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Chair

Mr. Scott Simms

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● (0845)

[*English*]

The Chair (Mr. Scott Simms (Coast of Bays—Central—Notre Dame, Lib.)): Good morning, everyone.

Mr. Robert Sopuck (Dauphin—Swan River—Neepawa, CPC): Mr. Chair, when you're ready I would love to make a comment, if possible, prior to the proceedings.

The Chair: I was just about to introduce our guests, so maybe you should proceed.

Mr. Robert Sopuck: Apropos of our discussion last time and decision not to study the Lake Winnipeg coast guard issue, just for your information, two children were rescued by the coast guard yesterday, and to date, five more have been rescued. That is a pretty important issue for us and the people in that region are exercised about the potential loss of the coast guard. I just wanted to pass that on.

The Chair: Now on with our study. We're studying marine protected areas, as you are all aware.

We have two guests with us this morning, as witnesses. We have Dr. Mark Carr, a professor with the Department of Ecology and Evolutionary Biology at the University of California in Santa Cruz. Thank you for joining us.

We also have Byng Giraud, vice-president, corporate affairs and country manager for Canada with Woodfibre LNG Limited. It's good to have you as well.

I'm sure you've been told how we normally do this, but you have time for a presentation of 10 minutes or less and following that we'll have questions from our committee here.

Dr. Carr, I'm going to start with you for 10 minutes or less.

Professor Mark Carr (Professor, Department of Ecology and Evolutionary Biology, University of California, Santa Cruz, As an Individual): First, let me thank you for the opportunity to share my thoughts on the scientific rationale for both the uses and the design of marine protected areas as conservation tools for marine ecosystems and species, as well as the human services that those species and ecosystems support.

I've been studying, publishing, and advising on marine protected areas—which I'll refer to as MPAs from here on—since the late 1980s. For eight years, I co-chaired the science advisory team for California's Marine Life Protection Act, which created a network of marine protected areas along the entire 1,300-kilometre coast of California, and it also created the largest science-based network of MPAs in the world. That process also contributed to the creation of design criteria for MPA networks, many of which are currently being proposed for networks on both the east and the west coasts of Canada.

I currently sit on the U.S. Marine Protected Areas Federal Advisory Committee.

While I appreciate the opportunity to convey the rationale for protected areas, I want to keep this as brief as possible so that we have plenty of time for questions. I also understand that the presentation I am going to give tomorrow at the Oceans20 MPA workshop will be made available to you as well, and it goes into greater detail on some of the aspects of this testimony.

There are two types of MPAs that have emerged over the past decade: really large MPAs, in the order of hundreds of thousands of square kilometres, which are located in very remote places with very little human activity; and then networks of smaller marine protected areas that are embedded along working coastlines and seascapes. While those networks of MPAs are smaller in overall area, they provide greater conservation value because they occur where people are using the ocean, and they foster a higher likelihood of contributing to the sustainability of coastal fisheries. Therefore, my comments are all going to be focused on this idea of networks of protected areas.

These networks of protected areas offer unique opportunities for the conservation of Canada's marine biodiversity and the ecosystems that maintain that biodiversity. That's because, like protected areas on land, they protect entire ecosystems—in many cases multiple ecosystems—rather than just a particular species. By encompassing an entire ecosystem—say, an estuary, a kelp forest, a deep rocky reef—they protect not only the species that inhabit that ecosystem, but also the important interactions among those species, and then the productivity and the services that marine ecosystems generate.

Those ecosystems interact with each another in two fundamental ways. The first is by the movement of organisms between ecosystems. For example, many fish species that live in deeper offshore habitats will migrate up into shallower ecosystems to spawn, or their young will use those shallower ecosystems as critical nursery habitat from which they will eventually come down and replenish adult populations.

The other is the movement of energy and nutrients from one ecosystem to another. For example, winter storms will dislodge kelp plants. Those kelp plants, and the energy and nutrients associated with them, will be carried either to onshore ecosystems or to offshore ecosystems, where they will fuel the productivity of those ecosystems as well.

By including multiple ecosystems in a given MPA, you protect not only the species that inhabit those ecosystems, but also the critical interactions between ecosystems.

● (0850)

However, MPAs differ from protected areas on land in one fundamental way. When land animals and plants reproduce, the young remain near their parents in the population that created them. They create self-replenishing populations. That means that you can maintain a self-replenishing population within a protected area on land, but it contributes very little to the conservation of those populations beyond the boundaries of that protected area.

In strong contrast, the young that are produced by most marine species are carried tens to hundreds of kilometres away from their parents by ocean currents. That has two fundamental implications for the use and design of marine protected areas. First, it means that the populations within a protected area are reliant on the young that are delivered to them, but produced somewhere other than that protected area. The implication is that if you space these protected areas from one another by the distance that those larvae travel, that means that the young produced in one protected area can help to ensure the replenishment of populations in another protected area.

Importantly, at the same time, they also replenish the populations in between those protected areas. They replenish fished populations as well. As a consequence, the conservation value of a marine protected area extends well beyond the boundaries of any one protected area. The area over which the young that are created in a marine protected area contribute to the replenishment of other populations is determined by just how far those larvae are carried by ocean currents.

If you take one large marine protected area and parse it into smaller areas along the coastline separated by that distance that the young disperse, what you've done is blanket the entire coast with young that are produced by those protected populations in the marine protected areas. You not only increase the area of conservation, but you also increase the replenishment of fish populations by distributing protected areas along the coast in a network.

By encompassing multiple ecosystems within each MPA, thereby protecting the interaction between ecosystems, and by spacing those protected areas at the distance that young disperse, you actually create one of the most robust conservation designs for marine protected areas. This is why this idea of networks is proposed for both the east and west coasts of Canada.

I hope these comments have helped clarify the scientific rationale for why the idea of networks of protected areas is so popular.

Again, thanks for the opportunity to try to explain that.

● (0855)

The Chair: Thank you, Dr. Carr.

Explain it you did—a very good job. That was very interesting.

Thank you very much.

Mr. Giraud, you have 10 minutes, please.

Mr. Byng Giraud (Vice-President, Corporate Affairs and Country Manager - Canada, Woodfibre LNG Ltd): Thank you, Mr. Chair and members, for this opportunity to speak to you today. I've been following your proceedings with some interest.

By way of background, Woodfibre LNG is an LNG project located on the shores of Howe Sound within the boundaries of the municipality of Squamish. We are on a site called Swiyat by the Squamish Nation peoples, whose traditional lands encompass the entire Howe Sound area.

The word “woodfibre” in Woodfibre LNG comes from the fact that we're on 86 hectares that was home to an old pulp mill that shut down in 2006. In fact, there was a town there with 1,000 people, a bowling alley, and a baseball diamond. Essentially, there was industrial activity for almost 100 years.

We purchased the land in 2015 because it was a good fit for an LNG facility: it was private property, had a deepwater port with no dredging required, and was zoned as industrial in the official community plan. We have an existing gas pipeline that passes right through the site, and the BC Hydro 500kv line and 138kv line also pass right through our site, which allows us to run this facility on electric drives. Very few LNG facilities run on electric drives. This means about 80% fewer GHG emissions, and more than 90% lower NOx and SOx emissions, plus it will make us one of the greenest LNG facilities in the world.

We have our federal and provincial EA approvals. I should say that the federal EA approval was probably the second one done by the current government, and the first oil and gas facility approved by the new government under its five principles. We also have a legally binding environmental certificate from the Squamish Nation, quite possibly the first independent indigenous environmental assessment process in Canada, which is something we're quite proud of.

We're modestly sized. We'll export about 2.1 million tonnes per year. This makes us about a tenth of the size of the big ones up north that you hear about, in Prince Rupert and Kitimat. That means we'll send about 40 vessels a year, one every 10 days, or 80 transits.

By comparison, you might be aware of the Nuka “West Coast Spill Response Study” of 2013 that estimated that about 11,000 ships moved past the Neah Bay buoy—that is, opposite Port Renfrew on Vancouver Island—and about 10,000 ship movements past Point Roberts, the small spit of land just south of where I live in the Lower Mainland that is part of the United States. More than half of these ships are container, cargo, or bulk cargo vessels.

The LNG vessels that will be arriving at our facility will be powered by LNG. It should be noted that World Wildlife Fund Canada commissioned a study for the north and found that, by using LNG vessels instead of heavy fuel or bunker fuel in marine vessels, you can reduce pollutants by 97% and GHGs by 25%. Of course, there would be a much less significant impact from a fuel spill, given that gas dissipates.

We're also currently in the TERMPOL process with Transport Canada. This is the technical review process of marine terminal systems and transhipment sites. We've undergone the three environmental assessment processes, but the TERMPOL is an additional voluntary process that helps fine-tune our operations in shipping from site to the open ocean. Other than some additional safety measures we can take—the use of additional tugs and inclusion of two pilots on-board the ships—much of how we get to the open ocean is strictly regulated. We don't have a lot of choice about how fast we go or when we have to be tethered to tugs.

It's in this context that I present to you some of our thoughts as a smaller industrial player on the west coast regarding marine protected areas from a perspective of what I think is a progressive company, given our approach to things like electrification and Squamish Nation.

The big question for a company like ours, when it's doing this type of investment—we will be investing well over a billion dollars in Canada, and that's a small LNG facility—is around certainty and political risk. Every time governments and regulators make moves to alter the landscape or change the deal, it creates uncertainty, which is possibly bad for business. Unfortunately, as Canadians, we get somewhat of a reputation, particularly in Asia where I spend a lot of time, about our ability to build things here.

Having said that, I don't want to say that we are in conflict with an effective marine protected area; rather, we would call for a clearer, and perhaps quicker, process. The reason for this is that it creates the certainty these investors are looking for. When investors see green on a map when it comes to land use, they don't go there. It's pretty straightforward. When the use of the land is uncertain, and in this case the use of the ocean, this is when money becomes shy.

Based on my experience, we should consider a few things when considering MPAs—again from our perspective.

The recently announced oceans protection plan should be integrated with the rollout of MPAs. Evidence-based decision-making and a renewed focus on reducing environmental and safety risks are critical when considering the creation of these areas, we believe.

If we can effectively implement the OPP, does it take pressure off some marine environments? Does it change what levels of protection an area might have?

● (0900)

If we have world-class marine environmental protection, can more adaptive approaches for a marine-protected area be considered? Here I would like to acknowledge—I'm not sure I'm allowed to say members of Parliament's names—Randeep Sarai, who has been a real leader on the west coast in bringing together communities, organizations, and indigenous people to have this kind of conversation.

Secondly, MPA creation must not take place in isolation. It must be integrated with other processes. When we have only one perspective in use planning, whether it's land use or marine, we create unnecessary conflict in society. When we consider a protected area, we must, of course, consider environmental issues but also other things such as indigenous use, commercial fishing, recreational use, and industrial and transportation uses.

Thirdly, in regard to adaptive management, from what I've read, this term has come up at this committee before. It's something that we think is quite important. The Vancouver Fraser Port Authority has an enhancing cetacean habitat and observation, or ECHO, program. As part of this program, they are examining ways to minimize, for example, the noise from vessels. Something as simple as keeping the propeller clean has one of the largest impacts. By doing this type of science, by understanding these types of things, we can adapt what industry does to perhaps allow greater interaction between possible marine protected areas and industry. I appreciate what the other speaker said in terms of these networks, but perhaps alongside industry it's something that should be embraced.

Finally, on indigenous zoning, maybe that's the wrong word, but we're very proud that we play a small part in how the Squamish Nation is moving forward with regulating their traditional lands. They have a very effective land use plan, called “Xay Temixw”. I might say that wrong, but it means “sacred land”. It's very effective, and they want to move from the land use plan and expand to the marine environment. As part of our agreement with them, we are helping to fund that. The advantage of this is that it's upfront use planning and it helps us have certainty.

When we first came to build the Woodfibre LNG site, we had access to their land use plan, and it was pretty easy to say, “Oh, that site is not a sensitive area; we can possibly go there and have a conversation.” It wasn't going to be a no. That meant a big deal in terms of our having some upfront certainty. Using this approach, indigenous zoning, if you will, and the combination of science and traditional use and planning can provide greater certainty and reduce future conflicts.

Let me close with this: according to the Prime Minister when he launched the oceans protection plan, maritime trade is 250,000 jobs and $25 billion of our economy. The reality is that maritime trade will only grow as our population grows. There will not be fewer ships, there will be more. There will not be fewer commercial vessels or fewer recreational vessels, there will be more. Our reliance on the sea as a source of food will only grow. Marine protected areas are important, but they need to be reflective of the needs of all.

Thank you.

The Chair: Thank you, Mr. Giraud. We appreciate that.

Now we'll go to our questions, starting with the government side.

Mr. Hardie, you are first, for seven minutes, please.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Thank you, Mr. Chair; and thank you both for being here.

Dr. Carr, we have had on our coastline, especially in British Columbia, rockfish conservation areas, or RCAs. I presume they are analogous to the small MPAs that you've had in California.

● (0905)

Prof. Mark Carr: Not necessarily. We also have rockfish conservation areas throughout the west coast of the United States. Those rockfish closure areas, at least where we are, and they may be different from here in British Columbia, are huge offshore areas. The purpose of those rockfish closures was simply to restore the rockfish populations within them, and then having restored those stocks, the intent is to remove those closures eventually.

Mr. Ken Hardie: The challenge we've seen is not so much from the commercial fishery but from the recreational fishery in that these areas are apparently not easy to identify when you're out in your pleasure craft. People go in there and fish when they're not supposed to, which raises the whole challenge of managing and enforcing these smaller areas.

Prof. Mark Carr: In California, when MPA boundaries were considered, it was the stakeholders, not the scientists, who identified the location, the size, and the boundaries of protected areas. One of the guidelines from the Department of Fish and Wildlife was to make sure that they were easily recognizable boundaries—typically straight lines that extended offshore, preferably at areas such as headlands that were easily defined as well. Taking that into consideration so that people more easily can identify exactly when they are in or out of an MPA is a really important design criterion.

Mr. Ken Hardie: Mr. Giraud, I have some friends, including one whose name I'll mention. Try not to flinch. My old friend Rafe Mair lives up in Lions Bay, and he's got a real issue. I dare say he moved up there after the old pulp mill closed, and I remember the impact of that pulp mill because we felt it all over Metro Vancouver. One issue that has come up with respect to your LNG facility is the venting of warmer hot water back into Howe Sound. Have you resolved that or are you still going to continue to do that?

Mr. Byng Giraud: That's a good question because we're in the middle of that. When we entered into the environmental assessment agreement with Squamish Nation, there were some legally binding conditions, but not through contract because first nations don't have regulatory authority. One of those conditions was reconsideration of our sea water cooling, and ultimately we gave the choice of that technology to the first nations—an innovative thing to do—through a working group we have with them. As the working group last fall selected an air cooling technology, that issue essentially no longer exists. To be fair, I'm in an environmental amendment process with the provincial government to get that changed, but given that I have the full support of Squamish Nation to make the change and that aboriginal consultation is usually the biggest hurdle in these things, I believe it will take place.

Mr. Ken Hardie: One of the things that came up as part of that discussion, and it applies to both of you gentlemen, is the duelling science. You know it's an issue that has come up here in a variety of studies. DFO suggests that in Howe Sound specifically, the biosphere is thus and thus, whereas the local people say no, it's not. We've looked at the collapse of the herring fishery along the coast, and there are signs that this is starting to come back in Howe Sound, which of course is part of the sensitivity about venting.

What do you do, Dr. Carr, to deal with the fact that everybody seems to have their scientist on a leash and the conflicting evidence is not very productive?

Prof. Mark Carr: I think the key issue there is that the quality of that evidence needs to be considered. Often explicit studies need to be conducted to evaluate the consequence of some of those activities.

Mr. Ken Hardie: Coming up with the objective science is clearly a challenge.

Mr. Giraud, you talked about adaptive use of MPAs. That seems to be a signal that an MPA is not necessarily going to be out of bounds for everything and everyone. Is that fairly much it?

Mr. Byng Giraud: I really appreciated Mark's comments on this. Is it a park? Is it rigid boundaries? Is this a notion of a network, because essentially we have these 11,000 ship movements coming out of the harbour of Vancouver to open ocean at Ogden Point? There are some sensitive areas in there. How do we allow for both those uses? It's Canada's gateway. It's one of the greatest economic generators of our country. How do we address sensitive populations in the south Salish Sea when we have 11,000 ship movements? They will not become fall in number, but increase. The notion of networks and working together is possibly the way to go, but as I said before, getting a resolution to that is probably what industry is really interested in. If we know this is off limits, then let's make it off limits and not have a long process. We don't like the long maybes.

● (0910)

Mr. Ken Hardie: Dr. Carr, you commented on the currents and how they affect the migration of small fish especially from one area to another. There's that, and the whole issue of aquaculture, especially open net pens. What happens in those pens doesn't necessarily stay there or on the seabed, but they, too, can migrate.

What about aquaculture, and how does it fit into the grand scheme of things?

Prof. Mark Carr: I'm glad you asked that question because it relates to this idea of LNG ports and other human activities along the coastline.

Given that the goal of a protected area is really to protect the natural state of either a species or an ecosystem, many human activities along the coast are not necessarily compatible with that objective. In California, for example, we have waste water discharged from major municipalities like Los Angeles or San Francisco. We have cooling water discharged from power platforms. We have offshore oil platforms. We don't have as much offshore aquaculture activities, but, nonetheless, all of those activities tend to influence that local ecosystem where they are conducted. So in California the idea was to recommend to stakeholders that they avoid those areas of existing, and presumably, persistent human activities. It was suggested that you don't make a marine protected area in the waste water discharge of the city of Los Angeles, that as you craft the location of these protected areas, you could avoid those areas.

On the other hand, sometimes incorporating activities, especially aquaculture, within a protected area, allows you to evaluate what the effects of those activities are as well. For example, if you were monitoring the consequence of creating protected areas like in fjords, some of which do and don't have aquaculture activities, in the process of evaluating the protected areas you can compare those protected areas with and without that aquaculture and evaluate what those impacts are.

The Chair: Thank you, Dr. Carr.

Prof. Mark Carr: Then the adaptive management is that if there are big impacts, then eliminate that activity. If there are not big impacts, that means maybe they're fine to conduct within protected areas.

The Chair: Thank you, Dr. Carr. We appreciate that.

We have to move on to Mr. Sopuck, for seven minutes, please.

Mr. Robert Sopuck: Thank you.

We had testimony a few weeks ago, Dr. Carr, from the director of the Canadian Sportfishing Industry Association, who comes from the United States but lives in Canada now. He was talking about their sister organization, the American Sportfishing Association, regarding the California MPA. I'm going to quote from his testimony here. He said this is how the American Sportfishing Association saw the example of the California process:

> The only option considered was closures, no-take zones, permanent no fishing, no extractive use of any kind. That was the agenda.
>
> This is an example, the central coast of California, and the impact was significant. Even though it looks on a map as though it's not that big an area, anybody who fishes knows that fish don't live everywhere. They are in certain prime habitat. It

—meaning the MPA process—

> targeted prime habitat areas, over 40% of the best sport fishing areas in state waters out to the three-mile limit, and the impact on the economy was significant.
>
> The boating industry and the vehicle industry had an even greater impact in a negative way.

Would you agree with Mr. Morlock that the establishment of the California MPAs had a significant negative economic impact on the multi-million dollar sportfishing industry in California?

● (0915)

Prof. Mark Carr: I have three responses.

The first comment you made was that only strict no-take reserves were considered in California. That clearly is not true. You can see that is the case as soon as you look at a map of the network of protected areas. If you look at the maps, there are red protected areas, which are the no-take areas, what are called “marine reserves”. Then there are large blue areas that are called “marine conservation areas”. In fact, some of those marine conservation areas were made specifically to allow recreational fishing but prevent commercial fishing. Others allow both recreational and commercial fishing, as long as they were perceived not to impact the integrity of the ecosystem.

A classic example of that is salmon fishing. If you look at the network off California, the reserves were inshore. Then they were extended offshore by these conservation areas that would allow the take of salmon where there was perceived to be little effect on the rest of the ecosystem from removing salmon within those areas. So clearly, that's not true.

However, with regard to his comment about the amount of fishing area removed by the MPAs, where the recreational fishing in California is greatest, as you can imagine, is off southern California. Unfortunately, off southern California is also the least amount of rocky reef habitat relative to central, north–central, and northern California. In southern California, for the protection of those productive rocky reef ecosystems, there was greater conflict because there was simply less data available on whether to fish or to put into protection.

However, when he says that 40% value, I think he is focused on that southern California area. It's clearly not true. Along the 1,300 kilometres of California, there's no way that 40% of the recreational area was taken out of commission. The—

Mr. Robert Sopuck: Sorry to interrupt, but I don't have much time.

The American Sportfishing Association is a very credible group. It has funded thousands of conservation projects across the United States, so I'm not sure they can be dismissed that easily, but I catch your point.

Regarding catch-and-release angling, where the hooking mortality rate is either 5% or lower, is that considered by you to be a fairly innocuous activity in just about every MPA?

Prof. Mark Carr: As you can imagine, it depends on that particular activity.

For example, you can catch and release in shallow waters where you don't have barotrauma issues. You can't do it in deeper waters. You have to figure out with what species and where that seems to be an appropriate activity.

Mr. Robert Sopuck: I'll buy that.

What kind of evaluation has been conducted in California regarding the effectiveness of MPAs?

Prof. Mark Carr: There are three sorts of longevities of protected areas in the State of California. The oldest ones—and there are only about four of those that were created back in the 1990s—have been around for quite a while. The next were a series of no-take marine reserves around the northern Channel Islands off the coast of Santa Barbara. Those were created prior to the statewide network of protected areas. The statewide network is the youngest protected areas of those three categories.

It takes a while for the consequences of protection to be manifest —you have to wait for individual species to grow up and increase in number—but where it's been examined in the northern Channel Islands, there have been impressive responses by species within the protected areas. Importantly, what you see in those protected areas are increases in the amount of fish biomass—the number and the size of the fish combined—both inside and outside the protected areas, but the increase is much greater within the protected areas.

● (0920)

Mr. Robert Sopuck: If I could ask one more quick question, is the displacement of people and some activities a given when establishing an MPA?

Prof. Mark Carr: It's a given that many activities will have to be displaced to other locations along the coastline.

Mr. Robert Sopuck: Of course, the question is, what if there are no other locations?

But I take your point. Thank you very much.

The Chair: Thank you, Mr. Sopuck.

Mr. Donnelly for seven minutes, please.

Mr. Fin Donnelly (Port Moody—Coquitlam, NDP): Thank you, Mr. Chair.

Thank you to both of our witnesses for providing your testimony today.

Dr. Carr, perhaps I could start with you. You've been studying MPAs, protected areas, for a long time, since the 1980s—you said for almost 30 years—so you have a wealth of knowledge. You talked about two types: very large protected areas and a network of smaller protected areas.

This committee has been studying this for a while. We've travelled up north in Canada and on the west coast, and intend to travel to the east coast. One thing I've noticed so far from our interactions with the communities is the lack of process and how critical the process is in establishing MPAs.

I think, Byng, you mentioned the inclusion of industry and stakeholders, and how important that is.

Dr. Carr, could you talk about what you would recommend for Canada and this government, with often-conflicting mandates, to consider in implementing a proper process?

Prof. Mark Carr: You bet. Remember, I am an ecologist, not a policy-maker. I'm a student of that process, and most of my experience is based out of the California process.

I have to say that the California process, the Marine Life Protection Act, was the most stakeholder-involved process in the history of California. It was extraordinary. Because of that, it was also quite expensive. As I said, remember that the role of the scientists in that process was to provide stakeholders with scientific guidance for the design of the network. Nonetheless, it was the stakeholders, in fact, who actually designed the network themselves.

That really underscores to me the importance of how you engage stakeholders in the process. That was one particular way they were engaged. They can be engaged in various ways, but there's no question, in my opinion, that this engagement of as many stakeholders, representatives of stakeholder groups is critical to both the quality of the product that you generate and the support for what you end up with.

Mr. Fin Donnelly: Can you tell me, how important is it to have a process with a deadline or without a deadline?

Prof. Mark Carr: Yes. In California, remember that this act was generated by the governor, “the Governator” himself, Schwarzenegger.

Some hon. members: Oh, oh!

Prof. Mark Carr: The process extended for a while. As his term came to an end, it was critical that the creation of the network be finished by the end of his term. The concern was simply that regardless of who became the next governor, there would not be as much interest in the legacy that he was creating by that. We were under a very abrupt deadline as well, and it caused problems to some extent.

Mr. Fin Donnelly: Just to clarify, was the deadline included in the regulations?

Prof. Mark Carr: No, not at all. It was a political deadline recognizing that it needed to be done by the end of his term, but there was no deadline in the actual act itself.

Mr. Fin Donnelly: I have a couple of minutes and a couple of more questions. Maybe in the second round I'll ask the second question.

First, in looking around the globe, Dr. Carr, which countries with an established network of MPAs are producing the best results, in your opinion?

Prof. Mark Carr: This is a very simple answer because, as I mentioned in the introduction, when it comes to a science-based network design of MPAs, there is one, and it's the State of California's.

There are no other science-based networks of protected areas around the world. Even the Great Barrier Reef, which we think of as one of the more massive systems of protected areas, was not designed as a network the way California was. What's particularly important is that what you're venturing into now in both British Columbia and the east coast will be the second science-based network of protected areas in the world.

Honestly, after having reviewed the proposed science guidance for the British Columbia network, the hope would be.... I think what you'll find is that British Columbia—I haven't reviewed the east coast process—is building upon what California did and in various ways refining it. One would hope that, in fact, it will displace California as a model for how you go about designing networks of protected areas.

● (0925)

The Chair: You have one minute.

Mr. Fin Donnelly: I will ask the opposite. Which MPA areas in the world are having the worst results?

Prof. Mark Carr: Even though they're having some results, I suspect that it's in Europe in the Mediterranean and then some of the more northern European protected areas. To be frank, their responses are not as strong as one would hope, in part I think because they were not designed as a network.

The history of creating protected areas is of haphazard efforts of making one here and making one there, not thinking of them as a system or a network. As a consequence, they don't create the benefits that a network does. The idea of a network is that the whole is greater than the sum of the separate MPAs. The product of these haphazard MPAs is just how well each one of those does individually. They don't contribute to one another the way a network does.

It's that history of creating MPAs without a broader context, a spatial planning approach, that has led to a lower conservation value.

The Chair: Thank you, Mr. Donnelly.

I just have a couple of points of clarification. You mentioned a network of MPAs across California in contrast to the Great Barrier Reef. You are talking about Australia. Is that correct?

Prof. Mark Carr: Yes. I'm sorry.

The Chair: Thank you.

No, no, that's okay. I just want to get a couple of things on the record.

The other one is, when you say “Governator”, you're not talking about Jerry Brown, are you?

Prof. Mark Carr: No, not at all.

The Chair: I know. It gives you an idea of how in tune we are with the American media. When you said “Governator”, I think everybody here knew who you were talking about—everybody in this room.

Prof. Mark Carr: Exactly.

The Chair: Thank you for that.

Mr. Finnigan, you have seven minutes, please.

Mr. Pat Finnigan (Miramichi—Grand Lake, Lib.): I am back.

The Chair: He's back.

Mr. Pat Finnigan: Thank you, Dr. Carr and Mr. Giraud, for being here today.

Thank you, Mr. Chair.

I want to follow up a question by my colleague across the way on MPAs across the world. Apparently there's no real standard on how to establish MPAs, I assume. Is there a will among the international community or countries to eventually get at a standard science base to establish MPAs?

Prof. Mark Carr: There is. IUCN is trying to provide international guidance for the creation of marine protected areas, but this concept of networks is something that has emerged more out of the California process.

I spend a lot of time travelling to Europe and other parts of the world talking about the California process and the California network, because it's now considered a model, the global model. That's what I alluded to earlier. Hopefully, Canada will displace California as the global model for how to go about generating these science-based networks.

Mr. Pat Finnigan: Thank you.

In talking about human activities, you noted that if one goes to where the discharge is, Los Angeles or any large city for that matter, you can't just say, “We're going to establish an MPA there.” Do incentives work? I heard a little while ago Mr. Giraud talk about just cleaning the impeller making a big difference in environmental issues. Have you ever tried incentives to create better technology? Is that part of a process?

● (0930)

Prof. Mark Carr: I can only speak to California. My understanding in California is that it's not incentive-based, but regulatory-based. When it comes to water discharge, whether it's from a cooling power plant, once-through cooling, or a waste water discharge, they're under strict regulations, environmental regulations. I don't think I would convey those as incentive-based, actually.

Mr. Pat Finnigan: Okay.

Mr. Giraud, I think you mentioned that there was a recent approval by this government. Could you just elaborate on that? What was that about? Was your request for licensing in the works for a long time? What happened?

Mr. Byng Giraud: Do you mean the environmental assessment approval?

Mr. Pat Finnigan: Yes, you said that in the last couple of years it was—

Mr. Byng Giraud: Typically, an environmental assessment, on a good day, is three years for a project. We were delayed a little by a thing called a federal election. But we received our federal approvals in March 2016, I believe. It was the second approval under the government's new five principles.

Mr. Pat Finnigan: What kind of partnership have you been able to establish with indigenous communities? Are they benefiting from this whole approval?

Mr. Byng Giraud: In the first place, many first nations don't really respect or like federal and provincial environmental assessment processes. They don't consider sacred issues. They don't necessarily consider rights and title issues. There are a number of reasons why they've been dissatisfied over time, which is, I think, one of the reasons people are relooking at environmental assessment.

That being said, simply rejigging a federal-provincial process to make it more accepting of a first nations' perspective isn't necessarily what first nations are looking for. In this situation, they wanted to do their own process. We took a leap of faith and said, yes, we will enter your process, and we will abide by the conditions. For a lot of companies that would be a challenge. But I think this is the way things are going, and we try to take that position. The result was a legally binding contract, which takes the place of an environmental assessment list of conditions. We have 25 conditions from the first nations, one of which was to review the cooling process. We are no longer doing a seawater cooling process, something they felt was important.

These things need to be considered if we're going to move forward with projects. I mentioned how difficult it is to move forward with projects in Canada or how it's perceived by external investors to be hard to do. We're going to have to work more with indigenous peoples. But a cautionary note to governments, as they look at ways to bring indigenous peoples more into these processes, is they may not necessarily just want to be in your process. They may want their own process. In our circumstance, that's what happened. Even a more effective federal or provincial process may not satisfy aboriginal rights and title issues. The best thing to do is to start the conversation with the process that they're interested in. With a nation like Squamish Nation, which is a larger nation with more resources, it's sometimes a little more straightforward.

Mr. Pat Finnigan: You were talking about the heat discharged at such an industry. Have you ever looked at using that heat for industrial use? I'm thinking of a greenhouse, because that's the business I'm in. I'm just thinking if that extra heat could be used, and possibly be part of the whole....

Mr. Byng Giraud: We will be using some of it ourselves. We have looked at it. The problem is that, even though we're within the municipality, the reality is that it's water access. There are no roads, no services. Years ago they brought the pulp mill in to get the municipal taxation. We're seven kilometres from town, and there would be a lot of heat loss in the pipes. We're going to use some of it ourselves. So the short answer is yes, but the longer one is that you have to have something close by.

Mr. Pat Finnigan: Where does that gas come from? Is that Alberta gas?

Mr. Byng Giraud: It will be coming primarily from the Montney basin, which is up by Dawson Creek in northeastern British Columbia. It could come from elsewhere. We don't actually own upstream; we're buying it in the market. It comes down the Spectra line, which I guess is now owned by Enbridge, to a place called Huntingdon, in the Sumas area, and then enters the Fortis system. It's the same pipeline that currently takes gas to Vancouver Island. So it's from the same pipe as the gas that people get in their homes on Vancouver Island. We just happen to be along the pipe. They ran the pipe there to service the pulp mill in the old days.

● (0935)

Mr. Pat Finnigan: Just hypothetically, if a loaded tanker were to crash and burn or explode, what could be the potential damage to an MPA?

Mr. Byng Giraud: Well, in the first place, LNG vessels are some of the most sophisticated vessels in the world. The only vessels more sophisticated, frankly, are military vessels. These are $200-million ships. They're not tramp steamers with crews from all over here and there. These are sophisticated, highly insured—that's what keeps us honest, the insurance companies—vessels. There has never been a loss of containment from an LNG container ship, ever, in I'm not sure how many tens of thousands of movements since the fifties. There has never been a loss, and there have been some extreme stories about incidents that didn't result in loss.

The Chair: Thank you, Mr. Giraud. I'm sorry, but I have to cut it there.

Mr. Doherty, you have five minutes, please.

Mr. Todd Doherty (Cariboo—Prince George, CPC): To our witnesses, thank you for being here. I found your testimony very enlightening. I have five minutes, so I would ask you to keep your answers fairly short. I want to get to both of you.

Mr. Carr, can you tell me how long the entire process took, start to finish, in terms of your network of MPAs?

Prof. Mark Carr: It was on the order of 10 or 11 years or so.

Mr. Todd Doherty: Do you believe that the economic impact of an MPA needs to be studied before implementing an MPA, specifically a no-take zone?

Prof. Mark Carr: In the process of implementing, it's good to incorporate that information.

Mr. Todd Doherty: Has the commercial fishing industry been impacted by the MPAs in California?

Prof. Mark Carr: Some of it has. In response to an earlier question, for much of the displaced fishing activity, let's say recreational, there is plenty of room to displace that activity. But some commercial fishers are very locally focused, so some individuals in commercial fisheries were significantly impacted.

Mr. Todd Doherty: Can you talk about the enforcement challenges that resulted from designating the fishing zones in California? As well, do you know the rough cost of the enforcement in those areas?

Prof. Mark Carr: I don't know the financial cost. There hasn't been a huge supplement to finance the enforcement costs yet, but I think it's one of these things that gradually increase.

Mr. Todd Doherty: Do you believe that the process should be speeded up in terms of designating an MPA process? I think for our government it's taking currently five to seven years for an MPA, doing the studies and consultations.

Prof. Mark Carr: No, I think what should dictate the time frame of the planning process is the ability to bring people together, collect the necessary information, and get people's—

Mr. Todd Doherty: Through consultation.

Prof. Mark Carr: Exactly.

Mr. Todd Doherty: Okay.

Mr. Giraud, can you confirm that this next statement is true? Perhaps this will answer my colleague's question further. LNG has been shipped safely around the world for 50 years. There's never been a recorded incident involving a loss of containment of an LNG carrier at sea. LNG carriers are among the most modern ships in the operation. The ships have complex containment systems and double hull protection, and are heavily regulated by the international federal standards. In the unlikely event that there is a spill from an LNG carrier, LNG will never mix with water. Instead, it will quickly return to a gas state, and because methane is lighter than air, the gas will rise and dissipate into the air.

Mr. Byng Giraud: It's true. In the Vancouver harbour area, up to our site, we will also be escorted by two to three tugs, partially tethered. We'd need to have four vessels lose engine power at the same time to have an incident.

Mr. Todd Doherty: Can you talk about some of the voluntary measures your organization is engaged in to conserve the marine environment?

Mr. Byng Giraud: This is a 100-year-old site. There are 3,000 creosote piles, which is subpar habitat for herring. They still lay their eggs on it, which means most of them die. We are removing those 3,000 creosote piles. There are four landfills on site, one of which is still emitting leachate into the ocean. We have an obligation to treat that. We've taken over the treatment plant, and that will be an obligation of our company in perpetuity. It's an industrial site. It's a contaminated site. Frankly, only somebody with our financial abilities could take on that burden.

Mr. Todd Doherty: How would the Woodfibre LNG terminal impact the B.C. and Canadian economy?

Mr. Byng Giraud: In the first place, from a jobs perspective, we'll have 650 jobs at peak construction and 100-plus good jobs, family-supporting jobs, during operation. We'll be spending in an annual year along the lines of $80 million to $90 million in taxation alone. That doesn't include upstream.

● (0940)

Mr. Todd Doherty: To this date, have you been consulted by the Department of Fisheries and Oceans about MPAs?

Mr. Byng Giraud: No.

Mr. Todd Doherty: Thank you. Do I have much more time? One minute.

Mr. Carr, do you believe that the MPAs you've worked on in California can be directly compared to the five MPA zones being looked at in Canada?

Prof. Mark Carr: Yes, I do because fundamentally the ecology, the ecosystems, are very similar.

Mr. Todd Doherty: The economies surrounding those MPAs are similar, as well?

Prof. Mark Carr: Depending on the part, on the different areas of California, yes they are.

Mr. Todd Doherty: Do you have the widespread indigenous communities, as well, that we do in ours?

Prof. Mark Carr: No, we don't have them to the extent you do. The importance of indigenous nations increases with latitude. It's marginally important in southern California, and gets stronger as you proceed up the coast of California into Oregon, Washington, and then in British Columbia it is the greatest.

Mr. Todd Doherty: Is that it? Thank you.

The Chair: Thank you very much, Dr. Carr.

Thank you very much, Mr. Doherty.

Ms. Jordan for five minutes, please.

Mrs. Bernadette Jordan (South Shore—St. Margarets, Lib.): Thank you, Mr. Chair. I want to thank our witnesses for appearing today. It's been extremely interesting testimony.

Dr. Carr, I want to start with you because you cited the IUCN as a possible standard. One of the things, of course, we've heard from people who support that is that an MPA is more significant and better —sustainable in the long term—if it's a no-take zone. We have some struggles with that here in Canada, obviously, because of our first nations' indigenous fishing rights. You did not run into those challenges, though, when you were designating your MPAs.

Prof. Mark Carr: You bet we did. In northern California, as I just mentioned, that's where first nations played a greater role and had a concern about creating no-take reserves. The no-take reserves in those areas tried to accommodate those first nation activities based on their spatial location.

Mrs. Bernadette Jordan: The other thing we heard from a number of witnesses is that we're not moving quickly enough and that our targets of 10% are going to be hard to meet by 2020, whereas England has met its target and has become the standard. Yet when we had a professor speak from England, he said that while they've reached the target, they're not enforcing it.

Meeting the target isn't enough. You have to be able to enforce the MPA. How are you doing that on the California coastline? Is it well enforced? How is it being managed?

Prof. Mark Carr: It's enforced by the California Department of Fish and Wildlife. Remember, it was produced in state waters, so that department is responsible for enforcement. They have wardens who enforce the protected areas, but they're also complemented by federal enforcers, as well, including the federal coast guard.

Mrs. Bernadette Jordan: It's both state and federal enforcement.

My other question is about your comment that when you were developing the MPAs, you avoided areas where there were existing activities. Were those industrial activities, because I would consider commercial as an activity.

Prof. Mark Carr: Thanks for that clarification. Specifically, it was activities that affected the habitat, whether it was a water quality change, like a discharge, or a physical structure, like an offshore oil platform or a pier of some kind. Those are considered non-natural habitats, so those were avoided. But, no, the other kinds of human activities, including fishing and other recreational activities, were not avoided; they were just considered in the design.

Mrs. Bernadette Jordan: One of the things we heard from indigenous groups was that it's great to protect the water, but you have to protect the land that is attached to it, basically with regard to the cooling, and those kinds of things. What do you say to that kind of statement?

Prof. Mark Carr: Absolutely. Actually, in the California process, you'll see that some of the marine protected areas are adjacent to land protected areas so that you maintain the quality of the environment and the connection.

The poster child for that is the Great Barrier Reef in Australia, where there's an awful lot of sediment discharge and eutrophication from terrestrial influx that's having an impact on coral reef systems within protected areas. That's an example where by not protecting the quality of the land environment, and its influence on the marine environment, you jeopardize the conservation value of the protected area.

● (0945)

Mrs. Bernadette Jordan: Perfect.

Mr. Giraud, you mentioned 40 vessels a year from Woodfibre LNG going through Howe Sound. Is that correct?

Mr. Byng Giraud: Yes.

Mrs. Bernadette Jordan: Do you have designated shipping lanes?

Mr. Byng Giraud: Yes, there are designated shipping lanes. In Squamish right now, there's actually a small port where they are bringing pulp out and steel in, so there are already ships. We allow about 6% in the amount of traffic.

Mrs. Bernadette Jordan: At your peak, then, you're expecting more vessels.

Mr. Byng Giraud: No. We have a limitation by the amount of gas that comes to the site.

Mrs. Bernadette Jordan: It will always be 40?

Mr. Byng Giraud: Yes, or we'd have to go through an entirely new process and build a whole new plant.

Mrs. Bernadette Jordan: Okay.

I've heard from Dr. Carr that it can take up to 11 years. I'm hearing from you that we need a quicker process. How do we balance that?

Mr. Byng Giraud: I think that's why we have politicians.

Some hon. members: Oh, oh!

Mr. Byng Giraud: There have been a few questions that have danced around this idea of duelling scientists, and whose certainty.... Fundamentally, business wants to know where it can and can't go. Business would like to go everywhere it can, but business recognizes that it can't, so if there are certain places that need to be designated, we would like to know that sooner rather than later.

Obviously, science has to be involved in this and there has to be a public process, but at the end of the day, no matter what you do—we all know this—you can blame this business, and 15% of people will say you didn't do enough and 15% will say you did too much. The rest of the people will muddle through, and you will have to make a decision.

It's nice to say it's science-based, but let's be honest. It has already been said by the members here that we have been doing the sciences and that, fundamentally, decisions need to be made by you. From an industry perspective, dragging it out forever is not good for us. It's going on for a long time is maybe the worst thing. Yes and no is better.

The Chair: Thank you, Ms. Jordan.

Folks, I noticed in the past few meetings that we keep throwing out the the moniker of the IUCN. Simply as another point of clarification and for the record, as I do from time to time, it's the International Union for Conservation of Nature started in 1948, with 1,300 member organizations. As its website states:

> [The IUCN is] composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

There you go. I thought I'd throw that in because we are throwing those acronyms around quite a bit lately.

Mr. Arnold, for five minutes.

Mr. Mel Arnold (North Okanagan—Shuswap, CPC): Thank you, Mr. Chair, and I thank both witnesses for being here today.

I'll start with a couple of questions about size, because apparently size matters.

Some hon. members: Oh, oh!

Mr. Mel Arnold: Pardon me, Mr. Chair, with all due respect.

Mr. Carr, you spoke about a few things regarding size. The ecosystems were one that really raised a question with me. You talked about individual ecosystems, and yet we talk about entire ecosystems when we're creating MPAs. How big or small does a system need to be, to be considered an ecosystem, or are there ecosystems within ecosystems?

Prof. Mark Carr: That's a wonderful question. I'm glad you asked that, because I think it's a source of confusion. The answer is it's all of those. For example, I can study a kelp forest the size of this room. An ecosystem, by definition, is simply the living and the non-living parts of that environment and their interactions, which means that the decision on the spatial scale that you apply to that is essentially arbitrary. For example, the largest, or what we refer to as large marine ecosystems, encompass the entire coast of British Columbia, but also go down to the size of individual ecosystems like kelp forests or an estuary. An individual estuary in a fjord is also a single ecosystem. So when I say multiple ecosystems, it's those smaller units that connect to one another in an area.

Mr. Mel Arnold: It's ecosystems within ecosystems, then.

Thank you.

You also referred to some of the offshore rockfish protection areas in California as being huge. Can you better define huge, because going back to the IUCN, they state that for rockfish conservation areas to be effective, they need to be massive in size, with zero take, and so on?

What is huge in size?

● (0950)

Prof. Mark Carr: I can't give an actual value of huge in that case, but it's much of the west coast. Much of the State of California out in federal waters was put into a closure area. That's why they're not meant to be permanent, but temporary.

What motivated those closure areas, in addition to the dramatic decline in rockfish populations that spurred it, was the problem that they are multi-species fisheries. In the process of fishing one rockfish, you simultaneously collect another, and it's the other that is actually in concern based on the small population size. At depth, you can't discriminate which species you're taking, whether it's hook and line or net fishing. Unfortunately, the only way they could ensure the protection of the really endangered ones was to eliminate the take of all of those species within those areas.

Mr. Mel Arnold: Thank you.

Mr. Giraud, you talked about the consultation process and said you haven't been involved in the process so far.

Has Woodfibre been able to fully participate in the MPA planning? Has its participation been stymied or challenged in any way by multiple NGOs with basically the same agenda dominating the consultations?

Mr. Byng Giraud: My short answer earlier was no, we haven't been. But we're a small facility. There are many LNG projects. The question is probably better put to the BC LNG Alliance, which represents most of the companies. I do not believe they've been spoken to, but I could be wrong.

Nobody has stymied us. I'm not easily stymied. We are fortunate in that because we have the approval of the Squamish Nation and the people who have looked at the science behind our project, we actually don't have significant opposition. We have small NGOs that have an issue with us, but the big ones haven't talked to us, primarily because we've worked with Squamish Nation very closely.

In other areas you may see organizations that have more time and availability to be involved in these processes. When you're a company of our size with a billion-dollar project like this, we're not a huge team. To put time aside to be involved in all these consultative processes is difficult, so we rely on our industry associations.

Mr. Mel Arnold: Okay.

The Chair: I'm sorry, the time's up.

Mr. McDonald, for five minutes, please.

Mr. Ken McDonald (Avalon, Lib.): Thank you, Mr. Chair, and thank you again to our witnesses.

Mr. Giraud, from you testimony, it's interesting to hear how you seemed to go out of your way to do the up-front work. You did the consultations with the indigenous people and had that side of it looked after before you'd go any further. You mentioned that you're not a large player in this market, that there are many people who are bigger than you. You mentioned the fact of having to know information, for one, to attract investment. And of course, through that and the work that you do, you are obviously creating good-paying jobs. As with any business, you're in it to make a profit.

From your company's point of view, what would be your biggest fear from the establishment of an MPA? What would be the initial impact on your operation or business?

Mr. Byng Giraud: Our concern would probably be a broader shipping concern. I know that you had the Chamber of Shipping speak. As I've said before, it's Canada's gateway; it's going to get bigger. If we're going to create a system that protects our sensitive ecosystems, it needs to be in the context of anticipating growth in this sector. This is the gateway for Canada—for our grain, our coal, our containers. Vancouver is becoming a bigger port, and we're going to have pressures in Prince Rupert as well.

That's why I'm back to the question of certainty. What route are you going to make sure is available for industry, say “Let's set this part aside”? That's how you avoid conflict. The biggest conflicts in British Columbia have been over land use. Because protest in British Columbia has been over land use, let's not do the same thing again. Let's be clear that there are multiple users and multiple needs, and let's maybe define those areas.

It's almost as important to define the industrial areas as it is to define the protected areas.

● (0955)

Mr. Ken McDonald: Thank you.

Dr. Carr, we talked about no-take zones and that fish will populate better with the protected area, move to other areas, and help those areas when it comes to the stock. When looking at establishing an MPA or studying an area for a future MPA, do we also look at the economic effect on the people closest to it, the activity that they take part in, for example, commercial or recreational fishing, and balance the two, knowing how big an impact there will be on the adjacent communities, or even communities nearby?

Prof. Mark Carr: Thanks.

That was considered in two ways in the California process. There was an effort to get fishermen to identify the importance of areas to their fisheries. That spatial map of the importance of the different kinds of fisheries was made available to the stakeholders, so when the stakeholders were thinking about the size and location of protected areas they had some impression of how a particular location might have a socio-economic impact on a fishery.

In northern California, because it's a difficult coastline to work, very exposed, they decided to make a rule that no MPA would be within, and I don't remember the actual distance, but let's say 10 kilometres or so, of a given port. The idea there was that you didn't want to force fishermen to have to transit around a protected area in order to fish and endanger that activity in transit.

So certainly, the spatial distribution of fishing was taken into account in a couple of different ways.

Mr. Ken McDonald: You mentioned that you stayed away from activities that already existed—oil platforms, even docks and whatnot—and were being used. How do you balance that? If we have an oil platform operating where you've determined that something needs to be protected, is that a difficult balancing act?

Prof. Mark Carr: I think one of the key issues is how persistent you think the impact will be. For example, some activities, including waste-water discharge, are regulated. In some cases, when the licences for either waste-water discharge or an oil platform expire, the idea is that those will be removed.

If you are confident in the removal of that existing activity, you could go ahead and make a protected area, knowing that at some time in the future those systems will become more natural.

Mr. Ken McDonald: Removing some of them wouldn't be easy. I wouldn't think that removing the discharge for the city of Los Angeles....

Prof. Mark Carr: No kidding. Yes, that's going to be there for a while.

Mr. Ken McDonald: Removing it is probably just moving it somewhere else.

Prof. Mark Carr: Frankly, the removal of the oil platforms is being thought about constantly.

Mr. Ken McDonald: Thank you.

The Chair: Thank you, Mr. McDonald.

Mr. Donnelly.

Mr. Fin Donnelly: Thanks, Mr. Chair.

I'd like to follow up on Mr. McDonald's line of questioning about whether MPAs help or hinder fisheries. Since the network has been established in California, Dr. Carr, would you say that the MPAs have had a positive or a negative impact on fisheries, recreational and commercial?

Prof. Mark Carr: In the work that has been done in the Santa Barbara Channel, where those protected areas have been in place longer, there have been some socio-economic evaluations and they have not found a detrimental impact on commercial or recreational fisheries. However, the network along the whole coast of California has not been around long enough to make an accurate evaluation.

Mr. Fin Donnelly: Can you submit the study you referenced to this committee?

Prof. Mark Carr: I'll try to find it.

Mr. Fin Donnelly: Thanks, the socio-economic study would be very helpful.

Mr. Giraud, you mentioned that in the future we're going to have more ships, more recreational boats, and more demand for food from the oceans, but you stopped short of saying that we need more MPAs.

● (1000)

Mr. Byng Giraud: I guess I'm presuming that you're going to do some MPAs, so I apologize.

Mr. Fin Donnelly: Would you see the need for more marine protection in light of your comment about more demand on the ocean?

Mr. Byng Giraud: I think any British Columbian or Canadian is going to be interested in protected areas. I'm not an expert on MPAs and how one should put them together, but the notion of balance is what I think most citizens have in mind. They want to find that balance. They still want to be able to get a job, and they want their productivity, but they also want those beautiful areas.

I don't necessarily see that they're in conflict. I've worked in the natural resources sector my entire life and there are many ways to do this. I think from your perspective, as you design these things going forward, it's necessary to make sure that all those interests are represented. As I said, these types of things are a recipe for conflict.

Mr. Fin Donnelly: Could you give us a little bit of an update on the LNG? I'm not sure when the first tanker is expected and where the market is at. I know this is a study on MPAs, but perhaps you can give us that side.

Mr. Byng Giraud: The market is not where it once was. That being said, Canadian projects are still moving forward. Ours is still moving forward.

The issue is simply finding that price. It's down in price. It was $16 in Japan for a while and now we're down to $8 or less in Asia. We simply have to make sure that the price of gas, plus the price of the pipeline, plus the price of liquefaction, plus the price of shipping are competitive with what's coming out of Louisiana.

There are some publicly-traded companies down there so we know their prices. We simply have to make sure our prices meet theirs, and it can be done. We have a surplus of gas. The Americans used to be our customers, but they are now our competitors, and I'm tired of selling stuff to the Americans at a cheap price. I think we should be selling it to Asia.

Mr. Fin Donnelly: Do you have an expected date on the first...?

Mr. Byng Giraud: If we move into construction later this year or early next year—we don't have our final FEED estimates on construction time—I'd say it'll be 2020-21. We're still moving forward. Some of the larger projects have held off. Those are $20-billion investments, and we're $1 billion, so it's tiny.

The Chair: Thank you, Mr. Donnelly.

Well, folks, we have exhausted two rounds of questioning and, uncharacteristically, we're brimming over with time here. One of our witnesses wasn't able to make it, so here's what we're going to do. We seem to have this system that has evolved where you can ask a question if you want to volunteer. I would ask that you have one question with a supplementary, and then I'll leave it at that and go to the next person if anybody has any interest in asking other things.

Mr. Morrissey.

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

If I'm listening to the testimony from you, Dr. Carr, what in your professional opinion would be the greater objective? Would it be simply achieving a target at a number of a percentage, or would it be combining that with a series of areas that actually achieve protection of resources that are facing competing interests in the sea? I like your concept of cluster and how they interact.

Prof. Mark Carr: That's a brilliant question. I'm glad you asked it.

I am not a fan of the target of a percentage of protected areas. That has largely been based out of political reasons for countries to move forward in this process, in this development of protected areas.

In the State of California, there was no target percentage that a protected area, as a network, was meant to achieve. Rather, as you alluded to, it was based out of this sort of grassroots, from the ground up. We know that each MPA needs to include multiple ecosystems. We know they need to include a certain area of each of those ecosystems. We know that we want them spaced a certain distance from one another. Whatever per cent that created was not a consideration. It was about the integrity of the system and the consideration of protecting representative ecosystems.

In fact, it goes back to my earlier comment that you see some countries, including the United States, where these massive protected areas have been created out in remote areas of the world with little impact on human activities, so it's pretty politically easy to achieve. In doing so, you can reach your target for your country pretty quickly, but those are not, I would argue, going to be as consequential as what we're talking about, where you're trying to embed a conservation tool into a working coastline like you have on both coasts of Canada—or on all three coasts of Canada, I should say.

● (1005)

Mr. Robert Morrissey: With regard to your comments, we've had competing testimony given on the total no-take zone versus a protected area with a managed commercial fishery.

I'm referring more to the east coast, where a number of fisheries, primarily in the lobster and crab industries, are now marine eco-certified, and where the fishery is managed to the extent that there's no concern about the resource of stock. Also, these have limited impact on the companion fisheries that are on the bottom.

Could you comment on designating some of these areas as marine protected but allowing proven commercial fisheries to exist in them?

Prof. Mark Carr: I think you have to be careful there. Recognize that the target for a sustainable fishery is to reduce the stock size down to a level such that you're maintaining sustainable take through time. You can do that by removing over 50% of that stock and still achieve a sustainable take, but you're doing that across the entire stock, not at particular locations. By doing that, what the consequence is for the ecological role of that species in the system is very different. You can imagine that removing 50% of a local population will impair the ecological role of that species in that ecosystem—there's no question.

In fact, there's an outstanding example. I don't want to get into too much detail. The lobster fishery off the coast of Tasmania was a sustainable fishery. With climate change, there was an invasion of a sea urchin into the kelp forests along the coast of Tasmania. In no-take reserves, the lobsters were of sufficient size and number that they could control those sea urchins. Outside of those reserves, where you were conducting a sustainable lobster fishery, you had nonetheless reduced the number and size of the lobsters to where they could not control those sea urchins. As a consequence, the urchins would remove the kelp forests, upon which a multi-million dollar abalone fishery was reliant.

It's induced by climate change, but it's an example of where even a sustainable fishery for one stock can potentially jeopardize the sustainable fishery of another. We learned of that only because we protected the functional role of lobster within those reserves to resist the consequences of that urchin invasion.

The Chair: Thank you, Dr. Carr. Thank you, Mr. Morrissey.

Mr. Hardie, and then Mr. Donnelly.

Mr. Ken Hardie: Thank you.

Quickly, Mr. Giraud, on the shipping lane, when you come out of Howe Sound are you going to turn right or left, to the north side of Vancouver Island or down along the south?

Mr. Byng Giraud: We join the typical Vancouver port shipping routes, right there. When you come out of Howe Sound past Horseshoe Bay, you simply join the rest of the shipping route out to Ogden Point.

Mr. Ken Hardie: Dr. Carr, I wanted to give you more time on the whole issue of climate change, and within it, the invasive species.

Do you think that marine protected areas are some kind of a buffer protection against the impact of climate change, or will there be situations where climate change and the invasive species that come with it overrun whatever we were trying to accomplish with an MPA?

Prof. Mark Carr: That's an excellent question, and there are two parts to it.

In some cases, certainly, there is the possibility that invasive species that are changing their distribution in response to changing ocean conditions will invade and potentially alter what we're trying to protect within a marine protected area. The example I just gave indicates that sometimes by protecting the integrity of the species in those ecosystems, they can in fact resist some of those invasions. That's one thought: by protecting the integrity of the ecosystem you may make it more resistant to some of those consequences.

One important element of network of protected areas is with respect to how you try to accommodate the shifting distribution of species as a result of climate change. One of the biggest ecological consequences of climate change globally is that species are changing their distribution. They're doing that on land and they're doing it in the ocean. The question is, if all these species are going to change their distribution, what's the point of making protected areas that are place-based? The nice thing about networks is that what you're doing is protecting the place where those species are going to land. For example, on land, one of the big concerns with climate change is that when you create parks and the environment then changes, those species need to shift their distribution, but Los Angeles might be in the way. Good luck with that.

This is the popularity of this idea of corridors, which allows species from one protected area to shift to another protected area on land. The cool thing in the ocean is you don't need corridors. The way species shift their distributions is their larvae move and colonize areas of favourable environmental conditions. You can do whatever you want, outside of the protected area. Those larvae will hopscotch to another protected area and then what you're doing is protecting areas for those species, and helping them make those shifts that they need to make in response to climate change.

● (1010)

The Chair: Thank you, Dr. Carr.

I have to move on. We have five minutes left, and I have a few people for questions. Colleagues, perhaps we could keep this very short.

Mr. Donnelly.

Mr. Fin Donnelly: Thank you, Mr. Chair.

Targets and timelines are political in nature, and the nature of our business. I would say with proper human use and activities, there would be no need for marine protected areas, ideally. Unfortunately, human activities are, I think, having a substantially negative impact on ecosystems. In terms of looking at targets and timelines and marine protected areas, the Government of Canada has committed to 10% by 2020.

What would be the one recommendation you would give to this committee for our report to the government on how we achieve that, with respect to timelines?

Prof. Mark Carr: I would argue to accommodate the necessary time frame required to bring people together to make that inclusive planning process. Moving forward on that at a reasonable rate is necessary because it takes a while to do, and you learn as you do it. Sorry, but you are breaking new ground with a science-based network of protected areas.

In the state of California we went from one section of the state to the other, and we came up with new issues that we had to think through as we implemented that planning process. It's going to take time. The sooner you initiate it, the better, so you have the time to do it right.

The Chair: Go ahead, Mr. Doherty.

Mr. Todd Doherty: Mr. Carr, who ran the consultative process in California and was there an advisory committee made up of different stakeholder groups?

Prof. Mark Carr: It was the State of California and the group that implemented it was the state resources agency responsible for natural resources. There were three components of that process, or I should say, four.

The group that has the authority to create a protected area is the Fish and Game Commission for the state of California. They have the authority to make fishing regulations, but there were three other elements of that. There was the science advisory team. Our role was to generate science-based guidelines. There were the stakeholder groups. Their role was to use those guidelines and to make a network. There was a third group that was referred to as the blue ribbon task force, which was made up of individuals like you. They were people who were considered to be very knowledgeable policy-makers. They oversaw the process of the science and stakeholders and then they actually generated their own preferred design too.

● (1015)

Mr. Todd Doherty: Can I just ask for a really quick clarification?

I think that you've said this a couple of times. I just want to make sure that we get it on record. Fish and Game, science advisory, the blue ribbon group, and then you had the stakeholders, who then determined where the MPAs were going to be, given what your target was.

Is that correct?

Prof. Mark Carr: Given the guidelines, that's right.

Mr. Todd Doherty: Did the stakeholders make the determination?

Prof. Mark Carr: Yes.

Mr. Todd Doherty: Who made up the stakeholders?

Prof. Mark Carr: They were meant to be representatives of as many groups as possible that had a vested interest in ocean activities, so there were various recreational and commercial fisheries.

Mr. Todd Doherty: Industry?

Prof. Mark Carr: Sorry?

Mr. Todd Doherty: Industry? First nations?

Prof. Mark Carr: Oh, yes. There were first nation representatives, some of the state and federal agencies that had responsibility for managing marine ecosystems, conservation groups, NGOs, and non-governmental conservation organizations. They crafted it by making groups, with each of those different interests represented in a group. Then they had multiple groups within each of the regions of the coast, and each of those groups generated their own design of a network. They got into it, as to who had the coolest network design that met the guidelines, but also was amenable to the various stakeholder interests.

The Chair: Thank you, Dr. Carr.

Your turn, Mr. Arnold.

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

I have a question for both of you.

The indications are that this government may try to speed up the process of establishing the MPAs here in Canada, possibly to as little as 18 months. Can proper consultation and consideration take place in 18 months with all of the groups and stakeholders?

Mr. Byng Giraud: With respect to what happened in California, the short answer is that we have to layer on the fact that our indigenous peoples are recognized in the constitution and we just can't treat them as another stakeholder. We have to start there, so that's going to add time.

Mr. Mel Arnold: It's true.

Yes, Mr. Carr.

Prof. Mark Carr: It sounds tight. Eighteen months sounds like a short period of time, but it just depends on the capacity of the planning process to bring those people together—how quickly and how frequently you can come to some level of consensus in what you generate.

The Chair: Thank you, Mr. Arnold. Thank you, colleagues.

I want to thank our guests for some great information and advice, and certainly some clear instruction as to how we should proceed. We take it very well.

Thank you.

I want to thank Byng Giraud and Dr. Carr. Thank you for travelling the distance you have. I understand that you have other events too, but we certainly appreciate your being here for our study.

Colleagues, we're going to suspend for just a minute or so and then we'll get to committee business.

Thank you again to our witnesses.

[*Proceedings continue in camera*]