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## **Order of Appearances**

### **Raincoast Conservation Foundation**

Dr. Paul Paquet                      Dr. Christopher Darimont

Examination by Mr. Richard Neufeld for Northern Gateway Pipelines 1332

### **Northwest Institute for Bioregional Research**

Mr. David Bustard                      Dr. Jack Stanford

Examination by Mr. Richard Overstall for Northwest Institute 1680

Examination by Mr. Dennis Langen for Northern Gateway Pipelines 1742

### **Government of Canada Panel 1**

Dr. Caroline Caza	Dr. John Cassidy	Dr. Barry Smith
Dr. Andr�e Blais-Stevens	Ms. Coral DeShield	Mr. Bradley Fanos
Ms. Ailish Murphy	Mr. Michael Engelsjord	Mr. Paul Gregoire
Ms. Tracey Sandgathe	Mr. Andr�e Breault	Mr. John Clarke
Ms. Lucy Reiss	Mr. Alasdair Beattie	Ms. Manon Lalonde
Dr. Judith Beck	Ms. Laura Maclean	Dr. Bernard Vigneault
Dr. Douglas Maynard	Ms. June Rifkin	Dr. Elizabeth Campbell
Dr. Donna Kirkwood	Mr. Steven Taylor	

Introduction by Mr. James Shaw for the Government of Canada 2128

Examination by Ms. Dayna Anderson for the Government of Canada 2157

Examination by Ms. Caroline O’Driscoll for the Alexander First Nation 2455

Examination by Mr. Tim Leadem for the Coalition 2753

Examination by Ms. Jennifer Griffith for the Haisla Nation 3258

### **Examination by Mr. Richard Neufeld for Northern Gateway Pipelines 1332**

#### **Strengths and weaknesses in the terrestrial ESA**

Before turning to the evidence, Mr. Neufeld began with questions about the backgrounds of Dr. Paquet and Dr. Darimont, and about Raincoast Conservation Foundation, specifically asking about the location of the foundations which are its funding sources.

He then brought up [Exhibit D170-2-02](#), specifically Section 1 of the Written Evidence of Raincoast – the terrestrial components of the project - and noted that paragraph 11 begins, “Our primary goals were to identify strengths and weaknesses of the ESA

(Environmental and Socio-economic Assessment)” and paragraph 19 contains the statement, “Our goal was to identify deficiencies of the ESA”. Mr. Neufeld suggested that “nowhere in your evidence do you ... discuss any strengths of the ESA.” Mr. Paquet replied, “That is correct. And by this point ... we had completed part of our review and it was clear that there weren't a lot of strengths as compared to deficiencies, so we focused on the deficiencies.” 1376

Mr. Neufeld asked, “Would you agree with me that the written evidence that you filed contains ... many value-laden comments concerning the ESA, including suggestions that Enbridge introduced misleading calculations, gross oversimplifications and phrases such as: ‘Plagued by a litany of compounding analytical problems...?’” Mr. Paquet said, “No, I wouldn't agree with that. Those are not value statements; those are common statements in science.” 1394

Mr. Neufeld: “Is it possible that that tone was perhaps intended to target a different audience in the context of a media campaign as opposed to this proceeding?” Mr. Paquet: “No, it's not possible at all.” 1401

Mr. Neufeld examined criticisms of Enbridge evidence with respect to umbrella species, characterizing it as a criticism of NGP's witness Mr. Green. “You're suggesting that Mr. Green ...is unaware of the literature?” Mr. Paquet: “... it certainly seems that the literature was ignored or not understood and that if that included Mr. Green, that would be the case, yes.” 1407

Mr. Neufeld asked about criticisms of Enbridge's choice of key indicator species 1421.

### **Use of habitat suitability models**

Considerable discussion took place with respect to use of habitat suitability models which have not been tested for the specific locations and conditions in which they were being used. Mr. Neufeld confirmed that Raincoast had done no review of the terrestrial impacts of the PTP pipeline, then asked, “Would it be fair to say that [the PTP] project didn't draw the interest of any of the foundations that [supported Raincoast]?” 1438, 1480

### **Project-specific impacts in cumulative effects assessment**

The Raincoast evidence asserts that “Effective mitigation is used to assume numerous project-specific impacts will not be significant, therefore removing them from cumulative assessment.” Mr. Neufeld asked about the authority of that statement, and suggested instead that “the decision to carry project-specific impacts forward into the cumulative effects assessment was not dependent on their having been rated as significant in the first instance.” They reviewed the criteria for inclusion in cumulative effects assessment from the application ([Exhibit B3-1](#), page 63). 1485

### **Expert practitioners**

Mr. Neufeld again suggested that a statement relating to “new evidence” in the Raincoast submission was intended to generate media interest. Dr. Paquet denied this. Mr. Neufeld asked who is meant by the phrase, “expert practitioners,” and selected part of the reply by

Dr. Darimont so he could ask, “Do the rest of us who have read these reports, are we experts?” 1531

### **Pipeline risks**

Mr. Neufeld asked some questions related to the finding that the risk posed from pipeline incidents is unacceptable. He said they “conflated” the Exxon Valdes and Deepwater Horizon disasters with a potential terrestrial pipeline spill, something which he suggested an “expert practitioner” would not have done. Dr. Darimont said, “It’s ... appropriate ... to review evidence from the marine and terrestrial environments as one. ... This is not conflation.” 1557

Mr. Neufeld examined the definition of probability where it was used in the context of risk to provincial parks if a spill should occur. He questioned the reasonableness of the methodology when a park 500 km from the pipeline is shown as having a high risk of effects from a spill, and the assumption that the velocity of oil flow is the same as the velocity of water flow. Dr. Darimont replied that parks 500 km downstream in the fast-flowing Fraser drainage watershed are at risk, and that they used water flow rates as a proxy for oil flow rates. 1574

### **Multi-stakeholder processes and post-construction monitoring**

Mr. Neufeld asked if Raincoast might participate in multi-stakeholder planning processes and post-construction monitoring the efficacy of the mitigation programs. Dr. Dairmont said that the planning processes are consultation rather than Raincoast’s science-based approach, but that Raincoast might consider it. Dr. Paquet said that Raincoast is willing to participate in the monitoring. 1653

### **Introduction and Examination of Northwest Institute for Bioregional Research Panel by Mr. Richard Overstall 1680**

Mr. Overstall introduced the Environmental Effects Panel for the Northwest Institute.

Mr. David Bustard is a professional aquatic biologist working in Northwestern British Columbia. He is qualified as a fisheries biologist with expertise in the effects of industrial activities on fish. His resume is [Exhibit D155-17-2](#). Mr. Bustard was present.

Dr. Jack Stanford has conducted research on the natural and cultural interactions of large river systems. His expertise includes the hyperic nature - of such systems, that is, the ecology of the connection between rivers and groundwater. He is qualified as a river ecologist. His resume is [Exhibit D155-17-4](#). Dr. Stanford was calling in on a remote connection.

Mr. Bustard is the co-author of "Potential Effects of an Oil Pipeline Rupture on Reach 2 of Morice River", [Exhibit D155-6-09](#).

Dr. Stanford is the co-author of "Analysis of Skeena River Tributaries Downstream from the Proposed Enbridge Pipeline", [Exhibit D155-7-1](#)

It is unusual for a witness to make introductory remarks. In his, Mr. Bustard said, “It was very important to bring forward an assessment of the potential consequences of a spill ... by experts who have actually worked in the [Morice River] watershed, given the absence of technical input from either the Province of B.C., Environment Canada or Fisheries and Oceans to address the potential implications of a hydrocarbon spill into this world-class salmon and steelhead river.” 1732

### **Examination by Mr. Dennis Langen for Northern Gateway Pipelines**

1742

Mr. Langen established, unnecessarily and at great length, that the two witnesses were not pipeline engineers. He asked Mr. Bustard whether he had any knowledge that NGP had NOT consulted about the Morice River with the BC government, or the two federal agencies he had referred to in his introductory remarks. Mr. Bustard said he was talking about evidence on the record.

### **Northwest Institute and its evidence**

Mr. Langen then examined the relationship between the evidence prepared by the witnesses and the Northwest Institute. “You're basically using the Northwest Institute as a conduit in order to appear here and provide your evidence?” “Is that evidence ... your evidence in your personal capacity or the evidence of the Northwest Institute?” Mr. Bustard replied, “It is the Northwest Institute's evidence.” 1806

Mr. Langen: “I take it neither of you can provide me with any indication of what Northwest Institute's views are with respect to this project?” Mr. Bustard said, “That would have to come from Northwest Institute's Board and Chair.” Mr. Langen asked a few more questions about the Northwest Institute, its Board and Chair, and its views. At paragraph 1912, he picked up the theme again. 1833

### **News articles as authorities**

Mr. Langen asked both witnesses, “Would you agree that news articles should not generally be cited as authority for scientific facts and conclusions that support a scientific thesis?” Both agreed. 1843

Mr. Langen turned to Mr. Bustard’s paper, [Exhibit D155-6-09](#), and this quote: “Swift [...] discuss added risks with diluted bitumen pipelines due to rapid corrosion and difficulties of leak detection.” 1884

He asked if “Ms. Pat Moss, who is the Executive Director for Northwest Institute and is a Board Member, is also the coordinator for Friends of Wild Salmon?” Mr. Bustard replied, “I don’t think it’s really my position to talk about Ms. Moss and what she’s a board member of or not. That’s completely her business.” 1912

[Exhibit D66-3-10](#) is the Swift document cited by Mr. Bustard. Mr. Langen went to the section which is titled, “Bitumen can weaken pipeline,” and ran through a protracted series of questions about the use of this text as the authority for Mr. Bustard’s citation of

Swift. Mr. Bustard said it was what was available at the time of submission. “Our paper actually deals with a pipeline rupture once it enters the river.” Mr. Langen’s nevertheless continued his questions on this topic. 1918

Mr. Langen read another statement in Mr. Bustard’s submission, “Given the potential for a pipeline failure along [the] Morice River (as outlined in Schwab, [...] and Swift et al., 2011)...” This is the trigger for another set of questions about the use of the Swift report, and the fact that the Swift report is also using Schwab as its authority for the potential of failure at this section of the route. He makes a point of noting that the Schwab report, “Hill Slope and Fluvial Processes along the Proposed Pipeline Corridor, Burns Lake to Kitimat, West Central, B.C.” ([Exhibit D155-13-2](#)) is also evidence filed by the Northwest Institute. 2015

### **Route Selection V, further south of the Morice River**

Mr. Langen asked Mr. Bustard, “Would you agree that if the risks identified by Mr. Schwab are reduced or less than he perceives, the risk of a spill into the Morice River would be reduced?” He put up [Exhibit B101-6](#). Mr. Bustard replied, “If they're in fact reduced then the risk of a spill would be reduced.” He has not seen a geohazard assessment of the new route and can’t say if it’s better from a spill perspective. 2081

### **Introduction and Examination of Government of Canada Panel 1 by Mr. James Shaw and Ms. Dayna Anderson 2128**

*In the interests of brevity, we are not listing the names, resumes, qualification or evidence of the panel members. The names are on [page 2 of these notes](#), above, and the resumes and qualifications are available in the transcript beginning at paragraph 2157.*

Mr. Shaw stated that the panel members will not be granting interviews to media.

### **Examination by Ms. Caroline O’Driscoll for the Alexander First Nation 2455**

#### **Expertise of the government participants**

Ms. O’Driscoll introduced Chief Arcand of the Alexander First Nation. She said she would be focussing on “the Human Environment and Related Land Use Planning aspect,” with her questions in three areas. The first is the expertise of the government participants. The second is the possible absence of the Alexander First Nation’s community and land use planning in the ESA. The third is the possible absence of the Alexander First Nation community and land use planning in the risk assessment and spill management in Volume 7B.

Ms. O’Driscoll quoted from [Exhibit E9-28-1](#): “The expert or specialist information or knowledge is contained in the written evidence filed by the Federal Government Participants.” She asked if this sentence should be taken to mean “that Canada does not have expertise if it has not filed materials with respect to a given area.” Dr. Caza replied,

No, you should not infer that the Government doesn't have expertise outside the areas of which it has filed evidence." 2485

Ms. O'Driscoll asked, "Are we to rely on each department's mandates as publicly posted on their websites as the scope of their expertise?" Mr. Clarke of Natural Resources Canada said, "That's correct. The website is a source of information about what departments' mandates are." Successive questions determined that the mandate is a reflection of the expertise within each department, that the jurisdictional scope of each mandate is not consistent with respect to all lands in Canada and would need to be determined statute-by-statute. Ms. O'Driscoll said she wants to understand the limitation of each department or government participant's expertise with respect to this project and, obviously, the Alexander First Nation. 2499

The detailed dialogue in response to this statement begins at paragraph. Most of the replies are necessarily tentative and speculative, since it's still not clear what Ms. O'Driscoll is asking for, so many departments and statutes are involved, and the complexity is exacerbated because of the Aboriginal consultation framework. 2518.

#### **Absence of the Alexander First Nation & lands in the ESA**

[Exhibit E9-2-1](#) is a Government of Canada IR to NGP. Question 52 is a request created by Aboriginal Affairs and Northern Development Canada (AANDC) for more information related to route changes. Ms. O'Driscoll asked, "Did AANDC provide any of your government participants with information connecting to Alexander's land uses?" The general answer was "No." 2582

Question 89 is the first of series of questions relating to accidents and malfunctions. Ms. O'Driscoll noted that there are no questions that relate to residential and commercial land use in connection to the Alexander First Nation and its lands. She asked, "Did AANDC provide any population density or community information to any of your departments.?" These answers were less certain, but generally that no information relating to the Alexander First Nation was either available or used in formulating the IR. 2595

[Exhibit E9-5-1](#) is a response by the Government of Canada to the JRP. In it is a description of the roles of the Canadian Environmental Assessment Agency (CEAA) in review panels. Ms. O'Driscoll identified from it the existence of a "federal working group" for which CEAA is co-ordinator amongst federal government participants. Ms. O'Driscoll asked the panel members whether "The fact that you have no information is a reflection that the Government of Canada has no information because there was a working group that should have actually channelled it to you." Mr. Shaw objected to the question and the Chairperson said it was outside of the scope of the hearing. 2627

Ms. O'Driscoll asked, "Did any of you make requests for information specific to the Alexander First Nation?" Mr. Engelsjord of DFO was the only responder with a comment. He said that DFO had requested information on Aboriginal fishing activities ([Exhibit B46-2](#)).

Ms. O'Driscoll's next questions are about possible future land use of the Alexander First Nation and the proposed pipeline route. The Chairperson told her to discontinue this line of questioning because it is not addressed in the evidence. 2700

### **Absence of the Alexander First Nation in risk assessment and spill management**

Ms. O'Driscoll's next set of questions began with Northern Gateway's application. The Chairperson said this is applicant evidence, not government evidence. Ms. O'Driscoll said she is trying to evidence that relates to her client and the impacts of the project. "I don't have someone here to answer that question ... why it's not part of the evidence [or an ] explanation for [its] not being there. Alternatively, there's a gap in the materials that have been prepared by Canada. The Chairperson orders a break and tells Ms. O'Driscoll to review her questions. 2703

Ms. O'Driscoll's last question is "Is there anything in your evidence to address specifically with respect to the Alexander First Nation risk management and emergency response planning for the community located on the north part of Reserve 134 Main?" The unanimous answer is "No." 2738

### **Examination by Mr. Tim Leadem for the Coalition 2753**

(ForestEthics Advocacy, Living Oceans Society & Raincoast Conservation Foundation)

#### **Critical habitat**

Mr. Leadem said that most of his questions will be directed at either the fish or the wildlife personnel on the panel. He begins by establishing that critical habitat means "habitat that is necessary for the survival or recovery of a listed wildlife species ... -- by listed I mean listed under the provisions of the Species at Risk Act (SARA)" Dr. Smith of the Canadian Wildlife Service agrees and notes that this is the definition in SARA. 2754

Dr. Smith said, "We made it clear to the Proponent that they had to adhere to the Species at Risk Act, which would require that, as part of their project planning, they determine along the right-of-way where there could be a conflict with species at risk. Mr. Leadem asked, Have all the species at risk "been captured by the Proponent's evidence?" 2778

Dr. Smith replied, "There are two species that we are aware of right now that are not referenced in the materials. One is white bark pine, which is a tree species that only recently has been added to the species at risk list. And another is long-billed curlew, which apparently the range is expanding northward." Mr. Engelsjord from DFO said that with respect to aquatic species, "We believe the Proponent has identified all the relevant ones." 2782

#### **Recovery strategies & Southern Mountain Caribou**

Mr. Leadem asked if there was any recovery filed for any of these species. Dr. Smith said he does not have that information at hand. 2797

Mr. Leadem asked if a recovery strategy for the Southern Mountain Woodland Caribou has been formulated. Dr. Smith said it is not yet complete but they hope to have it



completed within a year. “What takes so long?” Dr. Smith explained that it is a complicated species to develop a recovery strategy for, crossing a number of boundaries, parks, requiring consultation with more than 100 First Nations and other directly-affected parties. 2804

Mr. Leadem asked if consultation is required with industry, mining operations for example. Dr. Smith said the principle of SARA is “to develop a recovery strategy that is in ... the interest of the species. [It] has very clear language about socioeconomic impacts not being part of the development of a recovery strategy.” “We develop the recovery strategy based on the biological principles that are necessary to recover the species. ... there's a requirement for consultation later on.” 2829

“In the absence of a recovery strategy which actually delineates the critical habitat for any particular listed species, how are species which have been listed protected from ongoing applications such as the one we have before us?” Dr. Smith: “Once a species is [listed], there are automatic prohibitions that come into place and the residence and the species is protected, particularly on federal lands.” 2834

### **Critical habitat before it becomes a protected legal entity**

Following Mr. Leadem’s next question, Dr. Smith qualified that statement, and explained that if the critical habitat has not been defined – which it has not for Southern Mountain Caribou – “you can't protect it because there's nothing to protect. Once there is a finalized recovery strategy ... the critical habitat ... becomes a legal entity that requires protection.” 2844

Dr. Smith said that caribou is provincially managed under The National Accord for the Protection of Species at Risk, so it “falls on the provinces to protect the species and to be responsible for recovery.” Mr. Leadem: “Are you telling me that Canada would defer to the province in terms of any definition of critical habitat?” Dr. Smith: “No, not at all. It is a federal responsibility to develop the recovery strategy and to identify critical habitat, but ... it requires ... a very cooperative relationship with ... the Province of Alberta, B.C. and the Parks Canada Agency.” 2849

Mr. Leadem said, so you have a listed species for which critical habitat has not been established, “What do you do?” Dr. Smith said, “We rely on the environmental assessment process.” A lot of the necessary information already exists, and we consult with provincial biologists who know the caribou. “We can still provide ... good advice with respect to decisions.” Ms. Murphy of the Canadian Wildlife Service added that a species by species review is necessary. 2864

### **Telkwa herd of caribou**

Mr. Leadem asked specifically about the Telkwa herd. “Is Canada aware that the Proponent has proposed a route revision in an area that may [impact] the migratory winter paths or summer feeding grounds of that herd?” Ms. Reiss of the Canadian Wildlife Service said, “We are generally aware.” “Rather than looking at every revision when it’s filed, we’ve been looking at it -- at the revision that’s available prior to the submissions that we’re making.” 2883

### **Post-approval involvement in the project**

Mr. Leadem asked, “Post-approval, what does Canada do? I mean, there’s a lot of you [on the panel], do you all stay involved as the project moves forward and continually review construction plans?” Dr. Caza of Environment Canada said, “The project, should it be approved, will have follow-up and monitoring requirements that will be laid out through the EA process and beyond. Our programs will probably be involved in those in a number of specific ways.” Mr Engelsjord said DFO would have a regulatory role under the Fisheries Act and SARA. Mr. Clarke said NR Can has no regulatory role and so would not continue to be involved. 2912

Mr. Leadem quoted from Environment Canada’s evidence, [Exhibit E9-6-32](#), under the heading Southern Mountain Caribou: ““Environment Canada recommends that, in order to avoid destruction of habitat identified as critical habitat in the final recovery strategy, a decision on the project footprint would need to be made in the context of the results of the critical habitat identification within the final recovery strategy for Southern Mountain Caribou.” He asked, “If you don’t have the recovery strategy in place, how are you going to do this?” Ms. DeShield of the Canadian Wildlife Service replied in the same vein as Dr. Smith had earlier, that “We recommend that the best available information be used,” and she gave some examples. Ms. Reiss explained briefly the increased vulnerability of caribou to predation where linear features are present. 2948

### **Acid-generating rock**

Mr. Leadem said he had questions about potentially acid generating rock. Ms. MacLean, EA director for BC with Environment Canada, said they had provided limited evidence with respect to the issue and that they had no related expertise on the panel. Mr. Leadem said he would ask a general question: “Is it Canada’s intention with respect to potentially acid-generating rock to stay involved with the project to be able to monitor that situation?” Ms. MacLean replied that the federal Fisheries Act prohibits the discharge of a deleterious substance, including acid-generating material, into waters frequented by fish. Hence Environment Canada would remain involved. “Beyond that, we have, as you’ll see in our evidence, made a recommendation that Northern Gateway complete a management plan for acid-generating material; particularly, with respect to the tunnelling that is proposed.” 2976

### **Making use of best available information**

This statement is in an IR response to the Coalition from Canada ([Exhibit E9-21-13](#)): “If final recovery strategies are not in place ... it is recommended that Northern Gateway make use of best available information (e.g. draft recovery strategies, Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessment reports, advice from recovery teams) to inform appropriate mitigation and monitoring measures.” 3007

Mr. Leadem asked if there are draft recovery strategies for Southern Mountain Caribou. Dr. Smith said, in effect, none that they can use yet. Mr. Leadem explored more extensively the status of the draft recovery strategy for Southern Mountain Caribou, would they share it with the Proponent, Ms. DeShield said they would not share a draft strategy, though they might share parts of it. 3016

### **Approval of recovery strategies**

Mr. Leadem asked about approval of a recovery strategy. Dr. Smith said there are a series of approvals up to the Minister of Environment. Mr. Leadem: The biology or the science drives a recovery strategy. Is that fair? Dr. Smith: “That’s correct. ... Under SARA, it’s a strategy that’s put together in the interest of the species.” 3034

Mr. Leadem: Do socio-economic considerations come into play at the ministerial level?

Dr. Smith: No. SARA speaks quite clearly as to what can and cannot occur.

Mr. Leadem: Is it at the listing stage where we engage in the socio-economic analysis of whether a species gets listed?

Dr. Smith: “There is ... at the listing stage a consideration. ... A consultation phase ... takes place where those who may be affected by the listing can express how the listing may affect them, and that may include an expression of socio-economic concerns.”

Mr. Leadem: “All right. So that’s where the ministerial involvement in terms of socio-ec, and what I call the small p political activity may take place.” 3038

### **Fish – which Fisheries Act applies?**

Mr. Leadem brought up the relevant evidence in [Exhibit E9-6-13](#) and turned to Section 1.2.1 entitled “Fisheries Act”. He asked, When you assess using one version of the Fisheries Act and then legislative changes take place, what Fisheries Act is going to apply to the project? Mr. Engelsjord replied, “Whatever the Fisheries Act is at the time that that authorization’s requested.” 3045

Mr. Leadem asked about the “no net loss policy” in the 1986 Habitat Management Policy of DFO. Mr. Engelsjord said the Government has indicated it’s going to update the no net loss policy, but he is not aware of the timeframe for those changes. Mr. Leadem asked if it were true that NGP’s methodology for stream crossings and watercourse crossings “does not mirror” DFO’s habitat risk management framework. Mr. Engelsjord replied, “Our understanding is that they have based their risk management approach, somewhat at least, on DFO’s; at least the risk management approach for evaluating effects on habitat. 3055

Mr. Leadem and Mr. Engelsjord entered a discussion about the preliminary nature of the information that has been filed with respect to stream crossings and impacts. “Are we still talking preliminaries and, at some future stage, do you actually go out into the field and oversee what’s going to happen or how does that all work?” Mr. Engelsjord said that he can’t comment on how preliminary their proposal is now, but eventually it will lead to “requests for authorizations from DFO.” “When DFO’s faced with those decisions related to those authorizations, we’ll be looking at whatever the Proponent has put forward as their final proposal.” 3095

Mr. Leadem asked some questions about the proposed Endako River crossing which readers should follow directly in the transcript from paragraph 3099.

### **Potential impacts of an oil spill**

DFO said, “The analysis of the accuracy of the spill likelihoods, spill trajectories, or fate and behaviour of chemicals of potential concern present in oil lies outside of DFO’s

expertise and mandate.” ([Exhibit E9-6-13](#)). Mr. Leadem asked whether Environment Canada has the expertise to deal with spill-related questions. Dr. Caza said that it does, that “EC’s relevant expertise in this area does not relate to the accuracy of spill likelihoods but it does have some expertise related to spill trajectories and the fate behaviour and effects of chemicals in oil.” 3112

Mr. Leadem quoted from [Exhibit E9-6-13](#): “...that the Proponent considers predicting and quantifying impacts of an oil spill on fisheries resources somewhat challenging given the uncertainty surrounding the multiple factors that would influence a prediction.” DFO goes on to say “Despite the uncertainty, the Proponent has conducted a reasonable ecological risk assessment to identify risks to fish, fish habitat and fisheries resources.” He asked, “Which expertise are you relying on in making that statement?” 3132

Mr. Engelsjord referred to [Exhibit E9-21-13](#). Mr. Leadem quoted from it, “...assessment was limited to consideration of potential impacts to fish and fish habitat and did not consider potential impacts on water quality and toxicology...” He asked, “How can you assess the potential impacts to fish without considering the potential toxicological effects upon fish of deposition of PAHs and other substances?” Mr. Engelsjord: “DFO’s review is kind of conducted through the lens of section 35, which is the prohibition against destroying physical fish habitat, and the destruction of fish or killing of fish. So an oil spill may cause those effects as well as the toxicological effects, which we haven’t conducted an assessment of.” 3132

Mr. Leadem asked Dr. Caza, “Does EC have the expertise to actually look at the potential of oil spills in the fresh water environment and what effects it might cause in that environment?” At this point, Dr. Caza could not find the evidence she needed. At the end of Mr. Leadem’s questioning, she referred to 1.46(g) in [Exhibit E9-21-12](#) which states that “Environment Canada has limited capacity for toxicological evaluations.” 3152, 3240

### **SARA listed aquatic species**

Mr. Leadem asked whether a recovery strategy will be put in place for the White Sturgeon found in BC and for the Lake Sturgeon found in Alberta. Ms. Sandgathe said that DFO is working on one now for the White Sturgeon and it should be ready in 2013, but not for the Lake Sturgeon because it is not SARA-listed. 3172

With respect to salmon in the Fraser River system, Mr. Leadem asked Mr. Engelsjord if he can confirm that “the Takla and Trembleur Conservation Unit is in the red zone?” Mr. Engelsjord says that none of the panel can confirm it. Asked about the early Stuart run of Sockeye Salmon and whether they have been in decline for the last couple of decades, Mr. Fanos of DFO agreed. Asked about Chinook in the mid-Fraser, specifically Chinook in the Nechako River and some of the other tributaries, being in decline, Mr. Fanos said, I’m familiar with some of the conservation concerns; not necessarily the trajectory of decline.” 3197

Mr. Leadem: “Has DFO taken a look at the potential for an oil spill say, for example, somewhere along the Stewart River and what effect that might have upon the Stewart

River runs?” Mr. Engelsjord: “DFO hasn't conducted any analysis of the effects of oil spills.” 3230

Earlier, Dr. Caza was not able to locate the evidence she needed with respect to Environment Canada’s expertise with respect to oil spills in the fresh water environment. capacity to . At the end of Mr. Leadem’s questioning, she referred to 1.46(g) in [Exhibit E9-21-12](#) which states that “Environment Canada has limited capacity for toxicological evaluations.” 3152, 3240

### **Examination by Ms. Jennifer Griffith for the Haisla Nation 3258**

Starting with [Exhibit E9-21-12](#), and the same quote that Mr. Leadem had finished with, that “Environment Canada has limited capacity for toxicological evaluations,” Ms. Griffith asked, “Does that refer to a limited knowledge base within the department or limited funding?” Mr. Shaw said that funding was “off the table.” Ms. Griffith said, “Let’s start with the first part of the question.”

Dr. Caza said, “This observation came from our science and technology section experts, who reviewed the information for the marine environment.” She referred Ms. Griffith to an upcoming panel in Prince Rupert. Ms. Griffith asked how this is responsive to Mr. Leadem’s question about effects of spills in a freshwater environment. 3258

### **Fish habitat in the Kitimat River Valley**

Ms. Griffith referred to Environment Canada’s evidence ([Exhibit E9-6-32](#)), para 265 which says that “flow rates are estimated by the Proponent on the basis of mean monthly discharge values. Environment Canada is of the view that a more in-depth assessment, including basic statistical information on daily flow rates, should be provided by the Proponent at the detailed engineering phase “ Ms. Lalonde of Environment Canada, said this pertains to non-trenchless crossings only. 3275

Ms. Griffith asked questions relating to volatility or flashiness in streamflow and additional risks to fish and fish habitat during construction, whether there is clearing along stream banks, and does that increase sedimentation. Mr. Engelsjord said flashiness doesn’t necessarily increase the risks, that clearing depends on specifics, and that there are mitigations to reduce sedimentation. 3310

Ms. Griffith asked if there are both fish bearing and non-fish bearing streams in the Kitimat River Valley, does DFO require different crossing approaches depending on fish bearing status, and does a crossing on a non-fish bearing streams that flows into fish bearing streams have the potential to have effects on the fish bearing stream. Mr. Engelsjord replied that the fish bearing status of the streams will be in the Proponent’s information, that crossing technique is not a DFO requirement, and that there is the potential for a crossing on a non-fish bearing stream to have effects in a downstream fish-bearing stream. 3327

### **No independent hydrological review**

Ms. Griffith asked about the volatility characteristics of steep gradient tributaries. Mr. Engelsjord said that’s a hydrological question so Ms. Griffith asked whether DFO brings

in a hydrologist to assist with the review. Mr. Engelsjord replied that “Generally, we’d be relying on the Proponent to provide the information that they need to support their application.” There’s no independent review of the Proponent’s application from a hydrological standpoint.” 3339

### **No least risk period in the Kitimat River**

Mr. Engelsjord agreed that the Kitimat River Valley and estuary are high consequence areas which support a broad diversity of fish species and life stages. He said they did not have someone on the Panel who could say whether there is no least risk period in the valley. Mr. Fanos suggested that a person could figure it out using information available on DFO’s website.3356

### **Eulachon**

Mr. Engelsjord confirmed for Ms. Griffith that the Kitimat River supports eulachon which has been identified by COSEWIC as endangered and is considered for listing under SARA? He also agreed that “government and local industry organize their activities to avoid disturbance to eulachon in the Kitimat and Kemano Rivers from late February through to June?” 3377

At 1.24(a) of [Exhibit E9-21-12](#), DFO identified additional information relating to eulachon that would be beneficial for the JRP’s assessment for potential effects of the project on eulachon. Mr. Engelsjord confirmed that this applies to the Kitimat River and that the Proponent had committed to providing further information in the future. 3381

### **More on least risk periods**

Ms. Griffith asked about rivers where there are no least risk periods, where potential risks and effects to some species in their life stages cannot be avoided. In that case, “have DFO and Northern Gateway had any discussions aimed at identifying potential construction timing windows that are acceptable to DFO?” Mr. Engelsjord said, “No, we haven’t had those discussions with Northern Gateway yet. They’re generally the kinds of discussions we’d have when we have the final detailed information before a regulatory decision. He acknowledged that “these things reduce risk and don’t necessarily always completely eliminate risk.” 3410

[Exhibit B170](#), an undertaking by NGP that shows 14 water crossings in the Kitimat River Drainage with no least risk period. Ms. Griffith said only 4 are proposed for trenchless crossings. Mr. Engelsjord confirmed that DFO has recommended that NGP consider using trenchless methods on those watercourses. 3423

### **Risk rankings and differences of opinion**

Ms. Griffith put up [Exhibit E7-2-2](#), in which DFO has provided information about two streams, tributaries of the Kitimat River, where DFO has assigned higher risk ratings than NGP had assigned. Ms. Griffith asked, “Is an authorization required for any fish habitat that’s impacted or just fish habitat that’s ascribed a value above a certain threshold?” Mr. Engelsjord said that in section 3.1 of their evidence ([Exhibit E9-6-13](#)), they have described “how these things come together.” 3430

Ms. Griffith said that, “The Proponent has ... advised that it does not intend to conduct habitat use surveys at crossings where a HDD crossing method is being proposed.” Does DFO agree with that? Mr. Engelsjord replied, “If the proponent can construct a pipeline crossing using HDD, in accordance with our operational statement for that, the Proponent does not need to seek any review from DFO and does not need an authorization.” 3449 Ms. Griffith’s questioning and the discussion with Mr. Engelsjord about watercourse crossings, construction periods, HADD’s, information requirements and authorizations is quite detailed, and does not summarize well. Mr. Engelsjord has some difficulty understanding some of the questions. Readers interested in these questions should go to the transcript, picking up from these notes at paragraph 3452.

Questions about effects of an oil spill begin at paragraph 3512.

### **Blanket authorizations**

In hearing transcript [Volume 104](#) on November 8, 2012, Ms. Griffith put it to Northern Gateway’s Mr. Anderson that, “for medium risk crossings, Northern Gateway intends to use a streamlined blanket authorization process; have I understood that correctly?” Mr. Anderson replied, “We’ve had many conversations with the Department of Fisheries and Oceans to work out the overall program on the fisheries side for Northern Gateway. We’ve proposed the blanket authorization process that you’ve mentioned is one option that has been discussed.” 29667

Today, November 23, Ms. Griffith asked Mr. Engelsjord about blanket authorizations. He asked her to clarify what she meant. She reviewed the foregoing discussion from November 8 with him, and Mr. Engelsjord said, “Well, I don’t know specifically what Mr. Anderson was referring to and I don’t want to speak for him, but under the Fisheries Act there is -- an authorization may be granted for impacts to fish habitat. There’s -- in our standard operating procedures or under the Act, there’s nothing referred to as a blanket authorization. 3563

Ms. Griffith: “Could you confirm then that DFO does not contemplate and would not provide blanket authorizations?” Mr. Engelsjord: “I can’t really confirm because I’m not certain what a blanket authorization process would be referring to.” 3570

Mr. Engelsjord confirmed that each watercourse requires a case-by-case assessment, and that each assessment requires information specific to that watercourse crossing. 3578

### **Operational statements for permanent roads**

Ms. Griffith said, “The Proponent intends to rely on operational statements for watercourse crossings for permanent roads. ... Does relying on an operational statement eliminate the need for an authorization for a HADD?” Mr. Engelsjord replied, “If the project ... meets the requirements of the operational statement and the Proponent implements the measures required by that operational statement, then their activity won’t require an authorization.” Ms. Griffith asked, “Is that because there is a presumption that the activity will not cause a HADD?” Mr. Engelsjord: “Yes.” 3584

Ms. Griffith asked some questions relating to DFO's monitoring of activities that are done using operational statements. Mr. Engelsjord said that these do not require review or authorization from DFO, though DFO does "request" to be provided with notification. When asked by Ms. Griffith what percentage of operational statement crossings DFO monitors, Mr. Engelsjord said, "That's a bit difficult to say because notification to DFO that a Proponent is using an operational statement is voluntary. So we don't know how many Proponents are notifying us." 3597

### **Volume of proposed HADDs in a watershed**

Ms. Griffith asked if DFO looks at the volume of proposed HADDs in a watershed, the area of habitat that's anticipated to be impacted. "In the Kitimat River watershed for example, will DFO assess the extent of HADD being proposed in that watershed, in the effects that that volume or area of HADD will have on the fish habitat health for the watershed as a whole?" 3607

Mr. Engelsjord said, "Cumulative effects are being considered through the environmental assessment process and, certainly, when DFO does its site-by-site review and contemplates authorizations for those sites, our policy asks us to strive with working the Proponent to offset habitat impacts. So this, in a sense, largely addresses the cumulative effect issue." 3619

### **Habitat compensation**

Ms. Griffith asked questions about habitat compensation. She ascertained that compensation plans are required by DFO prior to issuing an authorization. "So DFO relies on habitat compensation to offset authorized HADDs to seek to achieve no-net loss of fish habitat?" Mr. Engelsjord: "Yes." 3626

She asked how long this has been in place – since 1986 - and does DFO monitor whether its decisions on mitigation and compensation are effective in achieving no-net loss? Mr. Fanos replied that they do have monitoring, or some monitoring, and the results are quite variable. He said, "The effectiveness has ranged anywhere between, I think, 60 and 80 percent." 3636