

Status and Aspirations of Marine Protected Areas in Canada

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Abstract

Protection of marine ecosystems and resources has evolved into one of the largest, and arguably most crucial, social and ecological debates of the twenty-first century. Following the Aichi Target 11, adopted in 2010 by several countries, Canada has been striving for a very aggressive timeline to increase the proportion of Marine Protected Areas (MPAs) in national waters. The current state of MPAs in Canada have been deemed less effective than required to maximize the ecological, social and economic benefits that have been proven to be a result of well-planned and managed areas. We propose five shortcomings which are thought to contribute to the inefficiency current state. These shortcomings are (1) MPAs that by virtue of their small size or poor design are ecologically insufficient; (2) MPAs that fail due to the degradation of the unprotected surrounding ecosystems; (3) inappropriately planned or managed MPAs; (4) MPAs that do more harm than good due to displacement and unintended consequences of management; and (5) MPAs that create a dangerous illusion of protection when in fact no protection is occurring. As such, superior methods of design, management and evaluation must be implemented to address each of these shortcomings. This series will discuss the status, challenges and opportunities that are faced in confronting each of the issues in optimizing the effectiveness of Canadas MPAs.

Keywords

Marine protected areas — Canadian environmental policy — Aichi Target 1

1. Introduction to Canada's Marine Protected Areas

In the international media, Canada is relatively well known for having values centered around low internal conflict and significant environmental consciousness. However, a current issue regarding the establishment of protected areas, and more specifically Marine Protected Areas (MPAs), is revealing that these core values are achieved only with extensive collaboration, funds and education.

An MPA network is an incredibly complex system which attempts to link the interests of many parties to benefit the environment, industry, and the government. Compromise between so many hands and levels of authority is a difficult, yet crucial task. Officially defined by the International Union for Conservation of Nature (IUCN) as a clearly defined marine geographical space, recognized, dedicated and managed through legal or other effective means. These areas are defined to achieve the long-term conservation of nature with associated ecosystem services and cultural activities (IUCN, 2008). The definition can be further explained by dividing the MPAs into six different management categories, varying in range, levels of protection, management and enforcement (CPAWS, 2015). Regardless of this variation, all MPAs are allocated and set in the Oceans Act by the Department of Fisheries and Oceans (DFO), on behalf of the federal government ("Developing a Marine", 2016). Following the Aichi Target 11, adopted in

2010 by several countries, Canada has been striving for a very aggressive timeline to increase the proportion of MPAs. To examine these recent promises, this paper will discuss the process of selecting, implementing and managing MPA's, as well as the status and goals of current and future areas.

2. Current Aspirations

The increasing pressure on marine ecosystems from numerous anthropogenic activities and environmental changes, have pushed the federal government into requiring a series of protection plans. Currently, less than a mere 1% of Canada's oceans are considered protected by an MPA, which has been established as insufficient (CPAWS, 2015 and Mackinnon et al., 2016). Following Canada's agreement in the Convention on Biological Diversity's Aichi Biodiversity Targets, the federal government committed to increase that 1% to at least 10% protection by 2020 (Mackinnon et al., 2016). To reach this target, countless other goals and aspirations have been put in place to keep the timeline of the MPA networks on track. These sub-goals were established by the National Framework for Canada's Network of MPAs, including: 1) To provide long-term protection of marine biodiversity, ecosystem function and special natural features; 2) To support the conservation and management of Canada's living marine resources and their habitats, and the socio-economic values and ecosystem services they provide; and 3) To enhance public awareness and

appreciation of Canada's marine environments and rich maritime history and culture ("Developing a Marine...", 2016). To achieve each of these goals in unison, the federal government has allocated \$81.3 million to MPA targets specifically (Nature Canada, 2016). With this budget, the management of DFO must establish and open the lines of communication between all users, stakeholders and researchers within coastal communities to ensure the tight timeline is met (Noel and Weigel, 2007). Active compromise is necessary to decide the numerous factors involved in establishing a new, or altering an existing, MPA. These factors ultimately decide the overall effectiveness of each designated site, where the location, size, protection focus, and type of enforcement must all be thoughtfully agreed upon (Noel and Weigel, 2007).

3. Establishment

Perhaps the most important and difficult step in developing an MPA is the initial selection process. This step can occur in numerous ways, where an area can both be requested or enforced. The process usually begins with the identification of potential sites, known as Areas of Interest (AOIs) ("National Framework...", 2016). While DFO has the final say in which AOIs are passed through for further screening, the initial identification can include the participation of government agencies, community groups, coastal communities, Aboriginal organizations, the fishing sector, environmental organizations, academic institutions, other stakeholders and the general public ("Protecting our Oceans...", 2016). This first step has no clear systematic approach as of 2016. A need for one has not yet been identified, as this initial identification process is meant to allow the establishment of such areas to be approachable and inclusive of all users and people with interest ("National Framework...", 2016). However, for an AOI to be passed through for the initial screening, the site must reflect all purposes identified in the Oceans Act and should have significant environmental value. To determine if a site fits this description well, DFO will begin a succinct screening process of the potential AOI. Simple information of the site is reviewed and evaluated, such as potential location, size, possible management and regulatory measures, biophysical and socio-economic profiles, and contact information of the person, agency or group leading the MPA process (which could be a stakeholder, environmental group, another branch of DFO etc.) ("National Framework...", 2016). A brief risk assessment is then conducted in the area to determine if protection of natural habitats, resources and organisms, may be necessary for the future. Risk assessment occurs with unique methods for each potential AOI depending on what is best for the area, including pathways of effects models, habitat surveys, population counts and environmental impacts analysis ("National Framework", 2016).

At this point, a qualifying area can be identified as an AOI by the Minister, Deputy Minister or the Associate Deputy Mi-

nister of DFO, and will be announced to the public ("National Framework", 2016). However, identification of a site as an AOI does not provide it immediate protection or alterations to process within the site automatically. If the site appears to be under threat during the final screening process, the Government of Canada, Fisheries Act, Canada Shipping Act, and the Oceans Act, may impose interim measures to conserve the potentially at risk resources and organisms for the duration of the investigation ("National Framework", 2016). This allows shipping routes to be temporarily moved, dredging to be reduced, incentive to practice less invasive tourism, protection from land based activities, oil and mining exploration to slow, and moratoriums or lower catch limits to be implemented.

This protection is crucial, as the final screening process can be incredibly lengthy in Canada, taking several months to complete. In depth, high-stakes risk assessments are relatively new to Canada's marine environments, making each new case unique and a little bit more difficult. The ecological, technical, and socio-economic merits of the AOI must be investigated thoroughly ("National Framework...", 2016). All affected parties, and those with interest, are informed and encouraged to participate in the investigation, bringing new perspectives to light.

Ecological assessment is perhaps the most crucial of the three assessments, where if the results indicate the AOI is not suitable as an MPA, the AOI will not undergo any further assessments from DFO ("National Framework...", 2016). Initial exploration looks to gain ecological knowledge of the area, including the significance of the ecological merits in the proposal and if these comply with the reasons for MPAs in the Oceans Act. Assessment also includes any human influence or activities in the area which should be controlled, and any needs for restoration and recovery. Often, involving the use of a very detailed risk assessment model, which provides insight on the relationships between humans and important ecological factors and processes. Various groups of interest have different views of the ecological priorities in the area depending on where their interests, culture and income lie.

The next form of assessment attempts to minimize these discrepancies through investigation of the technical feasibility of the MPA. This technical assessment refines the proposal to improve its acceptability and support. To do this, DFO adjusts the proposal based on the current scale and uses of the area, prior recognition of the sites conservation value, appropriateness of proposed boundaries, viability of effective management and possibility for conflicts from adjacent uses ("National Framework...", 2016). From this, measures and regulations are selected for conserving and protecting resources (e.g. fisheries closures or alterations to current shipping routes). If there is too much backlash from the public and involved stakeholders during this process, the site can be recommended for another type of conservation with more lenience in the regulations. Other types of enforcement then come into play to ensure proper conservation while minimizing the

technical problems. An example of this could include the consideration of the AOI for a conservation area or a moratorium on a single species instead.

If the ecological and technical assessments align with the requirements for an MPA, then a socio-economic assessment is completed. This considers how the MPA may affect fishing uses, community uses, aboriginal uses, economic and transport uses and cultural and tourism value. Through investigation, DFO looks to enhance the socio-economic benefits, while reducing any associated costs. An example could include the alteration of allowable catches so only small scale sustainable commercial and recreational fishing can take place, rather than considering the area as a no-take zone. With this in mind, priorities are sorted using a precautionary approach, with overriding concern for ecological values (“National Framework...”, 2016). Suggesting that an AOI’s ecological value may be more important than the socio-economic and technical considerations.

Upon completion of the assessments, DFO can accurately decide on the recommendation options for the AOI. The AOI can be dropped from further consideration, recommended to another conservation effort, or move forward with the development of the MPA (“National Framework...”, 2016). If the option is to move forward with the designation of the MPA, a realistic management plan is required before it can be implemented.

4. Management

The purpose of a management plan is to keep the goals and objectives of the MPA well known and on-track, and to later accurately assess the success of the MPA (Noel and Weigel, 2007). The formal development process begins outlining several parameters of the MPA, such as location, boundaries, buffer zones, prohibited and allowed activities and numerous other relevant other considerations (“National Framework...”, 2016). Policies, strategies and other management tools are then defined to ensure the success of these parameters. These initiatives include public awareness and education, surveillance, and enforcement. Perhaps the most important is the transparency of the purpose, rules and regulations of the area. Educating people and organizations that the MPA is for everyone’s long-term benefit will allow the enforcement of the MPA to run smoothly. Ultimately, the MPAs are managed by the federal government, including many branches such as the Canadian Coast Guard and DFO. However, each MPA is normally co-managed with another group, such as with the provincial government, conservation organizations, local communities and fisheries (“National Framework...”, 2016). Sources of funding are also allocated in the same manner, normally in a partnering arrangement, with clear budgets set out prior to implementation to support the program.

Once a clear management plan has been established, the

Minister of Fisheries and Oceans will recommend to the Governor in Council (GIC) that the MPA be implemented through regulation under the Oceans Act (“National Framework...”, 2016). Through the Oceans Act, the Government of Canada has full control over the program and activities that occur in the MPA, enabling them to set out numerous enforcement measures for violators of the regulations. For activities that are planned to be prohibited, but are currently taking place, a phasing-out period can sometimes take effect. If the activities are deemed to be too harmful but the users have rights or tenures permitting them use of the area, an agreement is often sought with the operator. Providing a buyout, change to current activities or a relocation for the phasing out period (“National Framework...”, 2016).

Once an MPA is fully established on paper, the area must be implemented in practice. Most importantly this includes the proper surveillance of activities and enforcement of the current rules and regulations. In a country as large and vast as Canada, the proper management of an MPA is a near impossible feat (Mackinnon et al., 2016). Effectiveness of current MPAs are already in question, even with the small proportion that have been designated. The area must be effectively managed, researched, monitored and evaluated to ensure the MPA is continuously serving its purpose. However, ecosystems and economies are not static, therefore the needs of the MPA are likely to change occasionally. Although the rules and regulations are clearly defined and enforced by The Oceans Act, they are not necessarily established in perpetuity (“National Framework...”, 2016). If review and evaluation present the need for alteration in the design, the issues are brought to the attention of the Minister and recommended to the GIC, where only they have the ability to change the current conditions. The process of management, enforcement and review are ongoing and will be continually altered as our knowledge of MPAs expand.

5. The Future

The obvious question for the future of Canada’s MPAs, is whether the 10% goal will be met by 2020. While the time and economic investments have already been great, the level and proportion of protection has moved much slower. To help reach this 10%, the federal government strived to reach 5% by 2017 (Mackinnon et al., 2016). As of late in 2016, the proportion still sits at a mere 1.1%, not boding well for the future of the greater aspirations (“Meeting Canada’s...”, 2016). However, several AOIs have recently been designated and are well on their way to being recommended as MPAs. Additionally, a few newly implemented MPAs have been created, such as the newest addition of the very large Anguniaqvia Niqiyuam Marine Protected Area (Ayles et al., 2016). Given their size, the goal can easily be reached as long as the implementation process stays on track.

While the goal may or may not be met, it is more important whether the actual protection of the sites is and will be enough

(Pomeroy et al., 2004). The aspiration for 10% is a mere figure to help ensure that biodiversity in pristine areas remains high, but the vastness and size of Canada make it incredibly difficult to put these aspirations effectively into practice in a timely manner (Mackinnon et al., 2016). Further investigation on the effectiveness of the current, and proposed sites should be conducted to accurately determine if the goals will truly be met.

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