

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

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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")

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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")
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APPEARANCES / COMPARUTIONS, cont'd.

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No appearance	Musgamagw Tsawataineuk Tribal Council ("MTTC")
No appearance	Heiltsuk Tribal Council ("HTC")

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

70

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

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.

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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

27 Such as a million cubic metres:
28

29 -- would very significantly disrupt the
30 aquatic ecosystem.
31

32 Both of you would certainly agree with that
33 concept, as well, correct?
34

35 DR. ROSENAU: That's correct.

36 DR. REMPEL: Correct.

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

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

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.

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

THE REGISTRAR: Microphone.

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

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

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

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

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
22 happy to go. I'm not sure I'll be finished before
23 the lunch hour break, but I'll try my best. I've
24 got about 10 to 15 minutes, I think, with this
25 panel, and I'll try for 10, if I can, to see if we
26 can do it. It's Brenda Gaertner for the First
27 Nations Coalition.

28

29

CROSS-EXAMINATION BY MS. GAERTNER:

30

31

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

45

DR. ROSENAU: Yes.

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.

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

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

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

29 MS. BAKER: Thank you.

30

31 RE-EXAMINATION BY MS. BAKER:

32

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

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

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

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.

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28 (PROCEEDINGS ADJOURNED AT 3:30 TO JUNE 17,
29 2011 AT 10:00 A.M.)
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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.
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44 Diane Rochfort
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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