

Are Canada's
Marine Protected Areas
really 'protected'?

DARE TO BE DEEP

Annual report on
Canada's progress in
protecting our ocean

June 2015

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Executive Summary

The question we pose in this report is **‘how well do Canada’s marine protected areas actually protect ocean ecosystems from industrial activities?’** This seems like a fairly straightforward question, yet it turned out to be much more difficult to answer than we expected, and the information we uncovered is worrying.

Our general conclusion is that current protection standards for Canada’s existing MPAs are weak. On land, the vast majority of Canada’s legally protected areas exclude industrial uses such as forestry, mining, oil and gas and energy developments. Not so for the ocean, where industrial threats from oil and gas, mining, fishing, shipping, energy and coastal development activities persist despite “protection.”

Current levels of protection inside Canada’s MPAs are inadequate to provide the long-term conservation of marine biodiversity. For the most part, there is little difference between what is allowed inside our MPAs and what occurs outside their boundaries. As a result, many of the benefits that can be achieved through

strictly protected marine areas, including larger and more plentiful fish and healthy marine ecosystems, are unlikely to be achieved.

MPAs, designed and managed properly, can provide significant benefits not just to the aquatic species that rely on them, but also to humans and all other life on earth. MPAs support sustainable fisheries and provide food security for remote coastal communities, grow and diversify coastal economies through enhanced tourism and recreation, preserve critical carbon-storing marine ecosystems, and enhance coastal vegetation that shelters our shorelines and coastal communities from storm damage and rising sea levels. Canada will not reap these benefits given the

Humpback whale.
Photo: A.S. Wright





Here are our key findings:

- Only 0.11% of Canada's ocean estate is in marine protected areas that are fully closed to all extractive uses (including oil and gas and fishing activities). This leaves us far behind many other G20 countries. For example, the U.S. and U.K. have nearly 10% of their ocean estates in MPAs that are fully closed to extractive activities, South Africa's and Australia's are at 4% and Russia's are at 0.59%.
- Underwater oil and gas exploration and development is a major threat to marine life. We found that in one-third (8) of Canada's 23 federally designated marine protected sites there is no **explicit** permanent prohibition of these activities..
- Overfishing and harmful fishing practices are another major threat to marine life. Marine protected areas, properly designed, can provide essential "nurseries" for fish to breed and grow into healthy adults. However, we found that only 587 km² within Canada's federally designated MPAs are closed to all fishing. This is far too little given the dangerous declines of many types of fish including northern cod, tuna, and rockfish. Out of the 23 federal MPA sites, only 9 contained areas closed to all forms of fishing.
- Dredging and dumping also cause significant harm to marine life by altering sensitive habitats where aquatic species breed and grow. However, more than one in five of the 23 federally designated MPAs allow these activities, for example to maintain wharves and boat launches and to keep navigable waterways open.
- In our review of publicly-posted MPA regulations and plans it was often unclear what activities were permitted or not within their borders. Out of over 700 sites that Canada reports as MPAs, we could only find enough information for the 23 federally managed sites to say with any confidence what activities are allowed or not within their borders.
- We found that when regulations about restricted activities are posted for a particular MPA, they are often followed by a long list of exclusions and exemptions, calling into question the true value of the regulations.
- There is a huge amount of room for improvement in the quality of Canada's MPAs. While we are encouraged that the current proposal for St. Anns Bank off Nova Scotia includes a large no-take area closed to industrial fishing and oil and gas activities, we are very concerned that the current proposal for the Laurentian Channel MPA off Newfoundland would allow oil and gas activities.

Bay of Fundy Photo:
Irwin Barrett





Stellar sea lions. Photo: A.S. Wright

current level of weak protection of our MPAs. In other words, we are spending a great deal of time and money to create MPAs that will not deliver on their conservation objectives, and provide the expected socio-economic benefits.

Canada has made several international commitments over past decades to complete a national network of marine protected areas (MPAs) that will help to safeguard ocean ecosystems. The most recent of these, known as the Aichi Target under the United Nations Convention on Biological Diversity, commits Canada to protecting 10% of our marine environment by 2020. Today, just 1% of Canada's ocean territory is included in MPAs.

Canada's marine ecosystems and species are under tremendous pressure from ever-increasing industrial uses, as well as the effects of climate change and ocean acidification. While ocean-based industries contribute more than \$39 billion per year to the Canadian economy, the value of healthy oceans in terms of ecosystem services and indirect benefits greatly exceeds this and often goes unnoticed.

Our assessment used publicly available data and information published by the federal and provincial governments on their websites, in combination with data from the Marine Conservation Institute's MPA

Atlas. Where information was not publicly available we made requests to the relevant agencies.

There were one or two bright spots that we found in looking at Canada's MPAs. Eastport MPA is entirely no-take, although it is a very small site (2.1 km²). Great steps have been taken to manage all activities within the boundary of the Saguenay-St. Lawrence Marine Park, including a clearly stated intent to eventually prohibit all commercial fishing. In addition, clear guidelines and tables of permitted activities are accessible for all marine users of the marine park. Looking ahead, the current proposal for St. Anns Bank MPA in Nova Scotia shows great promise. We hope this is a sign of things to come and a great improvement in the standard of protection in Canada's MPAs. However the proposal to allow oil and gas activities in the candidate Laurentian Channel MPA is deeply troubling.

As a result of our analysis, we have identified a number of changes that would ensure better protection of the marine environment in our marine protected areas, and would provide greater transparency to all Canadians about what is allowed and where it is allowed in Canada's marine protected areas.



We offer the following recommendations:

- Canada's MPAs must prohibit harmful industrial activities within their borders, notably oil and gas development, mining, dredging and dumping.
- Canada must designate at least 50% of each site that is closed to all fishing and more significantly restrict harmful fishing activities where fishing is permitted within MPAs.
- More attention needs to be paid to the impacts of commercial shipping on marine species and ecosystems, and specific regulatory measures put in place to address these impacts in MPAs.
- **Legislation** for Canada's MPAs (*Oceans Act, Canada National Marine Conservation Areas Act, Migratory Birds Convention Act, and Canada Wildlife Act*) should be updated and amended to establish minimum protection standards for industrial activities, with prohibitions on oil and gas exploration and development, mining, dredging and dumping, and restrictions on commercial and recreational fishing, and commercial shipping.
- Ensure that **regulations** for all MPA sites in Canada clearly identify prohibited and allowed activities.
- Ensure that **management plans** for MPA sites in Canada addresses all existing and potential activities in an area.
- MPA regulations need to take into account future threats from rapidly developing industries such as renewable energies and deep-sea mining. These are likely to arise in the imminent future and we need to ensure that MPAs have long-term protection from any associated harmful effects.
- Canada needs to maintain an accurate database of all MPAs. The database needs to specify: 1) the marine area that is protected, especially when it is part of a larger combined terrestrial/marine protected area; and 2) the prohibited and permitted activities for each zone of the MPA.
- As MPA networks are developed on each of Canada's coasts, existing provincial sites should be reviewed to determine how they could better contribute to protecting marine ecosystems by increasing protection from industrial uses through the application of federal legislative tools.

Black-footed Albatross.



Part 1 | Assessing the protection in Canada's MPAs

Introduction

Canada has the longest coastline in the world and one of the largest ocean estates. Our vast country is framed by ocean on three coasts— Arctic, Atlantic and Pacific. Canada's ocean estate is home to diverse species and ecosystems that are as important and vulnerable as those on land.

However, ocean protection in Canada lags far behind the protection of terrestrial ecosystems. Compared with other nations, as we noted in our report last year, of the 10 countries with the largest ocean estates on the planet, Canada finished dead last for percentage of ocean protected.

In total, the Government of Canada recognizes more than 740 protected areas in marine waters, covering

approximately 50,000 km², in contrast to over 7,000 protected areas on land, covering approximately 1,000,000 km².³ These marine areas fall under a myriad of designations at the provincial, national and even international level.

Canada needs to adopt a much more aggressive timeline if we are going to meet our international commitment to protect at least 10% of our ocean

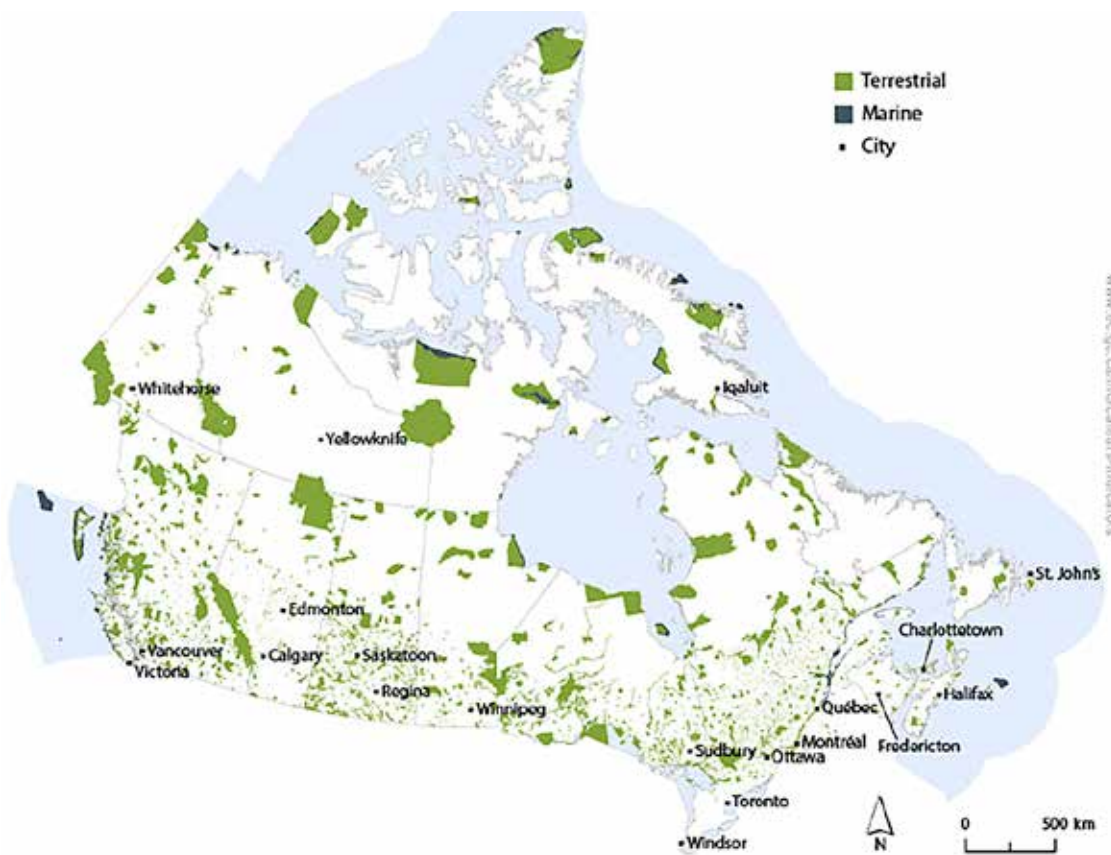


Figure 1. Despite the fact that Canada's ocean estate (shown in light blue) is equivalent to almost 70% of our terrestrial estate, most of Canada's existing MPAs (shown in dark blue on the map) are so small they are impossible to see, especially when compared to protected areas on land.

Source: www.ec.gc.ca/indicateurs-indicators

estate in MPAs by 2020.⁵ In the past year, not a single MPA has been established in Canada, and of the 12 sites we have highlighted since 2011 as ripe for the next stage of protection, not a single new MPA has been designated.

While Canada has been procrastinating, many other countries have continued to establish new MPAs. The most notable is the newest, largest MPA in the world established earlier this year by the United Kingdom at Pitcairn Island in the Pacific Ocean. That MPA covers 834,000 km² and is fully protected from all extractive uses.⁶ In contrast the largest MPA in Canada is Bowie Seamount at just under 6,000 km². In fact, Canadian MPAs are very small when compared with both MPAs in international waters but also protected terrestrial areas in Canada.



Arctic sunset. Photo: Andy Wright

This year, however, we are examining the quality of MPAs that Canada has already established, acknowledging that size is not all that matters. Not only do we need more MPAs, but we also need ones that effectively protect marine ecosystems and conserve biodiversity. To assess how well Canada is succeeding on this front, we reviewed how our MPAs are designed, and what activities are permitted inside their borders.

What makes an effective marine protected area?

Like their counterparts on land, the main purpose of marine protected areas is to conserve biological diversity by setting aside areas free from harmful

human activities to act as refuges for species and to maintain ecological processes. In doing so, MPAs also enhance the ecosystem services upon which we depend for food and natural resources, absorption of carbon dioxide, and recreational and educational opportunities.⁷

The most effective terrestrial protected areas exclude industrial uses like forestry, mining, oil and gas exploration and extraction, and hydroelectric development. In the marine environment, scientists have emphasized the need to exclude industrial uses within MPAs. In addition some areas need to be closed to fishing, given the ecological changes that result when humans remove marine life from ocean ecosystems.^{8,9} As is the case for terrestrial ecosystems, industrial operations like oil and gas, mining, and other energy developments also threaten the health of marine ecosystems through habitat destruction, disturbance of wildlife, and various forms of pollution. Shipping, with its array of associated impacts from noise, collisions, grounding, pollution and spills, creates additional threats to ocean health.

Recent research shows that a number of key features are needed for MPAs to be successful. These include: 1) no-fishing areas, 2) strict enforcement of regulations, and 3) that they have been established for over 10 years. Successful MPAs have a combination of these characteristics whereas MPAs that have only one or two of these key features show little or no benefit to biodiversity conservation.¹⁰

Recent scientific studies have noted a worrying global trend of establishing MPAs that are ineffective because they are too small, not fully protected, poorly designed and inadequately monitored.^{9,10} These “Parks only on Paper”, affectionately known as POOPs,¹¹ give the appearance that countries are protecting their ocean estates and meeting international conservation targets, but in reality fail to contribute to biodiversity conservation.

Scientific studies from around the world have consistently found that no-take areas prohibiting extraction of renewable and non-renewable resources are a critical component of an effective MPA network.^{12,13,14,15}

1 HOW WELL PROTECTED ARE CANADA'S MPAS?

To what extent are Canada's MPAs protected from harmful industrial activities?

We attempted to determine the extent to which oil and gas exploration and development, commercial and recreational fishing, shipping, dredging, dumping and coastal developments are restricted in Canada's marine protected areas. These activities can have harmful ecosystem impacts that are incompatible with achieving the conservation objectives of MPAs. More details on the impacts of various industrial and commercial activities can be found in Section 2.

We tried to answer this question using information that was publicly available, from government websites and other reliable resources.

It came as a surprise to us that this was not an easy question to answer.

Clearly identifying what activities are allowed, or not, inside the boundaries of Canada's MPAs required considerable detective work. In order to determine the activities permitted in any given site we had to review the legislation, regulations, and management plans for each site. Unfortunately, for many MPAs this information is simply not publicly available. While a good deal of information is available for some MPAs, like the Musquash Estuary in New Brunswick, The Gully on the Eastern Scotian Shelf off Nova Scotia, and Québec's Saguenay–St. Lawrence

Marine Park, there was no information available on permitted activities on the Environment Canada website for **any** Migratory Bird Sanctuaries and very limited information on the management of marine components within coastal national parks such as Pacific Rim in British Columbia, Wapusk in Manitoba and Kejimikujik in Nova Scotia. Environment Canada responded to our request for additional information about national wildlife areas, but simply indicated a yes or no to the various activities we were interested in, with no other supporting information.

The management plans and regulations that we did find were often over five years old. They rarely provided information in a clear and concise format. Regulations and management plans often made no explicit reference to activities like oil and gas exploration or shipping, leaving us in the dark as to whether they were permitted or not.

The regulations were even more confusing, and sometimes downright contradictory. Typically, regulations begin with a list of prohibited activities, but in many cases this is immediately followed by an equally long list of exclusions and exemptions to these prohibitions. In our view this is the legislative equivalent of "giving with one hand, and taking with the other." An example of both the prohibitions and exceptions to the prohibitions is shown below.



Glass sponge reef, BC.
Photo: Neil McDaniel



Southern Strait of Georgia, BC. Photo: Leah Honka

Prohibitions and exceptions in The Gully MPA

PROHIBITED ACTIVITIES

4. Subject to sections 8 to 10, no person shall

- (a) disturb, damage or destroy in the Gully Marine Protected Area, or remove from it, any living marine organism or any part of its habitat;
- b) disturb, damage or destroy in the Gully Marine Protected Area, or remove from it, any part of the seabed, including the subsoil to a depth of 15 m of the seabed; or

- (c) carry out any activity — including depositing, discharging or dumping any substance, or causing any substance to be deposited, discharged or dumped — in the Gully Marine Protected Area or in the vicinity of that Area that is likely to result in the disturbance, damage, destruction or removal of anything referred to in paragraph (a) or (b).

EXCEPTIONS

8. Living marine organisms may be removed from Zone 2 or 3 if they are removed by the holder of a valid commercial fishing licence issued under subsection 7(1) of the Fisheries Act in the following circumstances:

- (a) the licence is for swordfish, tuna or shark and the holder of the licence, when fishing for a species of fish authorized by the licence, complies with the terms and conditions of the licence;
- (b) the licence is for groundfish and the holder of the licence, when fishing for halibut, complies with the terms and conditions of the licence; or
- (c) the licence is a valid commercial fishing licence, other than a licence referred to in paragraph (a) or (b), and the holder of the licence, when fishing for a species of fish authorized by the licence,
 - (i) complies with the terms and conditions of the licence,
 - (ii) does not cause any damage or destruction referred to in section 4 in Zone 2,
 - (iii) causes only damage or destruction referred to in section 4 in Zone 3 that is within the natural variation of the ecosystem in which that Zone is located, and
 - (iv) removes living marine organisms from Zone 2 or 3 only to an extent that is within the natural variation of the ecosystem in which Zone 2 or 3, as the case may be, is located.

9. Paragraph 4(c) does not apply in respect of an activity carried out in the vicinity of the Gully Marine Protected Area if the disturbance, damage, destruction or removal referred to in that paragraph

- (a) is limited to Zone 3; and

- (b) is within the natural variation of the ecosystem in which Zone 3 is located.

10. Sections 4 and 5 do not apply in respect of any movement or other activity of a ship, submarine or aircraft if the movement or other activity is carried out for the purpose of public safety, law enforcement or national security or for the exercise of Canadian sovereignty and

- (a) the ship, submarine or aircraft is owned or operated by or on behalf of Her Majesty or by a foreign military force acting in cooperation with, or under the command or control of, the Canadian Forces; or
- (b) the movement or other activity is carried out for the purpose of an emergency response under the direction, command or control of the Canadian Coast Guard.

11. Section 5 does not apply in respect of

- (a) fishing activities carried out in Zone 2 or 3 by the holder of a valid commercial fishing licence, issued under subsection 7(1) of the Fisheries Act, if the activities are carried out in a manner that complies with the terms and conditions of the licence;
- (b) marine scientific research activities that are carried out or sponsored by a foreign government in the Gully Marine Protected Area and in respect of which that government has received the consent of the Minister of Foreign Affairs under paragraph 3(2)(c) of the Coasting Trade Act, if the activities are carried out in a manner that complies with the terms and conditions of the consent; or
- (c) the activities of a ship that is exercising international navigational rights in the Gully Marine Protected Area and is not contravening the Canada Shipping Act or any requirements of the International Maritime Organization.

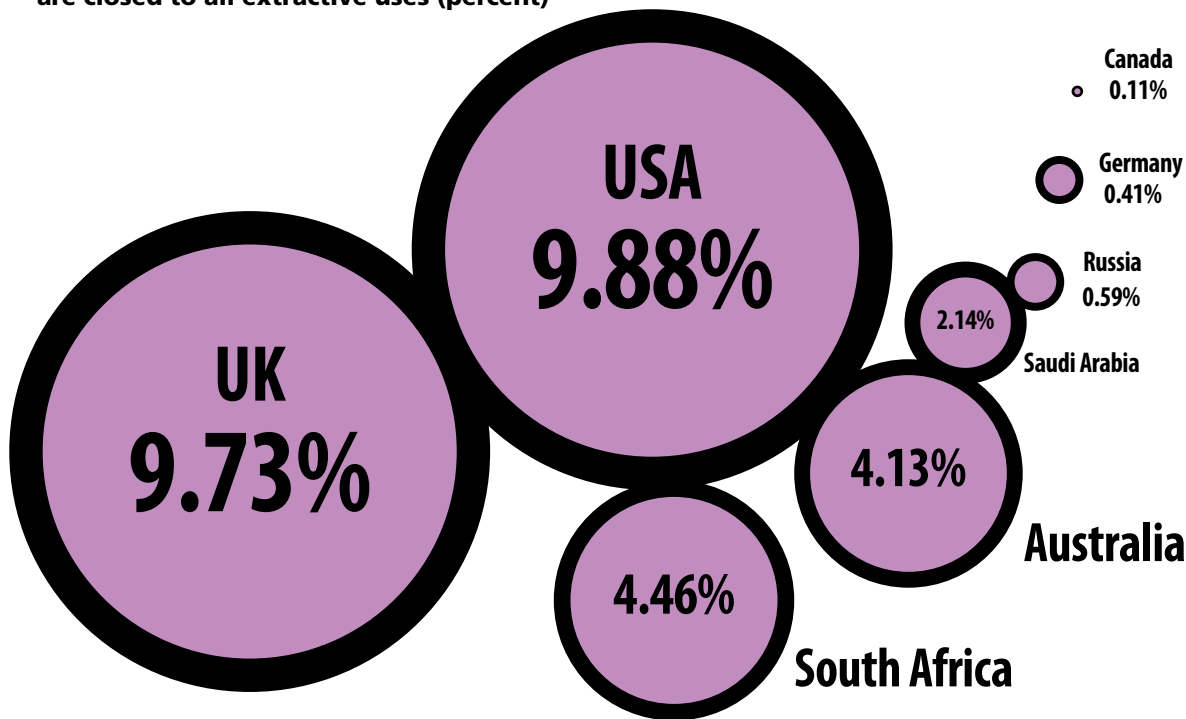
In the next sections we examine provincial MPAs to determine how well they are protected from industrial and commercial activities, followed by an examination of sites under federal jurisdiction.

Overall, our conclusion is that current levels of protection inside Canada's MPAs, whether federally or provincially designated, are inadequate to provide the long-term conservation of marine biodiversity. With few exceptions, there is little difference between

what is allowed inside our MPAs and what occurs outside their boundaries.

Overall, only 0.01% of Canada's ocean estate in federally managed MPAs is under "no-take" designation—that is closed to all extractive uses. According to an analysis of international efforts this puts Canada far behind most of our peers in the G20 nations including Australia, Saudi Arabia, Russia and Germany, shown in Figure 1.

Figure 1: Comparison of Canada with other G20 nations on extent of ocean territories that are closed to all extractive uses (percent)



Source: Pike, E.P., K.L.P. Shugart-Schmidt, R.A. Moffitt, V.R. Saccomanno, and L.E. Morgan. 2014. SeaStates G20 2014. <http://marine-conservation.org/seastates/g20/2014>. Marine Conservation Institute, Seattle. 18 pp.

A – How well protected are Provincial Marine Protected Areas?

Several provincial governments in Canada have taken steps to protect their marine environments, in particular Québec and British Columbia, which together account for about 600 of the estimated 740 MPAs in Canada. Other provinces have not established marine protected areas. According to DFO's *Spotlight on MPAs* report in 2010, provincially managed MPAs in Canada cover almost 8,000 km² (although this may include some freshwater sites in the Great Lakes). The marine components of provincially protected areas are typically small, on average 10 km², and are generally part of a protected terrestrial area.

Québec has an extensive array of **what it considers to**

be provincial marine protected areas along its coasts. These areas make up a significant number of the 8,000 km² of provincially managed MPAs counted by DFO. However, in Québec these intertidal areas rarely forbid oil and gas, mining, or other forms of industrial development, have no management plans, and are not subjected to any particular federal regulations. Therefore CPAWS does not recognise Québec's provincially designated areas as true MPAs, with the exception of the Manicouagan Marine Reserve in Quebec's St. Lawrence Estuary, and the Saguenay–St. Lawrence Marine Park, that has both federal and provincial designation.

Although provincial protected areas provide a foundation for marine protection in Canada and can play a critical role in protecting seafloor and

intertidal¹⁶ habitats, provincial agencies must rely on federal agencies to regulate marine uses like oil and gas development, fishing, and shipping, that fall under federal jurisdiction. It was unclear from the information we could find whether protection from these uses under federal jurisdiction is being provided in provincially managed sites.

In some provincial protected areas, fishing closures have been implemented, but in our review, we found that the BC government's requests to DFO for additional closures have not been granted. For example, in letters sent to DFO officials in 1995 and 2001, the BC government submitted long lists of proposed fishing closures within provincial parks and

ecological reserves, including a specific request for all ecological reserves to be completely closed to fishing activities.¹⁷ Despite the requests, a 2011 study of MPAs in BC found that only one provincial site had full fishing closures.¹⁸

As a detailed analysis of activities in provincial marine protected areas would require examination of each individual site which would then have to be cross referenced against all possible fishing closures, shipping regulations and oil and gas licenses, we have had to focus our analysis on those federally managed MPAs for which there is more detailed information and more comprehensive regulations available.

Below, photo: Sabine Jessen

Bottom, photo: Leah Honka

Levels of protection in provincial marine protected areas



Manicouagan, Québec

A marine protected area at Manicouagan in the St. Lawrence Estuary had been considered by the federal government for a number of years before the Quebec government established a "protected aquatic reserve" there in 2013. Since the Québec government announced the 712 km² area as an MPA in August 2013, it has committed \$150,000 for enforcement and management of the area. While it still does not have permanent legal status,¹⁹ the MPA will provide much needed protection for the vulnerable ecosystems and species such as eelgrass beds and bird colonies that reside in one of the richest and most productive areas of the St. Lawrence Estuary. The ability to regulate fishing activities, manage shipping and establish a core high no-take zone would significantly enhance the effectiveness of the MPA.



Robson Bight, British Columbia

Robson Bight ecological reserve near Telegraph Cove on the east coast of Vancouver Island was established in 1982 and was the very first protected area in Canada specifically for the protection of whales. Robson Bight is critical habitat for northern resident killer whales, which seem to use the pebble beaches as a spa, rubbing themselves along the stones. While the site is well protected from recreational boat traffic, commercial fishing continues along the shore, threatening to disturb the whales and deplete their food. Industrial boat traffic passes close to the reserve and is permitted to use the sheltered bay for protection in bad weather. This activity brings great risks. In 2007 a barge drifted into the ecological reserve and spilled its contents, including an excavator and a fuel truck containing 10,000 litres of diesel fuel, as well as gasoline and hydraulic fluid.²⁰

B – How well protected are federal marine protected areas?

The rest of our analysis focuses on federal marine protected areas. More detailed information is available for these than for the provincial sites. We combed through the management plans and regulations for each site to determine exactly what goes on inside each one. The results were surprising and troubling.

MPAs in Canada can be established under three pieces of federal legislation. These are the *Canada Oceans Act* administered by Fisheries and Oceans Canada, the *Canada National Marine Conservation Areas Act* administered by Parks Canada, and the *Canada Wildlife Act* administered by Environment Canada. The federal government identifies Oceans Act MPAs, National Marine Conservation Areas (NMCAs) and National Wildlife Areas (NWAs) as the “three core programs” in the federal MPA strategy. Other “protected” marine sites include migratory bird sanctuaries (MBS) and coastal and marine areas within national parks.

Altogether, less than 0.7% of Canada's ocean estate is protected by MPAs under federal legislation, half of which are protected under the three “core” federal MPA laws described above. The other half are designated as either national parks or migratory bird sanctuaries.

Table 1: Canada's federally “protected” marine sites

Type	No. of sites	Size km ²	Area with no fishing km ²
MPA	8	10,380.5	477.5
NMCA	1	3400	102
Marine Park*	1	1245	0
National Wildlife Area	13	4,546.7†	7.77
National Park with marine component	12	8,136.5†	Not available
Migratory Bird Sanctuary	41	13,923.9†	Not available
Total	76	41,632.60	587.27

* Excludes Fathom Five park which is a freshwater marine park and so does not contribute to the protection of Canada's ocean. Saguenay-St. Lawrence Marine Park is designated through federal and provincial legislation.

† Size of marine area only from MPA Atlas (<http://www.mpatlas.org/>) as this was not available from Canada's publicly available statistics.

We examined the Acts and Regulations for each of the federal MPA designations to determine what activities were explicitly permitted or prohibited in the marine area for each site. Only the *National Marine Conservation Areas Act* explicitly prohibits some industrial and commercial activities, while the Oceans



Wolffish tussling with a lobster. Photo: Ocean Quest Adventure Resort



Arctic sunset.
Photo: A.S. Wright

Act requires individual regulations for each site to detail prohibited activities. Saguenay-St. Lawrence Marine Park is designated under both provincial and federal legislation (see Appendix 2).

The *Migratory Birds Convention Act* does not contain prohibitions or exemptions. We examined the Migratory Bird Sanctuary Regulations and found that they do not prohibit any activities, with the exception of hunting, and disturbing or destroying the nest of a bird. The regulations do prohibit activities that are “harmful” to migratory birds or the eggs, nests or habitat of migratory birds, however there is no clear definition of what constitutes “harm”. In order to resolve this ambiguity we looked for management plans for each site to identify threats and provide clear guidance on prohibited and excluded activities.

Unfortunately no site-specific information was available on the Environment Canada website for any of the migratory bird sanctuaries. We made subsequent enquiries to Environment Canada in order to obtain this information but were unsuccessful.

As the *Canada Wildlife Act* also does not contain explicit prohibitions we examined the *Wildlife Area Regulations* (see Appendix 2). Section 3 of the regulations provides a list of prohibited activities that includes commercial and industrial activity, as well as hunting and fishing. However, section 3(2) and section 4 of the regulations allow the Minister to permit activities that are prohibited under Section 1 by public notice or by application for a permit. As with migratory bird sanctuaries individual



management plans for each site were not available so we sought clarity on which activities were permitted under sections 3(2) and section 4 from Environment Canada staff. The information provided to us is shown in Appendix 1.

In a 2013 report to Parliament, the Auditor General found that 55% of migratory bird sanctuaries and 70% of national wildlife areas “have less than adequate ecological integrity” and therefore “the Department is not meeting the purpose of its protected areas.” The Auditor General also found that “Environment Canada has made little progress in monitoring activities, conditions, and threats for the protected areas it manages,” and that management plans for most of the national wildlife areas were outdated.

The 12 national parks with a marine component also lacked clear regulations and management plans pertaining to activities in the marine environment. We sought clarity from Parks Canada around permissible and prohibited activities in the marine components of national parks but they were unable to provide this information.

From this point on our analysis examines industrial uses in Oceans Act MPAs, National Marine Conservation Areas and Marine Parks, and the marine component of National Wildlife Areas, which are set out in regulations and in management plans for each site, or in the case of National Wildlife Areas have been provided by the managing agency. A summary table of the sites reviewed is provided in Appendix 1.

2 WHAT ARE THE MOST SERIOUS THREATS TO MARINE LIFE WITHIN CANADA'S FEDERAL MPAS?

Oil and Gas Exploration and Development

Unfortunately, only the *NMCA Act* and the *Wildlife Area Regulations* expressly prohibit non-renewable resource extraction, so only 15 sites are fully protected from the impacts of oil and gas exploration and extraction. Worryingly, two of Canada's federal MPAs actually permit oil and gas related activities in a portion of the MPA and for the rest, the lack of explicit reference to the prohibition of oil and gas activities leaves a worrying "interpretive chink" in the protective armour of MPA designation.

Oil and gas exploration and production present grave risks for marine mammals and seabirds that depend on these sites.²⁴

Tarium Niryutait MPA is located in the Beaufort Sea in the Canadian Arctic. It comprises three separate sites at the mouth of the Mackenzie River, totalling 1740 sq km. The smallest of the three areas is designated as a special management zone that respects pre-existing rights to oil and gas reserves. The exclusions stipulate that oil and gas production will be limited to this site, and place a number of other restrictions on it. For example, any geophysical

work, exploratory drilling, pipeline construction and/or decommissioning must be done when the area is ice covered in order to avoid any conflict with belugas that use the area when it is ice free. However it is worth noting that recent studies have suggested that sea ice may complicate oil slick movement and behaviour, that spill response strategies are untested in Arctic conditions and that Arctic winter weather will likely hamper spill response efforts.²⁵

The Gully MPA, located along the edge of the Scotian Shelf off Nova Scotia, contains important offshore ecosystems, including deep sea corals and critical habitat for the northern bottlenose whale. The MPA is close to areas of active oil and gas activity. Presently, the Canada – Nova Scotia Offshore Petroleum Board (CNSOPB) prohibits oil and gas exploration inside the MPA boundaries, however the specific regulations for The Gully MPA site do not rule out the possibility of this activity occurring in a portion of the MPA in the future. A better approach for ensuring that the ecological integrity of The Gully is maintained over the long term would be to prohibit oil and gas activity from occurring within the MPA, through appropriate regulation, rather than relying upon policy measures from CNSOPB. Policy measures can be changed on



Kelp forest, Haida Gwaii.
Photo: Rowan Trebilco

Murres in flight.
Photo: A.S. Wright





a whim, so using regulations to prohibit oil and gas exploration and development within The Gully MPA is preferable.

Commercial and Recreational Fishing

Information regarding the regulation of marine activities and no-fishing areas was not available to us for national parks or migratory bird sanctuaries. All of the National Wildlife Areas are closed to commercial fishing, but only five are also closed to recreational fishing, totalling 7.7 km² of no fishing marine areas in NWAs, which is less than 0.2% of the total marine area in NWAs. Only four of the Oceans Act MPAs, National Marine Conservation Areas and Marine Parks have no fishing or high-protection areas within their boundaries. Together, these no fishing areas totalled just 587 km² or 0.01% of Canada's ocean estate.

It should be noted that all fishing activities in Canada are regulated by the Minister of Fisheries and Oceans, under the provisions of the *Fisheries Act*, rather than through any federal or provincial protected area legislation. While protected area officials may request specific fishing closures or limitations on fishing activities, the Minister must institute any prohibitions or limitations.

Eastport MPA, in Newfoundland's Bonavista Bay, is



Above: Chesterman Beach, west coast Vancouver Island.

Left: Sea otter in kelp, Credit: Jarod Towers

the only MPA in Canada that is entirely closed to all fishing. Studies have documented significant benefits of the MPA to lobster populations, including the spill over of lobsters from the MPA to areas outside the boundary.²⁶ But given its small size of 2.1 km²—this MPA does not significantly contribute to no fishing areas in Canadian waters.

Three other MPAs have core no-fishing areas. In The Gully MPA the core no-fishing area comprises 20% of the total MPA. In the remaining three MPAs (Basin Head MPA, Gwaii Haanas NMCA and Saguenay-St. Lawrence Marine Park) 3% or less of their total area is designated as no-fishing. The Saguenay-St. Lawrence Marine Park has a core "comprehensive preservation" zone governing 3% of the MPA, where it is proposed



Arctic sea ice. Photo: A.S. Wright

all fishing be prohibited. Some commercial fishing is permitted in the surrounding zones. However, according to the management plan, Parks Canada and the park management board are strongly committed to eventually phasing out commercial fisheries and including gear restrictions in the management plan. Park managers have noted in the management plan that they

*...do not have information on all commercial fishing activities that are taking place within the marine park. However, we have to assume that all commercial fishing presently taking place in Zones I, II and III is non-conforming with respect to the proposed zoning plan for the marine park.*²⁷

Half of the MPAs that we looked at allowed some recreational fishing throughout the MPA.

The presence of a fishery with high levels of accidental bycatch within an MPA threatens the species that are most in need of protection and undermines the goals of the MPA. Top predators like tuna, swordfish and sharks are also important keystone species, often described as guardians of the food chain, so aside from the bycatch of other species, we are also concerned about the ecosystem impacts of commercial harvesting.

Shipping and vessel traffic

Commercial shipping poses many threats to marine ecosystems and species, and recreational boating can also harm sensitive marine ecosystems. Cumulative impacts range from minor spills and leaks, noise pollution, through to groundings and sinking (see part 2). Even where vessel traffic is limited, it is our recommendation that all possible types of traffic and the associated impacts be explicitly addressed in the management plan for an MPA. The management plans for Musquash Estuary MPA and Saguenay-St. Lawrence Marine Park provide good examples of comprehensive assessment and management of shipping and boating impacts.

We found that 9 of the 23 MPAs we examined place some limitations on vessel traffic ranging from speed limits, to no-go zones to restricted activities. Six of the National Wildlife Areas prohibited vessel traffic, although for the most part it must be noted that these marine areas were very small (less than 1 km²) and close to shore, which necessarily limits vessel access. Five of the MPAs expressly permit vessel traffic that is in accordance with the *Canada Shipping Act* and the remaining sites did not make explicit reference to vessel traffic in the regulations or management plan.

Unsustainable long-line fisheries in The Gully MPA

Long-line fisheries, often used for targeting species such as tuna and swordfish, are one of the more unsustainable fishing methods in practice today, largely due to the high levels of bycatch of other species including sharks, seabirds, turtles and marine mammals. While some steps have been taken to reduce bycatch in US long-line fisheries, a recent report by Seafood Watch determined that the long-line swordfish fishery in Atlantic Canada is highly unsustainable and as a result, recommended that consumers avoid purchasing this fish.²⁸

The Gully MPA on Canada's Eastern Scotian Shelf has a core no-take, high protection reserve at its centre to conserve critical habitat for the northern bottlenose whale. However long-line fishing for tuna, swordfish and sharks is permitted in the rest of the MPA, as are halibut and other commercial fisheries under a valid license.





In one of Canada's busiest shipping areas, the St. Lawrence Estuary in Quebec, the impacts from vessel traffic and ship strike is a grave concern for the resident population of endangered beluga whales. Reported collisions between vessels and whales increased through the 1990s, peaking in 1999.²⁹ In 1998 the Saguenay-St. Lawrence Marine Park was established to protect critical beluga habitat and in 2002 regulations regarding ship speed came into effect within the park. Since then the number of collisions has decreased and is consistently lower than the reported ship strikes in the wider St. Lawrence Estuary.³⁰ There are still some concerns regarding the growing amount of small vessel traffic as well as the cumulative indirect impacts of vessel traffic including the risk of spills and noise pollution.³¹ The work done so far to minimise shipping impacts is a very promising start.

Vessel strikes of beluga whales drop in St. Lawrence Estuary

Photo: Ansgar Walk, Wikimedia

The Musquash Estuary MPA near Saint John, New Brunswick is the largest intact salt marsh remaining on the Bay of Fundy coast, where 85% of the original salt marshes have been altered by humans over the past 300 years. The Musquash Estuary includes diverse habitats that support abundant wildlife and fish populations. It has a high protection zone located at its core where all marine vessels are prohibited. Vessels are subject to speed restrictions throughout the rest of the MPA to prevent damage and disturbance to sensitive ecosystems and species.

Dredging, Dumping and Coastal Development

The *Oceans Act*, the *NMCA Act* and the *Wildlife Area Regulations* all prohibit dredging, dumping and discharging of harmful substances into an MPA. However, five of the MPA management plans that we examined in fact permit some activities, for example to maintain wharves and boat launches and dredging of navigable waterways. For example, the regulations for Musquash Estuary allow for the construction of new boat launches in one of the zones. The information we received from Environment Canada indicated that dredging, dumping and development is prohibited in all NWAs.

Providing clarity to users regarding permitted activities in Canada's MPAs

As noted above, it was not always clear from the legislation, regulations or management plans what activities are allowed or prohibited in Canada's MPAs.

One of the best models for providing clear direction to all potential users of an MPA is Australia's Great Barrier Reef Marine Park, which provides a clear table identifying the uses that are allowed or prohibited in the various zones. This information is clearly displayed in Table 3. In addition, while the *Saguenay–St. Lawrence Marine Park Act* and Regulations are light on prohibitions and focus primarily on the management of vessel traffic for the protection of marine mammals, the management plan clearly outlines allowable activities in the various zones of the park.

The Saguenay–St. Lawrence management plan also sets a clear and explicit intent to prohibit several other activities in the future (see Table 5 below), which is a great start but would benefit from clear timelines.

Another good example was provided for the Musquash Estuary MPA, and is shown in Appendix 3. We recommend that governments make this type of information publicly available for each and every one of Canada's marine protected areas.

Table 2: A guide to allowable activities in the Great Barrier Reef Marine Park

ACTIVITIES GUIDE (see Zoning Plan for details)	General Use Zone	Habitat Protection Zone	Conservation Park Zone	Buffer Zone	Scientific Research Zone	Marine National Park Zone	Preservation Zone
	Aquaculture	Permit	Permit	Permit ¹	r	r	r
Bait netting	✓	✓	✓	r	r	r	r
Boating, diving, photography	✓	✓	✓	✓	✓ ²	✓	r
Crabbing	✓	✓	✓ ³	r	r	r	r
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit ¹	r	r	r	r
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	r	r	r	r	r
Limited collecting	✓ ⁴	✓ ⁴	✓ ⁴	r	r	r	r
Limited impact research	✓	✓	✓	✓ ⁵	✓	✓ ⁵	Permit
Limited spearfishing (snorkel only)	✓	✓	✓ ¹	r	r	r	r
Line fishing	✓ ⁶	✓ ⁶	✓ ⁷	r	r	r	r
Netting (other than bait netting)	✓	✓	r	r	r	r	r
Research (other than limited impact)	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	r
Tourism program	Permit	Permit	Permit	Permit	Permit	Permit	r
Traditional use of marine resources	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	r ⁸
Trawling	✓	r	r	r	r	r	r
Trolling	✓ ⁶	✓ ⁶	✓ ⁶	✓ ^{6,9}	r	r	r

Table 3: Activities permitted by zone in the Saguenay-St. Lawrence Marine Park

Table 4
According to Zoning
ACTIVITIES PERMITTED

SAGUENAY-ST. LAWRENCE MARINE PARK

December 2008

	Zone I Comprehensive preservation	Zone II Specific protection	Zone III General protection	Zone IV General use
	Sectors Sub-sectors 3b, 5b, 5c, 5e, 5f, 5g, 6c, 8, 9h, 10b, 13b, 13c, 13e, 14b, 15b, 15c	Sectors Sub-sectors 1, 3a, 5a, 5d, 5f, 6b, 6c, 10d, 11, 13a, 14a, 15a	Sectors Sub-sectors 2, 4, 6a, 9a, 9b, 9c, 9d, 9e, 9g, 9h, 10a, 13d, 14c, 14d, 16	Sectors Sub-sectors 7, 9f, 10c, 12 10a (surface)
1) Scientific research activities				
Scientific research				
2) Activities that don't involve harvesting natural resources				
a) Non commercial educational or recreational activities				
Beach and swimming activities				
Interpretation and education activities				
Special activities	Note 4			
Sea kayaking	Note 1			
Snowmobiling				
Boating				
Anchoring				
Mooring – Personal				
Underwater diving				
Horseback riding in intertidal areas				
Hiking in intertidal areas				
Film shooting and photography				
Flight over the park at less than 2000 feet				
b) Commercial educational or recreational activities				
Interpretation and education activities				
Special activities	Note 4			
Cruise or observation activities at sea				
Mooring – Public				
Sea kayaking	Note 1			
Underwater diving				
Horseback riding in intertidal areas				
Shuttle service				
Film shooting and photography				
Flight over the park at less than 2000 feet				
3) Non commercial activities that involve harvesting natural resources				
Interpretation and education activities				
Seal hunting				
Migratory bird hunting	Note 2			
Line fishing	Note 5			
Shellfish harvesting				
4) Commercial activities that involve harvesting natural resources				
Seal hunting	Note 3			
Fishing (whelk, halibut, clam, etc.)	Note 3			
Line fishing (ice fishing)				
5) Essential public utilities				
Periodic maintenance dredging for access to the wharfs, to the seaway, etc.				
Maintenance of marinas, wharfs, buoys, lighthouses, etc.				
Navigation (shipping)				
New boat launching ramp facilities				
Floating pontoon facilities				

Legend

 Zone I Comprehensive preservation	 Authorized activities that don't require a permit
 Zone II Specific protection	 Authorized activities that require a Saguenay-St. Lawrence Marine Park permit
 Zone III General protection	 Authorized activities that require a permit from other departments
 Zone IV General use	 Prohibited activities

- Note 1** Safe travel corridor for users: Human-powered boats (kayaks, canoes, etc.) will be authorized to travel along the shores in some sub-sectors of Zone I (10b, 13b, 13c, 14b, 15b, 15c) and under certain conditions to ensure the safety of users.
- Note 2** Usage conflict regarding public safety: Hunting activity near some areas that are frequented by visitors could pose a public safety problem. Migratory bird hunting will be prohibited in sub-sectors 9b, 13d, 14c of Zone III and in sub-sector 9f of Zone IV.
- Note 3** Exceptional commercial activity that involves harvesting renewable natural resources and that contradicts the protection level of a zone: The current practice of some commercial fishing or seal hunting activity in zones II and III may be authorized under certain conditions, but will be considered an exception. The Marine Park, Fisheries and Oceans Canada, *Agriculture, Pêcheries et Alimentation du Québec* and *Ressources naturelles et Faune du Québec* authorities, in partnership with the users involved, will consider measures aimed at eliminating harvesting activity in time to protect ecosystems, habitats, biotic communities, and species in question. Some other restrictions concerning commercial fishing activity exist and should be respected by fishers, in accordance with their fishing permits.
- Note 4** Special activity: A temporary planned activity or event that takes place in the Marine Park, in particular a parade, a regatta, a show, a cinematic production or promotion, or a sporting event. (Marine Activities in the Saguenay-St. Lawrence Marine Park Regulations, 2002).
- Note 5** Line fishing: A permit is necessary for Atlantic Salmon fishing.



Table 4: Activities in the Saguenay-St. Lawrence Marine Park that will eventually be banned

Building of artificial reefs

Jetskiing* and hovercraft

Towing sports: waterskiing, lifting parachutes and other related sports

Commercial services relating to migratory bird hunting (guides, outfitters, etc.)

Dredging operations other than periodic maintenance dredging and any other activity that could lead to the re-suspension of contaminated sediments

Installation of new wharves

Immersion of solid wastes in the ocean

Rip rap stabilization work unrelated to essential public infrastructures

Activities that lead to the destruction and alternation of marshes and green intertidal zones

Motorized vehicles within the intertidal zones

Aquaculture

** A water-jet driven vessel with an enclosed hull and no cockpit that is designed to be used by one or more persons who are straddling, sitting, standing or kneeling (vessel operation restriction regulations of Canada Shipping Act 2001)*

Source: Parks Canada Agency and Government of Québec. 2010. Saguenay-St. Lawrence Marine Park Management Plan. Parks Canada and Ministère du Développement Durable, de l'Environnement et des Parcs du Québec. p. 50



Left: Juvenile Atlantic puffin Photo: Dana Butters.



Part 2 | Impact of Industrial Activities on Marine Ecosystems

Canada's marine ecosystems and species are under tremendous pressure from ever-increasing industrial uses, as well as the effects of climate change and ocean acidification. While ocean-based industries contribute more than \$39 billion per year to the Canadian economy,³² the value of healthy oceans in terms of ecosystem services and indirect benefits greatly exceeds this and often goes unnoticed.

Oil and Gas Exploration and Development

The first commercial offshore oil production in Canada began on the East Coast in the early 1990s. From exploration to production, the oil and gas industry poses numerous threats to marine species and ecosystems.

Seismic surveys, used to find oil and gas deposits, involve the use of airguns to produce high intensity/low frequency sounds. Seismic surveys can be heard up to 4,000 km away and can persist on an almost daily basis for up to a year.³³ As whales rely on sensitive hearing for communication and hunting they are particularly vulnerable to noise pollution,



Left: Bay of Fundy coastline at Burntcoat Head, NS. Photo: Irwin Barrett

Opposite: Cape Split, NS. Photo: Irwin Barrett



Oiled Pelicans, BP Deepwater spill. Photo: Louisiana GOHSEP

with effects ranging from avoidance and changes in behaviour, to stranding events, death and population decline.^{34,35} Seismic testing is also linked to physical injuries, changes in behaviour and death of eggs and larvae of various fish, crabs and squids.³²

The oil rig itself has serious impacts on marine life. A study of Canada's Grand Banks found that artificial lighting, a place to roost, food waste and artificial aggregations of fish attract sea birds to oil rigs, many of which die from striking the rig, or being incinerated by the flare or oiled.³⁶ The authors of the study note that a single rig reported 60 small oil spills (averaging 10 litres per spill) over a two-year period.

Oil spills are the most widely recognised of these threats; the spills from the Deepwater Horizon (2010) in the Gulf of Mexico and Exxon Valdez (1989) in

Alaska have demonstrated the widespread and long lasting devastation to marine species and ecosystems. Following the Exxon Valdez spill almost 40,000 dead seabirds washed ashore and almost all of the 2000 oiled birds that were found alive later died; an estimated 250,000 birds are thought to have died as result of the spill.³⁷ Oil deposits are still found in seabed sediments some 25 years after the spill, which some scientists have suggested may pose a continued threat to sea otters.³⁸

Even a small amount of oil in the marine environment can have devastating consequences. Just **one drop** of oil on a seabird's feathers undermines their waterproofing ability, and can lead to hypothermia and death.

Canada has had major oil spills

Beach closures in North Vancouver, BC due to oil spill. Photo: Clive Camm/Creative Commons

In 1970 the Arrow tanker ran aground in Nova Scotia releasing 3.5 million gallons of bunker oil and contaminating 190 miles of coastline, killing birds, fish and shellfish, and closing down fisheries on which local communities were dependent.³⁹ In 1988 the Odyssey tanker was wrecked by a storm 700 miles off the coast of Nova Scotia releasing over 100,000 tonnes of crude oil, the 6th biggest oil spill in history.⁴⁰ The clean up was hampered by bad weather and the slick was carried away from Canada by prevailing winds. Much of the oil was thought to have burned off in fires.



Commercial and Recreational Fishing

A variety of different kinds of fishing gear are used to catch fish, both commercially and recreationally across Canada. Each type of gear can impact marine habitats and communities in specific ways.⁴¹ The various gear types can be categorized as low, medium and high risk, according to their bycatch and ecosystem impacts. Low risk gear includes hook and line, purse seine, harpoon, dive and midwater gillnet. Bottom longlines, midwater trawl, pots and traps and pelagic longlines are considered to be medium risk gear as they have either a significant effect on the seafloor, significant bycatch or a moderate impact on both. High risk gears which damage the seafloor and are highly unselective in what is caught, include bottom trawls, bottom gillnets and dredges (See Figure 2 below).⁴²

Bottom trawling, in which a huge net is weighed down and dragged along the seafloor is perhaps the most destructive of fishing practices. Fragile seafloor species, like cold-water corals and glass sponge reefs, that are vital habitat for a diversity of marine life, as well as beautiful and important species in their own right, are easily destroyed by mobile fishing

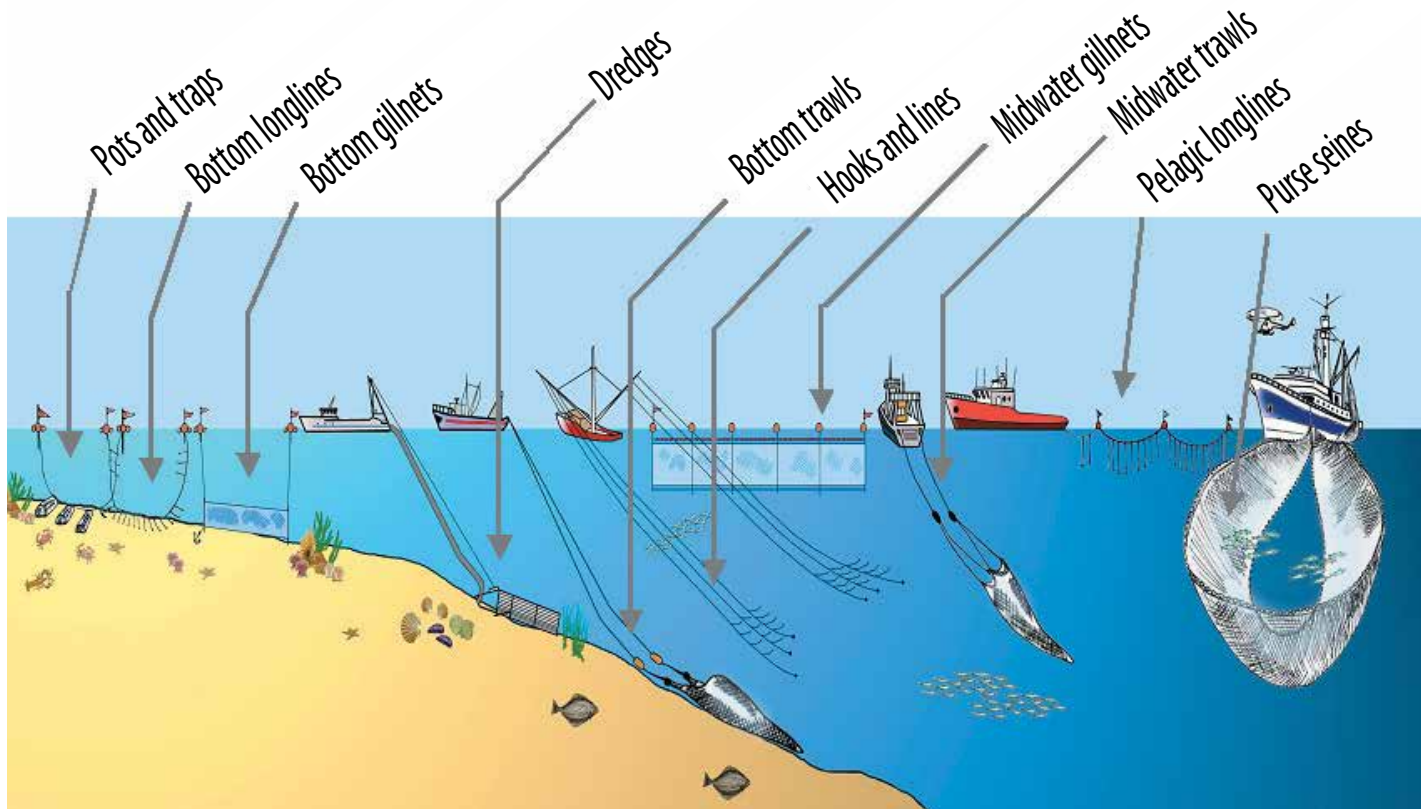
In 2001 scientists observed deep furrows across BC's unique and ancient glass sponge reefs, where they had been ploughed by bottom trawlers targeting the deep-water fish that live around the reefs.^{43,44} The obliterated reefs were thousands of years old and may take hundreds of years to recover. Where bottom trawlers do not physically crush the reefs, the vast clouds of sediments that are kicked up by the nets as they are dragged along the seabed can also smother and kill the glass sponges.

Bottom trawling effects

gear. These mobile gears, which also include dredges, reduce the structure of the seafloor and abundance of sea floor species, as well as increase sedimentation.

Even where ecosystems are not physically destroyed they can be damaged by unsustainable fishing practices. Targeting top predators—such as tuna, salmon and cod, can have significant impacts on marine food webs. They are fewer in number, take longer to reproduce and grow, so that demand can easily outstrip supply. As populations are overfished the next (usually smaller) species lower in the marine food web are targeted, in a process UBC fisheries scientist Dr. Daniel Pauly called “fishing down the

Figure 2: Fishing gear types



Chuenpagdee, R., L.E. Morgan, S.M. Maxwell, E.A. Norse, and D. Pauly. 2003. Shifting gears: assessing collateral impacts of fishing methods in US waters. *Front. Eco. Environ.* 1(10):517-524.

The great cod collapse

Cod. Photo:
Atlanterhavsparken-
Norway

An internationally famous example of fishery collapse, the overfishing of Atlantic cod between 1950 and 1990 led to massive ecosystem collapse and a shift to a food web dominated by lobsters and other invertebrates. The complete collapse of the cod fishery was marked by a moratorium on cod fishing in 1992. Tens of thousands of people lost their livelihoods and communities were destroyed. Even after more than 20 years of the moratorium, cod stocks have not recovered.⁴⁷



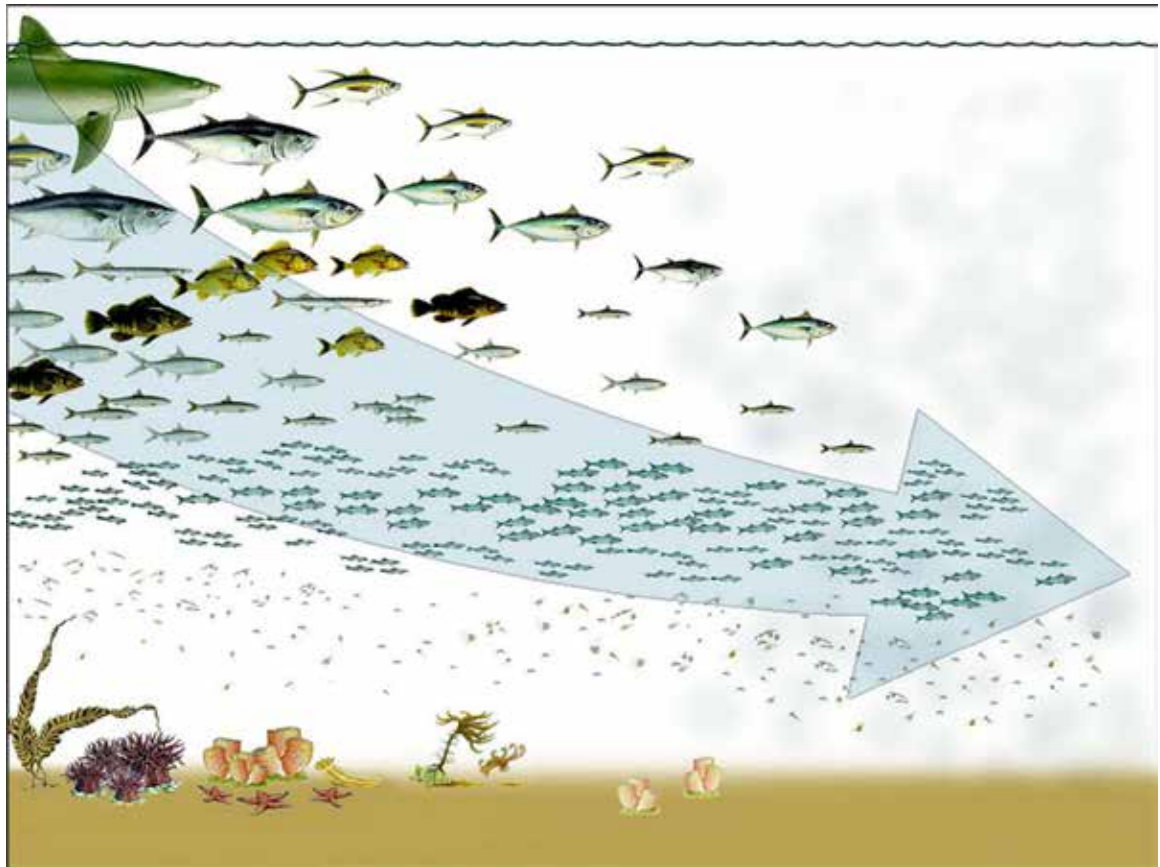
food web.”⁴⁵ As we decrease the size and abundance of fish available, we make it more difficult for predatory fish populations (and the fishing industry itself) to survive and recover. Ecosystem effects are not just limited to top predators, overfishing of key foundation species such as herring and sardine can have consequences for the whales, seabirds and other fish that depend on these species as their food source.

In addition to habitat destruction and ecosystem effects from fishing, entanglement and inadvertent

catch of marine mammals, turtles and seabirds in fishing gear is another threat to marine species from fishing activities.

Recreational fishing also has impacts on ocean ecosystems, the scale of which are often severely underestimated. For example, a study published in *Science* found that US recreational catches accounted for a quarter of the total take of overfished populations, and almost a quarter of federal species of concern.⁴⁶

Figure 3: Fishing down marine food webs. Courtesy of Daniel Pauly, Sea Around Us, University of British Columbia



Shipping and Vessel Traffic

Globally, shipping is a \$100 billion industry. With major ports that handle thousands of vessels located on all coasts, Canadian waters see around 475 million tonnes of freight traffic a year.⁴⁸ Considering the scale of the industry the potential impacts to marine ecosystems and species cannot be underestimated. Shipping infrastructure (e.g. ports) replaces coastal marshes, eelgrass beds, sand dunes and rocky shores, which are home to an incredible diversity of marine creatures. The ports and the ships themselves become a source of pollution. Toxic antifouling paints used to prevent barnacle and algae growth can lead to poisoning, death, even changing sexes and reduced reproduction, of various marine species.^{49,50,51} Where antifouling paints are not successful non-native species that attach to the hulls of ships can be introduced. Many non-native species have also been introduced through ballast water. Although there are now often strict regulations about where ships are allowed to release ballast waters, there always remains a risk of accidental contamination. Introduced species can take over from native species, sometimes with effects on the entire ecosystem (see box below).

Collisions with whales are a serious problem. On the BC coast between 2001 and 2008, 21 different collisions between ships and humpback whales were recorded and it is likely that this is only a portion of the actual number of strikes. Studies on the east coast have found that 30% of stranded humpbacks



Beluga. Photo: Franco Banfi/ Fundación Caja Mediterráneo

show evidence of ship-strike.⁵² In 2003, Canada took a leading role in reducing vessel collisions with endangered right whales on the East Coast by working with the shipping sector to reduce vessel speed, ensure that the whales had right of way, and eventually re-route shipping lanes to avoid areas of critical habitat.⁵³ While this benefited one population in one location, the threats of ship-strike are more widespread, and need to be addressed.

Noise from vessel traffic is perhaps the most significant impact on marine species; from 1950 to 2000 marine noise levels doubled every decade.⁵⁴ In 2008 on Canada's west coast an average of three ships per hour, day and night, passed through the Juan de Fuca and Haro Strait, which is critical habitat for the



Not quite the stuff of a B-movie horror flick, but just as scary to marine scientists and native marine species, the green crab (*Carcinus maenas*) has spread like a plague from its native waters of Europe and North Africa and is (not so) slowly taking over the shores of Canada and the USA. Like the flea-infested rats that carried the bubonic plague, green crabs have travelled the world by hitching a ride on ships, fishing boats and any other passing vessel. They first landed on the east coast of the USA 1817 in less than 200 years they had spread across the Pacific to BC, and as far north as Newfoundland. Green crabs can produce up to 200,000 eggs a year, aggressively out-compete other crab species and can destroy sensitive eelgrass beds by snipping the roots as they burrow.

Invasion of the Green Crabs

Green crabs. Photo: Ramon F Velasquez, Creative commons

Opposite: Rowan Gorilla III on Triumph Halifax. Photo: Glenn Euloth

endangered southern resident killer whales.⁵⁵ The frequency of shipping and seismic noise overlaps that of various whale species' vocalizations⁵⁶ and so has the potential of masking important communications between animals. In the St. Lawrence Estuary, scientists have found that Belugas have to increase the frequency of their calls to "shout" over background shipping noise.⁵⁷ Noise pollution can interfere with whale communication and socializing, hunting and feeding, and cause whales to avoid certain areas; if this affects reproductive success and use of critical feeding grounds, there may be consequences for the entire population.⁵⁸

Finally, studies have also shown that vessel traffic disturbs seabirds, and reduces their available habitat. By reducing foraging time and resting habitat for seabirds, commercial and recreational ship traffic can cause habitat fragmentation, as well as causing high stress levels and higher energetic requirements.⁵⁹

Dredging, Dumping and Coastal Development

In addition to the loss of coastal ecosystems like wetlands, marshes, rocky shores and sand dunes, shoreline development also contributes to pollution, erosion and sedimentation. Many coastal municipalities lack proper sewage treatment facilities and are a significant source of organic pollution that can affect ecosystem health and productivity.^{60,61} Fertilizers from agricultural lands can contribute to harmful algal blooms and damage sensitive eelgrass beds. Pesticides like PCB's have been found to accumulate to toxic levels in large predators like killer whales and seals where they can be passed on to nursing young through the milk.⁶² Beluga whales from the St. Lawrence River and orcas from the Salish Sea must be disposed of as hazardous waste when they die due to the load of toxins they ingest in these heavily industrialized areas.

Fishing boat, Haida Gwaii. Photo: Sabine Jessen





Part 3 | Conclusions and Recommendations

Our review of the federal and provincial sites that Canada counts as MPAs reveals that the level of protection for these special places that are intended to protect our most precious marine species and habitats are weak, and too many harmful industrial practices are allowed to continue even after an MPA is legally designated. This is in stark contrast to the protection we afford our terrestrial protected areas.

Surely our marine protected areas should be havens from the harmful industrial activities that take place across our ocean territory, including oil and gas exploration and development, harmful fishing practices, commercial shipping and other activities. Canada has been investing considerable time and resources to establishing new MPAs across the Arctic, Atlantic and Pacific Oceans. However, if protection standards don't improve, we risk undermining the ecological values they are meant to protect.

In addition to the inadequate protection levels, there is a worrying lack of transparency and clarity in the information that is currently available to assess how well these sites are protected. It is very difficult to

determine what is currently allowed or not to take place in our MPAs from the data and information that is publicly available.

Canada needs to develop much stronger and more consistent standards for all of its marine protected areas, in order for them to have similar benefits to our terrestrial protected areas. Otherwise, we risk losing iconic and endangered species like killer whales and beluga whales, leatherback turtles and puffins, and we face collapsing fisheries and polluted seas.

In order to address the most serious issues we have uncovered in our review, we offer the following recommendations.

Skidegate sunrise, Haida Gwaii. Photo: Sabine Jessen



Recommendations:

- Canada's MPAs must prohibit harmful industrial activities within their borders, notably oil and gas development, mining, dredging and dumping.
- Canada must designate at least 50% of each site that is closed to all fishing and more significantly restrict harmful fishing activities where fishing is permitted within MPAs.
- More attention needs to be paid to the impacts of commercial shipping on marine species and ecosystems, and specific regulatory measures put in place to address these impacts in MPAs.
- **Legislation** for Canada's MPAs (*Oceans Act, Canada National Marine Conservation Areas Act, Migratory Birds Convention Act and Canada Wildlife Act*) should be updated and amended to establish minimum protection standards for industrial activities, with prohibitions on oil and gas exploration and development, mining, dredging and dumping, and restrictions on commercial and recreational fishing, and commercial shipping.
- Ensure that **regulations** for all MPA sites in Canada clearly identify prohibited and allowed activities.
- Ensure that **management plans** for MPA sites in Canada addresses all existing and potential activities in an area.
- MPA regulations need to take into account future threats from rapidly developing industries such as renewable energies and deep-sea mining. These are likely to arise in the imminent future and we need to ensure that MPAs have long-term protection from any associated harmful effects.
- Canada needs to maintain an accurate and publicly available database of all MPAs. The database needs to specify: 1) the marine area that is protected, especially when it is part of a larger combined terrestrial/marine protected area; and 2) the prohibited and permitted activities for each zone of the MPA
- As MPA networks are developed on each of Canada's coasts, existing provincial sites should be reviewed to determine how they could better contribute to protecting marine ecosystems by increasing protection from industrial uses through the application of federal legislative tools.



A pending good news story

St. Anns Bank, Nova Scotia – Located off the eastern coast of Cape Breton Island, this pending Oceans Act MPA contains important leatherback sea turtle habitat, as well as deep sea corals and excellent representative examples of shelf, slope, and channel ecosystems. This site is one of the few bright spots for MPAs in Canada. Currently, the proposed outer boundary includes ecologically rich ecosystems with important biodiversity, and a large no-take zone

would be entirely off-limits to industrial fishing activities and oil and gas exploration. A stakeholder advisory committee has agreed on a final proposal and this new MPA site is just awaiting official designation by DFO.

Concerns regarding other proposed MPAs

A number of proposed MPA sites will soon be designated, or will reach the next stage in the

designation process. We continue to have specific concerns for the following sites related to the level of protection being considered. We urge the government to address these issues, **prior** to designation of the sites.

Laurentian Channel, Newfoundland – The proposed outer boundary for the Oceans Act MPA at Laurentian Channel has been amended from the one recommended by scientists to exclude areas used for industrial activities, particularly the offshore fishery. This includes the northern portion of the Area of Interest, which has been removed from the MPA proposal, exposing the important cod and redfish populations in this area to bottom trawling and other fishing related activities. The zonation within the Laurentian Channel site is also a concern. The conservation zones have shrunk, leaving more of the MPA site available for industrial activities. DFO's current proposal for the Laurentian Channel even allows for oil and gas exploration and development within the MPA, including oil and gas exploration, such as seismic surveying, from December 1st until July 31st. Oil and gas development may still occur within the current version of the MPA proposal,

with horizontal drilling being allowed beneath the conservation zones (Zone 1) and conventional drilling and/or horizontal drilling elsewhere within the MPA proposal (Zone 2). Rather than restricting these activities, the proposed MPA regulations would defer decisions on them to the Canada – Newfoundland and Labrador Offshore Petroleum Board.

Scott Islands, British Columbia – The current proposal by Environment Canada for a marine National Wildlife Area is to allow all existing activities in the area to continue, with potential restrictions on future activities. Existing activities include commercial shipping and fishing, which can impact seabirds and their foraging habitat, as noted earlier in this report. We are concerned that the current proposal will not provide adequate protection for the seabirds and the ecosystem on which they rely.

Hecate Strait Glass Sponge Reefs, British Columbia – The current design for the MPA is to place a protective “bubble” around the reefs, and allow for activities to continue both in the water column above the reefs, and in the area adjacent to the reefs. We are concerned that this design fails to consider ecosystem

Breaching humpback whale. Photo: Gregory “Slobirdr” Smith



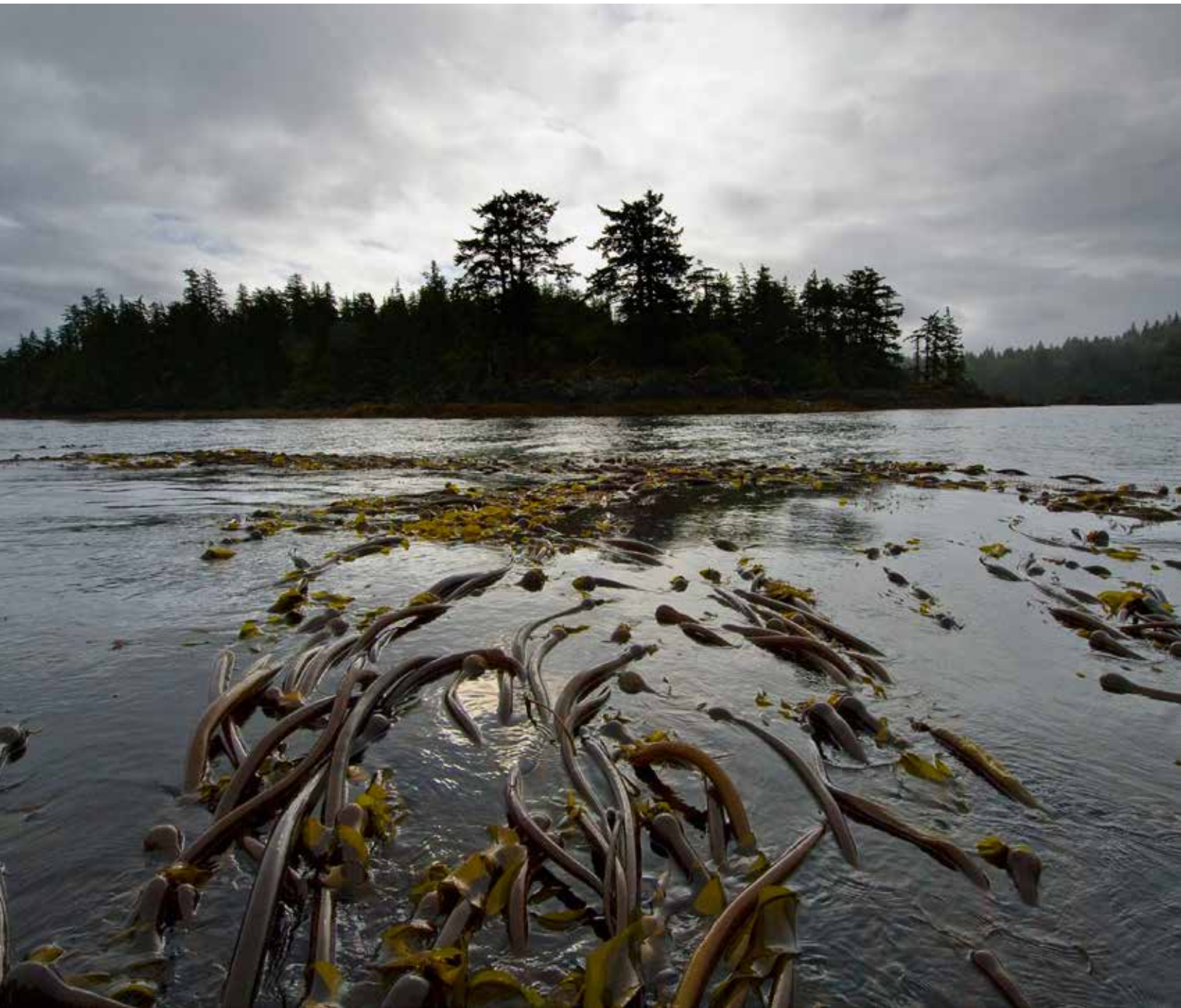
linkages between the reefs and water column, and could cause the reefs to be smothered by sediment that is stirred up by activities adjacent to the reefs.

Lancaster Sound, Nunavut – The proposed boundary for Lancaster Sound will make it the largest MPA in Canadian waters at over 40,000 sq km. However, there are many ecologically and culturally significant areas that have been excluded from the boundary. A proposed zoning plan has not yet been released but in the face of potential expansion of








commercial fishing in the Arctic we recommend that this MPA include a large no-take area, closed to all extractive and industrial activities.

St. Lawrence Estuary, Québec – The fact that the Energy East pipeline development even considered building a port at Cacouna, within the critical habitat for belugas, shows the urgent need to put an MPA in place as soon as possible that restricts industrial activities that will further endanger the beluga population of the St. Lawrence.






BC kelp forest. Photo:
A.S. Wright



PART 4: REVIEW OF PROPOSED MPAS IN CANADA

NAME OF SITE	PHOTOS (credits on page 48)	DESCRIPTION
ARCTIC OCEAN		
Lancaster Sound, NU (Tallurutiup Tariunga)		One of the most biologically productive marine areas in the Arctic. The largest Arctic polynya provides open water year round and ice edge habitats that are critical for seabirds, sea ducks and many marine mammals, including most of the endangered eastern population of bowhead whales. When a decision is made to proceed with the NMCA, Parks Canada, the Qikiqtani Inuit Association and the Government of Nunavut will need to develop an interim management plan, including the identification of fully protected core zones as required under the NMCA legislation, and negotiate an Inuit Impact and Benefit Agreement. To date an ecological and mineral and energy resource assessments, together with a traditional knowledge study have been completed. Last year Parks Canada and the Inuit requested feedback from key stakeholders, including CPAWS .
Tawich, QC		The proposed area in south-east James Bay is noted for a remarkable biodiversity including the most southern population of polar bears in the world as well as a distinct sub-population of beluga whales. First proposed to Parks Canada in 2009, the NMCA project is strongly supported by the communities of Wemindji and Eastmain, as well as by the Grand Council of the Crees, as a way of balancing development in the community with protection of their environment. The signing of the offshore land claim agreement in 2011 set the stage for Parks Canada and the Grand Council of the Crees to formally begin talks about the creation of the NMCA. However, no further discussions have been held since 2011.
Anguniaqvia Niqiyuam, NWT (Darnley Bay)		Anguniaqvia Niqiyuam in Darnley Bay is a site of great cultural importance to the Inuvialut people as a subsistence hunting and fishing ground. It is also an important feeding ground for Arctic char, beluga whales, polar bears, ringed and bearded seals and is home to the only thick billed murre colony in the Canadian Arctic. Since the nomination of Anguniaqvia Niqiyuam a number of scientific assessments, local and traditional knowledge workshops and a socio-economic analysis were completed. In 2013 a draft regulatory intent was developed which has been under review by the local community and stakeholders. The regulatory intent requires Ministerial approval, and then specific regulations must be drafted.
PACIFIC OCEAN		
Scott Islands, BC		The Scott Islands are a globally significant bird area and the most important breeding ground for seabirds in BC. They are home to about half of the world's Cassin's Auklets, 90% of Canada's tufted puffins, and 95% of Pacific Canada's common murres. The islands are protected but the birds spend most of their lives feeding at sea where they are risk from oil pollution and competition with commercial fisheries for food. A proposed boundary was released in 2012 and it was hoped that this site would be designated soon after, however concerns with the suitability of the existing regulatory process have delayed this.
Hecate Strait Glass Sponge Reefs, BC		First discovered in 1987, glass sponge reefs were thought to have gone extinct with the dinosaurs some 40 million years ago. Glass sponge reefs are found nowhere else in the world outside BC waters, and have been growing on the Hecate Strait seafloor for over 9,000 years. They provide important deep sea habitat for a variety of species and are extremely vulnerable to damage from trawlers, long lines and prawn traps. The area was closed to groundfish trawling in 2002 and the site was announced as an Oceans Act MPA area of interest in 2010. Since then CPAWS participated in stakeholder consultations and the development of draft regulations and management plan. The management plan will allow for some fishing activities above the reefs and hopefully protect them from indirect impacts from sea-floor fishing through sedimentation.
Southern Strait of Georgia NMCA, BC		The Southern Strait of Georgia is home to more than 3,000 species and is critical habitat for the iconic southern resident killer whales. In 2003, Parks Canada began the process to establish the Southern Strait of Georgia National Marine Conservation Area, and in 2012 released a proposed boundary. Progress has been very slow and the process and timeline has recently been revised. We now expect that a draft concept will be released by Parks Canada in Fall 2015 and the public consultation will be completed by Spring 2016.
Big Eddy, BC		The Juan de Fuca Eddy provides a rich supply of nutrients to the marine ecosystems off the west coast of Vancouver Island, supporting the incredibly rich and diverse marine life for which the area is famous. A National Marine Conservation Area that connects with the Olympic Coast National Marine Sanctuary in Washington State could create an International Marine Peace Park to effectively protect this important and vulnerable area. In January 2012, Parks Canada issued a request for proposals for a study to identify potential areas for a National Marine Conservation Area, that did not proceed. In the absence of further progress CPAWS has undertaken an independent review of marine ecosystems in the area to support any future studies or proposals.

	SIZE (proposed)	TIMELINE	Activities
	48,000 km ² study area	The timeline is uncertain.	Oil and gas will be prohibited within the NMCA however the boundary has been drawn to avoid a number of major oil and gas leases that are immediately adjacent to the boundary. It is unknown whether future restrictions will be placed on fishing activities but given the likely increase in commercial fishing in the arctic, this area should include a large no-fishing component.
	20,000 km ² (approx.)	No formal timeline for the project.	Not Known
	2,368 km ²	Hopefully the MPA will be completed in 2015.	Not Known
	11,546 km ²	Final designation has now been further delayed until at least 2016.	In the current proposal by Environment Canada, commercial and industrial activities in the MPA will be frozen at existing levels although there will be no restrictions on current activities.
	2410 km ² (1503 km ² fully protected)	Final designation was hoped for late 2014, but has been delayed. We are hoping that the MPA will be designated any day now.	Bottom contact fisheries are excluded in the core zone of the MPA. However mid-water trawling and surface fisheries will be allowed, and there are remaining concerns that bottom trawling will be allowed within the MPA outside of the core zone. There is no restriction of shipping activities. Oil and gas activities are subject to a moratorium on the BC coast.
	1400 km ²	It is unlikely that a decision on whether to proceed with the NMCA will be made before 2016.	Not known. The area is currently heavily used by a wide range of human activities including shipping, as well as commercial and recreational fishing.
	Not known		Not known but currently the area is an important shipping corridor and the second most productive commercial fishing ground in North America.

NAME OF SITE	PHOTOS (credits on page 48)	DESCRIPTION/OPPORTUNITY
ATLANTIC OCEAN		
Laurentian Channel, NL		The channel contains the highest levels of diversity off the shores of Newfoundland. The area supports the largest concentration of black dogfish in Canada, and is the only location where pupping occurs. DFO has decided not to consider cod as a priority species for the development of conservation objectives, in spite of its ecological importance. CPAWS is concerned that significant changes to the boundary will remove some of the most ecologically significant portions of the proposed MPA, including important cod and redfish populations. We are also concerned that although there will be no fishing allowed within this MPA, the proposal is for it to remain open to industrial activities such as seismic testing.
South Coast Fjords, NL		From low sandy beaches to the west and immense granite cliffs and deep fjords to the east, this is the largest, undeveloped alpine coastline in Canada. Ice-free year round, these fjords are a haven for blue, humpback, fin and killer whales in the winter and habitat for endangered leatherback turtles in the summer. Local communities have expressed interest in establishing an NMCA as it could provide an economic boost to the area through increased ecotourism. The spectacular fjord region remains vulnerable to oil and gas exploration and overfishing, and the historic outport culture continues to decline as the historic fishing industry remains moribund. CPAWS-NL plans to gather data from the area this summer and build awareness and support for the project to move forward.
St. Lawrence Estuary, QC		This MPA project was initiated by DFO in 1998 as a way to completely protect the beluga habitat in the St. Lawrence Estuary. The vast area of interest surrounds the Saguenay-St. Lawrence Marine Park and is an area of exceptional biodiversity. Public consultations were held in 2004 and with First Nations in 2005. Since this is an area of shared jurisdiction, collaboration between Québec and Ottawa is essential. In the Fall of 2013, TransCanada tabled an oil terminal project at Cacouna, inside the boundaries of the proposed MPA and within the essential habitat of the threatened beluga population. A vast citizen mobilization against the oil terminal project, as well as several legal challenges, led TransCanada to abandon the project in the Spring of 2015.
Gaspesie (American Bank), QC		These waters, close to Forillon National Park, are characterized by a high productivity and are visited by a significant cod population of southern Gulf of St. Lawrence, the endangered leatherback turtle as well as being a foraging ground for the blue whale. The area was formally recognized as an "area of interest" by DFO in June 2011. Given the shared jurisdiction between Ottawa and Québec, collaboration between the two governments is essential for the area to gain protection status.
Les Îles de la Madeleine, QC		Les Îles de la Madeleine (the Magdalen Islands) are located in southern Gulf of St. Lawrence in a shallow basin with the warmest marine waters in Canada. The islands offer a stunning diversity of coastal ecosystems as well as a high diversity of marine organisms. In December 2011 a very encouraging agreement was signed between the federal and provincial governments to conduct a 2-year ecological, cultural and economic study of the area to better inform an eventual decision to protect the area. The study was published in March 2014, but since then no new agreement between the federal and provincial governments has been reached to proceed with work on this project.
Bay of Fundy, NB and NS		The Bay of Fundy contains the highest tides in the world, which provide nutrient rich waters that support a rich diversity of marine life. Home to 22 species of whales and dolphins, the Bay of Fundy provides critical habitat for the endangered North Atlantic right whale. The Bay also contains rich mudflats and tidal salt marshes, which provide critical feeding areas for over 1 million migratory shorebirds each year. The deeper waters of the bay support deep sea corals, and horse mussel reefs. CPAWS has been working to encourage the establishment of a National Marine Conservation Area (NMCA) within the Outer Bay of Fundy and encourage the government to undertake comprehensive marine network planning for the entire Bay. Some progress has been made over the past year by DFO Maritimes Region to undertake marine network planning, including establishing the Bay of Fundy as a separate zone requiring MPA establishment and some initial analysis of high priority sites. No progress has been made by Parks Canada for an NMCA.
St Anns Bank, NS		St. Anns Bank is located on the Eastern Scotian Shelf not too far from the Cape Breton coastline. It contains an ecologically diverse ecosystem including important habitat for a number of species, such as the leatherback turtle and Atlantic wolffish, as well as deep-sea corals and sponges. A stakeholder advisory committee agreed on a final proposal several years ago and DFO Maritimes Region has been in the process of developing regulations for implementation. This designation process is taking longer than expected.

	SIZE (proposed)	TIMELINE	ACTIVITIES
	Proposed: 17,950 km ² , but in recent discussions with DFO the size is now decreased to ~12,000 km ²	Currently, the documentation is scheduled to go to the Gazette 1 in 2015. In addition, DFO is working on a management and monitoring plans for the MPA.	The current proposal is for the MPA to be completely closed to fishing however current oil and gas exploration as well as seismic testing may be permitted.
	Not Known	The provincial government has declined Parks Canada's offer to conduct a feasibility study for this proposed NMCA. The provincial government should re-evaluate their interest before this opportunity is lost.	
	Area of interest is about 6,000 km ²	No progress has been made on the project for over a decade.	
	Area of interest is 1,050 km ² but CPAWS is proposing an expansion	No formal timeline.	A moratorium on oil exploration in the Gulf is in effect. Some areas of the future MPA could be closed to fisheries.
	Study area is 17,000 km ²	No formal timeline.	The Québec moratorium on oil exploration in the Gulf is still in effect, but could be lifted in the near future.
	10,000 to 15,000 km ² NMCA and MPAs needed	No formal timeline.	No interim conservation measures in place.
	4,600 km ²	Final designation has been delayed, likely late 2015 or early 2016.	The final proposal contains a large no-take zone that prohibits bottom trawling and oil and gas exploration. It has several low impact zones where some inshore fishing is permitted.

APPENDIX 1: ACTIVITIES PERMITTED IN CANADA'S OCEANS ACT MPAS, NATIONAL WILDLIFE AREAS* NMCAS AND MARINE PARKS**

Site and location	Type	Marine Area (km ²)	Area closed to all fishing (km ²)	Activities that are permitted				
				Commercial fishing	Recreational fishing	Vessel Traffic/ Shipping	Oil and Gas	Dredging, dumping and development
Akpait (NU)	NWA	743.13	0	No	Yes	Yes	No	No
Alaksen (BC)	NWA	0.51	0.51	No	No	No	No	No
Baie de l'Isle-Verte (QC)	NWA	0.28	Entire Site 0.28	No	No	No	No	No
Basin Head (PEI)	MPA	9.2	Zone 1 0.24	Zone 2 & 3	Zone 2 & 3 From boat only.	Zone 2 & 3 Within restricted area.	Not mentioned	Zone 2 & 3 Maintenance activities only.
Boot Island (NS)	NWA	0.89	0	No	Yes	Yes	No	No
Bowie Seamount (BC)	MPA	6,100	0	Zone 2 Groundfish fisheries for sablefish, one vessel per month and fishing by trap ⁶³	All Zones (limited because of remote location)	Yes	Not mentioned There is currently a moratorium in BC waters.	No
Cap Tourmente (QC)	NWA	6.36	Entire Site 6.36	No	No	No	No	No
Cape Jourmain (NB)	NWA	3.34	0	No	Yes	Yes	No	No
Eastport (NL)	MPA	2.1	Entire Site 2.1	No	No	Not mentioned	Not mentioned	No
Endeavour Hydrothermal Vents (BC)	MPA	98.5	0	Yes (Activities in surface waters are assumed to have no impact)	Yes (Activities in surface waters are assumed to have no impact)	Yes (Activities in surface waters are assumed to have no impact)	Not mentioned. There is currently a moratorium in BC waters.	Not mentioned
Gilbert Bay (NL)	MPA	59.3	0	Zones 2-3 Except cod.	Yes	Not Mentioned	Not Mentioned	Zone 1 -Maintenance activities only Zones 2 & 3 -construction, maintenance and removal of infrastructure
Gwaii Haanas (BC)	NMCA	3400	6 areas – 3% of NMCA 102	In 97% of NMCA, with some restrictions.	In 97% of NMCA, with some restrictions	Yes	No	No
Îles de l'Estuaire (QC)	NWA	0.61	Entire Site 0.61	No	No	No	No	No
John Lusby (NS)	NWA	5.35		No	Yes	Yes	No	No

Site and location	Type	Marine Area (km ²)	Area closed to all fishing (km ²)	Activities that are permitted				
				Commercial fishing	Recreational fishing	Vessel Traffic/ Shipping	Oil and Gas	Dredging, dumping and development
Musquash Estuary (NB)	MPA	7.4	0	Yes. With some restrictions. Only clam and eel fishing is permitted in Zone 1.	Yes.	Zones 2-5 With speed restrictions.	Not mentioned	Zones 2a & AIA Maintenance of a navigation channel and construction of a boat launch.
Ninginganiq (NU)	NWA	2834.3	0	No	Yes	Yes	No	No
Nirjutiqavvik (NU)	NWA	340.9	0	No	Yes	Yes	No	No
Pointe-au-Père (QC)	NWA	0.01	Entire Site 0.01	No	No	No	No	No
Polar Bear Pass (NU)	NWA	214.8	0	No	Yes	No	No	No
Qualqulluit (NU)	NWA	396.1	0	No	Yes	Yes	No	No
Saguenay-St. Lawrence (QC)	Marine Park	1246	0	Zones 2-5 with gear restrictions. Existing commercial fisheries to be phased out.	Zones 3 & 4	Zones 2-5	No	Zones 3-5
Tarium Niryutait (NWT)	MPA	1740	0	Yes	Yes	Yes	Recognize pre-existing Significant Discovery License in Special Management Zone. Geo-physical, exploratory drilling, pipeline construction and decommission only allowed when ice-covered. Without damage, disturbance, destruction or removal of a marine mammal.	With permits and government authority. Do not result in damage, disturbance, destruction or removal of a marine mammal.
The Gully (NS)	MPA	2364	Zone 1 475	Zone 2 & 3 Long-lining for tuna, swordfish and halibut. Groundfish fisheries.	No (limited because of remote location)	Yes. No activity plan required providing activities carried out as required by <i>Canada Shipping Act</i> . A voluntary avoidance notice was issued for shipping prior to MPA establishment.	Zone 3* by application. Regulations do not remove existing rights. Exploration is currently prohibited by CNSOPB.	No

* Information regarding permitted activities within National Wildlife Areas was provided by Environment Canada as quoted here. Detailed information for activities within each site was not provided.

** We acknowledge that the Government of Canada also identifies a number of Migratory Bird Sanctuaries and National Parks with marine components as MPAs. However we were not able to obtain reliable information regarding prohibited and permitted activities in these sites, so they have not been included here.

APPENDIX 2: LEGISLATIVE AND REGULATORY PROHIBITIONS FOR CANADA'S FEDERAL MPAS

1 - Prohibitions under the *Canada National Marine Conservation Areas Act*:

13. No person shall explore for or exploit hydrocarbons, minerals, aggregates or any other inorganic matter within a marine conservation area.
14. (1) No person shall dispose of any substance in waters within a marine conservation area except as authorized by a permit issued by a superintendent pursuant to this Act or, in the case of waters to which subsection 125(1) of the *Canadian Environmental Protection Act*, 1999 applies, authorized by section 130 of that Act or by a permit issued by the Minister of the Environment pursuant to section 127 or 128 of that Act.
 - (2) No permit may be issued under section 127 or 128 of the *Canadian Environmental Protection Act*, 1999 for disposal in the waters of a marine conservation area except with the concurrence of the Minister.
15. (1) To the extent authorized by the regulations, the superintendent of a marine conservation area may issue, amend, suspend and revoke permits and other authorizing instruments for activities that are consistent with the management plan or interim management plan in the marine conservation area.
 - (2) A fishing licence issued under the *Fisheries Act* is deemed to be a permit issued under this Act to carry out the activities permitted by the licence, subject to regulations made under subsection 16(1) on the recommendation of the Minister and the Minister of Fisheries and Oceans.
 - (3) For greater certainty, the superintendent of a marine conservation area may not amend, suspend or revoke a fishing licence issued under the *Fisheries Act*.

2 – *Canada Wildlife Act* and *Wildlife Area Regulations*

Under the *Canada Wildlife Act*, while there are provisions to establish marine areas, there are no specific prohibitions:

- 4.1 (1) The Governor in Council may establish protected marine areas in any area of the sea that forms part of the internal waters of Canada, the territorial sea of Canada or the exclusive economic zone of Canada.
 - (2) The Minister may provide advice relating to any wildlife research, conservation and interpretation carried out in protected marine areas and may carry out measures for the conservation of wildlife in those areas.

Wildlife Area Regulations

GENERAL PROHIBITIONS

3. (1) Subject to subsection (2), no person shall, in any wildlife area,
 - (a) hunt or fish,
 - (b) be in possession of any firearm, slingshot, bow and arrow, shot other than non-toxic shot or any instrument that could be used for the purpose of hunting,
 - (b.1) be in possession of, while fishing, any lead sinkers or lead jigs that weigh less than 50 grams,
 - (c) have in his possession any animal, carcass, nest, egg or a part of any of those things,
 - (d) damage, destroy or remove a plant,
 - (e) carry on any agricultural activity, graze livestock or harvest any natural or cultivated crop,
 - (f) allow any domestic animal to run at large,
 - (g) swim, picnic, camp or carry on any other recreational activity or light or maintain a fire,
 - (h) operate a conveyance,
 - (i) destroy or molest animals or carcasses, nests or eggs thereof,

- (j) remove, deface, damage or destroy any artifact, natural object, building, fence, poster, sign or other structure,
 - (k) carry on any commercial or industrial activity,
 - (l) disturb or remove any soil, sand, gravel or other material, or
 - (m) dump or deposit any rubbish, waste material or substance that would degrade or alter the quality of the environment, unless he does so under and in accordance with a permit issued by the Minister pursuant to section 4.
- (2) Where the Minister has published a notice in a local newspaper or posted a notice at the entrance of any wildlife area or on the boundary of any part thereof permitting an activity described in subsection (1), any person may carry on the activity described in the notice if the activity is carried on in accordance with the notice.

http://laws.justice.gc.ca/eng/regulations/C.R.C.,_c._1609/page-2.html#h-3

3 – Oceans Act and MPA regulations

There are no general prohibitions for activities in MPAs under the *Oceans Act*.

However, regulations for individual MPA sites established under the Act, have included the following:

In the Area, no person shall

- a) disturb, damage or destroy, or remove from the Area, any living marine organism or any part of its habitat;
- b) disturb, damage or destroy or remove from the Area, any part of the seabed; or
- c) carry out any activity — including depositing, discharging or dumping any substance, or causing any substance to be deposited, discharged or dumped — that is likely to result in the disturbance, damage, destruction or removal of a living marine organism or any part of its habitat.

4 – An Act Respecting the Saguenay–St. Lawrence Marine Park,

S.21 All forms of prospecting, any utilization, harnessing or harvesting of resources for mining or energy production purposes and the laying of oil or gas pipelines or power lines are prohibited within the confines of the park.

The prohibition above does not apply to energy transmission equipment or to works existing on 5 June 1997. 1997, c. 16, s. 21.

5 – Marine Activities in the Saguenay–St. Lawrence Marine Park Regulations SOR/2002-76

PROHIBITED CONDUCT AND CONTROLLED ACTIVITIES

- 14. (1) No person shall engage in behaviour in the park that may kill or injure a marine mammal or cause the disturbance of a marine mammal.
- (2) The operator of a vessel that is involved in an accident in which a marine mammal is killed or injured or that collides with a marine mammal shall report the incident immediately to a park warden or an enforcement officer.
- 15. (1) Subject to subsection (4), the operator of a vessel shall not, by means of the vessel's motors or under the force of the winds, waves or currents or by any other means, permit the vessel to approach a cetacean within a distance of less than 100 m, if the vessel is a commercial vessel operating under a marine tour business permit, or within a distance of less than 200 m, in the case of any other vessel.
- (2) Subject to subsection (4), the operator of a vessel shall not place the vessel within the path of a cetacean in such a manner that the cetacean will pass within a distance of less than 100 m from the vessel, if the

- vessel is a commercial vessel operating under a marine tour business permit, or within a distance of less than 200 m from the vessel, in the case of any other vessel.
- (3) If a cetacean approaches within a distance of less than 100 m from a commercial vessel that is operating under a marine tour business permit, or less than 200 m from any other vessel, the operator of that commercial vessel or that other vessel shall maintain it in a stationary position until the cetacean has dived towards the seabed or moved more than 100 m from that commercial vessel or more than 200 m from that other vessel, as the case may be.
 - (4) The operator of a vessel shall maintain a minimum distance of 400 m between the vessel and any endangered marine mammal.
 16. Notwithstanding subsection 15(1), the operator of a commercial vessel operating under a marine tour business permit shall not permit the vessel to approach within a distance of less than 200 m from a cetacean at any time when there are more than four vessels within a radius of 400 m from that vessel.
 17. No person shall dive or swim within a distance of less than 200 m from a cetacean or less than 400 m from an endangered marine mammal.
 18. No person shall fly an aircraft over the park at an altitude of less than 2,000 feet (609.6 m) from the surface of the water or take off or land in the park unless authorized to do so by the Minister under subsection 10(1) of the Act.
 19. Subject to section 20, no person shall operate a vessel in the park at a speed greater than 25 knots.
 20. The operator of a vessel, other than a cargo ship, shall not operate the vessel at a speed greater than 10 knots when it is in the observation zone of another vessel or in an observation area.
 21. Notwithstanding section 20, the operator of a vessel that is between 100 and 400 m from a cetacean, in the case of a commercial vessel operating under a marine tour business permit, and between 200 and 400 m from a cetacean, in the case of any other vessel, shall not
 - (a) operate the vessel at a speed greater than the minimum speed required to manoeuvre the vessel; or
 - (b) stop or start the vessel, or change its direction, in a repetitive manner.
 22. If a vessel unexpectedly encounters an endangered marine mammal at a distance of less than 400 m from the vessel, the operator of the vessel shall reduce the speed of the vessel to a speed not greater than the minimum speed required to manoeuvre the vessel.

Observation Zones and Observation Areas

23. (1) The operator of a commercial vessel operating under a marine tour business permit shall not permit the vessel to approach a cetacean within a distance of between 100 and 200 m
 - (a) for more than two periods of 30 minutes each during each excursion; or
 - (b) more than once in the same observation zone or observation area.
- (2) The operator of a commercial vessel operating under a marine tour business permit shall, when the vessel assumes observation mode, indicate by radio or by the means, if any, indicated in the permit under which the vessel is operating that it is in observation mode to all other commercial vessels nearby.
- (3) The operator of a vessel shall not keep the vessel in observation mode for more than one hour or operate the vessel in the observation zone of another vessel or in an observation area for more than one hour.
- (4) The operator of a vessel shall not permit the vessel to re-enter the observation zone of another vessel or an observation area until one hour has elapsed after leaving that observation zone or observation area, as the case may be.

APPENDIX 3: ALLOWABLE AND PROHIBITED ACTIVITIES IN MUSQUASH ESTUARY MPA (Table shows Zones and Exceptions to prohibited activities)

Exceptions to prohibited activities	Zone 1	Zone 2A	Zone 2B	Zone 3
Fishing that is carried out in accordance with the <u>Aboriginal Communal Fishing Licences Regulations</u>	Allowed	Allowed	Allowed	Allowed
The following recreational fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : manually fishing for scallops or clams	Allowed	Allowed	Allowed	Allowed
The following recreational fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : fishing for any other species by means of angling or dip net	Allowed	Allowed	Allowed	Allowed
The following commercial fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : fishing for elvers or eels with a hand-deployed fyke net or dip net	Allowed	N/A	N/A	N/A
The following commercial fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : fishing for lobster using individual traps and for herring using a weir, beach seine, bar seine, or drag seine	N/A	Allowed	Allowed	Allowed
The following commercial fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : fishing for scallops	N/A	N/A	N/A	Allowed
The following commercial fishing in accordance with the <u>Atlantic Fishery Regulations 1985</u> , or the <u>Maritime Provinces Fishery Regulations</u> : manually fishing for clams	Allowed	Allowed	Allowed	Allowed
Recreational or commercial harvesting of dulce by manual means	N/A	Allowed	Allowed	Allowed
Operation of a motorized vessel at a speed: no greater than 5 knots	N/A	Allowed	Allowed	N/A
Operation of a motorized vessel at a speed: no greater than 8 knots	N/A	N/A	N/A	Allowed
Construction of a boat launch, maintenance, repair or removal of a wharf or boat launch, or maintenance of a navigational channel	N/A	Allowed	N/A	N/A
An activity carried out for the purpose of public safety, national defence, national security, law enforcement, or in response to an emergency	Allowed	Allowed	Allowed	Allowed

Recreational activities, such as swimming, canoeing, kayaking, boating and scuba-diving, are permitted within the Musquash Estuary MPA provided that they do not disturb, damage, destroy or remove from the area any living marine organism or any part of its habitat. Our Public Access Points page provides directions and details.

Some activities may be undertaken within the Musquash Estuary MPA without DFO approval, provided they abide by all other applicable legislation and regulations such as the Fisheries Act, the Navigable Waters Protection Act and the Maritime Provinces Fishery Regulations. These are described in the table below.

Other activities, such as scientific research (including monitoring), educational activities, archaeological studies, commercial tourism, and habitat restoration projects, are allowed provided they are approved by DFO prior to commencement.

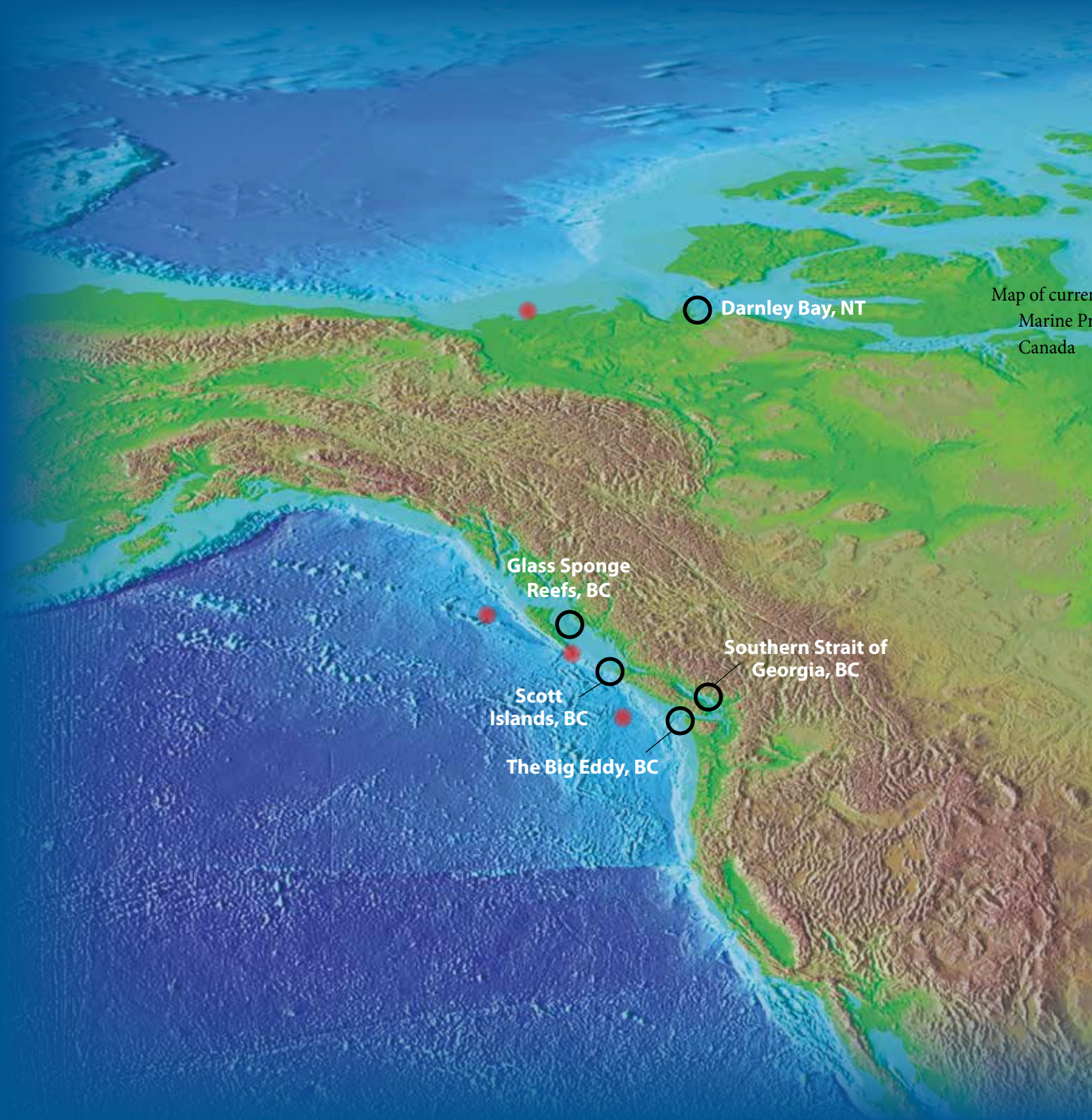
Anyone wishing to undertake one of these activities must submit a proposed activity plan to DFO. The Activity Plan Application allows DFO to determine whether or not the proposed activity is likely to affect the MPA and Administered Intertidal Area ecosystem, and to ensure that the proposed activity is undertaken in a manner consistent with estuary conservation objectives. The Activity Plan Application Form Guidelines will help you complete the application. To request an application form send an email to : Musquash@dfo-mpo.gc.ca

Activities undertaken within the Administered Intertidal Area are not subject to the same regulations; therefore, proponents are not legally required under the MPA regulations to submit an activity plan for DFO's approval. But, in the interests of Musquash Estuary conservation and protection, those planning activities in the intertidal area are asked to submit a plan to DFO on a voluntary basis. Additionally, any activity undertaken in the intertidal must abide by other applicable legislation and regulations, such as the Fisheries Act and the New Brunswick Trespass Act .

Finally, aquaculture development and mineral and hydrocarbon exploration and development cannot be undertaken within the MPA. DFO is working with the Province of New Brunswick to ensure aquaculture development proposed in the Bay of Fundy is considered in context of its proximity to the MPA. The Province of New Brunswick has withdrawn lands within the MPA and Administered Intertidal Area from prospecting and staking.

Source: <http://www.inter.dfo-mpo.gc.ca/Maritimes/Oceans/OCMD/Musquash/Activities>

Map of current and proposed Marine Protected Areas in Canada



LEGEND

- Marine Protected Area (MPA)
- Proposed MPA

at and proposed
ected Areas in

Lancaster Sound, NU

Tawich, NU

St. Lawrence
Estuary, QC

Les Iles de la
Madeleine, QC

Southcoast Fjords, NL

Manicougan, QC

Bay of Fundy, NS and NB

St. Anns Bank, NS

Laurentian
Channel, NL



ENDNOTES

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Photo: Eva Funderburgh

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Narwhals, polar bear and seal – A.S. Wright; auk chick – unknown; glass sponge – Neil McDaniel; killer whale – Cory Lagasse; humpback whale – Duane Fuerter; Wolffish – Ocean Quest Adventure Resort; Leatherback turtle – Rick Herren, Inwater Research; beluga – GREMM; blue whale – Patrick DeBacker; gannets – Andrea Schaffer; North Atlantic Right Whale and calf – Penn State; Wolffish – Ocean Quest Adventure Resort.



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