frontiers | Frontiers in Marine Science

TYPE Original Research
PUBLISHED 27 June 2024
DOI 10.3389/fmars.2024.1297975

OPEN ACCESS

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RECEIVED 20 September 2023
ACCEPTED 27 May 2024
PUBLISHED 27 June 2024

CITATION
Bodwitch H, Hamelin KM, Paul K, Reid J and Bailey M (2024) Indigenous self-determination in fisheries governance: implications from New Zealand and Atlantic Canada.
Front. Mar. Sci. 11:1297975.
doi: 10.3389/fmars.2024.1297975

Indigenous self-determination in fisheries governance: implications from New Zealand and Atlantic Canada

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The United Nations' Declaration on the Rights of Indigenous Peoples (UNDRIP) recognized Indigenous rights to self-determination. How these rights can be realized in territories governed by settler-states remains unclear. For fisheries, the need to understand processes that support Indigenous self-determination has gained urgency due to government commitments and investor interest in developing ocean and coastal resources, or Blue Economies, amid rapid climatic changes. Here, we explored Indigenous groups' fishery development experiences following two approaches to reconciling Indigenous fishing rights. In New Zealand, we examined Māori groups' experiences following the 1992 Treaty of Waitangi (Fisheries Claims) Settlement Act. The Settlement granted Māori iwi (tribes) rights to self-govern non-commercial harvests, restrict fishing pressure in state-approved customary fishing areas, and participate in state-run systems for commercial fisheries management. In Canada, we investigated Indigenous fishery development initiatives following the Supreme Court of Canada's 1999 ruling *R. v. Marshall*. *Marshall* reaffirmed Treaty-protected rights to harvest and trade fish, held by Mi'kmaq, Wolastoqey, and Peskotomuhkati Peoples, to support a "moderate livelihood." We document how, in both cases, Indigenous groups' self-determination remains constrained by actions from state regulatory and enforcement agencies that govern market access, other resource users' activities, and processes for collecting and sharing information about fish populations. Indigenous groups' experiences highlight that: 1) reallocations of harvest rights, on their own, are an insufficient means to redistribute access to benefits from fisheries; 2) the constraints Indigenous families have experienced in their attempts to develop small-scale fishing operations correspond to settler-state policies and cannot be addressed solely through changes to Indigenous leaders' management decisions; and 3) polycentricity in governance regimes can pose problems for Indigenous self-determination, when citizens with political authority resist efforts to support Indigenous fisheries. To address these challenges, we call for legal reforms that require settler-state governments to support Indigenous self-determination, to overcome the political risks politicians face when advocating for a non-majority group's interests.

KEYWORDS

environmental governance, fisheries, sovereignty, marine, environmental justice, equity, environmental policy

1 Introduction

Amid alarming accounts of biodiversity decline and climatic changes, interest in Indigenous knowledges and governance regimes has surged. Academic and mainstream media headlines have featured relationships between biodiversity conservation and Indigenous-governed lands and waters (IPBES, 2019), and environmental governance scholars have outlined theoretical justifications for supporting Indigenous autonomy: Indigenous self-determination increases the polycentricity of governance regimes (Diver et al., 2022), and polycentric regimes are understood to be more resilient, due to the increased likelihood at least one governing units' approach will lead to desired outcomes (Ostrom, 2010). Indigenous and non-Indigenous scholars and practitioners have called for advancing Indigenous governance, in the global pursuit of biodiversity conservation (No'kmaq et al., 2021; Tadaki et al., 2022), and Indigenous groups have obtained international recognition of their governance rights. In committing to the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), state leaders across the world acknowledged the rights of all Indigenous Peoples to self-determination, "by virtue of which they freely determine their political status and freely pursue their economic, social, and cultural development" (United Nations (UN), 2007).

UNDRIP represented an unprecedented commitment to Indigenous rights. Yet how this commitment will result in Indigenous self-determination, within territories that are also governed by settler-states, remains unclear. Settler-states, or settler-colonial states, represent societies that seek to permanently reside in and govern territories that other groups already live in and govern (Whyte, 2018). The groups whose territories are occupied by settler-societies are broadly described as Indigenous. Historically, settler-states' governance regimes excluded Indigenous groups (e.g., Coombes, 2003; Moreton-Robinson, 2015; Estes, 2019). Today, fifteen years after the UNDRIP was ratified, the governance authority of lands, waters, and peoples overwhelmingly remains housed within settler-state institutions (Tuck and Yang, 2012; Whyte, 2017, 2018; Gilio-Whitaker, 2019; Lalancette and Mulrennan, 2022).

The need to understand processes that advance Indigenous self-determination has gained urgency in the context of fisheries governance, due to intensified climatic changes and growing interest from investors and state leaders in developing "Blue Economies" (Cisneros-Montemayor et al., 2022). The "Blue Economy" concept generally refers to equitable and sustainable uses of ocean and coastal resources (Issifu et al., 2020). At the UN's Rio+20 in 2012, Pacific Small Island Developing States (PSIDS) promoted the idea to increase support for investments their regions (Ayilu et al., 2022), and analysts have since estimated that profits generated from ocean economies globally will increase by up to $22 trillion USD by 2050 (Konar and Ding, 2020). However, whether the spirit and intent of a Blue Economy will be realized alongside that profit, is yet to be determined. Globally, extractive forms of ocean and coastal resource use, including mining, oil and gas development, and industrialized fishing, are continuing and intensifying. A small group of corporate entities profits from these activities (Fusco et al., 2022; Issifu et al., 2023), and in many places, Indigenous and other historically underrepresented groups, including small-scale fishers, remain excluded (Ayilu et al., 2022).

Alongside Blue Economy developments, climate change is causing shifts and variability in marine social-ecological dynamics (Perry et al., 2010; Daly et al., 2021), which intensify resource conflicts and social inequities (McGregor, 2019; Sultana, 2022). Reduced access to fisheries threatens Indigenous coastal community well-being, given the role fisheries have played in advancing economic, social, and cultural well-being. In cases where Indigenous-run fisheries are also small-scale, these fisheries have supported local employment, food security and sovereignty, and intergenerational knowledge transfer (Bodwitch et al., 2022; Snook et al., 2022; Lowitt et al., 2023). To increase the likelihood that climate adaptation measures mitigate, rather than reinforce, historical injustices, analysts have called on settler-states to strengthen the autonomy of Indigenous governance systems in marine and coastal regions (e.g., Bennett et al., 2018; Whitney et al., 2020; Lyons et al., 2023).

As climate change and Blue Economy development pressures increase, our goal is to understand processes that facilitate Indigenous groups' abilities to exercise self-determination in fisheries. To conduct this analysis, we explore two settler-states' approaches to reconciling Indigenous fishing rights. In New Zealand, we focus on possibilities for Indigenous self-determination following the Treaty of Waitangi (Fisheries Claims) Settlement[1] Act 1992. The Settlement granted iwi (Māori tribal authorities) rights to self-govern non-commercial harvests, restrict fishing pressure in state-approved customary fishing areas, and participate in state-run systems for commercial fishery management. In Canada, we examine Indigenous groups' development efforts following the 1999 Supreme Court of Canada *Marshall* decision (R v. Marshall, 1999). *Marshall* reaffirmed Treaty-protected rights to harvest and trade fish, held by Mi'kmaq, Wolastoqey, and Peskotomuhkati People in Atlantic Canada, to support "moderate livelihoods," a term that remains undefined to date.

New Zealand and Canada have both been highlighted as leaders for Indigenous rights reconciliation in the context of settler-states, albeit with Canada's transition being fairly recent, slow, and incremental (Anaya, 2011; Nagy, 2022). Yet in both New Zealand and Atlantic Canada, despite settler-state recognition of groups' fishing rights, barriers for Indigenous families to fish, process, or sell fish remain. The broader benefits that small-scale, family-run fishing operations have provided coastal communities elsewhere (Evans et al., 2023), have not been realized. Here, we investigate why this discrepancy persists. In doing so, we also recognize that Indigenous groups with the ability to exercise their right to self-determination may or may not want to support the development of small-scale fisheries. With this analysis, we seek to understand the extent to which groups can make that decision for themselves.

In the next section, we highlight the theoretical considerations from studies of Indigenous self-determination that inform our

1 Hereafter, the "Settlement".

analysis. We then describe our methodological approach and our positionality in relation to this work. In the following section, we examine how Indigenous groups have been able to access benefits from fisheries in the wake of settler-state fishery reconciliation initiatives. We conclude with a discussion of three key takeaways, or lessons learned, for efforts to advance Indigenous self-determination in fisheries, in these cases and elsewhere. These lessons will have to be part of Blue Economy planning moving forward, to advance equity and justice alongside economic development.

2 Theoretical considerations: Indigenous rights, settler-state recognition, and self-determination

In former British colonies, including New Zealand and Canada, Indigenous rights are in part linked to the Doctrine of Aboriginal Title, which recognized that Indigenous groups hold inherent rights to their property, as they defined the concept, until they voluntarily agree to cede their (self-defined) properties (Engle, 2010). The Doctrine is a legacy of Britain's own colonial history, in that when England was invaded by the Norse Vikings in the 10th century, the English retained their property rights and property governance regimes. To account for this Doctrine, the British developed treaties that included processes for obtaining Indigenous Peoples' property, in exchange for certain protections (Engle, 2010). The British rarely, however, honored these protections (Orange, 2004). British colonizers also categorized lands as *terra nullis*, void of Indigenous societies. The UNDRIP recognized Indigenous Peoples' inherent rights, and certain settler-state constitutions, including Canada's (sec. 35), have reaffirmed the concept of Aboriginal Title.

In contemporary times, in places where treaties were signed that protected Indigenous peoples' property, or no treaties existed and the Doctrine of Aboriginal Title was retained, some judges have required settler-states to account for Indigenous groups' rights, prior to developing Indigenous-claimed resources (Coulthard, 2014; Curley, 2021; Bodwitch et al., 2022). Yet whether Indigenous groups should spend limited time and resources to seek recognition of their rights, or compensation for historical injustices, from settler-state governments and courts, is debated. On the one hand, when part of a settler-state's efforts to reconcile an Indigenous groups' rights, recognition can correspond to transfers of material assets and increased governance authorities. Recognition by other governing bodies can also legitimize a society's sovereignty, as described in studies of international relations (Nadasdy, 2017). On the other hand, settler-states may only agree to transfer material assets and recognize an Indigenous groups' governance authorities if that group also sanctions a settlement agreement that absolves the possibility of future rights claims.

Depending on a nation's legal system, Indigenous rights claims can pose legal hurdles to settler-state efforts to privatize or develop Indigenous-claimed territories. As a result, settlement agreements can reinforce a settler-states' authority, rather than result in self-determination for Indigenous groups (Povinelli, 2002; Alfred, 2005; Coulthard, 2014; Mutu, 2018; Curley, 2021). Further, by reinforcing settler-state authority, settler-state processes for recognizing Indigenous groups' rights can, in turn, enable settler-states to promote processes of capital accumulation that exploit territories previously claimed by Indigenous groups (Coulthard, 2014). A decade ago, Coulthard (2014) argued that the Canadian government's processes for recognizing Indigenous rights actually perpetuate Indigenous dispossession, by assimilating Indigenous groups into existing political economic orders. The Canadian settler-state sought to assimilate Indigenous Peoples in order to increase possibilities for profit to be generated from Indigenous territories (Coulthard, 2014). To resist, Coulthard called on Indigenous groups to "turn away" from the state and focus on their own self-directed forms of development (Coulthard, 2014, p. 154). Others have also argued that Indigenous self-determination is achieved by Indigenous groups' rejection of settler-state systems. In her examination of Mohawk governance, in what is known as the Northeast of the United States (US) and Canada, Simpson (2014), for example, illustrated how self-determination is exercised through Mohawk refusal to recognize settler-state rules and territories. Further, a group of critical US-based environmental justice scholars have called for anarchism, on the grounds that states have structural imperatives to support profit motives and perpetuate injustices experienced by Indigenous and other historically underrepresented groups (Pulido et al., 2016; Pellow, 2018).

Following Coulthard (2014), scholars increasingly documented instances of Indigenous "resurgence," that described processes Indigenous groups engage to sustain their ways of living outside settler-state governing logics (Corntassel, 2012, 2021; Cadman et al., 2023; Reed & Diver, 2023; Stiegman & Pictou, 2024). Resurgence, as Corntassel described, involves "turning away from" (2021) and envisioning "life beyond the state" (2012). However, Corntassel (2021) and others, including Coulthard (2014, p. 179), have cautioned against a politics based on rejecting state institutions entirely, as disengaging from states is difficult if not impossible. States are not monolithic and may be better conceived of as a series of institutions and processes (Dennison, 2012; Routledge et al., 2018; Purucker, 2021; Harrison, 2023). Under certain conditions, these institutions and processes can be directed to achieve progressive outcomes (Carroll, 2015; Tadaki, 2020; Ybarra, 2021). Calls to "turn away," according to Corntassel, should involve efforts that both decenter the state and invite state actors to work as allies in support of Indigenous-led governance systems (Corntassel, 2021).

In the context of fisheries, studies indicate that some groups have indeed exercised self-determination by working outside settler-state management frameworks, but that possibilities for Indigenous self-determination are also shaped by settler-state legal systems and policies. In their analysis of Indigenous-led marine governance initiatives globally, von der Porten et al. (2019), for example, linked resurgence to processes that do not involve recognition of rights from settler-states, such as inter-Indigenous collaborations, efforts to promote Indigenous leaders and women, and the use of Indigenous knowledge (von der Porten et al., 2019). Yet von der Porten et al. (2019) also argued that settler-state legal systems, which recognize Indigenous rights, influence possibilities for Indigenous-led

governance. Similarly, Lowitt et al. (2023) described how members of the Batchewana First Nation (BFN) exercise "everyday acts of resurgence," through fishing, cooking, and eating in ways that are governed by Indigenous protocols, "beyond state structures and ideologies." Self-determination for BFN is also, however, tied to a history of fishers rejecting Canadian fishery management regimes in their territories (regions known as Lake Superior), asserting rights in court, and receiving favorable rulings (Lowitt et al., 2023). Further, in Australia, Altman (2008) and Korff (2014) documented how a High Court ruling, which granted the Yolngu exclusive commercial fishing rights to regions between tidal low and high water marks in their territories, made it possible for the Yolngu to also exercise desired governance regimes. And Jones et al. (2024) noted that Land Claims Agreements with Canadian governments, and structured relationships with federal and provincial governments in British Columbia, have supported Inuit and First Nations abilities to exercise rights affirmed in UNDRIP, respectively.

3 Methodology and positionality

In this analysis, we recognize, as von der Porten et al. (2019) described, the "limitations and power imbalance" in the politics of settler-state Indigenous rights reconciliation initiatives. We also acknowledge that some Indigenous groups have indeed leveraged settler-state processes to support their self-determination in fisheries, and we consider the possibility that others may, under certain conditions, also be able to do so. To examine possibilities for Indigenous self-determination, we draw on theories of power from political ecology, as accounted for in access theory and its accompanying framework. Access, as Ribot and Peluso (2003) described, refers to the "*ability* to derive benefit from things" (p. 153; their emphasis). Power is an effect of the relationships that govern access (Peluso & Ribot, 2020). These relationships may include, but are not limited to, state recognition of resource use or ownership rights. In addition to rights, a group's access to benefits is governed by conditions that vary spatially and temporally, depending on the context in which an individual or group is situated (Ribot & Peluso, 2003). These conditions may be influenced by others' acknowledgement of an individual's or group's legitimacy as a resource user, owner, or governor, as well as state recognition of resource use, ownership, or governance rights. An individual's or group's access can thus be affected by political and social dynamics, as well as the political or social authorities, or 'capitals,' they hold. Capital, including labor and financing, can influence access, as can biophysical conditions and other resource users' activities. Processes affecting access determine how benefits from resources are distributed (Bennett et al., 2018; Parlee et al., 2021).

Here, we consider self-determination to reflect a group's ability to govern their access to, and their ability to derive benefit from, particular resources. To identify the conditions affecting Indigenous fishers' access, we draw on our experiences working with Indigenous groups in New Zealand and Atlantic Canada, as researchers and practitioners. In 2013, Bodwitch, who is of European decent, began working with Māori whānau (family, or extended family) fishers and iwi (tribal) leaders. Bodwitch worked on a Ngāi Tahu iwi whānau fisher's boat, lived in a Ngāi Tahu fishing community, and conducted over 150 semi-structured interviews with Māori and non-Māori fishers, fish processors, fishery managers, scientists, and leaders for her doctoral studies (see Bodwitch, 2017a for full description of methods). Ngāi Tahu is one of the largest iwi in New Zealand, covering most of the South Island. Ngāi Tahu has engaged some of the longest running initiatives in New Zealand to use fishing rights to develop Indigenous-run fisheries (Bodwitch, 2017b). Reid is a member of the Ngāti Pikiao iwi and has over twenty years of experience working with Māori to support economic development. He has played an instrumental role in establishing small-scale, whānau (family)-run Māori fisheries. Reid has also led national studies of Māori fishery development initiatives adopted by iwi across New Zealand (e.g., Reid et al., 2019). Bodwitch and Reid have both collaborated with Māori research teams to document and identify strategies for advancing the Māori marine economy (i.e., Rout et al., 2019). Their motivation for this study was to understand how Indigenous fishing rights reconciliation initiatives in Canada can illuminate ways to increase support for Indigenous-run fishing operations in New Zealand and elsewhere.

Bailey, who is of European descent, has worked on fisheries governance issues in Canada and internationally, for over 20 years. She has collaborated with Indigenous communities, Indigenous organizations, and Indigenous-state co-management boards since 2017, in both Atlantic Canada and Inuit Nunangat (the Inuit homelands), to support Indigenous-run fisheries (i.e., Snook et al., 2019; Hoover et al., 2024). In 2021, Bailey began working with Mi'kmaw communities in Atlantic Canada to conduct research in support of rights implementation programs based in part on the *Marshall* Decision. Paul is a member of the Wolastoqey Nation and has worked with Indigenous peoples nationally and internationally to advance Indigenous rights and governance in fisheries and oceans sectors for over fifteen years. Additionally, Paul spent two decades working with the Canadian government on issues related to environmental and oceans management. His current projects include negotiations on behalf of the Wolastoqey Nation in Canada to develop Indigenous-led fisheries. Hamelin, who is of European descent, has worked with non-Indigenous fishers and fishery managers based in Mi'kmaw territory to support fishery sustainability and community well-being for over nine years. Her work explores the challenges associated with developing and managing fishing operations in Atlantic Canada (e.g., Hamelin et al., 2022, 2023). By looking to New Zealand, in this study, Bailey, Paul, and Hamelin sought to understand how Māori group's fishery development experiences may increase Indigenous Peoples' access benefits from fisheries in Canada and elsewhere.

4 Analysis of cases

4.1 Māori fishing rights

The British Crown recognized Māori fishing rights with the signing of the Treaty of Waitangi in 1840, which promised Māori, "undisturbed possession of their properties, including their lands,

forests, and fisheries." The Treaty also established British rule over New Zealand and granted Māori British citizenship, but shortly after signing British officials began violating it (Orange, 2004). Māori protested, and in 1975 the New Zealand government established the Waitangi Tribunal, a bicultural research organization, to investigate Māori Treaty-related grievance claims. In response to Tribunal rulings, the New Zealand government has entered into, or completed, negotiations with all Māori iwi to settle historical Treaty-related grievance claims. As a constitutional monarchy, the New Zealand government, as is also the case with the Canadian government, acts on behalf of the British Crown.

The settlement of Māori claims to fisheries represents one of the largest Māori-Crown settlements, to date. The 1992 Treaty of Waitangi (Fisheries Claims) Settlement resulted from the New Zealand government's attempt to establish an Individual Transferable Quota (ITQ) system for fisheries management. In ITQ systems, governments set an annual limit (total allowable catch) on fish harvests and allocate to fishers a percentage of that limit, called a quota. Quota can be bought and sold (Annala, 1996). ITQ systems are designed to rationalize fisheries to address overfishing due to overcapitalization, or 'too many boats and not enough fish.' The idea is that less efficient operators will sell their quota and take their profits, exit the fishery, to reduce and consolidate the capacity of a nation's fishing industry (Sissenwine and Mace, 1992).

Economists attributed overcapitalization in New Zealand's fisheries to the government's subsidization of the nation's (primarily) non-Indigenous fishing fleet in the 1970s. Following the United Nations' recognition that nation-states' Exclusive Economic Zones (EEZ) extend 200 nautical miles from shore (United Nations Convention on the Law of the Sea (UNCLOS), 1982), New Zealand, Canada, and other governments invested in the expansion of national fishing operations and fish stocks declined. In New Zealand, fish stocks recovered after ITQ system implementation, and governments elsewhere adapted and adopted this market-based approach to fisheries management (Casey et al., 1995; Arnason, 1996). Small-scale fishers, however, have resisted ITQ systems, due to the likelihood that commercial fishing rights will become concentrated in highly capitalized firms (Pinkerton and Edwards, 2009; Torkington, 2016; Bodwitch, 2017b).

In New Zealand, the recovery of fish populations after ITQ system implementation was evidenced following the government's initial allocation of quotas, before trading occurred (Sissenwine and Mace, 1992). New Zealand fishers obtained quota initially if they reported at least 80% of their income from fish sales in the three years prior to ITQ system implementation, which, for the majority of commercially viable inshore species, began in 1986 (Sissenwine and Mace, 1992). This criterion reduced the size of the in-shore fishing fleet and disproportionately excluded Māori, who were likely to fish part-time, only when needed. Māori fishers were also less likely to report the cash they received from fish trading to the New Zealand government, due to their understanding that fisheries were Māori-owned, as recognized in the Treaty of Waitangi (Bodwitch, 2017b). The New Zealand government's quota allocation criterion, instead, rewarded those who fished more, including the larger, non-Māori fishing operations who had previously received the New Zealand government's fishery subsidies that led to overcapitalization to begin with.

In 1989, the New Zealand Māori Council, representing all Māori, challenged Māori fishers' exclusion in Court. The Council argued that the government's assumed ownership of the nation's fishery resources, necessary to allocate quota, violated the Treaty of Waitangi (Boast, 1999). Their claim was successful, and the New Zealand High Court placed a halt on ITQ system implementation until an agreement was made with Māori. The resulting 1992 Fisheries Settlement transferred assets and governance authorities to Māori collectively, including 10% of the ITQs for the fish stocks that had already been entered into the ITQ system and 20% of the ITQs for stocks added later (Boast, 1999).

The Fisheries Settlement also created a new category of rights, in addition to commercial and recreational rights, termed "customary" fishing rights. Customary fishing rights enable Māori groups to designate individuals as customary fishery guardians, who hold the authority to write permits for catches above daily recreational catch limits (Jackson, 2013). Fish caught on customary fishing permits, as with fish caught recreationally, cannot be traded or sold. Under the Fisheries Act 1996, the New Zealand government must prioritize customary catches when determining the total allowable commercial catch levels (TACC) each year. Māori groups, and ITQ owners more generally, can recommend changes, but the Minister for Ocean and Fisheries' decision directs policy (Yandle, 2008). The New Zealand government has recognized certain Māori groups' authorities to restrict commercial, recreational, and customary fishers' harvests in culturally-significant, spatially defined regions, called taiāpure and mataitai (Jackson, 2013). Māori groups' abilities to exercise their spatial governance rights is also, however, contingent on the Minister for Ocean and Fisheries' approval, and approval processes are often financially costly and time consuming (Bodwitch, 2019).

4.2 Māori fisheries development

The New Zealand government initially allocated Māori Fisheries Settlement quota to a pan-iwi trust, Te Ohu Kaimoana, to manage while Māori determined how to divide up the asset. The Trust's quota management strategy involved leasing Annual Catch Entitlement (ACE), the weight of fish a quota right corresponds to each year, to highest bidding operations. Rarely were these operations Māori-owned. The Trust used lease profits to purchase additional quota, develop processing facilities, and fund social development initiatives. In 2004, with the Māori Fisheries Act, Māori leaders agreed to divide up the Settlement asset between over fifty iwi, based on population and coastline. The population criterion within the 2004 Māori Fisheries Act corresponded to an increase in iwi enrollment initiatives. Iwi membership and population size is determined by genealogy, and an individuals' blood quantum does not reduce their membership potential. The coastline-based allocation process led to, at times, lengthy disputes over coastal boundaries between iwi (Bodwitch, 2017b).

Prior to colonization, the governance of fishery access and rights often occurred at the hapū (sub-tribe), or whānau (family) level, and some Māori have contested the idea that iwi are the appropriate body for managing Māori Fisheries' Settlement assets. After receiving their Settlement assets the vast majority of iwi continued to manage quota by leasing to, primarily, non-Māori fishing operations. This strategy proved lucrative. By 2018, iwi, collectively, had doubled the value of their quota assets to over 20% of the nation's total (Reid et al., 2019). At the current rate of purchase, pan-iwi and iwi authorities will own all the nation's quota in three generations. These entities also have significant investments in New Zealand's processing industry. Māori leaders, however, have been unable to govern the conditions affecting Māori whānau's (families') abilities to access benefits from fisheries.

4.3 The governance of small-scale Māori fishers' access

Iwi leaders' governance is constrained by internal political needs to evenly distribute dividends from fisheries assets to all beneficiaries as opposed to select fishing families, as well as Treaty settlement deeds that require iwi governing bodies to act in the beneficial interests of the collective. In fisheries, iwi leaders' authority is further affected by settler-state policies that influence how small-scale Māori fishers can access the means of production necessary to fish, markets, capital, and fish.

4.3.1 Access to the means of production

Under the New Zealand government's fisheries management regime it is illegal for anyone without access to Annual Catch Entitlement (ACE), the annual tonnage a quota right corresponds to, to sell fish. An effect of this policy, coupled with the legacy of colonial policies that restricted Māori access to capital, is that few Māori whānau can obtain the means necessary to develop fishing operations, including boats, gear, and labor. As a result, if iwi want to use collectively owned quota to support a whānau's ability to develop a fishing operation, they will likely also need to subsidize that whānau's access to the means of production necessary to fish.

4.3.2 Access to markets

If wishing to use collectively-owned ITQs to develop small-scale, whānau-run fishing operations, iwi must also consider subsidizing the select whānau's access to capital to develop processing operations, to overcome bottlenecks in the fish processing sector. Consolidation in New Zealand's processing sector is the result of the New Zealand government's creation of commercial fishery access rights as tradable property rights (ITQs) that non-fishers can own as investments and lease as ACE to fishers throughout the year (Torkington, 2016). After the initial quota allocation period, in the mid 1980s, processors, concerned about the possibility that their access to fish would be cut, purchased quota from fishers to ensure a consistent supply. Those who did not, shut down, consolidating the processing sector. Processors accessed capital in part by leveraging their businesses, something fishers were unable to do. Banks at the time would not loan against fishing operations (Bodwitch, 2017b).

The costs of developing processing operations are disproportionately high for Māori at the whānau level. To become a state-licensed processor, and gain eligibility to sell fish, one must establish an indoor processing facility that meets government food safety standards. Indoor facilities require land. Māori whānau are unlikely to own investable land, due to colonial-era forced removal policies, followed by New Zealand government policies designed to limit additional Māori land loss. In the early 1900s, the New Zealand government passed a series of Māori Land Acts, which prohibited Māori land sales to anyone other than a direct descendent. This approach led to a situation where Māori land can have upwards of 300 owners, making it uneconomical for investments (Bodwitch et al., 2022). Iwi who wish to support a whānau-run fishing operation may also have to subsidize that whānau's access to land. An alternative option, found in iwi-level ownership of processing facilities, also requires iwi to subsidize whānau fishers, because processors remain competitive by owning quota and paying fishers low rates for catches (Bodwitch, 2017b).

4.3.3 Access to capital

The extent to which an iwi can subsidize a whānau's fishing operation is determined by an iwi's access to capital. Due to the legacies of colonial and postcolonial dispossession (Waitangi Tribunal, 1992) for many iwi, fishing quotas are their primary asset. Maximizing immediate profits through trading, rather than investing in a whānau fishers' development, is therefore essential for maximizing returns on investment for the broader iwi population. Further, the Māori Fisheries Act allocation criterion fragmented the Settlement quota asset. As a result, the quota assets held by iwi with smaller populations and coastlines are likely to be fragmented across many species. An iwi's quota package often also includes high-volume but low-value species, making leasing to non-Māori fishing operations, that operate on scale, more economically viable.

The few iwi that do hold quota in sufficient amounts to support whānau-run operations, as is the case for certain large iwi, face the political challenge of selecting a whānau to allocate quota and fishery development subsides to. The majority of Māori fishing whānau were excluded from commercial fisheries with ITQ system implementation, and without access to the means of production necessary to fish, are also unable to exercise their customary fishing rights.

One way iwi leaders have justified decisions to subsidize a Māori whānau's fishery development, is by designating certain species as too culturally important to lease to non-Māori operations. Leaders from the iwi Ngāi Tahu applied this designation to short-finned eel (*Anguilla australis*), a species Māori relied on historically for subsistence and trade. In tracing through fishers' attempts to develop eel fishing operations, however, an additional structural constraint is highlighted, in Māori groups' limited ability to govern the activities of other resource users, whose actions affect fish populations.

4.3.4 Access to fish

In the early 2010s, the Tainui began leasing ACE for fish species found at Te Waihora, a coastal lagoon with a long history of governance by Ngāi Tahu individuals (Bodwitch et al., 2022) (Figure 1). These species included eel, flounder, and herring, all of which could be fished on the lagoon with smaller, less expensive, boats than that required for coastal and offshore fisheries. However, the Tainui's market access was restricted due to bottlenecks in the processing sector, and they were unable to negotiate prices. With iwi support, the whānau invested in the development of their own processing plant to extract more value from the fish they caught. Yet, in 2019, the Tainui's plant stopped running, due to the collapse of the eel population. Government investments in the dairy industry upstream had supported intensified dairy farms through land use alterations that affected eel habitat (Foote et al., 2015). Development activities are authorized by Regional Councils, whose governing jurisdictions are designated by watersheds.

New Zealand's Regional Council system represents a polycentric approach to watershed governance (i.e., Pahl-Wostl and Knieper, 2023), in that it is comprised of multiple, semi-autonomous governance units that operate with a degree of coordination (Aligica and Tarko, 2012). Environmental governance scholars have called for polycentric approaches to address the complexity of water governance (Pahl-Wostl and Knieper, 2023). Yet a multiplicity of semi-autonomous governing bodies also means that the governments regulating upstream land use practices are comprised of a different set of politicians than the central government, with whom Māori groups negotiate to absolve rights-related grievance claims. Regional Council members have faced political pressures to authorize the intensification and expansion of dairy operations, from farmers who took loans to expand their operations. Indebted, New Zealand dairy farmers hold economic motivations to resist regulations that will reduce their productivity (Bodwitch et al., 2022).

Council officials have a statutory requirement to consult iwi in the development of their regional environmental plans. Further, in the Te Waihora watershed, the Ngāi Tahu iwi, at the time the Tainui's were developing their fishing operation, held seats on the Regional Council. Ngāi Tahu leaders, however, lacked the political capital necessary to defend Māori fishers against the lobbying efforts of a well-resourced dairy industry (Bodwitch et al., 2022). Eel stock assessments in regions of concern for whānau fishers were rarely conducted by the Ministry for Primary Industries (MPI), the state entity resourced for these assessments. The Tainui's and other fishers' knowledge of eel populations was not in formats amenable to policy makers and was not considered in the Environmental Impact Assessments that informed Council decision making.

The detrimental effects of agricultural expansion for New Zealand's eel fisheries was evidenced elsewhere in New Zealand (Foote et al., 2015). As water quality declined, the central government, which, at the time was led by the left-leaning Labour Party, initiated a policy to use Māori knowledge to transform freshwater management. However, the National Government that replaced this Labour Government in 2023, repealed the initiative within months of taking office.

In sum, processes affecting development for Māori small-scale, whānau fishing enterprises include limited access to capital to obtain commercial fishing rights and fund the means of production necessary to fish. Regulatory and financial challenges associated with overcoming bottlenecks at the processing sector, and the depleted nature of certain fish stocks, due to upstream resource users' activities, also affect whānau fishers' development. Thus, how Māori can use their investments in the nation's fishing

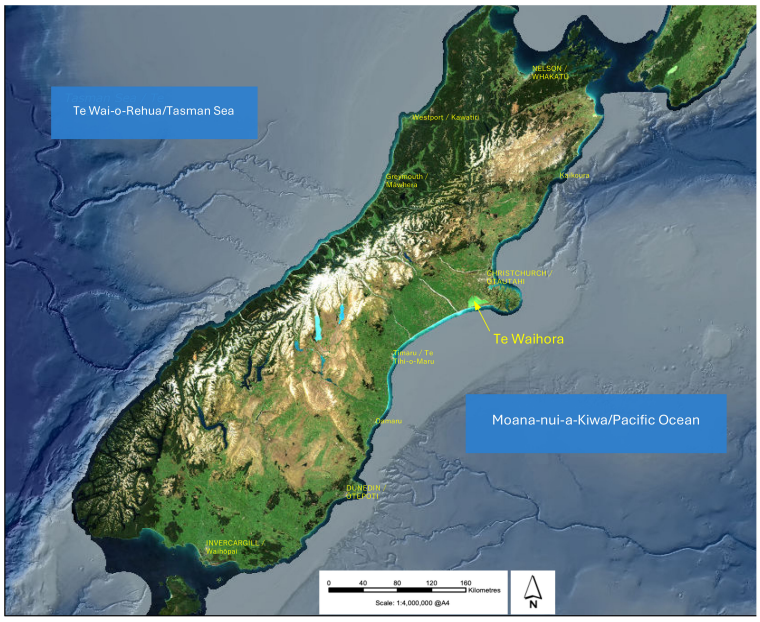

FIGURE 1
Te Waiponamu/South Island New Zealand (Source: Environment Canterbury, Waimakariri DC, LINZ).

industry, made at the iwi and pan-iwi levels, to support whānau-scale fishing operations remains affected by settler-state politics that govern fish trade and upstream land and water use. As a result, these investments do not illustrate self-determination.

Fishery reconciliation and development initiatives for Indigenous Nations in Atlantic Canada illustrate an alternative approach to recognition and reconciliation. In Atlantic Canada, with rights to fish for a "moderate livelihood," in place as a result of a legal ruling (R v. Marshall, 1999), Indigenous groups ostensibly have the ability to self-govern fish trade. This right, in theory, holds the potential to address the challenges Māori fishers have experienced due to the New Zealand government's requirements that only fishers who participate in the ITQ system can obtain income from fishing. Analysis of Mi'kmaq, Wolastoqey, and Peskotomuhkati Nations' fishery development experiences, however, indicates that these groups' access remains controlled by settler-state policies. Here too, self-determination has not been achieved.

4.4 Mi'kmaq, Wolastoqey, and Peskotomuhkati fishing rights

In contrast to New Zealand, where Māori absolved the possibility of future rights claims in return for ITQs, Mi'kmaq, Wolastoqey, and Peskotomuhkati in Atlantic Canada have not yet relinquished their inherent rights to fish. The British Crown acknowledged Mi'kmaq, Wolastoqey, and Peskotomuhkati's inherent rights in the mid 1700s, through a series of Peace and Friendship Treaties. First signed in 1726, then in 1749, 1752 and 1760/61, the Treaties allowed the British to secure allyship from the Mi'kmaq, Wolastoqey, and Peskotomuhkati Peoples (Peskotomuhkati, 2023) (Figure 2). The Peace and Friendship Treaties were designed to end British-Indigenous conflict in what many know as Atlantic Canada and cut Indigenous-French trade (Wicken, 2002). The British and French had arrived in the region in the early 1600s. The British Crown, aiming to colonize, viewed trade relationships between French and Indigenous groups as threatening. The British also identified a need to stop fighting Indigenous groups, to focus resources on fighting the French.

Unlike many treaties, historical and contemporary, the Peace and Friendship Treaties were never about ceding land or territory. Instead, the Treaties protected inherent Aboriginal rights to harvest, hunt, trade, and sell, in order to procure the "necessaries" of life (R v. Marshall, 1999) These rights applied to Mi'kmaq, Wolastoqey, and Peskotomuhkati Peoples in Atlantic Canada. Mi'kmaq and Wolastoqey are entire Nations, but under the Indian Act were separated into bands and placed on limited reserve lands. While Nation-level governance still exists (for example through the Mi'kmaq Grand Council, or Santé Mawiómi), day to day operations are governed separately for each band, by elected Chiefs and councils. In the province of New Brunswick, there is one Peskotomuhkati community that is still fighting for status with the Federal government (Peskotomuhatki Nation, 2023). The remaining Peskotomuhkati members are found in Maine, USA. Due to the ongoing status of this negotiation, we do not include Peskotomuhatki in the following sections. We nonetheless recognize that Peskotomuhatki's legal rights should be linked to the Peace and Friendship Treaties.

In addition to procuring necessaries through harvesting and trading from the land and sea, Mi'kmaq and Wolastoqey also hold the right to harvest and trade fish for food, social, and ceremonial (FSC) purposes. The FSC right is an inherent right, and it belongs to Indigenous Peoples across Canada (United Nations (UN), 2007). The FSC right was constitutionally protected in the 1982 Constitution Act (Section 35) and reaffirmed with the Supreme Court *Sparrow* Decision (R v. Sparrow, 1990). According to *Sparrow*, trade of fish for FSC purposes can only occur between

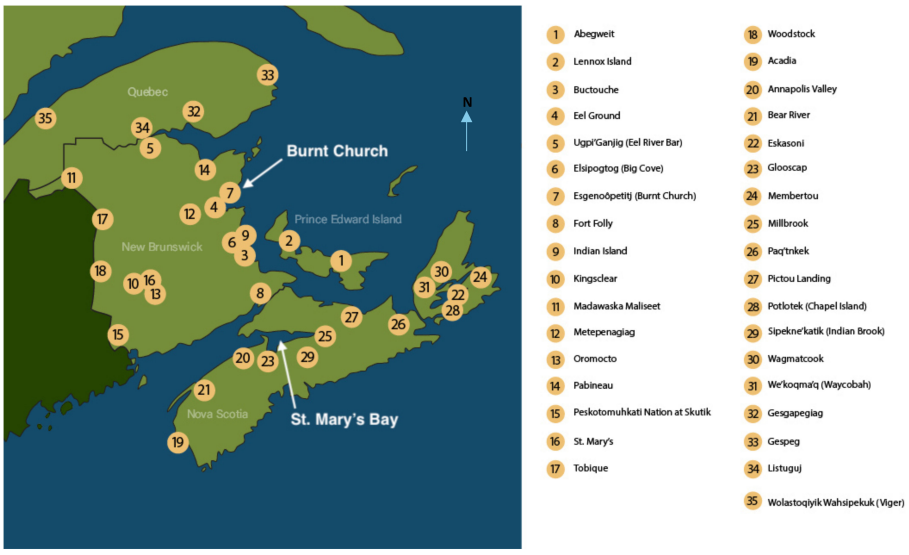

FIGURE 2
Mi'kmaq and Wolastoqey Nations and the Peskotomuhkai (Source: Government of Canada).

Indigenous Nations and profits cannot be generated from the activity.

In contrast to the FSC right, the so-called moderate livelihood right includes the ability to generate revenue from fishing, as well as from hunting and harvesting non-fish resources. This interpretation was part of the 1999 *Marshall* Decision, a Supreme Court of Canada ruling where Donald Marshall Jr. appealed a provincial court's decision that his arrest for fishing eel without a license, outside the state-defined commercial season was unlawful. He argued that he was exercising his right to procure the necessaries of life, protected in the Peace and Friendship Treaties. In the *Marshall* Decision, the Court argued that this right, in contemporary contexts, could be interpreted as the right to earn a "moderate livelihood." The Court did not define what a "moderate" livelihood entailed. Questions remain over whether the Court has the authority to impose such a limit and if a uniform definition of such a concept should exist at all (Francis, 2023).

As a Treaty right, the "moderate livelihood" right holds priority over the fishing rights of other harvesters. This is also the case for Indigenous Peoples' FSC rights. According to the Supreme Court of Canada, through an atypical clarification to an earlier decision, what is now known as *Marshall II*, the state can infringe on treaty rights if there is a threat to conservation. The Canadian government can also infringe upon treaty rights for other substantial public objectives such as regional fairness and historical reliance upon the fishery by non-Indigenous fishers (R v. Marshall, 1999). The burden of proof is on the state.

4.5 Mi'kmaq and Wolastoqey fishery development initiatives

Mi'kmaq and Wolastoqey, since *Marshall*, have adopted one of two primary approaches to fishery development. The first involves working within the Canadian state's fishery management regime, which involves compliance with management measures adopted by Fisheries and Oceans Canada (DFO) (Fisheries Act, 1985). Under the Fisheries Act, fisheries in Canada are managed by the DFO, and management measures in Canada vary regionally and by fishery sector. For the majority of fisheries in Atlantic Canada, DFO regulates access via licenses that limit entry. License holders' take is regulated by catch or effort limits determined by DFO. Catch-limited fisheries in Atlantic Canada are governed by various regulations aimed at curbing the consolidation of "catch shares," or the proportion of the total allowable catch a license corresponds to. ITQ systems, such as New Zealand's, are a form of catch shares.

Like New Zealand, when the Canadian government sold licenses and allocated catch shares initially, a process that for most fisheries occurred in the 1970s and 1980s (Department of Fisheries and Oceans Canada (DFO), 1980), few Indigenous fishers were in commercial fisheries. Indigenous individuals were rarely fishing commercially at that time, due to Canadian government policies that forced Indigenous groups to relocate to regions with limited coastal access and few options for economic productivity (Truth and Reconciliation Commission of Canada (TRC), 2015). Alongside this, government-mandated residential school systems systematically removed language and culture, affecting possibilities for Indigenous-led governance and development. The moderate livelihood ruling presented an opportunity for Mi'kmaq, Wolastoqey, and Peskotomuhkati individuals to access benefits from commercial activities, from which they were otherwise excluded.

Yet after *Marshall*, DFO did not adjust their management to account for the introduction of livelihood fishers' harvests, despite the legal priority of Indigenous livelihood fishers' Treaty-protected rights (Fanning and Denny, 2022). Instead, DFO attempted to integrate Mi'kmaq and Wolastoqey into existing processes for fisheries management and, in 2000, launched the *Marshall* Response Initiative. Through this initiative, DFO purchased commercial licenses to give to Mi'kmaq and Wolastoqey Nations, under the form of communal commercial licenses. The number of communal commercial licenses granted to Mi'kmaq and Wolastoqey groups was only a small percentage of the total licenses allocated for the non-Indigenous fishing industry and was far lower than the number of community members who wanted to fish. As was the case for iwi leaders in New Zealand, Mi'kmaq and Wolastoqey leaders face the political challenge of choosing which fishers to allocate a limited number of licenses to, at a time when Indigenous fishers also need support to access the means of production necessary to fish most fisheries.

The majority of Mi'kmaq and Wolastoqey groups lease communal commercial licenses to non-Indigenous operations, and like Māori, iwi use profits to support community welfare. This lease model confers economic returns to community members, but, as in New Zealand, it does not increase employment in Indigenous coastal communities, or impart the broader benefits community-run fishing operations convey (i.e., Bodwitch et al., 2022; Snook et al., 2022). Mi'kmaq and Wolastoqey leaders' abilities to use communal licenses to support Indigenous-run fisheries are also affected by insecure access to licenses. Indigenous communal commercial licenses are subject to the same regulations as non-Indigenous fishers' individual commercial licenses, with the exception that they do not need to be fished by the license owner. Commercial communal licenses are not rights-based, and Indigenous groups' access to these licenses is not protected by legislation. DFO can alter allocation upon its discretion (Wiber and Milley, 2007; Francis, 2023).

4.6 Conditions governing "livelihood" fishers' access: access to fish, markets, and information

A second approach to Indigenous fishery development in Atlantic Canada has involved attempts by Mi'kmaq and Wolastoqey groups to work outside the state's regulatory framework, to self-govern community members' commercial fishery harvests. These self-governing initiatives generally include the objective of regulating community members' harvest rates to support livelihoods and long-term fishery sustainability, and have been attempted by far fewer groups. However, groups that have attempted to develop these "livelihood" fisheries have encountered several obstacles related to settler-state policies and practices that constrain their access to fish, markets, and knowledge about the status of the fishery.

4.6.1 Access to fish

Following the *Marshall* Decision, throughout 1999 and 2000, the Mi'kmaw Nation of Esgenoôpetitj, in Burnt Church, Nova Scotia, attempted to exercise their livelihood rights and began fishing without state issued licenses (Figure 2). Their boats were burned and truck tires slashed (King, 2014). The Royal Canadian Mounted Police (RCMP), who, unlike Indigenous groups, hold the authority to police non-Indigenous citizens, did not penalize the protestors. Non-Indigenous fishers justified the attacks at Burnt Church by claiming that livelihood fishers threatened fishery health (King, 2014), and the Canadian state aligned with them. State vessels rammed and capsized livelihood fishers' boats and beat Indigenous rights activists. DFO arrested 18 livelihood lobster fishers and charged them with overfishing. The charges were dropped after Esgenoôpetitj agreed to participate in DFO's fishery management regime. Under the DFO system, Esgenoôpetitj community members could only earn income from fishing if they fished with DFO's communal commercial licenses and during DFO-designated seasons.

Two decades later, in 2020, the Mi'kmaw Nation of Sipekne'katik attempted to exercise their moderate livelihood right by establishing a self-governed lobster fishery in St. Mary's Bay, Nova Scotia, in Lobster Fishing Area (LFA) 34 (Figure 2). Fishing lobster in the fall meant that Sipekne'katik was exercising their rights outside the state-defined commercial fishing season for LFA 34, which generally occurs from November – May. Sipekne'katik made this decision in part to overcome cost-related constraints associated with accessing large boats that are winter-worthy. Similar to the events in Burnt Church, this attempt in St. Mary's Bay was met with violence and racist resistance.

The protesters, again, argued that the entry of moderate livelihood fishers posed a conservation concern (Bailey, 2020). In 2020, lobster stocks in the region were near all-time highs. Non-Indigenous commercial lobster fishers attributed these levels to their own long-term adherence to both state and community-defined regulations (Williams, 2022). For the American lobster (*Homarus americanus*) fished in Canadian government-claimed territories, state regulations include harvest licenses tied to specific Lobster Fishing Areas (LFAs) for a limited number of traps. Harvest levels (i.e., output) are not regulated by the state. Fishing families may hold lobster licenses for multiple generations.

Non-Indigenous commercial lobster fishers had developed informal processes for designating harvest sites between license holders. License holders harvested at levels they perceived suitable to support long term outcomes in their community-defined site. Lobster are benthic animals, with longer-term residence in some locations than others. As a result, a fishers' decision to reduce fishing pressure in a particular region can correspond to future increases in lobster populations numbers in that spatially-defined region. At St. Mary's Bay, the protestors argued that the increased pressure on the lobster populations from livelihood fishers, who were also fishing at times when DFO had prohibited commercial lobster fishing, threatened to reduce to lobster populations (Williams and Wien, 2022).

Sipekne'katik livelihood fishers were attempting to fish outside of the DFO's season in part to reduce costs associated with accessing the means of production necessary to fish, including boats. The DFO-recognized season occurs over the winter, and winter-worthy boats are more costly than boats suitable for fishing during the fall. Further, fishing outside the commercial season meant that livelihood fishers could access fisheries close to shore that would otherwise be fished by commercial operations.

According to the Supreme Court of Canada, DFO should restrict non-Indigenous harvesters' catches prior to restricting moderate livelihood fishers, if a conservation concern was identified. But instead, at St. Mary's Bay, as occurred at Burnt Church, state entities, once again, aligned with the protestors. The RCMP did not penalize protestors. Instead, DFO arrested Sipekne'katik fishers, as well as fishers from other Mi'kmaq and Wolastoqey Nations who were attempting to exercise their livelihood fishing rights. DFO also seized livelihood fishers' gear. In many instances, likely reflecting the Supreme Court of Canada's recognition of livelihood rights (R v. Marshall, 1999), harvesters are found not guilty (Googoo, 2023), but these fishers may wait years to be cleared by the courts and for DFO to return their gear.

4.6.2 Access to markets

Indigenous groups' abilities to fund their moderate livelihood fishing operations by selling fish has also been limited by contemporary settler-state actions (and the lack thereof) that have limited their access to markets. In Canada, the sale of fish and seafood is managed provincially. Provincial governments only allow processors to purchase fish from DFO-authorized fisheries. At the time of writing, DFO has authorized very few livelihood fisheries, possibly due to the political implications of recognizing fishing that non-Indigenous citizens contest as "out of season" (Bailey, 2020). Processors without access to the moderate livelihood right, as is the case for all non-Indigenous processors who are not members of Mi'kmaq or Wolastoqey Nations, therefore, face legal sanctions if they purchase so-called "Treaty" fish. Moreover, processors who have been thought to purchase Treaty fish have been harassed and vandalized by groups protesting the moderate livelihood fisheries. Mi'kmaq and Wolastoqey Nations operate both inside and outside of provincial and federal (DFO) management systems, and in the case of the latter, can develop their own processing operations, as per Court recognition (R v. Marshall, 1999). Their ability to do so, however, is limited by access to capital to develop processing and distribution centers. It is also limited by groups' capacities to develop relationships with potential buyers, especially those in lucrative markets overseas (Amos et al., 2022).

4.6.3 Access to information

Mi'kmaq and Wolastoqey Nations' abilities to establish livelihood fisheries have been further affected by settler-state policies that have restricted access to resources to evaluate the status of fish stocks. This knowledge is needed to self-govern and demonstrate to others that livelihood fisheries pose a minimal conservation threat. DFO holds data on non-Indigenous fishers' activities and has resources for stock assessments, but DFO has yet to develop processes for sharing spatially explicit commercial catch data with Indigenous groups. Moreover, DFO rarely refers to

Indigenous knowledge systems when making management decisions (Hamelin et al., 2023), despite legal obligations to do so (Fisheries Act, 2019, c. 14, s 3). Instead, when approached to partner in a conservation study led by Sipekne'katik, an initiative that would have likely improved the credibility of the community's scientific approach, DFO chose not to participate in the partnership (Seguin, 2021).

Limited access to resources for stock assessments has also posed a challenge for Mi'kmaq and Wolastoqey Nations' attempts to evaluate the effects of moderate livelihood fishers' activities for non-lobster fisheries, including American eel (*Anguilla rostrata*). Fished as elvers (juveniles) to export for aquaculture overseas, these fisheries are accessible upriver and harvested via nets. As opposed to coastal and offshore fisheries, elver fisheries do not require a boat to access. Indigenous community members have expressed interest in fishing elvers to support their livelihoods, but leaders have cautioned against this, due to limited knowledge about existing stock levels. Likely reflecting the comparatively low contribution these fisheries make to the national GDP, DFO has rarely conducted elver stock assessments. An initial elver stock assessment occurred in 1996, and DFO used a small, single index river to assess and interpolate the size of the elver population for the entire east coast (Jessop, 1996). A follow-up assessment in 2022 was deemed limited in effectiveness, due to a lack of data (Bradford et al., 2022). Restricted access to all fisheries historically means that local knowledge of fish dynamics needs to be rebuilt.

In sum, Mi'kmaq and Wolastoqey Nations have faced a series of constraints in their attempts to develop small-scale fishing operations that would support community members' livelihoods. These groups' abilities to benefit from fisheries, and exercise self-determination, are constrained by settler-state regulations that restrict market access, as well as settler-state processes for sharing information and resources related to stock assessments. Groups' livelihood fishery development efforts are also undermined by limited authority to regulate non-Indigenous resource users and enforce sanctions on protestors who threaten Indigenous harvesters.

5 Discussion and conclusions

In this study, we explored the ways Indigenous fishing rights recognition initiatives in New Zealand and Canada have influenced how Indigenous groups can develop fishing operations. We demonstrate that despite recognition, settler-state governance regimes continue to limit the development of small-scale, Indigenous family-run operations. The analysis thus highlights that efforts to achieve Indigenous self-determination in fisheries require more than state recognition of resource use or ownership rights. Rights on their own are insufficient to confer the means necessary to access fisheries. In the cases described, additional conditions affecting fishers' access include access to markets to obtain capital, to support the means of production necessary to fish (boat, gear, labor). Fishers' access is also influenced by other resource users' actions, including upstream farmers and other fishers, as well as the governing bodies that hold information about these actions (Figure 3). We explore these findings as they relate to the political strategies, analytical approaches, and regulatory initiatives that warrant consideration, to support Indigenous self-determination in fisheries governance.

5.1 Political strategies

First, in both New Zealand and Canada, changes to settler-state actions will be needed to address existing discrepancies between the number of Indigenous-owned fishing licenses and the numbers of small-scale, Indigenous family-run fishing operations. We highlight this point to challenge claims made by some academic and public commentators, in New Zealand especially (e.g., De Alessi, 2012), that suggest this disproportionate outcome is due to Indigenous leaders' management decisions. Our analysis indicates that Indigenous leaders' management decisions will not, on their own, address the effects of settler-state policies that increase the costs Indigenous families disproportionately face when developing small-scale fishing operations. Indigenous families need to be subsidized to develop fishing operations and as a result, it is economically rational for Indigenous leaders to lease collectively-held fishing licenses or ITQs to larger, highest bidding entities. Leaders' management decisions will also not address the effects of Canadian government policing initiatives that criminalize Indigenous fishers who attempt to exercise their treaty-protected fishing rights (see also Bodwitch, 2017b; McCormack, 2018).

The role that settler-state policies continue to play in governing Indigenous fishers' access also holds implications for debates in the field of Indigenous Studies, regarding the trade-offs associated with committing valuable time and resources to negotiations with settler-states. As noted above, two rationales given, as to why "turning away" (Coulthard, 2014) is likely an ineffective political strategy, are that, (i) it is hard to dis-engage (states are not monolithic) (Purucker, 2021); and (ii) under certain political conditions, settler-state resources can be used to promote environmental justice (e.g., Carroll, 2015; Tadaki, 2020; Ybarra, 2021; Harrison, 2023). Indigenous groups' fishery development experiences highlight additional reasons why working with settler-states can be important for efforts to achieve self-determination. Engagement with settler-state governments is needed when Indigenous groups want to access state-regulated markets. Engagement is also needed when a group's access to resource is affected by other resource users, whose actions are governed by settler-states, as is often the case for common pool and transboundary resources. Common pool resources are non-excludable and rivalrous, whereby one users' actions will affect others, as is the case for most fisheries (Nordam, 2021). Transboundary resources (i.e., Song et al., 2017) include watersheds and the species they support, such as eel, and in which upstream activities can alter the habitats supporting fisheries downstream. When settler-states retain the authority to regulate and police non-Indigenous resource users, settler-state support for Indigenous fisheries will be needed to achieve self-determination.

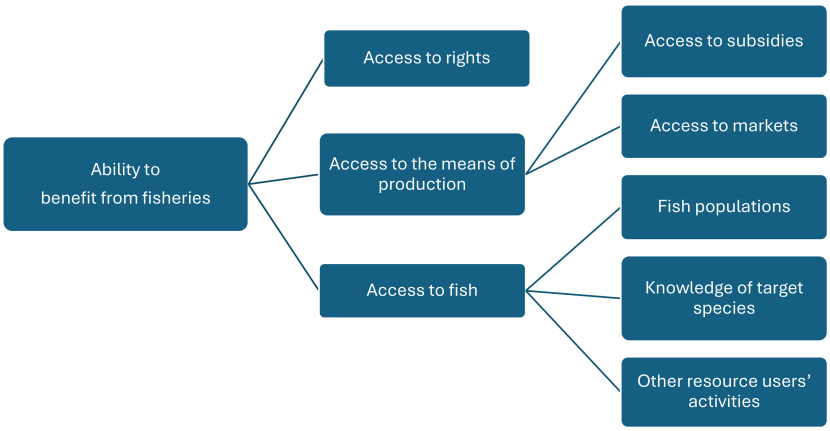

FIGURE 3
Conditions affecting fishers' abilities to derive benefit from fisheries.

5.2 Analytical approaches

This analysis indicates that studies of self-determination in fisheries need to look, as Basurto et al. (2020) described, "beyond harvesting," to understand how benefits from fishing resources are distributed. Access theory and frameworks, such as that adopted here, address Basurto et al. (2020)'s call, and others have also engaged Ribot and Peluso (2003)'s approach to examine equity in fisheries (e.g., Bennett et al., 2018; Parlee et al., 2021). The importance of access as an analytic is important to emphasize, given that harvest rights reallocation initiatives are often the primary means adopted to redistribute benefits from fisheries resources. Harvest rights reallocations are prioritized in international negotiations related to the governance of migratory and transboundary fish stocks (e.g., Seto et al., 2021), as well as in negotiations between settler-state and Indigenous groups. Harvest rights (re)allocations are often also the key focus of efforts to ensure settler-state fishery management systems support small-scale fishing operations (National Academies of Sciences, Engineering, and Medicine (NASEM), 2024).

Given the contributions that small-scale fisheries can make to coastal community well-being, analyses of the conditions that affect small-scale fishery (re)development, also hold implications for efforts to achieve equity in Blue Economies more broadly. That said, we chose to focus this analysis on strategies to support Indigenous self-determination, rather than small-scale fishery development, explicitly. We made this choice because we recognize that for some Indigenous groups, small-scale fisheries may not be what that group desires to meet their needs. By focusing on self-determination, we sought to limit the likelihood that our analysis would a promote settler-state governing initiative designed to limit an Indigenous group's ability to develop large-scale fisheries, if that group wished to do so. There is a long history in which outsiders' analyses of what Indigenous groups should or should not do have justified settler-state governing initiatives that constrained Indigenous groups' governance authorities. For example, ideas of wilderness as exclusive of people have legitimized the criminalization of Indigenous groups' hunting and fishing practices (Nadasdy, 2005). Similarly, conceptions of markets as political economic systems that do not align with Indigenous Peoples' cultures have justified governing initiatives that exclude Indigenous groups from market exchange (Reid and Rout, 2016). Such exclusion can, in turn, limit opportunities for Indigenous groups to establish desired approaches to economic development (Deloria, 2002). Indeed, the New Zealand governments' current prohibitions on the trade of fish caught on Māori-authorized customary fishing permits, despite there being a locally-based, Māori-directed system in place for governing customary harvest levels, is an illustration, we suggest, of such colonizing logics. We did not want our analysis to repeat this history.

5.3 Regulatory initiatives

Further, by unpacking the constraints Indigenous groups face in their attempts to develop small-scale, Indigenous-run fishing operations, this study holds implications for theories regarding the structure governance regimes might assume to support equity outcomes. In efforts to advance equity in Blue Economies, calls have been made to enhance locally based groups' governance authorities (Evans et al., 2023). Likewise, environmental governance scholars have argued that polycentric regimes are best suited for meeting citizens' needs (Aligica and Tarko, 2012), in addition to enhancing resiliency (Ostrom, 2010). Yet our analysis demonstrates that while Indigenous self-determination enhances the polycentricity of governance regimes (Diver et al., 2022), the reverse is not necessarily the case. Polycentricity can pose problems for Indigenous self-determination, when citizens with political authority resist efforts to support Indigenous fisheries. New Zealand's Regional Council system illustrates a polycentric approach to water governance (i.e., Pahl-Wostl and Knieper, 2023), but New Zealand's Regional Councils did not take account of Indigenous groups' fishing rights when authorizing development upstream, despite recognition of Māori groups' rights by New Zealand's central government. Self-governed lobster fisheries represent celebrated examples of polycentric governance

(Acheson, 2003). In Atlantic Canada, however, self-governance also gave rise to a form of vigilantism, when non-Indigenous harvesters took it upon themselves to police their claimed fishing territories. Non-Indigenous fishers' violent actions restricted Indigenous groups' access to fisheries. Moreover, Canadian government officials implicitly authorized this violence by choosing not to arrest the violent attackers.

5.4 Next steps

The influence other resource users can have on Indigenous fishers' development opportunities indicates that efforts to support Indigenous self-determination will require trade-offs, as others studying equity in Blue Economies also indicate (Evans et al., 2023). Indigenous groups' experiences, described here, further demonstrate that politicians can face disincentives to shift policies to ensure trade-offs support Indigenous rights, due to political resistance from those currently benefiting from settler-state systems. In studies of non-fishery sectors, including housing, the economic interests of local electorates have also posed political challenges to advancing progressive policies (Elmendorf et al., 2021). To combat NIMBY-ism ("not in my backyard") in housing, scholars have called for legal reforms (Elmendorf et al., 2021). Similar approaches that require policy makers to redistribute resources to underrepresented groups, we argue, will be also necessary to support Indigenous self-determination in fisheries.

Specific interventions to explore include policy changes that address the challenges Indigenous fishers have faced in their efforts to access markets, to obtain capital to support their fishing operations. In New Zealand, options for absolving current prohibitions on customary fish trade and allowing Māori groups to self-govern customary trade should be investigated. The New Zealand government already accounts for customary fishers' take when determining total allowable commercial catch (TACC) levels, and customary fishers' take has legal priority over commercial harvests. Authorization of Māori governance of customary fish trades should not, therefore, affect fish stock populations. In Canada, changes to provincial government regulations, to allow non-Indigenous processors to purchase livelihood fishers' catches, are needed. Alongside these suggestions, subsidies that facilitate Indigenous fishers' access to the means of production and Indigenous groups' abilities to vertically integrate, may be appropriate (see also, Jones et al., 2024; Sumaila et al., 2024).

Additionally, policy changes that equip governments with the means to buy out existing farmers and fishers should be considered as options for overcoming political resistance to Indigenous fishery development. That said, compensation is unlikely to be necessary under law, given the legal priority of Indigenous fishers' treaty-protected rights in both New Zealand and Canada. Public education initiatives that cover topics related to Indigenous fishing histories, rights, and current struggles, can also be advanced, to increase political support for Indigenous self-determination. In Canada, for example, such education initiatives are explicitly called for in the Calls to Action originating from the Truth and Reconciliation Commission (Truth and Reconciliation Commission of Canada (TRC), 2015).

Finally, the conditions affecting resource access are context specific and will change over time. As a result, routine analyses of the governance regimes influencing access will be necessary to identify additional changes needed, to achieve Indigenous self-determination, within territories claimed by settler-states. Thus, the actions settler-states must take to realize their commitments to Indigenous self-determination, made in UNDRIP, will also need to be adapted, as climate change and Blue Economy developments intensify conflicts over resource access.

Data availability statement

The datasets presented in this article are not readily available because ethnographic research notes include confidential information. Requests to access the datasets should be directed to hekiabodwitch@gmail.com.

Ethics statement

The studies involving humans were approved by University of California, Berkeley/Committee for the Protection of Human Subjects. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

HB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Visualization, Writing – original draft, Writing – review & editing. KH: Formal analysis, Investigation, Writing – review & editing. KP: Data curation, Formal analysis, Investigation, Writing – review & editing. JR: Data curation, Formal analysis, Funding acquisition, Investigation, Supervision, Writing – review & editing. MB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Supervision, Writing – original draft, Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. HB and MB acknowledge support from the Nippon Foundation's Ocean Nexus Center at the EarthLab, University of Washington. HB and JR

acknowledge support from the New Zealand Ministry of Business, Innovation and Employment's Sustainable Seas Science Challenge. KH was supported by a NSERC Alexander Graham Bell Canada Graduate Scholarship (CGSD3 - 547199 - 2020) and a Killam Doctoral Scholarship. Additional funding came from a Canada First Research Excellence Seed Fund award through the Ocean Frontier Institute and an SSHRC Explore Grant.

Acknowledgments

We acknowledge the ones who came before us and all who live the experiences discussed here. We especially thank the individuals who shared their time and stories with us.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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