LINKING SCIENCE AND LAW:

Minimum Protection Standards for Canada's Marine Protected Areas

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Photo: Tavish Campbell

Photo: Wayne Stadler

"The true richness of the ocean, inexhaustible source of inspiration and serenity, is impalpable."

- Jacques-Yves Cousteau

INTRODUCTION

In 2015, Canada's federal government made a public commitment to reach Aichi Target 11 of the Convention on Biological Diversity, by protecting 5% of Canada's marine and coastal areas by 2017, and 10% by 2020. Achieving these conservation targets will require a significant increase in the rate of designation of marine protected areas in Canada. This can be facilitated by the laws that guide the designation and decision-making processes for marine protection. In the 5 point Action Plan for reaching the protection targets, the Minister of Fisheries, Oceans, and the Canadian Coast Guard committed to examining "how the *Oceans Act* can be updated to facilitate the designation process for Marine Protected Areas, without sacrificing science, or the public's opportunity to provide input."[1]

Here, we present recommendations for updating the *Oceans Act* to translate scientifically-determined protection standards into law. We discuss the importance of law for MPAs, review the scientific rationale for protection standards and the current legal practice regarding standards under the *Oceans Act*, and examine problems with current practices. We conclude with four proposed potential reforms.

1 Canada, Department of Fisheries and Oceans, Meeting Canada's Marine Conservation Targets (Ottawa: Department of Fisheries and Oceans, 2016) <http://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html>

IMPORTANCE OF LAW FOR MARINE PROTECTED AREAS

Marine Protected Areas (MPAs) are well-recognized as a key tool for the conservation and management of marine biodiversity. Extensive scientific study reveals several factors critical to the success of MPAs, including no-take areas and prohibition of extractive and industrial activities. However, the vast majority of Canada's marine protected areas allow extractive uses within their boundaries, including oil and gas and fishing activities.[2]

While no single factor can be identified as the most effective way to secure marine conservation, law plays a significant role. Managers of marine protected areas around the world (including both community- and state-run management) have reported a desire for a clearer and more prescriptive legal framework to guide MPA planning and management.[3]

This brief focuses on Canada's 'skeletal'[4] *Oceans Act*, the main federal law regarding ocean protection, and the law that the Canadian government is committed to updating.[5] Currently, the Act does not incorporate key lessons from conservation science. There are a number of ways to incorporate the science of MPA protection standards into law as is reviewed here, as well as in previous briefs by West Coast Environmental Law.[6]

SCIENTIFIC RATIONALE FOR MPAS

It has been well-documented that significant conservation benefits can be achieved through well-designed and enforced, fully protected Marine Protected Areas.

Standards of Protection Needed for Ecological Integrity

Recommendations for consistent minimum standards of protection within Marine Protected Areas include the designation of no-take and buffer zones, where all large-scale habitat disturbances by industrial activity and commercial resource extraction are prohibited, including fishing activities, oil and gas development.[7]

Fishing activities can impede marine conservation objectives within MPAs both through the direct depletion of target and non-target (bycatch) fish populations, and also through indirect impacts of fishing gear on marine habitats.[8]

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2 Canadian Parks and Wilderness Society, Dare to be Deep. Are Canada's Marine Protected Areas really 'protected'? Annual report on Canada's progress in protecting our ocean (Ottawa: CPAWS, 2015) < http://cpaws.org/uploads/CPAWS_DareDeep2015_v10singleLR.pdf> ("Dare to be Deep")

3 Jones, Peter JS, Governing marine protected areas: resilience through diversity (New York: Routledge, 2014),

4 VanderZwaag, D.L., and Macnab, P. "Marine Protected Areas: Legal Framework for the Gully off the coast of Nova Scotia (Canada)" (2011) IUCN-EPLP No. 81.

5 Two other federal laws govern MPAs in Canada, and are referred to briefly below.

6 West Coast Environmental Law, Brief to Standing Committee on the Environment and Sustainable Development- Study on Federal Protected Areas and Conservation Objectives "Opportunities to Accelerate Creation of Marine and Coastal Protected Areas - Learning from Other Jurisdictions and Legal Innovations" (Vancouver: West Coast Environmental Law, 2016) <http://wcel.org/sites/default/files/publications/WCEL%20Brief%20on%20MPAs%20to%20Standing%20Cttee%20May%209%202016.pdf>

7 Day, J.C. "Zoning - lessons from the Great Barrier Reef Marine Park," (2002) Ocean & Coastal Management 45: 139-156. See also, Edgar, G. J., Stuart-Smith, R. D, et al. "Global conservation outcomes depend on marine protected areas with five key features," (2014) Nature 506:216–220.

8 Chuenpagdee, R., Morgan, L. E., et al. "Shifting gears: assessing collateral impacts of fishing methods in US waters," (2003) Frontiers in Ecology and the Environment 1: 517–524. See also, Fuller, S.D., Picco C., et al. "How We Fish Matters: Addressing the Ecological Impacts of Canadian Fishing Gear." (2008) <http://www.livingoceans.org/sites/default/files/HowWeFish.pdf>

Areas fully protected from fishing activities show increases in both the numbers and sizes of fish and other marine life.[9] These benefits are substantially reduced in areas that are only partially protected (allowing some fishing activities while prohibiting others).[10] Activities associated with offshore exploration and extraction of oil and gas also have documented impacts to marine life. These include noise pollution from seismic surveys, threats to marine life from platform infrastructure, and the risk of oil spills.[11]

MPAs are intended to be governed differently from other areas of the ocean. Scientific study has confirmed what is needed for protection, and the laws that guide development of this governance must incorporate this to produce effective conservation and management tools.

Incorporating MPAs into a network

Protection afforded to marine ecosystems from MPAs is also influenced by the size of the designated protected area and its proximity to other protected areas.[12] Protection of marine populations and ecosystems cannot be achieved through individual sites alone due to the many connections and processes that support the functions of the marine environment. Ecological resilience, built by networks of protected areas, will also enhance ecosystems' ability to adapt to the effects of climate change. Therefore, marine protected area law and planning should incorporate key ecological concepts which facilitate the development of wider networks of protection.[13]

MPA Management Capacity Another Key to Success

Effective MPAs also require sufficient management capacity to monitor and ensure adherence with regulations. A global review of MPA management shows that inadequate resources for management can compromise the ecological outcomes of protection.[14] Capacity to enforce a high level of compliance with regulations in areas that restrict fishing or other activities is a key feature of successful MPAs. Additionally, resources for comprehensive monitoring programs are needed to enhance our knowledge of marine protected areas and the specific ecosystems which they protect, as well as to inform management practices.

9 Lester, S.E., Halpern, B.S., et al. "Biological effects within no-take marine reserves: a global synthesis," (2009) Marine Ecology Progress Series 384:33-46.
10 Sciberras, M., Jenkins, S. R, et al. "Evaluating the relative conservation value of fully and partially protected marine areas," (2015) 16 Fish and Fisheries 58.
11 Weilgart, L.S. '"The impacts of anthropogenic ocean noise on cetaceans and implications for management," (2007) 85 Canadian Journal of Zoology 1091. Ronconi, R.A., Allard, K.A., Taylor, P.D. "Bird interactions with offshore oil and gas platforms: Review of impacts and monitoring techniques," (2015) 147: 1 Journal of Environmental Management 34. Wallace, B.P., Brosnan,T., McLamb, D., Rowles, T., Ruder, E., Schroeder, B., Schwacke, L., Stacy, B., Sullivan, L., Takeshita, R., Wehner, D., "Effects of the Deepwater Horizon oil spill on protected marine species," (2017) 33 Endangered Species Research 1.
12 Edgar, G. J., et al. "Global conservation outcomes depend on marine protected areas with five key features," (2014) 506 Nature 220. Mee, J.A., Otto, S.P., Pauly, D. "Evolution of movement rate increases the effectiveness of marine reserves for the conservation of pelagic fishes," (2017) Evolutionary Applications 1.
13 Gaines, S.D., White, C., Carr, M.H., Palumbi, S.R., "Designing marine reserve networks for both conservation and fisheries management," (2010) 107:43 Proceedings of the National Academy of Sciences. 18286.
14 Gill, D.A, Mascia, M.B., et al., "Capacity Shortfalls Hinder the Performance of Marine Protected Areas Globally," 543 Nature 665.

TRANSLATING SCIENCE INTO LAW

Current Practice under the *Oceans Act*

The *Oceans Act* gives the Minister of Fisheries and Oceans the authority to lead and coordinate the development of a national MPA "system", and broad legislative authority and discretion to designate MPAs. Reasons for designation focus on conservation and protection of commercial and non-commercial fishery resources, such as endangered or threatened marine species and their habitats, marine areas of high biodiversity or biological productivity, and any other marine resource or habitat "as is necessary to fulfil the mandate of the Minister."[15]

The Minister's broad powers also include regulation-making powers for MPAs which may include the zoning and prohibition of classes of activities within MPAs, and any other matters consistent with the purpose of the designation.[16] Designation of an MPA by itself does not prohibit any activities within the boundaries of the area identified. Instead, prohibited activities are established by Ministerial discretion on a case-by-case basis for each MPA.

Each *Oceans Act* MPA has its own specific regulations. There are common features in all of these regulations; each defines the geographical boundaries of the MPA and then prohibits activities, in particular those which disturb, damage or destroy living marine organisms, any habitat, and the seabed.

Despite these prohibitions, there are exceptions for activities, such as fishing, that are authorized under other federal laws and regulations. All MPA regulations provide exceptions for activities during emergencies and for national safety and defence. Common exceptions include commercial fishing and recreational fishing carried out in accordance with the *Fisheries Act*[17] and its regulations, fishing that is carried out in accordance with the *Aboriginal Communal Fishing Licences Regulations*,[18] and vessel travel carried out in accordance with the *Canada Shipping Act 2001*[19] and its regulations.

Problems with Current Practice

In theory, by allowing regulatory prohibitions to be created for each individual MPA, the *Oceans Act* allows for the creation of unique regulatory regimes to match the specific conservation objectives of each MPA. In practice, however, these conservation objectives are not always foremost in the finalized regulations. Absence of a prohibition on extractive and industrial activities in MPAs, a lack of minimum standards for permissible activities, and few timelines requiring action have resulted in a lack of consistency in protection and regulatory schemes across the 10 MPAs currently designated pursuant to the *Oceans Act*.[20]

Scientific literature emphasizes that 'no-take' areas are most successful at protecting marine life and helping populations recover from high extractive pressures within protected areas. International best legal practices, as set out in the IUCN Guidelines, either prohibit outright or significantly restrict extractive and industrial activities in at least 75% of the area of an MPA. The *Oceans Act* contains no requirement for any portion of any MPA to be 'no-take'.

15 *Oceans Act*, SC 1996, c 31, s 35(1) ("*Oceans Act*")
16 Oceans Act, s 35(3)
17 RSC 1985, c F-14
18 SOR/93-332
19 SC 2001, c 26
20 Dare to be Deep, supra note 2.

Most of these 10 MPAs allow activities of questionable compatibility with the MPAs' primary biodiversity conservation objective. For example, Tarium Nirytutait in the Beaufort Sea allows oil and gas exploration development within the MPA. Only 0.11% of all of Canada's marine PAs is fully closed to extractive uses (this includes areas designated under other federal Acts).[21] As stated in a recent review by the Canadian Council on Ecological Areas, "from a conservation science perspective, the weak legal mechanisms in many marine PAs in Canada trigger the question of whether they meet the IUCN definition of PA, primarily because they remain open to industrial-scale harvest."[22]

While the current approach offers flexibility, it also creates uncertainty for ocean users regarding the implications and impacts of MPAs, leads to prolonged negotiations, and often results in watered-down prohibitions and reductions in the size of protected areas needed for biodiversity conservation.

Proposals to Integrate MPA Science into MPA Law

Comparing Canada's laws to the laws and legal proposals in other countries uncovers possible solutions.

1. Setting Targets into the Law

Timelines

Legislated timelines can be an important catalyst for action. The province of Nova Scotia set a number of targets in its *Environmental Goals and Sustainable Prosperity Act*, including that "at least 12 per cent of the total land mass of the Province is legally protected by 2015.[23] A provincial government representative testified how important this legislative framework was to achieving this target, and this Nova Scotian experience was favourably commented on by the House of Commons Environment Committee.[24]

Percentages of Highly Protected Zones

Legislated targets for zoning within MPAs could also be used to establish minimum percentages of protected areas with no extractive and industrial activities (highly protected zones). The IUCN emphasizes the need for MPA legislation to recognize that "a network of highly protected areas (or highly protected zones in a large MPA) is normally a necessary component of a country's MPA network", and that it is important to protect "the full range of plants and animals in the marine environment, not just specific fish stocks which seasonal or rotational closures may target."[25]

21 Ibid., supra note 2.
22 MacKinnon, D, Lemieux, CJ, et al. "Canada and Aichi Biodiversity Target 11: understanding 'other effective area-based conservation measures' in the context of the broader target," (2015) 24 Biodivers Conserv 3559: 3574.
23 Environmental Goals and Sustainable Prosperity Act, SNS 2007, c 7, s 4(2)(v).
24 Canada, Parliament, Standing Committee on Environment and Sustainable Development, Taking Action Today: Establishing Protected Areas for Canada's Future (2017) <http://www.parl.gc.ca/Committees/en/ENVI/Work?show=reports> section 3a.
25 Lausche, Barbara J., and Françoise Burhenne-Guilmin, "Guidelines for protected areas legislation No. 81," (Gland: IUCN, 2011) para 197. ("Guidelines"). The House of Commons Standing Committee on Environment and Sustainable Development considered this topic in its recent federal protected areas study, footnote 21, and recommended that Fisheries and Oceans Canada explore more effective and innovative mechanisms to expedite protection for marine and coastal areas. (Recommendation 24).

Such requirements have been recommended in the United Kingdom, where the Royal Commission on Environmental Pollution proposed that 30% of the UK's exclusive economic zone to be established as no-take reserves closed to commercial fishing, and that the government establish a statutory basis for targets for marine protected areas.[26] Legal experts in California also recommended this approach for marine protection, and have proposed that the government 'establish a minimum required percentage for high level protection in the enabling statute itself."[27] Legislated targets may still retain flexibility within delivery to maintain the ability to adapt to scientific recommendations, as has been demonstrated in the UK's *Climate Change Act*.[28]

2. Create Minimum Protection Standards for *Oceans Act* MPAs

Conservation of biodiversity is the primary goal for establishing an MPA and activities permitted within MPAs should not compromise this objective. The IUCN recommends that, "as with terrestrial sites, **some activities should always be strictly prohibited throughout the marine and coastal protected areas network**, for example, damaging coral; taking or harming, rare, threatened or endangered marine species; large-scale extractive activities like mining and industrial fisheries; and the dumping of ship waste, bilge water or toxic substances"[29] (emphasis added). In 2016, the IUCN called on governments to prohibit environmentally damaging industrial activities and infrastructure development in all IUCN categories of protected areas.[30]

Specific activities known to damage marine species and habitats could be prohibited in MPAs following the example of marine reserves, as defined in the *California Marine Life Protection Act*:

> "Marine life reserve," for the purposes of this chapter, means a marine protected area in which all extractive activities, including the taking of marine species, and, at the discretion of the commission and within the authority of the commission, other activities that upset the natural ecological functions of the area, are prohibited. While, to the extent feasible, the area shall be open to the public for managed enjoyment and study, the area shall be maintained to the extent practicable in an undisturbed and unpolluted state. [31]

Other Canadian laws and associated regulations governing MPAs contain some outright prohibitions on permitted activities. The *Canada National Marine Conservation Areas Act* ("CNMCA") prohibits exploring for or exploiting hydrocarbons, minerals, aggregates or any other inorganic matter, as well as ocean dumping or waste disposal within a marine conservation area. The *Wildlife Area Regulations* under the *Canada Wildlife Act*, though designed primarily for terrestrial areas, contain some far reaching prohibitions that could also apply in marine wildlife areas: hunting and fishing are not allowed, nor is damaging destroying or removing a plant and destroying or molesting animals, carcasses, nests or eggs, for example.[32]

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26 Blundell, T. "Turning the tide—addressing the impact of fisheries on the marine environment." 25th Report of The Royal Commission on Environmental Pollution, London, UK. (2004) paras 8.96, 10.46

27 Sivas, Deborah A., and Margaret R. Caldwell, "New Vision for California Ocean Governance: Comprehensive Ecosystem-Based Marine Zoning, A," (2008) 27 Stan Envtl LJ 209: 249.

28 Appleby, Tom, and Peter JS Jones. "The marine and coastal access act—A hornets' nest?" (2012) 36.1 Marine Policy 73.

29 Guidelines, para 218, supra note 23.

30 IUCN, Protected areas and other areas important for biodiversity in relation to environmentally damaging industrial activities and infrastructure development (Gland: IUCN, 2016) WCC 2016 Rec 102 (6.102) <https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_REC_102_EN.pdf>

31 California Fish and Game Code §2852(d) (2016)

32 Wildlife Area Regulations, CRC, c 1609, s 3.

The CNMCA also contains a requirement for at least one no–take zone in each National Marine Conservation Area. To date, practice under that Act has not lived up to its conservation potential; only 3% of Gwaii Haanas National Marine Conservation Area and Reserve is classified as no-take in the interim management plan, contrary to the 30% recommended by scientific experts when the Area and Reserve was created.[33] The final management plan, which has been under development for the past five years may change that percentage.

3. Create a Legal Duty to Categorize MPAs Using the IUCN Categories

The protected area categories defined by the IUCN are used globally to define management objectives for both terrestrial and marine protected areas.[34] Guidance documents for implementing these categories into law recommend that protected area laws should state the management categories that will apply to each protected area, ranging from strict protection to multiple use.[35] The guidelines also state that the primary management objective and corresponding regulations for each site should apply to at least three-quarters of the protected area (known as the "75% rule"). The remaining 25% of land or water within a protected area "can be managed for other essential and unavoidable purposes so long as these uses are compatible with the definition of a protected area and the management category it is being assigned to."[36]

Laws in other countries require that MPAs are assigned an IUCN category and state the purposes for which an MPA is declared. An example of this approach is found in the *Australian Environment Protection and Biodiversity Conservation Act*, which requires that areas within reserves are assigned to one of the categories and consequently receive the corresponding regulations and restrictions as set out by the Act.[37]

Canada's *Oceans Act* has no requirements regarding IUCN categories. Amending the Act to establish minimum levels of protection for MPAs indexed to these categories would facilitate automatic restrictions on harmful activities in these areas.[38] In the event that a management plan has not yet been prepared for an MPA, the Canadian law should prescribe that activities in the MPA must nevertheless be consistent with the principles for its IUCN category, providing strong interim protection between designation of the MPA and completion of a management plan.[39] Bringing Canada's marine protection regime in line with international standards would also encourage greater internal management consistency and help with international reporting obligations.

33 Canada, Office of the Auditor General of Canada, 2012 Fall Report of the Commissioner of the Environment and Sustainable Development (Ottawa: Office of the Auditor General, 2012) Chapter 3, Exhibit 3.9.
34 IUCN, "Protected Areas Categories," accessed 7 May 2017 <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories>
35 Day J., Dudley N., et al., "Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas" (Gland: IUCN, 2012). Guidelines, supra note 23.
36 Ibid.
37 Environment Protection and Biodiversity Conservation Act (Cth) s 346(1)(e) ("EPBCA") and Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Sch 8.
38 The House of Commons Standing Committee on Environment and Sustainable Development considered this topic in its recent federal protected areas study and recommended that the Government of Canada confirm minimum conservation standards of protection for each category of federal protected area to meet accepted international standards. (Recommendation 26).
39 EPBCA, s 367(3).357, supra note 36.

4. Requiring Maintenance of Ecological Integrity as the Top Priority for MPAs

Decisions on activities permitted within marine protected areas should be required to prioritize maintenance of the protected ecosystems' processes and functions. The *Canada National Parks Act* (CNPA) and associated regulations require the prioritization of "the maintenance or restoration of ecological integrity" to guide decisions on allowable activities.[40] The *National Parks Policy* elaborates on this principle, stating that "national park ecosystems will be given the highest degree of protection to ensure the perpetuation of natural environments essentially unaltered by human activity" and that "human activities within a national park that threaten the integrity of park ecosystems will not be permitted".[41] The CNPA also gives the Minister the power to designate Wilderness Areas in "any area of a park that exists in a natural state or that is capable of returning to a natural state", and when that designation is made, the Minister may not authorize any activity to be carried on in a wilderness area that is likely to impair the wilderness character of the area.[42]

Including requirements to maintain ecological integrity of protected marine ecosystems within Canada's *Oceans Act* would ensure adherence to protection standards and thus link science to legal practice.[43]

40 Section 8(2) of the Canada National Parks Act, SC 2000, c 32, ("National Parks Act") states that "[m]aintenance or restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks."
41 Canada, Parks Canada, Parks Canada Guiding Principles and Operational Policies, (Ottawa, Parks Canada: 2017) <http://www.pc.gc.ca/eng/docs/pc/poli/princip/sec2/part2a/part2a5.aspx> s. 3.1.1. and 3.1.2
42 National Parks Act, s 14, supra note 39.
43 The House of Commons Standing Committee on Environment and Sustainable Development considered this topic in its recent federal protected areas study and recommended that the Government of Canada amend and strengthen the National Marine Conservation Areas Act and the *Oceans Act* in order to: Enable interim protection of national marine conservation areas before they are formally established, subject to pre-existing legal rights of others; Specify a shortened timeframe for the development and implementation of a national network of marine protected areas; and Enshrine the restoration and maintenance of ecological integrity as the overriding priority for Canada's marine conservation areas in parallel with the Canada National Parks Act.(Recommendation 30)

CONCLUSION

Translating the science of MPAs into law will result in more effective MPAs that are designed to achieve their biodiversity protection goals. Strong regulatory standards that incorporate the best science can ensure that the level of protection and management effort given to these areas achieves conservation objectives as well as spatial targets.

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