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Co-management at a crossroads in Canada: issues, opportunities, and emerging challenges in fisheries and marine contexts

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Abstract

Despite some progress, successful co-management in Canada has remained the exception rather than the rule, and especially so in jurisdictions not covered by a comprehensive land claims agreement. As such, our aim in this perspective is to identify and describe some of the primary factors that may impede more rapid progress toward successful co-management and to explore why they persist, with particular attention to fisheries and marine contexts. Specifically, we outline several institutional conditions that are likely to impede broader adoption of co-management approaches in Canada, including (1) antiquated and incomplete legislative arrangements; (2) a co-management policy vacuum that has not grappled with emerging expectations for co-governance; (3) relative absence of the knowledge co-production systems needed to create the precursors for successful co-management initiatives; and (4) financial and human resource capacity limitations. Such conditions must also be situated in a dynamic context that includes the United Nations Declaration of the Rights of Indigenous Peoples, ongoing reconciliation processes, and shifts in the ownership and use of fisheries and other marine resources. We offer, finally, some suggestions to augment co-management efforts and ultimately achieve its promise.

Key words: conservation, fisheries, governance, Indigenous, wildlife management, co-management

1. Introduction

> Co-management is an institutional arrangement in which government agencies with jurisdiction over resources and user groups enter into an agreement covering a specific geographic region and make explicit (1) a system of rights and obligations for those interested in the resource, (2) a collection of rules indicating actions that subjects are expected to take under various circumstances, and (3) procedures for making collective decisions affecting the interests of government actors, user organizations, and individual users. (Osherenko 1988, p. 94)

Co-management in Canada is at a crossroads. We are witnessing ongoing interest in management regimes (provincial, territorial, and federal) for marine space, fish, and wildlife that feature collaboration among Indigenous governments or organizations, and non-Indigenous governments (Armitage et al. 2007; Arngna'naaq et al. 2019; White 2020; Hessami et al. 2021; Rodon 2021). However, despite some progress (Snook 2021; Snook et al. 2022), successful co-management has remained the exception rather than the rule (Nadasdy 2002; M's-it No'kmaq et al. 2021) and especially so in jurisdictions not covered by a comprehensive land claim agreement. Co-management-driven legislation and the institutional change necessary to improve marine conservation, fisheries, and wildlife management remain limited. In our view, this situation is not tenable and will continue to result in suboptimal resource conservation outcomes, ongoing resource-related conflict, and inadequate recognition and accommodation of Indigenous rights, interests, and knowledges.

Our aim in this perspective is to identify and describe several key factors that appear to be impeding more rapid progress toward successful co-management in the fisheries and marine context and to explore why they persist in the parts of Canada not covered by comprehensive land claim settlements. In doing so, we are sensitive to the reality that in many instances, efforts to adopt co-management approaches may well be subsumed by broader calls for co-governance and self-government among Indigenous nations. Seen from this broader perspective, co-management could be considered more as a milestone on a journey toward these deeper systemic changes rather than as a destination point. Thus, while we focus on co-management, we do so with a recognition that co-management, co-governance, and Indigenous self-government concepts and actions are increasingly interwoven (see, for example, Paul 2022).

In many jurisdictions in Canada, Indigenous, provincial, and federal governments are struggling with conflict over ac-

cess to fishery resources, wildlife stewardship, and how best to protect coastal and marine spaces (Artelle et al. 2019; Reed et al. 2021). Further, a lack of progress (real and perceived) with dialogues on reconciliation and related institutional change threatens to undermine the relationships crucial for co-management (M's-it No'kmaq et al. 2021; Jones et al. 2022; Standing Senate Committee on Fisheries and Oceans 2022). There are exceptions, of course, such as the recent fisheries reconciliation agreements in British Columbia (Department of Fisheries and Oceans Canada 2022) and the emergence of Indigenous Protected and Conserved Areas (ICE 2018; Moola and Roth 2019). Here too, however, the specific mechanisms and processes of co-management in these evolving circumstances are not clear.

To at least some degree, the parties in these evolving co-management situations may well be "making it up as they go along" despite a relatively well-developed body of relevant literature and codified experience to draw upon as they work through these challenges (Pinkerton 1989; Armitage et al. 2007; Berkes 2010; White 2020; Reid et al. 2022). In part, these tensions are definitional, and it is helpful to consider what is meant by the "co" in "co-management". Intuitively, one might logically assume that the term is a contraction of the term "cooperative management" and that it implies parties working together, cooperating, in other words, toward shared goals and objectives. Alternatively, it could be read as a short form of "collaborative management", connoting the carrying out of projects and tasks as partners, allies, or colleague organizations and individuals (see Plummer and FitzGibbon 2004).

In our view, both "cooperative" and "collaborative" modifiers undersell the essence of co-management. To illustrate, the North American Waterfowl Management Plan (Environment Canada, United States Department of Interior and Environment and Natural Resources Mexico 2012) is arguably the largest cooperative or collaborative wildlife management initiative in North American history and brings together federal, provincial, state, and municipal governments, Indigenous governments and organizations, conservation groups, and other organizations from all across Canada, the United States, and Mexico to conserve and protect wetlands and waterfowl. It is an impressive multidecade joint venture of like-minded partners and has few comparators. But each party in the enterprise fully retains their decision-making authorities, and the decisions made under the plan's banner are binding only on the partners and not on any broader constituency or land base (Environment Canada, United States Department of Interior and Environment and Natural Resources Mexico 2012).

Co-management, by contrast, is fundamentally about a continuum of shared or joint decision-making arrangements (Pinkerton 1989; White 2020) that may span from formal legal and enforceable authorities over a particular landscape, aquatic zone, or subject area to less formally binding but nonetheless influential roles. As will be elaborated below, co-management for our purposes is about much more than simple collaboration, though it most certainly encompasses that too. Instead, it entails a state entity—federal, provincial, state, or territorial—and an Indigenous government or organization formally coming together to jointly exercise decision-making authorities within a defined context. Co-management arrangements, in multiple forms, are institutions of governance. In the context of land claims settlements, their legal foundation stems from the claims agreements themselves. In other instances, the legal foundations and related decision-making authorities are more diverse in nature.

This perspective paper begins by briefly tracing the evolution of co-management in Canada, with a particular focus on areas under a comprehensive land claim. With this backdrop in place, we trace several institutional conditions that are likely to impede broader adoption of co-management approaches in Canada in areas outside of comprehensive land claims agreements. Finally, we offer initial suggestions for immediate-term actions in Canada that could potentially pave the way for expanded success in co-management.

We approach the objectives in this paper and our understanding of the issues through our lens as Euro-Canadian/settler, university-based applied researchers. Collectively, we have spent a significant portion of our professional careers actively involved in partnerships and/or research initiatives that aim to support or understand co-management processes. Specifically, TS has spent over 30 years in Canada's Federal Public Service, including in Assistant Deputy Minister and Senior Vice President roles with agencies at the forefront of protected areas, fisheries, and wildlife and conservation. DA has spent the past two decades in academic roles leading or co-leading a range of applied research partnerships that include other academics, government (Indigenous and non-Indigenous), and civil society organizations. These initiatives aim to study, support, and write about processes of governance and the intersection of knowledge, power, and environmental change. We recognize our positionality in these contexts and, as a result, the potential biases of our interpretation and analysis.

2. A brief overview of comprehensive land claims-based co-management in canada

In the early seventies, Hydro Quebec and the Quebec provincial government developed ambitious plans for the construction of massive hydroelectric developments in the traditional territories of the Cree and Inuit. Both Indigenous groups took issue with the development proposals and mounted challenges against them in court. The Supreme Court of Canada (*Kanatewat et al. v. James Bay Corporation et al. 1 SCR*, 1975) concluded that, given that neither the Inuit nor the Cree had signed any form of treaty, modern or historic, with the Crown, they continued to hold "aboriginal rights". These unextinguished rights could not, the Court ruled, be unilaterally overridden or ignored by a provincial or federal government or project proponent.

Project advocates were left with only two alternatives: cancel the project or negotiate a solution with the rights holders. They chose the latter, and the James Bay and Northern Quebec Agreement (Canada 1975) was the result. A complex and

comprehensive document, its essence is that the rights holders agreed to cede or modify their rights to the lands involved in return for compensation and a set of governance mechanisms through which they could exert control or strong influence over matters of vital interest to them.

Central to these governance arrangements were provisions respecting fish and wildlife management, environmental assessment and other land and resource related issues (Canada 1975) Section 24.4 of the Agreement established a 12-member "Coordinating Committee" to oversee the hunting, fishing, and trapping regime in the settlement region. Committee membership is comprised of three representatives from each of the parties—Inuit, Cree, Quebec, and Canada (Canada 1975). The negotiators of the agreement may well have felt they were simply negotiating a classically Canadian compromise, yet in so doing, they created a new resource management paradigm in which state and Indigenous governments or organizations, following an agreed upon formula, nominated committee members to work together collaboratively around the conservation table.

Canada's Charter of Rights and Freedoms became part of Canada's Constitution in 1982. Of key importance to the evolution of co-management is Section 35 of the Constitution, which is not part of the Charter of Rights and therefore cannot be overridden using the Constitution's "notwithstanding" clause. Section 35 reads:

> 35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed. (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada. (3) For greater certainty, in subsection (1) "treaty rights" includes rights that now exist, by way of land claims agreements or may be so acquired". (Canada. Department of Justice 2012)

A key impact of this new provision was that the federal government moved to a posture of launching comprehensive land claim settlement negotiations with aboriginal rights holders as a matter of policy rather than waiting for court driven imperatives to do so. An early result of doing so was the Inuvialuit Final Agreement of 1984 (Canada Department of Indian and Northern Affairs 2005). In subsequent decades, agreements were reached with respect to what is now Nunavut (Department of Indian Affairs and Northern Development and Tungavik Federation of Nunavut Canada 1990), several First Nation claimants in the Northwest Territories, the First Nations of Yukon (Canada Department of Indian and Northern Affairs 1993), the Nisga'a in British Columbia (Canada and Nisga'a First Nation 1999), the Nunavik Land Claim Agreement (Nunavik Inuit Land Claims Agreement S. C. 2008, c.2 2008), and the Labrador Inuit (Labrador Inuit Land Claims Agreement Act S.C. 2005, c.27 2021).

These agreements each enshrined co-management arrangements with respect to fish and wildlife management, protected areas, and environmental impact assessment, and a variety of broader land and water management matters (White 2020). Co-management became the legally entrenched and constitutionally protected form of decision-making regarding resources and the environment across Canada's North, covering roughly four million square kilometers, an area just under half the size of the continental United States.

These agreements are not written from a standard template, but they do share several similarities. They are all premised on an affirmation of the rights of the claimant group while remaining fully respectful of federal (and provincial) authorities and responsibilities. The agreements generally include the modification of inherent "aboriginal rights" to the lands in question but do not extinguish such rights. Instead, the agreements carefully lay out the means by which the parties will make decisions around resource issues with these rights as immutable and foundational starting points.

The regimes establish new purpose-built governance systems for fish, wildlife, and protected areas in the settlement region and are not simply "bolt-on" additions to existing arrangements. The co-management bodies institutionalize collective decision-making and are not just "advisory" processes or consultation mechanisms created to funnel views to a government agency as part of its internal decision-making processes. That said, the authority of these joint committees is not unfettered. In almost all cases, a responsible minister may disagree with a co-management body decision and refer it back to the body for reconsideration. Should the co-management body adhere to its decision, and should a Minister adhere to their disagreement with it, Ministers may "disallow" the decision and replace it with their own (see, for example, Canada Department of Indian and Northern Affairs 2005). This is not a purely precautionary procedure put in place to deal with a theoretical "failsafe" situation. Provisions of this nature have been triggered in several instances across the North since the inception of co-management, giving rise to critiques of the approach as one that does not feature genuinely shared decision-making (White 2020).

Importantly, the paradigm does not feature what could be termed as direct "third-party" participation. Only the claim signatory group and representatives of the state have roles on the co-management bodies. For example, industry associations, civil society groups, or municipalities are not direct participants in any of the co-management bodies. Instead, board or committee members are expected to look out for the broader public interest, not just that of whoever appointed them. Moreover, it is worth noting that in most instances, representatives of various third parties are invited to participate in the deliberations of these co-management bodies on a regular basis.

South of 60, things have evolved somewhat differently. In 1981, the landmark Supreme Court decision in R. v. Sparrow (R v. Sparrow 1990) confirmed the existence of an aboriginal right to fish for all First Nations who could demonstrate a tie to the location in which the fish occurred and the absence of an historic or modern treaty ceding these rights. On the east coast, in an equally seminal decision, the Supreme Court ruling in the Marshall case affirmed the existence of treaty-based rights to fish and the right to earn "a moderate livelihood" from the fishery (R v. Marshall 1999). These major decisions, coupled with a number of more specific litigative outcomes, established a firm legal footing for treaty rightsholders access to fishery resources on both coasts (Chalupovitsch 2019). To date, however, these court decisions have yet to result in

the establishment of new or modified conservation legislation or in the establishment of new legal arrangements for co-management in the marine domain. As we suggest in the following section, this situation is becoming increasingly untenable.

3. Selected drivers of socio-political and institutional change

The ongoing history of co-management in Canada must come to terms with some emerging realities. Perhaps most importantly, at the broad societal scale, there is growing public awareness of the damages of Canada's colonial legacy that is almost assuredly going to impact broader dialogues about self-governance and Indigenous sovereignty over lands and resources (Moola and Roth 2019; M'-s-it No'kmaq et al. 2021). Furthermore, Canada is now a signatory to the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP), and the Act respecting it received Royal Assent on June 21, 2021 (An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples S.C. 2021, c. 14 2022). While its immediate implications for fisheries management and marine conservation are uncertain, several articles in the Act—see articles 25, 26, and 29—imply a greatly expanded role for Indigenous people in all resource management decision-making. Even a conservative reading of the Act suggests a stronger legal basis for Indigenous claims to such roles and greater obligations for all governments to explicitly embrace Indigenous rights to fish, wildlife, and other resources. Future governments are unlikely to negate the future implications of UNDRIP.

Other recent developments will pose new challenges and create further expectations for the ideal of co-management, particularly outside of comprehensive claims areas. For instance, in 2021, the federal government and eight First Nations operating together under the "British Columbia Coastal First Nations" banner signed the Coastal First Nations Fisheries Reconciliation Agreement. The Agreement itself is not publicly available, but government press statements note that it will "…result in increased commercial fishing opportunities; community-based fisheries capacity for First Nations on the north and central coasts of British Columbia; and the establishment of a collaborative governance and management arrangement that will involve other First Nations and stakeholders" (Department of Fisheries and Oceans Canada 2022). Press statements also note that "…increased access to licenses and quotas for the Coastal First Nations will come from existing licenses that are currently issued to retired or soon to retire fishers and operators" (Department of Fisheries and Oceans Canada 2022). The implications of this Agreement should not be understated—there will be a significant reallocation of rights and dramatically new pressures to co-manage fisheries and coastal resources. Notably, the provincial government is not a signatory to this agreement, making "co-management" a largely two-party process.

In 2021, the Haida Nation, Canada, and British Columbia signed a "Framework for Reconciliation" agreement. The Framework outlines a detailed agenda committing the parties to negotiate legally binding agreements on a range of topics, including fisheries management, protected areas, and marine resources. The agreement itself does not change specific management responsibilities at this point, nor is the agreement legally binding on any of the parties. Nonetheless, it establishes clear guidance and expectations for the principles and content of future subject-specific agreements, including fisheries management, with a very clearly articulated principle that decision-making in these areas of mutual interest will be heavily shared amongst the parties. The Land, Sea and People Agreement signed by the Government of Canada and the Haida in 2018 to govern the marine zones of Haida Gwaii and the National Park Reserve is likely indicative of this approach (Parks Canada 2018).

On the Atlantic coast, the conclusion of fisheries co-management arrangements has proven more elusive. Recent conflict surrounding First Nations lobster fishery activities in Mi'kmaq territory may well be indicative of the types of situations likely to emerge more frequently as Indigenous governments assert rights under UNDRIP and press for the establishment of new forms of self-management or co-governance or other new institutions of public governance that transcend traditional approaches to co-management. At the same time, some First Nations are taking a substantially expanded position in the commercial fishery in a way that may well make them simultaneously holders of community rights to fish for food, social, and ceremonial purposes, as well as commercial fish harvesters whose economic interests conflict, to at least some degree, with those very same access rights. Navigating the interplay among political, economic, and conservation objectives in these fisheries creates a highly dynamic management context, to put it mildly (see (Standing Senate Committee on Fisheries and Oceans 2022).

Ultimately, how co-management will evolve in practice and be perceived in the context of these diverse pressures is hard to predict. As Rodon (2021) summarizes, co-management is already interpreted in diverse ways, including as a form of Indigenous empowerment, a means to co-opt or assimilate Indigenous peoples in a western management paradigm, or a way to terminate Indigenous rights (see Diabo in Rodon 2021). As such, there is a clear need to more carefully take account of the institutionalized implications and factors for successful co-management in the coming decade or more. We turn now to that challenge.

4. Challenges to the expansion of co-management in canada

As noted above, Canadian experiences with co-management have been mixed, including in areas covered by comprehensive land claims. White (2020), for example, and our own experiences working in and/or studying co-management initiatives (see Armitage et al. 2007) indicate that they have, in particular circumstances, been generally successful in advancing the management and conservation of lands and resources in the North. Further, our experiences strongly suggest that co-management regimes have reduced—although certainly not eliminated—conflict in

resource management decision-making. Our work has frequently brought us into contact with leaders of Indigenous groups at a variety of scales who call for the adoption of shared decision-making structures that in many ways echo the co-management arrangements of the North.

Co-management has yet to gain traction across Canada. The obvious question is "why not?" In considering this question in the context of the marine environment generally and fisheries management more specifically, we identify the following four factors as key impediments to the broader adoption of co-management approaches across Canada: (1) antiquated and incomplete legislative arrangements; (2) a co-management policy vacuum that has not grappled with emerging expectations for co-governance; (3) absence of the knowledge co-production systems needed to create the precursors for successful co-management initiatives; and (4) financial and human resource capacity limitations. We address each of these factors in turn.

4.1. Antiquated and incomplete legal foundations for co-management

The legal confirmation of Indigenous and/or treaty rights has not, as of this writing, spurred Parliament to express any legislative direction with respect to First Nations fishing rights and how the government should go about accommodating them. The provisions of the *Fisheries Act* have not been altered in any way to address or respond to Indigenous fishing-related Supreme Court decisions. Nor have changes been made in any other federal statutes with respect to them. Similarly, the government has yet to promulgate any regulations under the *Fisheries Act* that address Indigenous rights-related decision-making systems or governance arrangements.

The forceful jurisprudence around Indigenous and treaty rights in the fisheries realm, coupled with government inaction and Parliamentary silence on the topic, results in a situation that some observers might find curious. The courts confirm that these rights exist, and the legislature does nothing in response. This is, of course, likely overstated. Whilst legislative silence is problematic in that there is no legislative guidance or direction to the Executive Branch of government, an enormous amount of leeway remains for the adoption of proactive and comprehensive policy measures that emphatically embrace and act upon Aboriginal and Treaty rights protected by the Constitution. It is, therefore, to policy matters that we turn next.

4.2. A co-management policy vacuum

When it came to comprehensive land claim negotiations, federal policy tracked closely with legal developments. In 1981, the government adopted the In All Fairness (Minister of Indian and Northern Affairs Canada 1981) comprehensive land claims policy in which it committed, inter alia, to the establishment of co-management type structures. A 1986 update to the policy (Minister of Indian Affairs and Northern Development Canada 1986)—postconstitutional amendment—further cemented this approach and it was affirmed yet again in the government's 2014 effort to update the policy (Aboriginal Affairs and Northern Development Canada 2014). While each link in this policy chain addressed a wide variety of land claim policy issues, taken together, they established a firm policy foundation for the creation of co-management systems in land claim regions.

Similar policy developments have yet to occur on the fisheries and marine environmental stewardship fronts outside of land claim contexts. Instead of responding to the emerging clarification of Aboriginal and/or treaty rights to fish with policy statements outlining how it would proceed in accommodating these rights, the federal government adopted a much more ad hoc case-by-case approach to addressing the various Court decisions in this area. In the fisheries realm, on the Pacific and Atlantic coasts, the Department of Fisheries and Oceans entered into myriad negotiations with individual First Nations or groups of First Nations dealing with particular species, such as salmon on the west coast or lobster on the east coast. The federal policy stance in these various negotiations was defined primarily through Cabinet decisions backed by various funding envelopes intended to support agreement implementation. Few, if any, such agreements have been signed to date.

In recognition of the need for greater policy coherence to its work in this area, 22 years after *Sparrow* and 12 years after *Marshall,* DFO released its Integrated Aboriginal Policy Framework (Department of Fisheries and Oceans Canada 2007). It includes the following purpose statement:

> "The purpose of the Integrated Aboriginal Policy Framework is to provide guidance to DFO employees in helping to achieve success in building on our relations with Aboriginal groups". (Department of Fisheries and Oceans Canada 2007)

It commits the Department to pursuing a strategy of:

> "Supporting increased Aboriginal participation in co-management of aquatic resources—by working with Aboriginal groups to increase their participation in the management and protection of aquatic resources, habitats and ocean spaces, including policy and program formulation, planning, resource management decision-making and program delivery". (Department of Fisheries and Oceans Canada 2007)

The half-page Action Plan related to this strategy features a reiteration of the commitment to work with Aboriginal groups and to engage them in decision-making and in the design of Fisheries Management Plans. Other elements of the policy framework commit the department to pursuing its various existing Aboriginal programs. More detailed guidance to staff or to external audiences regarding how DFO intends to achieve the co-management outcomes of the Strategy is not included in the document or in more recently released DFO policy statements. The 2020 Departmental Plan, for example, which sets out DFO priorities and expected results carefully, commits the department to renewing and strengthening its Aboriginal programming in response to several audit and review findings but makes no reference to making the achievement of co-management or similar arrangements a departmental objective (Minister of Fisheries and Oceans and the Canadian Coast Guard 2020).

This policy silence is not necessarily an immutable obstacle to the broader adoption of co-management approaches. Indeed, the fact that a policy framework, or a law for that matter, does not explicitly direct a minister or an organization to do something does not mean that such actions are prohibited in any way or that such arrangements cannot be created. However, one need look no further than the current resource conflicts and uncertainties around Indigenous fishing on both coasts to recognize the limitations of the current approach. Despite literally decades of work with multiple groups on multiple species at multiple scales, co-management variants in the fisheries and marine stewardship spaces remain few and far between. Further, as Clark and Joe-Strack (2017) have noted, reference to some variants of co-management means that the federal government does not "…fear locking itself into a power "giveaway" simply because it uses that word. Conversely, simply choosing a different label doesn't in any way absolve a government from its responsibilities to Aboriginal Peoples that are defined in land claim agreements or other law". Thus, while policy silence does not inevitably lead to inaction or inertia, experience strongly suggests that it does so. In the absence of a legal requirement or formal policy directive mandating the creation of meaningful co-management-type arrangements, they must emerge more organically and informally if they are to arise at all.

4.2.1. Absence of shared knowledge production and sharing systems

We have argued that the legal and policy foundations needed to facilitate co-management are suboptimal with respect to Canada's fisheries and marine domain. However, a growing body of experience strongly suggests that processes of knowledge co-production can serve as a catalyst for collaboration, and lay strong foundations for successful and more widely supported conservation outcomes, even if ultimate decision-making powers or roles remain unshared. Knowledge co-production is defined as a collaborative process of building partnerships that bring together multiple sources and types of knowledge to develop a systems-oriented understanding of a problem as well as identify potential solutions to complex problems (adapted from Armitage et al. 2011and Norström et al. 2020). In this regard, ideas about braiding diverse knowledge systems and two-eyed seeing are now prominent (Reid et al. 2021; Zurba et al. 2022). Key principles of knowledge co-production focus on inclusivity and reciprocity, sharing of power, and trust building, as well as a commitment to co-ownership of the research and analysis processes (Alexander et al. 2019; Cooke et al. 2021). Such processes are not without critique, however, and especially if they fail to consider the manner in which knowledge systems and processes can be co-opted (Todd 2018).

To be sure, there is no guarantee that parties that share in the collection and analysis of data and embrace multiple forms of knowledge will agree on conservation decision-making outcomes. It stands to reason, however, that the very act of collaborating in knowledge production brings parties closer together and increases their knowledge and understanding of each other (Kourantidou et al. 2020). Equally, starting from a shared knowledge base whose credibility is not at issue almost certainly increases the chances for more effective and supported decisions even in the face of power imbalances (Beausoleil et al. 2021; Reid et al. 2022).

Commonplace sharing of resource, environment, and conservation data and information, even if it was not assembled collaboratively, could also have a salutary effect on decision-making circumstances and outcomes. However, the widespread adoption of KCP practices and mechanisms could do much to advance more collaborative approaches to conservation and to establish foundations or runways for co-management decision-making systems. And there is growing academic evidence for such processes in the context of stock assessment and fisheries management, coastal and marine indicator development (Muhl et al. 2022). Indeed, the absence of legal and policy instruments actively supporting co-management decision-making need not be a complete obstacle to all collaboration or cooperation between governments and Indigenous marine resource users.

Still, a consideration of the fisheries management and marine conservation scene in Canada suggests that knowledge processes as a precursor to formalized co-management are not common outside of land claim settlement frameworks, although there are exceptions (Reid et al. 2022). The Haida Nation, in collaboration with Parks Canada, has established a joint management plan for a National Park Reserve in their traditional territory that features elements of knowledge co-production (Parks Canada 2018). Anecdotally, we are also aware that a range of efforts are being made to establish knowledge co-production partnerships or projects with respect to fish and wildlife in other parts of the country as well, but to date, they have yet to yield formalized function agreements. The DFO website contains an extensive section detailing various Indigenous programs but does not indicate that any form of knowledge production partnership with any Indigenous group has been reached (https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/reconciliation-eng.html). Similarly, the departmental plans for 2020 and 2021 make frequent reference to Indigenous issues but do not reference knowledge co-production (Minister of Fisheries and Oceans and the Canadian Coast Guard 2020, 2021). The fact that such arrangements are not mentioned in this regard does not necessarily mean they do not exist. However, building a runway from which to launch more ambitious co-management efforts through dedicated processes of knowledge co-production remains under-resourced.

Ultimately, building better systems simply for sharing environment, resource, and conservation-related data—fish stock surveys, marine biodiversity sampling, coastal bird data, and salmon habitat surveys—could help to address the shared information deficit that impinges on co-management adoption. For certain commercial fish stocks, stock assessment reports that include data and information about an individual species are publicly available (see, for example, Canada 2020; Canadian Science Advisory Secretariat 2020*a*, *b*, *c*). These reports offer valuable insight into the status of the subject species and the extent to which it can sustain a harvest.

However, they do not include the raw data collected by the department, and also heavily reflect traditional western-based science ways of knowing in decision spaces that require more attention to the relationships among people's experiences, their knowledge, and the relative positions of power they occupy. Data streams regarding oceanographic parameters, non-commercial fish, or coastal birds are not made publicly available by the government. In this context, building a common understanding of the fisheries and marine environment in a way that could help to launch co-management processes is difficult.

4.3. Structural capacity constraints

For co-management arrangements to emerge and function effectively, dramatic enhancements in the financial and human capital devoted to the challenge are likely required. It would be a rare event to participate in a gathering addressing a fisheries management challenge in which a participant noted that they felt their organization was fully and appropriately supported in terms of financial and human resources. However, the capacity deficit conditioning the context for co-management goes well beyond the run-of-the-mill "everybody is stretched" dynamic in several important ways. For starters, most Indigenous organizations remain dependent on federal government funding to augment their operating capacity. While some First Nations may have access to substantial resource-related revenue streams, all but a few have populations well under 5000 people (Statistics Canada 2022a,b) and essentially no tax base to draw upon. Few First Nations are in a position to devote substantial staff resources to fisheries management or broader marine conservation concerns, while umbrella organizations such as the British Columbia First Nations Fisheries Council are seriously overstretched. Government funding is virtually the only source of support for capacity of this nature.

This situation creates a suite of problems. Importantly, the government is able to fully determine what forms and scales of capacity support it will make available to Indigenous organizations and to establish the terms under which such support will flow. Our experiences suggest that in most instances, these arrangements work well. The uncomfortable reality, however, is that despite the often adversarial nature of the dialogue around these issues, Indigenous groups are financially beholden to the very entity with whom they are engaging in debate. Government funding is typically time-bound and tied to a specific project or toward the negotiation of a specific agreement, and this hardwired power imbalance makes the generation and adoption of solutions or long-term strategies that transcend government norms difficult. It also makes the emergence of knowledge co-production processes tenuous at best.

This situation is particularly evident in fisheries co-management. Fisheries management is often technically complex, science-driven, and government-centred (Silver et al. 2022). Accessing fisheries decision-making processes from the outside is challenging for most groups and is particularly daunting for Indigenous organizations facing capacity constraints. Equally, capacity constraints can often undermine the ability of Indigenous organizations to effectively access the knowledge of Indigenous rights holders, convey that knowledge into the co-management process, and translate fisheries management issues and concerns back out into community contexts. Put another way, Indigenous capacity gaps in the fisheries world are not simply a matter of funding needed to send people to government meetings; the demands are far more pronounced on the community engagement side of the equation.

The spread of co-management is impeded not only by capacity gaps in the Indigenous domain but in government programming contexts as well. Yet, the emphasis placed on capacity challenges faced by government agencies typically ranges from very low to nonexistent. To be sure, an examination of DFO departmental plans for the last 4 years reveals a significant investment in departmental Indigenous-related programming (Minister of Fisheries and Oceans and the Canadian Coast Guard 2017, 2019, 2020, 2021). However, much of this funding is directed to flow out of the department with minimal investment in the internal human resource capacity, and particularly in the social sciences, which are needed to drive policy development and manage multiple dialogue and engagement activities with Indigenous nations.

A focus on capacity issues masks a more structural and systemic challenge to the proliferation of co-management, and that is if indeed Indigenous peoples even see co-management as a desirable strategy consistent with their own objectives. Specifically, the current systems of institutional power and science underpinning co-management are premised on the logic of colonialism, one obvious aim of which was to break the relationship of Indigenous peoples with their territories and the systems of governance tied to those territories (Wolfe 2006; Whyte 2018; Silver et al. 2022). There remain many feedbacks among the conditions created by colonialism (e.g., dispossession of resources), fisheries science (models, maximum sustainable yield objectives), and the management systems currently in place to prosecute fisheries and other marine resources. Situated in this context, Canadian society has an obligation to attend not simply to capacity issues in their conventional sense (time, resources, and funding) but to the collective capacity to engage in a process of healing across significant economic, cultural, and spiritual divides (McMillan and Prosper 2016; Reid et al. 2021, 2022).

5. Future directions and conclusions

We are not naively "pollyannish" about the track record of the co-management experience in Nunavut, Northwest Territories, Yukon, Labrador, or the Nisga'a Valley, where claims agreements exist. Clearly, disagreements over specific resource decisions remain common in these areas, and there are differing views around the extent to which these arrangements have fundamentally benefited Indigenous signatories to the claims agreements or led to better ecological or conservation outcomes. However, it is clear that over the last 40 years, substantial shifts to co-management paradigms have been made and that some progress toward stronger conservation outcomes and greater engagement of Indigenous knowledges and interests in decision-making has been significant.

In the "rest of Canada" progress toward broader adoption of co-management approaches has been thwarted by the combination of antiquated and incomplete legal regimes, a co-management policy vacuum, the slow transition to meaningful knowledge co-production processes, and a variety of structural capacity restraints. Surmounting these obstacles will require action, not rhetoric. As laudable as government commitments to reconciliation and similar objectives may be, at least in the marine resource conservation field, there remain some core requirements for change:

- amendments to the *Fisheries Act* to explicitly facilitate and drive the adoption of co-management systems in marine environments;
- an emphatic government-wide—as opposed to just a single department—commitment to co-management and a specific formal policy statement outlining how this commitment will be met;
- the establishment of systems for producing knowledge of marine systems and resources, and fisheries in particular, collectively and transparently; and
- substantial investments in Indigenous resource management and knowledge systems as well as the government program enhancements needed to properly embrace and foster co-management.

Beyond the steps noted above, co-management should be recognized not as the "end-point", but as one step in an ongoing process of nation-to-nation relationship building (Denny and Fanning 2016; Jones et al. 2017). Further, co-management is embedded in broader processes of political change in which colonial systems of power and resource management (Harris 2004; Jones et al. 2022) must be reimagined. There is no "apolitical" path forward in this context. The four factors we have highlighted in this perspective are important sights of action and reflection for those committed to co-management, but they are just as easily points of political intransigence for those less inclined to share economic and political power. We acknowledge as well that our focus on fisheries and marine co-management largely bypasses provinces and territories, and as a result, some of the political pressures associated with those jurisdictions. This is not always the case with co-management processes associated with terrestrial wildlife and environmental regulations/assessment. Despite the headwinds, however, co-management as reflected upon here remains one (albeit important) component of Indigenous self-determination (Clark and Joe-Strack 2017).

In the context of fisheries and marine management and with natural resources more generally, there is ample evidence that progress towards new forms of co-governance is increasingly the expectation and not the rule (Artelle et al. 2019; Atlas et al. 2021; M's-it No'kmaq et al. 2021). Silver et al. (2022) outline some pathways upon which this transition may occur, including changes to the institutions and practices of Western science that dominate resource management and conservation now, crafting new knowledge processes that prioritize diverse values and perspectives in decision-making (see Reid et al. 2021), and ultimately devolving governance authority. How such pathways are to be implemented, let alone fully imagined, remains uncertain. Still, the initial promise of co-management can be realized if such processes are meaningfully addressed.

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