HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

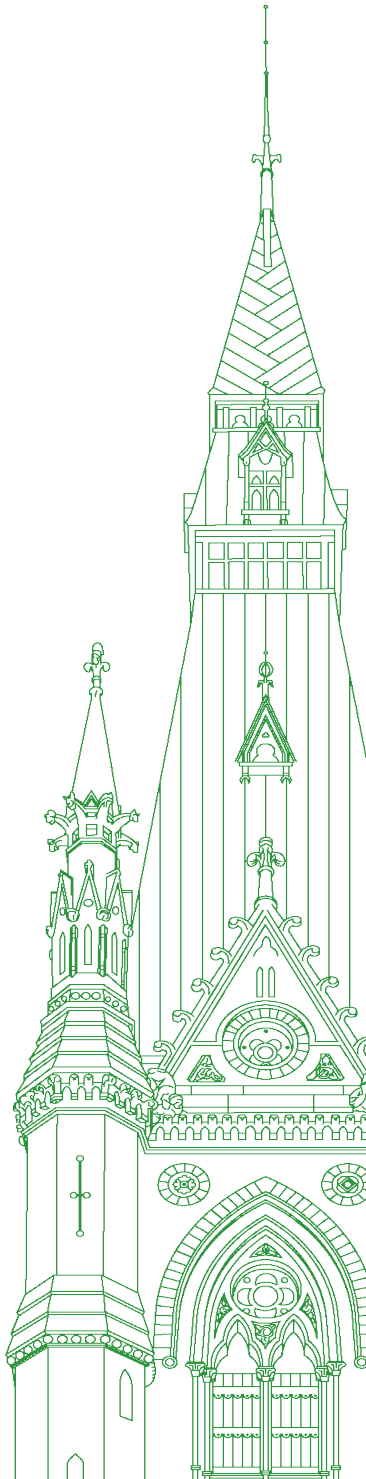
43rd PARLIAMENT, 2nd SESSION

Standing Committee on Fisheries and Oceans

EVIDENCE

NUMBER 024

Wednesday, April 14, 2021



Chair: Mr. Ken McDonald

Standing Committee on Fisheries and Oceans

Wednesday, April 14, 2021

● (1600)

[*English*]

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

Welcome to meeting number 24 of the House of Commons Standing Committee on Fisheries and Oceans. Pursuant to Standing Order 108(2) and the motion adopted on October 19, 2020, the committee is meeting for its study on the state of the Pacific salmon.

Today's meeting is taking place in a hybrid format, pursuant to the House order of January 25. Therefore, members can attend in person in the room or remotely using the Zoom application. The proceedings will be made available via the House of Commons website, and just so you are aware, the webcast will always show the person speaking rather than the entire committee.

Given the ongoing pandemic situation, and in light of the recommendations from health authorities and the directive of the Board of Internal Economy on January 28, to remain healthy and safe, all those attending the meeting in person are to maintain two meters of physical distancing and must wear a non-medical mask when circulating in the room. It is highly recommended that the mask be worn at all times, including when seated. You must also maintain proper hand hygiene by using the hand sanitizer provided at the room's entrance. As the chair, I will be enforcing these measures for the duration of the meeting. I thank members in advance for their co-operation.

For those participating virtually, I would like to outline a few rules to follow.

Members and witnesses may speak in the official language of their choice. Interpretation services are available for this meeting. You have the choice at the bottom of your screen of the floor English or French. With the latest Zoom version, you may now speak in the language of your choice without the need to select the corresponding language channel. You will also notice that the platform's “raise hand” feature is now in a more easily accessible location on the main toolbar, should you wish to speak or alert the chair.

For members participating in person.... I don't believe we have any doing that today, so I won't go through this, but between me and the clerk, we will try to maintain a proper speaking order as we go through.

As a reminder, all comments by members and witnesses should be addressed through the chair. When you are not speaking, your mike should be on mute. During questioning, it would be great if members could identify the witness they're posing a question to, because sometimes it is a bit confusing to know who should answer.

With us here today we have Robert Hauknes and Brian Riddell, as individuals, and Josh Temple from the Coastal Restoration Society.

Mr. Hauknes, you have five minutes or less.

Mr. Robert Hauknes (Fisher, As an Individual): I’d like to thank the Standing Committee on Fisheries and Oceans for inviting me to make a submission. I’d like to first provide my background in the salmon fishery.

I’m a third generation commercial fisherman from Prince Rupert, B.C. I fish with my father and brother on my father’s boat. My father started fishing salmon when he was 14 years old. He bought his first boat when he was 19, and has proceeded to make a successful fishing business over the years.

My brother and I started fishing as kids, when he was eight and I was 10 years old. We didn’t have very much to do in those first years. It was more about spending time with our dad, though we did learn a lot during that time. When we each started high school, we fished the whole summer for salmon. Once we graduated high school, we both started fishing the other fisheries that which my father participated in. We currently fish herring, salmon, halibut and sablefish.

I’ve been involved in trolling for salmon for over 30 years. I’ve seen how the fishery has changed over that time, from being open coastwide and able to retain all species of salmon during the summer, to area licensing and being able to retain only certain species, to risk averse weak stock management curtailing the timing and areas where salmon can be fished. Over that time, we’ve been involved in numerous charters to do DNA sampling on chinook and coho salmon to help figure out the run timing of the different stocks of chinook and coho.

Salmon fishing has always been a important part of our yearly income. Over the years, I’ve seen a slow decline in the income generated from fishing for salmon. My father has done his best to maintain a viable operation and has invested considerably back into fishing over the years.

When chinook salmon went to ITQ, we bought another northern troll licence in area ATF, because when the catch allocation was divided up, it was done by the average and we had never caught the average in any year that we had fished salmon. It was not based on catch history or participation in the fishery but by licence.

We purchased that licence, so that we could continue catching the same amount of chinooks that we always caught. Over these last few years, and the way that salmon is now being managed, it is exceedingly tough to generate the same income that we used to make. We've had to expand into other fisheries, so we can make enough money to survive, and pay our crew members enough in order for them to make a living fishing.

I realize that priorities change over time, and what one government values can change with the next government. Fish and licences are not property, they're a privilege, at least that's what the court says. However, when you've invested blood, sweat and tears into building a business, you shouldn't be penalized, because those priorities have changed.

Reconciliation with first nations needs to occur. It, however, needs to be fair to everyone involved in the harvesting of fish. What doesn't need to happen is the systematic erosion of the commercial fleet under the guise of reconciliation. Canadians are responsible for reconciliation, and commercial fishermen shouldn't be the ones to bear the financial burden of that. Conservation can't fall only on the commercial fleet, when there are numerous users and reasons why there are weak salmon stocks.

Habitat degradation, pollution, run-off from roads and residential development are some of the contributing factors to the decline in salmon; yet, there is no talk about restricting human development around salmon habitat only less commercial fishing. There has also been no talk about accurate catch accounting from the other user groups, those being first nation and recreational fishing. I believe that everyone has a right to salmon and fish in general, but there should be legislation requiring credible catch accounting.

There should be mandatory catch reporting similar to what occurs in commercial fishing. It is next to impossible to manage something if you don't have accurate numbers of removals. The government needs to also invest back into doing the proper science and stock assessments needed to manage the different salmon stocks.

Right now, it is an inflexible best guess, where there is no in-season adjustment to the strength of the runs appearing. Officials make a preseason forecast, and if more fish show up than they expect, there is no increase in the available harvest, and the same goes for poor returns. They do not curtail the fishing effort. Poor data makes for poor management decisions.

I sincerely hope that the committee recommends investing in the science, and monitoring needed to maintain salmon stocks for future generations.

I'd like to close by saying this testimony was composed Monday evening, April 12, after receiving an email Monday morning, April 12, asking if I'd be able to appear before the committee on Wednesday, April 14. While I appreciate the opportunity to testify, a bit more notice would've been greatly appreciated, so I would have had more time to prepare.

Thank you very much for your time.

● (1605)

The Chair: Thank you, Mr. Hauknes.

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

Dr. Brian E. Riddell (Science Advisor, Pacific Salmon Foundation, As an Individual): Thank you very much, Mr. Chair.

It's a pleasure to be here today with the committee.

My name is Dr. Brian Riddell. I got a Ph.D. from McGill University and immediately came to God's country on the west coast, where I have worked on salmon restoration, salmon conservation, and fisheries management and science for 42 years now.

I am speaking today as an individual, but I should declare that I am still employed by the Pacific Salmon Foundation as their science advisor.

I do have a presentation that I have provided to the committee, but I expect you have not seen it yet. You will see that in the future. I am only going to speak to the highlights of that today.

The Pacific Salmon Foundation did speak to the committee last July 2020. I do want to support that presentation, as there are lots of useful comments in there. The individual was Jason Hwang. I think you really need to look at his key points for federal action as a reminder of what was said at that time.

A fundamental point for me is that it's fine to talk about the state of salmon today, but we really have to think about how we act for the future. An important point he made is that we really need to be thinking about our community's welfare 20 years out for salmon. It's not a short-term turnaround of an investment here.

The summary point I want to make for you today is that summarizing the state of salmon is not simple. There are over 9,000 populations of salmon. Mr. Hauknes made an extremely important point that the quality of our data is simply not sufficient. Whether it's catch, escapement or biological sampling, we are short on what we need.

Sadly, the state of salmon today is even poorer than what you heard last summer in the presentation. The particular point, as an example, is the return. The gold standard for salmon on the west coast is likely the Fraser sockeye salmon. You may not be aware that the return of Fraser sockeye salmon in 2020 was the poorest ever recorded. In 2009, the Cohen commission was caused because of the returns of Fraser sockeye salmon. Our return in 2020 was less than one-fifth of the return in 2009. You can't get much worse than that.

We have a very serious issue and it is on the minds of many people on this coast, as you've just heard.

I think the Fraser sockeye also exemplifies the difficulty of understanding the causes of the state of salmon. Fraser sockeye salmon rear in the streams and lakes of the Fraser drainage. They go through a highly disrupted estuary in the city of Vancouver and peripheral areas. They then spend two to three months in the Strait of Georgia, which is what we call the “near shore”. They go past the Discovery Islands, which are obviously in the media frequently because of the state of the open net-pen salmon farms and their transition. Then they go out to sea for two years and return.

The abundance we see on the return is the cumulative effect of all those factors. All of these factors interact, so we have a huge job when we talk about restoring the state of Pacific salmon and returning the abundance.

In the presentation, I provided you with a life-cycle diagram. You will all be familiar with the life cycle of salmon by now, but I think the main point I want to make here is that all their various habitats can interact to compound problems or they can compensate for problems. They all act independently. There's almost never a single factor that causes a change in the state of salmon, so we do need to have the monitoring systems in place so we can understand the good and the bad together.

Unfortunately, the state today is generally bad. I use the term “bad” to emphasize the point. There are variations between salmon populations, but generally it has never been really poor overall.

The challenge for us is what to do moving forward. What we're looking for now is strong leadership in acting to conserve these invaluable fish for British Columbia. It's not just for our indigenous peoples and their cultures, but for our social well-being and economy in British Columbia and for the B.C. ecosystems. The Pacific salmon returns affect many different industries. We need a commitment of resources in order to act on this, and we need a persistent effort. This will not happen overnight. I provide in my summary five actions, basically, to help guide us.

● (1610)

Ironically, we have a very strong policy statement that is the management framework to go forward. In 2005, we had the “Policy for Conservation of Wild Pacific Salmon”. It's a federal policy. It has not been implemented fully.

In that policy, there is a guideline that you have to protect the diversity and distribution of salmon first. We do not know how extremely the environment will change or what habitat changes will occur. You can only plan by managing the diversity of the salmon to protect future production.

The Chair: Mr. Riddell, I'm going to have to stop you there. We've gone over the five-minute mark. I do know that your testimony will be circulated to the members and, hopefully, anything you didn't get to say will come out in a round of questioning.

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

Captain Josh Temple (Executive Director, Coastal Restoration Society): Thank you.

Good afternoon, Mr. Chair, and the esteemed members of the committee.

My name is Captain Josh Temple, and I am the executive director of the Coastal Restoration Society, a B.C. based non-profit dedicated to supporting wild Pacific salmon in the environment that they live in.

I'm honoured to join you today from the unceded and ancestral territories of the Tla-o-qui-aht First Nation in what is currently known as Tofino, British Columbia. I am the son of Arlene Rees and the late Ian Temple, brother to Lyndsay and Craig, father to Soleille and Kalum, and grandfather of Kali Temple. I am speaking my family and these lands into this meeting, as they ground me as a person, as a captain, and provide the framing for my understanding of the plight of Pacific salmon.

I have spent my life guided by the movements of fish, in my case a lifetime guided by the migrations of salmon. Born on the banks of the great Fraser River delta in the fishing community of Steveston, B.C. on Musqueam, Squamish and Tsleil-Waututh land, and raised on the western shores of Vancouver Island, I studied the habits of salmon and endeavoured to catch them.

I earned my captain's licence while still a teenager and began a lifetime of service as a captain, a commercial fisherman and tourism operator. I did not know at the time, but I had begun a career in pursuit of a fish that was destined for trouble. I find myself in my later years not so much focused on catching salmon, but on ensuring that the family and people I spoke of have salmon to catch in the future. After years of witnessing the relentless decline of salmon, I created the Coastal Restoration Society and dedicated myself to supporting salmon restoration.

This committee is well informed of the causes that have contributed to the demise of the once-prolific runs of salmon on our coast and is apprised of the troubling fact that there has been little change in the trajectory of the decline. I do not appear before you today to belabour the point of habitat loss, pollution, overfishing, pinniped predation, aquatic invasive species or the residual effects that coastal industries continue to leave behind. First nations, scientists and habitat experts have all testified before this committee and provided overwhelming evidence to support these facts.

Instead I appear before you today as a Canadian citizen, a fisherman cum environmentalist, to emphasize that these same people are already engaged in the fight to save salmon from extirpation and have been deeply engaged in this fight for generations. We have responded to the science of salmon decline with articulate and efficient solutions with legions of dedicated restoration teams, hatchery technicians, activists and the guidance of thousands of years of first nations ecosystem management knowledge. We have created federal and provincial funding initiatives to support restoration initiatives. With thousands of collective minds focused on solutions and countless recovery and restoration initiatives under way, it begs the question, why are the salmon not recovering?

The answer is clear: salmon recovery is inadequately funded. With each intake of the BCSRIF or coastal restoration fund, dozens of viable projects that would aid salmon recovery are left on the cutting room floor. Funding priorities shift from year to year, leaving critical projects to languish or die. One might think that the hundreds of millions of dollars that have been allocated to salmon recovery over the years would have succeeded in reversing the trend, but they obviously have not. The fact is that there are no bad projects, only underfunded ones.

Mr. Chair and the members of this committee, if we are to meaningfully accept responsibility for the recovery of salmon, then we must hold ourselves accountable to fund the projects that have been identified as solutions for salmon recovery. We must acknowledge that we are on the right path, that our science and solutions are sound, but we fail in our attempts because we are denied the opportunity to deliver in the scope and scale that this solution requires. Without emergency funding on a scale that we have not received before, it is my responsibility to tell you that we risk losing salmon in our lifetime forever.

I have spent my lifetime guided by the movements of salmon. As I get older I am all too aware that where I am now is where I may have to stay should these movements cease.

In closing, I ask that we recognize that all of us—first nations, scientists, fishermen, government and environmentalists—are working together to hold the line on salmon extinction. Please utilize the powers of this committee to encourage all levels of government to allocate emergency funding to stop the relentless decline of salmon and allow us to finally gain purchase in our pursuit and latitude in our movement. I deeply appreciate your time.

Thank you.

● (1615)

The Chair: Thank you, sir. You had one second to spare; that was perfect.

We'll now go to our questioning, and we'll start 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 our witnesses today.

Mr. Riddell, Justice Cohen delivered his report in November 2012, and the strategic salmon health initiative was established by the federal government four months later in March 2013 as a direct response to Justice Cohen's call for more science and potential impacts on the open net-pen salmon farming. Is that correct?

Dr. Brian E. Riddell: Yes, it is.

● (1620)

Mr. Mel Arnold: Thank you.

When it was established, the strategic salmon health initiative was provided with a four-phase mandate. Is that correct?

Dr. Brian E. Riddell: It was designed as four phases, yes.

Mr. Mel Arnold: Could you describe where the SSHI program is today, and have those four phases that were originally mandated been completed?

Dr. Brian E. Riddell: We have completed the second phase, which is a very large-scale data processing and analysis portion of the work. Phase 3 was to take the output of phase 2 and to direct experimental challenge facilities where you would use particular pathogens and subject salmon to them to see what the effect would be, whether it transmits disease, etc. Phase 4 is simply a publication and advisory-to-government phase. Phase 3, unfortunately, is unable to proceed because we have not got access to sufficient space to do the challenge studies.

The project did try to build challenge facilities through Vancouver Island University, and that failed at the very last moment for some reason. Today we closed the program with UNBC. We will have had about 62 scientific publications from it, but it will leave the uncertainty of certain challenge studies.

In that study we have found 15 new viruses that have never been recorded in B.C. salmon before. It's been very successful scientifically, but it leaves a number of significant concerns.

Mr. Mel Arnold: It sounds like it was a success through the first two phases, but all of a sudden in the third phase it's been short of resources to be able to follow through with the original mandate. Is that correct?

Dr. Brian E. Riddell: Mr. Arnold, it's not just resources; it's facilities that would take big resources. To do these studies properly you require containment, because they are pathogens. To proceed with phase 3 would be a very substantial effort to get going, and it would require quite a bit more lead time. We simply don't have that available now.

Mr. Mel Arnold: Am I to take it that the strategic salmon health initiative program is basically parked at this time?

Dr. Brian E. Riddell: Basically. Two weeks ago we did an international workshop with fish health researchers and ecologists from around the globe working on salmon pathogens, particularly with aquaculture. We did a review there to limit the number of pathogens that we've been studying and to try to get input from those attending about where they would put a priority in future work. The intention of doing that is that we will have to find new facilities. We've been studying 70 different pathogens over the years, and we're trying to get that down to three or four that are more important. It can be picked up again, but it can't really proceed a lot further without more facilities.

Mr. Mel Arnold: Thank you.

In your view has the SSHI work determined whether or not open net-pen salmon farms in B.C. pose more than minimal risk of serious harm to wild salmon? That was one of the conditions in the Cohen report.

Dr. Brian E. Riddell: We have said very openly that, yes, we believe the studies have demonstrated that. I would clarify that Cohen limited his comments to Fraser sockeye salmon. This comment would still apply to that. One of our real concerns is that we have to be concerned about all Pacific salmon, not just simply Fraser sockeye salmon. The answer to your question is yes, we believe there's strong scientific evidence for a limited number of the pathogens. But is it sufficient for us to say that yes, they do pose more than a minimal risk?

Mr. Mel Arnold: Do you agree with the assessments from the program?

Dr. Brian E. Riddell: Do I personally? Yes.

Mr. Mel Arnold: Okay. Thank you.

I would like to move on to Mr. Temple.

Mr. Temple, you've identified that there are many things affecting wild salmon.

Are you active in the fight against aquatic invasive species and their potential impacts?

Capt Josh Temple: Thank you, Mr. Arnold.

Yes, as a matter of fact we are. We have identified through our work as a society that European green crab is a significant threat—and not only to the wild salmon habitat. There is strong empirical evidence from both first nations and scientific monitoring organizations that they're actually preying upon juvenile salmon as they exit their natal rivers and spend time in nearshore eel grass habitat.

Much work needs to be done to understand the evolution and the impacts of green crab here in the Pacific region. We are experiencing a tremendous outbreak here in southern British Columbia, particularly along the west coast of Vancouver Island. I can say that over the past 14 or 15 months now, our society has been deeply engaged with coastal first nations, the province, and DFO in the pursuit of a large-scale, industrial response for management and control of green crab.

● (1625)

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 the witnesses who have joined us today.

I'd like to start with Mr. Hauknes. I understand that you had a very short time frame to prepare for this. This isn't a once and done proposition for you, sir. If you have other things you want to offer us, make sure you put them in a note to us and send them to the chair. They'll make sure that we get that information from you.

The focus of this study is the health of the stocks. When you've been out fishing in the time you've been able to fish, have you been able to catch fish? Are there signs that the stocks, when you are fishing, are good?

Mr. Robert Hauknes: Yes, we have a northern troll licence. We're actually one of the first fleets to encounter salmon as they migrate back to their natal rivers. During that time, because of the way the management is of weak stocks, we have to forgo a lot of opportunities. There is a fair amount of salmon out there that is available for harvest. Because you can't differentiate between different streams, it's very hard to prosecute a fishery, which is why in the late nineties we did some charter work to try to do some run timing for DNA sampling to figure out when those stocks are....

Under the salmon treaty we're allocated some Columbia River chinook salmon to catch. We wanted to see when the optimal time was. Unfortunately, Vancouver Island stock is intermingling with that Columbia River stock as well.

Mr. Ken Hardie: What about marked hatchery fish? Do you encounter them?

Mr. Robert Hauknes: Yes, we encounter marked hatchery chinook and coho.

Mr. Ken Hardie: Do they represent a fairly clear opportunity to fish, or are they, again, intermingled with the other runs?

Mr. Robert Hauknes: They are intermingled enough that I would say approximately 5% to 10% of our catch would be clipped fin. It's not enough to prosecute a fishery on. I would be hesitant about a catch and release, because you're going to encounter some mortality with a fish you are releasing. I don't like seeing that.

Mr. Ken Hardie: There have been, I think, a number of comments over time. We have come at this issue from a number of different angles. This is not necessarily a criticism of the DFO, but certainly an observation that the DFO's work has been primarily around the management of the catch versus the restoration of the stocks.

Is that your sense just anecdotally, or do you actually have something a little bit more fundamental to say about that?

Mr. Robert Hauknes: I would say it's anecdotal. Yes, I would say they are more concerned about managing the stock and not really increasing the run sizes. They're more concerned about managing a declining number than they are about increasing those numbers.

Mr. Ken Hardie: Dr. Riddell, when we look at all the various areas that we need to pay attention to if we're going to set about restoring stocks, we see that one of them, of course, is the deep blue Pacific. It is pretty easy to assume that there's not an awful lot we can do out in the deep blue Pacific to deal with warming waters, with acidification, with the plankton, etc.

That's an assumption, but is it true?

Are there some things that you've recognized through your work that could actually be done in the deep ocean to improve the plight of the salmon?

Dr. Brian E. Riddell: It's a really good question. I get asked that a lot.

There's not so much that we can do to fix the ocean. The issue is climate change. These warm periods that we've had are clearly occurring more frequently. They're more intense. The warm water that you speak of is not just warm—it's extraordinarily warm. It's three to four degrees Celsius above the long-term average. That's something that no statistician would expect to see, right?

These are strong environmental trends that are causing the decline, particularly of things like Fraser sockeye salmon. One of the reasons we're seeing differences in different stocks of salmon and different species is that they don't all use the ocean in the same way. The very poor returns of pink, chum and sockeye salmon are because they are the open ocean residents. Coho and chinook have different types of life histories and use of the ocean, so you can see better returns there than with some of the others.

There is no question that we have to understand the ocean so that we can advise what we have to do to protect salmon in the future, but you're not going to change the ocean until we grapple with climate change.

● (1630)

Mr. Ken Hardie: Captain Temple, I have a similar question for you.

You noted the invasive species, the green crab, on the west coast of Vancouver Island. Would you be confident in attributing that invasion, if you like, of an invasive species to climate change? As well, are there other species that are coming up to prey on our salmon stocks and other fish stocks that we might not have seen prior to some of the climate changes that we've recognized?

Capt Josh Temple: Thanks for that question, Mr. Hardie.

I do want to preface my answer with the statement that much further study is needed of the European green crab. We're very much at the preliminary stages of understanding not only the species and how it interacts with our environment, but also what's causing this rapid proliferation, especially along the west coast of Vancouver Island.

I will say that there seems to be a perfect storm of conditions occurring here in southern British Columbia, particularly along the west coast of Vancouver Island, which is contributing to the spread of the European green crab. In areas to the south—in Washington or in California, for instance—where the species has been in existence for far longer than here in British Columbia, they are not seeing that same rapid proliferation that we're experiencing here. We do not yet understand why that is.

To answer the second part of your question about other species that could potentially pose a threat, that also requires further study. However, we are seeing large pelagics that are becoming more common in offshore waters, such as the California yellowtail, and even billfish species like swordfish and striped marlin, and other species of tuna, like bigeye and bluefin, which could all potentially predate on some of the larger salmon or even the juveniles as they migrate through those more offshore waters.

In terms of what to expect and the impacts that some of those larger pelagics may have on salmon, it's very uncertain, but they certainly should be considered a threat at this stage.

The Chair: Thank you, Mr. Hardie.

We'll now go to Mr. Blanchette-Joncas for six minutes or less, please.

[*Translation*]

Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you, Mr. Chair.

Thank you to the witnesses for being with us today.

Mr. Riddell, since the beginning of the study, we've heard how difficult it is to balance conserving salmon populations, keeping jobs and protecting the environment.

What are your thoughts? What needs to be done to make that balancing act easier?

[*English*]

Dr. Brian E. Riddell: Thank you. That's a very important question when we talk about restoration.

The very first thing we have to tackle in British Columbia is water management. In B.C. there is a 2014 act called the "Water Sustainability Act". It actually includes a commitment to minimum ecological flows so the water is shared between the ecosystem and other uses. That needs to really be implemented as we get drier and drier summer periods and less snowpack, etc.

The other element is that we have a long history of land use and alteration that has to be addressed.

The third thing, which we very frequently forget about, is that where the land meets the water in our estuaries, these are extraordinarily highly developed in many cases. These are very important habitats where salmon have to spend up to even about a month and where they adjust to salt water and continue to grow before moving out to sea.

There are many actions that we know are important to salmon and that can be undertaken. We heard Mr. Temple refer to the actions to take. There's the B.C. salmon restoration and innovation fund money. All of these things can be invested, but there's a lot we can do in fresh water and estuaries before we worry about the open ocean.

● (1635)

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Riddell.

Mr. Hauknes, I'd like you to comment on the same thing.

What can we do to make the balancing act of conserving salmon populations, keeping jobs and protecting the environment easier?

[*English*]

Mr. Robert Hauknes: Part of that question is how to reconcile the two. There are so many user groups that all have a vested interest in salmon, and the pie is only so large. I think we're in a situation right now where we just don't have enough fish for everybody to get what they want. We forgo a bunch of chinook, because we have to let a bunch of chinook go up the Fraser River and the North Thompson River to get to the first nations bands up there. It's really a balancing act. I think the biggest thing is that we need more fish, and how we get there is the hard question.

In terms of reconciliation, there are other bands that have northern troll licences like Port Simpson. They have six. You're impacting their ability to catch fish and to reconcile with the food, social and ceremonial practices up in the Fraser and North Thompson. It's a hard question to answer.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Hauknes.

Are inadequate recreational fishing regulations jeopardizing the sustainability of the Pacific salmon population? Are they actually hurting salmon stocks?

[*English*]

Mr. Robert Hauknes: I do think there are enough regulations to ensure that they survive, but is that enough to maintain a harvest level on them? I don't know. That's a hard question to answer, because what are your goals and objectives? Are you wanting to have a viable commercial fishery, a viable sport fishery, a viable first nations commercial fishery plus food, social and ceremonial practices, plus conservation? If you want all of that, then probably not, because commercial fishing is kind of the scapegoat.

We're the first ones to get closed. Then it will be the recreational sector as the salmon populations go down, until you get to the point where you have no food, social or ceremonial fishery because you're based on conservation. I don't think we want to go to where we can only have enough salmon in the river to sustain themselves and not be utilized by everyone.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Hauknes.

How much time do I have left, Mr. Chair?

[*English*]

The Chair: You have 25 seconds.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Great.

Mr. Riddell, what is your position on the impact of the current recreational fishing regulations on the sustainability of the Pacific salmon population? Do you think the regulations are inadequate?

[*English*]

Dr. Brian E. Riddell: I'm surprised by the final phrase. Did you mean recreational only?

[*Translation*]

Mr. Maxime Blanchette-Joncas: Exactly. Does recreational fishing jeopardize the sustainability of the salmon population? Are the regulations inadequate?

[*English*]

Dr. Brian E. Riddell: No, it's efficient. We have an allocation policy. For example, the sockeye, pink, and chum are commercial access.... In the discussion about the northern troll, they're clearly focused on chinook and coho. There is a potential conflict with the recreational fishery there over allocation. In many cases, the recreational fishery fishes a much longer time over a wider area, and normally we have to build so that you have sufficient abundance of both, but they're not really in direct conflict if we manage them correctly.

● (1640)

The Chair: Thank you.

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

Mr. Gord Johns (Courtenay—Alberni, NDP): Thank you, Mr. Chair.

I want to thank all of the witnesses for the important work you're doing on behalf of wild salmon.

We obviously had the lowest return in the Fraser River, the world's largest salmon-bearing river—I can hear you laughing, Mr. Chair, by the way—in recorded history a year and a half, or almost two years, ago. That was followed by what is now the lowest return in recorded history for wild Pacific salmon in the Fraser.

The government hasn't made any significant changes to the investment outside of Big Bar. They didn't have a budget last year. They didn't table one because of COVID. In the fall economic statement, they didn't address this critical emergency. We've been asking for the minister to declare a wild salmon emergency, because that's exactly what it is.

Mr. Riddell, can you talk about how important 2021 budget will be to addressing the wild salmon emergency? You talked about what could happen next year, the next five years and the next 10 years if we don't address this emergency immediately.

Dr. Brian E. Riddell: Well, I wish I knew what will be in the budget on Monday. I hear there's an investment in wild salmon. I'm sure it will be very warmly received. Whether it's going to be adequate or not is, I think, another question, because I actually don't know anyone who has had input to the development of that amount of money.

The amount of money that is required has to involve a long-term commitment, and it will be substantial. There is no point in really hiding that. You have heard examples from each of us about all the things that could be done and the problems. There are many things to deal with.

I'm a commissioner for Canada for the Pacific Salmon Treaty, so I deal with Mr. Hauknes' issue about the allocation among various areas and the regulation.

We have lots of great people to know what to do. The problem is that we don't have great data. We need a commitment to understanding what is really going on. We heard about the DNA sampling. We have been doing that for a long period of time, but it doesn't build on the abundance of salmon. We have to do other things.

What we're finding is that the reliance on hatcheries is something we're going to have to look at very carefully, because I think the big unknown in salmon is—

[*Translation*]

Mr. Maxime Blanchette-Joncas: I have a point of order, Mr. Chair.

No interpretation is coming through right now. I think the witness's Internet connection is poor.

[*English*]

The Chair: Nancy or Tina, could we check on that, please?

I have the time stopped now for a moment, so we can get this corrected.

The Clerk of the Committee (Ms. Tina Miller): Yes. Would you like to suspend while we look into this?

The Chair: Yes. We will suspend for a moment.

● (1640)

_____(Pause)_____

● (1640)

The Chair: Mr. Blanchette-Joncas, are you hearing this okay now?

[*Translation*]

Mr. Maxime Blanchette-Joncas: It seems to be working now, but it's on and off. I still see a message that the Internet connection is poor.

● (1645)

[*English*]

The Chair: It may be on your end rather than on Mr. Riddell's, possibly.

We will give it a try to see how it goes.

Mr. Riddell, continue with your answer. We will wait for a moment to start the timer again.

Dr. Brian E. Riddell: I'm trying to think of where we got to, but I think the real issue that we have is where we will go with the money to build a future for salmon. We have to understand the expected effects in the ocean. Then we will know how much we have to conserve and the breadth of actions we have to take in fresh water. The question is becoming more complicated; it's not getting easier.

Mr. Gord Johns: I understand that and respect it, especially with the warming ocean, but the things that humans can do,....

Maybe I will pose this to Captain Temple.

We have this budget coming up. We know in our region that the British Columbia salmon restoration and innovation fund has just not been adequate. We have had many applications go in, and many have been rejected. These applications not only fund critical projects, but they help mobilize volunteers whom we get and can get out to do the important work.

Mr. Temple, can you talk about what we need in terms of restoration alone? You have been doing that work. The NDP has been calling for a five-fold increase of the B.C. restoration fund.

Capt Josh Temple: Thank you, Mr. Johns.

I think it's important to note that the enthusiasm and the willingness and the science are all there. What is lacking, obviously, is adequate funding to support the variety and the multitude of projects that we all acknowledge need to be completed.

The question is where the money comes from. That question is far above my pay grade, but I can say that we first need to focus on habitat restoration, then invasive species control and then potentially hatchery production. Augmentation will fail if the habitat is degraded, and we cannot ensure viability if that habitat is replete with invasive species. It's a circle: restore the habitat, remove aquatic invasive species, and replenish via hatchery production, if necessary, which it looks to be.

This pathway is supported heavily by science and proven by highly successful localized salmon recovery projects. It's just a question of coming up with the additional pile of funding that we desperately need, if we have any hope of meaningful recovery.

Thank you, Mr. Johns.

Mr. Gord Johns: I believe, Mr. Temple, that wild salmon could go the way of Atlantic cod, if we don't take emergency quick action to invest in restoration.

Can you talk specifically as well about some of the partnerships that are developed on the ground and the importance of those partnerships to strengthen our reacting to this crisis?

Capt Josh Temple: Mr. Johns, I think it's important to recognize the importance of first nations' traditional knowledge here.

As they are the original stewards of these lands, I think any partnership is set up for failure if we don't rely heavily on the guidance, information and traditional ecological knowledge of first nations communities throughout the range of pacific salmon.

In conjunction with first nations, we also need restoration organizations that have the technical knowledge that will complement the traditional ecological knowledge so that we can perform the type of large-scale industrial remediation projects that need to happen. We need science, obviously for the myriad of reasons that scientific study adds to the effectiveness of the collaboration. Then we need local community support and finally we need government support, because somebody has to pay for it and largely a lot of the work before the BCSRIF and the coastal restoration fund came into existence and the funding was generated from private individuals or within marine industries. Since then the province and the federal government have stepped in tremendously, and I think that we're on the right path; however, I think we can all agree on the fact that more is needed to reverse the obvious trend, which is decline, decline, decline.

The Chair: Thank you, Mr. Johns.

We'll now go to Mr. Calkins.

Go ahead for five minutes or less, please.

Mr. Blaine Calkins (Red Deer—Lacombe, CPC): Thank you, Chair.

I'm going to start with some questions for Captain Temple relating to the green crab and the delay in the BCSRIF funding that was applied for.

I know from talking to folks like Ryan Chamberland, on his dock in Sooke Basin, where I watched him capture green crabs, that there's no market for it, and there are catch limits for these invasive specimens.

I'm just wondering, Captain Temple, if you can tell me what needs to happen in order to make the green crab problem manageable. Is it more funding? Is it more capture? Is there a market? What are things that we can do?

Also, what are the real threats that green crab pose? My understanding from talking to folks on the coast is that the eelgrass is subject to being depleted because of these invasive species. Is that the only problem, or is there more to the story?

● (1650)

Capt Josh Temple: Thanks, Mr. Calkins. That's a broad question, so I'm going to do my best to answer it as quickly as possible.

First and foremost, European green crab are recognized as one of the world's most deadly invasive species. They're ecosystem engineers. They have proven their ability to absolutely reconstruct nearshore ecosystems, as evidenced by what has occurred in the Atlantic regions of this country, where green crabs established themselves decades sooner than they did out here in the Pacific region. They not only target very critical juvenile wild salmon habitat in eelgrass beds but there's also empirical evidence of their getting up into the rivers and cleaning up salmon redds to prey on the eggs as well.

As I mentioned earlier in my first question and answer, they have also been identified on several occasions preying upon wild juvenile salmon as they're leaving their natal rivers and spending time rearing in that eelgrass habitat as well.

So it's very important that we understand more about how they are affecting wild Pacific salmon here in our region.

In terms of what more we can do, I think there's been a concerted effort by DFO aquatic invasive species and the DFO science areas, coastal first nations, and ENGOs like ours to truly understand how best to move forward and tackle the green crab issue.

There are many unknowns that require concerted scientific study, but in reality what we need to do to boil it down to its simplest point is to get as many green crabs out of the water as quickly as possible. We have to do that taking a cautionary approach because we have to understand the best methods for industrial targeted trapping, and I think some of the progress we've made over the last year and a half in understanding how best to proceed is going to be utilized very quickly.

I would just like to end on the point that while we would like to see traps going into the water as quickly as possible, we do acknowledge that there have been significant delays, likely caused by the fact that Canada and the rest of the world have been in a global pandemic and, obviously, keeping our citizens safe has taken precedence over and above anything else, but we are seeing significant progress and hopefully we'll have some good news in the coming weeks or months about getting traps into the water as quickly as possible.

Thank you.

Mr. Blaine Calkins: So the willpower is there, the people are there, and the capability is there, but it's just a matter of getting the resources and the traps into the water?

Capt Josh Temple: That's correct, and I think the support needs to come right from the top, from Ottawa, and trickle down.

Mr. Blaine Calkins: You have my support, for what it's worth.

Mr. Temple, you did bring up pinnipeds in your opening statement.

Given the political sensitivity of this and the fact that marine mammal protection legislation basically takes that part of the ecosystem out of the wildlife management portion of our ecosystem-based management approach, oddly enough, what advice could you give this committee and to anybody making a decision on the effects of it?

How would we gracefully go about pinniped management in the ecosystem-balance approach for preserving salmon?

Capt Josh Temple: Thanks, Mr. Calkins. I think we all acknowledge that this is a delicate issue. First and foremost, we have to depend on the science. I think the science has proven that the pinniped population is having an extremely detrimental effect on all age classes of salmon here in the Pacific region.

We perhaps may need to look to our cohorts in the United States, who have already initiated pinniped control programs. It's a difficult decision. We saw that with caribou management and the wolf culls to save what's left of the caribou in certain regions. I think as we move forward, tough decisions will have to be made. I'm certainly glad it's not my decision. However, I wish those who perhaps may be on this call in committee today the best of luck in making that decision. It will be a tough one, but it is supported thoroughly by science.

The Chair: Mr. Calkins, time's up. Thank you.

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

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

Captain Temple, to follow up on Mr. Calkins' question, you referred to U.S. beginning to move on pinniped control. Could you elaborate on that a bit?

Capt Josh Temple: Yes. Thank you, Mr. Morrissey. To my knowledge, for the last couple of years both Oregon and Washington have engaged in lion control, in particular, in a number of rivers throughout Washington and Oregon—particularly, I believe, in the Willamette and tributaries of the Columbia, where both California and Steller's sea lions have proven to be highly effective at utilizing dam structures and bottleneck areas to prey upon both the returning salmon that are coming back to spawn and the juveniles that are out-migrating as well.

● (1655)

Mr. Robert Morrissey: You identified green crab, and there's always been a reference to seal. Which of the two would be more detrimental to the salmon stock, in your opinion?

Capt Josh Temple: Mr. Morrissey, are you asking my opinion on which are more detrimental, green crab or harbour seals?

Mr. Robert Morrissey: Yes.

Capt Josh Temple: That would be a question best left to science. That's punching above my weight class. I certainly think they are both having a detrimental impact, but it would be impossible for me to quantify which could potentially have a greater impact. I think we don't know enough about green crab yet to make that determination, unfortunately. We hope to soon.

Mr. Robert Morrissey: But for the committee, could you identify that pinniped control should be a part of rebuilding salmon stock?

Capt Josh Temple: I believe if sound science supports pinniped control, then we cannot turn a blind eye to peer-reviewed and proven science. I might perhaps refer these questions to Mr. Riddell. His expertise far outweighs mine from a scientific perspective.

I do appreciate the questions, Mr. Morrissey.

Mr. Robert Morrissey: Thank you.

Mr. Hauknes, you mentioned in your opening comments a discrepancy in data collection between first nation catch rates and commercial. Did I hear you correctly? Could you expand on that issue?

Mr. Robert Hauknes: Yes. In commercial fishing we have a logbook that we have to keep. Every fish we encounter during that day is recorded. When we get to the dock, that logbook is cross-checked against what has been unloaded. We have to report that to a government agency at our expense.

In first nations and recreational fishing, there is data collection, but it is woefully inadequate on how much is actually being taken out. A lot of the food, social and ceremonial fish is not recorded. Recreational fishing is not recorded as well. Some lodges are doing some data collection and passing that along. With the recreational licence you do have to sometimes report. You get a survey and you do report what you caught during a month. But outside of that month....

When I went fishing in November, I got some prawns and stuff. I had to report that recreationally. But then if I went out trolling for chinook salmon in the summertime, nothing says I would have to report that.

My thought would be to increase the data collection so that you know what you're removing from the resource.

Mr. Robert Morrissey: I may come back to that again if I get another chance.

Dr. Riddell, you made the comment that for the salmon stock, we can take land-based preventive measures to control habitat of various sources. You made the comment that we have to understand the expected results in the ocean because those are the ones that will primarily influence the health of the salmon stock.

How essential is it to understand that the impact of climate change on the ocean is one of the primary reasons for the decline of these stocks?

Dr. Brian E. Riddell: It's very important right now. For many years the ocean was a very stable supporter of salmon. We had many forecasting tools that were accurate to 10% or 20% of any returns. Those are now out by over 100-fold. We actually have many that we don't use anymore.

It's a big challenge, but to be able to decide the best way to move forward and where to invest your money, you have to understand how severe the effect is in the ocean and where this is occurring. As a best-case example, we could address providing more hatcheries if it was just a matter of producing more salmon. However, if you're producing salmon that are going out to the ocean and you know they're not going to survive, you'd be far better off to invest your money in the diversity of habitat restoration programs throughout B.C., support the communities and do small-scale hatcheries to restore community streams. Just as Mr. Temple said, use the community people to get the number of spawners out.

The salmon have multiple habitats, but the only one that affects all salmon is the ocean environment. That's why it's becoming more and more important in people's minds to understand it. To be honest, there's a woefully poor understanding of the connection between climate, oceans and salmon. We simply haven't put the effort into it. It's difficult to do, and Canada is not well prepared to do it because we don't even have a vessel that can do offshore fishing. We have a west coast trawler, but it's part of the Coast Guard. The Coast Guard can't allow it to go out to the central Pacific because it can't get back if there's an emergency, so the research we're doing becomes very expensive because we have to find vessels and the money to fund those vessels.

● (1700)

The Chair: Thank you, Mr. Morrissey.

We'll now welcome back Madam Gill.

You're up now, for two and a half minutes or less, please.

[*Translation*]

Mrs. Marilène Gill (Manicouagan, BQ): Thank you, Mr. Chair.

Thank you to the witnesses for being here today.

Mr. Riddell, you talked about climate and the ocean and their relationship to salmon. We can all agree that the solution requires a long-term undertaking, but in the immediate term, what should we do research and investment wise to turn things around?

[*English*]

Dr. Brian E. Riddell: As I said in my comments, all of these habitats are interconnected. If we know that we have a problem in the ocean, then we have to take additional action in the other habitats. One common feature is that salmon go through estuaries, so restoring and preserving our estuaries could do a lot of good. We could mix that with the sampling for green crabs that we've talked about and removing them.

The big question then gets to water management and what we do in the terrestrial habitats. There's a huge diversity of actions that could be taken there. The problem with that is not that it's not worthwhile. It's that you have to take enough action in a place to really make a difference in the survival of the salmon. The idea that we have a huge diversity of activities is good for community engagement. It's great that way. It's good to support first nation communities throughout B.C. However, it may not net sufficient benefit to a particular salmon stock to really increase the numbers.

These are the difficult trade-offs we'll have to make, but there are lots of actions we can take through the community, just as Mr. Temple said. The Pacific Salmon Foundation works with 345 recognized community organizations in B.C. that are all capable of doing good local work.

[*Translation*]

Mrs. Marilène Gill: Thank you, Mr. Riddell.

If I understand correctly, none of the measures you just mentioned is urgent, as far as you're concerned.

As for government investments, do you see any measures as priorities? You gave more than four examples in your opening statement.

[*English*]

Dr. Brian E. Riddell: Well, the money from the government could be seen as seed money, too. In many cases, we work with community groups where the foundation will only fund 50% of the work. You would be amazed at the power of communities to raise money. If you enable them to get started—provide them with the seed cash—they can do a lot of work. They can get donations from forest companies for planting, they can work with different groups to restore shorelines, they can do work in estuaries. We have first nation communities on Vancouver Island that are actively restoring the vegetation in estuaries and removing old boats. There's lot of work that can be done, but there is a need for the seed money that we've all referenced.

● (1705)

The Chair: Thank you, Madam Gill.

We'll now go to Mr. Johns, for two and a half minutes or less, please.

Mr. Gord Johns: Dr. Riddell, you talked a lot about interconnectedness. You talked about climate, ocean and salmon. There's a huge debate, as you know, that's emerging on the Salish Sea—and throughout B.C., really—about herring. The government hasn't done a great job, to my understanding, of looking at the interconnectedness of various species, especially the forage fish. Can you talk about the government's efforts and what you think needs to be done around research and the science around this issue?

Dr. Brian E. Riddell: Well, it's not just herring, Mr. Johns. As you probably know, there are many different species of forage fishes. Herring is without question the most abundant. With respect to our understanding of what we call the "dynamics"—what determines the abundance of herring recruitment in any one year—I think there are people working on that. We're even now talking about means to restore past herring spawning areas by moving spawn around to increase its distribution. There are others, like sand lance, and other species, like eulachon, and we're addressing that by changing the shoreline from cement and big logs. We're putting it back into a natural setting so that we restore the beach dynamics and all of the spawning for these forage fish. If we were to increase the number of forage fish, it's quite possible we could greatly reduce the seal predation of juvenile salmon in the Strait of Georgia. The preferred food of seals is not salmon, but they will eat salmon when they're present. They would far rather consume herring.

Mr. Gord Johns: That's fantastic. Thank you for that response.

You talked about salmon farms and we know the Liberal government put in their mandate letter—actually, they made it a campaign promise in 2019—to move away from open-net salmon farming. Obviously, we have issues related to sea lice pathogens, escapes, and now mouth rot and die-offs. Do you believe the government is fulfilling its mandate and its promise from 2019, and do you think it's clear what the government is doing?

Dr. Brian E. Riddell: Well, I think the intention is clear, though it remains to be seen what exactly is done. Mr. Beech, obviously, has the pressure of proceeding with that one shortly. If we proceed by moving to more closed containment, that will obviously reduce the interaction. That will be beneficial to wild Pacific salmon.

Mr. Gord Johns: Do you see the sense of urgency right now for the government to act?

Dr. Brian E. Riddell: Well, as you've heard, there's a sense of urgency about wild Pacific salmon everywhere. It's not just about salmon farms. There's a very broad concern. Throughout the central coast, we have very poor pink and chum production. That's not salmon farming, but they're just as concerned as the people in southern B.C. We can't get overly fixated on just one problem. There are a number of populations that all merit restoration.

Mr. Gord Johns: Thank you.

Do I have more time, or am I out, Mr. Chair?

The Chair: Your time is up, Mr. Johns.

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

Mr. Dan Mazier (Dauphin—Swan River—Neepawa, CPC): Thank you, Mr. Chair.

Thank you to all of the witnesses for coming out this afternoon.

Dr. Riddell, I wanted to pick up on something you mentioned earlier. Did you say that no one, to your knowledge, had been consulted on the funding for Pacific salmon in the upcoming federal budget?

Dr. Brian E. Riddell: Well, I hope that's not true. What I said is that I'm not aware of anyone who has been directly engaged in any of those discussions. I was with the Department of Fisheries and Oceans for 30 years as one of their lead scientists on that, and under the Salmon Foundation, I talk to people throughout B.C. I have to admit, as I was just saying to people yesterday, that I am a bit surprised I haven't heard about the consultation, because this could be a big, big effort. As I said very clearly, many, many people are concerned, so I sincerely hope that they have consulted widely with first nations and other user groups. I just have to admit that I simply don't know any who have.

Mr. Dan Mazier: I guess it is pretty concerning. We just don't know. We'll wait until Monday, and see what happens then.

Dr. Brian E. Riddell: It's certainly a concern to me.

Mr. Dan Mazier: You've all alluded to the importance of moving quickly on restoring Pacific salmon. Captain Temple, do you believe the government has delivered on its promises to do so?

● (1710)

Capt Josh Temple: I believe the government is doing a lot. I believe first nations, NGOs, the provinces, and various departments in the federal government are doing a lot. I believe that a lot of money has been spent. However, I'm a firm believer in the science, delivering the proof, and the proof in the pudding is that the Pacific salmon numbers throughout their range continue to decline.

The question is, are they doing enough? If we were doing the right amount, the trend would reverse. Everybody has a responsibility to do more, and not just the federal government.

Mr. Dan Mazier: If the government were to continue on in this path we're presently on, where do you see the state of Pacific salmon in the future? This path is leading to somewhere. Isn't that right?

Capt Josh Temple: Without some emergency action, there's only so much further the numbers can decline before we're talking about mass extinction. We're getting very close.

I've witnessed in my own nearby watersheds in Clayoquot Sound that some of them are not seeing any salmon returning at all. That is indicative of many of the small streams throughout the province. Certainly, some of the larger watersheds are also getting very close to that red line.

Without emergency measures, funding and action, as I said in my opening statement, we could see the extinction of salmon on a large scale in my lifetime.

Mr. Dan Mazier: Wow.

Mr. Riddell, you mentioned in your previous remarks the importance of collaboration between federal and provincial governments in restoring the Pacific salmon stocks.

Do you believe there has been enough collaboration from the federal government?

Dr. Brian E. Riddell: Do you mean enough collaboration just from the federal government? That seems to be a little at odds with the notion of collaboration.

There has not been enough effective collaboration with the Province of B.C. The Province of B.C. has responsibility for freshwater, the landscape, forest practices, mining, etc. We can't separate the two, so both governments have to work more hand-in-hand.

The opportunity for collaboration is huge. You have people everywhere concerned about salmon. It's not just Captain Temple on the west coast. The small communities there are greatly involved as well on the north coast. I started my entire career in Prince Rupert along with the complete dedication of first nations groups. There are many people who have the capability to collaborate and work on these projects.

However, we need a large-scale effort in order to avoid picking and choosing particular areas. We need a wide distribution of programs.

Mr. Dan Mazier: Have you seen a shift? Besides COVID and all of that, have you seen this federal government shift for better or worse? How is that collaboration with the province and, obviously, all levels of government? Have you seen the collaboration work differently in the last five years?

Dr. Brian E. Riddell: We're talking about the B.C. SRIF, the B.C. salmon restoration and innovation fund. It was one-third or 40% provincial and the balance was federal. That's a collaboration and a major step forward. I hear rumours in the province that there will be a B.C. SRIFII. There will be a continuation of money there. That's another strong signal.

Is there greater collaboration on projects? There isn't unless we go out and dig for it. We still build a number of science programs. We're doing a lot of work in near shore development and so on. However, you have to go out and build these collaborations. There are big silos, as we used to talk about it.

In terms of the collaboration within the federal government alone, it's difficult to get Environment and Climate Change Canada, DFO and Natural Resources Canada to work together. It's not just groups outside the federal government; there's a lot of opportunity to improve inside.

The Chair: We'll now go to Mr. Hardie, for five minutes or less.

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

I'm going to split my time with Ms. May, because I know she always has a great question to ask.

I only have one question, and it's going to go to Dr. Riddell. However, I'm also going to give Captain Temple an opportunity to subsequently give us his feedback on this.

That's an interesting number you had, Dr. Riddell. The Pacific Salmon Foundation works with 345 different groups. I would imagine there are many others out there, between government agencies and non-government agencies.

Do you get the sense that anybody has oversight over the whole landscape to coordinate and maximize the efforts and the money going into all of these individual organizations, so that we're actually cumulatively getting the best value out of their efforts for the money we're putting in?

● (1715)

Dr. Brian E. Riddell: To be honest, 345 is enough for us to work with. I don't have any doubt that you could increase that number. We actually have a fixed number for a reason. We manage money for them.

Mr. Ken Hardie: I'm sorry, Dr. Riddell, but is there coordination?

Is there somebody looking and saying, “Look, we have these people doing this, these people doing that. Are there gaps in what's happening?”

Are we covering the landscape properly with the resources that we have right now before we think about throwing more in there?

Dr. Brian E. Riddell: Okay. I'm very sorry. I missed that. That's a very important question.

To be perfectly honest on this, I have personally said “no” to that several times. There is not adequate planning under restoration. When we provide funds, we do not go out and solicit programs. We fund programs that are offered to us to support.

An offering from a wide variety of people does not necessarily build a coherent program. That's why I think we need to have.... The money is great. I have full faith that these people deliver on good value for money, but we can benefit them much more by building a plan that they can then work on together.

Mr. Ken Hardie: I appreciate that.

With that, I'll turn it over to Ms. May.

The Chair: Go ahead, Ms. May.

Ms. Elizabeth May (Saanich—Gulf Islands, GP): Thank you very much.

Chair, just flag me when I should stop.

I want to go to Dr. Riddell, but first thank all of the witnesses. I wish I had a bit more time, but I'm grateful for what I have.

Dr. Riddell, the figure you mentioned that really laid me flat was the three to four degree Celsius average increase over the long term in our water temperatures. That's related to, at this point, a one degree Celsius rise in global average temperature compared with what it was before the Industrial Revolution. We're on track right now to go to three to four degrees globally.

If the water temperature is already three to four degrees higher than our global average, do you know of any science that anyone has done that suggests salmon can survive even if we hold to the Paris target of 1.5 degrees, or as far below two degrees as possible? This is terrifying information.

Dr. Brian E. Riddell: Well, I feared your question, Elizabeth, but I think it's a very astute one.

Let me be clear: the three to four degrees is the maximum range. When you see the maps of the ocean, there are varying colours of intensity, but if you have extremes to that degree, then the other water is pretty warm—certainly more in the range you're talking about.

You bring up a very important point. We have all of these projections. We have global models. We have very little predicting what we're likely to see long term in the ocean. The ocean is highly dynamic. Even the Pacific has multiple different currents, and the salmon all use them in different ways.

We actually are putting together a large scale program under the UN Decade of Ocean Science and Sustainable Development. Our project is exactly what you just said: We want to build a program that links climate change to ocean impacts fishery resources and back to B.C.'s communities, because the communities ultimately are paying the price.

We can do that with salmon. They provide an ideal opportunity to do this work, but that work in the open ocean over multiple years will not be cheap. I don't think we can do it if we have—

Ms. Elizabeth May: If we use a decade, Dr. Riddell, aren't we out of time, based on what we know from the IPCC 1.5 degrees special report? Without deep cuts.... I take my friend Gord Johns' point that this isn't something we can control, but I think it is. The faster we go off fossil fuels and restore sequestration, the faster the opportunity to hang on to a livable marine environment for our salmon.

Dr. Brian E. Riddell: I don't think you'll lose salmon in a decade in any sense. We're going to lose some here and there, possibly, with the bad habitat. They are highly resilient. They are very flexible in their use. It's a huge area out there. You can't believe how big it is until you try to go out there.

The problem that I think that we are identifying here and one that we're simply not addressing is your question, “How much impact is climate change going to have on our oceans?” and then relate it back to our fishery resources. Those are the questions that I think we really have to struggle with now.

● (1720)

Ms. Elizabeth May: I'm sure I'm out of time. I wish I could ask Captain Temple a question. I just want to thank all of the witnesses for bringing their concerns to us.

The Chair: There still might be a bit of time later on, Ms. May. Let's hope someone will give you a moment to ask another question.

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

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

Mr. Riddell, I'll come back to you again.

Last September, DFO released the nine assessments of the Canadian Science Advisory Secretariat that examine the various pathogens. They concluded that they pose no more than minimal risk to wild salmon.

Do you agree with those assessments? Why or why not?

Dr. Brian E. Riddell: Unfortunately, we do not. I say “we” because the Pacific Salmon Foundation has written a response to that and provided it to the department about our concerns about the nine assessments. The one very obvious one that's not done is sea lice. Sea lice has not been reviewed in any way since 2012. We have almost a decade of more knowledge on that one.

Our concerns are both statistical and about how you define “minimal harm”. Your definition is surely going to differ from my definition and everybody else's. We have a fundamental problem on how we actually assess these things. We have documented our concerns about the PRV paper, about the Tenacibaculum paper and about the absence of sea lice.

The assessments don't even consider the cumulative effects of these things. They seldom act on their own. They don't consider the ecological effects. Something that comes from it is VHSV, which is a virus from herring to salmon and back to herring. That's a perfect example of our concerns about the farms amplifying bacteria and so on.

Mr. Mel Arnold: Thank you.

To continue on, in 2012 Justice Cohen identified the need to reduce pollutants affecting wild Pacific salmon. In 2014, the federal government delivered Canada's first federal minimum standards for waste water treatment. Last summer the current government began a process to defer the deadlines for implementation of waste water standards.

How much do you feel that water-borne pollution is affecting Pacific salmon, especially in the estuary areas and so on?

Dr. Brian E. Riddell: To be honest, Mel, that one's not really well documented in Canada. We have lots of information on water quality. I don't think it's actually as serious as many other factors. I'd be more concerned about the continued habitat loss in the Fraser estuary, for example.

Some work in Puget Sound under our Salish Sea marine survival program has clearly demonstrated that there are particular pollutants that do reduce the survival of chinook and coho salmon. There are programs and DFO is acting on this now. They are reinstating various programs about contaminants in the Strait of Georgia.

I don't know that we have great current information. The department is acting to improve it. I think it's something we'll have to deal with as we go forward. It's going to be an element of the component, but I don't think it's a major component right now.

Mr. Mel Arnold: Thank you.

I'll move on to Mr. Hauknes now.

Mr. Hauknes, how many salmon would you say an ordinary commercial fishing vessel would land in B.C.?

Mr. Robert Hauknes: It's really dependent on which gear type you're using. A seine vessel could catch as much fish as I catch in one set. It's really dependent upon what species you're targeting, what pressure they can withstand, and the gear type.

If you're just asking what I catch, I would usually catch around 1,000 chinook a year, probably around 4,000 to 5,000 coho and then somewhere in the neighbourhood of 4,000 to 6,000 pinks.

Mr. Mel Arnold: Thank you.

In 2016, the federal Minister of Fisheries and Oceans visited Vancouver and promised British Columbians that the government was restoring stocks of the Pacific salmon. We're now five years later.

Would you say that the government has restored Pacific salmon stocks?

Mr. Robert Hauknes: I wouldn't necessarily say that they've restored it. They might have restored certain populations, but in general in what I can harvest, we haven't seen an increase.

● (1725)

Mr. Mel Arnold: Thank you.

Could you give an indication of what kind of capital investment would be required for a new entrant into B.C.'s commercial salmon fishery? Is anyone is interested in that, given the condition of salmon stocks currently?

Mr. Robert Hauknes: For a northern troll licence, it's approximately $160,000 to $180,000, depending on the vessel length. A boat is anywhere from $100,000 if you buy an old wood boat to $500,000 for a nice fibreglass boat. You're probably looking at in the neighbourhood of $450,000 to $700,000 if you're getting a vessel that can fish multiple fisheries. You can't just fish salmon anymore, unfortunately. You're probably looking at three-quarters of a million dollars to actually have a somewhat viable fishing operation.

Mr. Mel Arnold: Thank you.

The Chair: Thank you, Mr. Arnold.

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

Mr. Robert Morrissey: Thank you, Chair.

I'm going to share my time with Ms. May.

Mr. Hauknes, I want you to elaborate on your comment that the way the salmon fishery is managed has changed. At the same time, you said that the department is managing a declining stock but should be managing to rebuild it. Could you briefly explain that the committee? Then I'll give the rest of my time to Ms. May.

Mr. Robert Hauknes: I'll try to summarize it fairly quickly.

Before you used to have one licence that allowed you to fish from the Alaskan border to the Washington border. Then they went to area licensing, so the north coast from Pine Island north is one area for trolls. The west coast of Vancouver Island is another area, then the Salish Sea another for trolling. Seines have two licences: north-south; gill nets, that's Fraser River north coast, and then I believe Vancouver Island. I don't gill net, so I don't...but they went to different areas.

If you want to fish all of the areas, you have to buy three licences and stack those licences onto your vessel. Now they've gone to weak management, so you're even restricted further by fishing areas. When we have a chinook opening, we're only allowed to fish from Tian on the west side of Haida Gwaii and most of Dixon Entrance. It's a very small area that we're allowed to fish in now.

As far as managing declining stocks is concerned, we don't really see an increase in the fish we're allowed to retain. There just seem to be further restrictions on our ability to harvest fish. That's why they're managing a declining stock, because if more fish were available to be harvested, then you would see an increase in the commercial allocation, which we haven't seen in a significant amount of time.

Mr. Robert Morrissey: Ms. May.

The Chair: We'll go to Ms. May now for the remaining three minutes.

Ms. Elizabeth May: Thank you very much.

Like all British Columbian members of Parliament and many British Columbians, I think we have a rising sense of panic that the salmon is in crisis, as Gord Johns has just said. We need to think about doing things differently. I've already made one key point about where I think we need to go on the climate crisis.

Captain Temple, Dr. Riddell, and if we have time, Robert Hauknes as well, if we fundamentally need to do something as dramatically different as dividing DFO in half and having a minister for the west coast fishery and a minister for the east coast fishery and some combination of them to deal with the Arctic. Captain Temple, if we could radically reform the way we are managing salmon headed towards extinction, as you were saying, what would we do?

Capt Josh Temple: Thanks, Ms. May.

I think that regional management is critical because of the diversity of habitats and unique situations that each habitat and watershed faces. I think regional management is key. It's critical. As Dr. Riddell alluded to before, there is a diversity of different problems that can affect both the marine environment and individual watersheds as well. I think it needs to be supported from the highest level, but I think the ground level in the local regions is where that depth of knowledge really occurs, and I think that's where you're going to find the best chance of viable solutions.

● (1730)

Ms. Elizabeth May: Dr. Riddell, if I have time to ask you the same question, does the structure of DFO work? Would a dramatic solution like that help, or do we really need to get this work done on the ground?

Dr. Brian E. Riddell: I think we can work within whatever system of bureaucracy we have in place. We really must have the commitment to the resources, and we can then develop the plan just the way Josh said. You could have regional committees that really know their environment. The limitation of that though is that some of our problems are in the international waters of the ocean. The competition between different countries in producing massive amounts of pink and chum salmon, for example, is not as simple as changing the bureaucracy. We still have the same problems that we have to learn to manage, and we still need the commitment and persistence of resources over time.

Ms. Elizabeth May: Do I have any time left, Mr. Chair? Okay.

Mr. Hauknes, I wanted to give you a chance to expand. If we're managing a declining stock, and you're seeing less and less fish, is there any form of compensation that you think the commercial fishermen in your situation should be receiving because of other competing policy demands that reduce your access to fish?

Mr. Robert Hauknes: I would like to see a licence buyback or something along that line to compensate people who want to get out of the fishery.

There are still too many licences. There have been a couple of buybacks in the preceding years. The U.S. government gave $30 million to buy up some trolling licences to reduce the impact on the coho salmon, but there are still too many licences. It will be nice to see the government whittle this down, I guess, to a viable number.

Ms. Elizabeth May: It looks like you have a baby crib in the background there. I hope you take good care, you and your family.

Mr. Robert Hauknes: Yes. He's just a newborn.

The Chair: Thank you for that, Ms. May.

Congratulations on the newborn, Mr. Hauknes.

We will now go to Madame Gill for two and a half minutes or less, please.

[*Translation*]

Mrs. Marilène Gill: Thank you, Mr. Chair.

Mr. Riddell, you just talked about international waters, a topic the committee has not spent much time on.

Could you expand on that idea, including the importance of working with other countries?

[*English*]

Dr. Brian E. Riddell: It's an interesting question. Canada is a very small player in the hatchery production game. The massive programs in Japan and Russia and in elements of Alaska really produce a hundredfold times more fish than we do in that.

The problem is that the fish will mix in the ocean. When we went out and sampled in the Gulf of Alaska in the winter, we had fish from Russia, the Yukon River and Japan. These fish are highly migratory.

Then there are many science papers involving statistics that show competition between different countries' fish and our fish.

If there is a limitation on food supply—which I don't know is really demonstrated as well—it looks like there is actually competition between species and countries.

The other international point, of course, is the illegal fishing at sea, which seems now to be coming back a bit and is a concern, but that's a different question from the competition between salmon species.

[*Translation*]

Mrs. Marilène Gill: Thank you, Mr. Riddell.

I want to come back to my earlier question about needs.

Mr. Temple and Mr. Hauknes, taking into account your respective areas of expertise, what are your priorities when it comes to salmon?

Capt Josh Temple: Thank you, Mrs. Gill.

[*English*]

As I mentioned earlier in one of my responses, certainly starting with habitat restoration would be the top priority from my perspective.

I'll give an analogy very quickly. None of us would expect to plant a productive garden if the soil were contaminated or full of rocks. We have to look at the garden first. The garden for salmon, as I understand it from a first nation perspective, is not healthy at all, and we know this to be true. We have to first rehabilitate the habitat if we expect to have any meaningful chance of recovery.

I will leave some time for the rest of the witnesses.

● (1735)

The Chair: Thank you for that, Madame Gill.

We will now go to Mr. Johns for two and a half minutes or less, please.

Mr. Gord Johns: Thank you, again, to all the witnesses for their important testimony.

Captain Temple, can you speak about how important coastal British Columbians' restoration work is for COVID-19 job recovery and about the opportunity that it presents right now given the state of wild salmon?

Capt Josh Temple: That's a really important question, and it's one that I hoped somebody would ask. Mr. Hauknes touched on this, on what we do with loss of economic activity through fishermen and through COVID-19. Creating jobs and creating meaningful employment opportunities and contract opportunities for first nations and coastal communities through this type of restoration work, particularly in coastal communities that have suffered so greatly from losses of fisheries opportunities and forestry, are critical to rebuilding our coastal economies.

I think that it's a two-pronged approach. Not only are we making meaningful progress in aiding the recovery of salmon, but we're also creating much-needed jobs, particularly in remote coastal communities here in British Columbia that have suffered so greatly through not only COVID-19 but also the loss of access to productive fisheries, forestry and other such industries that we used to traditionally depend on here on the coast.

Mr. Gord Johns: Can you touch a bit on the importance of the partnerships that you have with indigenous communities and how the local indigenous guardian programs, for example, could be mobilized to do some of this work?

Capt Josh Temple: Yes, absolutely. It's a very large aspect of our fundamental philosophy in our Coastal Restoration Society to support local first nations in any of the projects that we work with. Really, with sometimes tens of thousands of years of traditional knowledge in these local environments, there is no better source of information and science to turn to in terms of how best to manage our local resources over time.

If we can somehow find a way to collaborate more effectively between first nations by utilizing their guardian programs, their hereditary leadership and their traditional ecological knowledge experts and marrying that with our more traditional western science and leadership and management perspectives, I think we are going to achieve far greater results than we have seen in the past. I think that is a pathway that we all need to endeavour to engage to walk together on.

Mr. Gord Johns: That's super.

The Chair: Thank you, Mr. Johns. You were right on the button that time. That was great.

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

Mr. Blaine Calkins: Thank you.

I'm now going to ask questions of Dr. Riddell.

We've met before, as I'm sure you recall.

Dr. Brian E. Riddell: Yes.

Mr. Blaine Calkins: I want you to talk a little bit about this, notwithstanding Captain Temple's assertions that it doesn't make sense to build up hatchery capacity without having the habitat in place. I think you and I had a frank conversation, and could you remind me of what your thoughts might be about the department's current...I'm not going to say attitude but a word that might be synonymous with attitude.... Towards community-based hatcheries, whether those hatcheries are there for scientific use, for stock replenishment or for restoring breeding stock, is the department actually respecting the knowledge of the local community hatcheries and using them adequately, or could that be improved?

Dr. Brian E. Riddell: Well, I think it could be improved, but I mean hatcheries can have very different objectives. The major hatcheries that the salmon enhancement program has built were built to provide fish to commercial fishing and also to recreational fishing as they changed the species composition. They were not built to be conservation hatcheries, right?

Community-based hatcheries can be very effective, just the way Josh referred to them. You can return some spawning populations by having localized community hatcheries. Also, maybe you don't do work in one stream only through the community. You could have several streams alternating through time.

You really have to be clear on the objective of your hatchery before you really look at what's being done and what could be done. I think there's great opportunity in providing the diversity by using more community-based hatcheries. The push-back you get is that they can be more expensive, because you need to have more trained staff and more widely diversified facilities and so on. Or, you could build larger facilities again, but use “satelliting”, as we used to call it, where you could bring in different populations and move them back out to their home streams. I think we've learned so much about salmon genetics, physiology and genomics that we could use hatcheries in a much more directed way. That would be different than just producing large numbers of fish.

● (1740)

Mr. Blaine Calkins: Agreed, but moving to a conversation on large numbers of marked fish, then, because your answer was a perfect segue into my thoughts, several groups, whether it be sport fishing groups or others, are arguing that right now the chinook retention closures and so on are having a devastating economic impact on some businesses on the west coast. They argue that they could move to a marked selective fishery right away, given the fact that there are so many marked fish in the system from outside of Canada.

Canada, in that agreement, marks only a certain percentage, a very small percentage, especially of chinook salmon. Would you agree with their assessment that we should move to full marking of chinook hatchery salmon and move to marked retention fisheries? Would that be something that would be viable not only for the sport fishing industry? Could that be something that we could get a first nations involvement in with not only the hatchery production but also the retention for food, social and ceremonial uses on marked salmon and almost run a parallel marked salmon versus wild salmon fishery to protect wild salmon stocks?

Dr. Brian E. Riddell: Well, unfortunately, what we're talking about here really is a mix of biology, sociology and cultures. This is not a straightforward thing that you should do this, yes or no. You could certainly do elements of this, and I have been promoting the consideration of mass marking, because I think to sustain our coastal communities and to have viable tourism and recreational fishing, we need to provide opportunity.

You can't just have closures, because you're going to lose the resource; you're going to have loss of infrastructure, etc. The decision has to be for the rebuilding of the natural populations that have conservation needs. Is there a sustainable level of harvest or mortality that could be sustained while you do that? You'll have to make a very explicit management decision that you will enable a limited mortality in order to sustain communities while you rebuild the populations.

Rebuilding is not going to be overnight. It could take 10 to 20 years, so you have to have a long-term perspective about our communities as well. It will have to be limited; it is not a panacea. If we think that the allowable harvest is 5% of a return—and it could be that low—then the scale of the fishery you can provide is going to be limited.

We can know these things; we can identify animals to their stream of origin and that, so we can do the assessments. It's a matter of how open we are to looking at a new way of doing these analyses and rebuilding. We need to think long term. We need to think about wild fish, but we have to consider our communities, I think, to make it saleable in the long term.

The Chair: Thank you, Mr. Calkins.

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

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

Captain Temple, as you listened to Dr. Riddell's comments about hatcheries, you mentioned that there are streams and perhaps inlets where there used to be salmon and there aren't anymore. Could you visualize community-based hatcheries basically restoring populations to some of these waterways?

Capt Josh Temple: That's an excellent question, and in fact, we do have community hatcheries in place here in Clayoquot Sound and Barkley Sound that were set up to specifically augment runs that were in serious and troubling decline.

Those hatcheries have been operating at a fraction of their capacity—again circling back to a lack of appropriate funding or sufficient funding. These hatcheries are here; they're ready to go with experienced staff in place, like Mr. Doug Palfrey here at the Tofino salmon enhancement facility. The thing I hear year after year is that they're inadequately funded, so unfortunately, we're not maximizing them to their ability.

● (1745)

Mr. Ken Hardie: I'm going to put some words in your mouth here. Would you agree that sometimes it's not just the dollars that it takes to get an operation up and running, but that there are other considerations like the social one, and the availability of food eventually when they come back? In other words, we shouldn't necessarily just be fixated on how much it costs to do something, but that we need to look at a whole range of essential elements that would make something like this really worthwhile.

Capt Josh Temple: Absolutely. Again, it harkens back to our reliance on dependable and thorough science—as Dr. Riddell would reinforce, I'm sure. However, in the situations where we have a near or complete extirpation of salmon, there has to be some form of augmentation to restart or rekindle that run. In many cases throughout the regions I'm personally intimately familiar with, in the areas where I've fished and worked over the course of my career, there are facilities that could easily contribute to the rebound of those systems, but they're suffering from a lack of funding in almost every case.

Mr. Ken Hardie: Dr. Riddell, I'll go back to you for a second. I want to go back to some of your earliest commentary. In the work that you were doing in two of the four phases of that initiative, you mentioned that you were studying the arrival or presence of various pathogens in the salmon population. Do you have any sense of timing as to when some of those may have all of a sudden become factors? In particular, is there a connection you could draw from the data between the arrival of pathogens and the arrival of aquaculture on the west coast?

Dr. Brian E. Riddell: We've only really investigated at that degree of detail for one virus, and that was the piscine orthoreovirus. It's the one that's been in the media many times, related to the heart and skeletal muscle inflamation disease. We have done a very careful genetic study of its origin, where it's from, and whether it's being exchanged with salmon farms.

That research is the basis for my answering to a previous question that yes, the assessment of the Pacific Salmon Foundation and the strategic salmon health initiative is that there is more than minimal harm and that the PRV's origin is in the European Atlantic area. We believe it came over approximately 30 years ago. That, by coincidence, puts it in close relationship to the development of salmon aquaculture.

In this one instance, then, in which we've been able to do this study, it does actually unfold in that way.

Mr. Ken Hardie: We've heard in other studies that the Pacific Salmon Foundation has done an awful lot of work up and down the coast. I believe it was the Nass River system that was the focus of a complete assessment by the Pacific Salmon Foundation.

If that is the case and my memory is correct, what is the state of the runs in the Nass versus the runs in the Fraser River, given that the Nass certainly hasn't seen the kind of human activities that we've seen along the Fraser River?

Dr. Brian E. Riddell: I'm not sure what you're referring to from PSF in the Nass. We've not done that. If there was such a study, it was a very old review.

There are many factors involved with this, because the Nass Valley is also very much less developed. There's a huge difference there, to start with.

Unfortunately, the Nass supports the concern about climate change and changes in the ocean, because the productivity coming back to the Nass right now is depressed compared with their recent averages—with one exception: in 2020, they had a very good chum return.

This is the challenge of Pacific salmon. You get these outliers, all of a sudden, that are really good or really bad. Overall, the Nass is very consistent with the Skeena, southeast Alaska, central Alaska, in that there is a declining production.

● (1750)

Mr. Ken Hardie: That's fair enough.

The Chair: Thank you, Mr. Hardie. The time has gone a little over.

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

Mr. Dan Mazier: Mr. Hauknes, you mentioned the large investment it takes to enter the fishing industry. I can totally understand that, as I'm a farmer myself, but on the prairies.

Can you explain what the impacts to Canadian fishers such as you and to the surrounding communities would be, if the Pacific salmon stocks continue to decline?

Mr. Robert Hauknes: It would have a devastating effect. A large portion of our yearly income is from salmon. We support a lot of local businesses. This last year we've spent probably $25,000 in Prince Rupert just on building a herring skiff. Two years ago we put a new refrigeration system in. That was done out of North Saanich. We put an engine in the boat. That was done in Nanaimo.

In the last three to four years, we've spent a significant amount of money in local communities that just wouldn't be there. Salmon is probably about half of our income each year. If we didn't have a salmon fishery, it would be really devastating.

Mr. Dan Mazier: Half your income; that's good to know.

Mr. Temple, other witnesses have alluded to the lack of collaboration on the future of Pacific salmon. What do you think the federal government should do to improve communication and collaboration in relation to improving Pacific salmon stocks?

Capt Josh Temple: I'm sorry, but I didn't really hear that myself in other witnesses' testimony. I'm a firm believer that the collaboration has been fulsome and that it continues to grow. I think that continued and enhanced collaboration among the federal government, the province, first nations, scientists, academia, and ENGOs is critical, if we're going to see positive steps in the recovery of salmon.

I apologize, Mr. Mazier, but I did not hear that perspective today.

Mr. Dan Mazier: Okay, that's good.

You commented on the impacts of aquatic invasive species to ecosystems and fish populations, particularly the impact of green crab on wild salmon. Do you believe that the current federal government has provided enough support for AIS prevention and control in British Columbia?

Capt Josh Temple: I wish you would ask me that question two or three weeks from now. I might have a better answer. Right now we're still up in the air because some funding decisions have been delayed due to COVID and a variety of reasons. but we expect to hear some dramatic progress decisions soon.

I do believe, from what I've seen over the last year and a half, being engaged in the green crab issue with both the province and the federal government, that significant attention is being given towards green crab, not only at the regional level here in British Columbia but from Ottawa as well.

Certainly, I'll get back to you in a couple of weeks.

Mr. Dan Mazier: Okay.

Dr. Riddell, you mentioned something about the tools you're using in addressing climate change and how we adapt to the changing environment. Can you expand on that a little bit? What tools should we stop using? Is there something that should be addressed in this changing climate?

Dr. Brian E. Riddell: If a tool was mentioned, I don't think it was about the chemical analyses we're doing, but probably more in the context of major hatcheries. Major hatcheries are seen as a management tool. As you just heard, they can produce large numbers of fish. But the intention in doing that is that you have a certain minimum survival; therefore, it has a cost-benefit factor that they go ahead and build a hatchery. The issue is whether the environment is the same now as it was before. And it's not. So you have to think very carefully about how you're going to invest to do this. It may be that the timing now is much more conducive for small-scale, diverse community hatcheries.

● (1755)

Mr. Dan Mazier: Have we adjusted the research enough to do that? That's the question. Have you seen enough adaptation in the research community to adapt to that?

Dr. Brian E. Riddell: I wouldn't say enough to do the adapting. We have developed the tools you could use. Now it's a matter of how you implement them. But there's not a great deal of additional money in the enhancement program, where they want to spend more money, so there's been slow take-up of some of the real opportunities.

That said, they have used some very new tools, something called “parental-based tagging”. This is amazing. In hatcheries where you could maybe produce 10 million juveniles, you can take one individual from a pond and we can tell you its parents. It's amazing what we can do these days.

Mr. Dan Mazier: Good. Okay.

The Chair: Thank you, Mr. Mazier. We're out of time.

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

Mr. Robert Morrissey: Thank you, Chair.

Any of you can respond to my question, and could you clarify the following for an eastcoaster?

On the various panels I've sat through on salmon, the issue of hatcheries comes up. I interpret that there's a conflict in the advice given to government and to the department. Are hatcheries part of the solution as it relates to conservation versus commercial and both? Is the requirement to have an effective hatchery system a key part of maintaining salmon stocks into the future? I ask because at the same time, studies will show worldwide the oceans are not going to sustain the protein level of production they have. The trajectories are all down. Am I missing something here? Do we need them, and can we maintain both the stocks with hatcheries?

Dr. Brian E. Riddell: I can maybe start on this.

I think what you're perceiving is correct. In the scientific community, there is very definitely a split. Recent COSEWIC decisions about west coast salmon really criticized industrial-scale hatcheries. These are the large mega hatcheries, not the community-based hatcheries. The concern they have is that these large-scale hatcheries will produce large numbers of juveniles that will compete with the wild salmon that we're trying to restore, and that may not be positive.

The other side of the coin is that you can't just write off hatcheries. We talked with Josh that you can get down to very few fish in some streams on the west coast. Letting that go is irresponsible, because all you're doing is what we would call a “genetic bottleneck”. You are going to inbreed that population. What you would do is to use a conservation-type hatchery—maybe just for a short period of time—to restore some spawners in there to get the population production up.

Hatcheries are becoming quite a polarized source of discussion. I think it really depends on the problem you have and the tools you have available on how to address it.

Your perception is correct. There is a difference out here, and it really depends on what your objective is on what to do.

Mr. Robert Morrissey: Mr. Hauknes, as a commercial fisher, what is your perspective?

Mr. Robert Hauknes: I would echo what Mr. Riddell said. However, I would also say, as a commercial fisher that's my goal: to have as much fish available to harvest as possible.

You look up in Alaska and Russia with their mega hatcheries and how much fish they produce, and what we're producing here in B.C. is inadequate. If you're trying to conserve a stock, you have to be cognizant of the fact that if you have a mega hatchery, it's going to impact the foraging habits of those stocks that you're trying to recover. They're going to have to compete against those other hatchery fish.

I would just like to see more fish.

● (1800)

Dr. Brian E. Riddell: Could I make a comment on that?

Mr. Robert Morrissey: Sure, Dr. Riddell.

Dr. Brian E. Riddell: I don't disagree with anything we just heard there, except I want to point out that when you talk about Russia and others, they are producing a different species in the hatcheries—these huge numbers. They are not doing this with the chinook and coho. They have some hatcheries for those stocks.

We invested back in the early 1980s. We used to have hatcheries designed to produce large numbers of sockeye, pink and chum, and our program was changed to focus on recreational-type fish—chinook and coho. The huge numbers that we see elsewhere are really not comparable to what we're producing. Again, it's a different set of objectives.

Now, if you want to produce large numbers of fish that we potentially could harvest, I think there's opportunity—if the Pacific can produce them—for pink and chum. We have very successful chum hatcheries when the environment is good. We haven't done much with pinks: that's more the spawning channels. Sockeye can be too good. Our spawning channels there have different types of effects. They can have effects on the local populations, because the channels can be highly productive.

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

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

[*Translation*]

Mrs. Marilène Gill: Thank you, Mr. Chair.

Earlier, I asked Mr. Riddell about the repercussions of other countries' fishery practices on salmon. Mr. Temple, Mr. Hauknes or Mr. Riddell could answer this next question, which has to do with existing research and their own knowledge on the subject.

As far as the salmon situation on the west coast goes, has the same thing ever happened elsewhere, perhaps with other species? If so, could we look to those situations for possible solutions?

The Clerk: Sorry to interrupt, Mrs. Gill, but could you lower your microphone? We couldn't hear you clearly.

Mrs. Marilène Gill: That sort of thing certainly keeps the ego in check.

I asked whether the reasons behind the situation plaguing Pacific salmon were exclusive to Canada's west coast. I was wondering whether the same thing had been observed elsewhere.

We talked about North America and Russia, of course, but are there any cases where this is currently happening elsewhere? If other countries took steps to effectively protect their salmon populations, could we look to them for solutions? If so, how can we do it? It's a multi-faceted question.

[*English*]

Dr. Brian E. Riddell: Maybe I could start again, gentlemen. I think the best example is in Russia. They have a very large pink and chum hatchery program. In 2000 they lost 40% of their catch in one year. Their hatcheries didn't change in any way, but the ocean environment was so much different that the fish returning had much lower survival rates.

Your original question was really about interaction or mixing among different hatchery groups in the Pacific. If that is the case, maybe we'll see a little bit better return to Canada. My expectation, from looking at many populations, is that we will not, because there's a common factor in the North Pacific. It has been very poor for our fish and for their fish.

Once the ocean changes, it's pretty much unavoidable.

The Chair: Thank you, Madame Gill.

We'll now go to Mr. Johns for two and a half minutes or less, please.

Mr. Gord Johns: Thank you, Mr. Chair.

Mr. Riddell, you talked about international fishing. One thing that people brought to our attention that has raised concerns is the issue of super trawlers and bycatch there as well, in addition to international fishing. Can you speak a bit about that? Is that a concern of yours?

Dr. Brian E. Riddell: It was a concern of mine, but I think it's a bit dated now because the trawl fisheries that you're talking about and their effect on salmon were in the extreme North Pacific and in the Bering Sea. The Bering Sea pollock used to be the largest fishery in the world. It was highly productive, but it had an enormous bycatch of chinook salmon, into the hundreds of thousands of fish. The U.S. put very severe restrictions on their fishers there so that they now have a quota of bycatch. I think it's still around 80,000—maybe Mr. Hauknes knows—so once you hit that quota the fishery is closed.

There's a huge incentive to not hit that quota. Every vessel has to carry a monitor, and there are films and they report, and they do close the fishery when the quota's matched. So I don't have a huge concern—

● (1805)

Mr. Gord Johns: Right. Thank you so much.

Captain Temple, you talked about hatcheries and we talked about the lack of funding. We think about, in your area, the Tofino hatchery, Thornton Creek. The Clayoquot have a hatchery out at Kennedy.... They're on bare bones. Can you talk about how that's impacting volunteers and the work they're doing?

Capt Josh Temple: Yes, certainly. Thanks, Mr. Johns.

Through my work with the local Clayoquot salmon round table, which is, of course, populated by first nations, the province, DFO, the ENGOs, fishermen—both commercial and sport—I understand very well the workings of the local hatcheries. We receive regular reports and updates on their progress and how successful or unsuccessful they've been on gathering brood stock and what their funding situations are like.

We know one thing to be true. When the funding taps are turned off or are completely restricted to a trickle, the number of fish plummet in our local systems because our local systems here, at least the ones that the local community hatcheries have been working on, are highly dependent on the input from those hatcheries. Once the production and the funding are turned off, our numbers of chinook salmon particularly plummet to either close to zero or zero.

Without that funding that we talked about earlier, we don't have salmon returning to our local streams naturally in any meaningful way. We have small returns, but just in my lifetime I've watched those returns go from numbers in the thousands to single digits. Without the hatchery work that is being done by these amazing teams of community hatcheries, we wouldn't have any numbers of fish left in our rivers at all.

Mr. Gord Johns: Thank you. Do I have time for a quick question? I'd like to give it to Ms. May, actually, if there's time.

The Chair: If Ms. May can come up with a quick question, I'll let her go. I'll use the chair's prerogative.

Ms. Elizabeth May: Thank you, Chair, for using your prerogative, and thanks to my colleague from Port Alberni.

I have a quick question, then, to Dr. Riddell. Given the complexity and the multiple factors here, what would your most concise advice be for the Minister of Fisheries right now? Would declaring an emergency for Pacific salmon help us?

Dr. Brian E. Riddell: I don't think a new name would help. It depends on the action. We need the resources; we need the people. There are many people who will give you way too much good advice, so you need people who can really sort those out. There was a good question earlier about a 1,000 random projects that were all worthwhile locally. They didn't add up to recovery. You need to be thinking in terms of a bigger picture about how to effectively utilize taxpayers' money to restore salmon. It's not going to be easy. You're going to have to be prepared for some failures.

You have to study the issue in the ocean. I'm sorry to keep harping on that, but all these comments about things have changed over time. It's not because hatcheries are doing something different, it's because the environment has changed, or it's because we didn't sustain the local estuary. In Campbell River, you built a marina on top of the most beautiful eelgrass bed I've ever seen in my life. It still didn't stop it. That sort of thing can't continue.

If there's a way to improve things, it may be to give the money to a group that's dedicated to restoration, and do the best thing for it. Get a group that's going to build from knowledge, work together and gain experience. Include people like Mr. Hauknes who has a sincere need for income, and understands the complexity of the fishery.

There are many people who will give you time to do this work. We have to do things a little differently. A friend of mine says if you don't look at what you're doing, you just keep doing the same old thing. That is not very wise management if it's failing.

The Chair: Thank you for that. Thank you, Ms. May.

I want to thank our witnesses today for appearing before committee, and sharing their wonderful knowledge. It's probably one of the most insightful meetings we've had in a while.

I will remind committee members that there is no committee meeting on Monday because that is budget day. On Wednesday the first hour will be on the final draft version of our report on moderate livelihood. We hope to get that finished. The second hour will be dedicated strictly to committee business. If we get through that quickly in the first hour, we'll have a bit more time for committee business.

Thank you to the staff, clerks, analysts and translators for putting up with us this afternoon.

I wish everybody a wonderful evening. I'll see some of my colleagues tomorrow. We'll see the rest of you back at committee next Wednesday.

● (1810)

Ms. Elizabeth May: Love from the Salish Sea out here.

The Chair: The meeting is adjourned.