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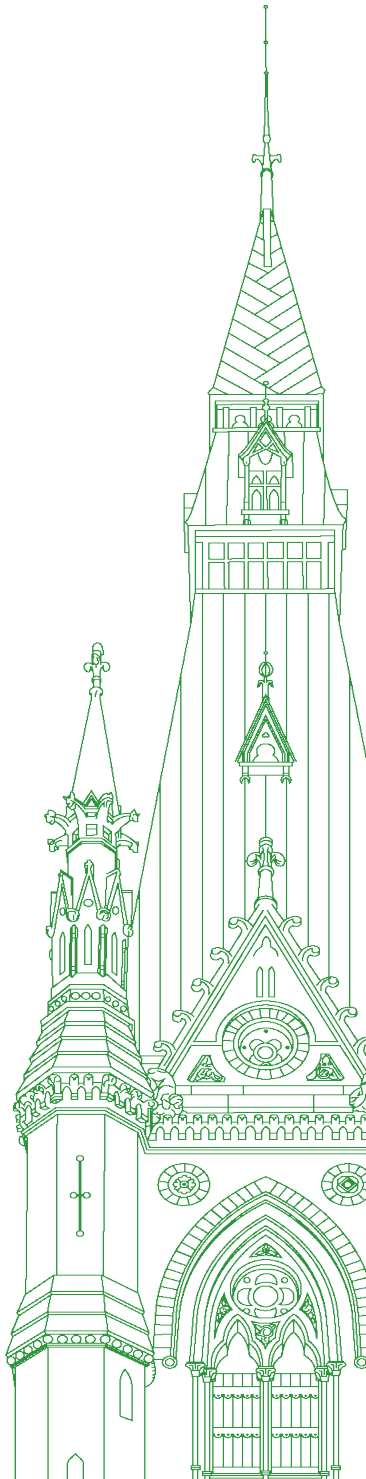

Chair: Mr. Ken McDonald

Standing Committee on Fisheries and Oceans

Thursday, April 28, 2022

● (1140)

[*English*]

The Chair (Mr. Ken McDonald (Avalon, Lib.)): I call this meeting to order.

I'm going to try to cut some of the preliminary information and go straight to the fact that, for those participating by video conference, when you are ready to speak, click on the icon to activate your mike, and please speak slowly and clearly. When you are not speaking, your mike should be on mute. For interpretation, you have the choice at the bottom of your screen of floor, English or French. I'll remind everyone that all comments should be addressed through the chair.

I'd now like to welcome our witnesses for today. We have, from the B.C. Wildlife Federation, Jesse Zeman, executive director. From the Central Coast Indigenous Resource Alliance, we have Charlotte Whitney, program director, fisheries management and science, and we also have Alejandro Frid, science coordinator. From the Fraser Salmon Management Council, we have Michael Staley, biologist. From the Pacific Salmon Foundation, we have Andrew Bateman, manager, salmon health; and Brian Riddell, science adviser. From the Watershed Watch Salmon Society, we have Greg Taylor, consultant and fisheries adviser.

Mr. Zeman, we will go to you first for opening statements for five minutes or less, please.

Mr. Jesse Zeman (Executive Director, B.C. Wildlife Federation): Thank you, Mr. Chair. I will get right into it.

Thanks for the opportunity to be a witness today.

My name is Jesse Zeman. I'm the executive director of the B.C. Wildlife Federation. With over 43,000 members, the B.C. Wildlife Federation is the largest and oldest conservation organization in British Columbia.

In the past, I've spoken to you regarding the peer-reviewed process through the Canadian science advisory secretariat, which is supposed to be a formal, transparent process for providing peer-reviewed science advice to DFO and the public. This process is integral to Canada's Species at Risk Act. As it relates to endangered interior Fraser steelhead, this process was completely undermined by DFO.

An ATIP of the process related to endangered interior Fraser steelhead, for which there were thousands of pages of documents, revealed the assistant deputy minister's office gave a directive to modify some key points related to allowable harm for interior Fraser steelhead. Additionally, the chair of the process indicated they were cut out of the process and expressed serious concerns about the scientific integrity of the process. Furthermore, in these documents the chair states that there were things that happened to the SAR, science advisory report, after they signed it off.

During that process it was also revealed that DFO management, not DFO science, had created its own run timing model, which is the period where interior Fraser steelhead move through the Fraser River. This model was rejected through the peer review process. I believe that DFO management is still using this rejected model to brief the minister.

Years later, the peer-reviewed document called the "Recovery Potential Assessment" has still not been released to the public. I'm not aware of this happening for any other species that has gone through this process associated with the Species at Risk Act.

This summarizes what we found in 2021. Today I'm here to tell you about the next chapter of this saga within the context of science.

On April 8, 2021, the B.C. Wildlife Federation, through ATIP [*Technical difficulty—Editor*] related to interior Fraser steelhead dating back to 2019 on a month-by-month basis. DFO's response was that it would take until at least February 17, 2022, to retrieve these records. Please keep in mind this is a species of fish that DFO does not even manage, so one should expect there are very few records.

A complaint was filed with the Office of the Information Commissioner of Canada on May 18, 2021. On March 16, 2022, nearly a year later, I received notification that the investigator with the OIC determined that the exclusion claimed by DFO was not reasonable given the circumstances. Furthermore, the investigator found that DFO has deemed refusal of access to the requested records. To be clear, the records are not redacted or edited. DFO is simply refusing to provide them. Furthermore, the Office of the Information Commissioner of Canada advised the BCWF that if it wanted to pursue this issue, it would have to apply to the Federal Court for a review.

Now let me make this clear, the information that the B.C. Wildlife Federation is seeking is not a matter of national security. It is about an endangered fish that DFO has hidden science and edited science on in the past. DFO is refusing to disclose records paid for by Canadians. To suggest the BCWF would spend tens of thousands of dollars to take DFO to Federal Court to disclose these records means that transparency within this institution is non-existent. Within the context of science, it means that DFO is willing and happy to not only hide and edit science. It is now happy to refuse to disclose records.

When the media and elected officials wonder why trust in our public institutions is in decline, why people do not participate in public policy debate or why young people do not show up and vote, this is a prime example. This is why the BCWF is losing trust entirely in DFO. The BCWF is not concerned with DFO scientists' ability to conduct science. It is concerned with decision-makers and senior managers' willingness to edit, suppress and hide that science.

Within the broader context of science around interior Fraser steelhead, the BCWF will be funding research through post-secondary institutions with our partners and collaborators. This is not because we expect DFO to listen to independent science. We know it won't. It is because our members and the public need to see the science, and that is something that will not happen with DFO at the helm.

As elected representatives of Canadians, who value science, transparency, accountability and democracy, DFO's consistent undermining of science should be of great concern. DFO is structurally broken. Given the severity of this issue, we have one recommendation: We have to tear down DFO with a full restart and separate DFO management from DFO science, or we will lose what remains of our Pacific salmon and steelhead.

● (1145)

Thank you for your time.

The Chair: Thank you for that. That was right on the five-minute mark. I appreciate that.

I want to say thank you to the witnesses for standing by as we were late starting because of a vote in the House of Commons. We do appreciate that, and we will be adding some time onto the end to make up for most of the time that we lost.

We'll now go to Charlotte Whitney for five minutes or less, please.

Ms. Charlotte K. Whitney (Program Director, Fisheries Management and Science, Central Coast Indigenous Resource Alliance): Thank you, Mr. Chair.

My name is Dr. Charlotte Whitney, and as you said, I'm here as the fisheries management and science program director for the Central Coast Indigenous Resource Alliance, or CCIRA. Previous to this role, I did work with the Pacific Salmon Foundation.

I am calling in today from the unceded and traditional territory of the Nuxalk Nation in Bella Coola, British Columbia. I am joined today by Dr. Alejandro Frid, CCIRA's science coordinator.

Our testimony today pertains to some of our experiences with DFO, an organization that uses and develops science to inform decision-making for managing fisheries and aquatic ecosystems.

DFO can do excellent science. Further, the Canadian science advisory secretariat, or CSAS, process can allow DFO to inform management with the best available science and to be precautionary to future uncertainties related to climate change.

However, there are often disconnects between science advice and management decisions, and between stated policies and what occurs in practice. Where these disconnects occur, they have led to management decisions that maintain a status quo rather than applying the best available science. We've seen these disconnects manifest in several cases, including the northern shelf bioregion MPA network and fisheries for salmon, herring, rockfish and Dungeness crab, undermining precautionary fisheries management.

In the interest of time, I will give just one recent example focusing on assessment and allowable catch for Bocaccio, a Pacific rockfish, and we will conclude with our observations of DFO's consideration of indigenous knowledge.

The Bocaccio case study speaks directly to two themes that we understand this committee is interested in. One is inclusiveness in the CSAS process, and two is the handling of uncertainties and the precautionary principle in management decisions.

Bocaccio was recommended for endangered listing in 2013 by COSEWIC, an independent advisory panel specific to the federal government. As of 2019, Bocaccio had declined by 97% relative to their historical abundance, well into DFO's critical zone. Accordingly, the total allowable catch for this bycatch species was set fairly low at 75 tonnes. However, an unusually large single recruitment event occurred in 2016, 44 times greater than the long-term average.

Given this and the fact that Bocaccio is a choke species, i.e., not targeted but limiting to fisheries with bycatch restrictions, further surveys were prioritized and an updated assessment was produced in 2022, this year. Largely reflecting that large recruitment event, the abundance of Bocaccio was projected to increase well into the healthy zone for the start of this fishing season. In response, DFO managers increased the total allowable catch 24 times over just two years from that 75 tonnes to over 1,800 tonnes.

For a species estimated to have dropped to 3% of its original abundance only two years prior, this is analogous to shifting an entire investment portfolio based on a few good days of the stock market when there are clear signs of a broader economic depression. This increase of the total allowable catch is inconsistent with the precautionary principle. We do not know whether large recruitment events can lead to long-term stock productivity, particularly under rapidly changing ocean conditions due to climate change, which is the biological equivalent of that broader economic depression.

This 24-fold increase in catch was based on a CSAS document categorized as a “science response”, which allows for a non-inclusive group of participants and peer reviewers, in this case just DFO staff and two commercial fishing representatives. The science response process exempts the requirement for participation from independent scientists and first nations, including those working on a species at risk.

Given Bocaccio's recent history of collapse and the implication for target fisheries, this was not illegal but certainly not in line with the principles of transparency or openness.

Finally, given that many targeted and bycatch stocks have outdated assessments or no assessment at all, this case study also raises questions as to how DFO prioritizes stock assessment.

Next I will comment on our experience of how DFO treats indigenous knowledge. Despite numerous DFO policies claiming to consider and incorporate indigenous knowledge and decision-making, for Pacific Canada we are unaware of cases in which DFO deemed indigenous knowledge worthy of triggering an early issue identification to be addressed by CSAS. This is despite first nations and specifically the central coast nations we work for having reported numerous declines in species that are critical to culture, food security and health.

For example, central coast first nations first expressed concerns to DFO about declining Dungeness crab catch rates in 2007, with great impact on food security and cultural practice. It took 10 years of engagement and nation-led western science before DFO managers showed an appropriate response to that concern.

Currently, central coast first nations have been experiencing a similar lack of response to their concerns about the precipitous decline in Pacific salmon, despite investing in nation-led western science. DFO has still failed to consider their consistent direction to limit commercial and recreational fisheries in the face of that decline.

● (1150)

To conclude, I offer the following recommendations for DFO to improve its application of science advice and to consistently apply its own policies and principles.

One, do not compromise inclusiveness in the CSAS process in order to rush either stock assessments or management decisions.

Two, thoroughly engage DFO’s excellent scientists in addressing climate uncertainties in stock assessments, as well as broader questions about ecosystem-based management, in order to advance beyond the current institutional inertia.

Three, abandon tokenisms about the application of indigenous knowledge. Indigenous knowledge often has longer baselines and superior understanding of local ecosystems than western science does and, therefore, should be treated as the valid knowledge system that it is. To do so, DFO should work with first nations to develop a culturally appropriate way to use indigenous knowledge in management, such as to trigger early warning signs about the health of marine species and ecosystems.

Finally, honour and respect existing fisheries and oceans management co-governance agreements and implement those processes wholeheartedly that are inclusive of indigenous knowledge, ecosystem needs and precautionary thresholds.

Thank you, Mr. Chair.

The Chair: Thank you, Dr. Whitney.

Before I go to Mr. Staley from the Fraser Salmon Management Council, I want to remind witnesses and participants to speak slowly and clearly, because if you speak fast, it makes it very difficult for the translation team who are trying to do it in both official languages. I think that would be very much appreciated by all members of the committee.

Mr. Staley, you have five minutes or less, please.

Mr. Michael Staley (Biologist, Fraser Salmon Management Council): Thank you, Mr. Chair.

My name is Michael Staley. I am coming to you from the traditional territory of the Tla-o-qui-aht First Nation on the west coast of Vancouver Island.

I'm a fisheries biologist, trained in population dynamics, and have worked in the field, mainly on Pacific salmon, since the 1970s. In the late 1980s, I started to work in various technical capacities with first nation organizations, mainly on the Fraser River.

I currently work mainly for the Fraser Salmon Management Council and serve as the co-chair of the joint technical committee that reports to the Fraser Salmon Management Board. The Fraser Salmon Management Board was established in 2019 with the signing of the Fraser Salmon Collaborative Management Agreement between the FSMC member nations and the Minister of Fisheries. It's to deal with challenges in the management of Fraser salmon on a migratory route scale.

The Fraser Salmon Management Board has been challenged to fully implement the processes envisioned in the agreement, due in part to a lack of an implementation plan. To date, after our third year, there have been no collaborative decisions made as a result of this collaborative management agreement.

The joint technical committee also tries to meet regularly, although we are challenged with the lack of resources, to prepare briefs and to provide advice to the board in a collaborative way. To date, we've been focused on Chinook salmon fisheries management related to the Fraser stocks that are of conservation concern.

When I started to work with the Fraser first nations about four decades ago, I was one of a handful—I believe there were about three—of western-trained scientists working with B.C. first nations in the field of fisheries. Since then, with the support of federal funding and programs such as the AFS and AAROM, there have been many more well-trained and competent biologists working directly for first nation communities and their aggregate bodies. It is also heartening and appropriate that there are now many and a growing number of the first nations technical staff who are members of first nation communities.

Having lived through the restrained support for science in general and fisheries science in particular that was present in, I guess, the first decade of this century, I'm heartened that there has been increased support for fisheries science in the latter part of the second decade and in this decade. It seems to be returning. Recent federal programs such as the Pacific salmon strategy initiative appear to be used by DFO to help replenish its science capacity.

In recognition of the shared title to lands and resources in B.C. by the Crown and first nations, it is imperative that the science and technical capacity of first nations and their organizations continue to be built. It is only with commensurate support for first nation organizations that first nations can take their rightful role in co-managing the fish and fisheries resource in a collaborative way with DFO.

Thank you.

● (1155)

The Chair: Thank you for that.

We'll now go to Mr. Bateman for five minutes or less, please.

Dr. Andrew Bateman (Manager, Salmon Health, Pacific Salmon Foundation): On behalf of Dr. Brian Riddell and myself, thank you, Mr. Chair and committee members, for inviting the Pacific Salmon Foundation to speak.

For 35 years, PSF has worked to sustain and rebuild Pacific salmon. Dr. Riddell and I combined have studied salmon for over 60 years. The importance of accurate and comprehensive science advice to decision-makers and the consequences of failure to provide such advice are not new topics.

In 1997, the late Dr. Jeffrey Hutchings and others detailed DFO's related failings in the collapse of Canada's Atlantic cod fishery. Thereafter, in 1999, the federal government developed the SAGE principles to support sound science and technology advice, and for years DFO has used science review processes—CSAS and its predecessor PSARC—to advise decision-makers. DFO's current science advice aims are laudable on paper, but principles and guidelines are only as good as their implementation.

Dr. Riddell's and my recent involvement concerns open-net salmon farming in B.C. In 2018, an expert panel convened by Canada's chief science adviser delivered recommendations to DFO for improving the use, generation and communication of science in aquaculture decision-making. Recommendations included the establishment of an external advisory committee. Based on our experience, we would suggest taking this a step further. Science advice itself should be collated, assessed and delivered by an independent body of experts.

To illustrate pitfalls of the current approach, I'll discuss the CSAS risk assessments that stem from the Cohen commission, gauging risk to Fraser River sockeye salmon due to pathogens from Discovery Islands salmon farms. We submit that these assessments revealed DFO's overreliance on the CSAS process, failing to uphold the principles of comprehensive, open, peer-reviewed and independent science advice and conflating good on paper with good in practice.

As participants in four of the nine Discovery Islands risk assessments, we can testify. The findings of minimal risk reflect neither the current state of knowledge nor true scientific consensus. Key risks were omitted. Sea lice, cumulative effects and the conservation status of the sockeye stocks were ignored.

The processes were neither unbiased nor independent. The risk assessments were implemented, closely managed and influenced by senior officials from DFO aquaculture, and employees, contractors and others linked to the salmon farming industry served on the steering committee and as senior reviewers, so that conflict of interest threatened the integrity of the process.

More generally, consensus is held up as a strength of CSAS, but meetings apply strong social pressure on dissenting voices, creating the perfect conditions for groupthink. There is no mechanism for errors to be addressed once the consensus box has been ticked. Further, some international participants abstain from consensus votes, reducing the influence of international perspectives.

In any case, consensus is not a requirement of the scientific process, and the practice of minimizing real disagreement does a disservice to decision-makers and flies in the face of the SAGE guidelines that state that decision-makers should consider the multiple viewpoints received, not just the distilled version of uncertainty used in practice.

Even ignoring problems with the CSAS process itself, we've seen CSAS findings misrepresented by some within DFO. In the case of the sockeye risk assessments, findings have been used to argue that B.C. salmon farming poses no more than a minimal risk to wild salmon. This is absolutely not what the CSAS studies found, being highly specific to the risks from Discovery Islands farms to Fraser River sockeye salmon alone.

Perhaps even worse is that CSAS advice, while supposedly subject to revision as new and relevant information becomes available, is commonly used as a rationale to ignore new findings.

While CSAS review works well at the best of times, it is not in the best of times that decision-makers need the best advice. A good system can be undermined by human foibles. Although CSAS addresses some of the issues raised by Dr. Hutchings and others 25 years ago, Canada can do better. Science evolves, issues evolve and science advice needs to evolve.

In conclusion, we need to fix the current CSAS process, which is run by DFO and entwined with the management preferences, influences and aspirations of the department. Based on our considerable professional experience, Dr. Riddell and I reiterate that Canada should implement a truly independent science advice body to directly advise decision-makers and recommend further research without being subject to vested interests inside or outside DFO.

● (1200)

In addition to many international examples, COSEWIC provides a useful, trusted example in the modern Canadian context. A similar body for fisheries advice could adopt the best features of CSAS while avoiding many of its failings. On the aquaculture front, such a body could go a long way towards restoring the trust that many Canadians have lost in the department.

Thank you.

The Chair: Thank you for that.

We will now go to Mr. Taylor for five minutes or less, please.

Mr. Greg Taylor (Consultant and Fisheries Advisor, Watershed Watch Salmon Society): The fisheries management and the minister's office often fail to incorporate science or national policies informed by science in their decisions. This is nothing new. I spent much of my working life providing advice to Fisheries and Oceans Canada, first on behalf of industry, and subsequently, in the last dozen years, on behalf of first nations and ENGOs.

Decisions now, as in the past, are most often shaped by informal and formal DFO-harvester relations and external politics. Canada has never had—as Alaska has in its state constitution, or the U.S. with the Magnuson-Stevens Fishery Conservation and Management Act—an obligation to ensure decisions are consistent with a science-based management framework.

What has changed over the course of my 40-year career is that the risks to our fisheries from decisions inconsistent with good science are immeasurably greater. This increased risk is driven by the climate crisis, cumulative land and water use impacts and a decision-making process that continues to put fisheries before fish.

In the absence of legal and regulatory frameworks similar to what is in place in Alaska and the U.S., forward-thinking people within DFO, including Dr. Riddell here, who foresaw the coming environmental challenges, began introducing a suite of world-leading science-based fisheries policies, beginning in the 1990s. They are captured under Canada's sustainable fisheries framework.

Unlike many government policies, the SSF is not aspirational. They are the bits and bites of science programmed into policy, and they often provide specific direction to managers. Unfortunately, these powerful science-based policies and the management guidance laid out within them are ignored in management decisions.

It might be argued that I am too strident in stating that they are "ignored", but you'll find the scorecard I supplied separately showing that none of the seven key policies within the sustainable fisheries framework has been implemented when it comes to west coast salmon fisheries—none. DFO officials will argue with my interpretation, saying that managers acknowledge the policies in making management decisions, but acknowledging them is a far cry from either implementing them or being bound by them as managers are in other jurisdictions such Alaska or the U.S.

Recent examples of this failure are not hard to find. In 2019, the Canadian fishing industry, after a decade of DFO's promising to implement its national policies, was forced to drop out of its hard-earned certification of sustainability from the Marine Stewardship Council, losing important and key access to world markets. This year, the minister made an arbitrary decision to cut in half the harvest of herring on the west coast, even though the fishery was consistent with both science advice and policy.

Last year, the minister announced the closure of 60% of commercial fisheries. The decision was not founded on a scientific analysis of what fisheries should be closed. In fact, development of a methodology to decide which fisheries should be closed is only happening now, without direct input from science. It all appears to be much ado about nothing, as managers are not following through on the closures the minister committed to in any event.

Currently, I am working with a B.C. first nation organization that is concerned about the introduction of a new recreational fishery in its territories. None of the sustainable fisheries framework policies has been incorporated in the development of the fishery. The involved first nations are, unsurprisingly, frustrated and angry.

Looking back through the examples I just gave, I'm sure members might agree with some of the decisions made, based on the needs of their constituents or political viewpoints. Many of my colleagues agree with some of the decisions, and herein lies the problem. If science and science-based policy are not front and centre in the decision-making, decisions become about what's best for the fishery in the short term or about dissatisfied pressures from one group or another, not about the long-term benefit for either the fish or the fishers.

There are likely many potential solutions, but I would suggest two practical ones.

The first is a requirement that DFO implement national policies. An independent body should report on the department's progress and provide recommendations where progress is lacking.

The second is that an independent science body should develop science-based performance measures founded in science and policy for every fishery. Each fishery's performance would then be reviewed, say, every four years. The independent body would evaluate whether the performance measures are being achieved and where they are not, and it would recommend guidance, along with a timeline for achieving them. It could also, if necessary, amend the performance measures.

● (1205)

Not only would the above recommendations encourage science to take a leading role in fisheries decisions, it would go a long way towards rebuilding trust in Canada's fisheries managers and management system.

Thank you.

The Chair: We'll now go to our rounds of questioning by members. I will remind members there are about seven witnesses here today, so if you identify who you're addressing your question to, it might make better use of your time. I think there are five organizations and a total of seven witnesses.

We'll go to questioning. We'll start off with Mr. Arnold for six minutes or less, please.

Mr. Mel Arnold (North Okanagan—Shuswap, CPC): Thank you, Mr. Chair.

Thank you to all of the witnesses. As the chair mentioned, time is short, so if you have a very long answer, please provide a brief statement and follow up with a written response. It would be appreciated.

I'll start off with Dr. Bateman, if I could. Dr. Bateman, how many CSAS processes have you participated in?

Dr. Andrew Bateman: Personally, I've participated in two.

Mr. Mel Arnold: Could you tell us briefly what your experience was in the *Tenacibaculum* CSAS process?

Dr. Andrew Bateman: I would say that my opening statement really summarizes my experience. There was a great deal of both DFO and industry influence over that process, and dissenting voices were all but bulldozed, such that the resulting advice document doesn't reflect the true reality of opinion.

In addition, there's a critical flaw in that assessment, which I won't get into here for technical details, but I can provide a summary in my written materials.

● (1210)

Mr. Mel Arnold: That would be great. Thank you.

If new information, such as scientific data, emerges after a CSAS process is completed, does DFO have a protocol for reconsidering the previously determined risk level and taking into consideration the new information?

Dr. Andrew Bateman: The CSAS advice document itself states that they will take new evidence into account. However, in my experience as a publishing scientist working on *Tenacibaculum* and the risk specifically to Fraser River sockeye at the moment, I can say that my work has been effectively brushed off by the department.

Mr. Mel Arnold: In your opinion, is the CSAS process as robust and credible as peer-review processes of the scientific community outside of DFO?

Dr. Andrew Bateman: In my opinion, absolutely not. I think it's subject to the abuses I detailed in my opening statement, and it needs to be fixed or completely replaced.

Mr. Mel Arnold: Thank you.

I'm going to move on now to Dr. Riddell. Dr. Riddell, you've headed the strategic salmon health initiative, which was established in 2013, after the release of the Cohen commission report. The SSHI was established as a partnership of DFO, Genome BC and the Pacific Salmon Foundation, with an eight-year mandate to complete four phases of scientific investigation that the Cohen commission prescribed.

Is that correct?

Dr. Brian E. Riddell (Science Advisor, Pacific Salmon Foundation): Yes, it is.

Mr. Mel Arnold: Testimony provided to this committee suggested that SSHI is lapsing prior to the completion of the essential fourth phase of its mandate. I believe this occurred because of an absence of funding from DFO.

Can you tell us what the current status of the SSHI is and what resources, if any, DFO provides to SSHI?

Dr. Brian E. Riddell: SSHI as a program has terminated in terms of the joint funding, but the Pacific Salmon Foundation is continuing work in that field. That's being led by Dr. Bateman. The problem that you're referring to is not quite correctly expressed.

There were four phases. The first two phases were completed. The third phase, which we've received criticism on, was to do controlled experimentation that requires a facility with an extensive laboratory. We knew that this was a limitation at the very beginning, and we strove through two or three opportunities to try to build such a facility. In the end, we never reached an agreement with the local universities to construct that in order to conduct the controlled challenges.

The fourth phase that you were referring to was a workshop and final reporting, and that was conducted. The controlled experimentation was not, and it could still be undertaken, but it would require funding to ensure the establishment of an appropriate experimental centre. It would not be cheap. We had completed a full design of a centre working with Vancouver Island University.

At that time, it would have cost us approximately $350,000, but that assumes that they had the space, the water and the filtration, etc. The actual cost would have to be developed depending on where we built such a facility.

Mr. Mel Arnold: Thank you.

Was part of the funding required, perhaps in the planning process, to come from DFO for that project?

Dr. Brian E. Riddell: There was no commitment from DFO in the beginning. If there was a commitment, it was Genome BC, which has largely provincial funding in that. They were committed to providing funds to build the centre, but as I said, we went through several tries and never succeeded in accomplishing that.

Mr. Mel Arnold: Thank you.

I'll move on now to Mr. Zeman. I have only a few seconds left here.

As the leader of a conservation organization with resource users, fishers and so on, can you tell us why it is important for DFO to provide Canadians with the science that the department uses for making management decisions?

Mr. Jesse Zeman: Absolutely. I think all of the witnesses.... I feel like we're all saying the same thing.

When there is good science and it affects DFO management, that science is hidden or edited or suppressed from Canadians. Everyone is scratching their heads, going, “Why are Pacific salmon headed for extinction, and why are the interior Fraser steelhead? We have 68 fish in one river and 32 in another. Why is that happening?”

The public can't know that, because DFO will not share the science. That's why it's important.

● (1215)

The Chair: Thank you, Mr. Arnold.

We'll now go to Mr. Hardie for six minutes or less, please.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Thank you, Mr. Chair.

Thank you to all of the witnesses. I think we're going to get a lot of information here today.

My first question will go to Mr. Zeman, but I want Dr. Whitney to know that I'm going to ask her about science and other factors that need to be considered in ministers' decisions.

Mr. Staley, I'm also going to ask you about the essential elements of truly objective research, including the development of reporting.

First, though, Mr. Zeman, in our long history of all of the hearings that we've had, it seems that when the minister comes down with a decision—we're going to fish or we're not going to fish—the people who want to fish will come up with their own science when the decision is that we're not fishing. The reverse is also true.

How do we deal more effectively with the whole issue of duelling science when it comes to these decisions?

Mr. Jesse Zeman: I think, when you look at the structure of DFO, the challenge is that management oversees science. In a sense, then, management trumps science. If you want independent science, you're going to have to make an arm of DFO that provides science that's shared with everyone. The way it works right now is that it is filtered through DFO management, through the RDG, through the minister's office and up to the minister. I can tell you that the minister right now, even, is not getting the science that's being provided by DFO science.

This is an issue about the separation of church and state. Making decisions is one piece. The science is the other. The science has to be clear and unfettered, whether DFO management likes it or not.

Mr. Ken Hardie: Thank you, Mr. Zeman.

Dr. Whitney, my question for you is this. Put yourself in the minister's shoes: You're the minister. You get the science, but what else do you think you should consider when it comes to making decisions that, let's face it, can affect either the health of the stock or the livelihood of the community?

Ms. Charlotte K. Whitney: Thank you, Mr. Hardie.

I think that's exactly the problem, and I think Jesse is pointing it out well. With ministerial discretion and the final decision, it should be directly informed by science in this case. I think, as Mr. Taylor spoke about, we're having those decisions influenced after the fact. I think that's the reality that we're all speaking to here today. In the past, there have been advisory groups from various stakeholder sectors that have had undue influence on the final decision that we see realized in management. That's exactly what we still continue to see today.

I will say as well that there is significant bias in the various groups that have that influence on the minister and the decisions she makes. That is a consistent problem that we see, specifically comparing, for example, the influence that indigenous groups have over decisions in management versus industry.

Mr. Ken Hardie: Don't you think it's fair that stakeholders...? Let's face it, the name “stakeholders” means that they have a material interest in what the minister decides. Should they not have a seat at the table and, if you like, an oar in the water when it comes to these decisions?

Ms. Charlotte K. Whitney: That depends on your paradigm.

I think that we here at the panel today support science-based decision-making. It is critical to the success of supporting our fish and, therefore, the success of our fishers long term; whereas if we're just supporting fisheries in the short term, that influence is very problematic.

Mr. Ken Hardie: Thank you.

Mr. Staley, outline, if you as a biologist can, the essential elements of truly objective research: the development, the structure of the research project and the reporting.

Mr. Michael Staley: I'll try to do that in the context of first nations participation in these kinds of activities.

I'll choose the latter, which is how the communication of the science gets to the decision-makers. In the work I'm doing now under the Fraser Salmon Collaborative Management Agreement and the board, the model is that the DFO participants or members of the board are at the senior director levels in their region, so at least in another model, they're part of the gatekeepers for information to the minister.

This agreement calls for them, together with the first nations participants delegated to be there by their communities—and from 76 communities in this case—to meet and to try to provide consistent, connected and agreed to advice to the minister.

That model would circumvent having that level within the department providing alternative advice to the minister. It doesn't completely discourage it, but what they're saying to the participants and the other members of the board and what they're saying to the minister should be consistent. That's why—

● (1220)

Mr. Ken Hardie: I think we'll have to call it at that because I think the chair is about to wave me off here.

Thank you very much.

The Chair: You could read my facial expression, Mr. Hardie. You were dead on.

We'll now go to Madame Desbiens for six minutes or less.

Go ahead, please.

[*Translation*]

Mrs. Caroline Desbiens (Beauport—Côte-de-Beaupré—Île d'Orléans—Charlevoix, BQ): Thank you, Mr. Chair.

My question is for Mr. Zeman.

Do you think an ombud or auditor general who would promote scientific opinion to the Minister could be a solution?

[*English*]

Mr. Jesse Zeman: Yes. Having an auditor general or some sort of ombudsman would add value, but again, the structural piece in this is the separation between DFO management and DFO science.

Just to dig into the details a little bit more, the person who is in charge of species at risk within DFO actually reports to DFO management, and that is extremely uncommon in the structure of the Government of Canada. Typically species at risk people—employees or staff—and processes are separated from science.

There is always room for more independence, and I think we're hearing that people really want independence here in terms of science. The reason for that is that the current structure is broken. If we had a structure in which DFO scientists were able to do their jobs in isolation without being fettered by managers and senior managers, everything would be okay. We're all coming to different conclusions with the same fundamental problem. You have to remove DFO management from DFO science. That's the fundamental issue.

Auditors general are great. Mind you, I've filed numerous complaints with the Auditor General of Canada on this specific issue and haven't heard anything back, so I'm not sure if that system is working properly either.

[*Translation*]

Mrs. Caroline Desbiens: I've already talked about the capelin situation. You may not be aware of it, but we have made a lot of effort in Quebec so that the situation on the ground is taken into consideration in the ministerial decision.

Do you regularly see departmental scientists or public servants on the ground?

[*English*]

Mr. Jesse Zeman: Do we see scientists on the ground? That's the question, I assume.

[*Translation*]

Mrs. Caroline Desbiens: Yes.

[*English*]

Mr. Jesse Zeman: Yes, we do. Again, in the context of steelhead, there are scientists within DFO science who have a really good handle on steelhead, understand steelhead ecology and participated in the CSAS process.

Yes, I would say DFO scientists are competent. They know what they're supposed to be doing. They provide good advice. The problem is that the advice is not listened to. It is edited by the minister's office, it's edited by their boss or, in the most recent case, it is just not given to the public.

I think that's the challenge. It's not a competence issue, I guess, is what I'm trying to say. It's an issue of structure within DFO.

[*Translation*]

Mrs. Caroline Desbiens: Thank you very much.

Mr. Taylor, what do you think might be a quick solution to the department's lack of communication with scientists or its lack of consideration for them?

● (1225)

[*English*]

Mr. Greg Taylor: I did not receive the translation.

[*Translation*]

Mrs. Caroline Desbiens: What do you think would be a quick and effective solution to improve the communication of the Department of Fisheries and Oceans with and consideration for scientists? What do you think would make things better?

[*English*]

Mr. Greg Taylor: I'm sorry. Again, if that was directed to me, I'm not getting translation through.

The Chair: Okay. Have you selected “English” at the bottom of your screen for the interpretation? I'm getting it interpreted in my ear, while it's being said.

Mr. Greg Taylor: That was good advice. I found it. Thank you.

Mrs. Caroline Desbiens: I'm sorry, Mr. Taylor. I'm from Quebec.

The Chair: We'll ask Madame Desbiens to start her question again. I won't dock her that time.

[*Translation*]

Mrs. Caroline Desbiens: Thank you, Mr. Chair.

Mr. Taylor, given you knowledge of the system, what solution do you think could be applied to increase the Department of Fisheries and Oceans' consideration of scientific advice?

[*English*]

Mr. Greg Taylor: I think Canada has a system in place that would be extremely effective in turning science advice into good management decisions. It's just that managers have not implemented it.

We have a policy structure in place that would allow good science to influence decisions, but, as I say, it has not been implemented. That's why I would propose, as some other people on the panel are also proposing, that you have to have some sort of independent body to monitor the implementation and monitor the science.

Mr. Hardie was quite correct. There are often different versions and different interpretations of science. Stakeholders have to be involved. There has to be some consideration of how to implement science. We have that in those policies. What we don't have is transparency, like Mr. Zeman says. We don't have that kind of oversight that we need. We need more involvement of first nations.

We have the basic structure. We do not have the follow-through, and we do not have the independent monitoring or oversight that's required to ensure that it is done.

[*Translation*]

Mrs. Caroline Desbiens: I was saying to Mr. Zeman earlier that there could be an ombud or auditor general who would independently ensure not only that scientific advice is communicated, considered and implemented, but that it is an overriding factor in the decision-making of the Department of Fisheries and Oceans.

Are we in agreement on that?

I'm talking about scientific advice, indigenous knowledge and, of course, on-the-ground knowledge.

The question is again for Mr. Taylor.

[*English*]

Mr. Greg Taylor: Yes, in terms of first nations involvement on the ground, I think that's critical.

As I say, I'm working with first nations right now. What I find is that they are often at the mercy of DFO data, DFO science and the DFO interpretation of that science. They lack the capacity and the dollars to interpret and to do their own science and ensure that their territories and the fish stocks within their territories are being managed according to the best science. As Dr. Whitney alluded to, that science involves their own traditional knowledge as well and being able to incorporate that.

I think first nations need more resources and more independence and, other than people like me or consultants who are also working off the corner of their desk on a shoestring, they need the resources to be able to do the job. They are the managers of their resources. They can't do the job that needs to be done if they are dependent upon what we're all describing here, what all the witnesses are describing: a broken DFO system. First nations are truly at a disadvantage right now in the current system, I believe.

● (1230)

The Chair: Thank you, Madame Desbiens.

I will remind members of the committee to please identify who your question is for, because you're losing time simply by staring at the screen.

We will now go to Ms. Barron for six minutes or less, please.

Ms. Lisa Marie Barron (Nanaimo—Ladysmith, NDP): Thank you, Chair.

Building off some of the information that Mr. Taylor was speaking about, I was hoping to direct my question to Dr. Whitney.

Before I do so, I want to thank all the witnesses for being here today.

Dr. Whitney, I really appreciated many of the comments you made around the importance of indigenous knowledge, the capacity for utilizing this indigenous knowledge and early identification of issues and avoiding tokenism. These are all really important points.

I was hoping that you could expand a little more on how, in your organization at the Central Coast Indigenous Resource Alliance, scientific data sits alongside indigenous forms of knowledge. Can you provide some examples and how that works in practice?

Ms. Charlotte K. Whitney: Absolutely, and thank you for the question. It's very important and integral to the work we do.

I think I spoke in my opening statement to the value of indigenous knowledge as a space with a much longer-term view and understanding of resources and ecosystems, driven by the people that have lived there for thousands of years.

One of the things that I think we often really appreciate and value in that knowledge system is, as I spoke to you about, an early trigger, an early issue identification. That's something that is really critical and I think relates well to the staged principles around the first specific principle. One thing we find in practice is that the nations we work with and for will raise those issues and identify an opportunity, a concern, and in our case a collective concern for central coast nations working together.

That then drives further western science, potentially, and research, as well as synthesizing and gathering further indigenous knowledge to drive management decisions, and then, if you think about a feedback loop, monitoring and evaluation, and then improving or adapting those management decisions accordingly.

Those two different knowledge systems—western science and the data that can be derived from that knowledge system—can really go hand in hand or—I think many people have used this term—there's a "two-eyed seeing" approach, where indigenous knowledge and western science can really work together to drive management decisions as well as research.

Ms. Lisa Marie Barron: Thank you, Dr. Whitney.

Ms. Charlotte K. Whitney: I see that my colleague, Alejandro Frid, also has raised his hand.

Ms. Lisa Marie Barron: Thank you, Dr. Whitney. I really appreciate the information. Perhaps your colleague could provide some additional information in written form. I have some other questions I wanted to get to, but I so appreciate your very well-described way of incorporating indigenous knowledge into all the processes we undertake. Thank you.

In my next question, I was hoping to speak to you, Mr. Taylor. It's nice to see you again.

I wanted to ask you to expand a bit on how earlier this year Watershed Watch and SkeenaWild published a significant report around the Alaskan interception of B.C.-bound salmon. One of the things that stood out in this report was that it was recognizing the limitations of the available data and saying that there were many holes and that some of the data was decades old.

Can you speak to this and perhaps speak to some of the challenges and expand on our previous conversation around this, please?

● (1235)

Mr. Greg Taylor: Certainly. This issue of Alaskan interception goes to the core of what we're talking about. Much of the information in our series of seven reports on the Alaskan interception of B.C. salmon did not come from DFO. It came from Alaska's Department of Fish and Game and the Pacific Salmon Commission. The DFO is not a holder of the best or most complete data or science. That certainly was telling.

What's more than telling is, as we've often said, these interceptions would not be happening in Alaska if these were Alaskan fish. It's only happening because they're B.C. fish. The difference is Alaska's jurisdiction and state constitution would not allow this to happen in Alaska. We don't have that sort of thing in Canada, as I was saying before, where we have either independent oversight or a legal framework where you must incorporate science in managing fisheries.

Also, one of the real core problems we had was that we could identify interceptions of Canadian fish in Alaskan fisheries. We know they're severe. All over the coast, we've drawn a map now showing those impacts throughout the B.C. coast. Can we tell you what the impacts on those individual stocks are? No. The reason is that none of those policies under the sustainable fisheries framework have been implemented. The key of these is the one Dr. Riddell wrote on the wild salmon policy. It's not being implemented anywhere, so we don't know the status of most of our Canadian populations. We don't know their benchmarks—that is, where they're at risk and where they're not. We don't know what the recovery plans should be when they are at risk. We just can't measure impacts. We know the catch now and we've identified the catch, but we don't know the status of our own stocks.

That's such a complete failure of Canada to do the basic job of understanding our core fish populations and the status of them. It's gobsmacking. It's something I addressed when I talked about the Marine Stewardship Council certification. That's why they pulled it. We aren't doing that core basic science. It really condemns DFO's management. What really frightens many of us is that this is in place at a time when climate change and the climate crisis is impacting fish.

The Chair: Thank you, Ms. Barron.

We'll now go to Mr. Zimmer, for five minutes or less, please.

Mr. Bob Zimmer (Prince George—Peace River—Northern Rockies, CPC): Thank you, Mr. Chair.

I appreciate everybody who is attending this morning.

My first question is to Jesse Zeman.

Jesse, I brought up your situation in the House a couple of years ago. I'm just going to quote from the article on the BCWF website:

> DFO Rejects Science, Risk Extinction of Steelhead Runs....
>
> "Thousands of pages of federal government documents obtained under Access to Information and Privacy (ATIP) reveal that scientific advice on these endangered steelhead populations was undermined, edited and hidden from Canadians by the Department of Fisheries and Oceans,"....

That's in your own words, Jesse.

I just wanted to ask this for the benefit of us in the room here. What did you discover that the Department of Fisheries and Oceans was doing to the science around steelhead?

Mr. Jesse Zeman: Thanks for the question.

I did touch on this briefly in the presentation. Specifically, what comes out of that ATIP—and of course, these are not my words; this is what was revealed by DFO employees—is that, first of all, the chair, who is a DFO employee, said that he was concerned that the scientific integrity of the process had been impaired. There are documents revealing that the assistant deputy minister's office gave a directive to modify some key points related to allowable harm. Also, DFO management—not DFO science, and this is the critical piece again—created its own run timing model.

First of all—and you need to be a bit of a geek on this stuff—they could not get the model to converge. There's your first red flag. The second red flag was that the model looks like this, and essentially what the model says is that there are no steelhead in the Fraser River until September 1. I have pictures of steelhead that were killed hundreds of kilometres up the Fraser in August two years ago.

Again, if you don't like the science, you make up your own. I believe they're still using their science to brief the minister, even though that science was thrown out through the CSAS process.

● (1240)

Mr. Bob Zimmer: Thank you, Jesse, for that.

We just recently saw a science-based fishery that could have opened rejected by the minister and, really, the DFO top officials. The science is clear, but they're still making their own decisions.

I'll move on to Brian.

Brian, it's good to see you again. We've appreciated the work you have done over these many years with salmon but also in the angling community. I have some friends, like you, who have been around for a long time. It used to be that the angling community, the conservation community and the department worked hand in glove, together, to get good science and to get good expertise on the water to make good decisions. What is that relationship like now?

Dr. Brian E. Riddell: I think the opportunity is still there. The collaboration varies with the particular question and the time.

We in science now generally talk about an activity called citizen science. There are multiple levels of this now because the first nations don't want to be considered citizen science. They have their own science opportunities. We have a number of scientific communities that really need to collaborate with some of these things. The department cannot collect data at the micro-scales that citizen scientists can. First nations, in this case, can collect data in very specific locations.

I think the information you were talking about, Bob, was really referring to work around the Strait of Georgia and Juan de Fuca. We call it the Salish Sea.

I'll give you a really great example of how powerful involving communities can be. If you do a government survey of this Strait of Georgia, it's a 10-day survey sampling 80 sites. If we use citizen science by engaging community people with vessels, we sample the entire Strait of Georgia with the same number of sites, in a single day. The opportunity there is that we can do multiple samplings, and we can sample it at a time and space scale that is impossible using large vessels. There are all sorts of opportunities for these collaborations.

Mr. Bob Zimmer: If you are saying that this is something we should strive towards, where is that relationship at right now?

Dr. Brian E. Riddell: I think the relationship is still there. It's just a matter of whether there are questions that can be addressed by using that collaboration. Do we have an agreement on how we would undertake it? I think the opportunity for the department now is that, with the new money through the Pacific salmon strategic initiative that Mike Staley referred to, you can engage these groups that provide excellent information, particularly using our new technologies.

The Chair: Thank you, Mr. Zimmer. You have gone over your five minutes.

We'll now go to Mr. Hanley for five minutes or less.

Go ahead, please.

Mr. Brendan Hanley (Yukon, Lib.): Thank you very much.

Thank you to the witnesses for the fascinating testimony.

As a public health physician, especially having been managing the public health response to the pandemic in the last couple of years, I certainly recognize many of the similar themes about the distinction between the science and making sure the science is there, and the many factors that influence a policy decision.

The first question I have is for Mr. Staley.

You talked with some diplomacy about the muted science that occurred during the Harper era. I think it's important to be very clear about how destructive that was not just for fisheries science but also in general for promoting and practising evidence-based policy in the federal government.

Specifically, you also mentioned the Pacific salmon strategy. This is important for me as a Yukon representative. I wonder if you could discuss the role of science in the Pacific salmon strategy and how you hope to see science and traditional knowledge advance the work that we need to do to implement the strategy.

● (1245)

Mr. Michael Staley: Thank you for the questions.

On the last one, I see it as.... The first nations in the communities that we serve are on the ground, and they are the holders of their information and their science, as has been pointed out by others here today. We see that this has to be dealt with respectfully, not only in passing, for lack of a better word, but also in feeding up to or collaborating with the information, the issues and interests of others.

I don't know the answer to the first question for sure.

I'm involved in an experiment right now on how that might work with the Fraser Salmon Management Board and the collaborative agreement. To date, it hasn't touched the ground nor gotten traction, in part because it's a new thing. As we all know, DFO is challenged with changing quickly. That's how I see the second part of your question.

On the first part of your question, yes, I experienced working with first nations through the first part of this century and basically the withdrawal from the field of science and data. For many of the stocks that we work with, there are big holes in the databases around spawning enumeration, the quality of that, even the quality of some of the fisheries enumeration.

As I said in my opening remarks, I'm heartened to see that we've recovered some of that, but unfortunately, when you're managing some of the longer-lived animals, you need a longer-time series, and we, unfortunately, have that missing piece.

Mr. Brendan Hanley: Mr. Staley, I'm going to have to cut you off because my time is so limited.

I want to go to Dr. Riddell.

You also mentioned the Pacific salmon strategy. What are the opportunities for really taking some of these lessons and applying scientific knowledge and traditional knowledge to the Pacific salmon initiative?

Dr. Brian E. Riddell: I have to apologize because I really cannot answer your question.

I have not been able to participate in any consultation about the PSSI. I hear rumours of it, because I managed the entire stock assessment staff for the Pacific for about 10 years and I still have lots of friends and co-workers. I hear rumours, but nothing more than that. I really have no basis on which to answer your question at this time.

Mr. Brendan Hanley: Thank you.

In my remaining seconds, I'll get Dr. Whitney to comment briefly.

The Chair: It will have to be very brief.

Ms. Charlotte K. Whitney: It's no problem. I can speak to that as the program director for an indigenous organization.

We've been actively reaching out to the PSSI team. I think “silos” is a really good word to use when referring to this new subsection within the department. They don't seem to know how to work with first nations in the context of any of the four pillars of the PSSI. They are consistently saying that they have to do more thinking and will get back to us.

It's been about a year—we're coming up to a year as of July—since the first closures were released under the PSSI, and it is incredibly hard to understand or see transparency in the process, including in how the initial PSSI closures will be continuing this year. As Mr. Taylor said, there's a great deal of inconsistency in how that's going to be implemented this year, which is leading to considerable problems on the ground.

The nations I work for are still wondering whether the closures will be continuing this year, as they were announced year as long-term closures, or whether they will not be and if they'll be open to fisheries. I think there are considerable challenges with the linkage between the science driving those management decisions...or not.

● (1250)

The Chair: Thank you for that.

We'll go to Madame Desbiens for two and a half minutes, please.

[*Translation*]

Mrs. Caroline Desbiens: Thank you, Mr. Chair.

I will continue with you, Ms. Whitney.

Yesterday, on our side, we met with a group of fishers from the Gaspé, specifically herring and mackerel fishers. I know there has been a lot of talk about Pacific salmon and the problems in the west, but I would like to draw your attention to the situation in Quebec.

We realize that the Department of Fisheries and Oceans seems to want to close down small pelagic fisheries. Fishers who fish with hook and line, for example, now find themselves penniless and have nothing in front of them. The decision is supposedly linked to the scarcity of fish. In addition, we were told that only they were required to report their catches in order to do indicative fishing. Fishers are wondering who will measure the resource from now on if they are prevented from fishing.

What do you think about the closure of the herring and mackerel fishery this year? Do you have an opinion on that? Can you relate it to the problems you're experiencing?

[*English*]

Ms. Charlotte K. Whitney: I'm not familiar with those specific regional fisheries, as I'm sure you can imagine, but we had similar challenges in B.C.

This year, the minister unilaterally declared herring fisheries closed, as Mr. Taylor mentioned, including our nation's spawn on kelp fisheries, which are specifically identified in the integrated fisheries management plan as sustainable. There is no scientific basis for that closure.

Again, I'll emphasize the unilateral nature of that decision. Specifically, some of the nations that we work for have long-standing co-governance agreements for those fisheries, and up until that ministerial decision, they'd had significant discussions with the department around planning and implementing that fishery this year.

I think one thing that speaks to is uncertainty and data gaps, especially in areas that have less western science but have significant local or traditional and indigenous knowledge that can speak to management decisions that actually make sense for the people who are living in that land or seascape.

An earlier question asked how indigenous knowledge can support and marry with western science. It's particularly helpful where there are data gaps or uncertainty and in areas that are less studied or are not at the right scale for the current integrated fishery management regime or DFO's region-based approach.

Salmon is another really good example. In the region where I work, no integrated stock status assessments are done for any of our stocks across five species of Pacific salmon, yet fisheries are enacted annually. The nations therefore carry the burden of evidence to show that a fishery should not proceed versus having the fishery show they should be implemented.

We're operating in a completely data-deficient space.

[*Translation*]

Mrs. Caroline Desbiens: Thank you.

[*English*]

The Chair: Thank you, Madame Desbiens. We've gone quite a bit over your allotted time.

We'll go to Ms. Barron for two and a half minutes, please.

Ms. Lisa Marie Barron: Thank you.

I was hoping to direct this next question to Mr. Bateman.

Of course, this is front of mind for many right now. I was wondering if you could touch on the recent Discovery Islands decision around the open-net pen fish farms and the science that was used and relied upon in these decisions.

Could you speak specifically to areas such as sea lice and the information around that, please, which may or may not have been meaningfully used in these decisions?

Dr. Andrew Bateman: Thank you for the question.

As I mentioned in my opening statement, the risk assessments that were done had several, what I consider, fatal flaws. In the case of sea lice and the cumulative effects of the other pathogens that were considered, there was no risk assessment done. It's mind-boggling, to be honest, because sea lice are such a high-profile example of a risk coming from salmon farming.

There is a great deal of new evidence that could have been considered at the time of the risk assessments to gauge the risk from sea lice. In particular, there is DFO science that says that sockeye salmon are at extreme risk from sea lice, relative to Atlantic salmon on the farms. There is what I would consider a degree of damning evidence with regard to sea lice that was actively ignored by the policy decision of choosing not to perform a sea lice risk assessment.

● (1255)

Ms. Lisa Marie Barron: Thank you, Mr. Bateman.

I wanted to loop back to Dr. Whitney. I have allotted some space for your colleague, if he wants to take the opportunity to expand on my question about the importance of indigenous knowledge.

I wonder if your colleague wanted to comment.

Mr. Alejandro Frid (Science Coordinator, Central Coast Indigenous Resource Alliance): Thank you for the opportunity.

I'll give you a very concrete example that refers to the longer baselines of indigenous knowledge and how they can benefit the process.

A colleague and I did an analysis of fishery-independent data that shows very rapid declines in the size and age structure of yelloweye rockfish. Those time series did not start until 2003, which is long after commercial fisheries had already caused tremendous declines in that and many other groundfish species.

If we just look at the picture that we analyzed between 2003 and 2015, from DFO's own survey data, we see a decline of about half a centimetre per year in the average size of yelloweye rockfish and an average decline of about 10 months per year in the average age of yelloweye rockfish. This has tremendous implications for fecundity, because larger females are disproportionally more fecund than smaller females per unit of body size.

This was in 2003, at the start of the time series. Looking at indigenous knowledge through structured interviews, we reconstructed the body sizes of yelloweye going back to the 1950s or so and how, in the catches of indigenous fishers, those sizes changed over time. Between 1980—which is before any of these scientific surveys had begun—and 2000, we see a decline of nearly half the average size.

If we only look at the scientific data, we will have a shifting baseline of what would have been considered normal. It would be starting in 2003, which is about half the body size and disproportionally lower fecundity that was there before the commercial fisheries got under way.

That's one example.

The Chair: Thank you for that.

Ms. Barron, you almost had a five-minute round. You're at that time.

We'll now go to Mr. Small for five minutes or less, please.

Mr. Clifford Small (Coast of Bays—Central—Notre Dame, CPC): Thank you, Mr. Chair.

I have some questions for Mr. Zeman. Are you familiar with the Korman report on the emergency recovery potential for B.C. steelhead?

Mr. Jesse Zeman: Yes, I am aware of it.

Mr. Clifford Small: Are you aware that Korman and his team wrote that pinniped predation is an important factor driving steelhead decline?

Mr. Jesse Zeman: Yes.

Mr. Clifford Small: Was that included in the final document that was produced in CSAS, or was it left out?

Mr. Jesse Zeman: Yes. There are two pieces to that.

When you refer to the Korman report, you're referring to the recovery potential assessment document, which was conducted by three authors. Korman was one of them. He's independent. Another one was with the provincial government, which has the responsibility of managing steelhead. The third was with DFO.

This recovery potential assessment report was conducted and was then peer-reviewed by, I believe, 42 different managers and researchers, and it was sent up. That report still has not seen the light of day. Years later, it has still not been disclosed to the public.

In British Columbia, we have a bit of tennis match that happens between the province, around managing freshwater resources, and DFO, around managing pinniped predation. I would say that there is a lot of science on both ends. Both are failing in their responsibilities to adequately fund science and to implement science-based decisions to move salmon forward.

● (1300)

Mr. Clifford Small: Does it make sense that Korman's clear conclusion based on research could simply be discarded by the CSAS process?

Mr. Jesse Zeman: It certainly doesn't because the process is supposed to be a peer-reviewed, transparent process that is used to inform both DFO and the Canadian public, and it's impossible to inform the Canadian public about a document that has never been released to the public.

Mr. Clifford Small: For Mr. Riddell, pinniped populations have grown tenfold to fifteenfold for various species and are projected to grow at 10% per year going forward.

How much of a factor do you think the growth of pinniped population has played in the rebuilding of fish stocks in coastal B.C.?

Dr. Brian E. Riddell: Your numbers are not quite correct at this time. Among the pinnipeds on the coast—and we're talking basically of the seals, including some of the larger fur seals moving down the coast—the harbour seal population through B.C. has been pretty stable for about 20 years, but it grew at the rate you're talking about when hunting was finished in the early 1970s. For approximately 20 to 30 years now, there's no question in people's minds that the role of pinnipeds has increased as a controlling factor.

Do we think it could prevent recovery of salmon? No, we do not. It would potentially be a mortality factor that we would maybe have to remove from an opportunity to fish, for example. One of the things that people struggle with is that you can only kill so many fish to sustain a population. You can kill it by a seal or you can kill it by a fisher, or you can kill it by industrial development. The bottom line is that it's all mortality and has to be accounted through accurate stock assessment and then management.

But it does not have to be the limiting factor to recovery.

Mr. Clifford Small: My figure on the growth of those populations goes back to 1970.

Do you think we should have a pinniped management initiative to go hand-in-hand with other fisheries policy?

Dr. Brian E. Riddell: If you're referring to a pinniped management plan, then yes, it would be an opportunity to control the population and its effect. That does not equate to a predator removal plan. It could be a change in how we still manage log booms in Canada on the west coast. It could be a factor of restoration of estuaries that are, to a very frequent extent, highly disrupted, so it removes the habitats that salmon, for example, use for protection and feeding.

As long as you're talking about a pinniped management plan that is not equivalent to an immediate harvest and removal, then I would agree with your statement.

Mr. Clifford Small: Thank you.

The Chair: Thank you, Mr. Small. Your five minutes is up.

We'll now go to Mr. Morrissey for five minutes or less, please.

Mr. Robert Morrissey (Egmont, Lib.): Thank you, Chair.

I want to follow up on some of my colleague Mr. Hardie's questions. He made a reference to “duelling science”.

My question would be to Mr. Riddell primarily. Would you comment on what I see as both science opinions being right? I say this because you hear conflicting views from science. Often the science attached to organizations outside of DFO appears to question the science within DFO, which is government.

Is there a possibility that the science from both groups may be right but interpreted differently?

● (1305)

Dr. Brian E. Riddell: Frequently in the development of new methodologies and new information, you do have differences of opinion in science. Nonetheless, in fully objective science and dialogue, you work through those differences because, if it's a difference in methodology, you can evaluate it through research.

We frequently jump to conclusions that they are opposed because they are different groups with different opinions, but that's not how science should progress. It really progresses from starting with an understanding. Now if we have a difference of opinion, then the scientific methodology established globally allows you to study through research, and to develop the hypothesis and the question and the methodology, and to conduct the research and to draw your conclusions.

One of the things that we found through the risk assessment is that this notion of consensus in science is very bad. If it evolves from good information, then that's a benefit, but you should not force a consensus in any way. That is doing a huge disservice to the ministers of fisheries or forestry and anything else. They have the responsibility to understand the uncertainties, as well. That's where the management of policy comes into play, not in the science.

Mr. Robert Morrissey: Thanks for your comment on that. I agree, because in a previous meeting, when the scientific branch of DFO appeared before the committee, they referenced from time to time that often there is not agreement on the science.

I've been on this committee since 2015 and regardless of the study this committee has been doing, we've had scientists with reputable backgrounds, representing different organizations, quite often giving conflicting testimony before this committee. It's not the first time I've heard the comment that DFO is structurally broken. If it's structurally broken as it relates to science...because this study is not on the management. It's how science is used to provide information to the ministry to make key management decisions. When you get into these, every time you make a decision, there's somebody happy and there are quite a few unhappy. The ones who are unhappy will present their case, backed up by some peer review or scientific review, saying why they're right and the scientists at DFO had it wrong.

Could you comment?

Dr. Brian E. Riddell: My comment is what I just said. There isn't any question that what you're referring to has been a very substantial evolution in the methodology of studying fish health. There is a classical approach to fish health, where we see the expression of disease and we go back and try to determine the cause of that disease. The SSHI used, really, tools that were developed by the human genome program, where we seldom have expression of disease without a vector, so we should be able to sample for the vectors that we know. We use DNA technologies that are state of the art, and we can sample huge numbers of fish to look at the role of disease in populations. We start by understanding the distribution of the causes of disease.

I would still say that, if there are differences within the outcome or methodologies within DFO, the DFO scientists are perfectly capable of working this out. You do it through methodological approaches to study those differences. You have to have the facilities for that, and you have to have the resources, but very seldom is one scientist dead wrong. There are famous examples of this, where people are wrong or have misled others. That is not the case of what you're talking about here. There is just emerging technologies and knowledge that have to be taken into account as information changes through time—and as the environment changes. Climate change is going to introduce new issues for us.

Mr. Robert Morrissey: Climate change would also impact the acquired knowledge from the first nations community as well. Would it not?

Dr. Brian E. Riddell: Sure.

The Chair: Thank you, Mr. Morrissey. Your time is up.

We'll now go to Mr. Arnold for five minutes or less, please.

Mr. Mel Arnold: Thank you, Mr. Chair.

I'll start with Mr. Zeman again, if I could.

Mr. Zeman, in the years you have spent trying to access DFO science or the science used by other government entities for making decisions, has there ever been an instance where it was appropriate that the science was not disclosed?

● (1310)

Mr. Jesse Zeman: The answer to that is no. I personally don't think there is a time when it's appropriate to not disclose science about salmon or fish health to Canadians. That would be the same with my organization. Science is what leads us to good decisions. Not disclosing science is what leads us to bad decisions. Even going back to this business of “duelling science”, that is very fair, and it's happening in this world, but I would again challenge the thought that DFO science is still getting out appropriately or whether that science has already been fettered. I think that's the overarching issue we're coming to. There are good scientists in DFO. Their science is not getting out.

Mr. Mel Arnold: Thank you.

Are there instances where the science should be kept from the people whose taxpayer dollars funded that science?

Mr. Jesse Zeman: No.

Mr. Mel Arnold: Okay.

Do you see a necessity for Canadians, like the members you represent, to support and have confidence in DFO science activities? Should your members—

Mr. Jesse Zeman: Yes, absolutely.

Mr. Mel Arnold: Okay. Thank you.

Mr. Jesse Zeman: We're really talking about a public institution. You all represent Canadians, and you're here to talk about big words like “accountability” and “transparency” and “evidence-based decision-making”. We are not in a place with this ministry where we can do any of those things. It's just simply not a part of today's reality.

Mr. Mel Arnold: Thank you.

I'll switch to Mr. Riddell now.

Both you and Mr. Bateman have long experience and both of you can maybe answer this.

In your experience, would you describe whether or not there is an understanding and direction from upper management within the department as to what science research is needed in order to make well-advised decisions in the process? In other words, is there direction from upper management, or knowledge and experience in upper management, to understand what research is needed for the decision process?

Dr. Brian E. Riddell: Maybe I can start.

First off, I think you'd have to qualify your question further, in the sense that it really would depend on the topic of concern. Yes, there is no question that there are good science advisers within the Department of Fisheries and Oceans. It's a matter of who is determining what the priority to address is, with limited funding and time and people and so on, and how you go about it.

Previously in the science branch, when I was within the department, we would hold annual science review meetings and we would talk about where the money was invested and what the particular priorities were that we were going to invest in.

When Mr. Taylor was still in the commercial fishing business, we would have meetings and would fill our boardroom with industry advisers to talk about the issues they had and what was uncertain and what was poor data. There are lots of good people in the department to determine this.

Mr. Mel Arnold: Are you saying that doesn't happen any longer?

Dr. Brian E. Riddell: We don't really have much of an industry anymore, to be honest.

Mr. Mel Arnold: Okay. Thank you.

In the little remaining time I have here, I want to switch now to Mr. Staley.

Can you tell us, Mr. Staley, what the status of the Fraser Salmon Management Council's science capacity is?

Mr. Michael Staley: Our capacity is basically just four or five professional biologists, including me, who work part-time for the Fraser Salmon Management Board and the Fraser Salmon Management Council. This is after two and a half years of an agreement with the Crown to make joint decisions on fisheries management and to support those with the technical facts.

Mr. Mel Arnold: Thank you.

Does the Fraser Salmon Management Board have the capacity to fulfill the functions that it was assigned in the Fraser Salmon Collaborative Management Agreement, the FSCMA, in 2019?

Mr. Michael Staley: It does not at the present.

Mr. Mel Arnold: Okay. Thank you.

Does the FSMC have a forum or mechanism for your council or members to discuss—

The Chair: I'm sorry, Mr. Arnold, but your time has gone over. You started the question with five seconds left.

We'll now go to Mr. Kelloway, for five minutes or less.

Go ahead, please.

● (1315)

Mr. Mike Kelloway (Cape Breton—Canso, Lib.): I really appreciate the witnesses being here today. It's a pretty robust discussion, and I am thankful for it. This entire study is very illuminating on many different fronts.

I want to focus on scientific integrity again. What I am hearing is that scientific integrity is critical to the decision-making process from the planning and the conducting of the research to the production of advice and the application of advice to the department and to the minister.

Could you provide the committee with recommendations—and I think you've done this to a degree—on how we can better integrate better processes and information with the science community?

Mr. Chair, perhaps we can start with Mr. Bateman or Mr. Riddell on some of that advice or those recommendations in terms of the integration side of things.

Dr. Andrew Bateman: I can start with that. Thanks for the question.

I think, as we recommended, we really need to see integration taken out of the hands of DFO. The fact that DFO controls the integration of science from within or without is part of the problem because the management level within DFO interferes with those processes.

Mr. Mike Kelloway: Mr. Bateman, following up on that, give me a mock structure of what that looks like. Make it as detailed as you can in the time I have.

Dr. Andrew Bateman: I'll provide some more detail in written documentation.

Mr. Mike Kelloway: That would be great.

Dr. Andrew Bateman: I think COSEWIC provides a good example. You have this panel, this body of acknowledged experts, which are arm's length, third party, from the organization involved, in this case DFO, who can draw on their experience and remain as objective as is humanly possible and provide good advice to decision-makers.

Mr. Mike Kelloway: Thanks very much for that.

Mr. Riddell, do you have any comments to make?

Dr. Brian E. Riddell: Yes, I do.

I've had experience in the U.S. with their science advisory process on three major panels. I would say another option to look at is that you have specific advisory panels on particularly contentious points. Salmon aquaculture could be an example of this. The big difference in this is that these panels continue through time. They rotate memberships so you never lose the experience of the background, and they are accountable for the reports. The reports are written and public.

There are multiple options for you to develop parallel processes. Andrew has given you one. I could give you others from the U.S. experience.

Mr. Mike Kelloway: I would appreciate receiving information from Mr. Bateman and yourself on different models that you have in mind, but also other best practices that are out there that could be examined by the committee.

Mr. Chair, how much time do I have?

The Chair: You have almost a minute and a half.

Mr. Mike Kelloway: With that in mind, I want to direct my next questions to Dr. Whitney.

Dr. Whitney, I was very much interested in your comments around two-eyed seeing. Here in Unama'ki, in Cape Breton, I was intimately involved with Dr. Cheryl Bartlett's work on two-eyed seeing, and also elder Albert Marshall in respect of two-eyed seeing.

This is kind of a similar question to what I asked Mr. Riddell and Mr. Bateman. I think you addressed it a bit in terms of the intersection piece of where two-eyed seeing connects to western science. Do you see it fitting into the models that Mr. Riddell and Mr. Bateman referenced? How do you see that intersecting or collaborating? I'm just curious in terms of how that would work structurally, in your opinion.

Ms. Charlotte K. Whitney: It's a good question. I think it kind of relates to Mike Staley's points around co-governance and co-management, and also the points that the other panellists have made around the necessary separation between management and science.

Currently without that separation it's really hard to take a two-eyed seeing approach in science and then have that come up against the hard wall of management.

Until we create science advice independent from a management decision and specifically ministerial discretion, it's going to be extremely hard. We struggle with the same thing as Mike Staley spoke to in the Fraser with our collaborative governance and co-management processes in my region.

● (1320)

Mr. Mike Kelloway: I think it's also an education piece in terms of government and industry as to the roots, the benefits, of a two-eyed seeing approach. I'm pretty sure that you and others are working in first nation communities collaboratively to put that forward, because I think it's absolutely essential.

I'm grateful for your testimony today.

The Chair: Thank you, Mr. Kelloway.

We'll now go to Madame Desbiens for two and a half minutes, please.

[*Translation*]

Mrs. Caroline Desbiens: Thank you, Mr. Chair.

I'd like to take this opportunity to thank the witnesses, which I hadn't yet done. Their comments are very interesting and have enlightened us on many points

I'd like to turn to Mr. Bateman.

You talked about the failure of the Department of Fisheries and Oceans in the cod fishery. Back home, the cod fishery in the St. Lawrence River is of great concern to us. You also recommend that an independent panel of experts be allowed to work outside the department.

What is an integrated stock assessment? What is included in the assessment? Could all of this be done by an independent team with more clout in the department?

[*English*]

Dr. Andrew Bateman: We have seen different examples of where bodies outside of a given government department or branch can do that work. I mentioned COSEWIC. I'll raise it again. COSEWIC does effectively the same thing in terms of stock assessment. COSEWIC assesses the status of species at risk of concern. It does a very similar job. It would be possible. Whether it is required is something for discussion.

There are instances where DFO's model works well. Not in every case are the issues contentious or fractured, so it's really in those instances that Dr. Riddell and I would advocate that you really need independent advice and independent collation of evidence, but, if that model were developed, it wouldn't necessarily need to be DFO-driven. It can be driven by parliamentarians, and that's really what I see is required. I don't think DFO management, from its seemingly comfortable current position, is going to autonomously opt for this model.

The Chair: Thank you, Madame Desbiens. There are four seconds left, so you won't even get a chance to breathe in that length of time.

We'll now go to Ms. Barron for two and a half minutes, please.

Ms. Lisa Marie Barron: Thank you.

My question is for Mr. Taylor.

Can you speak a bit more about the impacts of DFO's implementation or lack of implementation of the national bycatch policy and the national monitoring policy, and how this may skew or influence what's happening on the water?

Mr. Greg Taylor: Thank you for that question. It's a critical question and it's certainly been of real interest to me over the years, coming from a commercial fishing background. This is recognized around the world. The first thing every fishery needs is accurate reflection of its catch reporting and compliance with that and being able to provide that information to the management body.

What's even more critical in Canada is that Canada uses discards, or releasing fish, as one of its primary conservation tools, so we have to also understand not only the retained catch but the releases and what happens to those released fish after they are released, because a proportion of them—and it can be a large proportion—don't survive to recruit into the population. Having that accurate information is critical.

There is a national policy for implementing it for all fisheries. None of the salmon fisheries, no salmon fishery, whether it be first nations, recreational or commercial, has gone through it. There are some other notable fisheries that have, and they are world recognized, partly because of it. That includes the groundfish fishery and some others in British Columbia and elsewhere in Canada.

In the absence of good monitoring and good basic information flowing into it, you cannot effectively manage a population without it, and to fail to do it is really a blot on DFO.

● (1325)

The Chair: Thank you, Ms. Barron.

We'll now go to Mr. Zimmer for five minutes or less, please.

Mr. Bob Zimmer: Thank you, Mr. Chair.

Following up on what I talked about before, Dr. Riddell and Mr. Zeman, I'll ask you specifically—

The Chair: Mr. Zimmer, could you move your microphone up, please?

We'll start again.

Mr. Bob Zimmer: It is in the way. It's hard to see what I'm trying to read with it up there.

Jesse, I know you represent a group that not only does great conservation and does real work on the environment but also provides a lot of good data and science around those same conservation efforts.

With that vast science and expertise that you can tap into, what would you do, if you had the choice, for the working group that the Department of Fisheries and Oceans would consult with or have at the table to make those good, sound decisions? What would that look like?

Mr. Jesse Zeman: Yes, we talk about this and really we're getting into the three pillars of resource management. There's funding, so money. There's science, and there's social support. The social support thing is what we're really zeroing in on, and governance.

We're at a place in time here in British Columbia where things are so bleak, when we talk about 68 and 32 fish, that no one can see themselves in the outcome. I think part of what people are feeling here today is that they feel they don't have a voice. They feel like they're not being heard. You have to have a process where everyone can see themselves in the outcome and they can buy into it, where the federal government takes leadership and says, “Look, we want Pacific salmon on this landscape. We want to restore them. Here's how we're going to do it. You're all going to get a seat on the bus and we're going to bring you along so we can all benefit and take care of these fish in the long run.”

Mr. Bob Zimmer: Yes, we've seen some recent examples of where that science...even the sport fishing advisory board, which was tasked in the sixties to really work with the Department of Fisheries and Oceans to give good science and good data year after year after year. I even asked the minister in this committee if she would listen to them and she said she would. Then they just recently came out with this decision that they were going to close the fishery anyway, even though there were fish in this certain time period that would not affect threatened stocks, etc.

We see this, their knowing the science yet still making their own political decisions.

Dr. Riddell, I would ask a similar question. We talked about it before, but you've been around the salmon issue—and I see your grey hair, so I don't want to say too many decades—but you've been around for a while—

Dr. Brian E. Riddell: I think maybe too long.

Mr. Bob Zimmer: Bring us back to the better days when it all did work.

I see you're a “glass is half full” kind of guy, and you said it can work. Now that we have a bit more time, what would that look like for it to work? You've seen it work well in the past. What needs to change for that to work that same way again?

Dr. Brian E. Riddell: I think what you're referring to is that, when there are more fish, there's less conflict. That's not a great insightful statement when you think about it, but when you take it the other way it explains a lot of the animosity and the really tough decisions.

When there's very little and your requirement is conservation first, then you have to put the fish in the spawning grounds when they're below their spawning goals. After that, the law requires you to allocate fish to first nations for FSC. Beyond that, there's an allocation by the department for industrial use. Within industrial use, you have multiple people competing for the same fish.

When fish get very scarce, it's a much more difficult job. That is even part of the sensitivity that Greg referred to in the State of Alaska. Alaska is taking Canadian fish and we are not allowing any fisheries. We're required to because they're our fish and they must go spawning, but we also have other responsibilities for it.

Really, I think one of the things we've been really realizing is that climate change is changing the ocean and the oceans are changing fish in B.C. at a much higher rate than we may have expected. We're seeing it across the board. However, all salmon are not equal. Andrew made a comment about this. The idea that we can do risk assessment on sockeye and then declare that there's no risk to wild salmon is grossly misleading. Wild salmon is five species, plus steelhead and cutthroat. There are many different types of salmon that people don't give credit to.

We need a much more open and honest discussion about this topic, but there is no question in my mind that the future of salmon right now is intricately tied to climate change.

● (1330)

Mr. Bob Zimmer: Yes, Dr. Riddell, but how do we have that conversation—

The Chair: Thank you, Mr. Zimmer. Your time has gone over.

We'll now go to Mr. Hardie for five minutes or less to close it out.

Thank you.

Mr. Ken Hardie: Thank you, Mr. Chair.

Mr. Bateman, I think the perception is that science does its work and hands to the minister a nice piece of advice all nicely wrapped up with a bow on top. Is that an unfair expectation of science?

Dr. Andrew Bateman: Yes. In short, yes, I think so.

In some cases, no. There are some issues where science can be very clear. There are *x* number of fish. We need these allocations and we catch *y* many for a given fishery. That's maybe, sometimes. However, as we've heard today, there are much more controversial topics. The one I mentioned, salmon farming, and the impact on wild salmon, is one of them.

Really, the issue we're discussing is DFO's manipulation of the science advice. Science is not the only decision-making factor at the table. The decision-makers, as others have mentioned, have to weigh competing or complementary demands, the economy being one of them. It's really that the science advice that's presented to the decision-makers, ultimately to the minister, needs to be unfettered by departmental manipulation by mid- and upper-level managers.

Mr. Ken Hardie: I'll have to intercede here.

The Discovery Islands reports instantly didn't pass anybody's sniff test. Was it a matter of poor terms of reference? Was it a matter of scientists self-filtering or did somebody do the filtering for them?

Mr. Jesse Zeman: To be brief, I will refer you to my opening comments. I'll provide more detail in written form.

The CSAS process, especially in that context, is broken.

Mr. Ken Hardie: We heard from Dr. Miller-Saunders that the report she had done sat on the bench for 10 years because they couldn't get a consensus.

If I were to put a big R beside the “dispense with consensus model”, would that be out of line?

Mr. Jesse Zeman: I think that would be a great first step.

Mr. Ken Hardie: All right. Thank you.

Dr. Riddell, what don't we know about salmon? An item the other day said that salmon go out to the deep blue and they're not coming back. We don't know what's happening out there.

What don't we know? What would you prioritize as needing really focused and well-funded research?

Dr. Brian E. Riddell: How much time do you have?

Mr. Ken Hardie: I have two minutes.

Dr. Brian E. Riddell: Then I'll have to do the short version, which won't do it service.

Number one, I think the first priority is that Canada has to get back to the ocean. That should not be any surprise to anybody who has followed what we've been doing out here for a while. We just took a gillnetter out to the ocean and we caught more steelhead salmon in the ocean than any Pacific salmon. No one is going to explain that to you. We definitely need to get back out there.

We need to put money into hatchery assessment and research. Jesse's comment about the number of steelhead salmon is staggering. Who could manage it down to that level? I used to call that the American plan. It now applies to Canada. If you talk to the provincial government, it will not even discuss a hatchery to restore these fish. That is irresponsible. The bottom line is that if you have tens of fish, you have a genetic bottleneck that you must get out of or you are damning those fish forever. There is no question that, with our genomic knowledge now, we can manage small population sizes.

The third thing is effective conservation and restoration. We talk about restoration. You just put $700 million into restoration. What are you going to do? We've been doing it for decades. Where are the fish? This speaks to the fact that it is a big circle—the circle of life—and we're losing them at sea. We have the technology to study what's going on at sea. We do not have the people working on the biology of salmon at sea. We do not have the ships to go to sea. We have lots of technology, but we don't have anybody focused on it.

If you want to put a group together and you have the PSSI funds, there are many people who would willingly work with you to determine how to restore fish and to determine what we don't know.

It's not a simple question.

● (1335)

Mr. Ken Hardie: Thank you very much. I appreciate that.

The Chair: Thank you, Mr. Hardie.

That clews up our rounds of questioning for today's committee meeting.

I want to say a big thank you to our witnesses, especially for their generous allotment of time to us today, as we were delayed a little because of a vote. That's the season we're into right now. It can happen any day. Again, a big thank you to the witnesses. The knowledge you shared with us today is of great value. I'll give you a second now to sign off. We'll continue on for a couple of minutes.

Now that everybody's signed off, I just want to mention to everybody that we owe a big thank you to a lot of staff around here who make this work, especially the interpreters, our clerk and our analysts, more particularly. They spend their time taking notes. I watched Michael today. His fingers were going—I couldn't keep up with him—as people were speaking and giving testimony. They put together a report for us at the end of the day, and then we tell them to change this and change that because it's not exactly what we heard, or to put a different spin on it.

Today, of course, is Michael's last day with us. He's been with the committee since 2018. Some of us at the table have been here since then and before. Michael, you've always been the sound of reason in my ear, as a committee member and as a chair. The analysts sometimes steer us in the right direction when we're heading down the wrong one, especially when it comes to writing reports.

I understand, Michael, that you're taking up a position in Washington for a year. I think I speak on behalf of the entire committee when we say we wish you nothing but the best and look forward to you coming back full of even more knowledge than what you have. You have a great deal of it.

We did get a card. All the committee members have signed it.

Actually, I think Madame Desbiens may even sing you a few notes of a song.

Voices: Oh, oh!

[*Translation*]

Mrs. Caroline Desbiens: It's a song by Daniel Lavoie called *J'ai quitté mon île*, which in English would be “I left my island”. The song is in French, but I'll try to tell you what it means in English.

[*English*]

I'm leaving my island. I'm leaving for another country. In English, it's not very poetic necessarily, but in French it's better for me.

[*Translation*]

I adapted the song, so instead of saying “J'ai quitté mon île”,

[*English*]

I say in French, I'm leaving my *colline*.

[*Translation*]

[*Musical performance*]

I left [my hill]
[For Washington, D.C.]
Left it quietly
No singing or crying
One fine morning, you'll see the sails of my sailboat
Set sail [for the hill]

Good luck, Mr. Chalupovitsch.

Voices: Bravo!

● (1340)

[*English*]

The Chair: Thank you, Michael, and safe travels.

Mr. Michael Chalupovitsch (Committee Researcher): Thank you, everyone. That was really touching.

The Chair: The meeting is adjourned.