Marine Policy 87 (2018) 180–185

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

Indigenous peoples' rights and marine protected areas

Natalie C. Ban[a,*], Alejandro Frid[a,b]

[a] School of Environmental Studies, University of Victoria, PO Box 1700 STN CSC, Victoria, BC, Canada V8W 2Y2
[b] Central Coast Indigenous Resource Alliance (CCIRA), Campbell River, BC, Canada

ABSTRACT

Marine protected areas (MPAs) are inherent to international commitments to protect the oceans and have the potential to recognize, honour, and re-invigorate Indigenous rights. Involvement of Indigenous peoples in the governance and management of MPAs, however, has received little attention. A review of the literature revealed only 15 publications on this topic (< 0.5% of papers on MPAs). In these case studies, governance arrangements of MPAs involving Indigenous peoples ranged from state-led to community-based, and included a spectrum of approaches in between. Cultural goals—which are compatible with biodiversity conservation—were emphasized by Indigenous peoples, and ecological goals were prevalent in state-led marine protected areas. Achievement of at least some cultural goals was the most common mention of success, whereas social issues were the most common challenge. Additional work is needed to ensure that existing and future MPAs serve the dual goals of biodiversity conservation and supporting Indigenous rights.

1. Introduction

Global concern is mounting about declines in marine biodiversity and the potential repercussions for human well-being (e.g., loss of livelihoods, food insecurity), requiring improvement in marine conservation and resource management [1,2]. International agreements, such as the Convention on Biological Diversity's Aichi Target 11, set the stage for countries to protect marine ecosystems by establishing conservation measures such as marine protected areas (MPAs). At the same time, there is increased recognition that people who depend on the marine environment for their well-being and livelihood will be positively or negatively affected by MPAs [e.g., 3,4]. The effects of MPAs or their absence, may be particularly strong for Indigenous peoples whose cultural integrity remains closely linked to the health of ecosystems where they harvest traditional resources [e.g., 5]. Indeed, a growing literature identifies the notion of “ocean grabbing”: the contested nature of MPAs as places where conservation initiatives can deprive small-scale fishers of resources, and/or undermine access to areas that have been historically important to a given community [6].

Yet some Indigenous peoples see spatial management, such as MPAs and spatial fishery closures, as a way to recognize, honour, and (re-) invigorate Indigenous rights [7,8]. Declining marine resources are of particular concern to Indigenous peoples because depressed stocks limit their ability to fish for traditional resources [9,10], an essential activity for continuing cultural practices and transferring traditional knowledge across generations. The UN Declaration on the Rights of Indigenous Peoples [10] affirms the inherent rights of Indigenous peoples, differentiating them from stakeholders [11], and marine spatial planning needs to account for these rights. Establishing MPAs to support and reinvigorate Indigenous rights, therefore, is a promising path forward towards addressing social injustices and simultaneously enhancing biodiversity conservation.

There is a strong cultural basis for combining Indigenous rights and biodiversity conservation. Traditional forms of marine spatial management, though varied in implementation and application to match local ecosystems and customs, are ubiquitous in Indigenous cultures that rely on marine resources [5]. For example, marine customary tenures delimit areas of the ocean where rights of access and extraction are limited; ‘periodically harvested closures’, common in Melanesia and Polynesia, are off-limits to extractive activities except when opened for fishing for special occasions (e.g., village feasts, funerals, meeting cash needs) [12]; and Indigenous enhancement strategies (e.g., transplanting of eggs and improvement of spawning grounds) support biodiversity [13]. Such practices are underpinned by worldviews that embed respect for other living beings into customs that guide conservation practices (e.g., take only what you need) [13,14], and are maintained through stories, Indigenous laws and traditions [5]. Indigenous marine management practices and marine conservation are thus generally well aligned. However, while Indigenous management of oceans was prevalent, such management has declined in many places because of the effects of colonization and marginalization of Indigenous peoples [15,16].

* Corresponding author.
E-mail addresses: nban@uvic.ca (N.C. Ban), alejfrid@gmail.com (A. Frid).

http://dx.doi.org/10.1016/j.marpol.2017.10.020
Received 20 August 2017; Received in revised form 15 October 2017; Accepted 16 October 2017
Available online 06 November 2017
0308-597X/

Given the potential importance of establishing MPAs to protect marine biodiversity [17], and the responsibility to address past wrongs committed to Indigenous peoples [18], the nexus of MPAs and Indigenous rights warrants urgent investigation. Accordingly, published case studies reporting on Indigenous involvement in MPA governance or management were examined to investigate the following questions: How frequent are investigations at the confluence of Indigenous rights/management and MPAs in the peer reviewed literature? What has been the involvement of Indigenous peoples in MPA governance? Are the goals of Indigenous and non-Indigenous MPA management congruent? What are the successes and challenges of Indigenous peoples' involvement in MPA management?

2. Literature review methods

The Web of Science database was used to search for key phrases and words to capture the intersection of MPAs and Indigenous peoples (Supplementary Table 1). The United Nations uses the following working definition of Indigenous peoples: "Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them" [19]. Search terms included common phrases for Indigenous peoples (Supplementary Table 1). Thus, publications had to use one of these phrases to appear in the search results, and had to describe the people involved in MPAs as such. Explicit recognition of the involvement of Indigenous peoples was important in this review as it recognizes common issues across the world. Similarly, synonyms for MPAs were used in the database searches (Supplementary Table 1). The titles and abstract of all search results (n = 68) were examined to assess relevance for full review based their focus on (1) existing MPAs (i.e., not included were studies about proposed MPAs, hypothetical studies, or opinion pieces), and (2) Indigenous peoples' involvement (or lack thereof where explicitly discussed) in MPA governance and/or management. Citation-tracing was also used – review of literature cited in the articles selected for full review – to identify additional relevant papers.

Articles that met the criteria were then read in detail for the following elements. First, the case studies (the MPAs, Indigenous peoples involved, countries) were summarized, focusing on the involvement by Indigenous peoples in governance and management of the MPA. Second, the goals of the MPA were reviewed, noting when different goals were mentioned by state managers and Indigenous peoples. Third, mentions of social and ecological successes of the MPAs were assessed. Finally, social and ecological challenges encountered were tracked. The interpretations of the papers reviewed were retained as to what constituted a success or challenge.

3. Results

3.1. How frequent are investigations at the confluence of Indigenous rights/management and MPAs?

Few articles focused on Indigenous peoples' involvement in MPA governance and management (n = 15; 12 journal articles, 2 reports, 1 book chapter), with the first appearing in 1999. Some of the articles discussed multiple MPAs and several examined the same MPAs, for a total of 13 case studies (i.e., MPAs, or countries with MPAs). Most articles were about Oceania (Australia, New Zealand, Fiji, Samoa, Vanuatu, Cook Islands, Palau), with Canada, Panama, and the United States of America also mentioned (Fig. 1). These works represent < 0.5% of MPA articles catalogued in Web of Science (~7000 papers), suggesting that Indigenous peoples have, so far, rarely been involved in MPA governance or management in the peer reviewed literature.

3.2. What has been the involvement of Indigenous peoples in MPA governance?

Governance arrangements of MPAs involving Indigenous peoples ranged from state-led, where governments have the sole power to govern, to community-based, where communities govern MPAs without state involvement. A spectrum of approaches existed in between, with co-management as the equitable sharing of decision-making power [20,21]. The approaches that emerged from the review were categorized as follows: community-led (n = 3 of 13 cases), community-led and supported by the state (n = 2), co-managed (n = 1), community-driven but where the state had ultimate decision-making power (n = 3), state-led with community support (n = 1), and state-led (n = 3) (Fig. 2).

All community-led MPAs involving Indigenous peoples uncovered in the literature review stemmed from Oceania. In many countries in Oceania, customary marine tenure systems were historically very strong, and are being revitalized [15]. Sometimes MPAs were described as a tool similar to closed areas used traditionally (i.e., Samoa, Vanuatu, Cook Islands), whereas in other instances MPAs were an adaptation of traditional tools (i.e., tabu areas in Fiji) [15,22,23]. Some MPAs were led by Indigenous communities (n = 3, 23%), and others were community-led with state support (n = 2, 15%). For example, in Samoa, the constitution was amended in 1990 to recognize the authority of chiefs and councils, including the right to manage nearshore fisheries. Village councils are now able to pass bylaws to have their regulations about nearshore fishing grounds legally recognized [15,24].

The only MPA with co-management elements in its governance was the Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site in Canada. A management board is comprised of equal representation from the Haida First Nation and federal government representatives (Parks Canada, Fisheries and Oceans Canada) [25]. Governance is based on years of experience of the adjoining terrestrial national park. Still, legally the Minister has ultimate decision-making power, although in practice co-management has prevailed.

In some instances (n = 3, 23%), the state provided options for Indigenous communities to develop marine conservation measures that they can then review for potential implementation. This is the case for the Great Barrier Reef Marine Park's Traditional Use of Marine Resources Agreements (TUMRAs) in Australia [8,20,26], and New Zealand's mātaitai and taiapure Maori-managed areas [25,27,28]. In these cases, while Indigenous communities can propose their visions for conservation and management for small areas, the power to implement rests with the state.

State-led MPAs (n = 4, 31%) that allowed for limited involvement of Indigenous peoples in their governance were from the USA, New Zealand, Australia, and Panama. The Papahānaumokuākea Marine National Monument in Hawai'i, USA, has Native Hawaiian interests represented through the Office of Hawaiian Affairs as one of three co-trustees. New Zealand's marine reserves and Australia's Great Barrier Reef Marine Park (in areas not designated under Traditional Use of Resources Agreements) acknowledge the importance of Indigenous interests but do not have co-governance arrangements [8,27,29–31].

The Bastimentos Island National Marine Park in Panama is an example of a failed attempt to have Indigenous interests reflected in a MPA management plan [32]. The National Marine Park was established by the state in 1988 without consulting local communities, including the Ngöbe Indigenous people. Some stakeholders and representatives of the Ngöbe Indigenous people protested that their needs were not considered when the park was developed. A group of concerned citizens in the region responded by developing a management plan for the Marine National Park, as the park had previously been operating without one. To do so, they formed a "Consulting Assembly" that included representatives of four NGOs, nine governmental organizations, a US-base scientific organization (Smithsonian Tropical Research Institute), funding agencies (The Nature Conservancy and PROARCA/COSTAS), eight Indigenous communities and two non-Indigenous communities

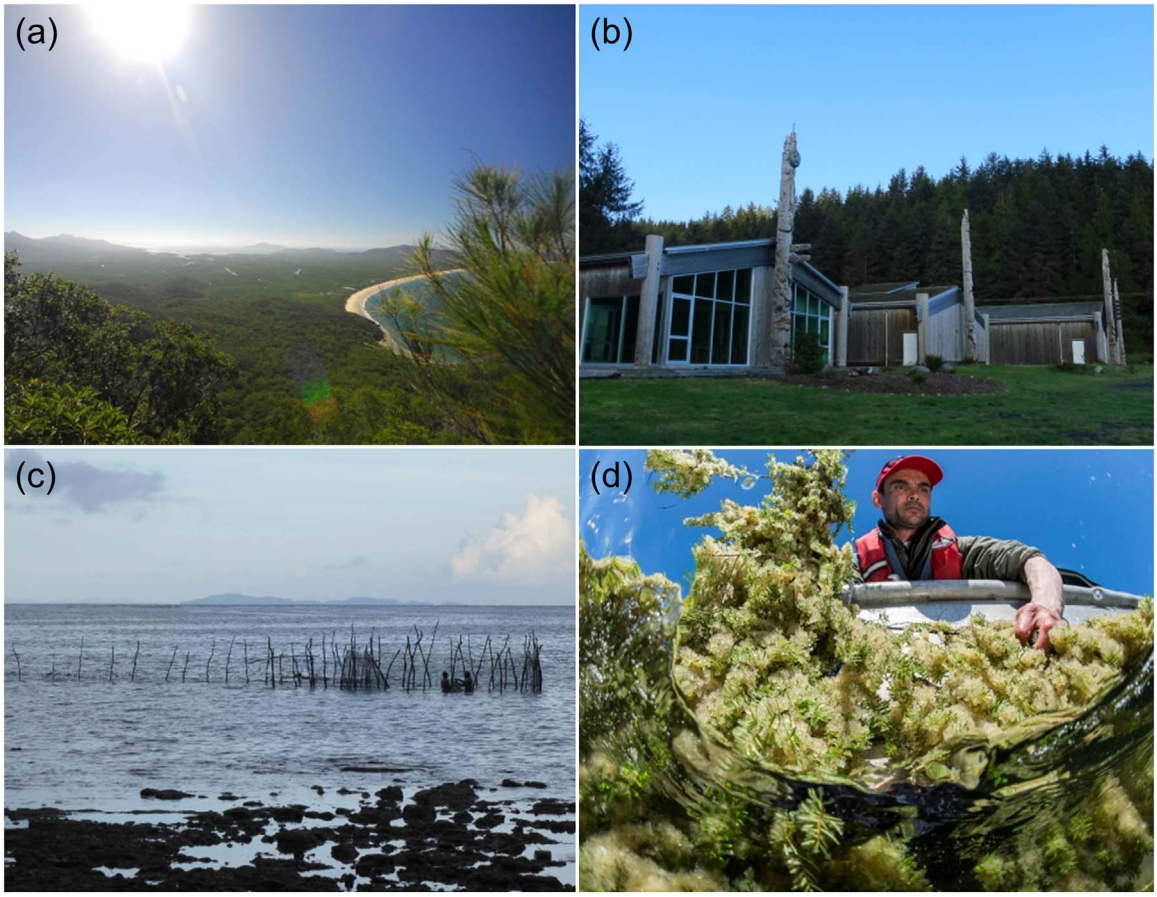

Fig. 1. Images from cases found in the literature that discuss Indigenous rights and marine protected areas. (a) View from Hinchinbrook Island overlooking part of the Girringun Traditional Use of Marine Resources Agreement area in the Great Barrier Reef Marine Park, Australia. (b) The Haida Heritage Centre at Kay Llnagaay, Haida Gwaii, Canada. (c) Fish trap in Fiji. (d) Indigenous herring roe on spruce fishery, British Columbia, Canada © Ian McAllister with permission.

from around the park. This assembly met every two to three months from 1997 to mid-2000 to draft the management plan, which included a structure of co-management. Despite racial tensions and prejudices with the assembly, this process eventually led to constructive recommendations. The federal government, however, ignored the management plan. When funding ran out the assembly dissolved [32].

3.3. Are the goals of Indigenous and non-Indigenous management congruent?

The goals of MPAs can be ecological [25, e.g., species recovery, biodiversity conservation, 33], cultural [15, e.g., continuing traditional practices, 22], social [e.g., enhancing educational opportunities, 33,34], and economic [e.g., creating employment opportunities, 8]. Several articles alluded to MPA goals but with little specificity, which makes it difficult to evaluate the extent to which specific goals may have been inherent to management plans. All MPAs except those in the state-led category had cultural goals, including asserting Indigenous rights to conduct cultural activities, using traditional governance and stewardship approaches, and legal recognition of fishing grounds (Fig. 2 and Table 1). All categories had at least some ecological goals (mentioned in 11 out of 13 cases; the two that did not explicitly mention ecological goals were community-led). One case had an economic goal [8], and none mentioned social goals. Not enough detail was provided to assess whether goals by Indigenous peoples differed from state managers, although cultural goals were clearly emphasized by Indigenous peoples [e.g., 15,25], and ecological goals were prevalent in the state-led MPAs [e.g., 29,33].

3.4. What are the successes and challenges of Indigenous peoples' involvement in MPA management?

Achievement of at least some cultural goals was the most commonly mentioned success (8 of 13 cases; Fig. 1 and Table 1). For example, Indigenous peoples felt empowered to be involved – even if partially – in MPA management, Indigenous management rights were recognized, and cultural practices were brought into contemporary marine management [8,20,22]. Examining ecological effectiveness was not the focus of most of the papers, although positive outcomes were mentioned in 4 of 13 case studies [e.g., recovery of depleted species, high biomass within MPAs, 22,30]. Social benefits were mentioned in 2 of 13 cases [i.e., creating management partnerships, and community engagement and understanding, 8,29].

The most commonly mentioned challenges to incorporating Indigenous peoples in MPA governance and management were social (9 out of 13 cases). For example, challenges mentioned in the publications were that advisory bodies had limited power [30], the Minister had ultimate decision-making authority [25], there was lack of state recognition of closures [22], and some non-compliance was noted [15,23]. Ecological challenges were mentioned in 3 of 13 MPAs: protections were limited, and management was species-specific and not holistic [8,25]. One cultural challenge was noted in one country, where traditional marine tenure and management was declining [15].

4. Discussion

The review revealed that the use of MPAs as a tool to reinvigorate Indigenous cultural practices is beginning to be recognized in the

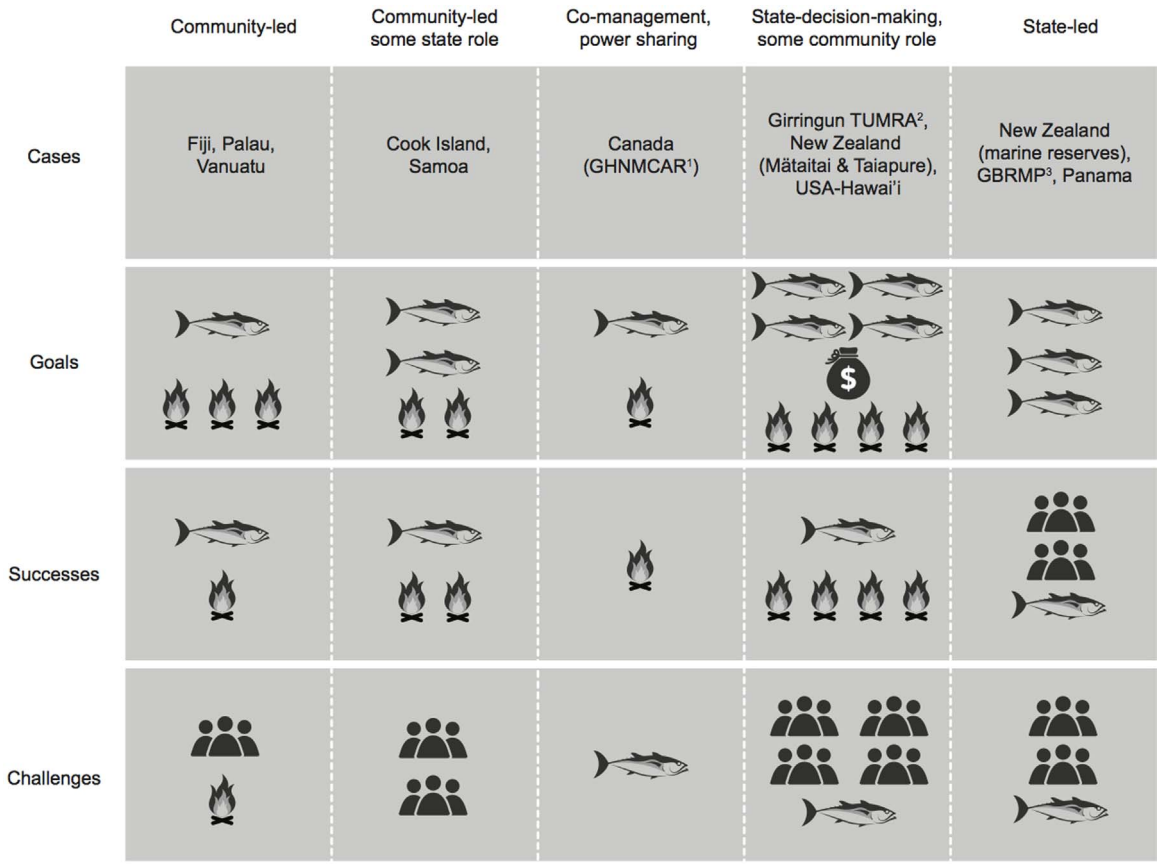

Fig. 2. Summary of the goals, successes, and challenges reported in reviewed studies, categorized by level of Indigenous community involvement in the marine conservation measures. Goals, successes and challenges are categorized into ecological ( ), cultural ( ), social ( ), and economic ( ) themes. The number of symbols represents the number of cases in which the corresponding goals, successes, and challenges were reported. Acronyms: [1] Gwaii Haanas National Marine Conservation Area Reserve; [2] Traditional Use of Marine Resources Agreements; [3] Great Barrier Reef Marine Park. For details and references, see Appendix 1.

literature. The publications reviewed highlighted achievement of cultural goals as successes, and social issues as challenges, whereas ecological successes or challenges were not mentioned as often. The emphasis is thus more on cultural and social than ecological issues, perhaps because of the importance of cultural goals in these MPAs, or may reflect the interest of the authors of those publications.

Peer-reviewed studies to date on Indigenous governance and MPAs are limited. The search terms used in this review (WebTable 1) constrained the publications to those with explicit mention of Indigenous peoples, and may thus have missed publications where the names of specific Indigenous peoples were used, or where the peoples involved in MPA governance were Indigenous but not explicitly described as such. Furthermore, due to the time it takes to publish peer-reviewed publications, such articles may be lagging behind other efforts to link Indigenous governance, rights and MPAs. For instance, the Indigenous Conserved Areas Consortium (ICCA; https://www.iccaconsortium.org/) while predominantly highlighting terrestrial ICCAs, includes some marine examples that were not encountered in the academic literature review. Furthermore, discussions about MPAs and their contribution to the recognition and revitalization of Indigenous rights are gaining momentum at international meetings. For example, a Think Tank co-organized by Big Ocean – a consortium of large MPA managers – and academic collaborators focused on the role of human dimensions, including Indigenous rights and local communities, in large MPAs [35]. Also, the 2016 World Conservation Congress (http://www.iucnworldconservationcongress.org/) in Hawai'i included sessions dedicated to these topics. Despite this interest, only a few studies completed to date can guide the establishment of new MPAs that explicitly include Indigenous stewardship in their governance and management.

The ongoing process for establishing a network of MPAs in the Northern Shelf Bioregion of Canada's Pacific coast might provide guidance to other regions seeking to engage Indigenous peoples in MPA planning. A mandate of the Government of Canada is to establish ten percent of Canada's ocean estate in MPAs by 2020. Towards that end, the Government of Canada, the Province of British Columbia, and First Nations are co-chairing the MPA establishment process (www.mpanetwork.ca). The break-through in this MPA process is that the 17 First Nations involved are co-leading the process collaboratively with the federal and provincial governments. The MPA network planning builds upon the structure of the Marine Plan Partnership (www.mappocean.org), an earlier spatial planning process in which First Nations and the Province of BC collaborated to create marine use plans for the Northern Shelf Bioregion. Through such government-to-government collaborations, Indigenous peoples incorporate their own Indigenous legal principles, ethics and values into MPA network design and governance [36].

While negotiations to create a co-governance arrangement are ongoing, MPA planning in Canada is an important step towards recognizing and incorporating Indigenous rights into marine spatial protection. Yet obstacles remain. For instance, disagreements over governance arrangements between First Nations and the Government of Canada remain unresolved and have mired some of the process. Governance discussions to date have focused on planning and not addressed co-management of MPAs once these are established, which undermines the position of Indigenous governance partners. Current co-management arrangements grant the Federal or Provincial Minister final decision-making power [25], a challenge highlighted in some of

Table 1
Summary of literature review. Successes and challenges represent the interpretation of the publications reviewed. For additional details and references, see Appendix 1.

Country	Type or name of MPA	Management arrangement	Goal(s) of the MPA(s)	Successes	Challenges
New Zealand	Marine reserves	State-led	Ecological: To conserve the variety of habitats and marine life	Ecological: recovery of previously depleted species. Social: creating community engagement and understanding	Social: Advisory bodies only provide advice; some Maori are opposed to marine reserves in principle
New Zealand	Mätaitai reserves	State power, community-driven	Cultural: reclaim control over local resources Ecological: allow resources to recover	Ecological: recovery of species Cultural: Maori managing resources	Social: Minister has ultimate authority about establishment of these reserves.
New Zealand	Taiapure	State power, community-driven	Cultural: reclaim control over local resources Ecological: allow resources to recover	Cultural: reclaiming control of resources	Social: Minister has ultimate authority about establishment of these reserves
Panama	Bastimentos Island National Marine Park	State-led	Ecological: to conserve a representative sample of the marine and coastal ecosystems	None	Social: plan not adopted, effort failed
Australia	Great Barrier Reef Marine Park	State-led	Ecological: Protect the species and ecosystems	Social: management partnership	Ecological: species-specific management
Australia	TUMRA by Girringun within GBRMP	State power, community-driven	Cultural: assert rights to conduct cultural activities Economic: maximise econ. opportunities Ecological: maintaining biodiversity	Cultural: Girringun empowerment	Social: only partial assertion of traditional rights Ecological: species-specific management
Canada	Gwaii Haanas National Marine Conservation Area Reserve	Co-management	Cultural: use of Haida governance and stewardship approaches Ecological: protecting biodiversity	Cultural: co-management and assertion of Indigenous rights	Ecological: protections limited
Samoa	MPAs	Community-led, state supported	Cultural: village fishing grounds legally recognized Ecological: Recovery of depleted fish species	Cultural: village fishing grounds and management rights recognized	Social: Converting village regulations into formal bylaws was challenging
Vanuatu	MPAs	Community-led	Cultural: village control over resources and management	Cultural: village control over resources and management	
Cook Islands	Marine reserves, Rarotonga	Community-led, state supported	Cultural: revival of traditional management Ecological: recovery of depleted species	Ecological: recovery of species Cultural: revival of traditional management	Social: some issues with non-compliance
Palau	Marine reserves	Community-led	Cultural: community-based management		Cultural: aspects of traditional marine tenure and village-based marine management declining
USA-Hawai'i	Papahānaumokuākea Marine National Monument	State-led, community role	Ecological: ecological integrity Cultural: continuation of Native Hawaiian culture	Cultural: bringing traditional practices into contemporary marine management	
Fiji	MPA network in Kubulau District	Community-led	Ecological: increase fish biomass Cultural: practice customary tenure rights	Ecological: high reef fish biomass within closures	Social: lack of legal recognition by government of closures

the publications in this review. First Nations also view this approach as inadequate, and instead are seeking legitimate government-to-government collaborative management [25,36].

Issues around power-sharing and governance arrangements are not unique to Pacific Canada. In the Great Barrier Reef, the GBRMP Authority and Indigenous groups attempted to create a template for co-management [11], but were ultimately unsuccessful in doing so. Instead, the model of using TUMRAs emerged from the failed broader effort at co-management [20]. While desirable, broad co-governance or co-management arrangements have been difficult to arrange in practice.

Incorporating Indigenous knowledge and data into environmental governance also raises broader sensitivities about information-sharing [37]. For instance, our direct experience is that First Nations worry that the public sharing of Indigenous spatial knowledge applicable to MPA network design could have unintended consequences, such as increased fishing pressure in biologically-rich or culturally-significant areas that they had intended to protect. This concern reflects a prior history of failed trust between Indigenous people and Fisheries and Oceans Canada (DFO: the federal agency that manages marine fisheries). Such history spans conflicts over different species, but has been particularly strong in the case of fisheries for Pacific Herring in the Northern Shelf Bioregion [38].

Despite unresolved challenges, the example from Canada's Northern Shelf Bioregion, the case studies presented, and the recent establishment of large MPAs intended to benefit local communities (Palau, http://news.nationalgeographic.com/2017/03/palau-marine-protected-area-ocean-fish/; Cook Islands, http://www.maraemoana.gov.ck/), highlight opportunities to align marine conservation with supporting Indigenous rights and cultural revitalization. The United Nations Declaration on the Rights of Indigenous Peoples includes the right to self-determination [10]. Facilitating Indigenous peoples' leadership of MPA implementation, and Indigenous involvement in governance of MPAs is one way in which marine conservation efforts can assist with the implementation of this declaration. Additional dialogue and experimentation will be needed to ensure that existing and future MPAs can serve the dual goals of biodiversity conservation and of supporting Indigenous rights and culture. The key tension appears to be power-sharing [11,25,26]: recognizing inherent Indigenous rights requires states to relinquish some of their power to Indigenous peoples. This has been especially challenging in the case studies set in a dominant colonial context [e.g., 11,25,26]. Research into the legal implications of Indigenous rights, and the various legal mechanisms through which Indigenous peoples can engage in MPA governance, will be very valuable in the future to guide implementation of MPAs that help to reinvigorate Indigenous governance and practices.

Acknowledgements

This research was funded by Tides Canada Foundation, British Columbia Marine Planning Fund (#GF04410). We are grateful for constructive input into prior versions of the paper by Aaron Heidt, Linda Nowlan, Georgia Lloyd-Smith, and Mari Galloway.

Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.marpol.2017.10.020.

References

[1] Millennium Ecosystem Assessment, Ecosystems and Human Well-being: synthesis, World Resources Institute, Washington, DC, 2005.
[2] B.S. Halpern, S. Walbridge, K.A. Selkoe, C.V. Kappel, F. Micheli, C. D'Agrosa, et al., A global map of human impact on marine ecosystems, Science 319 (2008) 948–952.
[3] M.B. Mascia, C.A. Claus, R. Naidoo, Impacts of marine protected areas on fishing communities, Conserv. Biol. 24 (2010) 1424–1429.
[4] G.G. Gurney, J. Cinner, N.C. Ban, R.L. Pressey, R. Pollnac, S.J. Campbell, et al., Poverty and protected areas: an evaluation of a marine integrated conservation and development project in Indonesia, Glob. Environ. Change 26 (2014) 98–107.
[5] F. Berkes, Sacred Ecology, third edition, Routledge, New York, 2012.
[6] N.J. Bennett, H. Govan, T. Satterfield, Ocean grabbing, Mar. Policy 57 (2015) 61–68.
[7] A. Frid, M. McGreer, A. Stevenson, Rapid recovery of Dungeness crab within spatial fishery closures declared under indigenous law in British Columbia, Glob. Ecol. Conserv. 6 (2016) 48–57.
[8] M. Nursey-Bray, P. Rist, Co-management and protected area management: achieving effective management of a contested site, lessons from the Great Barrier Reef World Heritage Area (GBRWHA), Mar. Policy 33 (2009) 118–127.
[9] S. Singleton, Native people and planning for marine protected areas: how "Stakeholder" processes fail to address conflicts in complex, real-world environments, Coast. Manag. 37 (2009) 421–440.
[10] UN General Assembly. United Nations declaration on the rights of indigenous peoples. United Nations General Assembly. pp. 1–18.
[11] M. George, J. Innes, H. Ross, Managing Sea Country Together: Key Issues for Developing Co-operative Management for the Great Barrier Reef World Heritage Area, CRC Reef Research Centre Ltd., Townsville, Australia, 2004, pp. 1–58.
[12] R.E. Johannes, Traditional conservation methods and protected marine areas in Oceania, Ambio 11 (1982) 258–261.
[13] D. Lepofsky, M. Caldwell, Indigenous marine resource management on the Northwest Coast of North America, Ecol. Process. 2 (2013) 12.
[14] T.R. McClanahan, M.J. Marnane, J.E. Cinner, W.E. Kiene, A comparison of marine protected areas and alternative approaches to coral-reef management, Curr. Biol. 16 (2006) 1408–1413.
[15] R.E. Johannes, The renaissance of community-based marine resource management in Oceania, Annu. Rev. Ecol. Syst. 33 (2002) 317–340.
[16] R.E. Johannes, Traditional marine conservation methods in Oceania and their demise, Annu. Rev. Ecol. Syst. 9 (1978) 349–364.
[17] L. Boonzaier, D. Pauly, Marine protection targets: an updated assessment of global progress, Oryx 50 (2016) 27–35.
[18] Truth and Reconciliation Commission, Honouring the Truth, Reconciling for the Future: Summary of the Final Report of the Truth and Reconciliation Commission of Canada, Truth and Reconciliation Commission, Ottawa, Canada, 2015, pp. 1–535.
[19] United Nations, Workshop on Data Collection and Disaggregation for Indigenous Peoples: the Concept of Indigenous Peoples, United Nations Department of Economic and Social Affairs, Geneva, Switzerland, 2004.
[20] M. Zurba, H. Ross, A. Izurieta, P. Rist, E. Bock, F. Berkes, Building co-management as a process: problem solving through partnerships in Aboriginal country, Australia, Environ. Manag. 49 (2012) 1130–1142.
[21] F. Berkes, Community-based conservation in a globalized world, Proc. Natl. Acad. Sci. USA 104 (2007) 15188–15193.
[22] P. Clarke, S. Jupiter, Law, custom and community-based natural resource management in Kubulau District (Fiji), Environ. Conserv. 37 (2010) 98–106.
[23] S.D. Jupiter, D.P. Egli, Ecosystem-based management in Fiji: successes and challenges after five years of implementation, J. Mar. Biol. 2011 (2011) 1–14.
[24] U. Fa'asili, I. Kelokolo, The use of village bylaws in marine conservation and fisheries management, SPC Tradit. Mar. Res. Manag. Knowl. Inf. Bull. 11 (1999) 7–10.
[25] J. Stephenson, F. Berkes, N.J. Turner, J. Dick, Biocultural conservation of marine ecosystems: examples from new Zealand and Canada, Indian J. Tradit. Knowl. 13 (2014) 257–265.
[26] M. Nursey-Bray, C. Jacobson, Which way?: the contribution of indigenous marine governance, Aust. J. Marit. Ocean Aff. 6 (2014) 27–40.
[27] R. Bess, R. Rallapudi, Spatial conflicts in New Zealand fisheries: the rights of fishers and protection of the marine environment, Mar. Policy 31 (2007) 719–729.
[28] T. Yandle, Property rights and ocean governance, Science 314 (2006) 593–595.
[29] G. Dodson, Co-governance and local Empowerment? Conservation partnership frameworks and marine protection at Mimiwhangata, new Zealand, Soc. Nat. Resour. 27 (2014) 521–539.
[30] L. Uunila, Community involvement in New Zealand marine reserve management: Examining Practice: USDA Forest Service Proceedings, 2001.
[31] H. Ross, C. Grant, C.J. Robinson, A. Izurieta, D. Smyth, P. Rist, Co-management and indigenous protected areas in Australia: achievements and ways forward, Australas. J. Environ. Manag. 16 (2009) 242–252.
[32] C. Guerron-Montero, Marine protected areas in Panama: grassroots activism and advocacy, Hum. Organ. 64 (2005) 360–373.
[33] A.M. Friedlander, K.A. Stamoulis, J.N. Kittinger, J.C. Drazen, B.N. Tissot, Understanding the scale of Marine protection in Hawai'i: from community-based management to the remote Northwestern Hawaiian Islands, in: M.L. Johnson, J. Sandell (Eds.), Advances in Marine Biology: Marine Managed Areas and Fisheries, Elsevier, Amsterdam, Nethlands, 2014, pp. 153–200.
[34] P.L. Jokiel, K.S. Rodgers, W.J. Walsh, D.A. Polhemus, T.A. Wilhelm, Marine resource management in the Hawaiian Archipelago: the traditional Hawaiian system in relation to the Western approach, J. Mar. Biol. 2011 (2011) 16.
[35] P. Christie, N.J. Bennett, N.J. Gray, T.A. Wilhelm, Na Lewis, J. Parks, et al., Why people matter: integrating human dimensions into large scale marine conservation, Mar. Policy 84 (2017) 273–284.
[36] R. Jones, C. Rigg, L. Lee, Haida marine planning: first nations as a partner in marine conservation, Ecol. Soc. 15 (2010) 12.
[37] S. von der Porten, R.C. de Loë, D. McGregor, Incorporating indigenous knowledge systems into collaborative governance for water: challenges and opportunities, J. Can. Stud. 50 (2016) 214–243.
[38] S. von der Porten, D. Lepofsky, D. McGregor, J. Silver, Recommendations for marine herring policy change in Canada: aligning with Indigenous legal and inherent rights, Mar. Policy 74 (2016) 68–76.