
22 set back a significant distance from known areas  
23 where pink salmon spawn. That is the -- probably  
24 the most significant sensitive habitat utilization  
25 that we know for sure happens in the proximity of  
26 these removals and so, for instance, in 2010 when  
27 the removals happened, there was a very deliberate  
28 mapping by the consultants working for EMBC and  
29 the removals were set well back from pink  
30 spawning. And the monitoring that we did during  
31 the works found even when there was a site where  
32 the operators made a mistake and went closer to  
33 the river than the intended boundary was going to  
34 be, our follow-up indicated that there was still  
35 enough of a buffer that that mistake did not  
36 result in negative harm to areas where pink salmon  
37 had spawned.

38 So that's one example. Other things relate  
39 to the timing of the works, trying to avoid known  
40 sensitive habitats and work on areas that are  
41 thought to be somewhat more tolerant to  
42 disturbance and things like that.

43 Q Thank you. And finally, in your assessment how  
44 significant a risk to Fraser sockeye is gravel  
45 removal from the Lower Fraser?

46 MR. HWANG: Well, I'll provide my answer recognizing  
47 the context of the discussion that's happened this

1 morning and I'll just put a bit of perspective on  
2 it from what I'm bringing to this answer. In the  
3 chair I sit in for DFO, as per my time here back  
4 in April, I look at habitat issues in the Fraser  
5 watershed, basically upstream of about Boston Bar.  
6 That is the scope of management area that myself  
7 and our staff work under.

8 And we see all kinds of issues that are very  
9 relevant and, in our opinion, fairly significant  
10 from a habitat perspective, as they relate to  
11 sockeye. And I also happen to at least currently  
12 manage the gravel file for DFO and in my opinion  
13 the gravel removal work, while I do agree it's an  
14 important fish habitat issue, does not really rate  
15 in terms of significance for habitat issues as  
16 they relate to sockeye. And I compare that to  
17 things like the potential changes in watershed  
18 from mountain pine beetle, to significant water  
19 use and water diversions, to cumulative impacts of  
20 very, very accelerated and high rates of foreshore  
21 or recreational property development and things  
22 like that.

23 So I don't at all mean to try to trivialize  
24 the sediment removal. I think it is an important  
25 fish habitat issue. It's probably quite important  
26 to things like sturgeon and juvenile chinook, pink  
27 salmon that use that reach very directly. As far  
28 as sockeye go, it doesn't strike me as significant  
29 and notwithstanding this information that is  
30 fairly new and, in fact, some of the stuff that I  
31 heard Dr. Rosenau speak to today in terms of the  
32 stock profile information of the sockeye that his  
33 students had found being Stellako and Early  
34 Stuart, if I heard that correctly, this would be  
35 the first time I've heard that information and I  
36 find that interesting and it's something that we  
37 would follow up on in terms of future  
38 considerations, but not something that strikes me  
39 as alarming in terms of the well-being of Fraser  
40 sockeye.

41 MR. SPIEGELMAN: Thank you. Those are my questions.

42 MR. PROWSE: Mr. Commissioner, Cliff Prowse.

43 THE REGISTRAR: Could you please turn on your  
44 microphone? Thank you.

45 MR. PROWSE: For the record, with the microphone one,  
46 Cliff Prowse for the province.

47

1 CROSS-EXAMINATION BY MR. PROWSE:  
2

3 Q I think, Ms. Berardinucci, I'll address most of my  
4 questions to you. Mr. Lunn, could we have at Tab  
5 24 of the province's documents?

6 So this is a document that was prepared by  
7 the proponent ministry to explain flood protection  
8 program; are you familiar with this document?

9 MS. BERARDINUCCI: Yes, I am.

10 Q And, Mr. Lunn, if you could turn to the fourth  
11 slide. Thank you. So the -- what are the goals  
12 of the Provincial Integrated Flood Hazard  
13 Management Program?

14 MS. BERARDINUCCI: The goal of the Integrated Flood  
15 Hazard Management Program is really the protection  
16 of public safety, people, infrastructure and to  
17 ensure that proactive planning takes place in  
18 order to avoid disasters.

19 Q All right. And the components include emergency  
20 management, dike and dam safety and land use  
21 management?

22 MS. BERARDINUCCI: Correct.

23 Q And what is the role of the Ministry of Forests,  
24 Lands and Natural Resource Operations?

25 MS. BERARDINUCCI: The role of Forest, Lands and  
26 Natural Resource Operations at this point in time,  
27 because -- I'm sorry, I'm saying that because of  
28 organizational change, is the -- is related to the  
29 regulation of dikes and dams, oversea and land use  
30 planning guidelines, local government planning and  
31 zoning, risk analysis of flood consequences,  
32 hydraulic modelling, authorizations associated  
33 with gravel removal, participating in emergency  
34 planning or assisting others and other agencies in  
35 emergency planning and obviously information  
36 sharing.

37 Q And there's an ongoing program of sediment removal  
38 in the Lower Fraser River and how does that relate  
39 to the provincial flood protection strategy?

40 MS. BERARDINUCCI: Well, it's just one component of the  
41 whole larger strategy and really, the first line  
42 of defence against flooding is dikes -- are dikes  
43 and the maintenance of dikes, the regulation of  
44 those and sediment management is done or  
45 contemplated in relation to those dikes.

46 Q Mr. Lunn, could we have Tab 28, please? And this  
47 is a letter that has to do with a governance

1 structure in the management and technical  
2 committees; is that correct?

3 MS. BERARDINUCCI: Yes, it is.

4 Q And I note that in the end of the second paragraph  
5 it refers to the management committee as the  
6 decision-makers committee. Can you explain that  
7 to the Commissioner, please?

8 MS. BERARDINUCCI: The management committee has been  
9 comprised of decision-makers associated with  
10 federal legislation and provincial legislation.  
11 Under provincial legislation it's been the **Land**  
12 **Act** and the **Water Act** and, of course, federal  
13 legislation, as well as Emergency Management B.C.  
14 as proponent.

15 Q All right. And how does your role under the **Water**  
16 **Act** -- is that a decision-maker role?

17 MS. BERARDINUCCI: Yes, it is. And I'm sorry, I failed  
18 to include navigable waters on management  
19 committee. Sorry, I'll go back. Just wanted to  
20 be inclusive.

21 Q All right. With respect to -- Mr. Lunn, could we  
22 have Tab 27 of the provincial --

23 MR. PROWSE: Oh, sorry, could we mark that as an  
24 exhibit, Tab 28?

25 THE REGISTRAR: First of all, did you wish to mark Tab  
26 24?

27 MR. PROWSE: Yes, Tab 24, sorry.

28 THE REGISTRAR: Okay. That will be 1099.

29  
30 EXHIBIT 1099: British Columbia Flood  
31 Protection Program Presentation to BCWF -  
32 April 11, 2008  
33

34 THE REGISTRAR: And then Tab 28, do you wish that  
35 marked?

36 MR. PROWSE: Yes, please.

37 THE REGISTRAR: Be 1100.

38  
39 EXHIBIT 1100: Letter to Sue Farlinger from  
40 Doug Konkin dated July 30, 2010  
41

42 MR. LUNN: And the next tab?

43 MR. PROWSE: Tab 27.

44 MR. LUNN: Thank you.

45 MR. PROWSE: And also Tab 19.

46 Q Yes, Ms. Berardinucci, are you familiar with these  
47 two documents?

1 MS. BERARDINUCCI: I am familiar with this document,  
2 yes.  
3 Q And --  
4 MS. BERARDINUCCI: On the screen now.  
5 Q So the -- if we could look at 27, I'm sorry, Mr.  
6 Lunn? So Tab 27, what does that show us in terms  
7 of who's expending what?  
8 MS. BERARDINUCCI: This is a document that was produced  
9 by Emergency Management B.C. to the best of my  
10 knowledge and it's regarding infrastructure  
11 funding in relation to dikes. And, oh, sorry, it  
12 also includes the urgent flood mitigation program.  
13 Q All right. And --  
14 MS. BERARDINUCCI: And the -- sorry.  
15 Q And Tab 19, Mr. Lunn? And Tab -- and, sorry,  
16 document 19, this shows expenditures by different  
17 levels of government, does it?  
18 MS. BERARDINUCCI: Yes, it does.  
19 Q And what are those -- what do those --  
20 MS. BERARDINUCCI: Again, this is an infrastructure or  
21 funding program in relation to dike enhancements.  
22 Q So -- and it includes sediment removal as one  
23 component of what's shown on this, does it? I'm  
24 sorry.  
25 MS. BERARDINUCCI: Sorry, not on this particular page.  
26 Q Right. So Tab 27? To the bottom, please, Mr.  
27 Lunn.  
28 MS. BERARDINUCCI: Oh, thank you. Yes, there we go.  
29 Needed the scrolling to --  
30 Q So a comparison of -- can you tell the  
31 Commissioner the comparison of the two totals that  
32 we see at the bottom there?  
33 MS. BERARDINUCCI: Well, the flood protection program  
34 in relation to the dikes from what I see here,  
35 there's a total of -- sorry, that's a ballpark  
36 figure of 13 million and the sediment management  
37 program is 2,500,000.  
38 Q All right. Thank you.  
39 MS. BERARDINUCCI: Approximately.  
40 MR. PROWSE: And could I ask that those two documents  
41 be marked as exhibits?  
42 THE REGISTRAR: Tab 27 will be marked as 1101. Tab 19  
43 will be marked as 1002.

44  
45 EXHIBIT 1101: Flood Protection  
46 Infrastructure Program spreadsheet  
47



1 EXHIBIT 1102: Flood Protection  
2 Infrastructure (Mission to Hope) spreadsheet  
3

4 MR. PROWSE:

5 Q With respect to your -- might we have Tab 4,  
6 please, of the province's exhibits? All right.  
7 So if you can just scroll down to... Yes. So  
8 this was the application put forward by the  
9 proponent for the 2009 gravel removal on Tranmer  
10 Bar?

11 MS. BERARDINUCCI: Yes, it is.

12 MR. PROWSE: Might that be marked as the next exhibit,  
13 Mr. Commissioner?

14 THE REGISTRAR: 1103.  
15

16 EXHIBIT 1103: Fraser River Gravel Removal  
17 Plan Proposed Tranmer Bar Extraction - 2009  
18

19 MR. PROWSE:

20 Q And I wanted to ask you with respect to the 2009  
21 application, this has already been marked Exhibit  
22 1098, if that could be brought forward for the  
23 witness, and that's at Tab 6 of the province's  
24 documents. Can you just outline for the  
25 Commissioner the basis for the decision that you  
26 made with respect to proceeding with respect to  
27 this application and in light of the concerns that  
28 had been raised in the Water Stewardship Report?

29 MS. BERARDINUCCI: Yes, certainly. There were two  
30 areas of concern or uncertainty that I wanted to  
31 consider in further detail. One was the hydraulic  
32 benefit of the proposed removal from Tranmer Bar  
33 in 2009 and the second aspect was potential  
34 impacts of the proposed removal to fish and fish  
35 habitat. In relation to the hydraulic conveyance  
36 or the overall hydraulic benefit of what was being  
37 proposed, what was submitted by Emergency  
38 Management B.C., the proponent, was rated or  
39 evaluated by a consultant that was hired for the  
40 -- by myself for the province to provide advice on  
41 what would be the benefit of that particular  
42 extraction. And it was -- received a relatively  
43 low rating for hydraulic benefit.

44 Now, that was -- that was actually a second  
45 or a different or an alternate proposal than had  
46 originally been tabled and having -- which  
47 originally had identified Tranmer as a possible

1 bar for removal. What had happened in earlier  
2 designs was that it was looked at from a fish  
3 habitat and fisheries impacts perspective and  
4 deemed to be harmful and it was a bar edge design  
5 and so it was actually modified and then submitted  
6 for approval and consideration. And I took that  
7 aspect into consideration and saw that -- and felt  
8 that or came to the conclusion that although it  
9 wasn't as efficient or effective a design, that it  
10 was reasonable to consider an alternate design for  
11 that site if it was, in fact, more protective of  
12 the environment and a better design in relation o  
13 the impacts on fish and fish habitat.

14 So that was the decision I took on that  
15 particular aspect. With regards to impacts on  
16 fish and fish habitat I turned to the DFO  
17 screening report and also spoke to the sturgeon  
18 specialist within the ministry to try and get a  
19 sense of what had been considered in both of those  
20 aspects. The conclusion that I read in the **CEAA**  
21 screening report was that there was obviously  
22 going to be impacts from the Tranmer Bar  
23 extraction; however, they were considered to be  
24 reparable relatively limited in scale, actually  
25 1.2 percent of the reach was anticipated to be  
26 impacted and that -- their conclusion from a  
27 fisheries perspective in relation to federal  
28 species was that this project could proceed or  
29 this approval could proceed.

30 There was much more uncertainty regarding the  
31 impacts of the Tranmer extraction in relation to  
32 sturgeon, and basically a lack of information  
33 resulting in a lack of ability of the specialist  
34 with the ministry to provide advice on impacts to  
35 sturgeon. To that end, I considered what would be  
36 the potential for harm in relation to the size of  
37 that particular proposal, whether or not there was  
38 irreparable damage anticipated or what was the  
39 risk there in relation to doing nothing from a  
40 public safety perspective. And from what -- the  
41 conclusion I came to was that this project had  
42 some benefit from a public safety perspective in  
43 meeting the objectives of managing gravel in the  
44 Fraser in relation to the dikes and that we had an  
45 opportunity here to actually obtain more  
46 information on the impacts on sturgeon through the  
47 issuance of the approval and requiring certain

1 monitoring to take place as a result of -- further  
2 to the gravel extraction. And in this context, I  
3 made a decision that it was reasonable to move  
4 forward as long as we incorporated as many terms  
5 and conditions that we could that required more  
6 information to be gathered on the impacts.  
7 Q All right. And so there were various conditions  
8 to address environmental concerns as part of the  
9 approval?  
10 MS. BERARDINUCCI: Yes, there were.  
11 Q And might the witness have Exhibit 1083, Mr. Lunn?  
12 So this is the 2011 and this is both the approval  
13 and the application -- approval and application  
14 report?  
15 MS. BERARDINUCCI: Yes, this is what we commonly term  
16 the water technical report.  
17 Q All right. And Mr. Lunn, if we could have the  
18 last page of the document. And you've signed off  
19 on the approval on this document, have you?  
20 MS. BERARDINUCCI: Yes.  
21 Q And can you tell the Commissioner what differences  
22 there were with -- in the 2011 approval as opposed  
23 to the 2009 approval?  
24 MS. BERARDINUCCI: In this particular circumstance  
25 information had been gathered regarding sturgeon  
26 by the proponent and submitted and the sturgeon  
27 specialist for the ministry was able to provide  
28 advice and basically advised me that in their  
29 opinion the impacts, there would be impacts  
30 obviously, but they would be temporary and  
31 recoverable and at the scale that they were being  
32 proposed, given appropriate mitigative measures,  
33 it was reasonable to proceed or recommendation was  
34 made that it would be reasonable to proceed with  
35 issuing an approval.  
36 Q All right. And that -- you signed off on the 2011  
37 application?  
38 MS. BERARDINUCCI: I issued an approval, yes.  
39 Q Yes. And the -- in 2009 you told us that there --  
40 the original suggestion had included some bar edge  
41 work which might have been hydraulically  
42 preferable but it was not environmentally  
43 appropriate and so you didn't proceed with that,  
44 you proceeded with a secondary option in 2009?  
45 MS. BERARDINUCCI: That's correct. Yes.  
46 Q And in 2011 was the bar edge approved? Sought or  
47 approved?

1 MS. BERARDINUCCI: No.  
2 Q And in 2011, in fact, due to other circumstances,  
3 the work did not proceed?  
4 MS. BERARDINUCCI: That's correct.  
5 MR. PROWSE: Those are my questions, Mr. Commissioner.  
6 MS. BAKER: Mr. Commissioner, before Mr. Leadem starts,  
7 we're not going to be able to finish this panel  
8 fairly today. I think it's pretty clear. We've  
9 got three people that still need to ask questions.  
10 I allocated time for the last three witnesses at  
11 almost an hour collectively, probably about 50  
12 minutes collectively. I know it's -- it's an hour  
13 actually, so I don't know -- I don't think it's  
14 fair really to try and ask these people to ask  
15 their questions in ten minutes when they had a  
16 half hour estimate, so I would like to propose  
17 that perhaps -- I don't know if Ms. Gaertner and  
18 Ms. Schabus are able to complete today and that  
19 leaves Mr. Leadem for another day or some other  
20 iteration of that. I mean, Ms. Schabus is coming  
21 from out of town. She may like to get it done  
22 today, but perhaps we can find another hour some  
23 morning starting at nine o'clock to complete this  
24 evidence if the witnesses -- if I can find a time  
25 when everybody's available. Would that be  
26 acceptable?  
27 THE COMMISSIONER: It would be, but it'll be sometime  
28 later probably in the Fall, I would think.  
29 MS. BAKER: Or could -- it could be perhaps a nine  
30 o'clock start on one of the days after the next  
31 week, we have a break next week?  
32 THE COMMISSIONER: I think we have a lot going on that  
33 week already, so...  
34 MS. BAKER: Yes. No, I realize that, but if we did it  
35 from 9:00 to 10:00, would that be a possibility?  
36 THE COMMISSIONER: I don't know at this point, but we  
37 can certainly investigate that.  
38 MS. BAKER: Yes. So in terms of the remaining part of  
39 the day, who would like to go? Well, Ms. Gaertner  
40 says she's able to start.  
41 MS. GAERTNER: I'll use the time, unless you want...  
42 MR. LEADEM: I'll go. Actually, while we were -- while  
43 commission counsel was discussing it, I thought I  
44 could probably finish my cross in eight minutes,  
45 given that we were going to divide 25 minutes and  
46 I was trying to compress everything into eight  
47 minutes of cross-examination, so I'm grateful to

1 my learned friend for her commentary. But I can  
2 at least start and occupy the rest of the time  
3 profitably, I would trust.  
4

5 CROSS-EXAMINATION BY MR. LEADEM:  
6

7 Q I'm going to start with you, Mr. Hwang. And for  
8 the record, Leadem, initial T., appearing as  
9 counsel for the Conservation Coalition. I've not  
10 had the benefit of addressing you before. My  
11 understanding from reviewing the documentation is  
12 that you are the authority on behalf of Department  
13 of Fisheries and Oceans that is responsible for  
14 sign-off on the s. 35(3) authorizations on gravel  
15 removal; is that correct?

16 MR. HWANG: Yes. I sign them. The current approval  
17 process is that I will send up the authorization  
18 as drafted for approval to sign it off. I have to  
19 actually get it vetted above me and then once that  
20 comes back, I sign it on behalf of the department.

21 Q I see. And so when you send it up the ladder, how  
22 far up the ladder do you send it? Does it go to  
23 the RDG level?

24 MR. HWANG: It ultimately does, yes.

25 Q All right. And I take it that --

26 MR. HWANG: All authorizations do. This one's not  
27 special. They all go there. That's our current  
28 process, just to be clear.

29 Q I see. All right. But in terms of the technical  
30 expertise essentially is -- do I have it correctly  
31 that the RDG looks to you to provide that  
32 information to him or her?

33 MR. HWANG: Yes.

34 Q Essentially then, do you -- and I think I heard  
35 this through your evidence, you basically accept  
36 at face value the proposition that the province  
37 puts forward that the basis for gravel removal is  
38 flood control, is for public safety?

39 MR. HWANG: Yes.

40 Q You don't look behind that, do you? You don't  
41 actually do tests and studies yourself to  
42 determine if that is accurate or not?

43 MR. HWANG: Not specifically on a year-by-year basis,  
44 but over time I think the department has a degree  
45 of comfort that there is a reasonable enough case  
46 that up to our level of expertise and knowledge  
47 has been presented that there -- the sediment

- 1 removal has some flood mitigation value and it's  
2 reinforced by things like the report that Dr.  
3 Church wrote that was spoken to earlier today.
- 4 Q Yes. And we'll get to that report in due course.  
5 Essentially though, as I understand it, you don't  
6 get involved with hydrology and geomorphology and  
7 fluvial geology and things of that nature. That's  
8 not within your area of expertise. You rely upon  
9 others for that?
- 10 MR. HWANG: Personally, that's correct. Laura Rempel,  
11 who was here earlier, has expertise that is either  
12 direct or directly approaching some of those  
13 particular things and she does most of the work on  
14 the authorizations and EAs and works with me to  
15 have those developed.
- 16 Q Okay.
- 17 MR. HWANG: So we get involved that way but only  
18 insofar as it relates to fish and fish habitat, so  
19 not on the flood benefit and engineering side of  
20 things.
- 21 Q And I'm going to turn to you, Ms. Berardinucci and  
22 ask you a series of questions. What happens to  
23 the gravel that's removed? Is it used to build up  
24 the dikes or what's it used for?
- 25 MS. BERARDINUCCI: It goes to different parties. The  
26 most recent extractions have been in partnership  
27 with the First Nations.
- 28 Q Right.
- 29 MS. BERARDINUCCI: And they've been using them for  
30 community development purposes.
- 31 Q So it's basically used for infrastructure and for  
32 construction purposes, as far as you are aware?
- 33 MS. BERARDINUCCI: I don't know in detail what it's  
34 used for.
- 35 Q All right. Is it a commercial venture of some  
36 sort to your knowledge?
- 37 MS. BERARDINUCCI: Not to my understanding.
- 38 Q Essentially then from the perspective of the  
39 province, you put forward the position that this  
40 is an integral part of flood control relief by the  
41 province in terms of the Fraser River; is that  
42 correct?
- 43 MS. BERARDINUCCI: It's one aspect of a multi-parameter  
44 flood hazard management program.
- 45 Q Yes. And I think you also gave evidence earlier  
46 to my learned friend Mr. Prowse that essentially  
47 so the dike work is being of importance level is

1 more important than the gravel removal program; is  
2 that fair to say?

3 MS. BERARDINUCCI: I would say it would be the first --  
4 yes, it's the first line of defence against the  
5 flood risk.

6 Q All right. Could we have Exhibit 1085, please?  
7 This is a letter from Dr. Church that accompanied  
8 his report and I'll get to the report in a moment.  
9 Have both of you seen this letter?

10 MR. HWANG: Yes.

11 MS. BERARDINUCCI: Yes.

12 Q And my understanding is that the letter went to  
13 Ms. Ann Griffin, who was the manager at the time  
14 for EMBC; is that right? Or one division of EMBC?

15 MS. BERARDINUCCI: Yes.

16 Q Is she still there?

17 MS. BERARDINUCCI: Yes, she is.

18 Q All right. And I think you gave evidence, Ms.  
19 Berardinucci, that you did not see this letter  
20 until sometime later.

21 MS. BERARDINUCCI: Correct.

22 Q And that was because you got it in an email from  
23 Ms. Griffin's office?

24 MS. BERARDINUCCI: Correct.

25 Q Now, have you read through the letter in detail?

26 MS. BERARDINUCCI: I have.

27 Q And I'm going to address portions of the letter.  
28 If we look down to the paragraph beginning:

29

30 However, we know from substantial  
31 experience...

32

33 Thank you.

34

35 ...that individual sediment removals short of  
36 the order of a million cubic metres will not  
37 substantially affect local water levels in  
38 the short term.

39

40 And the author goes on to say:

41

42 But sediment removal on such a scale would  
43 very significantly disrupt the aquatic  
44 ecosystem. There is, furthermore, concern  
45 that the current program pays too little  
46 attention to the potential ecological costs  
47 of sediment removal.

1 Are either of you in a position to comment on that  
2 particular paragraph? Do you agree or disagree  
3 with it? Mr. Hwang?

4 MR. HWANG: I would defer to Dr. Church in terms of the  
5 million cubic metres affecting local water levels,  
6 but it's my understanding that that would be  
7 correct. And in terms of the too little attention  
8 to potential ecological costs, I would agree in  
9 general but not to say that we're not putting our  
10 minds to that. So there's a difference, I think,  
11 between the holistic perspective that Dr. Church  
12 presents here that I'm not taking exception to,  
13 but that's not to say that we don't pay attention  
14 to them specifically on the individual sediment  
15 removal projects that are brought forward to us by  
16 the province.

17 Could we do more? Absolutely. I wouldn't  
18 dispute that. But it's not done in a vacuum  
19 either.

20 Q And turn it to you, Ms. Berardinucci.

21 MS. BERARDINUCCI: To add to that, I think they are  
22 reasonable comments to make. We haven't  
23 considered removals in the order of magnitude  
24 that's described here and certainly respect his  
25 opinion regarding what he states here, we're  
26 working within the budgets and the programs that  
27 we have available to us and doing the best we can  
28 under those circumstances.

29 Q He goes on to talk about this profile maintenance  
30 and do I have your evidence correctly, Ms.  
31 Berardinucci, that your department is committed to  
32 this approach, a profile maintenance approach as  
33 opposed to a profile control approach?

34 MS. BERARDINUCCI: The profile maintenance approach is  
35 -- that's not the term that was used when I first  
36 started in the job to -- when I sought advice from  
37 the inspector of dikes and the river engineering  
38 hydrologist, but the principle that was described  
39 at that time and that I have applied to the  
40 decisions I've been making is in keeping with that  
41 term or that description that he provided in this  
42 letter and his report.

43 Q All right. And he contradistincts that to profile  
44 control, which is removing more than what can be  
45 replaced over a short period of time; is that your  
46 understanding, as well?

47 MS. BERARDINUCCI: Could you repeat the question? I'm



1           sorry. I'm not clear on what was asked.

2           Q     All right. Perhaps the easiest way to do this is  
3               to examine the actual report which is Exhibit 1086  
4               and I believe it's page 2. Go down to (1) and  
5               (2), please, Mr. Lunn. There we go. So there's  
6               two definitions and two terms that Dr. Church uses  
7               in this report and you see the itemized number (1)  
8               and number (2) there?

9           MS. BERARDINUCCI: I do.

10          Q     And so itemized number (1) is:

11  
12                     Routine removal, at convenient places along  
13                     the river, of a volume of sediment that, over  
14                     a period of years, approximates the bed  
15                     material...

16  
17                     And he calls that profile maintenance.

18                     And then he goes -- and he draws the  
19                     distinction between:

20  
21                             Targeted removal... of volumes of sediment in  
22                             order to counteract the effects of local  
23                             sediment accumulation with consequent rise of  
24                             water levels immediately upstream.

25  
26                     He calls that profile control.

27                     So does that help you now in terms of the  
28                     distinction between profile control and profile  
29                     maintenance?

30          MS. BERARDINUCCI: Yes. I felt I was relatively clear  
31                     on that. What I didn't understand was the  
32                     question you were posing.

33          Q     Okay.

34          MS. BERARDINUCCI: So I'm sorry.

35          Q     All right. so --

36          MS. BERARDINUCCI: So yes.

37          Q     But I guess what I'm after is do we have a  
38                     commitment from the province that it's going to  
39                     approach these gravel extraction applications on  
40                     the basis of profile maintenance as opposed to  
41                     profile control in the future?

42          MS. BERARDINUCCI: As a statutory decision-maker, what  
43                     I can say is I've been applying a principle of  
44                     profile maintenance in decisions I've made to  
45                     date.

46          Q     Okay. In the confines of his report, he also  
47                     makes some recommendations about the methodology

1 for removal, and I think if you were to examine -  
2 I don't have my notes with me, but I think it's  
3 page 19, I'm hoping that's the case. It's either  
4 19 or 20, Mr. Lunn. Towards the bottom of the  
5 page, I think the -- next to the last paragraph.  
6 Well, that does contain a provision I wanted to  
7 put to you. He's arguing for -- you see in  
8 paragraph -- at the bottom of paragraph -- or of  
9 page 19 he says:

10  
11 Hence the program must be both adaptive and  
12 precautionary.  
13

14 And he's talking about the assessment program. Do  
15 you agree with his comments there that whatever  
16 program is put into place must be both adaptive  
17 and precautionary?

18 MS. BERARDINUCCI: Yes, I would agree.

19 Q Mr. Hwang?

20 MR. HWANG: Well, I have to frame my response to that  
21 in -- it would relate to DFO's mandate, so it's up  
22 to the province to determine what the flood  
23 mitigation program is. DFO's preference, as far  
24 as fish and fish habitat go, would be that it's as  
25 precautionary as possible, but we would defer to  
26 the province to determine what the appropriate  
27 flood mitigation activities would be.

28 Q At another place in his report he talks about from  
29 an environmental perspective how scalping, in  
30 other words, taking off the top of the gravel  
31 bars, is not as preferable as what he calls pull  
32 back in which you're taking from the edge of the  
33 gravel bars; are you familiar with what he  
34 discusses in that context?

35 MS. BERARDINUCCI: I'm familiar with his discussion in  
36 the report, yes.

37 Q And in terms of the applications that you examine,  
38 are you in favour of this pull back method which  
39 according to Dr. Church results in less  
40 environmental degradation than a scalping  
41 methodology?

42 MS. BERARDINUCCI: I don't have a -- I don't favour one  
43 method over another. It's not my specialization  
44 to know.

45 Q But you certainly would be prepared to be guided  
46 by Dr. Church in terms of his advice; is that fair  
47 to say?

1 MS. BERARDINUCCI: I would be prepared to take advice  
2 from a number of qualified professionals and I  
3 would turn to my own ministry staff who are  
4 advising me, as well as Dr. Church, so -- and  
5 anyone else who could speak on that issue with the  
6 right qualifications.

7 MR. LEADEM: All right. Thank you, Mr. Commissioner,  
8 those are my questions.

9 THE COMMISSIONER: Thank you.

10 MS. BAKER: Well, we do have ten minutes and the  
11 allocation for Ms. Schabus was ten minutes, so we  
12 could perhaps complete her evidence, or Ms.  
13 Gaertner if she wanted to reduce her 15 to ten,  
14 whichever.

15 MS. SCHABUS: Thank you, and --

16 THE REGISTRAR: The microphone, please.

17 MS. SCHABUS: Oh. Thank you, Mr. Commissioner, I'm  
18 going to try and squeeze my questions in.

19

20 CROSS-EXAMINATION BY MS. SCHABUS:

21

22 Q I've been counting on Ms. Gaertner to go to some  
23 of the questions we had discussed about the  
24 membership, so I'll just very briefly go to the  
25 membership of the technical and both the  
26 management committee which has already been shown  
27 to you as an exhibit, just to confirm that no  
28 First Nations or indigenous -- there are no  
29 indigenous members from especially indigenous  
30 peoples from the gravel reach on either of those  
31 committees.

32 MS. BERARDINUCCI: They are not, no. First Nations are  
33 not formally represented on either committee,  
34 however, we've been discussing that issue and  
35 Emergency Management B.C. has been discussing that  
36 issue with First Nations for a number of years,  
37 certainly since they've become involved. There's  
38 a number of First Nations and the challenge is how  
39 to be inclusive of everyone's point of view. To  
40 that end, I am aware that very recently a number,  
41 I believe it's about five First Nations, have  
42 created an association or entered into agreement  
43 to work together on gravel issues which creates an  
44 opportunity of representation. In addition, the  
45 province, through its framework for consultation  
46 with First Nations has reached out and referred to  
47 every First Nations that has claimed an interest

1 in this area and so actually, I would suggest that  
2 our reach in communication and work with First  
3 Nations has been broader over the last few years  
4 than one might be able to afford through single  
5 representation of a single person on either  
6 committee. But at this point in time, we are open  
7 to try to work further on that issue in the  
8 context of a longer-term plan and a governance  
9 structure that works for that, so we're definitely  
10 open to the idea.  
11 Q So there's room for improvement, so to say. Or  
12 addition.  
13 MS. BERARDINUCCI: There's room for alternative  
14 approach, certainly.  
15 Q And just to be clear, the province has the  
16 responsibility regarding flood hazard assessment  
17 and management of flood risk management, right?  
18 MS. BERARDINUCCI: Yes, that is a provincial  
19 responsibility.  
20 Q And you also accept a duty to consult from what  
21 you're just speaking to the duty to consult and  
22 accommodate indigenous peoples, right, --  
23 MS. BERARDINUCCI: The --  
24 Q -- go ahead. Let me -- I'll finish --  
25 MS. BERARDINUCCI: Yes, I'll let you finish.  
26 Q -- my sentence. Regarding impacts on the  
27 aboriginal title and rights, including the right  
28 to fish, right?  
29 MS. BERARDINUCCI: That is a responsibility, yes.  
30 Q And also, more specifically, you're also aware of  
31 impacts that, for example, flood mitigation  
32 measures can have on Indian reserve lands, right?  
33 When -- and we've spoken to some other flood  
34 protection measures such as dikes. If you have  
35 one area that has diking and another area that  
36 doesn't have diking, those flood mitigation  
37 measures can have a very much of a negative effect  
38 on the lands that don't have such protection,  
39 which is quite often Indian reserve lands?  
40 MS. BERARDINUCCI: That issue is taken into  
41 consideration when dike designs are provided to  
42 the province for review and approval.  
43 Q But you are aware of the issue that if you have  
44 one area that has dike protection and another such  
45 as an Indian reserve that doesn't have dike  
46 protection, the dike can have a negative impact on  
47 those Indian reserve lands, for example?

1 MS. BERARDINUCCI: I -- absolutely aware of the issue  
2 of the potential for redirection or constraining  
3 water flow in one area potentially damaging or  
4 eroding land in another area.

5 Q So that also makes the other option of gravel  
6 removal an even more important factor and  
7 indigenous interests very much have to be taken  
8 into account in that regard?

9 MS. BERARDINUCCI: And, sorry, your question is...?

10 Q Yes, if you would agree with me that in that  
11 regard, when it comes to that, gravel removal  
12 becomes a very important aspect when it comes to  
13 flood protection measures in that context, that  
14 some areas have dike protection and others don't,  
15 right?

16 MS. BERARDINUCCI: Even without that, it's an important  
17 consideration.

18 Q Now, when it comes to DFO, we've repeatedly heard  
19 that you're moving to co-management and joint  
20 decision-making with First Nations. Now, you'd  
21 agree with me that's the direction the department  
22 is moving in?

23 MR. HWANG: Well, that's my understanding on a broad  
24 basis, but it's not specific at this time to  
25 issues related to fish habitat. I don't believe  
26 we have any particular initiative in that regard  
27 right now.

28 Q You don't have that in place yet when it comes to  
29 fish habitat management and taking into account  
30 indigenous knowledge, et cetera, right?

31 MR. HWANG: There's no formal sort of co-management  
32 approach. The approach we're taking right now is  
33 to try to address that via the consultative  
34 mechanisms that will occur prior to any statutory  
35 decision taking place.

36 Q Okay. So you actually don't have and to a great  
37 extent there's still this aspect of aboriginal  
38 title and rights also when it goes to conservation  
39 and habitat protection, right, that there's  
40 actually an indigenous element and I'm sure you'd  
41 agree with me that indigenous knowledge can have a  
42 very much a positive effect when it comes to  
43 habitat protection that should be taken into  
44 account.

45 MR. HWANG: Certainly, and I think the standard for the  
46 federal government is our door is open to that.  
47 We seek it as appropriate or as pertinent to any

1 situation and we're not exclusive in that regard.  
2 Q But you haven't moved to that stage of actually  
3 joint decision-making or co-management when it  
4 comes to habitat protection and conservation  
5 issues?

6 MR. HWANG: Not on a broad basis. I think there may be  
7 a few exceptions. For example, I think -- I'm  
8 really not familiar with the details, but up in  
9 Nisga'a territory, I think there are some things  
10 that are approaching that, but they're exceptions  
11 rather than norm.

12 Q So but when we are now talking about sediment  
13 removal in the Lower Fraser, and the decision-  
14 making processes there, you're not at that stage  
15 where you actually have joint decision-making in  
16 place?

17 MR. HWANG: That's correct. We also don't have that  
18 shared with municipal governments or ENGOs or  
19 others. DFO makes its decision singularly, even  
20 with regard to our provincial counterparts. We  
21 consider input and advice and positions and where  
22 appropriate, rights title traditional use are  
23 typical considerations or input, as well as  
24 traditional knowledge from First Nations, but at  
25 this point the decision-making is not joint, as I  
26 would classify it.

27 Q But again, we are talking about this inter-  
28 jurisdictional quite interesting environment when  
29 it comes specifically to the issue that we are  
30 discussing here, which is gravel removal in the  
31 context of flood protection, habitat management,  
32 et cetera, right? So you are already at a stage  
33 where you are having to interact with one other  
34 jurisdiction, the federal and provincial  
35 government respectively, so I'm suggesting to you  
36 that that would actually be a good field for joint  
37 decision-making, actually being put into place  
38 between the federal, provincial government and  
39 First Nations.

40 MR. HWANG: My perspective on that is the federal door  
41 is open to dialogue and discussion, but the  
42 sediment removal program is not particularly  
43 different in terms of opportunities and benefits  
44 from that kind of consultation and dialogue from  
45 virtually any other project that has the potential  
46 to affect fish habitat. So whether it's a mine  
47 development, somebody's condo on the Shuswap or

1 sediment removal, those issues are fairly common  
2 in terms of those kinds of benefits.  
3 Q Sure, but when we are talking about moving towards  
4 joint decision-making and you are acutely aware  
5 that there is indigenous interests at play when it  
6 comes to those issues, there's obviously really  
7 that step has yet to be taken to actually enable  
8 full joint decision-making.

9 MR. HWANG: Yes, I would agree with that.

10 MS. SCHABUS: Thank you. Those are my questions in the  
11 limited time until now.

12 MS. BAKER: Thank you, Mr. Commissioner, so I think  
13 we're out of time for today and I'll talk to my  
14 friends about some other options and we can talk,  
15 as well, about your availability for another bit  
16 of time.

17 THE COMMISSIONER: Thank you very much.

18 MS. BAKER: Thank you to the witnesses for attending  
19 today.

20 THE COMMISSIONER: Well, yes, they're finished for  
21 today, but they're going to be recalled.

22 MS. BAKER: But they may be coming back.

23 THE COMMISSIONER: Thank you very much.

24 MS. BAKER: Just in case.

25 THE REGISTRAR: Hearing is now adjourned for the day  
26 and will resume at nine o'clock tomorrow morning.

27

28 (PROCEEDINGS ADJOURNED AT 3:30 TO JUNE 17,  
29 2011 AT 10:00 A.M.)

30

31

32

33

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

40

41

42

43 \_\_\_\_\_  
Diane Rochfort

44

45

46

47

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47

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

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.

---

Susan Osborne