

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.

Tuesday, January 18, 2011

Tenue à :

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

le mardi 18 janvier 2011

APPEARANCES / COMPARUTIONS

Wendy Baker, Q.C. Maia Tsurumi Line Christensen	Associate Commission Counsel Junior Commission Counsel Articled Student
Hugh MacAulay Jonah Spiegelman	Government of Canada
D. Clifton Prowse, Q.C.	Province of British Columbia
Brent Johnston	Pacific Salmon Commission
Chris Buchanan	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
Shane Hopkins-Utter	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
No appearance	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Tim Leadem, Q.C.	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
No appearance	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

APPEARANCES / COMPARUTIONS, cont'd.

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

APPEARANCES / COMPARUTIONS, cont'd.

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

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Michael Lapointe
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1 Vancouver, B.C. /Vancouver (C.-B.)
2 January 18, 2011/le 18 janvier
3 2011
4

5 THE REGISTRAR: Order. The hearing is now resumed.
6 May I remind the witness that you are still under
7 oath.

8 MS. BAKER: Thank you. Mr. Commissioner, we have today
9 as a witness Mr. Michael Lapointe from the Pacific
10 Salmon Commission staff, the Chief Biologist of
11 the Salmon Commission. He's appeared before you
12 already in these hearings. When we first had Mr.
13 Lapointe come and testify, I reviewed his
14 qualifications orally but we didn't mark his c.v.,
15 which I think we'll do today.
16

17 EXAMINATION IN CHIEF BY MS. BAKER:
18

19 Q That document can be found, Mr. Lapointe, at Tab
20 29 in the smallest of the binders. Yes. I think
21 that's right. Okay. Just to identify for the
22 record, this is your c.v.?

23 A That's correct.

24 Q All right. And it sets out your education and
25 some of the publications that you're -- you have
26 been involved in writing.

27 A That's correct.

28 MS. BAKER: All right. I am not going to take you
29 through that, but I just want it marked for the
30 record, please, as the next exhibit.

31 THE REGISTRAR: Exhibit number 328.
32

33 EXHIBIT 328: *Curriculum vitae* of Michael
34 Lapointe
35

36 MS. BAKER: Thank you.

37 Q Now, yesterday, we had two members from the
38 Department of Fisheries and Oceans here to talk
39 about some of the pre-season and starting to talk
40 about some of the in-season process in the year of
41 fisheries planning and management, and I'd like to
42 review with you from the Pacific Salmon Commission
43 staff perspective some of those same areas.

44 So I'd like to begin, of course, with the
45 pre-season period, and there's a planning process
46 that is undertaken by both the Department of
47 Fisheries and Oceans and the PSC or the Fraser

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1 River Panel in the pre-season. So I'd like to ask
2 you what information or work is contributed by PSC
3 staff to the planning, the pre-season planning
4 process for Fraser River sockeye.
5 A The primary work is the pre-season planning model,
6 which I think we may be going into more detail
7 later. We do facilitate in cooperation with
8 Canada the estimation of these things called
9 management adjustments, which I also understand
10 you're going to have some sessions on in more
11 detail later. But those are the two main things
12 that we're involved with in terms of pre-season
13 planning.
14 Q Okay. And then for the Salmon Commission's own
15 work on Fraser River sockeye, I take it there's a
16 budgeting and a planning process that's -- that's
17 undertaken in the fall of the year prior?
18 A That's correct. We try to alert the panel as to
19 what our budgetary needs are so they have a good
20 idea about what programs they can expect in the
21 coming year.
22 Q And just as a thumbnail reminder, I know we've
23 covered this when you were here before, but what
24 are the sampling and data collection programs that
25 are run by the PSC?
26 A There are a few primary ones, the Mission
27 hydroacoustics program, the test fishing programs,
28 stock ID programs, the scale lab is involved with
29 also estimating age as well as stock, but it's
30 those three primary ones, the sampling that goes
31 along with those programs.
32 Q Okay. And in the fall you would -- your staff or
33 the Salmon Commission would prepare a memo to
34 assist in that filing process?
35 A Yes, the staff prepare that memo for the
36 information of the Fraser River Panel.
37 Q Okay. If I could ask you to turn to Tab 10, which
38 is the CAN document 013967.
39 A That's correct, I've got it.
40 Q Okay. so we've been using 2009 as sort of a
41 sample year to describe the planning process, and
42 I should just let you know if there is something
43 different that happened in the 2010 year, you can
44 just alert us to those changes. But for just
45 continuity we're looking at 2009 as the sample
46 year. So this document is dated September 22,
47 2008, and this is planning for the 2009 cycle.

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1 A That's correct.

2 MS. BAKER: Okay. Could I have that document marked as
3 the next exhibit.

4 THE REGISTRAR: Exhibit 329.

5

6 EXHIBIT 329: Proposed 2009 Fisheries
7 Management Division sampling program
8 recommendations dated September 22, 2008
9

10 A The only substantive difference between 2009 and
11 2010 would be that pink salmon are only migrating
12 in the Fraser on odd years, and so obviously in
13 2009 we have a pink salmon program. In the even
14 years we do not.

15 MS. BAKER:

16 Q Okay. So if I can just look at that document, it
17 outlines the test fishing programs, the scale and
18 biological data sampling programs, pink, DNA
19 analysis, catch monitoring, also refers to the
20 echo sounding program at Mission for sockeye, and
21 Hell's Gate observations for both sockeye and
22 pink.

23 A That's correct.

24 Q All right. And what's the purpose of this
25 document. How does it assist in planning?

26 A It really is just to alert the Fraser River Panel
27 of our budgetary needs. There is a separate
28 process that involves a Commission-level committee
29 called the Finance and Administration Committee
30 that actually formally approves our budget. But
31 it's always good to have the Panel aware of what
32 we're doing because quite often those Finance and
33 Administration Committee members would come to
34 their national caucus members and ask, you know,
35 "Do you guys know about this? Are you aware of
36 this program?" So it's just bringing the Fraser
37 Panel on board as to what our plans are.

38 Q Okay. And when does the Fraser River Panel meet
39 to discuss the planning process for the -- in this
40 case, for the 2009 year. When would that meeting
41 take place?

42 A The first primary pre-season planning meeting
43 would begin in February.

44 Q Now, we've been provided by Canada a document that
45 I don't -- it's a Fisheries and Oceans document,
46 not a PSC document, but it's called "A Record of
47 Management Strategies" document. Have you seen

1 that?

2 A Yes, and I have to say from my brief glimpse
3 through it, it looks like about 60 to 80 percent
4 of that information was actually generated by us.
5 And personally I have some regrets, having seen
6 the magnitude of it, I feel a little bit like I
7 may have given Igor too many body parts to choose
8 from, but -- as it's quite a significant document.
9 Yes, I'm familiar with it. We facilitated it.

10 Q Okay. Well, because this document has decisions
11 that have been made throughout the 2009 year and
12 it's all in one handy place, I'm going to refer to
13 that document, even though it's not a Salmon
14 Commission document.

15 A Sure.

16 Q And I'll ask you to turn to -- this is in Tab 25,
17 and for people's reference it's CAN number 285372.
18 The document that I have printed out, because it's
19 some 600-odd pages, I only printed it once and it
20 didn't have a CAN number yet on it, so I'll be
21 referring to page numbers that are in the upper
22 right-hand corner of that document, rather than
23 the CAN page number.

24 All right. So this document, if you turn to
25 page 37, this shows -- it's dated January 23, but
26 you'll see it references an agenda for February 9
27 - 13, Fraser Fiver Panel meeting.

28 A That's correct.

29 Q Is that the meeting that you were just referring
30 to?

31 A Yes.

32 MS. BAKER: Okay. I should for the record mark this
33 entire document as the next exhibit because we'll
34 be using it quite a bit.

35 THE REGISTRAR: Exhibit number 330.

36
37 EXHIBIT 330: Record of Management Strategies
38

39 MS. BAKER:

40 Q Okay. Can you just give us a summary of what --
41 at that February meeting, what key information is
42 received by the Fraser River Panel and what
43 decisions are made in relation to the pre-season
44 planning process?

45 A Sure. It's basically as outlined, particularly in
46 agenda item number 2 there, the primary piece of
47 information is the forecasts of both Fraser

1 sockeye and Lake Washington returns. I think last
2 year for some reason we may not have had that --
3 the sockeye, the Fraser sockeye forecast on our
4 agenda in February. I can't remember why that
5 was, but there was probably some delay or
6 something. So that's why 2.a. doesn't have Fraser
7 sockeye in it.

8 The two parties have an opportunity to
9 stipulate their conservation needs for other
10 stocks and species, things like coho would be a
11 concern in Canada, for example, Thompson coho,
12 summer chums in the United States.

13 We have a formal process where we draft
14 sampling request letters that go to each of the
15 two governments for things that are outside what
16 the PSC staff does. So an example would be
17 southeast Alaska fisheries sometimes catch Fraser
18 sockeye, so there would be a request that goes to
19 Alaska that says "Could you please sample these
20 fish for us," so that's what that item refers to.

21 If there is any information that can be
22 shared about the escapement plan that comes from
23 Canada at that meeting, it would happen then.
24 It's usually not finalized prior to this because
25 there's a very extensive domestic consultation
26 process in Canada, but if there is some heads-up
27 we can get about that into the bilateral, that
28 happens then.

29 Any policy options, in this case there's
30 something about Late Runs would happen then.

31 And then down the line, the test fishing
32 programs would be initially discussed at that
33 meeting.

34 And in this particular year we had some
35 ongoing negotiations about the Annex, and so
36 there's an opportunity for the panel to bring
37 everyone up to speed there, and so forth. So
38 those are the principal things.

39 Q Okay. Now, you said that the Fraser River sockeye
40 forecast wasn't at this -- on this agenda, but
41 that typically would be dealt with or would be
42 received by the Fraser River Panel either at this
43 meeting or shortly thereafter?

44 A Yeah, it's almost always at the February meeting,
45 and I think it was probably related to the fact
46 that the forecast methodology changed going into
47 2009 -- or maybe actually it was going into 2010.

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In chief by Ms. Baker

1 So I'm not actually sure why it wasn't on the
2 agenda. There may have been some -- some other
3 reason, but it typically would be in February.
4 Q All right. And it's that you mentioned that there
5 was internal domestic work being done on the
6 escapement plan at this time. Is there
7 interaction between either the PSC staff or the
8 Fraser River Panel on those -- on the escapement
9 plan developed by DFO?

10 A There's an information exchange at the Fraser
11 River Panel meetings, and also it's not unusual in
12 the workshops that have been -- occurred in
13 association with the process that's called Fraser
14 River Sockeye Spawning Initiative, the FRSSI
15 process as we affectionally call it. PSC staff
16 and Panel members and Tech Committee members have
17 actually attended some of those workshops, but
18 that would be the extent of the kind of bilateral
19 exchange.

20 Q Okay. And you mentioned that you go over Late Run
21 policy options and what's been done in previous
22 years. What's -- can you just describe what
23 that's about?

24 A There are two main paths that have been taken with
25 respect to Late Run -- well, I guess, maybe
26 backing up, before I talk about that, just so
27 everyone's on the same page. Late Run sockeye
28 have been exhibiting some unusual behaviours that
29 have resulted in them being a significant
30 conversation concern. And I can go into more
31 detail, but just as a way of context, to describe
32 why they're sort of singled out, I think I'll just
33 stop with that sentence.

34 So as a consequence, the normal process of
35 escapement plans isn't always -- hasn't always
36 been used by the Fraser River Panel, and they've
37 considered two options, options in two categories.
38 One of them is an exploitation rate approach, so a
39 fraction of their -- total fraction of the run
40 that would be available for harvest, a limit on
41 that fraction. The second one is to use the
42 escapement plan that is developed by Canada and a
43 management adjustment approach in combination. So
44 those are the two categories of approaches.

45 In the last eight or so years, they've varied
46 pretty predictably, based on the cycle lines of
47 abundance. So on Weaver years, so that would be

1 like the 2008 and the 2009 cycle years, an
2 exploitation rate approach would be used. And on
3 the Adams years, which are the 2010, last year and
4 next year, the other approach, the escapement
5 approach would be used.

6 Q So what -- why is it discussed so early on? Why
7 are these Late Run policy options discussed so
8 early on?

9 A I think it's good, the reason that I, you know,
10 tend to put them on the agenda for the Panel in
11 February is that it's good to remind them. Okay,
12 what kind of a year are we in? Is it a Weaver
13 year or is it an Adams year? Because they're
14 coming off a season where they have some memory of
15 what happened, but they need to be reminded about,
16 okay, we're going into this kind of a year, and in
17 this kind of a year in the past you have done
18 this. So it's to get that kind of mindset going
19 that they're thinking about. Because it does take
20 time, you know, as you probably have known better
21 than you care to, there's a lot of technical
22 detail and so it takes a while to get the panel up
23 to speed. And so that's the whole purpose is give
24 them a heads-up, "Hey, guys, you're going to have
25 to deal with this policy issue, and you may not
26 make it till June, but you'd better start thinking
27 about it now because it takes a while."

28 Q Okay. Test fishing, you indicated that you start
29 to work out the plan for start dates and end
30 dates. When do you actually finalize the start
31 and end dates for the test fisheries?

32 A It has occasionally happened in February, but more
33 often it would be in the April meeting. June is
34 usually too late because our first test fisheries
35 would typically start around the 21st of June. So
36 we definitely try to get it done by April. And
37 the reason to get it in front of the Panel in
38 February is that there are budget processes within
39 Canada that pay for most of these test fisheries,
40 and it's kind of getting your -- your stuff in the
41 line for the funding appropriations that occur in
42 Canada on that topic.

43 Q Okay. Are there adjustments to the start dates
44 and end dates in season?

45 A Definitely there can be, and these are vetted
46 through the Fraser River Panel. We don't
47 typically like to be paying for test fishermen to

1 go out and test fish when there aren't any fish
2 around on either end of the run. And the run
3 timing varies quite a bit throughout the year. So
4 -- or between years, and so the schedule is a
5 template and it's fairly clearly understood that
6 if the fish are late, we'll delay. If the fish
7 are done early, we stop.

8 Q Okay. And on the draft inputs for the pre-season
9 planning model, we are going to go to that in some
10 detail, but --

11 A Sure.

12 Q -- are you actually reviewing the planning outputs
13 from the model at this point, or are you just
14 talking about what needs to go into it?

15 A No, we're trying to develop the -- not the
16 outputs. We're trying to develop the skeleton of
17 what the inputs might be. So if we have the
18 Fraser sockeye forecast, we'd have a table with
19 those. If there is some notion about what the
20 escapement plans might be without prejudice to
21 future consultations, we'd put those together.
22 Management adjustments would be based on
23 historical values. Those are available in
24 February. All of those things, timing
25 assumptions. I probably in the past have
26 frequently gone through some -- some information
27 perhaps. Maybe the Gulf of Alaska is very cold
28 and we might think that might generate early
29 timing. Any of those kinds of heads-up type
30 things to get the Panel thinking, we would -- we
31 would try to get them to discuss at this meeting.

32 Q Okay. And then the next regularly scheduled
33 meeting is in April; is that right?

34 A That's correct.

35 Q Okay. And again in the same volume, which is
36 actually Exhibit 330, if you turn to page 48.

37 I feel nauseous watching this thing spin by.

38 Okay. This is the Agenda, the Draft Agenda
39 for the April meetings with the Fraser River
40 Panel.

41 A That's correct.

42 Q Okay. And this is the meeting where you're likely
43 going to make decisions on test fisheries, I take
44 it?

45 A That's correct.

46 Q Okay. What about pre-season planning. Is there
47 work done on pre-season planning at this meeting?

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1 A Yes. This is the first time -- the first meeting
2 where there is bilateral pre-season planning
3 modelling done. So the two sides get together.
4 There's actually -- it's usually a four-day
5 meeting, so this is the Panel section. You can
6 see the Tech section, if you have the binder
7 adjacent to it, it's just a subsequent page. The
8 Tech Committee gets done and does -- gets together
9 and does two days of modelling, and then we get
10 together with the Fraser Panel and discuss those
11 results. So the primary function here is to --
12 you know, to start that modelling.

13 Just while I have it up here, I can see now
14 there's a reminder of why the 20909 forecast
15 wasn't on the February agenda, and it had to do
16 with the Early Stuart. There were some changes
17 that weren't finalized prior to February, and
18 that's why I see this item 2.a., so my memory has
19 been tweaked for me.

20 Q Thank you.

21 A I appreciate that.

22 Q All right. So we -- I'd like to now go to the
23 pre-season fishery planning. Just as an overview,
24 what is the -- what are you planning and what are
25 you trying to achieve, and then we'll go to some
26 of your visuals that can help explain that.

27 A Sure. In a general sense, the objective of the
28 exercise is to start off with a set of management
29 objectives, you know, primary ones being spawning
30 escapement, in the context of the Treaty there
31 would be international allocation, and also within
32 each country domestic allocation, is to take that
33 piece of information about objectives and the
34 information about the abundances of fish that may
35 come back, which comes from the forecast, and some
36 assumptions about timing, and ask: what are
37 different kinds of fishing plans that could be
38 structured to meet those objections, given the --
39 given the inputs? So it's a -- it's a scenario
40 exercise in that it's not, you know, a single
41 plan, it's multiple plans that kind of ask, you
42 know, what if the run was higher? What if the run
43 was lower? How we would modify the plan. So it's
44 definitely a scenario kind of a contingency
45 planning exercise.

46 Q All right. You prepared some documents that I --
47 I hope will help make this process clear. They're

1 at Tab 21 of the materials and they have a CAN
2 number, CAN 285373. It's in the --
3 A 21?

4 Q Tab 21. It should be in one of the bigger
5 binders.

6 A Sorry. I can look at this -- this is okay.
7 John's faster than --

8 Q Is that okay?

9 A John's faster than I am, so...

10 Q All right.

11 A At least on this one he is. Honestly, Mr.
12 Commissioner, I hope this is helpful to you. I
13 don't want to turn this into a Technical Committee
14 meeting, be aware of that. But I do think there's
15 some important concepts here which is why I'm very
16 pleased that counsel has agreed to allow me to use
17 a few visuals here.

18 So this first one is just describing kind of
19 the scenario planning that I just mentioned.
20 Starting at the top with the assumptions that go
21 in about abundance and run timing. And this whole
22 run timing issue I think will become a little bit
23 more clear to you shortly.

24 So this just outlines what, you know, three
25 scenarios might look like. The different columns
26 there represent different abundances. So what's
27 called "75 p level", at least in 2009, although I
28 think the terminology has changed recently, just
29 to maybe confuse you guys. But it was a lower
30 abundance level. The "50 p" would be a median
31 abundance level. So the concept there is that
32 half the time you'd expect the run to be larger
33 than that value and half the time lower. And then
34 the "25 p level" would be a higher abundance
35 level.

36 Each of those abundance levels, because as
37 the escapement plan is based on abundance in
38 those, you have to know the abundance to determine
39 the escapement target, would generate a different
40 escapement target.

41 And similarly, and we'll talk about
42 management adjustments later in more detail, the
43 management adjustment, which is a factor that's
44 related to the escapement target, that value would
45 differ depending upon the abundance.

46 So the things in yellow there are the
47 management objectives I talked about. So down the

1 -- going down to the next row there you see
2 "international and domestic catch allocations".
3 Those things all fed into the end product there,
4 which are these fishing plans or schedules if you
5 like, which are going to vary - and I have some
6 examples later in my visuals to show you how they
7 vary - by relative to the abundance in the
8 assumptions.

9 Now, on the -- on the right-hand side there,
10 just a note that this is a very simplistic view
11 and obviously we've got four management groups
12 involved. And so I just didn't want to put that
13 level of complexity on this particular graphic.
14 That's really all I had to say about this
15 particular one.

16 Q So the spawning escapement targets that you see on
17 that document, are they -- are you referring to a
18 management group target or a stock-by-stock
19 target?

20 A It's the management group target, Early Stuart,
21 Early Summer, Summer and Late Run. Each have
22 their own spawning escapement rules and distinct
23 targets.

24 Q And where does that information come from?

25 A It comes through from Canada through -- from DFO
26 through their spawning initiative process.

27 Q Okay, thank you. Do you want to move to the next
28 page, then?

29 A Sure. So this is just the model inputs page, that
30 top box that we talked about at the very
31 beginning, which shows the abundance and timing
32 assumptions.

33 First thing you'll note on here is that there
34 are more columns than the four management groups.
35 So if you go across the top, you see Early Stuart,
36 Early Miscellaneous, Scott/Seymour/North Thompson,
37 those abbreviations. Those two, Early
38 Miscellaneous, Scott/Seymour are both Early Summer
39 run groups. Similarly, Late Stuart/Stellako,
40 Chilko, Quesnel, are all components of the Summer
41 run group, and everything else to the right there,
42 Birkenhead, Harrison, and the Late Runs there are
43 all in the Late Run group.

44 The reason that we try to partition out
45 stocks finer than the four management groups for
46 this exercise is really related to the last row
47 with some dates there. It doesn't really matter

1 which row of the dates you look at, but let's look
2 at the one that's highlighted in blue. That may
3 be the easiest for everyone to find, the one with
4 the dates.

5 You can see that the Early Miscellaneous
6 group and the Scott/Seymour/North Thompson group
7 have pretty distinct timing. They're about a week
8 different, July 18th, July 25th. Can everybody
9 see that? So and similarly if you look at the
10 Late Stuart/Stellako and the Chilko, you can see
11 there's smaller differences, but there still are
12 differences.

13 As it will become obvious, I think, as you go
14 through the next couple of visuals, when you talk
15 about planning a fishery, you're putting a fishery
16 in a specific location at a very specific time.
17 So the reason that we are -- if we have
18 information that we can parse out, and the
19 information for the numbers, the forecast, which
20 is the first row, comes from Canada, and those are
21 parsed out to 19 different stocks. There's 19
22 different stocks that are forecast. So it's easy
23 enough to group them into these categories to get
24 the sub-stocks that are shown here. But the
25 timing is very important. If you're going to plan
26 a fishery at a certain particular time, some
27 stocks are going to be there, some are not. And
28 so the degree that we have to split this up as
29 fine as we can, based on our historical data and
30 knowledge, allows the planning exercise to
31 provide, for lack of a better word and it's
32 probably not the best word, a more realistic
33 impression of what the potential impacts of a
34 fishery schedule would be on those stocks.

35 If we aggregated the stocks and folks were
36 concerned about the impacts on the Early
37 Miscellaneous group, which includes stocks like
38 Bowron, Nadina, we wouldn't be estimating those
39 impacts very accurately. So even though there
40 aren't specific escapement targets for those
41 individual stocks, there is clearly concern.
42 People want to know if we can, what the impacts
43 might be. And so that's -- this is our attempt to
44 -- both do a better job of understanding the
45 impacts on the aggregate, but also being able to
46 provide additional information about particular
47 stocks that may be of interest.

1 Now, we have limited capability. I think
2 there's eight columns here, maybe nine columns.

3 The Late Run is a subtlety I won't go into.
4 In order to manage this migration behaviour on the
5 Late Runs, this is the kind of the way we've done
6 it. We kind of split it into two groups, but --
7 and the pinks, they are on the right-hand side.

8 So you can see also at the bottom we can
9 toggle between different abundance levels, so that
10 the different abundance levels are shown on the
11 bottom there, and it's easy for us to toggle
12 between them, and you can see that in this case
13 we've used the 75 p level for Early Stuart, 165.

14 Q All right. And just to make it clear, the run,
15 the date, timing line that you took us through was
16 it looks like "A 27 Peak" timing?

17 A Yeah.

18 Q So what is -- what's the reference to the "A 27"
19 (indiscernible - overlapping speakers).

20 A Okay. So the area is there, Area 27 or 127 is the
21 top end of Vancouver Island on the West Coast.
22 The typical reference point we use is actually
23 Area 20, which is the Strait of Juan de Fuca, and
24 in fact I think some of the next visuals I have
25 reference that. Area 11 is similar location to
26 Area 27, but it's on the Johnstone Strait side of
27 Vancouver Island, not, you know, north of Port
28 Hardy.

29 Q Okay. And the run size information, that's
30 derived from what data?

31 A It's the pre-season forecasts that are provided to
32 us by Canada. And it's important to know or to
33 realize that, yes, there is a point estimate, but
34 there is also clearly a range. And so it's just
35 important for us to understand the range, and by
36 range I mean, for example, the range of values
37 shown at the very bottom three rows as it is for
38 us to know what the median estimate is. In other
39 words, that range tells us something about the
40 uncertainty. And as you can see by looking at
41 some of these values, I don't know whether I
42 should, you know -- you can judge for yourself.
43 There's a pretty considerable range is what I
44 would say.

45 Q And you've used a 75 percent probability for the
46 run size for Early Stuart and 50 percent
47 probability for the rest?

1 A That's correct.

2 Q And why was that?

3 A Well, this is a representation of one particular
4 scenario. So there were other scenarios in which
5 it would have been explored where the 75 p level
6 would have been used for all stocks. But the
7 particular Early Stuart issue with respect to 2009
8 -- I'm going to be stretching my recollection here
9 a bit, but I think I'll have it right. There were
10 data that were not used to forecast Early Stuart
11 that related to the juveniles, the fry, that
12 suggested that the Early Stuart forecast would be
13 less than what the 50 p value was, based on the
14 information that was used in the forecast, and so
15 to -- in recognition of that potential bias,
16 Canada recommended to the Panel that they adopt
17 the 75 p for Early Stuart and the U.S. concurred.

18 Q Okay. And then the "Enter South Diversion" rate,
19 what is that referring to?

20 A That's a bit misleading on this table. There is a
21 diversion rate -- the diversion rate refers to the
22 -- in the case of south diversion rate, it would
23 refer to the fraction of fish that come down the
24 West Coast of Vancouver Island and in via Juan de
25 Fuca Strait, whereas the northern diversion would
26 be the converse.

27 The way that the diversion rate is handled in
28 the model mimics what we think happens in that
29 Early Stuart almost exclusively come down through
30 Juan de Fuca Strait. They're the earliest timed
31 stock. These are kind of ordered in left to right
32 in terms of their arrival timing. You can see by
33 the dates.

34 As the season progresses, the fraction of
35 fish that come down through Johnstone Strait
36 increases. That pretty well happens every year.
37 Where it ends up on average, if you add up the run
38 at the end of the year, it might be 30 percent on
39 average come through Juan, 40 percent, so I think
40 this 100 percent is just the starting point of the
41 -- of the model. It's not the actual assumed
42 diversion rate for the season. So it's a bit --
43 bit misleading.

44 Q All right. The next slide.

45 A Okay. So this is where I have to really slow
46 down, but I think it is absolutely critical that
47 there is some basic understanding of the

1 time/space dynamics that are going on in these
2 fish, and it's very critical to understanding the
3 harvest dynamics here, and what happens, and so
4 forth.

5 So what we end up doing with that piece of
6 information that you have on the previous page
7 that talks about the inputs and the timings, is we
8 take the pre-season forecast, and this is an
9 example for Early Stuart, so you can see the pre-
10 season forecast of 165 there in the top -- top
11 right-hand corner. And we spread that over 30
12 days with the peak occurring on the long-term
13 average peak of Early Stuart. So in this
14 particular example when you do that exercise, you
15 end up expecting of that 165,000 total, about
16 10,000 would be expected to pass Area 20 or Juan
17 de Fuca Strait in this case on July 4th.

18 It's really not important that you understand
19 the details or the shape of this run. I think if
20 you ask any fisherman or anyone that's been around
21 salmon they'll understand that there's a period of
22 time when some stocks aren't there. There's a
23 period of time when there's a lot, they're very
24 abundant, and there's a period of time later on
25 when there aren't many there. And that's what the
26 shape shows. That's all the real intent here.

27 Now, what I've done is to get the space part
28 of this. So this is the -- the idea is that
29 you're standing in Juan de Fuca Strait and you're
30 looking out and you're getting an estimate of the
31 number of fish that pass every day. That's the
32 sort of frame of reference for this. So if you
33 were standing there on the 4th of July, you'd say,
34 "I think I see 10,000 sockeye." We see them, so
35 to speak, with our test fisheries. Right? We
36 don't actually see them. Okay?

37 So anything that's to the left-hand side of
38 that July 4th, those represent earlier dates.
39 Right? So that means those fish have already
40 passed. You would have counted the number of fish
41 in the black box there on the 3rd of July. Right?
42 And you would have counted the number of fish in
43 the orange box on the 28th or 29th of July,
44 whatever that lines up to. So those fish have
45 already passed Juan de Fuca Strait. They're
46 somewhere else.

47 I don't know, I mean, you guys probably won't

1 remember, when Karl was here with me on the very
2 first day, you know, and I don't know which
3 exhibit, on Exhibit 1, I'm not sure which exhibit
4 it is - and John I'm not asking to pull that up -
5 but there was some information he had about
6 migration rates. The fact that these fish take
7 about -- swim about 30 kilometres, 40 kilometres a
8 day. I won't remember exactly. It's not
9 critical. So in these 30 days if you're thinking
10 about where these fish are in space, 30 times 30,
11 there's probably a distribution of 900 kilometres
12 in sort of a round number, right? So they're not
13 all in the same spot. It's not like you're going
14 fishing in a lake and all these fish are
15 vulnerable in the same spot. That's why I kind of
16 built this diagram for you. So conversely on the
17 right-hand side, those are fish that are yet to
18 pass -- yet to pass the marine areas. So that
19 green bar would be expected to be seen on the 5th
20 of July of Area 20.

21 So why is this important? Well, as I said
22 earlier on, when you put a fishery, let's say
23 you're going to put that fishery in Juan de Fuca
24 Strait on the 4th of July, if you're going to have
25 any capacity whatsoever to have some guess about
26 what that fishery might catch, you have to know --
27 one thing you have to know is how many fish are
28 going to be there. Right? Does it make sense?

29 So the next graphic - John, if I could ask
30 you to go to the next one - just puts those bars
31 in space for you. Okay? And it seems like I may
32 have lost one of them here. Where did my orange
33 bar go? How did that happen? Ah ha, there it is.

34 Okay. so the blue bar, Port Renfrew is the
35 location of our test fishery. That's where the
36 peak of the run is. Okay? That green bar that
37 hasn't yet passed Juan de Fuca Strait, it's
38 somewhere up Vancouver Island approximately 30
39 kilometres seaward of the peak. Right? The black
40 bar would have already passed, so it will be
41 somewhere down Juan de Fuca Strait, and the orange
42 bar, because those fish passed Juan de Fuca on the
43 29th of July, those fish would be expected to be
44 estimated at Mission. It takes fish about six
45 days to get from Juan de Fuca Strait to Mission.

46 So the main concept I'm trying to convey to
47 you is the fact that the space/time movement of

1 these fish is very critical to understand the
2 impacts of fisheries. So when we start looking at
3 the fisheries schedules here in a few minutes,
4 what you're going to see is something that looks
5 kind of like a calendar. And maybe we, if we can
6 go to that now, assuming that people have kind of
7 got -- hopefully got the gist of this. I hope I
8 haven't -- haven't confused you.

9 These are some of the objectives, model
10 inputs, other than abundance and timing.

11 Clearly we want to know what the spawning
12 escapement goals are, and sometimes those can vary
13 depending upon the abundance. They typically do.
14 In the case of Early Stuart, they didn't because
15 it didn't really matter. It was at a part of the
16 spawning escapement rule where the spawning
17 escapement target was the same regardless of run
18 size. For the other stocks you can see there's a
19 tendency for the spawning escapement to be lower
20 at a lower run size than a higher run size.

21 The next row is this thing which we call the
22 "Management Adjustments". It's a factor that gets
23 multiplied by the spawning escapement target. The
24 Late Run factor is a bit counterintuitive. You
25 would have to multiply the Late Run escapement
26 factor by about six or so to get the ideal
27 management adjustment, and there wasn't a big
28 enough run to accomplish that. It's a little bit
29 irrelevant in this context only in the sense that
30 the Late Run approach didn't use the management
31 adjustment, it used an exploitation rate in that
32 year. So it's there because it's always there,
33 but it obviously looks like a number that's hard
34 to understand.

35 The next row is the Fraser River Aboriginal
36 Exemption, something that's specified in the
37 Treaty. And it's parsed out to the management
38 groups as shown there. Adds up to 400,000, which
39 is the agreed amount in the Treaty.

40 The next set of rows is the test fishing.
41 Those are what we would expect the test fisheries
42 to catch, given the plan. And clearly if you're
43 going to have a fairly similar plan, if there's
44 more fish like in the case of a 25 percent level,
45 so each of these percentage levels, just in case
46 I've lost you, refer to different abundance levels
47 in the forecast, with 75 being a low forecast --

1 lower forecast, 50 being the median and 25 being
2 higher. If you have more fish, you're going to
3 catch more in your test fisheries, less, less,
4 less fish.

5 The next two rows are not really modelled
6 bilaterally, but they're necessary in order to
7 understand the impacts on spawning escapement. So
8 in a notional sense my understanding from what we
9 receive from DFO is that approximately 750,000 in
10 aggregate have been typically provided for
11 aboriginal folks in the Fraser River. And
12 similarly, 260,000 fish for marine folks. So we
13 need to at least account for those potential
14 catches because they're going to impact the
15 spawning escapement. So that's why those are in
16 there. Again, we don't explicitly model them, but
17 they're part of the inputs.

18 You can go to the next one, John, if you
19 like.

20 So here's that schedule I was telling you
21 about. It's a little messy, I realize, but
22 everything sort of to the -- most of the stuff on
23 this table, it's labelled Canadian Fisheries to
24 the left of that sort of red bar that's almost at
25 the far right, are the Canadian fisheries. So
26 across the top we have both gear. So for those
27 who are not familiar, Area B is seine; Area D is
28 gillnet, Johnstone Strait; Area H is troll,
29 typically in -- inside Johnston Strait, but also
30 sometimes in Georgia Strait; Area E is gillnet in
31 the Fraser River. So those are areas and gear.

32 And then down the left-hand side is the
33 calendar. So it's putting these fisheries, or the
34 simulated fisheries, if you like, in space and
35 time, which is why I spent all the time I did
36 talking about the abundance earlier in space and
37 time. Because you're going to -- what you're
38 trying to ask is if I put these fisheries in the
39 water, what is going to be the impact on the fish
40 that are migrating? I talked a lot about the
41 Early Stuart example, but you're going to have
42 like nine of these with different timings, and
43 different spaces and time.

44 So in some cases these fisheries are modelled
45 as days. So you can in Area 20 B, down, if you go
46 down, there's five days. And associated with
47 that, and this is something that's relatively new,

1 is a target catch, and this relates to this whole
2 ITQ situation, which we -- we can talk about more
3 later. so in the case of Area B it was being
4 modelled as a quota. So there was a fixed catch
5 expected to be caught that week. The "5" just
6 tells us that we think that catch would be spread
7 over five days. It would take them five days to
8 get it.

9 Area H troll, similar thing. 40,000 target
10 catch spread over six days. For the Area H troll
11 we have one day per week there for that period in
12 the third week of July, and some expected catches
13 for it. There isn't typically a lot of trollers
14 that like -- that fish in Area H. It's sort of
15 Pender Bluffs area. You can see it from the --
16 you just go out and look off the point here, you
17 can see some of these areas where the Area 18 --
18 Area 18 is.

19 Q Just to interrupt for a minute. Is that fishery a
20 different kind of fishery than the ITQ fisheries
21 that you've indicated in (indiscernible -
22 overlapping speakers).

23 A Not the Area H fishery, it's just that we modeled
24 it as a one-day thing. When you get to Area E it
25 is different. There you see a point -- half a
26 day. so half a day, Area E fishery, there would
27 be some relationship that predicts the amount of
28 catch you'd expect from a half a day's fishing in
29 Area E.

30 You can see that we've pencilled in In-River
31 Rec days there, and also some First Nations days.
32 The only intent of those is to make sure that
33 we're spreading those total catches out so that
34 we're counting for the impacts on the stocks in
35 question. There's no negotiations or discussions
36 that happen about how many days the Rec fishery
37 will be open, or how many days the First Nations
38 fisheries will be open at this meeting. That's
39 all done domestically. Typically the Rec fishery,
40 I think, is open for a period, like from the --
41 some date to another date.

42 Q Right. Now, we haven't had a lot of time yet in
43 the hearings to talk about the different type of
44 fisheries. So just to make sure everybody's on
45 the same page, just can you explain the difference
46 between an ITQ and the Area E, which has the ".5",
47 just very thumbnail, because (indiscernible -

1 overlapping speakers).

2 A Sure. So the fundamental difference, there's a
3 lot of things related to economics, which I --
4 which can, you know, which I don't think is
5 germane. But the most germane things is that from
6 a fisheries management perspective, there's a
7 target catch. So they're fishing to a catch.

8 Q This is the ITQ?

9 A ITQs, yes. So that's these fisheries that are
10 modeled with catch numbers here. So they go out
11 with however many boats they think they need to
12 take that target catch, and when they get that
13 target catch, they're done for that week.

14 Like, the contrary example would be the Area
15 E fishery. That has been typically referred to
16 with the words "derby style fishery". There the
17 level of control is related to fishing time. So
18 the idea is you have half a day. Whoever has a
19 licence for Area E can show up and fish, whatever
20 that fleet size is, it's a few hundred boats, and
21 they catch whatever they catch in half a day.
22 It's very competitive. Guys try to -- you know,
23 some guys like the derby style because they think
24 they're better than the other fishermen and they
25 can do better. Some guys prefer the ITQ, it paces
26 things. There's yins and yangs. The ITQ is a
27 relatively recent phenomenon. In fact, it's been
28 in the planning stages for two or three years now.
29 2010 was the first year it was actually executed.
30 It's the first year we had enough fish to make it
31 happen. But that -- those are the concepts
32 broadly.

33 Q And the derby style one, you have data that tells
34 you how much fish you expect can be caught in an
35 hour or a day and you use that to plan your...

36 A Yeah, we have historical data. I will say quite
37 honestly that not so much for Area E, although it
38 is true of Area E, but certainly for Area B, and
39 for many of these fisheries, the fleet sizes have
40 changed quite significantly, mainly in the
41 downward direction. There's much fewer boats
42 involved now, say, than 15 years ago. And so
43 we're continually updating these data. So we
44 might have had historical data 15 years ago that
45 might tell us what half a day fishing in Area E
46 would catch, but it's the more recent stuff that
47 we pay much closer attention to because fleet

1 sizes have changed quite a bit.

2 Q Okay.

3 A All right. I don't know how much more I had in
4 this John. I guess there is more.

5 Q The next, I guess if you turn two more pages down
6 this --

7 A Oh, yes. So this schedule that you just showed
8 was for a big run size, bigger run size. The
9 median run size, I should say. Big and small is
10 probably not a very good descriptive term.

11 The next schedule shows what would be needed
12 to meet objectives under a lower run size. So
13 you'll see that there's fewer days. In the case
14 of Area E they're trying to fish for a quarter of
15 a day there down that column there. And you can
16 see that the quota catches are much smaller. And
17 that's because there's less fish around.

18 Q Okay.

19 A So again, just to show the contrast, the scenario.
20 There's different scenarios.

21 Q All right. And then what is this used for by the
22 Commission? You have one more page that may help
23 answer this question.

24 A Yes. So we take --

25 Q (Indiscernible - overlapping speakers) some of
26 these.

27 A -- all of these alternative runs and those two
28 fishing plans represent two of them and generate
29 this summary table for the Fraser River Panel.
30 And so this is bilaterally reviewed, the columns
31 that are on the top are things that we discuss.
32 What would be helpful for you to see in terms of
33 helping you understand the consequences of
34 different fishing plans and different scenarios.
35 so those are the indicators.

36 So things like this DBE thing, we're going to
37 talk about this later. All we're trying to do is
38 account for the fact that the number of fish in
39 the spawning grounds is not just going to be due
40 to how many are caught. It's going to be due to
41 how many make it to the spawning grounds. And as
42 we'll talk about later, we know that there's been
43 significant en route losses in some of these
44 years. And so we're trying to account for that en
45 route loss.

46 The next few -- so it's -- how many fish do
47 we expect on the grounds. The numbers in

1 parentheses are the actual spawning escapement
2 targets, as a reference to judge the outcome of
3 the model.

4 U.S. and Canada TACs are obviously of great
5 interest to the countries on the actual catches.
6 So that the first two are their shares. The next
7 two columns are their actual catches in the model.
8 And the total catch is the total catch in all
9 fisheries expected under that model run. There
10 are the exploitation rates, which simply mean the
11 fraction of the of the total run that's caught.
12 And then there is the number that is the potential
13 spawning escapement, the difference between the
14 potential spawning escapement. So the potential
15 spawning escapement would be the number of Late
16 Runs that would occur if the only source of
17 mortality was the catch. If you compare that
18 number to the number that's the third column over
19 there, so 456 in the top row versus 53, the
20 difference between those is what the anticipated
21 en route loss would be.

22 So even though some of these plans may have
23 different impacts, so, for example, the 75 p in
24 the second two rows, with respect to the potential
25 spawning escapement of Late Runs, there's about a
26 what, 80,000 fish difference between the 457 and
27 370. Look at the difference between the
28 expectations on the grounds. Almost 50, 49 versus
29 46. The reason those comparisons are different is
30 because the early upstream migration of Late Run
31 Sockeye has resulted, I don't know what the
32 prediction was in this year, but something on the
33 order of 80, 90 percent mortality. Right? So
34 when you start applying -- you start multiplying
35 some of these values by -- by a number like that,
36 you get a quite -- quite a different result.

37 So these are the pieces of information that
38 the bilateral panel looks at. Some of these model
39 runs just relate to different scenarios of
40 abundance. Some of them may relate to different
41 timing assumptions or management adjustment
42 assumptions. Some of them may -- you know, one of
43 the countries may ask, "Well, if we catch our full
44 share, how much difference does it make to some of
45 these outcomes than if we go strictly right to
46 the, you know, escapement constraints?" They
47 never, in my experience, and I've been doing this

1 now for 20 years, pick a model run to agree on
2 that doesn't achieve the spawning escapement
3 targets. But they sometime want to know what the
4 implications are. "Hey, if I did, what would it
5 mean? How many fewer fish?"

6 So that's kind of the intent of this exercise
7 is to give them some scoping of the potential
8 scenarios, particularly on the fisheries planning
9 side. You can imagine, you know, you guys haven't
10 all lived this like I have, but in the heat of the
11 summer, you know, we're going 100 miles an hour.
12 And so to conduct a what-if exercise in the middle
13 of July or something is almost impossible.

14 So the degree to which we can do that kind of
15 what-if probing in the calmness of April or June,
16 is really important so that if we encounter that
17 situation, and sometimes we don't always encounter
18 it. Like I can tell you right now we didn't -- no
19 one thought 2009, we didn't plan a model run in
20 2009 with what we saw in 2009. Well, it would
21 have been a pretty easy model run, because had we
22 gone through that exercise, we would have known
23 that the fishing plan would have been a bunch of
24 zeros, I mean, because it was so low, right? I
25 mean, it was so extremely low.

26 But quite often we may be close on one of
27 these scenarios and say, ah, well, it's kind of
28 like this one that we did, and that really
29 provides a valuable frame of reference when you're
30 trying to make these fisheries decisions on the
31 fly in the middle of summer while the information
32 is changing every day, and so forth.

33 Q And then the next slide, if you could.

34 A Yeah. So I just took that model run in the second
35 row there and just -- I'm not going to go through
36 this for you unless you want me to, but this is --
37 each country asks for more detailed model, model
38 output. And so they each get about five or six
39 pages, and sometimes each country wants different
40 things. I mean, this spreadsheet that is this
41 model is something like eight megabytes and I
42 don't know how many tabs there are, but there's
43 got to be like 30 or 40 or 50 tabs that you can
44 kind of get the picture if you're used to dealing
45 with Excel, about kind of the magnitude of this.
46 So these are all different possible outputs that
47 they would have.

1 The only one I might point your attention to,
2 this deals with kind of goals and models, but the
3 one -- I think it's the next one, John, maybe the
4 next page. Let's see, "Total run entering", yeah.
5 Okay. So I think this is the one. Can I just see
6 the next one, please, just to see if this is --
7 where the heck is the page I'm looking for? Maybe
8 the next one. Let's try the next one, and if --
9 yeah, I think this is the one I'm looking for.
10 Yeah, okay.

11 So the reason I brought this one up is to
12 kind of speak to the primary objective and mainly
13 to focus in on the spawning escapement. So if you
14 look at the net escapement in the -- it's the
15 second row with numbers on this table. That's the
16 net escapement target. Okay? So it's the same
17 numbers that were in one of the model inputs page.
18 If you look at the very, very last row, "Net
19 Escapement (after subtraction of MA)" -- sorry,
20 second-to-last row, that's the actual expected
21 spawning escapement.

22 And the reason I brought this up is that
23 we've encountered this issue a number of years
24 now, a number of times where we've had very low
25 returns. The total run of Early Stuart in this
26 analysis, in this forecast was expected to be
27 165,000. Virtually all of those fish were
28 required for spawning escapement, 156,000. Do you
29 see that? The actual total catch in this model
30 run was only about 10,000 pieces. You see it's
31 the number right above the second-to-last row,
32 10,000 fish were caught. 80,000 were expected on
33 the spawning grounds. What's going on? You know,
34 there's probably no other salmon fishery that
35 you'd see in the world that would have that kind
36 of an outcome. Like usually you would just take
37 the run, you subtract the catch, and that would be
38 your spawning escapement.

39 So one of the subtleties within the Fraser
40 sockeye is that we have this thing we call the
41 DBE, there's some anticipated en route loss. So
42 even though the exploitation rate was only 7.6
43 percent, that's shown in the bottom here, only 7.6
44 percent of this run was caught, we only ended up
45 with 81,000 fish expected on the spawning grounds
46 because of the management adjustment.

47 Now, I don't know how you'd characterize

1 that. I mean, two words that come to mind for me
2 are like "mission impossible", you know. How do
3 you do that? It's not achievable. Because there
4 is an element of the management that's outside
5 your control that relates to the impacts of these
6 fish in the river that causes your escapement
7 target to not be anywhere near what you would have
8 hoped it would have been. If we have enough fish,
9 then we can add to that escapement in the total
10 run, and you can add to that statement target in
11 the total of the management adjustment, we do.
12 But when your escapement target is the total run,
13 there is no more fish that you can put towards
14 escapement than the total run.

15 And this is going to come up in the in-season
16 data for 2009, which is why I flagged it here,
17 just to let you know right away that there was a
18 very clear understanding that even if we had no
19 fisheries on Early Stuart in 2009, and the run
20 came back at 165,000, we were not going to see
21 what the escapement target would tell us we should
22 have on the spawning grounds. And I think it's
23 one of these subtleties of Fraser that is
24 important in the context of thinking about
25 evaluating, you know, management performance. So
26 that's why I wanted to highlight that for you, Mr.
27 Commissioner.

28 And that's all on this detail that, I mean, I
29 really don't have anything more to say on this
30 particular set of visuals.

31 Q All right. The only other question, this
32 calculation table that you see here, is this a
33 scenario or is this a final document?

34 A This, I believe, represents the second row of the
35 summary sheet. I don't know which model run that
36 was.

37 Q Mm-hmm.

38 A It may have been the one that was adopted. But I
39 -- but it is a scenario.

40 Q Okay. And then when a couple of pages earlier you
41 -- if you can go back, Mr. Lunn, to -- keep going,
42 this one here.

43 A Right.

44 Q As the PSC Sockeye Fishery Model 2009, as the
45 header, the different area of fisheries that are
46 shown there and the different allocations that go
47 to each fishery, how -- how are decisions made as

1 to those percentages. How do you receive them,
2 like, how do you get that information?

3 A Those are what we call domestic allocations and
4 those sharing percentages are given to us by
5 Canada as to what they're agreed domestic sharing
6 arrangements are. So those goals are based on the
7 percentages that were provided to us by Canada
8 times the available TAC.

9 Q All right. So part of your task when you do these
10 fishery plans is to ensure that the percentages
11 given to you by Canada are met in terms of the
12 fisheries that are suggested to be implemented?

13 A Yeah, it's a very -- there's a lot of slices of
14 this total pie that have to try to be achieved.

15 Q Okay. And in terms of what is given to the Fraser
16 River Panel, I take it all of this stuff that
17 we've looked at today, plus many other versions
18 and scenarios would be looked at by the Technical
19 Committee; is that right?

20 A Yeah. I can recall some years where we may have
21 had in the 20s and 30s in terms of possible model
22 runs. It can be quite extensive sometimes. I
23 would say, though, that some of the briefing
24 materials early on is not typically provided to
25 the Fraser Panel. Most of them have been around
26 long enough that it's kind of intuition, so that's
27 more -- more for you guys's benefit. I think I
28 did that originally for the think tank scientists
29 in 2009.

30 Q All right. So which of these documents would be
31 given to the Fraser River Panel for decision-
32 making?

33 A All of the model output would be. The only things
34 that the Fraser Panel probably hasn't seen are the
35 first three pages of my visuals, the sort of box
36 diagram and the little movement -- movement thing.

37 One other comment I'll make before we leave
38 this is that you may have heard the term "boxcar"
39 in describing the modelling approach. And that is
40 really germane to those visuals I showed you. The
41 concept is that you've got a train, each train has
42 a day's worth of fish, and every day that you go
43 through, the train moves down the track one.
44 That's where the boxcar term actually comes from.

45 And another reason why the boxcar term is
46 used, is that we have this thing we call the order
47 of movement assumption and the idea there is that

27
Michael Lapointe
In chief by Ms. Baker

1 if you're in a train, the cars can't change their
2 position. In other words, the caboose can't be up
3 near the engine unless something really
4 catastrophic happens. So if you run into those
5 terms in your -- in your reading, that's where it
6 comes from. It's the idea that a day's worth of
7 fish moving along every day, jink (phonetic),
8 goes, abundance moves through.
9 MS. BAKER: I'd like to have that whole presentation
10 marked as the next exhibit, please.
11 THE REGISTRAR: Exhibit number 331.
12
13 EXHIBIT 331: Presentation comprised of a
14 series of slides prepared by Pacific Salmon
15 Commission staff
16
17 MS. BAKER: So the --
18 THE COMMISSIONER: Ms. Baker, could I just ask.
19 MS. BAKER: Yes.
20 THE COMMISSIONER: When you say "that exhibit", you're
21 speaking of -- Exhibit 330 was the Record of
22 Management Strategies, which was that long
23 document you referred to.
24 MS. BAKER: Right. This is a different -- a different
25 document.
26 THE COMMISSIONER: Right. I'm just not sure I know
27 what it is you're marking.
28 MS. BAKER: It's the presentation that Mr. Lapointe
29 just went through.
30 THE COMMISSIONER: Okay.
31 MS. BAKER: That began with the sort of a flowchart was
32 the first page, and ended...
33 THE COMMISSIONER: Is there a cover page for this
34 document?
35 MS. BAKER: It's -- there's -- no, this is the
36 beginning of the document.
37 THE COMMISSIONER: All right.
38 MS. BAKER: It's been presented in this way. It's a
39 series of slides that were prepared by the Salmon
40 Commission staff.
41 THE COMMISSIONER: Okay. Just bear with me. So that's
42 Exhibit 331?
43 MS. BAKER: Right.
44 THE COMMISSIONER: Could I just -- just ask two quick
45 questions on what Mr. Lapointe has just referred
46 to. One is, you may have mentioned this, Mr.
47 Lapointe, but how much input does the Fraser River

1 Panel have into the creation of these models that
2 you've been addressing?

3 A The model, the specific model I'm talking about
4 has got to be -- I think it's celebrated its 25th
5 birthday this year, if you can believe it. So
6 there was quite a bit of input at the time. It
7 has evolved significantly, and actually I just
8 recently recruited a new staff member to give it a
9 bit of an overhaul and a modernization, I guess,
10 is what I would say. But, they are frequently
11 asking us things like, "Well, why can't it do
12 this?" or "Could you make it do this?" It's a
13 very much a familiar -- a familiar thing to them.

14 THE COMMISSIONER: Okay. And the other question I have
15 is, and you may be coming to this so you can put
16 it off if you're coming to it.

17 A Sure.

18 THE COMMISSIONER: How much alignment, and that's my
19 term, because I've heard that word used by the
20 witnesses, is there in the model for the Wild
21 Salmon Policy?

22 A Well, I can try to speak to it. I guess you saw
23 the extent of the stock separation. There's eight
24 or nine different aggregates that are modelled.
25 Those would certainly be far fewer than the number
26 of CUs that are currently being identified, and
27 off the top of my head I won't -- it's got to be
28 -- I won't know the exact number, but it will be
29 30 or 40, or exact number of CUS.

30 So there isn't alignment there, in the sense
31 that you don't have every CU modeled. It would be
32 difficult to model each CU, not because we don't
33 know what -- well, there are two reasons. One is
34 we only have forecasts for 19. So that's one
35 constraint. The other one is we don't have the
36 detailed knowledge of the timing of each of those
37 individual CUs.

38 So I guess the short answer would be not
39 terribly well aligned based on what I just
40 provided you.

41 THE COMMISSIONER: Thank you.

42 MS. BAKER:

43 Q The Commissioner asked you about whether the
44 Fraser River Panel was involved in the model
45 development. Just following up on that, what
46 about the inputs into the model. Do the members
47 of the Fraser River Panel have any contribution in

1 terms of run sizing, allocation, escapement goals.
2 A lot of these things that we've talked about,
3 those originate with others than the PSC; is that
4 fair?

5 A They originate primarily with Canada. I'm sure at
6 some point when allocation policy was discussed,
7 there was some discussion on the part of folks
8 that would be affected. But there's no annual
9 renegotiation of those kinds of things. It just
10 is provided to us by -- by Canada.

11 Q Okay. And at the April meeting is there a
12 decision to be made on these pre-season fishing
13 models?

14 A No. It's the first run through, and we get
15 together in June and a lot of that relates to the
16 fact that some of the inputs are still in flux, so
17 there is a linkage to the timeliness and the
18 approval of Canada's IFMP. So Canada would be
19 very reluctant to agree to a final model run in
20 April if they still have ongoing consultations on
21 some of these things. They're going to be
22 finalized and fundamentally signed off by the
23 Minister usually in June. So that's -- this is a
24 -- this is sort of a trial exercise.

25 Q Okay.

26 A I just -- one other point just came to my mind,
27 Mr. Commissioner, with respect to your question on
28 the -- on the Wild Salmon Policy. The linkage --
29 one linkage would be through the Escapement Plan.
30 And I know you're going to have a session on, I
31 think, the FRSSI process. But there is an attempt
32 to at least model a finer scale than the four-
33 stock aggregates within FRSSI in terms of some of
34 these benchmarks. But it is restricted, as far as
35 I know, to the 19.

36 So to the extent that the Escapement Plan
37 reflects some analysis of the potential impacts on
38 those 19, then there is some incorporation of that
39 information because we used that escapement plan.

40 THE COMMISSIONER: Thank you.

41 MS. BAKER:

42 Q At the April meeting is there a discussion of Late
43 Run policy options again?

44 A Yeah. If there's any debate or it needs to be
45 finalized, we definitely would discuss it again in
46 April. They pretty much have a hard time getting
47 that one off the agenda until they figure it out.

- 1 Q And is that -- is it finalized at the April
2 meeting, the late run policy?
- 3 A It depends. There have been, I think, some
4 meetings where it has been, but typically it
5 wouldn't be finalized until June.
- 6 Q Okay. And I was just going to go to that. June,
7 there's another meeting, and this is the final
8 meeting for pre-season planning; is that right?
- 9 A That's correct, unless we need an extraordinary
10 one, which is rare. There have been the odd ones.
- 11 Q All right. If you turn to page 63 in the Record
12 of Management Strategies, which is Exhibit 330,
13 that has the agenda for the June meeting.
- 14 A Okay.
- 15 Q Okay?
- 16 A Yes.
- 17 Q So what are the decisions that need to be made at
18 the June meeting?
- 19 A The June meeting, the primary decision is an
20 agreement on a Fishing Plan. That agreement
21 results in two documents primarily being prepared.
22 One of them is called the "Principles and
23 Constraints" and the other one is called the
24 "Guidelines for Addressing Late Run Concerns".
25 The Fishing Plan provides a very rough template
26 under one scenario of what the schedule might look
27 like if that scenario materializes. The
28 Principles and Constraints will frequently have
29 statements that say if the run sizes are
30 different, fisheries may start later or earlier.
31 It's a very, very broad template, but it forms the
32 basis for the next set of steps, which is the
33 regulatory control process that turns over the
34 formal regulation of the Panel waters from the
35 governments to the Fraser River Panel.
- 36 Q Okay. I'm going to come back to that document in
37 a minute.
- 38 A Sure.
- 39 Q What about decisions on management adjustments,
40 are they made at this time?
- 41 A All part and parcel of the agreed model run.
42 There has to be an agreement on the pre-season
43 management adjustments. At this meeting,
44 typically we would have a long-range forecast of
45 environmental conditions, which would be provided
46 to us by Canada's Environmental Watch Program.
47 And we would use that input, which is typically

1 two things, flow, river flow, and river
2 temperature, as inputs to determine the management
3 adjustments for the Early Stuart, Early Summer and
4 Summer run sockeye. And then for Late Run
5 sockeye, if we are using a management adjustment
6 approach, it would be based on their anticipated
7 upstream timing. So definitely management
8 adjustments, pre-season-wise are finalized, but
9 then of course in-season we adjust them as we see
10 the river conditions change.

11 Q And the -- are the decisions on the management
12 adjustments related back to Canada for use in the
13 IFMP, or what's the relationship there?

14 A I presume they are. I'm not -- not involved with
15 the, you know, consultation process or preparation
16 of that particular document. But I know that they
17 are well coordinated, so I presume they are.

18 Q Okay. But the management adjustments for Fraser
19 River planning is determine by the Panel at the
20 June meeting?

21 A That's correct.

22 Q Okay. And I take it they're updated in-season as
23 need be.

24 A Yes.

25 Q Okay. Does the Fraser River Panel have any role
26 in determining the probability level that will be
27 used in planning?

28 A Yes. The Treaty states, and I won't be able to
29 remember the paragraph in chapter 4, that in the
30 absence of guidance to the contrary, and when I
31 say "guidance to the contrary", it would be by
32 bilateral agreement, the Panel will use the median
33 value, the 50 p level. However, as occurred in
34 2009, Canada or the United States can recommend a
35 different value, either higher or lower, and they
36 can adopt that value as per bilateral agreement.
37 So in this case they adopt a lower value for Early
38 Stuart, for example. I have not ever experienced
39 them adopting a higher value, but it is at least
40 technically feasible for them to do so if they so
41 choose.

42 Q And the Late Run management decision is also made
43 at this time?

44 A It's finalized at this meeting, yes.

45 Q And is there -- is there a relationship between a
46 decision made by the Fraser River Panel on the
47 approach to Late Run -- the Late Run sockeye vis-

1 à-vis the IFMP, and what's the -- could you ever
2 have a situation where you have a different
3 decision at the Fraser River Panel than you would
4 see in the IFMP?

5 A I don't think so. There is an important thing to
6 recognize with respect to Cultus sockeye. So when
7 we talk about Late Run management approach in the
8 Fraser context, we're talking about the Late Run
9 aggregate, and as I think we may get into later
10 when you look at some of the in-season stuff,
11 sometimes Birkenhead has been parsed out in that,
12 and I can explain that why later. Cultus sockeye
13 are, as you know, have at least been assessed by
14 the Committee on the Status of Endangered Wildlife
15 in Canada, COSEWIC, as endangered, although they
16 were not legally listed, is my understanding. And
17 so they're a special stock of concern to Canada.

18 And Canada -- the United States clearly can't
19 exceed its Late Run -- aggregate Late Run
20 objective, but there is no specific bilateral
21 sharing of the Cultus objective. In other words,
22 the obligation for achieving whatever the
23 agreement is on Cultus, if it's a 12 percent
24 exploitation rate, falls on Canada, taking into
25 account whatever the expected impacts on the
26 aggregate Late Run, including Cultus, would be by
27 the United States.

28 So that is a -- I don't know the history of
29 all of that, except that I would say the treatment
30 of Cultus in the Fraser context is very similar to
31 the treatment of **ESA** listed stocks, in the United
32 States, so the United States legislation is
33 **Endangered Species Act**, for other species like in
34 **ESA** listed chinook or coho. So it's a parallel
35 treatment. So I think that's perhaps why the
36 treatment is the way it is.

37 But the main point here is there isn't a
38 bilateral objective specific, in other words, the
39 United States doesn't get quote/unquote "a share",
40 if you like, of Cultus sockeye in terms of what
41 they're allowed to catch. They're restricted by
42 the Late Run aggregate, which does definitely
43 restrict them, but they don't get a specific
44 share. And I just, you know, think that's kind of
45 an important distinction to mention here.

46 Q Okay. I wanted to go to the "Principles and
47 Constraints" document that you just mentioned.

1 And that -- just a moment here, that was actually
2 earlier in the binder that we're looking at, the
3 RMS 2009 document, Exhibit 330. If you turn to
4 page 19.

5 A Yes.

6 Q This is the "Principles and Constraints" document
7 that's agreed to at the June Fraser River Panel
8 meeting?

9 A Yeah, that is the one. It's initialed by the two
10 Chairs. That's the -- that is the one.

11 Q Okay. And what is this document's purpose?

12 A Very broad statement of the agreed assumptions.
13 So, for example, tells -- talks about in a general
14 sense the forecast, expectations there, in the
15 first point. Talks about the priority of
16 objectives that the Panel is going to manage. So
17 it's a bilateral understanding of the broad
18 skeleton of assumptions and objectives that the
19 Panel is going to manage to bilaterally. It
20 documents, okay, here's what we're going to do.
21 Okay? So that there's no, you know, kind of --
22 it's not detailed, but it -- on the Fishing Plan,
23 it really only specifies when the fisheries, the
24 very first fisheries in Panel waters might start,
25 and that's down in that "Regulations" section
26 there, under item number 5. So you can see it
27 very broadly says that, you know, if you get close
28 to the 50 p level there, you'll expect fisheries
29 to begin around the 19th of July, in that week,
30 but, you know, obviously that's subject to change.
31 We're going to get into the regulatory control
32 letters shortly, I think, and I need to make a
33 point about that, but I don't need to talk about
34 that here. So again, very broad context about the
35 assumptions and what we might expect.

36 Q All right. And it's, I take it, as you say these
37 are assumptions, and they're not binding if the
38 scenario doesn't track at 50 percent probability
39 and doesn't come in when expected, then the Panel
40 has some flexibility to adjust.

41 A Yes. And, well, maybe I should just say it now.
42 The most important thing about the regulatory
43 control letters, and I don't know if you have
44 examples of them and it's maybe not important that
45 you do, is that the philosophy is closed unless
46 open. In other words, everything is closed. You
47 start the season and in fact I never -- I didn't

1 -- these weren't shared that much with Panel
2 members, before I used to start to include them
3 with the Panel, and one of the Panel members came
4 up to me and said, "Wait a minute. What kind of
5 fishing plan is this? It says nobody can fish
6 anywhere any time until the Panel says," well,
7 that's what it says, it's closed unless open. And
8 so what this is saying is that if we have
9 abundances near these levels, you might expect the
10 first openings to start in the 19th of July.

11 Now, I suspect if you talk to fishermen, they
12 might have differences of views about that closed
13 unless open, but that is clearly the -- clearly
14 understood. It is closed unless open, and that
15 isn't -- another important reason to bring that
16 up, is that if you go back to the IPSFC years,
17 some of those grey annual reports that used to be
18 -- that you probably have in your record, is
19 actually quite different. It's a schedule. It
20 says it's closed unless open, except seine
21 fisheries will be open on Tuesday for this time
22 period, gillnet fisheries will be open on
23 Wednesday for this time period, and that approach
24 meant that there were some regulations that were,
25 for lack of a better word, sort of cast in stone
26 going into the season, and the only way that the
27 fishery could be -- schedule could be changed, so
28 for example, if you didn't want to have a fishery
29 that you'd already scheduled, you had to have an
30 extraordinary meeting and emergency measures.
31 That is not the way it happens now. Since 1985,
32 closed unless open.

33 Q And just for reference, you did -- we dealt with
34 those documents when you were a witness prior and
35 those exhibit references are 68 and 69. If you
36 want to just pull one of those for an example.

37 A The annual reports for the --

38 Q No, the regulatory --

39 A The regulatory control letters. Okay. Yeah. So
40 you can see these statements here, like, you know:

41
42 No person shall commercially fish for sockeye
43 or pink salmon between the 28th of June and
44 the 19th of September.
45

46 So this is what I'm saying, when I first showed
47 this to a fisherman, he was a little surprised

1 about this being our fishing plan, as you could
2 probably imagine.

3 And so, did you want to talk about these in a
4 general context at all?

5 A No, I just wanted to flag those.

6 Q Okay. All right. And the fishing plan that's
7 adopted through the modeling process, again that
8 provides guidance to the Panel when the season
9 begins; is that fair?

10 A Yeah. It provides a bit of a context. The main
11 thing it's used for pre-season is to ask whether
12 the information is consistent with the plan in
13 making those very first decisions about the very
14 earliest fisheries. And because those earliest
15 fisheries that are under consideration are what
16 the word is that's used is low impact, that
17 probably should describe what low impact means.
18 But an example would be an area, a fishery off
19 Neah Bay in the United States, it's a fishery
20 that's conducted by members of the Makah Tribe,
21 there are four or five gillnet vessels involved,
22 you know, daily catch in the hundreds, although
23 they did actually quite well last year. But it's
24 very small fisheries that the consequences of a
25 mistake in opening those is fairly low, because
26 their expected catch is low. That's what we mean
27 by low impact.

28 MS. BAKER: Okay. Mr. Commissioner, it's 11:15. I'm
29 going to move to a new document, so...

30 THE COMMISSIONER: All right.

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

33
34 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)
35 (PROCEEDINGS RECONVENED)

36
37 THE REGISTRAR: The hearing is now resumed. We now
38 have a brighter outlook on things.

39 MS. BAKER: Mr. Lunn, could you pull up the document
40 Exhibit 330 again and go to page 20?

41
42 EXAMINATION IN CHIEF BY MS. BAKER, continuing:

43
44 Q All right. So we had looked, just before the
45 break, at the "Principles and Constraints"
46 document. This also is a document which is
47 approved by the Fraser River Panel at the June

1 meeting; is that right?

2 A That's correct.

3 Q And it's called "The guidelines for pre-season
4 Fraser sockeye fishing plans to address late-run
5 concerns"?

6 A That's correct.

7 Q All right. So you've talked a little bit about
8 this. Can you explain why this document is an
9 approved document at the Fraser River Panel and
10 what it's used to do?

11 A Sure. When the late-run behaviour began to change
12 in around 1995 - it took a couple of years - but
13 because the problem became more severe over that
14 time period, but sometime in the late '90s it was
15 very obvious that there was something amiss with
16 late-run sockeye and there was going to need to be
17 some special approach needed to address the
18 mortality that was associated with this behaviour
19 that seemed to come out of left field.

20 The Late Run Sockeye prior to the '90s, were
21 very unusual. They would actually come down the
22 coast and peak off the coast of, say, Juan de
23 Fuca, around the third week of August and then
24 they would just hang out in the Strait of Georgia
25 for three to six weeks before migrating upstream.
26 Every other Fraser sockeye aggregate that we know
27 of basically enters the Fraser River in about the
28 time it takes them to swim, so about a week from
29 the (indiscernible) as to the Fraser River.

30 So the behaviour by itself wasn't necessarily
31 a problem although it was unusual. What the
32 problem was, was that when they came in early, a
33 high fraction of them died to the point where, in
34 2000 and 2001, our estimates were that as many as,
35 you know, 90 percent of these fish may have died
36 and did not reach the spawning grounds. Of the
37 ones that made it to the mouth of the river, only
38 about ten percent made it to the spawning grounds.

39 So clearly this had to be addressed. The PFC
40 staff, through my predecessor, Jim Woodey, on --
41 who was the chief biologist prior to me, flagged
42 the Fraser Panel and the first time that the panel
43 actually tried to address it, there was a bit of a
44 disagreement that the panel then actually
45 triggered an extraordinary meeting with the
46 Commission in July to settle on what the late-run
47 approach would be. I can't remember the exact

1 year, but it was something like, you know, 17
2 percent exploitation rate was agreed to by the
3 parties and how it would be shared between the two
4 countries and so forth.

5 So clearly there was a strong desire to avoid
6 having extraordinary Commission meetings every
7 July to figure this issue out. So it was thrown
8 at the panel and said, okay, you guys, you know,
9 figure out what you want to do, come to a
10 bilateral agreement about your approach. We
11 talked about the two alternative approaches
12 earlier so I don't need to repeat that.

13 So this document just represents that
14 agreement. It's the bilateral agreement. Here's
15 how we're going to manage late-run sockeye this
16 year so there's no misunderstandings, there's no
17 fly-bys, it's this is the way it's going to be and
18 this document outlines the principal elements of
19 that approach.

20 Q And it includes things like the paragraph 3, under
21 "Assumptions and Elements of the Plan", the last
22 line in paragraph 3 states:

23
24 Given the above circumstances, it's unlikely
25 that the allowable exploitation rate for
26 late-run sockeye would increase above 20
27 percent.

28
29 And that's the issue that we've talked about
30 already today.

31 A That's correct, yes. So it indicates that unless
32 something very extraordinary happens, the maximum
33 percentage of the fish that will be allowed to be
34 caught will be 20 percent.

35 Q Okay. All right. Now, after the June meeting, we
36 have the exchange of regulatory control letters,
37 Exhibit 68 and 69, that we already looked at.

38 A Yes.

39 Q Okay. And once those transfers of regulatory
40 control happen, is that the beginning of the in-
41 season phase of the year?

42 A Yeah, I mean, there is a step there. Those
43 letters go to Interior -- Secretaries of Interior,
44 State and Commerce in the United States, and they
45 go to the Department of External Affairs and
46 Department of Fisheries in Canada. It's a
47 protocol, but they do have to be signed, so we

1 actually receive signed letters back from Hilary
2 Clinton and all of those folks about this.
3 There's people signing on their behalf. So there
4 is that formality of check-off by the governments
5 that gives the panel regulatory control.

6 We kind of think of the in-season period, at
7 least in staff, as kind of beginning when our
8 dataflow starts up, so like the first test
9 fisheries in the third week of June. But that's
10 kind of the -- certainly there's the -- the pre-
11 season agreements have all been agreed to and the
12 season is ready to start as soon as we have
13 regulatory control.

14 Q All right. And is there any -- does the PSC
15 staff, in terms of the work it does in season,
16 have any independent meetings with stakeholders in
17 the fishing world, like the Commercial Salmon
18 Advisory Board or anything like that?

19 A No. The only circumstances would be is if there
20 was some request for us to provide information
21 which has been very rare. I can recall attending,
22 I think, one CSAB meeting to provide some
23 information in my tenure there since '92. So it's
24 very unusual that we would be -- and, again, it
25 would be just information that we would be
26 requested to provide.

27 Q Okay. And does the PSC staff use the document
28 produced by Canada, the "Integrated Fisheries
29 Management Plan"? Does the PSC staff use that
30 during the season?

31 A Not explicitly, and the reason is that we actually
32 receive from Canada directly all the relevant
33 information that's of bilateral relevance that's
34 in that document, so it's -- I don't want to say
35 it -- you know, definitely it's coordinated with
36 that document. What we do is consistent with
37 what's in that document, but we don't actually use
38 the document. We actually get information
39 separately from Canada, you know, about their
40 escapement plan, about all the things that are in
41 the IFMP. So we don't -- let's say it's non-
42 explicit use, but clearly we're following all of
43 the things that are in there that are relevant to
44 the bilateral process.

45 Q Okay. And once the season starts, what
46 responsibilities does PSC staff have with respect
47 to Fraser River sockeye?

- 1 A I'll see if I can get all the ones on the list.
2 There aren't that many. So all the assessment
3 programs, right, so running all the assessment
4 programs that we run that are outlined in the
5 budget memo. We make recommendations for both the
6 run size and the management adjustment. We
7 receive recommendations from the national sections
8 with respect to their fishing proposals that they
9 make for the panel area waters, and we're asked to
10 judge their consistency relative to available TAC.
11 We also receive catches -- catch estimates
12 for most of the fisheries from the two respective
13 governments, DFO of course being the primary
14 source in Canada.
15 Then we have to assign the stock ID because
16 what we get is the total sockeye catch in this
17 case and we have to, of course, parse that sockeye
18 catch into the various groups which we use our
19 stock ID program for.
20 Is there anything else that we do in season?
- 21 Q Do you --
- 22 A We keep track of the timing and diversion rate as
23 well, so because of the test fisheries, we have --
24 provide this information on both timing and
25 diversion. We're constantly updating those
26 things. Timing tends to be in association with
27 abundance 'cause they're linked. I think -- you
28 know, the programs, you know, the Mission
29 escapement program, stock ID and so forth.
- 30 Q All right. And the catch monitoring information
31 you just referred to, that -- in the prior
32 commission, catch monitoring was done by the PSC;
33 is that right?
- 34 A Yeah, so there is a sharing of roles and
35 responsibilities with respect to catch estimation
36 that involved a more direct role of the PSC staff,
37 particularly for the panel water fisheries, so
38 that area in the southern Georgia Strait and Juan
39 de Fuca Strait, Puget Sound, northern Puget Sound.
40 The non-panel area waters, fisheries, and
41 examples of those would be, in the current
42 context, Johnstone Straits, you know, north of
43 Texada or wherever the northern boundary is of
44 panel waters. It would be sometimes catches in
45 southeast Alaska. It would include catches by
46 aboriginals in the Fraser River. All those things
47 would be outside panel waters. Those have always

1 been the responsibility of the parties. The
2 change has happened within the panel waters. We
3 do far less catch estimations than we had in the
4 past. It kind of evolved gradually. Like we were
5 pretty well doing it, you know, fairly
6 consistently up until about 2006, 2007, and then
7 we had three years in a row where there virtually
8 weren't any panel water commercial fisheries.

9 And then we had some staff turnover as well,
10 but the main issue was that in the United States,
11 when we were providing it, it seemed like we were
12 behind where they were. So it was like it was a
13 redundancy and they weren't -- and so their
14 estimates were at least as good as ours, and so we
15 were putting more of the onus on the United States
16 in the panel waters of the United States.

17 Also, in Canada, there are -- the only panel
18 water fishery that -- well, there's two that
19 happen, can happen, that haven't happened a lot
20 recently except for 2010. The one is the Area H
21 Troll, which occurs off Pender Bluffs. That's one
22 of the panel areas that was typical of the
23 opening. The other one is the Area E Gillnet.
24 So, you know, I'm sure I could probably count on
25 one hand the number of Area E Gillnet fisheries
26 that have occurred in the last five years.

27 So -- and Canada has a very extensive creel
28 survey -- or creel survey is probably not the --
29 creel isn't the right word, but it's an effort --
30 survey-based estimation program for the Area E
31 fishery.

32 The other change that's been happening with
33 respect to catch estimation - and I think there's
34 probably some documents somewhere in your set of
35 Ringtail information - there's been a recognition
36 -- and this is in Canada -- a pretty extensive
37 review about the use of what's called fish
38 tickets. So fish tickets are the slip that's
39 filled out when fish are sold by a fisherman to a
40 buyer, to a processor, and there's been a pretty
41 deliberate decision based on a very extensive
42 valuation. There was a CSAP -- or what was called
43 PSARC paper on this, that those fish tickets were
44 not complete.

45 So there was a move already in Canada to move
46 towards their in-season catch surveys in terms of
47 use for catch estimations. So it seemed logical

1 for us, since our methods were largely looking at
2 landings to companies, and that approach was not
3 being favoured in Canada. It seemed redundant for
4 us to continue to do that. I mean, it was clear
5 that Canada preferred - and we believe, I agree -
6 more accurate to use the survey method. So it
7 kind of was sort of a natural evolution.

8 We still occasionally do cross-checks. We do
9 call companies to see what the averages are like
10 per boat, so if we -- you know, so we can have
11 some judge about whether the estimates provided by
12 the parties are in the ballpark. But we don't do
13 the intensive -- I mean, we used to try to survey
14 every buyer, every place, you know, in both
15 countries for any panel water fisheries, and we
16 just don't do that anymore.

17 Q Okay. So now you rely on the countries to --

18 A We do, very heavily.

19 Q Okay. Does that change in how the PSC receives
20 catch information pose any difficulty for the
21 Commission staff?

22 A No. We have excellent cooperation. We have some
23 agreed timelines for when things need to be in our
24 hands so we can get the information processed in
25 time for an in-season meeting and so forth. It's
26 -- I wouldn't say that it's sort of perfect right
27 now. I think we are working on improving it,
28 because this is like the second or third year now
29 that we've been kind of going that way. But
30 there's no major issues. We have excellent
31 cooperation.

32 Q And the data that you receive, are you confident
33 that it's accurate for your purposes?

34 A Yes. We occasionally have some reviews of it,
35 both on the commercial fishery side and also on
36 the aboriginal side. We've had a number of
37 Technical Committee meetings in the last five or
38 six years where there's been information shared
39 with us about the precision and accuracy of
40 estimates.

41 So we do not independently go through
42 extensive analyses on an annual basis of the catch
43 estimates. We do rely quite heavily on the
44 parties, but the analyses we have been provided
45 have provided us some assurance that their
46 estimates are relatively accurate.

47 Q Okay. You've described the catch estimates that

1 are received from Canada. What other information
2 is received from Canada by PSC staff in season?

3 A We get ten-day forecasts twice a week of the river
4 temperatures and flow, Fraser River temperatures
5 and flow through the DFO Environmental Watch
6 Program. So it involves a ten-day weather
7 forecast and then there's a model that takes the
8 weather forecast and, you know, passes the
9 implications of that weather forecast through all
10 the different Fraser sockeye lakes and spews out a
11 mean temperature and flow for the lower Fraser
12 River. So that's a very much key element of the
13 management adjustments that we'll talk about
14 perhaps a little later.

15 We do have a very active collaborative role
16 in the non-panel area water test fisheries with
17 DFO. And when I say non-panel area water test
18 fisheries, the ones I'm referring to are the
19 Johnstone Strait Seine, Area 12, 13 Seine, and the
20 Round Island Gillnet, which is also in Johnstone
21 Straits. Those are technically -- you know,
22 they're administered on our behalf and we have
23 ultimate responsibility for them, but a lot of the
24 work gets done by some folks in DFO, and we
25 couldn't really make it happen without their
26 cooperation.

27 So I think those are the primary ones that I
28 would probably bring up.

29 Q And does the Department of Fisheries and Oceans
30 perform the DNA analysis?

31 A Oh, yes. Oh, boy, I'm going to get in trouble for
32 not having mentioned that one. All of the genetic
33 analysis is conducted by the Molecular Genetics
34 Lab at the Pacific Biological Station by DFO.

35 Q And domestic allocation shares, we looked at those
36 in the pre-season planning process. Do those
37 change in season or is that set prior to the
38 season beginning?

39 A I have not seen any of those percentages change.
40 Of course, if the run sizes change, then the
41 numerical shares change. But not percentages,
42 I've not seen those change.

43 Q Okay. And what about spawning enumeration? Does
44 that start to come in during the in-season time
45 frame?

46 A We start to see the reports from the earliest
47 arrivals on the spawning grounds, and the earliest

1 arrivals would be the Early Stuart, usually in the
2 late July/early August period, and then there's a
3 sequence of in-season reports.

4 Q Okay. And that's all coming from...?

5 A That all comes from Canada, from DFO.

6 Q And what about information about First Nation
7 catches and/or recreational fishery catches?

8 A Those are all part of the catch estimation scheme
9 just like any fishery.

10 Q Okay. Is there any reporting by PSC staff to
11 Fisheries and Oceans other than through the Fraser
12 River Panel or the Fraser River Panel Technical
13 Committee process?

14 A No.

15 Q All right. And when, typically, is the first in-
16 season Fraser River Panel meeting?

17 A First week of July, first -- usually the first
18 Friday. Just depends. It's a little tricky
19 because you've got a Canadian stat holiday on the
20 1st and a U.S. stat holiday on the 4th, so we're
21 always working around those days. But it's
22 usually the first week of July.

23 Q Okay. And what drives that first meeting? Like
24 why is that first meeting set?

25 A It's the first meeting -- the timing of the first
26 meeting is driven by the need to have an update,
27 if we can, about the status of the Early Stuart
28 sockeye run. I can't recall a year in recent
29 memory where the Fraser Panel itself had any
30 particular interest with respect to Early Stuart
31 sockeye with regards to any kind of potential
32 fisheries. There haven't really been directed
33 commercial fisheries on Early Stuart sockeye for a
34 very long time.

35 However, each of these runs provides signals
36 about subsequent runs, so there's clearly an
37 interest in the Fraser River Panel to foreseeing
38 how the Early Stuart is doing because it may tell
39 us something about how the subsequent runs will
40 do. Also, there is a clear interest in Canada
41 domestically if there is a reasonably good Early
42 Stuart run and there's surplus harvest that might
43 be available to aboriginal groups, then there's a
44 clear interest in knowing what's going on there.

45 So both of those reasons are obviously great
46 reasons to have the meeting start up, and we get
47 going, and it gives us a little bit of a chance to

- 1 see how all the things are working early on in the
2 season as well because every season is new, so...
- 3 Q All right. And we've heard from various people so
4 far in these hearings that there is -- before the
5 Fraser River Panel meeting, there is a Fraser
6 River Panel Technical Committee meeting most
7 times.
- 8 A Yeah, the normal schedule would be Tuesday,
9 Friday, Fraser River Panel with a Thursday
10 Technical Committee meeting. So there isn't a
11 Tech meeting before every panel meeting during the
12 week. There's one every Thursday, and the panel
13 meeting typically Tuesday, Friday, but, you know,
14 if there's -- usually it's inversely proportional
15 to the abundance of fish. If there's not many
16 fish around, we meet a lot in expectation that
17 maybe the next meeting would identify that there
18 will be some. If there are lots of fish around
19 and we plan our fisheries, then everybody just
20 wants to go fishing. So we've met five days a
21 week sometimes, and sometimes on Saturdays and
22 Sundays.
- 23 Q Okay. Is the agenda and the type of data reviewed
24 at the Technical Committee meetings pretty
25 consistent?
- 26 A Yeah, very consistent. Usually there are almost
27 the identical agenda in numbers, very, very
28 consistent. The Tech Committee does deal with
29 other issues that are of a very technical nature
30 that -- not typically in the in-season period. It
31 would be more in the pre-season period if there
32 was some particular modelling issue or something
33 that we want to identify, we'd do that. But in
34 season, it's very parallel agendas.
- 35 Q Okay. And that -- the topics that are covered in
36 the Technical Committee meetings are similar to
37 what's covered in the panel meetings that follow?
- 38 A Yeah, the concept is that if the Tech Committee is
39 briefed, then they can go and brief their national
40 sections so that they come to the bilateral with
41 an idea of what they want to do before they meet.
- 42 Q Okay. Who are the PSC staff that attend the
43 Fraser River Panel Technical Committee meetings?
- 44 A Do you want names or do you just want a general
45 concept here?
- 46 Q Concept.
- 47 A Okay. All right. Almost all the biologists if

1 they're not -- we have about ten or 12 folks on
2 the biological side. Well, as many as 15 if you
3 count everyone, but some of those folks are in the
4 field, so almost all of us would be on the
5 conference call just because there's a broad
6 interest in what's going on, and also from kind of
7 a participation point of view it's nice to have
8 Tech Committee other staff members, other than me,
9 who -- I happen to be the principal person at the
10 panel meetings, but I get a chance to speak to the
11 panel about various aspects of their program to
12 provide those reports so there's a connection
13 made, not just to the work but to the people doing
14 the work.

15 So I usually use that Tech Committee as an
16 opportunity to broaden the people that are
17 presenting so that panel member gets to know those
18 folks and so it's almost everyone. That's a
19 pretty -- you know, the boardroom table is pretty
20 full on that conference call.

21 Q And then I think you just alluded to my next
22 question in your answer there. Who from PSC staff
23 attends the actual bilateral panel meeting?

24 A It's a smaller group because it's a -- especially
25 the in-person meeting is -- for the conference
26 calls, it would be a similar group but for the in-
27 person meeting, it would be a smaller group
28 because we end up travelling usually to Richmond
29 and it's good to have a few folks in the office
30 that we can consult if there's something that
31 comes up at the Richmond meeting that we can't
32 deal with at Richmond.

33 So it would be four or five of us, you know,
34 myself and a couple of the more senior staff and
35 then also there's some secretary support involved
36 with meeting space and stuff, so there's about six
37 of us that probably go to the panel meetings.

38 Q Okay. All right. The Record of Management
39 Strategies document, Exhibit 330, contains within
40 it many documents that appear to be related to
41 those technical meetings and the bilateral
42 meetings, so I just think it would be helpful to
43 go through the data that's presented to the panel
44 to understand the decisions that are made.

45 A Sure.

46 Q So if I can ask you to look at one of the very
47 early meetings, which I think it was the first

1 meeting for that year, 2009. It's at page 81, I
2 think, is where that group of data begins.
3 A That week of July 5th to 11th, it says.
4 Q Right. Okay. So then this -- if you just flip
5 through the pages, there's "Fraser River Sockeye
6 In-season Status" is the first page, then some TAC
7 calculations, test fishing data, migration graphs,
8 escapement tables and summaries, and environmental
9 conditions. That's the kind of information that's
10 reviewed for each meeting?
11 A Yeah, it's a pretty consistent packet and it's
12 usually presented in this order.
13 Q Okay. And that data is all prepared by the PSC
14 staff?
15 A I'm just looking through the page. There are some
16 pages here that I -- yeah, it looks like we
17 prepare them all. There are some pages that
18 actually we probably don't include in the packet.
19 This "Escapement Summary" page, for example, is a
20 little bit more detailed than we would have in the
21 packet. So -- but we do generate it, it's just
22 not something that we typically would go into that
23 much detail with, but that's definitely our work.
24 Q Okay. Now, just flipping through that, as an
25 example of the first one, there's not a whole lot
26 of information. For example -- well, there's
27 information, and I guess in its absence it's
28 telling. On the "TAC Calculations", for example,
29 the table is pretty much empty. That's just
30 because this is the very first meeting, we haven't
31 got a lot of information yet; is that...?
32 A Yes, so actually the TAC sheet is actually not in
33 this package, the one you're -- the TAC sheet
34 usually is the second page, but it's this overall
35 review that -- and that's just because there's no
36 TAC issues with respect to Early Stuart in terms
37 of the bilateral management. There was no
38 international TAC.
39 So, yeah, the only thing that would be --
40 we'd have any information about would be Early
41 Stuart migration. The other stocks would not yet
42 have reached the areas to provide assessment.
43 Q Okay. So that's just an example of what happens
44 at the first meeting. I think, to sort of see
45 what happens where there's some data on the
46 tables, it might be a little more helpful, so if
47 you move to page 260, that takes us towards the

1 end of the season, or at least to some time in
2 August.

3 A Yeah.

4 Q Okay. So I think it would be helpful to just go
5 through some of this information just to
6 understand what it's telling us. First of all,
7 starting with the first page, which is 260, this
8 shows the in-season status. It has the four
9 management groups, "Early Stuart", "Early Summer",
10 "Summer" and "Late", but additionally it has
11 "Birkenhead". Why is that?

12 A Yeah, Birkenhead was parsed out of the other lates
13 because that particular stock does not seem to
14 have shown any of this early upstream migration
15 that the other late runs had. So when there was
16 negotiations about the exploitation rate that
17 would apply to the late runs, there was a desire
18 or a policy decision made to apply it to only
19 those late runs that were showing the problem, and
20 Birkenhead was not. So I would have -- the
21 history would be in the late '90s, early 2000 when
22 Birkenhead had its own column.

23 Q Okay.

24 A And that's why.

25 Q So what's the harvest strategy that applies to
26 Birkenhead, then?

27 A The term that's used, which is probably not a very
28 good term, is a term that's called "passive
29 management". Essentially, what is done is the
30 summer run exploitation rate is applied to
31 Birkenhead. The reason that the term "passive" is
32 used is there is no specific escapement plan
33 generated for Birkenhead, so it's being treated
34 like a summer run for all intents and purposes in
35 this analysis.

36 Q Are there other stocks that have received that
37 kind of individual attention over the years?

38 A Not with respect to, you know, TAC shares and this
39 table. There are certainly examples of sub-
40 components of some of these groups. One that
41 comes to mind would be the Scotch Seymour group
42 which is a component of early summers. There have
43 been recent past years where something called a
44 "window closure" would have been imposed. In
45 other words, there would be a period of weeks that
46 moves with the fish as I described in that sort of
47 boxcar description to protect part of that run.

- 1 So they would never -- it would not show up
2 explicitly in this table. It would be a detailed
3 harvest tactic to respond to a particular, you
4 know, issue with a stock of concern. I think the
5 Scotch Seymour one is the one I can remember
6 that's most recent. If you go back in history,
7 there would be other examples, but that's one I
8 could provide. But it would never show up like
9 this.
- 10 Q All right. And the "Run Size" column, we have the
11 pre-season forecast, and again, this takes the
12 probability levels that were agreed to by the
13 panel for that -- those numbers --
- 14 A Yeah, and those represent 50 p levels for all
15 stocks except for Early Stuart and they just
16 provide a point of reference against which to
17 compare the in-season estimates that are shown in
18 the subsequent row.
- 19 Q Okay. And the in-season estimates are created
20 through test fishing and --
- 21 A They are our responsibility to generate those
22 estimates based on the dataflow and the models
23 that we fit to those data.
- 24 Q Okay. And the actual numbers there, are those
25 adopted by -- those are presented by staff, is
26 that right, calculated by staff?
- 27 A The way that the run size estimation works is we
28 do the assessments, we provide a recommendation, a
29 formal recommendation to the Fraser River Panel
30 saying we recommend that the Early Stuart run size
31 be changed from whatever it was, 165, to 85, and
32 then the panel adopts those by bilateral
33 agreements.
- 34 Q Okay. So each of the numbers that you see under
35 the "In-season estimate" line are all numbers
36 adopted by --
- 37 A They are adopted by the Fraser River Panel.
- 38 Q Okay. Now, the next heading refers to "Catch
39 excluding Fraser River aboriginal and Fraser River
40 recreational," so what are those numbers?
- 41 A So that's -- the notion is kind of a marine area
42 catch, the detail of which numbers are in that row
43 and not are described in the first set of -- the
44 rows under the first heading with the blue box.
- 45 Q Mm-hmm.
- 46 A So that if you look at those totals for that first
47 blue box, they match those outside catch numbers.

- 1 So it's all those catches that are in that, that
2 blue box.
- 3 Q Okay. All right. And then "Gross Escapement",
4 what are these lines, "FRA catch below Mission".
- 5 A Okay. So the next row, "Fraser River aboriginal
6 catch below Mission", is the estimates of
7 aboriginal catch below Mission that have occurred
8 up until -- as of this date. The Mission
9 escapement is the Mission escapement to date by
10 those aggregates. The potential gross escapement
11 is the sum of those two numbers, and the adjusted
12 gross escapement target would be the spawning
13 escapement plus the management adjustment plus any
14 planned in-river recreational or Fraser River
15 aboriginal catches for the duration of the season
16 on those stocks.
- 17 So the concept is the number of fish that
18 need to be delivered -- "delivered" is not a good
19 word -- need to make their way to the Fraser River
20 to be available for the combination of escapement,
21 management adjustment and any in-river fisheries
22 that were contemplated.
- 23 Q That number would be what the 85,000 is?
- 24 A 85,000. That's a target --
- 25 Q That's what you want to see on the spawning ground
26 at the end of the day?
- 27 A No.
- 28 Q No?
- 29 A That is the number of fish that need to be
30 provided to the lower Fraser River to meet the
31 combination of the spawning escapement objective,
32 any management adjustment which you could think of
33 if it helps as an anticipated en route loss, and
34 any catches. So, in other words, 85,000 fish
35 would provide for all of those things, not just
36 the spawning escapement.
- 37 Q Right.
- 38 A There should be another row here probably on the
39 TAC sheet that talks about what the spawning
40 escapement targets were in this year, and maybe
41 there's a point of confusion with respect to Early
42 Stuart, I'm not sure. But that's not what that --
43 that adjusted gross escapement target is gross
44 escapement fish into the lower river for all those
45 reasons.
- 46 Q All right. And this is based on the actual in-
47 season run size estimates? This is not based on

- 1 the (indiscernible - overlapping speakers) --
2 A Yeah, so -- so the spawning escapement component
3 of that, and to some extent the shares -- and I
4 say the shares because if there aren't enough
5 fish, like if the desired aboriginal allocation
6 was, say, 750,000 fish but there weren't enough
7 fish in the total run to provide for that 750,000,
8 then it would be different from 750. Some number
9 in Canada would tell us what that is.
- 10 Q All right.
11 A And I think that this happened in this year which
12 is why I bring it up, because the run was so low.
- 13 Q Right. And the next -- sorry.
14 A So the third row under gross escapement, it says
15 "Potential gross escapement" is what the in-season
16 data are tracking. The fourth row is a target and
17 part of that target is based on the run sizes that
18 are available at that time. So the spawning
19 escapement target is a function of the run size,
20 and the management adjustment is a function of the
21 spawning escapement.
- 22 Q And, in this case, because the in-season estimate
23 is 85,000 and all those fish need to make it to
24 the spawning ground, that's your target. Is that
25 -- is there a relationship --
- 26 A All of the fish --
27 Q -- between the two numbers?
28 A -- have to be delivered to the Fraser River,
29 provided for in the Fraser River, to meet the
30 combination of all of those objectives. I think
31 the spawning escapement part of this will become a
32 bit more clear on the TAC sheet than it is on
33 here. This is really talking about the gross
34 escapement which is a combination of objectives.
- 35 Q Okay. "Accounted-to-date", this is --
36 A Is the sum of all catches, and the Mission
37 escapement.
38 Q Okay. And then the --
39 A Well, all catches downstream of Mission.
40 Q And then the "Potential Remaining to Come" are
41 just the fish that haven't made it to Mission yet?
42 A So it's the -- yeah, the difference between the
43 in-season estimate of run and the accounted to
44 date.
45 Q Okay. The "Fraser River Aboriginal and the Above-
46 Mission Recreational Catch." This information is
47 provided by Canada as we've already described?

- 1 A Yes.
- 2 Q Okay. And then the "Timing and Diversion
3 Assumptions", what is this about?
- 4 A So those represent the in-season assessments of
5 marine timing associated with those run sizes. So
6 on the - whatever date this was - 21st of August,
7 we would have estimated the peak arrival of Early
8 Stuart sockeye to be the 29th of June past Area
9 20, which is Juan de Fuca Strait and so forth.
- 10 The next row, Mission timing is typically a
11 six-day offset, so if you look at the difference
12 between those numbers, the six-day offset, the
13 only difference would be in the late runs which
14 tend to migrate a bit slower. In 2009, we were
15 assuming they were going to come straight into the
16 river, and they take about eight days instead of
17 six days, so that's why there's an eight-day
18 offset.
- 19 The diversion rate is the northern diversion
20 rate, so that's the seasonable current average of
21 the proportion of fish coming down through
22 Johnstone Straits and then the similar information
23 for the Fraser River pinks at the far right.
- 24 Q So 32 percent is the number -- or the percentage
25 of fish that are in the Straits or going around
26 the other way?
- 27 A No. Percentage to date that have come down
28 through Johnstone Straits.
- 29 Q Okay.
- 30 A Not on that particular day, I don't think. Just
31 an average over the course -- cumulative through
32 the season to that date I believe is what that
33 number is.
- 34 Q All right. And if you turn the page to look at
35 the TAC calculations, this is the table that was
36 not even available at the first meeting, when we
37 looked at this --
- 38 A Well, we could have generated a pre-season table.
39 We just clearly didn't have any decisions to make
40 with regard to TAC at that meeting, so it
41 wasn't --
- 42 Q Wasn't provided in the materials.
- 43 A Would have been defeating the purpose of
44 protecting the habitat, so to speak, by providing
45 more paper.
- 46 Q All right. So the first block here deals with
47 "Run Status, Escapement Needs and Available

1 Surplus". That, I think you said, would be
2 helpful in explaining --

3 A Sure. So the first row there that's highlighted
4 in yellow is the actual in-season run size
5 estimate so exactly the same numbers that you saw
6 on the previous page. The next row is the
7 numerical spawning escapement target. That number
8 comes from the application of the TAM rules or
9 total allowable mortality rules that are provided
10 to us by Canada, that come out of the Fraser
11 Sockeye Spawning Initiative workshops. So that
12 percent, SET, is one minus the total allowable
13 mortality.

14 So, in this case, there was no allowable
15 mortality on Early Stuart, which means that the
16 entire run was needed for spawning escapement.
17 Similarly for early summers. At that run size,
18 the agreed spawning escapement plan said there
19 were to be no fish available for harvest. All of
20 the run needed for spawning escapement for the
21 early summers.

22 Almost three-quarters of run of summer runs -
23 and you can see how that's been shared with the
24 Birkenhead there - of the run of summer runs would
25 be required for escapement, spawning escapement.

26 Then for the late runs, the agreement, as you
27 showed in the late run guidelines for 2009, was to
28 use a 20 percent exploitation rate, which means
29 that 80 percent of the run was required for
30 harvest. So that's directly coming from just
31 taking the run and applying the rules that are
32 provided to us, the run that's generated by us
33 and --

34 Q Sorry, I think you said --

35 A -- agreed to by the panel --

36 Q I think you said 80 percent was required for
37 harvest.

38 A I'm sorry, thank you. Eighty percent was required
39 for escapement.

40 So those are just a direct application of our
41 panel adopted in-season runs and the spawning
42 escapement plan that Canada provides us.

43 The next row that says "Management
44 Adjustment" is a -- well, maybe I should go to the
45 row below it first. There's something called a
46 "proportional management adjustment" which is what
47 is predicted by the management adjustment models.

1 That proportional management adjustment is
2 multiplied by the spawning escapement target to
3 get the numerical management adjustment.

4 One of the reasons why I raised the issue I
5 raised when we were going over that pre-season
6 planning visual is this is an exact circumstance,
7 so the pre-season planning is one thing. It's
8 kind of hypothetically if we had this run, this is
9 what would happen. Well, in fact, this in fact
10 did happen. So if you read these first three
11 numbers for the Early Stuart or the 85,000 and the
12 32,000, what that would say is even if we had a
13 run that was 117,000, the sum of those two, there
14 still wouldn't be any fish available for harvest
15 because we were anticipating some loss.

16 Furthermore, it's another example of what I
17 said earlier, this sort of, you know, kind of
18 "Mission Impossible" kind of unachievability
19 because the spawning escapement is the entire run.
20 So even if there are no fish harvested and that
21 management adjustment materializes, we are not
22 going to see the entire run on the spawning
23 grounds, and that's the case in 2009 for both
24 Early Stuart and early summer run sockeye. The
25 spawning escapement target was the total run.

26 So that's that set of rows, and then this
27 "adjusted spawning escapement target" would
28 normally just be the sum of the management
29 adjustment and the spawning escapement target, but
30 if -- you can't have a target that's more than the
31 number of fish you have. It can't be, you know --
32 that would even be more -- or even less
33 achievable, I guess, to have a target that is
34 bigger than the number of fish you have. So
35 that's why, for the Early Stuart and early
36 summers, those numbers haven't been added
37 together. It's simply because at the current run
38 size, there is no surplus, period.

39 Q Okay.

40 A "Test Fishing" is what our current accounted test
41 fishing would be with -- if we are still test
42 fishing, which we would have been in some areas in
43 August, with some anticipation of what the catches
44 would be remaining, the test fisheries are what we
45 use to tell us that we have -- that told us in
46 2009 that we did not have a run. It would be nice
47 if we could do that without killing any fish, but

1 in the case of 2009, we did harvest about -- at
2 the end of the year, about 33,000 fish in test
3 fisheries to assess -- to tell us that we had a
4 very poor run in 2009.

5 Do you want -- I'm not sure if you want to
6 lead me through this or if you want me to walk
7 people through. I don't want to go into more
8 detail than you'd like me to provide, so I'm kind
9 of looking for some guidance from you on this.

10 Q Yeah, no, that's very helpful, what you just
11 described. The "Deductions and TAC for
12 International Sharing", these are just deductions
13 that you expect to have off of those runs if the
14 runs had materialized?

15 A They're treaty-defined in the sense that the
16 aboriginal fishery's exemption in a year when
17 there was a larger run would add up to 400,000,
18 which is the number that's specified in paragraph
19 (3) of the treaty, I think it is. The reason that
20 it's not 400,000 is that there wasn't an available
21 -- a big enough available surplus to add up to
22 400,000. There has been some Commission guidance
23 on this in the last couple of years that talks
24 about what to do in a circumstance where there
25 isn't a full 400,000 available, which is what
26 happened to us in 2009.

27 So the available fisheries exemption takes
28 into account the fact that there are sums that are
29 not available, so the actual available exemption
30 is only 108,000. The deductions are the ones that
31 are specified in the treaty, so the TAC takes the
32 total run, subtracts the spawning escapement,
33 subtracts the management adjustment, subtracts the
34 aboriginal fisheries exemption and the test
35 fishing, and what's left is the available TAC for
36 international sharing which you can see is a bunch
37 of zeros at the bottom of that row, because of the
38 situation that we had in 2009.

39 Q All right. And then if we -- if there had been
40 fish, we would have had some data in the tables
41 under the U.S. TAC, correct?

42 A Yeah, because that number is just 16.5 percent of
43 the row called "Available TAC for International
44 Sharing". It's just because they're zero that
45 it's zero.

46 Q And then on "Canadian TAC", same thing. The only
47 fisheries that do show are the aboriginal

1 fisheries for Birkenhead and late.

2 A So two things: One, it reflects the domestic
3 situation in Canada, the priority of where fish
4 would go within Canada, in this case, which is to
5 aboriginal folks. The other thing is that the
6 Canadian share is the balance, but added back in
7 is the exemption. So, in other words, it's
8 subtracted from the United States. The United
9 States isn't -- you know, doesn't get a share of
10 those 400,000, but it's clearly a share in Canada.
11 So it's just remembering that it is 83-and-a-half
12 percent of the available TAC plus, in most years,
13 400,000. It just so happens in this year there
14 wasn't 400,000 available.

15 Q Okay. And then the "Catch To Date" on this is
16 simply a recording of what has been caught?

17 A That's right.

18 Q Based on the reporting you receive.

19 A Yup, the total -- we get the total catch as we
20 apply the stock discrimination information.

21 Q Okay. Then the "Escapement Relative to Targets"
22 at the bottom, this is again looking at targets
23 that are set by Canada?

24 A Yes. So the spawning escapement targets are
25 identical to the ones in the row up above, total
26 runs for Early Stuart, early summer, and then
27 approximately three-quarters of the total run for
28 summers and Birkenhead, and the 80 percent of the
29 run for lates. That potential spawning escapement
30 - and it's probably a footnote there so it tells
31 you how it's calculated - it's just taking the
32 total run minus any catches to date. That would
33 be how many fish would be expected to reach the
34 spawning grounds prior to any en route loss.

35 That next row is designed to say -- kind of
36 answers the question if the en route loss is what
37 we have adjusted for in the case of management
38 adjustment, how many fish would we expect to reach
39 the spawning grounds. So that's what that number
40 is that says "PSE with predicted DBE removed".
41 That's the anticipated number of fish on the
42 spawning grounds, 85,000 the target, and the
43 difference between them is the potential
44 deviation. Again, another illustration of the
45 fact that when you have a spawning escapement
46 that's equal to the total run, and you have any
47 anticipated mortality, you have a kind of a

1 "Mission Impossible" situation in terms of getting
2 that target.

3 Q All right. The "Catch Summary", we don't need to
4 go through this, but you could perhaps just
5 identify if this is intended to show in detail the
6 catches that are made on a proportionate basis by
7 all these different --

8 A Are we on the "Catch to Date" column of this
9 table? Is that what we're talking --

10 Q I'm sorry, next page. It's the "Catch Summary".

11 A Okay, sorry.

12 Q This document, it's all zeros because there was no
13 commercial fishery this year.

14 A That's right.

15 Q But it would be filled in with the --

16 A Yeah, and so --

17 Q -- catches from all the --

18 A And so this is sort of more like the raw data, so
19 when there are catches in here, and in the case of
20 the ones that are in here, the Fraser River and
21 the test and so forth, if there are people in the
22 room on the panel that say, okay, well, we think
23 our catches may be a little higher than that or --
24 usually it's DFO managers that would be providing
25 that information. We can update the numbers --
26 well, actually, quite often we'd have handwritten
27 numbers in here so that everyone leaves the
28 meeting with the up-to-date stuff, but yeah, the
29 reason there's zeros is there weren't any
30 fisheries.

31 Q All right. And then turn the page and "Test
32 Fishing Data". If you can just -- we don't need
33 to go through all of these graphs, but if you
34 could explain where this information comes from
35 and why it's presented.

36 A Sure. So the table there at the top is the array
37 of the panel-approved test fisheries that were
38 conducted in -- at that time in 2009. We just lay
39 out the actual catches in those test fisheries by
40 date.

41 Now, with the seine test fisheries, there's a
42 subtle difference here between what is in the
43 numbers, the total catches in these tables, and
44 what may be landed. So, for example, in Canada
45 under Area 12 Seine and 13 Seine, I believe those
46 are the actual estimated total catches, but not
47 all of those fish would be landed, because

1 consistent with rock (sic), we release as many
2 fish as we can from any fisheries that we, you
3 know, can, so at gillnet fishery that soaks then
4 overnight, those fish are dead, you can't do much
5 about that.

6 But a seine fishery, we would only take the
7 number of fish aboard and land those fish needed
8 for samples. So I believe these numbers are the
9 actual estimated catches, so the other fish would
10 have been counted out of the net or released or
11 whatever. So those are the actual catches in each
12 of those test fisheries.

13 In the reef net case, it's an observation
14 program. They actually stand on a tower and watch
15 fish swim through their gear. This is a very
16 interesting fishery that happens in the United
17 States where there's a lead, and the fish, for
18 whatever reason -- these leads are like ropes that
19 are three feet apart. But they don't seem to
20 cross it, they just -- when encounter that rope
21 and they swim along it. They swim into this
22 funnel and there's a guy in a tower looking down,
23 and he can see the fish swimming into his gear.

24 Now, the way they're caught is they lift the
25 bottom of the net up and -- but if they're not
26 fishing, they just let them swim through. So
27 that's an observation program, there's no catch.

28 There's Hell's Gate daily counts there.
29 There's a Mission escapement, daily Mission
30 escapement estimate there. So that's an array of
31 all the test fisheries. It's the raw data. It
32 helps because you're kind of trying to get the
33 same point across more than once. There's all
34 this data that gets processed and estimated with a
35 model and that sometimes isn't always intuitive.

36 Most fishermen in 2009, when I look at this
37 sheet and just go, "we have not got a run", they
38 would just know because they'd seen these test
39 fisheries reports for many years. They look at it
40 and go, "They only got that in Area 20?" You
41 know, it's like -- so it's really helpful
42 intuitive thing from a panel perspective because
43 it's information that's very familiar to them.

44 Q Okay. The first table underneath that raw data is
45 the CPU data that's --

46 A So that's just the catch is divided by the effort,
47 and we try to provide a perspective here, so the

1 dark blue line is the median. Half the time
2 above, half the time below over the historical
3 years from 1973 to 2005. The dotted lines are the
4 max and min. The 2009 is in red. So, again --
5 and then sometimes the brood year, the parent year
6 is also shown. It is on that. So, again, you're
7 seeing catch efforts that are very near the lowest
8 we've ever seen in most of those dates which again
9 is very obvious information that the run is
10 clearly not there relative to what we would have
11 hoped pre-season.

12 Q Right. And then each of the test fisheries has
13 the same --

14 A Yeah, we try to --

15 Q -- kind of information --

16 A -- provide the primary ones, the river, the
17 Mission acoustics is there, the outside
18 information. Area 20, Area 12 are all there on
19 subsequent pages I believe.

20 Q All right. And the years, the cycle-years, that
21 refers to the length of time that particular test
22 fishery has been collecting data at that
23 (indiscernible - overlapping speakers) --

24 A A little bit --

25 Q -- is that right?

26 A -- more specific. It is the historical record for
27 that test fishery on the four-year intervals that
28 match the current one. So this is 2009, so it
29 would have been every fourth year from 1977, last
30 one 2005. The reason that the cycle year is
31 important is 'cause there's very predictable
32 differences in abundance over time on these cycle-
33 years. So, for example, 2010 cycle, huge Adams
34 run. You'd expect to see more late runs on 2010
35 cycle on average. Not maybe as many as we saw
36 last year, but because there's always a big Adams
37 run that year. So it's a better reference than an
38 average of all years.

39 Q Okay. And if we can skip through the pages that
40 deal with pink salmon and go to page 268 which is
41 the "Racial Analysis".

42 A Sure. So those are raw sample results, so reading
43 across just one row, as an example, we had a
44 sample from the Area 12 Purse Seine test fishery
45 that was taken on August 17th. There was a sample
46 of 95 fish. Ninety-nine percent of the sample was
47 Fraser, so perhaps there was some non-Fraser stock

1 found in that -- well, there was one percent non-
2 Fraser stock.

3 Then the stock percentages on the right are
4 the percentages within the Fraser. So of the 99
5 percent that was Fraser, two percent was in the
6 early miscellaneous group and those stocks
7 referred to in that group are denoted at the
8 bottom. Early Thompson group, five percent;
9 Chilko/Quesnel, 59; Late Stuart/Stellako, 2;
10 Birkenhead, 8; Adams/Weaver 22; Harrison 2.

11 So it's, again, really is helpful to have
12 multiple pieces of information that are telling
13 you the same thing.

14 Q All right. And you have here within each of these
15 management groups a variety of stock components.

16 What do those relate to? Why do you have that?

17 A They relate to our capacity in season to identify
18 fish via the genetics. There are two primary
19 factors that determine our capacity. One is how
20 genetically distinct these fish are from each
21 other, and that's primarily a product of
22 evolution. The other is how relatively abundant
23 they are.

24 So an example of where those two things would
25 be sort of in disconnect would be something like
26 Cultus sockeye, extremely genetically distinct,
27 but if you're expecting -- like I'd say last year
28 would be an extreme example but perhaps one that's
29 good to make the point, but if you're expecting
30 three or four thousand Cultus sockeye mixed in
31 amongst 25 million Adams River sockeye, you're
32 going to have to take a really, really big sample
33 if you expect to find one. So it's those two
34 things combined that determine whether we can tell
35 them apart.

36 In 2009, I think we had about -- that we were
37 trying to track about 15 different groups.
38 There's not 15 on this sheet because we aren't
39 trying to show all that detailed data, but we had
40 15 and the Tech Committee was aware of catches for
41 Chilliwack Lake, for example, was one that we
42 could distinguish and so forth.

43 So we have more capacity than we show on this
44 sheet just because of the level of detail that can
45 be absorbed by people.

46 Q And I take it, touching on a question that was
47 raised by the Commissioner earlier, you're not

1 able to track at the sea level this kind of timing
2 information?

3 A Not -- not every CU, but some we can. In a
4 general sense, in -- I hope I'm not reflecting a
5 misunderstanding, but my sense is that CU's are
6 largely lake-based, and there may be multiple CU's
7 within the same lake. An example of the early and
8 late Shuswap, they would have two CU's, so lakes -
9 - lake-based stock ID is doable for some of these
10 populations. An example where we would have
11 difficulty would be late Stuart versus Stellako.
12 They're different CU's, they're in different CU's.
13 In fact, there may be multiple CU's for late
14 Stuart 'cause there's a couple of lakes, but they
15 are very genetically similar. They are very
16 geographically close to each other. They probably
17 have gone through a similar evolutionary history.

18 So there would be cases where the genetics
19 wouldn't be good enough and there would be cases
20 where we might have good genetics, like Cultus,
21 but that CU may be hard to track because of its
22 relative abundance. So there's a capacity
23 capability issue that limits every CU being
24 tracked.

25 Q Okay. And then just turning the page to look at
26 the migration graphs, these migration graphs,
27 again, they're not necessarily the management
28 groups. They're a different variety of stocks.

29 A Yeah, so they -- we try to align them with the
30 ones that we've used in the pre-season modelling
31 so people can understand why they're -- you know,
32 what's different between -- but the overall
33 purposes, here's what we thought was going to
34 happen based on the smooth curves there which are
35 dashed, which are based on the median and the
36 lower forecast value, the bold line is what's
37 actually happening. So I can tell you that there
38 was nobody on the Fraser River Panel that had any
39 misconceptions about the possibility that we had
40 anything resembling what we were expecting pre-
41 season. I mean, I can remember in the summer run
42 graph there, you see that the graph -- I can
43 remember, you know, making kind of a black humour
44 remark to the extent, "Has anyone got a run size
45 defibrillator," because it appears that the summer
46 run doesn't have a pulse.

47 It was made because, to make the point to

1 help understand the situation that the panel is in
2 -- and these visuals are absolutely critical. If
3 they see that, they -- you know, there's no way
4 they're going to say, well, gee, why aren't we
5 fishing because the 50 p plan says I should be
6 fishing next week. Well, clearly the information
7 is dramatically different, and -- so this is
8 probably the most effective set of visuals we've
9 had we've been providing for the Fraser Panel for
10 probably over 20 years now, and it's really
11 helpful.

12 Q And who prepares those?

13 A We do.

14 Q Is it -- and who in your -- in the PST does that?

15 A The main person that generates this is a guy named
16 Jim Cave.

17 Q Okay. If you flip to --

18 THE COMMISSIONER: Ms. Baker, I note the time.

19 MS. BAKER: Oh, sorry.

20 THE COMMISSIONER: Would this be --

21 MS. BAKER: Yeah, I was hoping I could get through this
22 batch of documents before the break, but I --
23 there's a couple of more pages. So it's up to
24 you. I've probably got three more pages just to
25 go through to get to 273. If that -- if we can
26 stay a little longer, I wouldn't mind doing that.
27 Otherwise, we're going to have to start again when
28 we come back.

29 THE COMMISSIONER: I think we should take the break.

30 MS. BAKER: Okay. Thank you.

31 THE REGISTRAR: The hearing will now adjourn until 2:00
32 p.m.

33

34 (PROCEEDINGS ADJOURNED FOR NOON RECESS)

35 (PROCEEDINGS RECONVENED)

36

37 THE REGISTRAR: Order. The hearing is now resumed.

38

39 EXAMINATION IN CHIEF BY MS. BAKER, continuing:

40

41 Q Now, we left off before the lunch break looking at
42 the materials that are presented to the Fraser
43 River panel for decision-making purposes in
44 season, and we were just going to look at pages
45 271 to 273 of the Record of Management Strategies
46 document, Exhibit 330, which has the materials for
47 a meeting at the end of August, 2009. So if we

1 turn to page 271, this sets out a table showing
2 escapement projections. What is this material?
3 A We project six days forward because it takes about
4 six days for the fish to swim from where these
5 projections are made in Juan de Fuca Strait to the
6 river. The expected escapement's at Mission. And
7 these come from -- they're made from the test
8 fishing data, test fishing catch (indiscernible)
9 times of something called an expansion line, which
10 I can explain if you need me to, but -- and then
11 if there are any fisheries that we know of that
12 would remove some catch in between these
13 assessment points and the river, then those would
14 be subtracted off. So what that represents is the
15 -- the expected next six days of escapements past
16 Mission hydroacoustic, and they're done by those
17 groups that you see in the columns there.

18 Q Okay. And these are some of the same groups that
19 you would collect DNA analysis for?

20 A Yeah, they should correspond pretty closely to the
21 groups that we talked about with those graphs that
22 have just preceded this one. They should be,
23 basically, the same, the same groups.

24 Q All right. And is there any impact on data on
25 high pink years that we should know that?

26 A Yes, two impacts in the marine areas. In terms of
27 these projections, the main impact is late in the
28 year when -- particularly in a run like -- a year
29 like 2009, when most of the run is Fraser River
30 pink salmon, and you look at that pink salmon
31 graph at the top, there, you're seeing daily
32 migrations of pink salmon in the 400,000 range.
33 The sockeye daily migrations are in that same
34 period. It would be more like, you know, less
35 than 100, probably more like 50, 20, 30. I'm not
36 sure if you could add up the ones in the previous
37 graphs, but -- so the issue is trying to determine
38 the species composition of the sets that are made
39 in the test fishery. The test fishery obviously
40 making -- catching both sockeye and pink, and when
41 you have 90 percent pinks, and particularly if
42 they're big sets, it's hard to get a good estimate
43 of the number of sockeye. The way it's done is to
44 try to count some of these fish swimming out of
45 the net and to visually identify the pinks and the
46 sockeye. So it's a species composition issue in
47 the marine areas that impacts this table. In the

1 river, I think we discussed this in November, I
2 think, under cross-examination there was a
3 discussion about 2005, and that was an impact on
4 species composition in the river test fishery.
5 The same kind of thing, a disproportionate
6 sampling. So it's those impacts on species
7 composition that are the most important ones on
8 pink years.

9 Q All right. And if you look at the projected
10 escapement numbers, there's sort of one number for
11 each column. There's no uncertainty analysis
12 contained in this document. Has there been any
13 changes to the presentation of the data since
14 2009?

15 A Yeah. We've been gradually building towards
16 improving our capabilities in the uncertainty
17 area. And I could talk about that in more detail,
18 but in this particular case, the bottom row there
19 has projected total. There would be a probability
20 interval of 80-percent range. So 80 percent of
21 the time we expect the numbers to be between the
22 high and low bounds of that probability interval
23 that's shown on these tables. And it's just based
24 on the variation and those expansion factors in
25 our test fisheries over time so you know, very
26 briefly, there are other pieces of information
27 that are provided with uncertainty. We're going
28 to get to the management adjustment page here in a
29 minute and there's some bounds there. On the run
30 size side, we provide estimates of uncertainty.
31 Usually, they're provided verbally so there'd be a
32 point estimate and a probability interval
33 associated with them. And as I said, we're
34 definitely trying to do a more thorough job,
35 rigorous job of quantifying that uncertainty.

36 Q And why is that important? Why would you add that
37 in to the system?

38 A Because there is a lot of uncertainty, number one.
39 And so it's very important for the panel members
40 to be aware of that. Number two, there may come a
41 time when more formal risk management procedures
42 may be desired. And so my intent was to get staff
43 out ahead of the curve so that if those
44 uncertainty estimates are being used in some sort
45 of a framework like that, they capture all of the
46 sources of uncertainty. So we've made huge leaps,
47 new personnel on staff that is probably one of the

1 top people, you know, top five or six on the
2 planet I've been fortunate enough to get to do
3 this work. And so we're providing the tool
4 without any necessarily preconceived notion about
5 how it might be used, but making sure that tool is
6 a very robust one in case someone does want to use
7 it in a different way than they are now.

8 Q Thank you. And then turning to page 273, this is
9 a page setting out environmental conditions, and I
10 think this relates to some of the management
11 adjustment information that you've described
12 earlier. Can you just review this information?

13 First, where does it come from and how is it used?

14 A Sure. So every -- twice a week we receive those
15 10-day forecasts that I talked to you about, and
16 these charts that are shown. The forecasts are
17 kind of the open circles. The last 10 days and
18 those red ones, I should say, because there was a
19 lot of -- sorry, I'm used to seeing these and you
20 guys have never seen them before probably, but the
21 red circles that are following along are the
22 forecasts. The solid diamonds are the observed
23 temperatures in flow. So the top if flow, the
24 bottom of temperature. The sort of lines that are
25 in the background denote historical maximums. So
26 the very highest line in the temperature one would
27 be like the warmest temperature on this date in
28 the last 60 days was, and it's just connecting all
29 those dots for each of the days. And then there's
30 a median, which the blue line, smooth blue line,
31 and then I think the dash lines are, yeah, plus or
32 minus one standard deviation. So some indication
33 of variation.

34 The horizontal lines that are in colour, like
35 in green there, represent the approximate period
36 when different management groups are migrating.
37 Just so that if a panel member is trying to ask,
38 well, what does this mean, "Early Stuart," you can
39 use this as a way to focus in, okay, that's when
40 the Early Stuart in the river, what have the
41 temperatures and flows been like when Early Stuart
42 is in the river.

43 So these are the data and the forecasts come
44 from DFO and the observations come from stations,
45 one at Qualark and one at Hope. I think
46 Environment Canada maintains some of these. So
47 that's the input.

1 The output is a prediction of what the
2 management adjustment would be given these
3 temperatures and flows for the Early Summers,
4 Early Stuart and Summer runs so that --

5 Q So before you get there, maybe you can just
6 explain do high flows in the river mean that
7 there's going to be bigger -- do you expect to see
8 bigger en route losses, or fewer, or --

9 A Yeah, so there's two kinds of consequences that we
10 worry about, and they are pretty much related to
11 when these fish migrate. In the case of the Early
12 Stuart, because they're the earliest fish,
13 typically, they're migrating prior to when there
14 would be that many high temperature events, and
15 the issue would be when does the snow melt come
16 off. And if the snow melt comes off at the wrong
17 time relative to the Early Stuart migration, you
18 can get very high flows. And so 1997 would be a
19 very good example. We had built up the Early
20 Stuart run. We, I guess Fraser Panel, had taken
21 action to build up the Early Stuart run. We had 2
22 million Early Stuart come back, something like
23 that. We probably lost six, seven, 800,000 in the
24 Fraser River Canyon. The flow was so high that
25 year that you could see the backs of the sockeye.
26 You know, normally, you can't see fish when you go
27 by the Fraser River because it's a turbid river.
28 They were pushed so far up to the surface, you
29 could see them all the way down from Hell's Gate,
30 all the way down past Qualark on both banks. It
31 was dramatic. It was incredibly unfortunate, but
32 they were so bruised by the size of the debris
33 that their skin was removed from parts of their
34 body because of the -- I mean, some of the rocks
35 that were coming down at that flow were very
36 large. So high flow is bad news for Early Stuart.
37 And '97 was probably the worst year of recent
38 memory.

39 Temperatures, on the other hand, when you
40 start to get to what's called the peak of the
41 thermograph, it just means where the temperatures
42 peak on these graphs. So this temporal graph is
43 called a thermograph in jargon.

44 It's the temperatures that are primarily the
45 condition for Summer Run sockeye, and then early
46 Summer Runs, because they straddle, it depends.
47 Some of the early time stocks could be hit by

1 discharge, and the later time stocks hit by
2 temperature. So high temperatures and high flows
3 are both negatives which cause us concern for
4 losses.

5 Q And you only have the three early run timing
6 groups? You don't have the late run timing groups
7 on here?

8 A Yeah, because as the last -- as I think I talked
9 about earlier, the late run management adjustment
10 is based on timing, their timing, their upstream
11 timing.

12 Q Is that because they're not affected by flow?

13 A No, and in fact, one of the mechanisms -- and this
14 is kind of -- you know, kind of a cause, the
15 chicken and egg, which comes first type situation,
16 I think, but the mechanisms that cause mortality
17 in the runs are well understood. They're
18 primarily related to the length of time they have
19 to spend in fresh water. So even if temperatures
20 were moderate, it seems that Fraser sockeye are
21 adapted to live about a month in freshwater. And
22 what I mean by that is if you looked at the
23 difference between the peak of their upstream
24 migration and their peak of spawning across most
25 Fraser sockeye stocks, it's about 30 days.

26 So when these late runs come in early,
27 remember, before, they used to stay in the Strait
28 of Georgia, come in later, and sure enough, even
29 for late-run sockeye back then, it was about a 30-
30 day period between when they entered the river and
31 when they came out. If they come in early, now
32 all of a sudden, they've got to survive 40, 50, 60
33 days in freshwater. Not going to happen. I don't
34 really care what the temperatures are, the
35 mechanism is a parasite, it's well understood.
36 It's a -- well, one of the mechanisms. I
37 shouldn't say it's the only mechanism because
38 other diseases -- all these fish die, right? They
39 come into the river, they all die. None of them
40 survive to spawn again. So Parvicapsula is a
41 parasite that's endemic to the Fraser. If you
42 look at Lake Washington, some of those -- Lake
43 Washington fish are in Lake Washington for 120
44 days before they spawn, no Parvicapsula.

45 So the parasite kills the late runs
46 regardless of temperature. Obviously, if it's
47 warmer temperature, faster disease. So

1 temperature is a mechanism that can exacerbate a
2 problem that's already related to how long they
3 have to survive, but it's not the underlying one.
4 But because it's timing, you know, there's a lake
5 run line on here, you can see the lake run
6 migration period, but that's not the primary thing
7 that's used to model the management adjustment.

8 Q Okay. Sorry, I just took you off the topic a
9 little bit.

10 A Okay.

11 Q So back to the management adjustment methodology.

12 A Sure. So we take those input data and we provide
13 them -- put them into a model. In this case,
14 because the management adjustment, the observed
15 temperatures, so if you look at the observed
16 temperatures, if you look at the Early Stuart, the
17 green bar, you can see that we have all observed
18 data, all the temperatures. There's no forecast
19 data in the Early Stuart period. There is almost
20 no forecast data in the Early Summer run period.
21 So basically, those management adjustments aren't
22 going to change any more because we have all
23 observed data. The only ones that are going to
24 change is Summer runs, which is why in this table
25 drawn above, the only management adjustments that
26 are provided here are for Summer runs. It's
27 because they're the only ones that are changing
28 based on the forecast.

29 MS. BAKER: Can you move the text?

30 A Can you move it just a little bit farther up so we
31 can see the text? That's awesome. Okay. So
32 there is some information about what's going on in
33 the river that just describes the graphs, okay?
34 The temperatures are this, and how they relate to
35 average, and so forth. And flows. And then
36 focussing in on the Summer runs, then, because at
37 this point we still had perhaps some uncertainty
38 about what the peak Hell's Gate date would be
39 because this is now August 21st, and so the peak
40 of the run has not yet been observed at Hell's
41 Gate. Hell's Gate is probably eight days or 10
42 days after the marine areas.

43 There's different possible scenarios here
44 about the management adjustment. Our best take on
45 it is shown at the top. If it's August 6th, which
46 is what we thought the marine timing to be, and we
47 should have had that nailed down pretty well by

1 the 21st, in fact, we should know it fairly
2 certain, then the PMA would be .21, and that would
3 be the number that would be multiplied by the
4 escapement target. So that's where the 109,000
5 comes from in that sentence. But then there --
6 because it was possible you could have some
7 earliness and lateness, there's some alternative
8 management adjustments for different timings
9 there.

10 So this is something that's normal for the
11 panel to see. It's, you know, got more stocks on
12 it at different times a year, and fewer at other
13 times of year, but this is where we were with
14 Summer runs.

15 The only comment I'd make is that we're
16 learning a lot about temperature effects that
17 maybe we didn't know 15, 20 years ago. There was
18 some excellent work done by one of the IPFSC
19 scientists on temperature and lethality, and
20 numbers like 25 degrees Celsius came out of that
21 work. 25 degrees Celsius is a reasonable number
22 if you put a salmon in a bathtub and you see how
23 warm it has to be before it, you know, lays on its
24 belly and dies. That's what that -- those
25 experiments were done. They were the classical
26 experiments done in those days. These fish are
27 not sitting in the bathtub. You know, just to
28 give you a kind of a perspective, they're swimming
29 the equivalent of a marathon a day upstream,
30 against the current with no food stops, right?
31 They're not eating, right? So just to kind of put
32 it in terms that you might be able to relate to,
33 that means that, you know, it's significantly
34 lower than 25 degrees where you start to have
35 problems. And what we've learned is that -- and
36 there's some published papers on this which I can
37 point you to if it's important to you. And I
38 don't know, are you going to have someone come
39 back and talk about this stuff?

40 Q (Indiscernible - microphone not on) Dave
41 Patterson.

42 A Yeah, okay, so Dave will speak to this more so I
43 won't go into much more detail on it, but these
44 stocks seem to be adapted to very specific
45 temperatures related to what they've experienced
46 in their history. And so it doesn't take an
47 extreme temperature event like we observed in 2004

1 to create stress for these fish. One or two
2 degrees above what they're used to, even one
3 degree above what they're used to impacts their
4 capacity to do work, which is -- you know, they
5 have to do it to get to spawning grounds, right?
6 So 19 degrees for Summer runs. If you look at the
7 temperature graph down below, it's probably not
8 that far off. I don't know what the temperatures
9 were. It's probably not that far off the mean,
10 there, but it's above, and it's going to cause
11 some extra work and they're going to have some
12 difficulty reaching the spawning areas. And I
13 think it's important to say this because if you go
14 back to the context of even what was known and
15 used in something like 1992, you know, Pierce
16 Larkin Inquiry, if you read the information on
17 temperature that was looked at in that report, and
18 it's in the Technical Appendix, it was all about,
19 like, the temperatures in the Kemano and the
20 Nechako, and the influence of the dam and so
21 forth. There was nothing on the main-stem Fraser.

22 If we go back and look at those temperatures
23 in 1992, knowing what we know now, we'd go, "Hmm,
24 they were definitely a challenge for these fish."
25 So because there's all this history and you're
26 going to go through some of this stuff and there's
27 a lot of memory out there about this, temperature
28 even a little bit above is a challenge. And just
29 keep that image in your mind, you know, a marathon
30 a day. You know, if I was to help you think about
31 it, I would say, "Okay, ask yourself about running
32 that marathon at, say, 20 degrees Celsius, and 30
33 degrees Celsius." That would be kind of the
34 comparable. Like, I would -- I ride my bike every
35 day, I wouldn't notice if it was between six and
36 eight, you know, or 10, 12, but if I riding a long
37 ride and I was riding 200 kilometres and I had to
38 do 20 and 30, I'd tell. And that's kind of what
39 the fish are facing in a one-degree type of a
40 difference. Sorry about that. That may be more
41 than you were looking for.

42 Q No, thank you. We're going to leave this series
43 of data now, but I just wanted to just confirm, I
44 think you've already confirmed this, that after
45 the Tech Committee meeting, there's a National
46 Caucus meeting, correct?

47 A Yeah, that's correct.

1 Q And there's -- do PSC staff attend the National
2 Caucus meetings?

3 A No. You know, the National Caucus meetings
4 actually occur before, during and after panel
5 meetings and they're needed whenever the countries
6 needs to talk with themselves, and they split off
7 the caucus. And we're never a participant in
8 those.

9 Q Okay. And you've already identified that you do
10 typically attend the panel meetings, the bilateral
11 meetings?

12 A I've only missed one for a wedding last year in my
13 18, 19 years.

14 Q All right. And you're the person who would
15 typically be there to deal with this data, these
16 questions?

17 A Yeah, I do try to give my staff a chance, but
18 usually, I'm the main person talking.

19 Q Okay. One thing that I meant to cover with you,
20 and when you dealt with the definition of gross
21 escapement was something that arises out of our
22 Policy and Practice Report.

23 A Sure.

24 Q There's just a correction that I think we need to
25 make.

26 MS. BAKER: I think it's PPR-5, Mr. Lunn.

27 Q And if you could turn to page 98 of that. The top
28 paragraph, it's not a full paragraph, but you see
29 the second sentence:

30
31 If the proxy is gross escapement, then in
32 order to track the achievement of management
33 objectives in season, the Mission escapement,
34 plus the in-river First Nations and
35 recreational catches, compared to the
36 spawning escapement target, plus the MA, plus
37 the expected in-river First Nations and
38 recreational catch.

39
40 Did you have any clarification on that?

41 A Yes. Because the Mission escapement implicitly
42 includes the catches that would occur upstream of
43 Mission, then by adding all of the in-river First
44 Nations catch and recreational catch, it would be
45 a double counting. So the clarification I would
46 provide is that it would be Mission escapement
47 plus the in-river First Nations recreational

1 catches downstream of Mission, not all of the
2 catches.

3 Q Okay.

4 A If that makes sense.

5 Q Now -- and then just -- I'm going to come back to
6 the PPR so maybe I'll just leave it on the screen,
7 but --

8 A Okay.

9 Q -- after you -- when you're at the Fraser River
10 panel meetings in season, what are the decisions
11 that the panel's being asked to make?

12 A Three main decisions. One relates to the run
13 size, which comes from a recommendation from us,
14 from PSC staff. Management adjustment, as well, a
15 recommendation from PSC staff. A decision by the
16 Fraser River Panel. And then for the Fisheries
17 decisions, they make -- the two national sections
18 make those fisheries recommendations and staff
19 provides an evaluation of the consistency of those
20 Fisheries recommendations, primarily with the
21 available TAC. And that is -- the way that works
22 is described in paragraph 13 of the Treaty.

23 Q All right, which we took you through, I think,
24 when you were here in November?

25 A Yes.

26 Q Okay. One other clarification in the PPR, page
27 96. Paragraph 259, I just want to maybe get some
28 clarification here. We've written that:

29
30 The PSC staff provide analysis and
31 recommendations about run size and MAs to the
32 Fraser River Panel, which then determines in-
33 season run sizes and MAs. Generally, the
34 Fraser River Panel picks the model that has
35 the highest statistical correlation expressed
36 by the models R2 value.

37
38 That function where the panel picks a model that
39 has the highest statistical correlation, is that a
40 model referring to the run size model or the
41 management adjustment model?

42 A Primarily, the management adjustment. In both
43 cases, the recommendation lies in our hands. So
44 we're free to recommend what our best scientific
45 judgment is. Of course, we definitely defend it
46 and we defend it, you know, in that committee
47 prior to the panel, but that particular sentence,

- 1 because they never see, nor do I know if we know
2 how to derive that particular statistic for our
3 run size models so it would just be the MA.
- 4 Q Okay. Thank you. That's all I had for that
5 Policy and Practice Report. Thank you. Now, the
6 Fisheries decisions that are made in season, just
7 to help people understand what that means, I -- in
8 the Record of Management Strategies, Exhibit 330,
9 that's in front of you, there's some notes which
10 I'm not going to ask you to identify whose notes
11 they are, but I think they're just helpful to
12 illustrate the type of fisheries decisions that
13 might be made. If you turn to page 280. So this
14 is the minutes that -- or the notes that follow
15 the -- a discussion of the materials we just
16 reviewed, and you'll see Fraser River Panel
17 bilateral, these are notes of the kinds of
18 decisions that would be made by the panel and you
19 can see the following recommendations were agreed
20 to by the U.S. and Canada at this time, "Gulf
21 troll to proceed." BK, is that Birkenhead or --
22 A That's Birkenhead.
- 23 Q "Birkenhead run size to remain unchanged and the
24 Summer PMA is .21." So that's the kind of thing
25 you would see?
- 26 A Yeah, and just for clarification, the gulf troll
27 reference there is the actual gulf troll test
28 fishery.
- 29 Q Okay.
- 30 A It's not a gulf troll commercial fishery.
- 31 Q And then if you go down to the third bullet, it
32 has fisheries recommendations:
33
34 U.S., none. The reef nets will continue
35 through Tuesday. Canada, we will be opening
36 some FSC fisheries directed on Summers. Pink
37 fisheries will wait until we have rules in
38 place.
39
- 40 So those are just a reflection of the kinds of
41 discussions and decisions?
- 42 A Yeah, and just for the record, on the reef net
43 opening, that was a pink-directed opening and the
44 only reason that staff was able to judge that
45 consistent was that the mortality that would occur
46 in the sockeye bi-catch is virtually nil. I mean,
47 they bring those fish and put them in a live pen.

- 1 They're able to release them. So had there been
2 expected mortality in the reef net fishery, I
3 would have had to have thrown it back to the
4 parties to reconsider either by having Canada
5 accept some harvest, or by having them, you know,
6 provide something that is consistent with the
7 information. So it would -- it was unable to
8 occur because the reef net gear is so capable of
9 being selective and not have the incidental
10 mortality. A gillnet fishery, for example, would
11 not have been possible without some agreement
12 about the mortalities of sockeye in this year.
- 13 Q Okay. So just so we understand the process, the
14 information is all presented, there's a caucusing
15 by each country. Specific fisheries proposals are
16 then formulated, or not, within those caucuses?
- 17 A That's right. That's right.
- 18 Q And then they're brought to --
- 19 A Staff.
- 20 Q -- PSC staff to look at those fishing plans. You
21 look at them in the context of all the information
22 that you have available, I suppose, those pre-
23 season fishery models at some point may have some
24 relevance there and you decide if they're
25 consistent with what?
- 26 A The primary criteria that I look at, if you read
27 paragraph 13, it's broader than what I might look
28 at, but I'll explain why I look at what I look at,
29 it's the TAC. Is there available TAC relative to
30 the expected catches in these fisheries?
31 Technically speaking, I could be looking at all of
32 the hierarchy of priority of objectives. Spawning
33 escapement is accounted for by the TAC if the
34 TAC's are consistent with meeting the spawning
35 escapement objective.
- 36 Domestic allocation, because both countries
37 come out of their caucuses with these
38 recommendations, I have to presume that they've
39 settled that domestic dispute internally and I
40 don't think they want me to be kind of second
41 guessing their domestic decisions. So I don't
42 consider domestic allocation in my review. I ask
43 is there enough fish in the surplus to sustain the
44 catches in the fisheries that they're proposing.
- 45 Q All right. Just moving to another topic, we
46 looked a little bit at DNA samples that are taken,
47 and looked at some of the analyses that comes out

- 1 of the DNA analysis as it's presented to the
2 panel. Who decides how many fish to sample for
3 DNA at any time?
- 4 A PSC staff.
- 5 Q Okay. Is that part of the original planning
6 that's done in the pre-season?
- 7 A Yeah, we go through a sampling plan design, design
8 to spread the available samples, where the
9 available samples is determined by our total
10 budget across the assortment of test fisheries and
11 potential commercial fisheries.
- 12 Q Okay. Does the Fraser River Panel, itself, have
13 any role in directing sampling?
- 14 A Every once in a while, they might ask us to take a
15 sample somewhere. We would not take the samples
16 in Southeast Alaska, but sometimes there might be
17 a large catch that would be observed up there and
18 they might say, "Hey, can you guys get a sample to
19 see if there's any Fraser up there?" So it's open
20 in the sense that we have -- obviously, have
21 dialogue on -- but generally, it's pretty obvious
22 what has to be sampled. You have to sample both
23 test fisheries on both migration routes. That
24 gives you the run size. You have to sample more
25 intensively the big fisheries than the small
26 fisheries because you're trying to account for the
27 catches by stock. It's a fairly straightforward
28 sampling issue.
- 29 Q When we were looking at -- or when you were going
30 through your visuals that showed the size of the
31 run and we talked a little bit about -- and you
32 were doing the fishery planning models and you --
33 we talked a little bit about the different kinds
34 of fisheries, the ITQ, or the quota fisheries --
- 35 A Mm-hmm.
- 36 Q -- and the derby fisheries, do the ITQ fisheries
37 impact stock identification in any way?
- 38 A In a small way and in that Area B is the best
39 example, the seine fishery in Area B. When they
40 were derby fisheries, they would typically have a
41 -- when they had fisheries, there would be one per
42 week, usually on, like, a Monday, and that would
43 potentially be a fairly significant catch,
44 probably one of the most significant catches of
45 the season on those days because the Area B fleet
46 is quite effective. We would take a very large
47 sample from that, but it would be one sample per

1 week. The way that the ITQ fisheries are
2 operated, so I guess this is the way they've been
3 implemented, not so much a characteristic of ITQ
4 per se, because they could be implemented in
5 different ways, but the way they've been
6 implemented is to spread the catch across the
7 week. So they'd be fishing for five or six days.
8 Stock proportions at the beginning of the week can
9 be quite different than the end of the week,
10 depending upon the timing of stock. So we'd
11 probably take more samples per week and slightly
12 more numbers of fish sampled for the same quantity
13 of catch because of the way the catch is spread
14 out.

15 Q Now I want to move to the post-season, and how is
16 the date of transition from in-season to post-
17 season determined, and is it the same date for
18 every fishery, for every stock?

19 A Well, we reach a final in-season, I guess,
20 accounting, for lack of a better word. When I say
21 accounting, I mean that there are no more fish of
22 that stock, say, passing Mission at different
23 points in time for each of the different stocks.
24 So in those cases, the accounted run would just be
25 the sum of all catches, plus whatever catches
26 downstream at Mission, plus whatever the Mission
27 estimate is. So yes, that would occur at
28 different points in time and we would typically
29 call those the final in-season estimates.

30 Post-season is a little bit more -- is a
31 little bit harder to define in that one of the
32 most important things we need to do the post-
33 season assessment is the spawning ground estimate.
34 So it -- and those come from Canada so -- and you
35 know, it can take some time and the fish -- some
36 of these fish don't spawn until late November,
37 December so some of these programs aren't
38 complete, which is one of the reasons why we don't
39 have any spawning ground estimates yet for 2010,
40 is that they're still processing all that data.
41 So post-season kind of starts when we start to get
42 those pieces of information, you know, especially
43 from the upstream areas.

44 Q Okay. When does the panel relinquish control?
45 Like, when does the regulatory control shift?

46 A The letters specify a date and that date is
47 specific for different areas, with the tendency

- 1 being to relinquish more seaward areas sooner
2 because the fish pass through those areas and are
3 finished completing their migration through those
4 areas sooner. So an example would be the Strait
5 of Juan de Fuca would be held -- less -- it would
6 expire sooner than, say, Point Roberts because
7 that -- so they just expire naturally. The dates
8 are reached and bilateral control expires.
9 There's no real protocol, it just rolls over into
10 the two countries.
- 11 Q Okay. When is the first preseason meeting held?
12 I mean, not the one where you have all the data in
13 place, but when do you first start meeting to talk
14 about post-season issues?
- 15 A Post-season? We almost always have a post-season
16 meeting either September, October, you know, as
17 soon as the season is over and we can get a date
18 when folks can get together, October, November --
19 I mean, October or September, usually.
- 20 Q All right. So if we -- in the Record of
21 Management Strategies, Exhibit 330, at page 387, I
22 think, is an example of minutes for the 2009 year,
23 which is the first post-season meeting; is that
24 right?
- 25 A Yeah.
- 26 Q Okay.
- 27 A These look like -- yeah, they look like minutes
28 that we would have drafted.
- 29 Q Okay. Once regulatory control is relinquished
30 back to the companies, what does PSC staff do?
31 Like, what is your responsibility at that point?
- 32 A First thing is rest. Honestly, after the summer,
33 there's nothing that makes me happier than to walk
34 down the hall and see a lot of empty offices
35 because it's a pretty intense situation. But
36 after that, we get rejuvenated and we come back
37 and get back to our work so things like review of
38 our programs. There's quite often experimental
39 data that are collected, say, at Mission, that
40 there's no time to analyse in the summer. That
41 stuff gets queued up for a work plan. Stock ID-
42 wise, we have a number of -- we always collect
43 more samples than we analyze in the season, and
44 that's related to not being sure about -- you
45 know, there isn't enough money to collect -- to
46 analyze all the samples that we -- and I'm not
47 complaining about that, but there's a limited

1 budget. We always collect more samples and then
2 we go back and say, "Okay, what additional samples
3 would we like to analyze for post-season work,"
4 you know, augmenting some samples from fisheries,
5 and so forth.

6 Aging, the same thing. We age. The scale
7 lab is aging all these fish using scales. They'll
8 go through their list and see what other samples
9 they want to age because the stock ID genetics
10 doesn't provide us anything about age. It just
11 provides us information about the stock.

12 Our scale lab at the PSC does all of the
13 aging for all of the spawning ground samples.

14 Q Do DFO doesn't do any scale analysis?

15 A They provide the samples, we do all of the aging.
16 They do -- they definitely have an aging lab and a
17 scale lab over at the biological station that does
18 other work, but they don't do the Fraser sockeye
19 work. We also age all of the juvenile samples
20 from Chilko for the smolts. That comes into our
21 lab. So there's a whole bunch of stuff that gets
22 done in addition to, you know, preparing various
23 reports and so forth. So it's a -- and then, you
24 know, getting ready for all the suites of meetings
25 that -- and one of them which just finished last
26 week. So it's all that work.

27 Q All right. And then is there a -- at some point
28 do you have to do an analysis of the total
29 allowable catch shares and the (indiscernible)?

30 A Sure. So usually at -- because the total
31 allowable catch under international sharing
32 arrangements is defined at the date of
33 relinquishment of control so it's the last area
34 that is relinquished, whatever that date happens
35 to be, that -- the inputs, and by inputs, I mean
36 the abundance, the run size estimates and the
37 management adjustments are fixed at that date. So
38 effectively, that date might be the 30th of
39 September. All the inputs that are necessary for
40 the TAC table are fixed at that time. The only
41 thing that it changes might be updates to the
42 catches. So we always make sure we're getting all
43 the catch data so that any changes to catches that
44 are going to be used to evaluated performance
45 against shares, we want to make sure we have the
46 most current information there.

47 So it would be very typical for me and, in

1 fact, maybe in this minutes, to show a draft TAC
2 table. So here's where we're at and they would
3 make some decisions about that either at that
4 meeting. If there were any issues about it, it
5 would be flagged at that meeting because then they
6 could discuss them if they had to further. But I
7 think it's formally checked off at the January
8 meeting, which is our annual post-season meeting,
9 you know, the following January.

10 Q Estimates of run size, when is that completed?

11 A It varies. We need to deal with the spawning
12 ground estimates. We need to have those in our
13 hands before we can finalize the runs and we need
14 to decide about whether or not we're going to
15 include this factor, this loss factor difference
16 between estimates as part of that calculation, or
17 not. So that's the most significant part of the
18 deliberation. So it takes the spawning ground
19 estimates to calculate that number and then
20 there's a discussion about whether or not to
21 include that quantity as part of the total run, or
22 not.

23 Q And is that work done over the course of the fall?

24 A It would start when we get spawning ground
25 estimates which typically would be preliminary
26 estimates provided at the January meeting, and
27 near finals at February. This year, we have not
28 seen any estimates yet. And we had our January
29 meeting last week.

30 Q And why is there a problem this year in getting it

31 --
32 A Well, I don't say it's a problem, I'd say it's
33 just a significant challenge for those folks doing
34 that upstream work. We just got samples in our
35 scale lab for some of those populations last week.
36 They were still actively recovering carcasses in
37 the Harrison around the 12th of December. I don't
38 know how many tags they put on in Lake Shuswap,
39 but it's a lot of tags and every one of those has
40 to be entered. I can assure you, just because I
41 know the people, that they're working as fast as
42 they can, but, you know, it's just the sheer
43 volume of the large run and the numbers of fish
44 that have been observed up there have created, you
45 know, an additional challenge this year.

46 Q All right. For the January post-season Fraser
47 River Panel meeting, what reports do you prepare

1 for that meeting?

2 A The January post-season meeting? We would have
3 the TAC, draft TAC table prepared for that. Both
4 countries, individually, not PSC staff, prepare
5 their post-season reports on all treaty fisheries
6 of which there is, I believe, some information in
7 there that relates to the Fraser, but it relates
8 to all the Treaty fisheries covered under the
9 Treaty. If we are working efficiently, we would
10 try to get other things in their hands like if we
11 have a draft Fraser Panel report, that would be a
12 good time to get it. We're behind on those, as
13 you know. Those would be the main ones that I can
14 think of at the top of my head.

15 Q All right. We have an agenda from the 2010 post-
16 season meeting for the Fraser River Panel. That's
17 Tab 17 and it's Canada document CAN 097756. That
18 has a meeting plan on the first page, followed by
19 an agenda. And that just outlines some of the
20 issues that you've described.

21 A Yes. So the meeting plan is something that was
22 prepared by Canada. I've not seen that before,
23 but the agenda is definitely something that PSC
24 staff would have drafted.

25 MS. BAKER: Oh, yeah, that's not part of our -- so yes,
26 let's have that marked, please, as the next
27 exhibit.

28 THE REGISTRAR: Exhibit number 332.

29
30 EXHIBIT 332: 2010 Post-Season Meeting Plan,
31 Fraser River Panel
32

33 MS. BAKER:

34 Q All right. One thing that we need to talk about -
35 and we've touched on a little bit in your evidence
36 so far is the difference between estimates that
37 you see at Mission and on spawning grounds - you
38 said that you need the spawning escapement data
39 before you can begin that analysis. But I'd like
40 you to explain a little bit about what that issue
41 is, and then we'll go to a table or a presentation
42 that you've prepared to try and explain that issue
43 to people.

44 A Sure. Sure. So in a general sense, every year,
45 and this has been done in a very disciplined
46 fashion every year since 1992 because of the
47 events that happened in 1992, we compare the

1 number of fish that reach the spawning grounds
2 with the number of fish that we would have
3 expected to reach the spawning grounds where that
4 latter quantity is estimated by taking the Mission
5 escapement and subtracting any catches that
6 occurred between Mission and the spawning grounds.
7 So it's a projection of what should have reached
8 if all the fish made it and the Mission escapement
9 was correct and the catch estimates were correct,
10 as well. So the reason that we started doing this
11 is that when we did that analysis in 1992, it was
12 clear that the 1992 data point was far outside any
13 of the historical comparisons that had been done
14 prior, and I think there are some graphs that are
15 probably in the Pierce Larkin Report. They're
16 certainly in the appendix of the 1992 Fraser Panel
17 Report that describe that analysis. So there were
18 folks asking if there was anything unusual, and we
19 had some data that say, "Yeah, these differences
20 look outside of what we've seen historically."
21 That's how it started. But as I said, we do it
22 every year. There are two parts to this. One
23 part relates to the fact that that difference is
24 the difference. I mean, it is what happened and
25 that becomes part of the management adjustment
26 data set, regardless of anything else that we do
27 with it.

28 The second reason is as I said, if we believe
29 that that quantity represents a loss, in other
30 words, those fish really were there, but they
31 didn't make the spawning grounds, then clearly we
32 want to include them as part of the total run. If
33 all we did was add all the catches and all the
34 spawning escapements and didn't account for that
35 loss, we wouldn't have an accurate estimate of the
36 total run. So the context of the DBE in the post-
37 season meeting is mostly focussed on should this
38 DBE be part of the total run, or not?

39 Q Okay. There's some information, I think, that we
40 probably need to review to get into understanding
41 where that difference between estimates --

42 A Okay.

43 Q -- where the current analysis is on that. So
44 if --

45 A Sure.

46 Q You prepared some slides to help in that analysis,
47 if we turn to Tab 23. This is a Ringtail document

1 PSC 009319. Okay. So --
2 A Where am I? I've got it here so thanks, John.
3 Q Yeah, just for the purposes of the record, if
4 you're going to be using the pointer, can you make
5 sure you just describe in words what you're
6 showing?
7 A I think I can do this without the pointer. I
8 definitely have to sit here, right, because
9 there's no way you're going to pick me up on the
10 mike if I move so --
11 Q Mm-hmm.
12 A You know, let's try it and if there's a problem --
13 Q Yeah, let's see how it goes.
14 A -- I don't want to disrupt things. You know, I
15 never refuse being able to get up in front of an
16 audience, but let's just see if we can get through
17 this. I know it's late in the afternoon.
18 Look -- oh, okay. Oh. Okay. So this table
19 is the calculation I just referred to for 2009.
20 So you can see that the Mission escapement in 2009
21 was 1.3 million. We had a catch-up stream of
22 Mission that was 52,000. We didn't have an
23 estimate of en route loss, any independent
24 estimate of en route loss, which means we would
25 have expected, all else being equal, about 1.25,
26 1,251,000 on spawning grounds. The upstream
27 estimate was 1,056,000, which means this
28 difference between estimates is 195,000 for 2009.
29 I can show you slides for each of the last,
30 you know, I don't know how many years, that just
31 have different numbers in them, where this
32 calculation has been made.
33 Q This is a calculation that you do every year, and
34 this process you're going to describe is what you
35 do every year as you try and understand what the
36 numbers are?
37 A The focus is asking the question should that
38 195,000 be part of the total run, or not.
39 Q Okay.
40 A And it's done on a finer scale, on a stock group
41 basis, not on an aggregate basis, but --
42 MS. BAKER: Okay. Let me have this -- sorry, before
43 you go on, let me have this document marked, if I
44 could, as the next exhibit, and then we've got the
45 record clear on that.
46 THE REGISTRAR: Exhibit 333.
47

1 EXHIBIT 333: Fraser River Sockeye 2009
2 Differences between estimates
3

4 A Okay. So straightforward arithmetic, a couple of
5 points, the main one being that typically, there
6 is no independent estimate of en route loss, and
7 it would be pretty naive to suggest that there
8 shouldn't be -- that every one of these fish that
9 starts at the bottom of the Fraser River is going
10 to make -- you know, make it all the way, that all
11 of them are going to make it all the way to the
12 spawning grounds. I mean, if you think about
13 something like Early Stuart, for example, you're
14 talking about a journey of about 1,100 kilometres,
15 okay, upstream, against the current, you know?
16 Remarkable fish, obviously.

17 So do I have to point this somehow? Oh,
18 there we go. Thank you. So what could cause
19 this? Okay. There's five categories. The fifth
20 one is a bit of a statistical satiric thing which
21 I won't spend a lot of time on. Clearly, these
22 are all estimates, number one. Mission is an
23 estimate, it could be biased. In-river catch
24 estimates could be biased. I'm talking about the
25 estimate here. I'm not talking about anything to
26 do with what happens with these fish, whether
27 they're caught legally or illegally, and the only
28 reason why I bring that up is because I was asked
29 that in cross-examination when I was here in
30 November. It's just how is the estimate made,
31 could there be a bias in the way that survey's
32 conducted, or something like that. That's all I
33 mean by that.

34 En route losses, obviously, if fish are dying
35 that aren't being caught, that's going to cause a
36 difference. If there's a bias on the spawning
37 grounds due to some methodology up there, that
38 would cause a bias. We talked in 2005 -- about
39 2005 in detail, the Appendix of 2005 under cross-
40 examination about a source of Mission escapement
41 bias that occurred in that year, and it relates to
42 species composition. It caused us to over-
43 estimate the sockeye abundance in that year, okay?
44 So it's not -- I'm not pointing the fingers at
45 anyone other than myself in this. Let's be clear
46 about that.

47 Spawning escapement's not our program. We've

1 had some years where there just was an incomplete
2 enumeration. There were some populations that
3 weren't estimated. In 2002, Quesnel, part of the
4 Quesnel wasn't estimated. If you talk to folks
5 from the upstream programs, they'll say sometimes
6 when there's a visual survey, that can be biased
7 low. Sometimes you can't get a good count when
8 you just do a stream survey, it could be biased
9 low. And the other one just relates to whether
10 you call it biased or precision. On average, you
11 might have very accurate estimates, but in any
12 given year, they could be a little bit high or a
13 little bit low. So it's not really a bias in the
14 fiscal sense, it's kind of a you know, plus or
15 minus 20 percent. If you happen to be on the
16 bottom 20 percent, that's another source. So
17 again, I wouldn't spend a lot of time on it. All
18 of these things are part of the reason why there's
19 a difference, okay?

20 So why do we do this? I've already said this
21 before. We want to look at this to see, "Well, is
22 there some evidence because there's differences
23 there that there's something wrong with any of our
24 programs?" I'd be focussed on the Mission
25 escapement program. Upstream folks might be
26 focussed on their programs. Catch estimation
27 folks would be focussed on their programs. And
28 then as I said, the decision is whether we're
29 going to put this quantity, this 195,000 spread
30 out amongst the stock groups as part of the total
31 run.

32 So the impacts on management, then, there's
33 two primary ones. As I said and as you've
34 learned, and we were thinking about different
35 terms for this because of the confusion, DBE's are
36 part of the management adjustment models. They
37 are whatever happened in that year. We don't
38 change those values, they are what happened, okay?
39 But the second one, and the one I wanted to focus
40 on here is the fact that we may add this to the
41 total run in some years. And in particular, if we
42 think that there's some evidence that the upstream
43 estimates may be incomplete, or if there's some
44 evidence that there may be en route loss.

45 Now, one of the reasons I brought this up and
46 wanted to bring it to your attention, Mr.
47 Commissioner, is that under cross-examination,

1 when I was here in November, I can't remember
2 exactly who it was, it might have been Mr. Harvey,
3 prefaced a question with something to the effect
4 of, "Isn't it true, you know, Mr. Lapointe, that
5 15.7 million fish have been added to the total run
6 since 1992?" And I have to say that when he said
7 that number to me, I was caught quite off guard.
8 I was aware that there had been some fish added to
9 the total run, but I didn't realize it was that
10 large of a quantity. So we're going to get into
11 that a little bit more later, but how did -- if
12 we're going to add this to the total run, or not
13 add it to the total run, what's the difference
14 between them, and it's just these two equations
15 written in English for you. So obviously, if we
16 are not including the difference between
17 estimates, then the total run is just the spawning
18 escapement plus all the catches, okay?
19 Straightforward. If we are, then it's the same
20 equation, we're just adding the DBE to that value.
21 So spawning escapement, plus DBE, plus all
22 catches. It just so happens is that's the same
23 thing as the stuff in parentheses. Just because
24 you may have seen it written that way, I have put
25 it on there for you.

26 This graph is a bit messy, and I don't know
27 if you wanted to preface this with a question,
28 but --

29 MS. BAKER:

30 Q No, go ahead and explain what you were
31 illustrating here.

32 A It's a little late in the day, but if you bear
33 with me, I think I can walk you through this and
34 you'll be able to understand it. On the vertical
35 axis, there is a spawning escapement estimate on
36 the spawning grounds, okay? And on the horizontal
37 axis is the expected escapement based on Mission.
38 It's the result of taking the Mission number and
39 subtracting the catches upstream.

40 The diagonal line is the one-to-one line.
41 What that means, if its points fall on the one-to-
42 one line, that means that we've got upstream
43 numbers on the spawning grounds, exactly what we
44 expected. And there are some points, actually,
45 surprisingly enough, cluster around that line.

46 If points fall above the line, and these
47 points are kind of interesting because they don't

1 tend to be highlighted very much in the public,
2 that means we actually saw more fish upstream than
3 what we expected based on Mission. That can
4 happen, these are estimates, right? There are
5 some years where we actually -- maybe Mission
6 would be biased low in those years, potentially.
7 Right? So the points below the line, though,
8 those are the points that fewer fish are observed
9 upstream and you'll note I've put in -- in the
10 numbers that are contained within boxes, those
11 represent high temperature years, okay? So any
12 box that has a -- number that has a box around it,
13 those are the high temperature years. And if you
14 look at those years, '92, 2004, '98, 1994, '92,
15 the Pierce Larkin Inquiry, 2004, Brian Williams
16 Review, there is some coincidence in some of these
17 warm water years that have triggered pretty
18 extensive reviews to ask why didn't the fish show
19 up.

20 Now, what's interesting is if you look at the
21 average deviations here, on the average
22 temperature years, so those are all those solid
23 diamonds, what's the average percent deviation
24 between what we expect and what arrives upstream?
25 It's plus eight percent. That's in that little
26 box, there, the average temperature years. So on
27 average, in the years where we don't have warm
28 temperatures, we see more fish upstream than what
29 we expect, all right? Are you with me?

30 Look at the average on the warm temperature
31 years, those are the years where the numbers are
32 circled by boxes, minus 32 percent. And because I
33 did this for 2009, I've highlighted 2009
34 specifically, it had a warmer-than-average
35 temperature, 18.7 versus 17.3, and minus 18
36 percent. This is where I -- why I provided some
37 of the context earlier on about, you know, the
38 idea of this 25 degrees type thing. It doesn't
39 take very much to see a signal in these data. And
40 you've got to remember, these are two independent
41 estimates, okay, in some cases made for the Summer
42 runs, you're talking about Stellako, Chilko, Late
43 Stuart and Quesnel. These, at minimum, are 500
44 kilometres away from the mouth of the river where
45 the other estimate is being made.

46 So the idea that you can see such a strong
47 signal of temperature with two independent

1 estimates that are that far apart, given that they
2 each are subject to error, tells me that there's a
3 very strong temperature signal in these data.
4 There's no way you'd expect to see that consistent
5 signal.

6 Now, just for curiosity, I've marked the
7 years here since 1992 because that was the context
8 of the question that was given to me under cross-
9 examination. If you actually look at those and
10 count them up, since 1992, in the average
11 temperature years, you have almost the exact same
12 number above the line as below the line. So it's
13 not every year since 1992 that we've seen fewer
14 fish observed upstream, it's the warm years since
15 1992. For the average temperature years, the
16 pattern of deviations is completely consistent
17 with what you'd expect to be the result from two
18 independent estimates of the same thing.

19 Now, I'm not here to advocate particular
20 causal mechanisms, or defend. I mean, the
21 question -- the context of the question in
22 November was about poaching and I have no basis, I
23 have no information, I'm not involved in
24 enforcement, there's nothing about that that I can
25 say bring to bear on this. All I can say to you
26 is that the data, to me, says that one thing we do
27 have to be concerned about is temperature.
28 There's a very, very consistent negative signal
29 here with respect to temperature, and when I think
30 about that in the context of increasing frequency
31 of warm river temperatures, which is in that
32 little box, these -- this data set goes back to
33 1977. The fact that only one of the years, like
34 1981, is before the '90s, in other words, a lot of
35 these warm years have happened in the last 15
36 years, is a concern to me.

37 Now, there's only one other point I want to
38 make while I have this graph up that relates to
39 the in-river fishing issue, and it's just one that
40 I think is important to keep in mind, and the
41 point is that you have had increased intensity of
42 in-river fisheries since the '90s, okay? It is
43 not the catch part of that that concerns me, it's
44 the interaction with the gear in the context of
45 warm water. So what I'm trying to say here is
46 that if fish are encountering gear more frequently
47 because there's more gear in the water during

1 these warm temperature years, that could
2 exacerbate the mortality impact. In other words,
3 an additional stressor that the fish have. So
4 it's not about the poaching issue, or any of that
5 stuff, it's just about the gear fishery
6 interaction and how that may be exacerbated by
7 warm river temperatures that, you know, is
8 something I would flag as a potential concern.
9 And that's all it is, okay, it's just this
10 potential gear impact.

11 We know from our work at Qualark, or not our
12 work at Qualark, DFO's work at Qualark and our
13 work at Mission that there's an impact on the fish
14 distribution across the river when there are
15 fisheries occurring. Fish tend to be moving
16 offshore. A fish that's offshore is in the
17 current. It's got to do more work to get to where
18 it needs to go than a fish near shore. So it
19 doesn't necessarily have to be a physical, you
20 know, entanglement and escape, it could just be an
21 affect on distribution. And, you know, where this
22 goes in the future, with climate change, is
23 something that we just have to keep a watch on.

24 So that's my argument and it is just Summer
25 run sockeye and the reason I've used Summer run
26 sockeye is because they migrate right during the
27 peak of the temperatures so if you're going to see
28 a signal, you'll see it in the Summer run. For
29 why I think, at least for these earlier stocks,
30 that temperature is a really important factor.

31 MS. BAKER: I know that we have a few more slides to go
32 through, but it's three o'clock. Would you like
33 to take the break now, or would you like to
34 continue with these slides?

35 THE COMMISSIONER: Just bear with me, just for a
36 moment. Maybe I could just ask you, Mr. Lapointe,
37 in this particular document that you've created, I
38 presume it was created for this hearing, it's not
39 a document that you would have shared with the
40 Fraser River Panel?

41 A Yeah, they've seen this. In fact, this particular
42 graph was presented at the Brian Williams Review,
43 when I was under oath in 2004. It didn't have the
44 most recent data, but it had all the data up to
45 2004 at that time. So this has not -- this has
46 been shared with the Fraser River Panel in the
47 past, and it's been shared with others, Joint

1 Fraser Watershed Technical Committee last March.
2 It's been -- it's not new. I don't know how
3 widely it's known, but it's not new.

4 THE COMMISSIONER: I'm sorry, did you want to go a
5 little bit longer?

6 MS. BAKER: Well, I think we probably have maybe five
7 to -- at least five, maybe a bit more, minutes on
8 these slides so it's up --

9 THE COMMISSIONER: No, I'm happy, I'm content if you
10 want to carry on.

11 MS. BAKER: Okay.

12 A Okay. Let's keep going. I'll try to get it as
13 short as I can because I know we need a break. So
14 this just talks about the impacts on a particular
15 stock. This happens to be Early Stuart, where the
16 height of these -- the total height is the total
17 return of Early Stuart from 1952 to 2008, or '09,
18 I can't remember what the last -- I think the last
19 year is '08, probably.

20 The green is the catch. The blue is the
21 spawning escapement, and the red is this DBE thing
22 that we've added in. The reason I put it up here
23 is that it's a context for a particular stock. So
24 you can see for Early Stuart, there's some years
25 here, and you can see the big high bar around
26 1997, where there's the largest red component,
27 that's that discharge event that I talked to you
28 about, that high flow year.

29 But the other point to put the Early Stuart
30 up is if you look back in time, there actually are
31 some little red DBE's that were added to the total
32 return in Early Stuart as far back as 1960 or '58.
33 I can't remember what the last -- it would be in
34 the early '50s, I guess, '54. So there's an issue
35 here about the systematic nature of how these
36 things have been calculated. Since 1992, there's
37 been a very systematic approach. Prior to '92, it
38 was kind of hodgepodge. So we didn't have Mission
39 prior to '77. It would be -- I think, 1964, I
40 recall there was a high discharge event. I don't
41 recall it. I looked it up to find out what
42 happened that year. And so there have been DBE's
43 applied in past years, but it hasn't been
44 systematic, okay?

45 The Weaver, which is the other example I have
46 here, same graph, just a -- I can do it for you,
47 here. Again, when did early upstream migration

1 start? 1995. We looked at this systematically
2 since '92 and prior to '95, we didn't identify a
3 significant issue with the Weaver DBE. The
4 mechanism for Weaver is the early upstream
5 migration.

6 I don't know, if we went back in time and
7 applied the same methodology, whether we would
8 identify other DBE's or Weavers. It's possible,
9 okay, but the reason it starts in '95 is because
10 of early upstream migration.

11 This slide addresses the question that I was
12 asked back in November. And first of all, Mr.
13 Harvey is absolutely right, 15.7 million fish have
14 been added to the total Fraser sockeye return,
15 these red, pinks, since 1992.

16 Q This is a new slide that -- this particular page
17 is new?

18 A This is a new slide that I created for you.

19 Q Just this one page?

20 A To help understand. Fraser Panel did get a little
21 -- the Tech Committee got a look at this last week
22 and the panel, some of the panel members, as well.

23 So the total DBE since '92 is 15.7, but just
24 to provide a context, I just calculated the total
25 sum of all the returns since 1992. In other
26 words, there's been 147.7 million Fraser sockeye
27 estimated in the total return. It's only 11
28 percent, just as a context, but as I showed you
29 previously, for some stocks, it matters more than
30 others, right? So I don't want to -- I'm not
31 trying to say it's not important, I just thought
32 15.7, by itself, lacked an appropriate context
33 relative to the total run, which is the only
34 reason why I generated this calculation.

35 The pie chart is designed to say, "Okay, what
36 events were associated with this 15.7 million fish
37 loss? Okay? So on the blue, there, the late run
38 early upstream migration, if I add up all the
39 DBE's and then add to the total run on late run
40 sockeye since 1995, it adds up to 6.3 million.
41 Summer run high temperature years, some of the
42 high temperature years that I showed you on that
43 plot, okay, '92, '94, '98, '04, '09, 3 million.
44 Early Summer run high temperature years, those
45 years that I've identified there and a couple of
46 high flow years, 1.3 million. The Early Stuart
47 high temperature and high flow years, 1.1 million.

1 In 2005 and 2006, 2005 was the latest arriving run
2 we've seen in 30 years. Now, I don't have a good
3 biological piece of evidence to say that the later
4 arriving runs should encounter some difficulties,
5 but they do run out of gas, here, okay? And they
6 don't -- they have limited energy reserves. So
7 there's -- in 2006, we had record low flows and we
8 had a radio telemetry program that told us that we
9 had some rate of loss based on the radio tags.
10 That accounts for 2.6 million, and then there's
11 1.4 million other. Okay.

12 Mr. Commissioner, I don't want you to
13 misinterpret my testimony as suggesting that
14 whatever this adds up to be, 90-something percent
15 of the 15.7 million is en route loss. Okay? I
16 can't tell you that with any tremendous amount of
17 confidence. You know, and it's absolutely correct
18 that all of those different causes that we talked
19 about early on are contributing to this
20 difference. So I don't want you to mistake my
21 testimony as meaning that.

22 What I do want you to conclude from this is
23 that these -- of these 15.7 million fish that have
24 been added to the total run, the vast majority,
25 well over 90 percent, have been associated with
26 events that we very much anticipate to cause en
27 route loss in these fish. So I would make the
28 assertion that the vast majority of that 15.7
29 million fish is en route loss. All of it, no, I
30 can't say with confidence that that's the case.

31 So again, we know why we're having these
32 differences. We understand that early upstream
33 migration is a problem, that temperature is a
34 problem, that high flows are a problem. The
35 reason that some of these other slides are
36 following, and I'm not going to spend a lot of
37 time on those because it's not that important that
38 I -- that I've been bringing this up, and the
39 reason that we don't have final estimates for 2009
40 yet, is that I started to look at these graphs,
41 and I think I prepared some of those histogram
42 graphs for a talk at, probably, the SFU think
43 tank, and I went, "Wait a minute, you know, the
44 DBE is starting to become a pretty significant
45 part of this total return." And my concern was
46 that I wanted to apply a more rigorous process to
47 determining when to add it in and when not to to

1 get a bigger group of people involved. And so I
2 opened that can of worms last January and there's
3 been a bit of a yin and yang in the Tech Committee
4 about whether they should agree on the entire
5 methodology before kind of finalizing 2009 without
6 prejudice, and we're kind of in the midst of that
7 right now. I had a follow-up meeting last week,
8 the Fraser Panel met and I put a more detailed
9 framework together, and these slides speak to that
10 framework. And I don't think it's necessarily
11 worth going through them, but the idea is that we
12 want to attach a very systematic discipline
13 because these generate total return estimates.
14 They're used in forecasts, they're used in the
15 FRSSI model for spawning escapement policies,
16 they're used in a whole -- there's significant
17 implications and so it -- part of it you might
18 describe as buy in in the sense of widening the
19 envelope and the understanding, but part of it is
20 also just let's make sure we've got the science
21 right. And I -- you know, I think that there's a
22 lot of folks outside of the Fraser River Panel and
23 Tech Committee that can bring science to bear on
24 this issue and so that's one of the reasons why I
25 spent the time today on it, is just to let you
26 know that we do have a process in mind. It is a
27 huge controversy in terms of when fish go missing
28 in the Fraser River. We all have experienced what
29 happens when that occurs. I thought some science
30 associated with that that's not perfect, that
31 doesn't answer all the questions might be helpful
32 to you so that's why I brought it forward.

33 THE COMMISSIONER: Could you roll us back to the first
34 slide that you --

35 A Sure.

36 THE COMMISSIONER: Roll it back to the first slide that
37 you showed us. Yes. In the catch upstream of
38 Mission, the 52,000, where does that figure come
39 from?

40 A It comes from the catch up summation programs that
41 DFO conducts in the Fraser.

42 THE COMMISSIONER: Okay. And just describe that
43 program to me.

44 A I am not a good person to describe that. I don't
45 know if you have someone coming. The surveys vary
46 by area. In some cases, when you -- it wouldn't
47 be the case in 2009, but if there was an economic

1 opportunity fishery, there would be landing sites.
2 In some cases, it would be some sort of a survey
3 of the catches per time multiplied by the amount
4 of time. Some over-flights. Again, someone from
5 DFO would be able to speak to that program in more
6 detail.

7 MS. BAKER: Mr. Commissioner, that will be dealt with
8 later in a later part of the hearings.

9 THE COMMISSIONER: Right. Just for the purposes of Mr.
10 Lapointe, the figure you're using comes to you
11 from whom?

12 A From DFO, from Canada.

13 THE COMMISSIONER: I see.

14 A Yeah. We do not conduct that program.

15 MS. BAKER: This might be a good time to break, and
16 I'll just go through my notes and make sure
17 there's nothing I need to -- unless you wanted to
18 go to the last two slides, but I can base a
19 question around those?

20 A No, I mean, I think it's just that the concept is
21 trying to define a framework, and I think there's
22 some examples of the straw dog that I provided, I
23 think, in January of last year, and we're still
24 refining that. So it's a work in progress. If
25 you have specific questions, I'd be happy to speak
26 to them.

27 THE COMMISSIONER: Thank you.

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

30
31 (PROCEEDINGS ADJOURNED FOR AFTERNOON RECESS)
32 (PROCEEDINGS RECONVENED)
33

34 THE REGISTRAR: Order. The hearing is now resumed.

35 MS. BAKER: Okay, thank you.

36
37 EXAMINATION IN CHIEF BY MS. BAKER, continuing:
38

39 Q Thank you, Mr. Lapointe. I just want to tie up a
40 few loose ends from that prior testimony. One
41 thing, when you describe en route loss, when
42 you're using that term, are you describing
43 biological factors or something else, or both?

44 A I guess back up a little bit. The difference
45 between estimates obviously includes a combination
46 of different factors, some of which, and I'm
47 asserting most of which in some of these years is

1 en route loss for this particular slide that we
2 ended on.

3 The term "en route loss", when it's used,
4 should mean biological en route loss. In the
5 Fraser -- so, in fact, if the DBE is
6 characterized, and actually I've caught this in
7 some of our own work as en route loss that, in
8 fact, wouldn't be quite correct, because not all
9 of it is en route loss, so that's one thing.

10 In the Fraser jargon, en route loss typically
11 refers to fish that were -- did not reach the
12 spawning areas, okay? So fish that were estimated
13 somewhere to be available to potential spawning
14 areas but didn't. There's another term that you
15 encounter in Fraser sockeye that's called "pre-
16 spawn mortality" and that's actually fish that are
17 on the spawning grounds but they died before they
18 spawned, and that's measured by actually surveying
19 the carcasses on the spawning grounds of the
20 females and asking, "Do they have eggs? Are they
21 dead? Do they have eggs in them?" If they have
22 all their eggs, they're pre-spawn mortality.

23 So there's a systematic survey of most of the
24 Fraser spawning grounds that score those females.
25 So en route loss should represent fish that died.
26 Pre-spawn mortality is fish that reached the
27 spawning grounds but didn't successfully spawn.
28 The DBE is a combination of en route loss and all
29 those other factors that I talked about earlier in
30 the causes.

31 Q Including things like uncertainties around
32 estimates --

33 A Yeah, including estimation error and all those
34 things.

35 Q Okay. You present your analysis of the difference
36 between estimates to the Fraser River Panel; is
37 that right?

38 A Every year.

39 Q Okay.

40 A Since 1992.

41 Q And the Fraser River Panel has to approve final
42 post-season run size each year?

43 A Yes. We try to come forward with a joint
44 technical committee staff recommendation for what
45 we think the best estimates are to use, and that's
46 done on a stock specific basis as we can estimate
47 them.

1 Q Okay. And part of the decision on whatever the --
2 agreeing to whatever the final run size will be,
3 is an assessment of this DBE issue?

4 A Yes. It's one of the most substantive parts of
5 that.

6 Q And earlier in your testimony, you sort of
7 referenced the fact that 2009 still hadn't been
8 settled? Is that, in fact, the case, 2009 is not
9 settled yet?

10 A Yes. And that is because, as I said earlier, it's
11 the debate about whether we want to find the best
12 process before we finalize 2009, or finalize 2009
13 in some sort of preliminary way and then continue
14 on the process. So it's kind of a long-
15 term/short-term debate that's going on.

16 Q All right. Does that need to be finalized before
17 you can begin planning for the next year?

18 A It would be nice, and so I'm hoping that in
19 February we can agree on an approach, an interim
20 approach that would be, as I said, without
21 prejudice to how, if it changes in some longer
22 term way.

23 Q All right. And I take it it's always been the
24 responsibility of the Fraser River Panel to adopt
25 a final run size? That's always been a component?

26 A You know, I don't know how formal and how far back
27 it goes. This DBE thing is relatively new, as I
28 said, since about 1992 and in those years it's
29 been -- I've been quite disciplined about trying
30 to make sure, since that time, although I've only
31 been the chief biologist since 2002, so it wasn't
32 exactly part of my responsibility. Prior to that,
33 I don't know how much formality or protocol was
34 given on this. My sense is that it would have
35 been something that the PSC staff would have
36 landed on, or the IPSFC staff would have landed on
37 and it would have just been accepted based on sort
38 of expert judgment that this is the best estimate.
39 There wasn't debate that is a -- you know, in the
40 discussion that's occurred more recently, because
41 of the increased frequency of these differences.

42 Q Okay. And you might have touched on this a little
43 bit, but just if you could sum up for us, what is
44 the post-season run important for? Why is it
45 important?

46 A Yeah, as I said, forecasts, impressions about
47 productivity, which is just a ratio of returns to

- 1 parent spawners, and spawning escapement policy.
2 All of those things end up coming from the total
3 return estimates that we provide.
- 4 Q Does it have implications for the use of the FRSSI
5 model?
- 6 A Yeah, the data that I used for the 19 stocks in
7 the FRSSI model are the total returns and spawning
8 escapements come from Canada, primarily, since the
9 treaty, but the total returns are the total
10 returns we've been talking about here, today.
- 11 Q Does it have any implications for determining
12 post-season exploitation rates?
- 13 A Yes, because the exploitation rate, by definition,
14 is the catch divided by the total return. So if
15 the total return includes this difference between
16 estimates, then it will impact the exploitation
17 rate.
- 18 Q I just wanted to take you, again, to the
19 correction I think that's needed in the PPR, if we
20 could have that document back up. Page 104,
21 paragraph 290, it says that the Post-season of the
22 Fraser River Panel determines the final post-
23 season run size estimate, which you've agreed
24 with?
- 25 A Yes.
- 26 Q
27 This run-size estimate also changes the in-
28 season exploitation rate and escapement
29 estimates.
30
- 31 Is that correct?
- 32 A The in-season exploitation rate would be
33 determined based on the in-season total run and
34 the catches available at that time, so it would be
35 the post-season exploitation rate that would be
36 affected by the post-season run size.
- 37 Q Okay. And what about escapement estimates, are
38 those --
- 39 A It does not -- the DBE does not change any of the
40 escapement estimates. The escapement estimates
41 are the number of fish estimated to have reached
42 the spawning grounds.
- 43 Q All right. So then we should put a period after
44 "exploitation rate" and stroke off that last three
45 words?
- 46 A Yes, that's correct.
- 47 Q Okay. Thank you. All right. We can, I think,

1 put the PPR away, now, for the rest of Mr.
2 Lapointe's testimony. What decision -- now, we're
3 coming kind of around the horn, I think, back to
4 where we started, so what decisions are required
5 of the post-season process by the staff of the
6 Fraser River Panel? And, actually, just from the
7 staff's perspective, what things are you working
8 on in the post-season process?

9 A Now, did we already talk about this? I thought
10 I --

11 Q Okay.

12 A -- already talked about the things that we do in
13 the post-season, so --

14 Q Yeah, so I'm actually thinking about what work --
15 when do you do your work plan for the next --

16 A Oh, okay. So there's a work plan for the Fraser
17 River Panel that's done at the post-season
18 meeting. There are technical reports that we
19 write. There are Fraser Panel reports that we
20 write. There's a PSC report. There's a number of
21 reports that we write as sort of part of the post-
22 season task list, if that's where you're going
23 with that.

24 Q Okay. And I just have a couple of general
25 questions or areas to cover with you. We've
26 talked a lot about the run timing groups. They've
27 been described as management groups or run timing
28 groups that we're talking about the Early Stuart,
29 Early Summer, Summer, Late Run. What's the
30 rationale for those run timing groups?

31 A It's very specific, and it relates to how the
32 United States would be expected, to the extent
33 they can, distribute its shares. So the United
34 States has a total share of sockeye. And there
35 are two paragraphs in the treaty, I think it's
36 3(d) and 3(e), that -- and I think those are the
37 only two paragraphs in the treaty where the stock
38 groups are actually mentioned explicitly.

39 The first paragraph, which I believe is 3(d)
40 relates to the distribution of the Aboriginal
41 fisheries exemption and it stipulates how it
42 should be distributed amongst the four groups, and
43 it's by three-year cycle average with some
44 potential modifications for Early Stuart at
45 Canada's request.

46 The second paragraph is the statement -- the
47 statement is - and I won't get it exactly right -

1 is to the extent practicable, the United States
2 should distribute its share in proportion to the
3 available TAC's for each of the management groups.

4 So those four management groups, and I had --
5 I did a presentation about a year and a half ago
6 to the Fraser River Panel, which I thought was the
7 one that I sent staff, but it appears that I sent
8 you a very technical presentation, which hopefully
9 we can avoid spending much time on, today. I did
10 a fairly good analysis - well, "good", I guess
11 would be in the eyes of the beholder - but I tried
12 to do a thorough analysis of the history of the
13 management groups. If you go back in time,
14 initially it was wanting to distribute between -
15 "wanting" - Canada wanted to ensure that the
16 United States would distribute its share amongst
17 the Summer and the Late Run groups.

18 The concept is that if -- if the United --
19 even though the United States THC is 16 and a half
20 percent, if they took all 16 and a half percent of
21 that from one management group, it could have
22 adverse impacts on the way Canada conducts its
23 fisheries. So that's kind of the origin of it was
24 -- and when it originally came about, the U.S.
25 share was 50 percent or something, and it was a
26 much higher fraction than it is now, so they could
27 really, if they focused all of their harvest on a
28 management group, potentially have a significant
29 impact.

30 So that is carried through. It eventually
31 evolved to the four management groups and there
32 are those two clauses in the treaty that
33 specifically refer to them.

34 Q This is in Annex 4, chapter 4?

35 A Annex 4, chapter 4, paragraph 3, I think, it's (d)
36 and (e).

37 Q Okay. Have the stocks assigned to the different
38 run timing groups or management groups changed
39 over time?

40 A The only change that I'm aware of is the one we
41 already talked about, and that relates to the
42 Birkenhead being parsed out of late run
43 separately. I'm not aware of any change to the
44 composition. There was a period of time, I think
45 it was 1996, when there was a recommendation made
46 by staff, my predecessor, Jim Woodey, to move some
47 of the stock groups around. That recommendation

1 was not accepted by the Fraser River Panel. So
2 there has been, as far as I know, no changes to
3 the stocks in those groups.

4 Q Okay. Does the salmon treaty stipulate that you
5 must manage to those four run timing groups, that
6 Canada must manage to those four run timing
7 groups?

8 A No. The context for the phrase "manage to" would
9 be as defined in those two paragraphs, which
10 relate to (a) how the calculation of the TAC is
11 made for each of the management groups, because
12 the aboriginal exemption is a deduction and there
13 had to be some rules for how that would be treated
14 with respect to the four management groups. But
15 with respect to the "management to" phrase, it
16 would just be that the United States, to the
17 extent practicable - and those words are
18 important; there's a reason that they're in the
19 treaty - should attempt to distribute its share
20 across those four management groups. That's the
21 only stipulation in the treaty that relates to
22 this context of "management to" that I'm aware of.

23 Q Okay. Does the treaty stipulate which stocks are
24 to be contained in those run timing groups?

25 A There are --

26 Q Is that scheduled?

27 A There are no specific references to any stocks
28 that are part of the groups. Because the Early
29 Stuart is kind of its own group, clearly there is
30 an understanding about which stocks are in Early
31 Stuart group. But the other management groups,
32 Early Summer, Summers and Lates, are composed of
33 multiple stocks, multiple CU's and no there's no
34 stipulation in the treaty about which of those
35 should be part of those groups.

36 Q We've been looking at the 2009 year as a sort of
37 sample year, as I said. Were there any specific
38 management issues and challenges with the 2009
39 return that stand out for you?

40 A You know, not for us, because, you know, other
41 than the fact that we were the bearer of, you
42 know, kind of bad news repeatedly at every
43 meeting, basically, the only -- it was so clear
44 from the assessments that there wasn't a run that
45 was going to generate any possible late fisheries,
46 it -- the decisions that the panel was facing were
47 easy. All we had to do was provide them the

1 information, and it was very clear what their
2 decisions were.

3 So the only challenge I had, at some point in
4 the summer, because the situation is always fluid,
5 all right, so it can change really quickly, and
6 the brood year, 2005, the fish were
7 extraordinarily late, and if you looked at some of
8 those test fishing graphs, you would actually see
9 that for a long time in 2005 it actually wasn't
10 much different than 2009, and then all of a sudden
11 the run showed up.

12 So my challenge was to keep the panel ready,
13 kind of in an almost like coaching-type sense, to
14 make tough decisions in the event they had to, In
15 other words, you know, because people -- if all
16 you're hearing is "There are no fish," "There are
17 no fish," "There are no fish," then you're not
18 going to be prepared if they show up, and so it
19 was, you know, it was a way of communication, I
20 guess, that, "Yes, give them the bad news," but
21 always make sure that they're ready, because if it
22 did change, and in this case unfortunately it
23 didn't, they would have had to make some
24 decisions, and they could have been very tough
25 ones, so we were just trying to keep their
26 attention, I guess I would say.

27 Q We're going to be having a panel in the next
28 couple of weeks dealing with over-escapement, and
29 I just wanted to put a couple questions to you
30 about that. Let me just, by -- in terms of
31 background for those questions, under the old
32 IPSFC, the harvest rates were often 70 percent or
33 higher; is that fair?

34 A Yeah, those are, you know, tables and the numbers
35 are well documented in their files.

36 Q Okay. But then since the 1990s, in particular,
37 the harvest rates have been reduced from that,
38 significantly?

39 A There's been a declining trend in exploitation
40 rates since the '90s.

41 Q Okay. It's been suggested by people like Carl
42 Walters that escapement is now too high and the
43 number of spawners has had, for a variety of
44 reasons, a negative impact on productivity on
45 certain of the larger runs. Are you familiar with
46 that argument or that theory?

47 A I am familiar with it.

1 Q Okay. First of all, do you agree that that's a
2 risk, that high number of spawners can have a
3 negative effect on productivity on a number of
4 large stocks in the system?

5 A Well, maybe just I'll back up slightly. Just so
6 everyone knows, Carl Walters signed my thesis in
7 1989. I've know Carl for -- since 1982. He's
8 brilliant. He's usually right. I did not learn
9 my diplomatic communication skills from Carl
10 Walters, let's just put it that way, and perhaps
11 those of you who know Carl might be able to relate
12 to that remark.

13 So in the context of the question that you
14 posed initially, you know, had there been -- maybe
15 you have to read it back to me, but this issue
16 about high escapements, I think as soon as you use
17 a word like "high", it's like, you know, high
18 relative to what and do you generalize across all
19 these populations, because clearly, no matter how
20 you define "high", there will be a number of
21 Fraser stocks that no one in this room, I don't
22 think, would argue have had high escapements. So
23 you've got be really careful about over-
24 generalizing this issue.

25 But in terms of the substance of have there
26 been potential negative consequences from high
27 escapements in specific stocks in specific years,
28 I would agree with that assertion by Carl. And I,
29 in fact, provided under oath, in my testimony in
30 October, an example of that with the Quesnel, and
31 so if I didn't say that I agreed with that, I
32 would be contradicting my previous testimony.

33 So clearly there have been certain cases, and
34 the Quesnel of 2002 example is the best example of
35 that. Very briefly, 2002 was actually a year when
36 there was an incomplete assessment of Quesnel, so
37 we don't actually have the same kind of an
38 estimate for Quesnel in 2002 as we have had in
39 past years, but I think there's a general
40 consensus that the escapement in 2002 was
41 somewhere between three and four million sockeye
42 in the spawning grounds.

43 It happened to follow another large
44 escapement in 2001, which is the dominant one for
45 Quesnel, which is, again, in that three to four
46 million range. The reason I think this is an
47 example worth thinking about is the fry that were

1 produced by the 2002 spawning escapement were
2 about 1.9 grams, something in that range, about 40
3 percent smaller than the previous smallest fry
4 that had been observed up until that point, and I
5 think most salmon biologists would tell you that
6 if, you know, size matters in the sense that if
7 you have small fry they're likely to survive much
8 more poorly than larger ones.

9 The total return in 2006 - and we're talking
10 about a four-year life cycle; remember, we went
11 through this in October at my first appearance
12 here, Exhibit 1 - was about 700,000 fish from 3.5
13 million, okay? Now, we could get into a big
14 debate about whether, you know, 700,000 from 3.5
15 million is stock collapse or whatever it is. I
16 don't think it's really worth really having that
17 debate. I think -- I think where we would have
18 some agreement is that that's a pretty poor
19 outcome from a very large escapement. I mean,
20 700,000 fish is not even replacing the spawning
21 escapement. In fact, it's only one fifth of the
22 spawning escapement that produced it.

23 And that spawning escapement in 2006 had an
24 impact on the fisheries that occurred in 2006. We
25 had a forecast for Quesnel, in 2006, of about four
26 million and we didn't come anywhere close to that
27 escapement.

28 So there are other examples that would be
29 more subtle in relation to Chilko, where it's --
30 and maybe I should just, you know, step back a
31 little bit and speak a little bit more generally
32 about this issue, because it's a big issue that's
33 been raised.

34 Whenever you use a word like "over-
35 escapement", the immediate question is "Over
36 relative to what," okay? What's the benchmark
37 that we're deciding that something is over, okay?
38 And I would suggest to you, from my observations
39 and listening to folks talk about this, that I
40 don't think the debate is about what's over and
41 what's under. In other words, if there was an
42 agreement about what the benchmark was, like five
43 is the benchmark, then people would say 10 is
44 bigger than five and three is smaller. I don't
45 think that's what the disagreement is.

46 I think the disagreement is, what's the
47 standard? What's the standard that determines how

1 you're going to judge over and under? Things like
2 is it maximum sustained yield? I don't think most
3 people would agree that that -- some would, some
4 wouldn't. Is it a number that's different than
5 that that relates to all the other benefits that
6 these fish could provide? And when I say
7 "benefits", of course, you know, harvest is on
8 that list, but I would include biodiversity, I
9 would include things like cultural values, I would
10 include things like the "Oohs" and "Ahs" that you
11 hear from the fourth graders at the Adams River
12 when they go on a year like last year. Those are
13 all benefits that this resource generates.

14 So I think this challenge, for me, when I
15 think about this over-escapement issue, is to
16 define how the benchmark, how that standard,
17 against when you're going to say things are over
18 and under, would vary, depending upon your
19 perspective on those different benefits.

20 Whether it's -- you know, in other words, if
21 MSY is a benchmark that relates to harvest, what's
22 the benchmark for biodiversity? What's the
23 benchmark for meeting First Nations aspirations?
24 What's the benchmark for all these other ones?

25 And I think where we're at right now is
26 there's a pretty big disparity in the degree of
27 quantification of those benchmarks for those
28 different objectives, and that's created a
29 conflict in this environment. You know, it's
30 pretty well quantified, if you believe in stock
31 recruitment models, what over-escapement is
32 relative to Smsy. It's a little bit harder to
33 make that same articulation for some of these
34 other benefits, like biodiversity.

35 So I don't really think the issue is about
36 over and under; I think it's about how do we
37 capture, in a more comprehensive way, all the
38 different values that contribute to the benchmark.

39 And so I just provide that as a context,
40 because I think what's happening is that we are
41 all, you know -- so when I think of -- when I
42 think of the benchmark, I think of it from a very
43 sockeye-centric point of view. So what do I mean
44 by that? Well, I mean my Exhibit 1, okay?
45 Remember, I showed those plots that showed that
46 beyond some level of escapement you don't get any
47 more increase in juvenile sockeye, okay?

1 So what you do -- so let's say you get --
2 that you don't get any more juvenile sockeye
3 beyond a million. If you add a two million run
4 and clearly there's a million fish, that could
5 provide some benefit to something. Maybe that
6 benefit would be provided to the bears on the
7 spawning grounds. Maybe that benefit would be
8 provided to biodiversity, okay?

9 But it starts from thinking about what the
10 fish can produce, if you like the sort of size of
11 the pie, rather than worry about how you're going
12 to divvy up that pie. And from what I've
13 observed, it's all about how big my piece is, for
14 whoever it is that's arguing about what their
15 piece is, rather than worrying about what's good
16 for the fish from the beginning, and then trying
17 to parse out that.

18 So that's just an observation from me. I'm
19 not trying to assert a particular direction in
20 that; I'm just trying to say the debate, to me, is
21 about, well, what are the values that would
22 determine the benchmark against which one would
23 say over and under. And so that would be my kind
24 of general overview, I would -- and the challenge
25 for all those folks is to say, "Let's start
26 figuring out ways to do a better way of
27 quantifying these other things," so that they're
28 part of the debate. It may not change the
29 decisions I'm not saying that the decisions, now,
30 are being made with the disparity of information
31 that makes them bad decisions; they're based on
32 the information we have right now.

33 Whether more information would change what
34 those decisions are isn't important. They'd be
35 better decisions simply because it would be very
36 transparent about what's being considered and
37 what's not. So I'm not trying to argue that all
38 we know about is the catch benefit and, by golly,
39 if we had all these other benefits we'd do
40 something completely different. We might not. I
41 don't know. I'm not -- my crystal ball is not
42 that good. I mean, ask the Fraser Panel, they can
43 tell you. It's just that if you have all the
44 information, you can -- if I was a decision-maker,
45 I think I would find that that would help me make
46 a better decision, and right now there's a bit of
47 disparity there.

1 Q Has the PSC staff been approached by the panel for
2 -- to provide input on the issue of the right
3 number of spawners vis-à-vis potential
4 productivity impacts?

5 A In very sort of tangential ways. So for example,
6 we've been involved -- well, some tangentials,
7 some perhaps not. We've been involved in things
8 like, you know, escapement workshops. There was
9 one on this sort of this delayed density
10 dependence idea not too long ago, to deal with
11 issues about, you know, potential impacts of prior
12 brood years on subsequent productivity.

13 In the context of the question that you asked
14 me originally about, you know, the potential large
15 escapements that have resulted from, in some of
16 these years, there has been interaction more
17 formally with the Fraser River Panel that relates
18 to the impacts of late run policy options on
19 escapement of Summer run Sockeye.

20 Q Can you explain that?

21 A Sure. So this goes back to 2001, Jim Woodey, who
22 was my immediate predecessor, was the chief
23 biologist at that time. Jim, well, Jim, if
24 anyone's Mr. Sockeye, it's Jim Woodey. Those of
25 you who know him, his history, I mean, I think my
26 feet have gotten about as far as the instep in his
27 shoes, but there's a long way before they're going
28 to come anywhere close to filling them. I've
29 known Jim for a long time, I respect him. He's
30 very knowledgeable. And he intuited a lot of stuff
31 related to late run long before we had the data.

32 Jim realized that the Late Run issue was a
33 very significant issue. He's very concerned about
34 the conservation of Late Run stocks. But the
35 question is, how are you going to mitigate the
36 potential impacts of whatever you had to do to
37 protect late runs on the other stocks, and
38 particularly summer runs, because they're all
39 swimming together, whether harvested primarily.
40 And so he tried to think of a way, a different
41 management strategy that might help in that
42 regard.

43 He had intuited, even back in the late '90s,
44 that by looking at the number of fish that arrived
45 on the spawning grounds in September -- or arrived
46 on the spawning grounds, period, and comparing it
47 to what went past Mission in September, that it

1 looked like there was a pretty good match, and it
2 looked like only the fish that migrated past
3 Mission in September were making it. So that was
4 his first point of circumstantial evidence.

5 The second one is that he had put all this
6 information together on freshwater residence that
7 I talked to you about earlier. He recognized that
8 there was something unique about the Fraser that
9 they seemed to have a much shorter freshwater
10 residence; all of them, not just late run stocks,
11 whereas Lake Washington and Lake Ozette, which is
12 on the Olympic Peninsula, Barclay Sound, they
13 seemed to be able to survive in freshwater much
14 larger. So Jim goes, "Well, what could cause
15 that?" "Well, probably a parasite." We didn't
16 know, back in the '90s, but he had figured it out.
17 He had it all...

18 So he came to the Fraser Panel and said,
19 "Look, from what I can tell, it looks like the
20 fish that are migrating up the stream in -- the
21 late run fish that are migrating up the stream --
22 the Fraser River in August aren't going to make
23 it to the spawning grounds," because you don't
24 need to have any of those in the total to get what
25 you see on the spawning grounds.

26 So his recommendation, and this argument has
27 been mischaracterized in so many places, it was
28 never about, you know, catch all the late runs in
29 August because they're going to die, anyway. I
30 mean, that was never, ever, anywhere near the
31 intention that he had. It was always about how we
32 harvest the surplus Summer runs without doing any
33 more damage to the Late Runs. That's the context
34 of where Jim was coming from.

35 And so he made a formal recommendation to the
36 Fraser Panel, I think it was at a meeting in 2001,
37 where he said, "You guys should do this. You
38 should consider fishing in the river in August.
39 You won't impact the number of affected spawners
40 very much, based on the evidence I'm providing
41 you," which was definitely circumstantial back
42 then, but turns out he probably was right, and I
43 can talk about that later, and that was rejected.

44 Now, you know, biology is only one element of
45 this problem. I don't know all of the arguments
46 that were made, because I was the stock ID
47 biologist back then and I wasn't privy to some of

1 the discussions I am, now, but one of the
2 biological arguments that I think is definitely a
3 legitimate argument, and it doesn't really matter
4 whether I think it's legitimate, but just so you
5 realize that I think it's reasonable to consider,
6 is what if some, you know, some of those fish that
7 migrate in August survive? And the context is
8 that in 2000 and 2001 almost, near as we could
9 tell, all of these fish had come up in August. So
10 the value, in an evolutionary sense, of those ones
11 that do survive, I mean, they could have
12 represented the future of the late run resource,
13 because if they're all coming up in August and a
14 few survive, well, those may be the only ones that
15 are left, you know. And so that is a very
16 important argument that has been articulated.

17 In addition to that argument, I'm sure all of
18 you can think of the potential policy challenges
19 about a policy like that of fishing in the Fraser
20 River in August. First of all, you have area
21 licensing in Canada and there's only certain
22 groups that get the fish in the Fraser River,
23 unless you change that, right? So that's a clear
24 thing we should all be upfront about.

25 Q And where in the river was the fishing proposal?

26 A Well, anywhere in the Fraser River. It wasn't
27 necessarily above Mission. It was anywhere in the
28 Fraser River, because any fish that tended to
29 enter the Fraser River in August, from Jim's
30 surmise at that time, would be expected to have a
31 very low prospect of survival.

32 The other issues that you can think of that
33 would come up, if we had very intense fisheries in
34 the river in August, the scheduling of the
35 fisheries already, it seems we need about an
36 eight-day week, or everyone wants to fish without
37 having someone fish ahead of them, and
38 implications for, you know, interactions with FSC
39 and commercial, if they were to fish commercially.
40 There was no speculation on Jim's part about who
41 should get these fish, it's just that there was an
42 opportunity to catch surplus Summer runs.

43 So, and back to your large escapement issue,
44 I would argue that most of these large
45 escapements, if we want to use that word, have not
46 really resulted, fundamentally, from a policy of
47 those stocks, in other words, not some run

1 escapement policy, not -- but from the interaction
2 of the Late Run constraint, which is definitely
3 needed for conservation, an inability to catch
4 Summer runs, which Jim thought he had a little
5 finesse about fishing the river in August to
6 solve.

7 Now, fast-forward to 2008, now. Probably
8 over two million dollars has been spent on late
9 run research, and 2008 is the reason I brought it
10 up is that there was a late run workshop which the
11 proceedings are posted on my website. This is the
12 next time that it came up. I never made a formal
13 recommendation to the Fraser River Panel to do
14 this, because it's pretty clear, from 2001, that
15 it was a non starter, and I wasn't going to force
16 anyone's hand; it's not our job at all.

17 We know, now, that Jim was pretty darn right.
18 There's very compelling evidence, from the radio
19 tagging, that fish that migrate, especially in the
20 first two weeks of August, have a very low
21 probability of survival. We have identified the
22 parasite that Jim had intuited back then, as
23 parvicapsula. We have a very strong understanding
24 of the causes of mortality. Darned if we haven't
25 been able to figure out why they're migrating
26 upstream early. That's still eludes us, I have to
27 say, much to my frustration.

28 So we now have a bunch of data that confirms
29 - it's not circumstantial, it's direct tagging
30 data - so at that workshop I gave a presentation.
31 I'd be happy to share that -- the slides with
32 anybody. Most of the slides are in the
33 proceedings. There are some slides at the end
34 that happen to relate to this particular issue
35 that are not in the proceedings, but there is text
36 that refers to some of them.

37 Why did I bring it up at that meeting? Well,
38 this was a science meeting, and my only motivation
39 was to say, "We've done all this science. Have we
40 learned anything for management?" And then,
41 secondarily, I wanted to hear more about this
42 evolutionary debate. I thought that if I brought
43 it up in that meeting I would hear the discussion
44 about that. Unfortunately, I wasn't successful in
45 stirring that up.

46 So that's kind of where we sit. In my
47 presentation that I made, I've clearly outlined

1 the data, what might be the consequences of taking
2 an action, but also the potential policy barriers.
3 I wasn't like saying, "Go do this," with my eyes
4 closed and my head in the sand, thinking that it
5 was just trivial for anybody to do, because there
6 are very significant policy issues that would have
7 to come into play.

8 And on biology side, you know, as was pointed
9 out to me at that meeting, and has been pointed
10 out to me many times, I'm definitely not an
11 evolutionary biologist. That's not my background
12 and training, and it's fair enough to criticize my
13 expertise in that area. But I do think, since
14 that time, what we've noticed is that we have a
15 group of fish that are delaying, that varies in
16 size, and a group of fish that are coming up
17 early.

18 And I guess if I think about it, in my small-
19 minded evolutionary way, I think the fish that are
20 important are the ones that are doing the right
21 thing; in other words, the ones that are delaying.
22 Because if I think about the future and the fish
23 that are coming up early, and the Fraser River's
24 getting warmer, the selection against those early
25 fish is just going to get higher and higher and
26 higher. And, I mean, right now they're coming in
27 and they're facing five-degree Celsius warmer
28 water than they're used to, because they're six
29 weeks earlier. This is all, you know, kind of
30 intellectual "no one knows the future" type stuff,
31 so let's be clear about that.

32 But, so, my only point is: Let's flush out
33 this biological argument. Let's at least
34 understand enough. Let's do a little modelling.
35 It would be easy enough to do for someone who's
36 trained in this area to at least ask the question.
37 If the policy barriers mean it's a non starter,
38 it's a non starter, but let's make an informed
39 decision.

40 And that's the only point I would make. I've
41 never tried to kind of force the hand, I just
42 think there's a biological part that's still
43 uncertain that we should understand. If it turns
44 out that doesn't have any merit, then we don't go
45 anywhere; if it turns out there is some merit and
46 there is a policy barrier, we still go nowhere,
47 but at least we've asked the question.

1 Q I take it that the Fraser River Panel didn't adopt
2 the suggestion by Mr. Woodey back -- Dr. Woodey
3 back in 2001?

4 A They did not.

5 Q Okay. And that hasn't been adopted as a fishing
6 plan since?

7 A It has not.

8 MS. BAKER: Okay. Mr. Commissioner, it's 4:00. I only
9 have a couple of questions left for this witness.
10 I'm happy to do them in the morning, but we could
11 probably finish them in five or 10 minutes, so
12 it's --

13 A I promise I'll be succinct. I'm sorry, I'm sure
14 that it was a longer answer than you had budgeted
15 for.

16 MS. BAKER: Slightly. But he's back tomorrow, and I'll
17 be very fast in the morning, if you would prefer
18 to start again in the morning; it's either way.

19 THE COMMISSIONER: Yes, I have a meeting at 4:00, but
20 I --

21 MS. BAKER: Okay, well, we can -- I'll talk to him over
22 the break and we'll keep his answers short.

23 THE COMMISSIONER: Thank you.

24 THE REGISTRAR: The hearing is now adjourned until ten
25 o'clock tomorrow morning.

26
27 (PROCEEDINGS ADJOURNED AT 4:00 P.M. TO
28 WEDNESDAY, JANUARY 19, 2011, AT 10:00 A.M.)
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33 I HEREBY CERTIFY the foregoing to be a
34 true and accurate transcript of the
35 evidence recorded on a sound recording
36 apparatus, transcribed to the best of my
37 skill and ability, and in accordance
38 with applicable standards.
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43 Pat Neumann
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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.

Diane Rochfort

I HEREBY CERTIFY the foregoing to be a true and accurate transcript of the evidence recorded on a sound recording apparatus, transcribed to the best of my skill and ability, and in accordance with applicable standards.

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.

Karen Hefferland