Applied Geography 54 (2014) 110–117

Contents lists available at ScienceDirect

Applied Geography

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

From fishing to farming: Shellfish aquaculture expansion and the complexities of ocean space on Canada's west coast

Jennifer J. Silver

Department of Geography, University of Guelph, 50 Stone Road East, Guelph, ON N1G 2W1, Canada

Keywords:
Aquaculture
British Columbia
First Nations
Ocean space
Rights and title

A B S T R A C T

Ocean spaces are social and political, and just as with terrestrial governance, oceans governance is prone to ambiguity, contradiction, and contestation. The validity and dynamics of these claims will be demonstrated through a study of discourse and structured agreements employed to involve coastal First Nations in the expansion of the shellfish aquaculture sector in British Columbia. Analysis focuses on the West Coast of Vancouver Island, a region identified as having good biophysical potential for shellfish aquaculture and much of which is territorial home of the Nuu-chah-nulth First Nations. Through community interviews and document and discourse analysis, the article highlights that: seafood, including shellfish, is intimately connected with Nuu-chah-nulth identity; many Nuu-chah-nulth have long-engaged in subsistence and commercial harvests of wild-growing shellfish; and, there are important prospective differences between longer-standing shellfish harvests and shellfish aquaculture. Findings and discussion offer perspective on the sorts of choices that First Nations might encounter in the pursuit of shellfish aquaculture, as well as raise bigger questions about whether or how Nations might tradeoff territorial authority and collective harvest opportunities against leasing state-sanctioned private marine tenures.

Introduction

Classifying and regulating space is central to the governance of resource-based capitalist economies (Braun, 2002; Hayter, Barnes, & Bradshaw, 2003). While the social ambiguities, contradictions, and contestations of terrestrial extractive (e.g., mining and forestry) and productive (e.g., agriculture) spaces are well-studied (e.g., Braun, 2002; Cuba, Bebbington, Rogan, & Millones, 2014; Murton, 2007), oceans governance has received comparatively less attention (Mather, 2013; Steinberg, 2013). Building on scholarship that traces the colonial appropriation and regulation of ocean space and marine resources in British Columbia (BC), Canada, this article examines contemporary discourse and structured agreements employed to facilitate coastal First Nations' participation in the expansion of the Province's shellfish aquaculture sector. While these interventions overtly recognize the longstanding Indigenous use and management of shellfish resources, I will argue that they nonetheless limit, or at least take a limited view of, First Nations' sovereignty in what remains contested ocean space.

Following resource geographers like Bakker and Bridge (2008), Mather (2013) argues that, more than techno-managerial science, profitable resource extraction and production are achievements won through "calculation and measurement" that "define resources in particular ways and defend them against other claims" (403). The power-laden, and often inequitable, processes and politics of regulating spaces and economies (Bakker & Bridge, 2008; Hayter, 2003; LeBillon, 2008) are thus a valuable analytical starting point for researching oceans governance and new marine activities, including shellfish aquaculture expansion efforts in BC. Indeed, during the early 1990s, the West Coast of Vancouver Island (WCVI) was identified as having good potential to support shellfish aquaculture. Spurred by biophysical assessment and classification studies on the WCVI and elsewhere, and a subsequent report that projected the wholesale value of the BC shellfish aquaculture sector could grow from $12 to $100 million in ten years (Coopers and Lybrand Consulting, 1997), the Provincial Government launched the 'Shellfish Development Initiative' (SDI) in 1998. As is common in capitalist resource extraction and production (Hayter, 2003; LeBillon, 2008), the SDI explicitly tied economic growth to the appropriation and regulation of more (ocean) space. Specifically, a central goal was to double the area of ocean space under private tenure for farming shellfish (at the time, mostly Manila clams and Pacific oysters); attention was particularly focused on encouraging expansion outside of the Strait of Georgia, the longstanding core of the sector (Silver, 2013).

E-mail address: j.silver@uoguelph.ca.

http://dx.doi.org/10.1016/j.apgeog.2014.07.013
0143-6228/

Between the late 1990s and early 2000s, the Provincial government offered at least 20 First Nations funding and priority access to marine tenure leases through treaty negotiation-related Memoranda of Understanding (Doyle, 2002). Moreover, and in contrast to other land and resource-based sectors in BC specifically (e.g., forestry as in Braun, 2002; Hayter, 2003; agriculture as in Murton, 2007), shellfish aquaculture advocates openly recognized First Nations' longstanding use, cultivation, and management of shellfish resources, promoting these as reasons why reserve-based communities should start shellfish aquaculture businesses (Silver, 2013). First Nations have indeed harvested, managed, and cultivated intertidal shellfish in ocean spaces since well before European arrival (Groesbeck, Rowell, Lepofsky, & Salomon, 2014; Silver, 2014). As will be traced, they have also been active in a decades-old Federally-regulated commercial fishery for wild-growing clams. Details regarding the clam fishery on the WCVI and the experiences of one Nuu-chah-nulth nation, the Kyuquot–Checleseht First Nation (KCFN), with shellfish aquaculture will show important prospective differences between gathering wild-growing shellfish and farming crops of particular shellfish species. It is through this work that the article provides perspective on the sorts of choices that First Nations may encounter in the pursuit of shellfish aquaculture and raises larger questions about whether or how they might trade-off territorial authority and collective harvest opportunities against leasing state-sanctioned private marine tenures.

Contested ocean space on Canada's west coast

British Columbia's economy is deeply tied to the regulation and allocation of private rights to terrestrial and, increasingly, marine resources and property (Blomley, 2014; Braun, 2002; Hayter, 2003). This state of affairs is directly connected to the continued rejection of First Nations' collective territorial rights (Blomley, 2014; Hayter, 2003). Outside of 14 'Douglas Treaties' (signed 1850–54) that allocated small plots of land on Southern Vancouver Island to a handful of First Nations, early colonizers did not seek treaties with First Nations inhabitants. Instead, state relocation of First Nations to small land-based reserves and the allocation of productive agricultural plots to settlers ensued; these acts were legitimized through *terra nullius*, a narrative that Day and Sadik (2002) argue constructed a fiction of "vacant land uninhabited by 'civilized' societies" (12).

However, like many places around the world, indigenous systems for resource harvest, management, and tenure in BC are intimately shaped by the intra-generational occupation, use, and management of land *and* sea (Atleo, 2004; Mulrennan & Scott, 2000; Turner, Berkes, Stephenson, & Dick, 2013). Collective history and cultural understanding stimulate a territoriality grounded in human-land-sea relations (Harris, 2001). Such fluid territoriality contrasts the colonial tendency – coined *mare nullius* by Mulrennan and Scott (2000) – to see "social space as being on and of the land" (682–683). Harris (2008) argues that with their focus on agriculture and settlement, early colonizers in BC paid very little attention to securing ocean spaces or developing commercial fisheries. His work demonstrates that officials actually initially planned, and often defended, the Province's network of small and remote land-based reserves with the logic "that Native Peoples on the Pacific coast were primarily fishing peoples who did not need a large land base" (Harris, 2008, 6).[1]

However, state interest in developing a west coast fishing economy did intensify in the decades after BC became a Canadian province (Harris, 2008). Skill and interest in fishing, and the proximal location of reserves to productive fishing grounds, meant that many First Nations people participated as fishers and laborers during the advent of the commercial salmon canning sector (Newell, 1993). Newell (1993) suggests that Euro-centric policies and capitalist pressures to accumulate wealth further led "the state and its administrative agencies and courts" to characterize "Pacific Coast Indian fishing traditions as destructive" (4). New logic and narratives about ocean space and marine resources spread: oceans were discussed as important shipping passages and resource sources, and ultimately, the common property of *all* Canadian citizens. First Nations' land-sea territoriality and fishing practices were positioned as a hindrance or even ecological danger to the modern marine economy poised to advance through the allocation of individual fishing rights (Harris, 2008; Newell, 1993). By the 1970s, "armed police raids on Indian fishing camps, confiscation of gear, cars, and fish, and imposition of fines and criminal charges for contraventions of the Fisheries Act became routine for many BC Indian communities" (Newell, 1993, 4).

In sum, Harris and Newell trace a wave of *marine* dispossession that entrenched subsequent to the designation of land-based reserves. Led by the salmon sector, licensing and quota allocation schemes rooted in capitalist imperatives, bioeconomic understandings of fish, and nationalist discourses followed in other major fisheries, including halibut and herring (Newell, 1993; Turner et al., 2013); in recent decades, individual quota-based licenses have tended to consolidate amongst non-First Nations fishers and firms (Turner et al., 2013). First Nations have sustained a resilient territoriality, however, as demonstrated by still-active culture and connections with (land and sea) home-spaces and ongoing political and legal efforts to have their sovereign governance authority recognized (Atleo, 2004; Harris, 2001; Turner et al., 2013).

The 1990s brought new hope to settlers and First Nations alike that unresolved territorial claims might be meaningfully addressed through the negotiation of contemporary treaties. The scope of and process for negotiations were formalized through the BC Treaty Commission, a move that geographer Nicholas Blomley recently noted as a "crucial moment in the long post-colonial struggle over sociospatial justice" (2014, 2). To date, however, only three contemporary treaties have been implemented; negotiations have been highly contentious and protracted (Blomley, 2014). One factor seems to be that treaties scarcely acknowledge, and offer limited potential to resolve, First Nations' claims to ocean space and marine resources (Harris & Millerd, 2010). Commercial fishing rights are usually dealt with in 'harvest agreements' that may seek to enhance First Nations participation in fisheries (e.g., secure commercial licenses), but fall outside of the constitutionally protected final treaty agreement (Harris & Millerd, 2010). Moreover, the possibility for collective ownership over and sovereign governance authority in tracts of territorial ocean space appears to remain altogether unaddressed (Harris, 2001; Schreiber, 2006).

Provincial and Federal Supreme Court rulings have simultaneously broadened legal characterizations of First Nations' fishing rights and the requirements for 'consultation and accommodation' on ocean conservation and development projects. Yet, even in cases where fishing rights have been affirmed, implementation has been extremely slow and conflict-ridden (e.g., R. v. Gladstone [1996] and Ahousaht Indian Band v. Canada [2009]). Tensions are prone to flare in the interim, particularly if commercial exploitation by others is allowed or if the logic behind management decisions is perceived

[1] Harris identifies nearly 750 reserve sites throughout the Province singled-out "for their importance in the [Native] catching or processing of fish" (2008, 8). With regards to the WCVI specifically, he concludes that "most reserves were intended as fishing stations" (7).

opaque (Harris, 2001).[2] Moreover, as the conservation and economic potential of oceans beyond fisheries has been further recognized, so too have disagreements emerged around marine protected areas (Ayers, Dearden, & Rollins, 2012), oil-bearing tanker traffic (McCandless, 2013), and aquaculture (Joyce & Satterfield, 2010; Schreiber, 2006). In sum, continued or even heightened conflict over ocean space and marine resources in BC is probable.

Like uncertainty and conflict regarding land tenure (Braun, 2002; Murton, 2007), contestation over ocean space on Canada's west coast, and the authority to govern it, can be read back to the earliest colonial rejection of Indigenous sovereignty and the imposition of the reserve system. However, informed by a geographical perspective on resource spaces and activities, this review indicates that the ways First Nations engage with (e.g., participate, resist, and/or negotiate) contemporary marine activities and state regulation is better read relative to: 1) land-sea territoriality; 2) the history of ocean regulation and marine property rights on Canada's west coast; and, 3) changing discourses regarding ocean space and marine resource development. The analysis ahead details shellfish harvesting and private marine tenures on the WCVI in precisely these terms, and in so doing, reveals contradictions and ambiguities in the recognition of coastal First Nations in shellfish aquaculture expansion.

Research background and methods

This article stems from research undertaken between 2005 and 2011. My analysis is qualitative, drawing from shellfish aquaculture assessment studies, discourse articulated in support of shellfish aquaculture expansion, publicly available materials about Nuu-chah-nulth use and management of seafood, notes from participant observation in KCFN territory (undertaken during trips between 2005 and 2009), and interviews with members of the KCFN.[3] Discussion of the KCFN approach to and experience with shellfish aquaculture later in the article is additionally informed by a business plan written by a hired consultant; as directed by KCFN leadership, quantitative figures from the plan will not be revealed.

The KCFN is the northernmost of 14 First Nations that form the Nuu-chah-nulth Tribal Council (NTC). In total, the NTC represents approximately 8600 registered Nuu-chah-nulth. Although designed after Western political structures, the NTC is equally "guided by *n'aas* [Creator] and *ha'wiih* [Hereditary Chiefs]" (Nuu-chah-nulth Tribal Council, 2009). In 2009, there were 498 registered individuals of the KCFN (MARR, 2009); approximately 150–175 of these people live in the reserve-based community of Kyuquot, located slightly north of the dot denoting Kyuquot Sound in Figure one. As part of the Maa-nulth treaty group, the KCFN are signatory to the third contemporary treaty in BC; through negotiations they were offered shellfish aquaculture tenures, and thereafter, chose to initiate a band-owned shellfish aquaculture business. The KCFN Band Council (i.e., elected leadership) approved this research, and my conduct followed an agreement with them and the ethics protocol of my university at the time (Fig. 1).

In the analysis that follows I attend briefly to broad Nuu-chah-nulth perspectives on, and interrelations with, territorial ocean space. Then, I describe the emergence and management of a commercial fishery for wild-growing clams in BC, demonstrating how it was engaged by KCFN harvesters. Next, I introduce the SDI and explore how negotiated agreements and discourse worked to recognize First Nations' longstanding use and value of shellfish and examine how KCFN leadership engaged policy and discourse. I conclude by highlighting the uncertain future of both the commercial clam harvest and shellfish aquaculture on the WCVI.

In sum, the remainder of the article combines analysis of discourse and structured agreements that recognize and facilitate First Nations participation in shellfish aquaculture with a description of KCFN experiences up to 2009. It is important to note that this does not capture the experiences and outcomes of all First Nations with shellfish aquaculture. For example, one First Nation owned and operated business located on the East Coast of Vancouver Island (ECVI) appears to be growing steadily, while another near Prince Rupert, BC recently undertook a significant capitalization for integrated scallop production (see Round, 2013 for details of Salish Seafood on the ECVI, and Coastal Shellfish, 2013 for details of the Prince Rupert business). However, findings do raise choices and potential trade-offs that may well be encountered in any move to farm shellfish within privatized areas of ocean space.

Nuu-chah-nulth shellfish harvesting on the WCVI

Nuu-chah-nulth-aht[4] relationships with each other and with adjacent lands, waters and resources are varied and complex. However, a shared culture of resource use and management rooted in land-sea territoriality has long persisted and remains active today. Many Nuu-chah-nulth individuals and families enjoy and take pride in harvesting, processing and sharing seafood; harvest protocols related to hereditary lines, reciprocity and territorial boundaries persist. Continually practiced, these activities facilitate the maintenance and progression of relations amongst Nuu-cha-nulth-aht and between Nuu-chah-nulth-aht and adjacent territory.

The introductory page of a glossy cookbook produced by Uu-a-thluk, the aquatic management organization administered by the NTC, summarizes well the integral relationship between seafood harvest/consumption and Nuu-chah-nulth identity: "if we are to preserve our Nuu-chah-nulth-ness we must eat Nuu-chah-nulth foods" (Uu-a-thluk, 2008, 1). Reflections by a Nuu-chah-nulth elder printed inside the cookbook illustrate with regards to shellfish specifically:

> [a]t low tide … chitons (*ćiidaxtp*), gooseneck barnacles (*ćeʔiidaw*), and mussels (*ƛúčʔb*) would be very abundant. Once or twice a week, a few of us would gather all of this delicious seafood. We would start a campfire or two on the beach and cook all of these foods at the same time, with three or four huge cooking pots, and invite everyone down to the beach for an evening feast together. Today, when our nation goes on camping trips on these same beaches in July, we still do that. (Wikinnash (Carl Edgar Jr.), in Uu-a-thluk, 2008, 51)

[2] Conflict regarding the Federal Fisheries Minister's Winter 2014 decision to reopen a commercial herring fishery and the Chemainus First Nation's threat to block non-native boats from its coastal waters stand as recent examples (see: Hume, 2014; Rothbauer, 2014).

[3] Participant observation and semi-structured interviews were conducted during three multi-month stays in Kyuquot between 2005 and 2007. Semi-structured interviews, with questions tailored to the background of the participant, were conducted with elders ($n = 5$), men and women who actively or historically harvested clams ($n = 17$), and/or individuals involved in KCFN governance ($n = 6$). For example, after relatively uniform demographic and background questions about shellfish harvest and home use, elders and leaders were asked questions about the history of the community and the role of shellfish in culture and tradition, harvesters were asked about the specificities of harvest practices, and individuals who held or were in leadership positions were asked about their rationale and experiences with regards to shellfish aquaculture.

[4] 'Nuu-chah-nulth' translates to "all along the mountains and sea" (Nuu-chah-nulth Tribal Council, 2009); adding the suffix –aht denotes 'people'/'people of' or 'territory'/'territory of'.

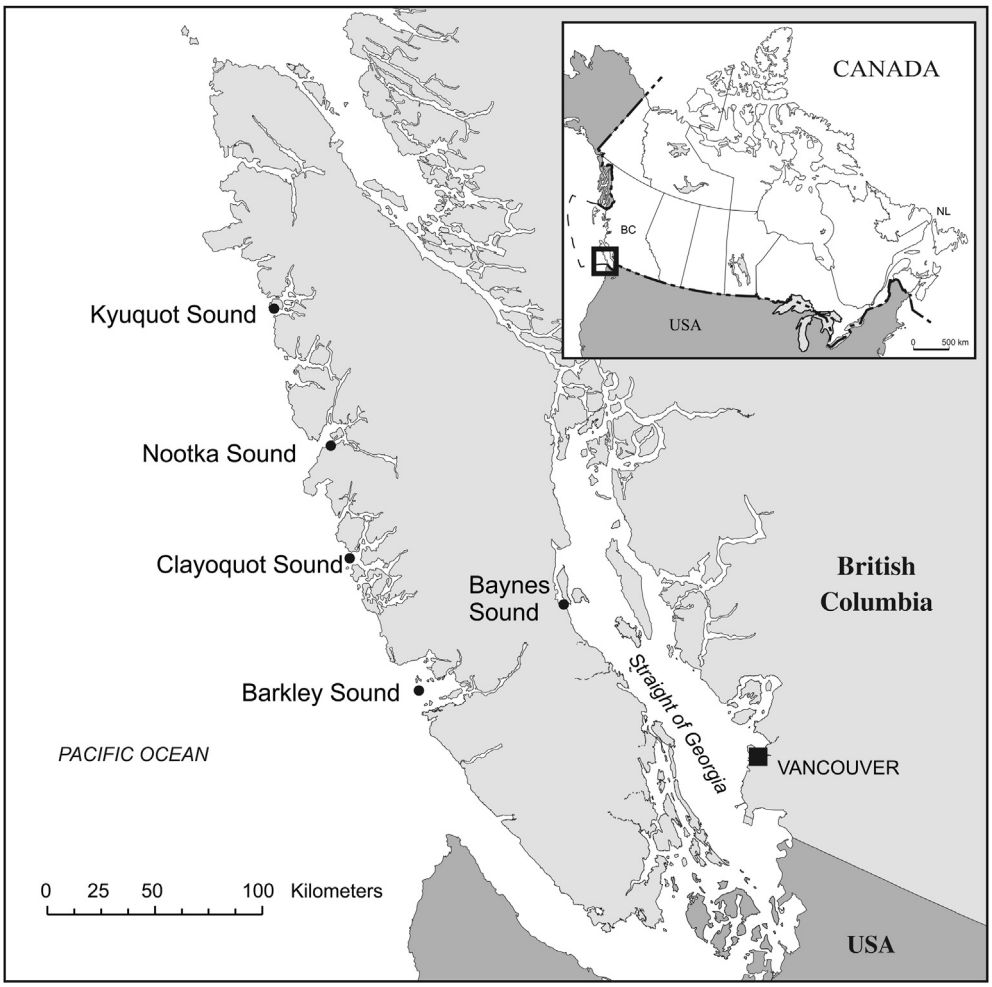

Fig. 1. Regional map: Vancouver Island and Strait of Georgia.

Although brief, this evidence provides a sense for how Nuu-chah-nulth history, identity, culture, and land-sea territory interconnect through place-based resource harvest and consumption (for perspective from Nuu-chah-nulth authors, see: George, 2003; Atleo, 2004).

Commercial harvests for wild-growing clams on the WCVI

The Federal Department of Fisheries and Oceans (DFO) leads the management of coastal oceans and most marine resources in Canada; this includes allocating commercial fisheries licenses and regulating the conditions under which First Nations conduct ceremonial and food harvests (Harris & Millerd, 2010). DFO first asserted management authority over wild-growing clams in 1951 by introducing mandatory harvesters' sales slip reporting (DFO, 2013). Size restrictions and area closures were the main management strategies employed through to the 1980s. In 1989, new management mechanisms were introduced: individual harvester licenses (category Z2) and area-based management (DFO, 2013). Entry to the fishery remained open in the sense that anyone could apply and license fees remained relatively low (approximately $90); however, the licenses restricted participants to one sub-harvest area. In 2013, 450 Z2 commercial intertidal clam licenses existed in BC; Ahousaht v. Canada (2009, 257) suggests that approximately thirty to forty were held by Nuu-chah-nulth harvesters.

In the early 2000s, DFO advanced two provisions to maintain commercial harvest opportunities for First Nations: pilot beach agreements and Aboriginal Commercial Licenses (ACLs). As we will see, ACLs enabled additional Nuu-chah-nulth harvesters without Z2 licenses to participate in commercial clam harvests. For the KCFN, a pilot beach agreement also created the opportunity to manage small exclusive harvests on intertidal beaches fronting reserve land.

ACLs were available to individual First Nations harvesters and allowed regular participation in commercial harvests. However, instead of being held indefinitely by one individual, the ACLs were collectively owned by a First Nation and periodically re-allocated to individual members by elected leadership (Pinkerton & John, 2008). Like Z2 licensees, holders of an ACL could harvest commercially on any open beach within their harvest area. Additional locally-determined rules could also be placed on the ACL by elected leadership (e.g., allocations based on need, licenses revoked if local rules were broken). In 2013 there were 579 ACLs in BC (DFO, 2013); approximately 237 were distributed through Nuu-chah-nulth First Nations (Ahousaht v. Canada, 2009, 190).

The second provision for commercial participation, a 'pilot-beach' agreement between the DFO and a specific First Nation, enabled small but exclusive reserve-front commercial clam harvests. To obtain an agreement, the applicant First Nation was responsible to identify a beach(es) fronting reserve lands, conduct

water quality sampling and stock assessment of the intertidal clams on that beach, and develop a management plan that set a target harvest rate and identified participating harvesters (Pinkerton & Silver, 2011). Once formalized, the agreement permitted commercial clam harvests to be monitored by the license-holding First Nation. Doyle (2002) suggests that at least five First Nations secured pilot-beach agreements. The KCFN was one of these nations; between 1999 and 2004 they operated pilot beach licenses for two intertidal areas within their territory (see: Pinkerton & Silver, 2011).

Commercial and collective: clam harvests in KCFN territory

During the fieldwork conducted for this research, openings for commercial clam harvests occurred at low tides in winter months, and a licensed harvester (with Z2 or ACL) might anticipate opportunity to participate in 6–7 openings of 2–3 days each. Virtually all licensed KCFN clam harvesters interviewed suggested that money earning potential strongly influenced their participation.[5] Pinkerton and John (2008) argue that local affinity for this fishery has been especially high since the 1980s because it was the only fishery in which licenses remained accessible and because it could be pursued "as a family fishery by all ages and all genders" (683). I extend that finding here to consider how harvesting wild-growing intertidal clams has been engaged as both a commercial and collective activity.

Harvesting in groups during commercial openings was a relatively frequent practice. On nights of commercial harvest, groups would travel by water, logging roads, or secondary highway to get to various beaches (both the pilot beaches and others opened to harvesting); this cut costs on requirements such as fuel, food, batteries for head lamps, and clam sacks. 'Scouting' for beaches with high densities of harvestable clams was another common reason given for working in groups. Talking about a specific instance of this activity in 2005, an interviewee said:

> me and my friends, and we just hit the beach, digging one spot, run and move over and just two or three of us would survey the beach for the rest of us because we had eight other people in the boat […] We had the ladies go to the good ground where it's just sand and gravel (male, approx. age 35).

Harvesters saved time by sharing information and increased the potential for all harvesters of different ages, genders and experience levels to maximize success. On occasion, groups set up camp for a couple of nights on beaches further away from home so as not to have to make the boat trip back between low tides. When the camp was large enough, individuals responsible for cooking and driving might not partake in the clam digging, although they would receive informal pay-outs.

That harvests occurred in the winter, when summer activities and recreational fish guiding were at a lull, was often viewed favorably in interviews. In 2005, an interviewee reflected:

> clamming and goosenecking [intertidal crustacean] are like the main industry for us come winter time (male, approx. age 45).

Moreover, that each harvest required 2–3 nights of hard work also offered the type of flexibility often sought in small, remote and tight-knight communities. Intermittent harvests allowed for time with family or odd jobs, to travel to larger centers to stock up on supplies and attend to health care, and for the processing of other resources.

Finally, commercial harvest trips provided opportunity to gather shellfish under DFO-regulated 'Aboriginal Food, Social, and Ceremonial' (FSC) harvest rules for home use and to gift and share. In the most pragmatic sense, FSC seafood offers a protein source that may reduce the necessity to rely on purchased food. However, sharing shellfish also enables individuals and families to meet ongoing socio-economic and cultural obligations to one another, to visit distant parts of the territory, and to practice the Nuu-chah-nulth language. In 2006, one man said in reference to the maintenance of commercial clam harvests:

> [w]e must utilize the sites we have. I have experienced life in this community without using the lands to full extent, there is so much more (statement at community clam meeting by male, approx. age 40).

Later, this person expressed a desire for his children to have opportunities to harvest clams and other seafood resources, and concern for what might be lost culturally without such opportunities.

Nuu-chah-nulth-aht have harvested and managed shellfish resources since well before European arrival and have commercially harvested wild-growing clams since the inception of this DFO-regulated fishery. For KCFN harvesters, this fishery was appreciated as simultaneously commercial and collective. KCFN leadership demonstrated an active role in maintaining access through licenses, and in the context of the pilot beach arrangements, managing local harvests (Pinkerton & Silver, 2011).

The Shellfish Development Initiative and First Nations

The 1998 SDI was a formal commitment by the Provincial government to place and regulate new private shellfish tenures in regions yet to develop much shellfish aquaculture. In 2003, Land and Water British Columbia (a Provincial Crown Corporation) created a shellfish unit responsible specifically for tenure allocation. This unit was meant to streamline applications and siting "through consultation processes that identify acceptable areas, a development rate, and appropriate criteria for tenure approval" (advertisement placed in Kingzett Professional Services, Ltd, 2003, 10). First Nations were identified as central:

> [t]his new approach is achieving two goals: expansion of the industry in manner compatible with important First Nations values and community interests; and the establishment of businesses owned and operated by First Nations near their own communities (Kingzett Professional Services, Ltd, 2003, 10).

A 2006 estimate suggested that "of the 104 new tenures issued since 1998, most have gone to First Nations" (Salmon, 2006, 5). Many of these leases were allocated through Memoranda of Understanding (MoU) reached with the Provincial government, often in conjunction with treaty negotiations.

During this period, two themes about First Nations emerged in consultant and government reports supportive of sector expansion (e.g., Coopers and Lybrand Consulting, 1997; Doyle, 2002; Salmon, 2006) and in public statements by various advocates. First, was the assertion that farming shellfish is highly compatible with First Nations' traditions and socio-cultural norms. For example, a 2002 report entitled: Cultivating Opportunity: A Management Strategy to Expand First Nations' Participation in BC's Shellfish Aquaculture Industry (i.e., Doyle, 2002) described the sector as offering "many

[5] The average annual return per commercial license (Z2s and ACLs) between 1999 and 2009 was $3466 CDN. Data: BC Ministry of Environment (2009).

compatibilities and advantages for Aboriginal communities" (7), including: traditional use of shellfish; local employment potential; compatibilities with 'lifestyle' and 'Aboriginal environmental values'; and, opportunity to reinvest returns in pursuit of community objectives (Doyle, 2002, 7–10). The second theme was that First Nations were well-positioned to successfully own and operate shellfish aquaculture businesses because of their access to some of the most productive shellfish growing sites. In testimony to the Canadian Senate Standing Committee on Natural Resources, a former executive director of the BC Shellfish Grower's Association noted:

> [s]hellfish farming presents a unique opportunity for First Nations to develop sustainable businesses in rural coastal communities. Some of the most productive beaches suitable for culture on the coast are fronting native reserve lands. Therefore, the involvement of First Nations in shellfish aquaculture is a natural one (Salmon, 1996).

Here we see how geographical proximity of reserves to shellfish habitat was raised as an explicit argument for First Nations to start businesses, and implicitly employed as a rationale for shellfish aquaculture expansion more broadly.

KCFN shellfish aquaculture tenures and business venture

By the early 2000s, KCFN leadership was well aware of the potential for new shellfish tenures to be placed on the WCVI (Pinkerton & Silver, 2011). Even if it meant paying annual lease fees to the Provincial Government, leadership saw acquiring tenures as one way to maintain some control over adjacent ocean space (while experimenting with shellfish aquaculture as an economic development option). The KCFN negotiated MoU shellfish tenures with the BC Ministry of Agriculture and Lands between 2000 and 2001.

In its final form, this agreement secured some directed funding for business start-up and delineated a ten year time window within which the KCFN were guaranteed priority over 13 tenure sites. The MoU stipulated that the KCFN quickly ramp up production on any sites tenured:

(a) The diligent-use policy requirements for shellfish tenures will be applied to the tenure at the end of year five (5) after the date on which the tenure is issued; and
(b) The production requirements in the tenure agreement will allow for staged implementation with reduced production requirements for the first four (4) years after the date of the issuance of the tenure (K–C Business Plan, 2002, Appendix A).

It also contained stipulations committing the KCFN to consultation processes associated with the placement of other tenures:

> [t]he Ka:'yu:'k't'h'/Che:k:tles7et'h' First Nation will participate in the Community Consultation Process or any other community consultation process established in relation to shellfish tenures in Kyuquot Sound/Chekleset Bay (K–C Business Plan, 2002, Appendix A)

These passages illustrate that the MoU enabled the KCFN to lease and develop tenures. At the same time, specific stipulations also compel the KCFN to quickly increase production levels and to participate in other consultation processes.

With assistance of the directed funding, the KCFN hired a consultant to inform the direction of their shellfish aquaculture business. The resulting business plan detailed the development of two intertidal tenures for clams and two nearshore tenures for oysters. Capitalization of the tenures began in 2003–2004. This included: hiring two employees; building rafts for oyster farming; buying a second-hand boat; and, purchasing netting for placement on the intertidal clam tenures. The plan also advised removing all existing stocks of wild-growing clams from the intertidal tenures and reinvesting profits in the business; thereafter, clam stocks on the tenures would be sustained through the hatchery-produced juveniles. Projections in the business plan suggested that these practices would allow the KCFN to be able to begin paying back loans taken out for the business at the end of year five and that profit would be possible by year eight. However, during my last extended field visit in 2007, it seemed unlikely that these goals would be met.

Significantly, and influenced by advice in the business plan, the intertidal tenures were placed on the two beaches previously designated under the KCFN–DFO pilot beach agreements. Considering the relative functionality of the agreements, and the access that licenses granted a range of community members, the choice to tenure those specific sites might seem counterintuitive. However, Doyle (2002, 12) offers logic indicative of the business plan recommendations:

> [w]hat is important about pilot beach agreements is that the information gained through stock assessment data and management planning may prove most useful for future aquaculture development.

Business planning that prioritized standard sector practices and profit accumulation saw ecologically productive and already well-managed spaces as particularly ideal for aquaculture.

In practice, however, KCFN leadership chose to manage the intertidal clam tenures to maintain harvest opportunities and distribute income more widely through the community. After the tenures were placed, clam harvesting continued to be overseen by KCFN fisheries managers; participants dug with their ACL or Z2 licenses, and by charging a small charge per pound harvested, KCFN leadership sought to cover tenure lease fees. While this strategy maintained wider access to harvest opportunities, the poundage fees charged were not enough cover the tenure fees and other business costs indefinitely (see: Pinkerton & Silver, 2011).

Discussion: on ambiguities and contradictions of the SDI

For many Nuu-chah-nulth-aht, identity and land-sea territoriality are intimately connected to harvesting, processing, trading, and consuming seafood, including shellfish. These activities, usually undertaken in territorial ocean spaces, have long facilitated collective social and trade relations, the injection of local food into diets, and the practice of the Nuu-chah-nulth language. More recently, the commercial fishery for wild-growing clams remained accessible to 260–270 licensed Nuu-chah-nulth harvesters before, and for at least a decade after, the 1998 Shellfish Development Initiative. For KCFN harvesters (and perhaps other Nuu-chah-nulth license holders), participation in the clam fishery was commercial and collective, creating the opportunity to be out in shared territory earning winter income, collecting food and maintaining interpersonal and social–ecological relationships.

Today, the future of the DFO regulated commercial clam fishery is uncertain. Following record high harvest volumes in the mid-1980s, annual rates have slowly declined. While questions about whether standing-stocks of wild-growing clams will ever return to previous levels circulate (DFO, 2013), a variety of other factors are at play: competition with shellfish aquaculture for space and markets; fluctuating clam prices; harvest restrictions/closures due to water quality concerns and invasive species spread; and, rebounding sea

otter populations with a taste for shellfish (DFO, 2013; Joyce & Satterfield, 2010). At the same time, the SDI's spatial and economic targets have yet to be reached. In 2010, the wholesale value of the sector was $32.5 million, and although new tenure-holders and businesses have emerged, much of the sector's production and employment remains within the Strait of Georgia (Silver, 2013). Questions circulate about whether and how shellfish aquaculture development will further unfold, particularly in more remote and/or northern locales in BC. Indeed, 72% ($n = 56$) of those interviewed by Joyce and Satterfield (2010) stated that shellfish aquaculture "did not currently have significant economic advantages over wild fisheries for small-scale producers in coastal communities" (114). Greater experimentation with other shellfish species like scallop, geoduck, and sea cucumber seems likely because they are known to fetch higher prices and sustain colder water temperatures.

The KCFN case indicates clearly that questions about whether and/or how harvests for wild-growing clams and other shellfish will persist on the WCVI are of significant local interest *and* shows that answers are more complicated than simply shifting from fishing to farming the ocean. Even with the opportunity to own and operate a shellfish farm as a private enterprise, KCFN leadership chose to manage two intertidal tenures in ways similar to communal pilot beach harvests. This was an adaptive strategy within an emerging oceans governance regime that allowed for: the maintenance of control over areas of ocean space; broader community participation in shellfish harvesting (for income and subsistence); rotational harvests rather than liquidating all clams on a site; and, perhaps, more reliance on re-seeding through clam reproduction on-site rather than purchasing hatchery-reared juvenile clams. Here we get a sense for the sorts of choices that First Nations may encounter in the pursuit of shellfish aquaculture (e.g., how to meet the economic and regulatory requirements of private tenure leases, how to ensure community access to productive shellfish sites?) In debating these, larger questions about whether or how to trade-off territorial authority and collective harvest opportunities against leasing state-sanctioned marine tenures for wealth accumulation may well emerge.

Discourse suggesting that shellfish aquaculture is ideal for First Nations is thus problematic because it obscures a range of uses, values, and social–ecological relations that may persist, and that might not neatly align with an expanded system of tenures for shellfish aquaculture (also see Joyce & Satterfield, 2010). Moreover, it arguably under-publicizes the careful planning, labor, financial management and capitalization, and strategic marketing needed to run a competitive shellfish aquaculture business. Structurally, MoU tenure agreements stipulate that signatory First Nations' develop specific areas of ocean space for shellfish farming within a predetermined time period. In the KCFN case, they also committed leadership to consultation processes intended to site tenures for others. While recognizing First Nations longstanding use and management of shellfish resources one hand, these discursive and structural interventions seem to limit, or at least take a limited view of, First Nations' sovereign authority in what remains contested ocean space.

Conclusion

Shellfish aquaculture offers an economic development opportunity to coastal First Nations in BC; however, it is not a panacea. Attentive to the power-laden, and often inequitable, processes involved in regulating resource spaces and economies (Bakker & Bridge, 2008; Hayter, 2003; LeBillon, 2008), this article reveals ambiguities and contradictions in promoting the sector as 'ideal' for First Nations and raises some challenges in explicitly tying the reconciliation of First Nations and Government interests in contested ocean space to the regulation and capitalization of private marine tenures. Observations by resource geographers (e.g., LeBillon, 2008; Mather, 2013) and from other fisheries and resource industries in BC (Blomley, 1996; Newell, 1993) suggest that individual and collective dissatisfaction stands to grow in Kyuquot, and possibly in other First Nations communities, if marine tenure leases change hands, additional non-local tenures are placed, a wider range of species are permitted for cultivation, new limitations on the harvest of wild-growing shellfish develop, and/or if inequitable environmental or socioeconomic impacts are experienced. These findings conjure a contention by Young and Matthews (2010, 196) that "like any form of development, aquaculture creates winners and losers", and remind that it is best advocated and pursued in consideration of variable social, political-economic, and ecological conditions across space.

Indeed, a significant condition in BC is that First Nations' rights to ocean space and marine resources remain unresolved. Fisheries management is often contested, stalled treaty negotiations and fisheries-related court cases demonstrate deeply-embedded impasses, and planned marine protected areas, aquaculture, and tanker-traffic are challenged in some places. For this reason, studies attentive to First Nations land-sea territoriality, BC's history of marine dispossession and unresolved marine property rights, and the changing discourses regarding ocean space will be positioned to recognize and better understand the breadth of First Nations' perspectives and engagements (e.g., participation, resistance, and/or negotiation) with activities in territorial waters. Acknowledging this breadth is an important first step toward empowering more just, culturally sensitive, and perhaps, enduring oceans governance arrangements.

Acknowledgments

I would like to thank the people of Kyuquot who graciously welcomed me into their territory, offices, and often, homes. I also want to acknowledge the Social Sciences and Humanities Research Council of Canada for partially funding this work. In particular, 2005–2007 through Dr. Evelyn Pinkerton's Standard Research Grant and my own Doctoral Fellowship from 2007 to 2009. Any errors or omissions remain mine.

References

Ahousaht Indian Band and Nation v. Canada (Attorney General). (2009). The Supreme Court of British Columbia.

Atleo, R. E. U. (2004). *Tsawalk: A Nuu-chah-nulth worldview*. Vancouver, BC: UBC Press.

Ayers, C. A., Dearden, P., & Rollins, R. (2012). An exploration of Hul'qumi'num Coast Salish peoples' attitudes towards the establishment of no-take zones within marine protected areas in the Salish Sea, Canada. *The Canadian Geographer, 56*(2), 260–274.

Bakker, K., & Bridge, G. (2008). Global production networks and the extractive sector: governing resource-based development. *Journal of Economic Geography, 8*, 389–419.

Blomley, N. K. (1996). "Shut the province down": First Nations' blockades in British Columbia, 1985–1995. *BC Studies*, (Autumn), 407–422.

Blomley, N. K. (2014). The ties that blind: making fee simple in the British Columbia treaty process. *Transactions of the Institute of British Geographers* (journal early view online).

Braun, B. (2002). *The intemperate rainforest: Nature, culture, and power on Canada's west coast*. Minneapolis, MN: University of Minnesota Press.

British Columbia Ministry of the Environment. (2009). B.C. wild (capture) shellfish production. Available from http://www.env.gov.bc.ca/omfd/fishstats/graphs-tables/wildshellfish.html. Last accessed 02.03.11.

Coastal Shellfish. (November 15, 2013). Coastal Shellfish expanding with new financing. http://coastalshellfish.com/coastal-shellfish-expanding-with-new-financing.

Coopers and Lybrand Consulting. (1997). *Economic potential of the British Columbia aquaculture industry*. For Western Economic Diversification Canada, Vancouver, BC.

Cuba, N., Bebbington, A., Rogan, J., & Millones, M. (2014). Extractive industries, livelihoods and natural resource competition: mapping overlapping claims in Peru and Ghana. *Applied Geography* (journal early view online).

Department of Fisheries and Oceans. (2013). *Pacific region integrated fisheries management plan: Intertidal clams January 1, 2013 to December 31, 2015*. Nanaimo, BC.

Day, R. J. F., & Sadik, T. (2002). The BC land question, liberal multiculturalism, and the spectre of aboriginal nationhood. *BC Studies, 134*(Summer), 5–34.

Doyle, C. J. (2002). *Cultivating opportunity: A management strategy to expand First Nations' participation in BC's shellfish aquaculture industry*. For The Department of Indian and Northern Affairs Canada, Vancouver, BC.

George, E. M. (2003). *Living on the edge: Nuu-chah-nulth history from an Ahousaht Chief's perspective*. Winlaw, BC: Sononis Press.

Groesbeck, A. S., Rowell, K., Lepofsky, D., & Salomon, A. K. (2014). Ancient clam gardens increased shellfish production: adaptive strategies from the past can inform food security today. *PLoS One, 9*(3), 1–13.

Harris, D. C. (2001). Territoriality, aboriginal rights, and the heiltsuk spawn-on-kelp fishery. *UBC Law Review, 34*(1), 195–238.

Harris, D. C. (2008). *Landing native fisheries: Indian reserves and fishing rights in British Columbia, 1849–1925*. Vancouver, BC: UBC Press.

Harris, D. C., & Millerd, P. (2010). Food fish, commercial fish, and fish to support a moderate livelihood: characterizing aboriginal and treaty rights to Canadian fisheries. *Arctic Review on Law and Politics, 1*(1), 82–107.

Hayter, R. (2003). "The war in the woods": post-Fordist restructuring, globalization, and the contested remapping of British Columbia's forest economy. *Annals of the Association of American Geographers, 93*(3), 706–729.

Hayter, R., Barnes, T. J., & Bradshaw, M. J. (2003). Relocating resource peripheries to the core of economic geography's theorizing: rationale and agenda. *Area, 35*(1), 15–23.

Hume, M. (April 1, 2014). Tensions rise as First Nations demand Central Coast herring fishery be called off. *The Globe and Mail*. www.theglobeandmail.com/news/british-columbia/tensions-rise-as-first-nations-demand-central-coast-herring-fishery-be-called-off/article17751057/.

Joyce, A., & Satterfield, T. (2010). Shellfish aquaculture and First Nations' sovereignty: the quest for sustainable development in contested sea space. *Natural Resources Forum, 34*, 106–123.

Kingzett Professional Services, Ltd. (2003). *Backgrounder on shellfish culture in British Columbia*. Victoria, BC.

Kyuquot–Checleseht Shellfish Aquaculture Business/Development Plan. (2002). For Kyuquot–Checleseht Development Corporation/Nuu-chah-nulth Shellfish Development Corporation, Victoria, BC.

LeBillon, P. (2008). Diamond wars? Conflict diamonds and geographies of resource wars. *Annals of the Association of American Geographers, 98*(2), 345–372.

McCandless, R. G. (2013). Postponed decisions: petroleum exploration on Canada's western continental shelf. *BC Studies, 178*(Summer), 71–95.

Mather, C. (2013). From cod to shellfish and back again? The new resource geography and Newfoundland's fish economy. *Applied Geography, 45*, 402–409.

Ministry of Aboriginal Relations and Reconciliation. (2009). Maa-nulth First Nations. http://www.gov.bc.ca/arr/firstnation/maa_nulth/default.html. Last accessed 20.08.09.

Mulrennan, M. E., & Scott, C. H. (2000). Mare nullius: indigenous rights in saltwater environments. *Development and Change, 31*, 681–708.

Murton, J. (2007). *Creating a modern countryside: Liberalism and land settlement in British Columbia*. Vancouver, BC: UBC Press.

Newell, D. (1993). *Tangled webs of history: Indians and the law in Canada's Pacific Coast fisheries*. Toronto, ON: University of Toronto Press.

Nuu-chah-nulth Tribal Council. (2009). Nuu-chah-nulth Tribal Council: welcome. http://www.nuuchahnulth.org/tribal-council/welcome.html. Last accessed 05.04.10.

Pinkerton, E., & John, L. (2008). Creating local management legitimacy. *Marine Policy, 32*(4), 680–691.

Pinkerton, E., & Silver, J. J. (2011). Cadastralizing or coordinating the clam commons: can competing community and government visions of wild and farmed fisheries be reconciled? *Marine Policy, 35*, 63–72.

Rothbauer, K. (May 7, 2014). Ladysmith-area First Nation bans boats in traditional waters. *Victoria Times-Colonist*. http://www.timescolonist.com/ladysmith-area-first-nation-bans-boats-in-traditional-waters-1.1025779.

Round, P. (January 10, 2013). *KFN buying Aquatec*. Comox Valley Echo. http://www.comoxvalleyecho.com/news/local/kfn-buying-aquatec-1.969927.

Salmon, R. (November 26, 1996). Testimony to the Standing Senate Committee on Natural Resources. Study on natural resources and rural development – evidence. http://www.parl.gc.ca/35/Archives/committees352/natu/evidence/44_96-11-26/natu44_blk101.html. Last accessed 05.02.10.

Salmon, R. (2006). *A communication strategy for BC shellfish aquaculture*. Nanaimo, BC: Centre for Shellfish Research.

Schreiber, D. (2006). First Nations, consultation, and the rule of law: salmon farming and colonialism in British Columbia. *American Indian Culture and Research Journal, 30*(4), 19–40.

Silver, J. J. (2013). Neoliberalizing coastal space and subjects: on shellfish aquaculture projections, interventions and outcomes in British Columbia, Canada. *Journal of Rural Studies, 32*, 430–438.

Silver, J. J. (2014). Shellfish and coastal change: Pacific oysters and Manila clams in BC waters. *BC Studies, 181*, 83–103.

Steinberg, P. (2013). Of other seas: metaphors and materialities in maritime regions. *Atlantic Studies: Global Currents, 10*(2), 156–169.

Turner, N., Berkes, F., Stephenson, J., & Dick, J. (2013). Blundering intruders: extraneous impacts on two indigenous food systems. *Human Ecology, 41*, 563–574.

Uu-a-thluk. (2008). *Camus: West coast cooking Nuu-chah-nulth style*. Port Alberni, BC: Nuu-chah-nulth Tribal Council.

Young, N., & Matthews, R. (2010). *The aquaculture controversy in Canada*. Vancouver, BC: UBC Press.