Supporting Nuu-chah-nulth Food Sovereignty by Recentering Indigenous Governance in Sea Otter Management

Lindsey Popken

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P. Joshua Griffin

Eric Angel

Charlotte Cote

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Abstract

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Lindsey Popken

Chair of the Supervisory Committee:

P. Joshua Griffin

School of Marine and Environmental Affairs

Federal sea otter management in Canada faces scrutiny over its ability to adequately address impacts on Indigenous self-determination and food sovereignty. Many Nuu-chah-nulth First Nations maintain that their priorities, interests, and self-determination are undermined and excluded from current sea otter management. This thesis examines resurgence efforts by Nuu-chah-nulth Nations to re-establish ancestral governance through the case study of sea otter management on Vancouver Island. Through a critical synthesis of management reports and interviews with Indigenous and non-Indigenous actors, I consider past, present, and future plans for sea otter management on Vancouver Island through a feminist standpoint analysis. Findings suggest that structural inequities, divergent normative and material priorities, and ontological differences animate a divide between Nuu-chah-nulth and Canadian state governing bodies where it comes to sea otter management practices. Contemporary sea otter governance regimes in Canada are reproducing the unequal power relations of colonialism, to the detriment of social, environmental, legal considerations. I argue that Indigenous resurgence in sea otter management is an enactment of Nuu-chah-nulth food sovereignty, grounded in relationships of reciprocity

between all non-humans and Nuu-chah-nulth Nations, and works towards revitalizing ancestral connections with the environment. Therefore, I identify a need to transform the current management system to one rooted in Nuu-chah-nulth knowledge, values, and leadership; such a governance structure would in turn be well-positioned to collaborate with non-Indigenous entities in a system that does not undermine these considerations.

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Inspired by my classmates and their commitment to Nuu-chah-nulth language resurgence, I interweave Nuu-chah-nulth language throughout my thesis because some concepts cannot be translated into English without losing their meaning, and to honor Nuu-chah-nulth place names. Place names are first introduced in Nuu-chah-nulth, as are ontological concepts. The dialect is Ehattesaht-Nuchatlaht.

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Introduction

In July 2020, a ten day old sea otter pup was found crying on in the sand on one of Vancouver Island's beaches, next to its presumably dead mother (Dhopade, 2020). A concerned bystander called the Vancouver Aquarium's marine mammal rescue center, and the pup was taken in for care. Soon to be named "Joey", this pup captured the hearts of the Canadian and United States public writ large, who were months into a seemingly endless cycle of quarantining and stay-at-home orders. Joey soon went viral; his otter viewing cam was featured on many websites, including iHeart Radio, and more than $200,000 in donations went to the Vancouver Aquarium after his arrival, which has helped keep the Aquarium afloat since its COVID-related closure.

Scarcely mentioned in this coverage was how Joey was found in the territorial waters of the Nuu-chah-nulth First Nation of qaaẏuuk̓ʷ/ c̓iiqƛis (Kyuquot/Cheklesahht), the most northern of the fifteen Nuu-chah-nulth First Nations. The Kyuquot/Cheklesahht First Nation has been facing a food security crisis since the return of the sea otter to their territorial waters decades ago, and is arguably the Nuu-chah-nulth Nation that has experienced the biggest impact of the sea otter's return (Pinkerton et al., 2019; Anne K Salomon et al., 2015). The exclusion of Nuu-chah-nulth voices and narratives by settler-dominated media in Joey's publicity highlights the Nuu-chah-nulth's complex and often strained relationship with sea otters and the institutions that manage them, which is the subject of this thesis.

Sea otters and Nuu-chah-nulth First Nations co-existed with one another for thousands of years, prior to colonial contact (Salomon et al., 2015). Historically, Nuu-chah-nulth Nations adopted strategic management strategies that kept sea otters out of their seafood harvests; individual otters that ventured into their seafood harvesting areas would be harvested as a

message to other otters not to take shellfish from that specific area, which ensured Nuu-chah-nulth and otter food security (Salomon et al., 2020; Salomon et al., 2015). In this context, sea otter pelts were also important for Nuu-chah-nulth Nations because they would only be worn by the most high-ranking ḥaẇiiḥ (Ha'wiih), or chiefs, and were traded within and amongst Indigenous Nations as gestures of goodwill; sea otter pelts were also given out to high-ranking Ha'wiih as a means of inviting someone to a potlatch. These actions upheld Nuu-chah-nulth governance laws and values that saw humans and non-humans as all living within the same ecosystem (Atleo, 2004). The Euro-American fur trade began in the 18th century and was an inflection point in this relationship (Coté, 2010). During the fur trade, sea otters were hunted for their pelts by fur trappers at wildly unsustainable rates, as the pelts were in huge demand by overseas buyers. With the race to produce and sell otter pelts came the demise of these Nuu-chah-nulth governance laws that allowed for cohabitation of their territorial waters and land with non-humans.

In the 1960s, upon realizing the sea otter's role as a keystone[1] species for coastal ecosystems that help maintain the health and integrity of kelp forests, the United States and Canadian Governments began a transboundary effort to reintroduce sea otters along the coastline, including in Nuu-chah-nulth territories, without consent from First Nations and Alaskan Tribes (Salomon et al., 2015). Prior to reintroduction, shellfish numbers had grown considerably during the otter's decades-long absence and First Nations harvesters enjoyed this rich bounty. Due to Canada's strict governmental protections, sea otters rapidly repopulated their historic range. The sea otter's re-established presence meant they resumed their consumption of shellfish, and Nuu-chah-nulth Nations were left grappling with food insecurity as their political

[1] Sea otters have a disproportionate impact on their habitat, coastal ecosystems, making them a keystone species (Zacharias & Roff, 2001).

and food sovereignty had once again been violated by the colonial state. Since this reintroduction, Nuu-chah-nulth Nations have been working to re-establish management of sea otters to better reflect and embody the historical practices that led to successful co-existence for centuries, while supporting their collective food sovereignty. Yet they continue to be met with opposition and resistance by Canadian management agencies, whose opposition has its origin in centuries of colonial injustices inflicted upon Indigenous Nations by the federal government of Canada.

The contested relationship between Nuu-chah-nulth Nations, sea otters, and the Canadian State is but one example of how species conservation practices by Euro-American governments have historically excluded and inflicted violence upon Indigenous Nations. While co-management between Indigenous and non-Indigenous institutions has been proposed as one productive way forward, the literature and community practices point toward the contemporary resurgence of Indigenous conservation and ecosystem management practices where Indigenous Knowledge and leadership are the foundational and guiding force of projects (Fernández-Llamazares & Cabeza, 2018; Hernandez & Vogt, 2020; Tsosie & Claw, 2019; Willow, 2011). This work pushes for the decolonization of ecological governance, revitalization of Indigenous relationships with the natural world and food systems, and centering of Indigenous sovereignties and self-determination in traditionally settler-dominated spaces (Coté, 2021; Kimmerer, 2013; L. B. Simpson, 2014; K. Whyte, 2017).

Project Inception and Framing

The Nuu-chah-nulth Nations' territories are located on what the British explorers for Britain's colonial regime named Vancouver Island, an island off the coast of British Columbia (Nuu-chah-nulth Tribal Council, 2020). Within these territories today, the Nuu-chah-nulth Tribal

Council[2] (NTC) provides advocacy support and various services for the Nations (Nuu-chah-nulth Tribal Council, 2020). Upon learning about the Nuu-chah-nulth's historical and ongoing relationship with sea otters and the Canadian agencies that oversee otter management, I emailed the NTC's Uu-a-thluk[3] Department in early spring of 2020 to see if they had interest in co-developing a sea otter-related project. Alongside Uu-a-thluk's Fisheries Manager, Dr. Eric Angel, and Roger Dunlop, an Uu-a-thluk biologist who has worked with the Nuu-chah-nulth Nations for decades on fisheries management, we identified key areas of concern for Uu-a-thluk, and on a broader scale, Nuu-chah-nulth Nations, around sea otter management.[4] These included: the absence of Nuu-chah-nulth knowledge in sea otter management and uplifting Nuu-chah-nulth agency in management. After identifying these concerns, we determined that the primary purpose of this project would be to identify possible pathways toward recentering Nuu-chah-nulth values, knowledge, and ecological governance practices in otter management.

This project is guided by a framework of "Indigenous resurgence," which for Leanne Betasamosake Simpson (2014) means a centering of "Indigenous intellectual systems and a reclamation of the context within which those systems operate" (p.171). Simpson sees Indigenous resurgence as a more effective means of "re-establishing Indigenous political systems [than Indigenization of existing colonial spaces] because it places people back on the land in a context that is conducive to resurgence and mobilization" (p.171). Furthermore, resurgence of Indigenous systems that are founded upon Indigenous values and history serve sites of resistance

[2] The NTC receives its authority from Nuu-chah-nulth Nations who receive their authority from the Council of Ha'wiih (Chiefs) (Nuu-chah-nulth Tribal Council, 2020).
[3] Translated from Nuu-chah-nulth as 'Taking Care of', Uu-a-thluk (English spelling) is the NTC's fisheries department.
[4] We began seeking Council of ḥaw̓iiḥ approval for our project in spring 2020, when the project was first being developed. As COVID-19 delayed Council meetings, Eric Angel obtained Council approval for this project in October of 2020.

and renewal against centuries of colonial erasure and distrust against current governance structures (Dennison, 2020; Hanrahan, 2016).

Specifically, this project understands enactments of Indigenous food sovereignty and the re-establishment of Indigenous food systems as forms of Indigenous resurgence that build alternatives to colonized landscapes. Charlotte Coté (2016) defines Indigenous food sovereignty as:

> The decolonial praxis [that] entails decreasing dependence on the globalized food system and revitalizing Indigenous foods systems and practices through the reaffirmation of spiritual, emotional and physical relationships to the lands, waters, plants, and all living things that have sustained Indigenous communities and cultures (2).

This thesis is guided throughout by Coté's definition, from which I argue that Nuu-chah-nulth-led efforts to re-establish their governance, values, and knowledge in the management of sea otters is an enactment of Nuu-chah-nulth food sovereignty and an emerging, novel space of resurgence.[5]

This thesis first begins by examining literature around the shortcomings of ecological management in terms of efforts to include, respect, and/or acknowledge Indigenous histories, narratives, and knowledge systems. Within these domains it pays special attention on conservation ideology and praxis and the literature on Indigenous food security and its critical connection to Indigenous food sovereignty. I then explore the historical relationship between Nuu-chah-nulth Nations and sea otters, and how the Euro-American fur trade destabilized the

[5] I originally conceptualized this project through the lens of decolonizing sea otter management, but my committee member, Dr. Charlotte Coté, from the c̓išaaʔaḥt (Tseshaht) Nuu-chah-nulth Nation, pointed out that the "decolonizing" concept (after Tuck & Yang 2012) is often interpreted as a metaphor. Which is to say, decolonizing in the context of sea otter management could become an "empty signifier" (p.7) which would do nothing to return governance of territorial waters to the Nuu-chah-nulth. We then thought of "Indigenizing" as a more appropriate way of understanding Nuu-chah-nulth led efforts to re-establish governance of sea otters, but as the project progressed and I had more conversations with leaders in Nuu-chah-nulth otter management, I realized that solely seeking an Indigenization of spaces *within* current sea otter management did not aptly describe the efforts of Nuu-chah-nulth Nations to restore ecological self-governance. "Resurgence" is a concept that more fully pointed toward these dynamics.

deeply established relationship of coexistence between the two. Next, I discuss the factors undermining Nuu-chah-nulth food sovereignty today and efforts to reclaim self-governance in sea otter management within Nuu-chah-nulth territories: structural inequities, divergent normative and material properties, and distinctions in ontological aspects. Finally, I propose critical steps for further supporting Nuu-chah-nulth resurgence in sea otter management. An overarching objective of this project is to identify and write in support of Indigenous resurgence strategies within ecological governance.

Literature Review

This review synthesizes peer-reviewed literature on the shortcomings on ecological management and conservation. Two primary pitfalls of the present-day management model are highlighted that are key to understanding current injustices in conservation. First, Indigenous peoples have been historically excluded from the development of conservation and management projects. Second, idealized conceptions of and relationships with nature and wilderness in North America allow for the exclusion and erasure of Indigenous involvement in ecosystem management, while also contributing to conservation's wide-scale lack of success in creating an equitable space for all involved parties. Next, I explore how the process of consultation as a means of including Indigenous perspectives and interests fail to adequately Indigenize conservation initiatives. I then briefly synthesize literature that illustrates attempts to Indigenize conservation. Finally, I conclude the literature review with a synthesis of Indigenous food sovereignty.

Historical Exclusion

Conservation and ecological management cannot be discussed without acknowledging the political narratives and systems of power that underly such projects and enact violence

against marginalized communities, particularly Indigenous peoples (Artelle et al., 2019). Conservation is often criticized for its exclusion of marginalized communities and non-Euro-American ontologies in its planning, implementation, and project evaluation (Chomba et al., 2016; Domínguez & Luoma, 202, 2000). Mace (2014) identifies four key phases linked to the onset of exclusion in conservation: "nature for itself "(1960-1970), "nature despite people" (1980-1990), "nature for people" (2000-2005), and "people and nature" (2010-present) (p.1559). Mace further argues that the "people and nature" phase has the potential to allow for a more inclusive focus in conservation because of its human-centered approach to overall well-being.

Conservation has slowly evolved to better attempt to acknowledge the intricate role people play in ecosystems (Bennett & Ramos Castillo, 2019; Martin et al., 2016). However, its initial framing of conservation was so exclusionary to non-Euro-American ways of conceptualizing nature that the damage was done upon initial conception (Herriman, 2017). Dominant ontological and epistemological means of relating to and understanding environmental management systems, such as conservation, can signal to all parties whose knowledge is deemed acceptable and who is considered qualified to act, effectively marginalizing those whose knowledges and beliefs do not align with the dominant, including Indigenous peoples (Lauer & Aswani, 2009; Schmidt & Peterson, 2009).

Early conservation actors and institutions ensured Indigenous involvement in conservation was always destined for failure due to fundamental errors in their conceptualization and a lack of cultural competency rooted in Euro-centric ontologies and colonial relationships with Indigenous peoples (Herriman, 2017). First, a set group of like-minded individuals founded conservation and deemed what was worthy of saving (e.g., sport hunting species and charismatic megafauna). Second, uncertainty and lack of clarity around the legal definitions of "Indigenous"

determines who receives or is excluded from efforts aimed to protect or reinstate Indigenous rights and threatens to include only some Indigenous Nations while excluding others (Alfred & Corntassel, 2005; Sarah Hunt, 2014). Third, the romanticized and racist idea that Indigenous peoples are intimately tied to the environment erases the unique, creative, and active ways in which Indigenous peoples engage in conservation. Fourth, Traditional Ecological Knowledge (TEK) is often conceptualized in conservation spaces as a homogenous concept (e.g., pan-Indigenizing), but is actually diverse, heterogeneous, and has undergone dramatic changes due to centuries of forced displacement and settler erasure of Indigenous histories. Fifth, recreating wilderness is centered on a problematic and Euro-American understanding of what is and is not considered "wild" in the context of wilderness. Finally, recreating scenes of wilderness is often a means of a settler society trying to right its wrongdoings to the natural environment, often at the expense of humans (specifically, Indigenous peoples) (Herriman, 2017).

Beyond just the underlying foundational issues identified by Herriman (2017), the development, passage, and implementation of conservation initiatives included minimal or nonexistent consideration of Indigenous sovereignty or an extension of rights for Indigenous managers to be equal members of the development process (Schmidt & Peterson, 2009). Euro-American conservation initiatives founded upon settler colonial[6] ideals inevitably alter places that are critical for Indigenous physical, emotional, and mental well-being and sovereignty, further perpetuating injustices against Indigenous peoples in the name of conservation (Norgaard & Reed, 2017). Eurocentric ideations of nature that serve as sites of ongoing settler-colonial exclusion continue to violate the sovereignty and rights of Indigenous nations and often fail to conserve the targeted species (Barnes et al., 2011; Kohler & Brondizio, 2017).

[6] I adopt Wolfe's (2006) definition of settler colonialism not as an event but as an ongoing structure that seeks to erase Indigenous peoples.

Eckert et al. (2018) describe a socio-ecological trap that functions as a positive feedback loop, where social and environmental systems interact in a manner that make it extremely difficult or impossible to reverse. The colonial systems that subsist on racially motivated exclusion of Indigenous peoples from Euro-American environmental management systems interact to trap and exclude Indigenous Nations from conservation practices and projects by which they are directly impacted. The authors highlight two solutions for overcoming such socio-ecological traps: "recovery of depleted resources" and "reinvigorating Indigenous governance practices" (p.8), which transfers resource governance back to Nations.

Applying a human rights framework, where the rights of humans are centered in decision-making, to conservation has gained popularity as a means of reconciling past injustices against Indigenous peoples and cultivating more inclusive spaces (Greiber et al., 2009; Jodoin, 2014; Zheng, 2018). Often considered a step in the right direction towards social and environmental justice, there are concerns that this framework may not be able to transform the status quo to prevent Indigenous peoples from experiencing ongoing exclusion and injustices in conservation spaces. A key shortcoming of this framework is the tendency for neoliberal societies to marketize nature and human rights, thereby deprioritizing conservation and resource management that is not primarily founded upon preserving economic gains (Witter & Satterfield, 2019). Furthermore, human rights frameworks are often premised on a settler-state's recognition of Indigenous sovereignty and self-determination, thereby rendering the framework an extension of colonialism (Corntassel, 2008).

Idealized Perceptions of and Relationships with Nature

Early elitist, North American conservation initiatives were partially founded from fears that the Euro-American way of living was in jeopardy. These efforts were a thinly veiled

euphemism for a fear that Anglo-Saxon ways of being were on a decline and therefore needed to be reinvigorated. This resulted in the forceable removal of Indigenous Nations from their lands to make way for conservation fortresses, and yet Indigenous peoples simultaneously became romanticized and naively depicted in environmental narratives as noble inhabitants and symbolic of an early relationship with nature. What resulted was a perpetuation of racist generalizations and idealizations of Indigenous peoples (Dowie, 2009; McFarlane, 2017; Nadasdy, 2005b). Pasternak (2017) argues that the way in which Western ontologies construct nature, Indigenous peoples become spatially and temporally fixed, and overcoming this construction is necessary to work towards decolonization.

The conservation template that arose due to the likes of John Muir, Theodore Roosevelt, and other Euro-American settler conservationists in the early 20th century, relied on the notion that the so-called wildernesses could not be touched or inhabited by humans (Purdy, 2015; Zaitchik, 2018). This conceptualization of wilderness ignores how Indigenous peoples managed and altered the land for time immemorial (Cronon, 1996). When the likes of Muir and Roosevelt argued for a pristine form of nature that is untouched by humans, they explicitly stated that this vision meant an area untouched by Indigenous peoples (and Black, Latinx, and immigrant peoples; (Dowie, 2009; Mollett & Kepe, 2018; Rubis & Theriault, 2020)); wilderness then became a space for white, Euro-American men who had the resources to access such areas. The ideals that underpin nature, wilderness, and conservation initiatives are rooted in patriarchal, neoliberal and neocolonial ecological governance concepts of enclosure, preservation, market values, and resource allocations (Goldman, 2001). Thus, Indigenous and Non-Indigenous, Euro-American ways of knowing and relating to the world may struggle to find commonalities in a

system hegemonically dominated by the latter, making it unsurprising that conservation continues to fail at representing Indigenous Knowledge (Willow, 2011).

The Euro-American model of conservation has been dubbed “fortress” or “colonial” conservation (p.2), where the primary strategy is protecting biodiversity by creating fortresses from human disturbances (Domínguez & Luoma, 2020). Under the guise of conserving wilderness to create these fortresses, colonial systems of governance and resource management went on to forcibly remove Indigenous peoples from their land and severely limit or bar access to hunting and sites of cultural importance. Forced removals were done under the name of conservation, but game preservation, tourism, trophy hunting, and forced assimilation of Indigenous peoples underscored the interests of these supposed conservation initiatives (Binnema & Niemi, 2006; Purdy, 2015; Sandlos, 2001; Spence, 2011). These hidden agendas allowed the colonial state to maintain its development and extractive objectives, as they had already economically developed their previous land holdings that were also forcibly taken from Indigenous peoples (Domínguez & Luoma, 2020).

Colonial institutions utilize conservation as way to compensate for past misbehaviors that overexploited the environment, while subsequently displacing Indigenous peoples from their territories (Domínguez & Luoma, 2020). As such, these models continue to build upon unidimensional relationships and ideas of nature and wilderness that ultimately skew the distribution of impacts as Euro-American societies attempt to undo damage caused by their own actions (Murphy, 2019). Critics argue that conservation has reputationally benefited from an agenda of reversing wrongs, while continuing to maintain its elitist, neoliberal connections that allow for the ongoing exclusion of Indigenous peoples from conservation agendas (Holmes, 2011; West et al., 2006).

Environmental laws and regulations have since been tentatively amended to protect traditional sites and practices, perhaps as an attempt to align with Mace's (2014) "people and nature" phase of conservation, but there are concerns that existing laws do not adequately protect Indigenous rights (Environmental Protection Agency, 2014; Johnson, 1998; Sanders & Kennedy, 2007). Being that the original purpose was not to make spaces such as conservation amenable for all parties, attempting to rework a blueprint that foundationally excludes Indigenous peoples and non-Euro-American modes of conceptualizing nature and conservation is a flawed means of addressing conservation's exclusionary systems of operation (Martin et al., 2016; Middleton, 2013). The following section will introduce existing efforts to improve collaboration between Indigenous and non-Indigenous actors with the backdrop of sovereign interests and where they have failed and potentially made progress.

Collaborative Efforts in Ecosystem Management

Consultation is a commonly used tool by conservation and ecosystem management projects as an attempt to include Indigenous peoples in planning and implementation stages (Alcorn, 2010; Bennett & Ramos Castillo, 2019). Instead, many of such efforts have been accused of being ongoing sites of colonial power struggles (Schreiber, 2006; Youdelis, 2016). Youdelis (2016) argues that "Without the transfer of land and decision-making authority, the colonial antipolitics of consultation will continue to minimize First Nations' roles in decision-making to facilitate their continued dispossession in the name of industry-led development" (p.1388). Such thinking is in-line with Tuck & Yang's (2012) call for moving beyond decolonization as a metaphor; as long as land and decision-making are solely under the control of the colonial entity, decolonization and reconciliation cannot happen. Norman (2017) notes the difficulty of addressing social and environmental justice for Indigenous Nations because of

fragmented jurisdictions and land ownership that stem from historical and ongoing colonial acts, making the transfer of land and decision-making authority back to Indigenous Nations legally and politically difficult.

Merino (2018) argues that participatory processes in environmental governance structures, like conservation projects, can only translate to a right to consult, not the right to provide consent for a project; Youdelis (2016) expands upon this critique by framing consultation as a site of anti-politics, developed from Ferguson's (1994) critique of discourses around development and Nadasdy's (2005a) introduction of Ferguson's anti-politics machine to environmental management. The key shortcoming of consultation is its sharp difference from consent. The former means Indigenous peoples lack the veto powers afforded to the non-Indigenous actors in the conservation project, while the later ensures the power to veto and withdraw from the project if the terms are deemed unfair or unsatisfactory by the Indigenous Nations (Eimer & Bartels, 2020). True reconciliation would arguably consist of Indigenous-led projects where Indigenous Nations have the power to veto, enact and re-establish traditional land and marine stewardship, and oversee co-managed and co-developed projects (Burt et al., 2020; Pinkerton et al., 2019; Zurba et al., 2019). However, consent and reconciliation are hotly contested amongst Indigenous theorists, because they both are arguably shallow expressions of the settler colonial state that feign the presence of freedom and autonomy for Indigenous Nations but neglect to remove the settler state as their oppressor (A. Simpson, 2017).

Beyond consultation, co-management of environmental governance is growing in popularity as a better means of making conservation more inclusive by making Indigenous communities equal partners in creating, implementing, and managing projects (Beveridge et al., 2020; Caverley et al., 2020; Ens et al., 2016). Co-management is rooted in some sort of mutual

environmental governance system (i.e., land-use titles) and consists of Indigenous and non-Indigenous leadership. Indigenous Knowledge of the ecosystem and its nonhuman inhabitants is applied to the development of policies and natural resource management (Popp et al., 2019). Co-management systems work best when non-Indigenous partners work towards connecting with the Indigenous places, cultural characteristics, and individuals with whom they are co-managing a conservation project (Ban et al., 2018). Such thinking is akin to Leanne Betasamosake Simpson's (2014) Nishnaabeg-grounded call to shift to land as place of pedagogy.

Inclusive co-management means that Indigenous Knowledge and consent is included at every stage of the project (Larsen, 2018). Furthermore, projects should be Indigenous led, with non-Indigenous partners assisting and providing labor, knowledge, and funds as needed or requested by the Indigenous Nations (McCarthy et al., 2012). However, the definition of "inclusive" as adopted by settler-dominated environmental governance systems when approaching consultation with Indigenous Nations is limited by the politics of recognition on how Indigenous peoples should or should not be recognized by the settler-state (Coulthard, 2007).

Co-management also faces critiques over how it interacts with Indigenous Knowledge systems. "Compartmentalization" (Nadasdy, 1999, p.5) of TEK by Euro-American scientists in co-management projects falsely insinuates that TEK is unable to contribute to particular aspects of ecological management or conservation, if there are not direct translations between TEK and Euro-American concepts (e.g., mining and forestry). Furthermore, compartmentalization of TEK allows non-Indigenous scientists and actors to remove the values, stories, relationships, and practices that are critical to forming Indigenous realities, because they do not fit within Euro-American framings of ecosystem management. Difficulties in finding commonalities between

typical Euro-American and Indigenous Knowledge systems further contribute to the ongoing risk that Indigenous agency and knowledge within co-management will be compartmentalized (Nadasdy 2003, 2005a).

Nadasdy (2003, 2005a) further notes the extreme difficulty of merging two epistemological systems because of underlying power relations. Co-management, he argues, tends to overlook the broader political structures and assumptions that make up conservation and ecosystem management institutions; as such, dramatic and wide-scale institutional changes would need to happen to result in true co-management systems where Indigenous and Euro-American knowledge are equally considered and protected. Finegan (2018) furthers this claim by noting that co-management has the potential make Euro-American management more reconciliatory for past colonial injustices against Indigenous peoples, but it inherently lacks the ability to reverse and transform the existing colonial structures of ecosystem management and science in co-management. Improper integration and use of TEK and Indigenous Knowledges then contribute to the continued erasure of Indigenous heterogeneity (Hunt, 2014).

Indigenizing Conservation

Hernandez & Vogt (2020) argue that "Indigenizing conservation" means Indigenous peoples are leaders in joint conservation projects with non-Indigenous actors. A promising example of working to Indigenize conservation via co-management is discussed in Jones et al. (2017). Four key conditions for success were identified. First, the Haida successfully petitioned for a temporary closure of the herring fishery by citing the need for conservation as the critical reason to close the fishery, even though Canadian courts had not legally determined their right to cite conservation as a reason to close down a fishery to all actors. Second, consistent victories in the Canadian courts by First Nations regarding land and marine resource management has

enabled First Nations to assert their rights to manage natural resources, even if the right to do so in a specific context had not yet been affirmed in court. Third, conflict avoidance incentivized the primary non-Indigenous actors in this herring fishery to agree upon co-management. Fourth, preexisting co-management agreements had inadvertently supported future assertation of rights by Haida, suggesting that these previous agreements can have important trickle-down effects on assertion of Indigenous rights.

Pictou's (2020) discussion of a similar example of herring fishery conflict between non-Indigenous actors and the Heiltsuk First Nation found that Heiltsuk women utilized the conservation and management conflict to challenge colonial environmental management regimes, thereby demonstrating their agency in the process. Indigenous women often find themselves ousted from co-management and conservation bargaining arenas between Indigenous and non-Indigenous institutions. The Heiltsuk case study serves as an example of intersectional activism in the realm of conservation.

In their paper on applying an Anishnaabe Aki perspective to invasive species management, Reo & Ogden (2018) effectively argue that expanding the ontological and epistemological foundations of conservation can help make the frameworks more inclusive, writing, “Indigenous cultural values about introduced species do not always align with dominant conservation paradigms, and these cultural values should be understood as an aspect of broader knowledge systems and ethical commitments that have proven beneficial to conserving environments and species” (p.1451). Co-production of knowledge, with a variety of ontological bases, helps to democratize conservation science practices, while also increasing the resilience and agency of Indigenous Nations in conservation-related projects and research (Kiwango et al., 2015; Salomon et al., 2018b; Sullivan, 2019).

Decentralized conservation and natural resource management has also been linked to more inclusive conservation and ecosystem management (Beveridge et al., 2020). When environmental governance is decentralized, Indigenous governance practices, knowledge sharing, and decision making are better able to become the foundation for the project; community participation then becomes more interactive and Indigenous leadership gains agency and legitimacy (Huntington et al., 2011; McCarthy et al., 2012). Collaborative projects require strategic logistical planning to ensure Indigenous peoples are adequately included, respected, and given agency in an environmental management program (Alexander et al., 2019; Nadasdy, 1999). Key factors to success include collaborative planning during all stages of project development, fostering of interpersonal relationships, patience and adequate time to conduct the project, and a variation in structure (i.e., interviews and surveys) for how TEK is gathered.

Whyte's (2013) proposed next steps for considering and appreciating TEK in projects that involve Indigenous and non-Indigenous actors allow for the possibility of "mutually respectful learning" (p.10) in ecosystem management. First, Whyte notes that invoking TEK should be seen as an invitation for non-Indigenous partners and practitioners of ecosystem management to learn how Indigenous communities contextually and uniquely approach knowledge of the natural world, and their vision for how this knowledge fits into their ecological governance. Second, practitioners need to utilize TEK as a means of encouraging cross-cultural and situational learning. Third, policy and science practitioners need to approach TEK as a collaborative process. Finally, ecosystem management practitioners should establish long-term processes in both science and policy between Indigenous and non-Indigenous practitioners that actively consider how knowledge is created and what its implications for ecological governance entail.

Indigenous Food Sovereignty

Food security, a critical component of food sovereignty, is thought of as consistent access to nutritious, healthy foods, and can be manifested across a wide scale, ranging from anxieties about accessing food all the way to experiencing hunger (Cidro et al., 2015). Food sovereignty then, as popularized by La Via Campesina, a global peasant movement that has been foundational in supporting food sovereignty globally, is defined as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Food Secure Canada, 2011, p.9). Food sovereignty has been traditionally framed within rights-based discourses (Coté, 2021). A report on Inuit food sovereignty and self-governance found that “food sovereignty is distinctly tied to food security” (p.16). and asserted that food security cannot be achieved without food sovereignty because the latter allows for “decision-making power” and “management authority” (p.16) in the context of food security (Inuit Circumpolar Council Alaska, 2020).

Seven key pillars of food sovereignty, as developed by the International Forum for Food Sovereignty in Nyéléni and members of the Indigenous Circle during the People’s Food Policy process, include: focusing on food for the people; building knowledge and skills; working with nature; valuing food providers; localizing food systems; localizing control of food resources; and, recognition of the sacredness of food (Food Secure Canada, 2013). Timler et al. (2019) consider food sovereignty to be “a holistic and relational conceptualization of wellbeing” (p.97) that actively considers and values dietary health.

Indigenous food sovereignty encompasses the aforementioned principles of food sovereignty, but shifts away from the traditional rights-based discourses, and instead centers it in “Indigenous foods and ecological knowledge, which [emphasize] ancestral values and wisdom”

(Coté, 2021, p.7). Indigenous food sovereignty emphasizes the need for collective relationships between humans and the natural world that are grounded in kinship, reciprocity, and respect (Coté, 2021); acknowledging colonialism as a key force that has undermined these relationships is another important aspect of Indigenous food sovereignty (Coté, 2016; Huambachano, 2019; Whyte, 2016). Wires & LaRose (2019) underscore the importance of consistent access to land for traditional and sacred practices as well as the ability to carry out these practices, for Indigenous food sovereignty. When Indigenous Nations enact their food sovereignties, they are reconnecting with "traditional food sources, [restoring] and [strengthening] individual and community health and wellness, and [asserting] cultural and political autonomy" (Coté, 2021, p.13).

Kyle Whyte (2018) argues that the undermining of Indigenous food systems by colonial forces erodes Indigenous self-determination and "collective continuance" (p.347) by damaging relationships in Indigenous food systems. Whyte defines *collective continuance* as "a society's overall adaptive capacity to maintain its members' cultural integrity, health, economic vitality, and political order into the future and avoid having its members experience preventable harms" (p.355). Whyte further argues that settler colonial forces seek to undermine collective continuance through the targeting of relationships within Indigenous food systems.

A key argument of Whyte's (2018) work is that Indigenous relationships with food and ecologies varies across Indigenous Nations, meaning that attacks on Indigenous food systems jeopardize countless, context-specific Indigenous Knowledges and relationships. Indigenous food systems and food sovereignties are just like Indigenous identities in that they are dynamic, interconnected, and uniquely conceptualized by each Indigenous Nation (Alfred & Corntassel, 2005; Whyte, 2016). The case study of sea otter management on Vancouver Island is an

excellent example of how Indigenous food sovereignty and collective continuance is undermined and attacked by colonial forces, and this thesis seeks to highlight examples of Indigenous resurgence that fight back against these attacks by enacting Indigenous food sovereignty over Indigenous territories and relationships.

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The highlighted literature demonstrates the complexities that surround collaboration between Indigenous Nations and the non-Indigenous, settler-states in ecological governance and conservation, and the importance of Indigenous food sovereignty and its relationship to the natural world. Discussion around collaboration and inclusivity in ecological management regimes are important in that they signal how attempts are being made to address the exclusivity of this work. However, Coulthard's (2007) critique of the "politics of recognition" (p.437), where the Canadian State is granting recognition[7] of Indigenous Nations' sovereignty from a colonialist system that seeks to erase and assimilate Indigenous peoples in Canada, means Canadian State hegemony is often reproduced through Canadian-led ecosystem management; a new system of ecological governance is needed with Indigenous Nations at the center, to which others could be invited as partners.

Case Study: Nuu-chah-nulth and k̓ʷak̓aƛ (Sea Otters)

[7] Under Canada's Constitution Act, Canada recognizes Indigenous Nations titles and rights as separate from non-Indigenous Canadian citizens (Koutouki et al., 2018).

The Nuu-chah-nulth have maintained a cultural, spiritual, and economic relationship with kʷaka7[8] (sea otters) that traces back to the Holocene, some 12,000 years ago (Salomon et al., 2015). Historically, otter pelts signified status as they were worn by the most high-ranking Ha'wiih (chiefs) and would be traded among Nuu-chah-nulth Nations and between Nuu-chah-nulth and non-Nuu-chah-nulth Nations as gestures of goodwill and cooperation. Traditional knowledge and archeological evidence suggests that limited numbers of otters were strategically hunted to maintain Nuu-chah-nulth shellfish harvests and a healthy otter population (Salomon et al., 2015).

Historically, marine tenure systems in Nuu-chah-nulth waters were held in proprietorship of Hereditary Ha'wiih (Salomon et al., 2018a). Ha'wiih only maintained this proprietorship if the marine systems were governed in a manner that ensured sea otters were not harvested in quantities that would remove them from the ecosystem entirely. Nuu-chah-nulth Nations had Ha'wiih and non-Ha'wiih knowledge holders who best understood the marine system and its interaction with humans and non-humans. Such expertise allowed for a system of mutual responsibility and accountability between the Nations and the natural world, where sustainability and respect guided the use of marine resources. Hereditary Ha'wiih took the lead on managing sea otter harvesting. The goal of such management was to ensure both Nuu-chah-nulth harvesting of seafood and to protect sea otters from overharvesting or from starvation if their food supplies became too limited due to Nuu-chah-nulth harvesting of shellfish (*Hawilthpatak Nuu-Chah-Nulth: Nuu-Chah-Nulth Ways of Governance*, 1999; Anne K Salomon et al., 2015, p. 11).

[8] The Nuu-chah-nulth word for sea otters, kʷakaƛ, is named so for the sound the otter makes when it bangs clams or rocks together as a means of cracking open shellfish.

This relationship of co-existence and ecological equilibrium, founded upon a mutual respect between sea otters and Nuu-chah-nulth, began to be transformed with the arrival of mamaɬ̓ni[9], or white, Euro-American colonizers, when sea otters were nearly extirpated due to the Euro-American fur trade that took place in the 18th-20th centuries, forcibly transforming Nuu-chah-nulth ecological contexts and equilibriums. Fur hunters from Europe, the colonial U.S., and Russia came to the Pacific coast to hunt the sea otter for its extremely soft and dense fur pelt. By the start of the 20th century, nearly 99% of sea otters on the coast from Baja, Mexico all the way up to Japan, had been killed due to the fur trade (McLeish, 2018).

The demand for sea otter pelts for Euro-American, Asian, and Russian markets was one of the most influential factors for the colonization of Nuu-chah-nulth peoples and territories by the Spanish and English which resulted in severe attempts to undermine and eliminate Nuu-chah-nulth customs, traditions, culture, and sovereignty (Coté, 2010). The fur trade saw considerable impacts on both the otter and Nuu-chah-nulth peoples. An unequal distribution of wealth emerged between Central and Northern Nuu-chah-nulth Nations; wealth from the fur trade became dependent upon how each Nations chose to respond to and participate in fur hunting and trading for the colonial fur trappers and merchants (Clayton, 2000). The otter trade was so important to European empires that in the late 18th century, the Spanish and French fought over territorial right to own and govern the Pacific Northwest to obtain dominance in the fur trade. In all of this the Nuu-chah-nulth Ha'wiih were not consulted, and Nuu-chah-nulth land claims and governance systems were not considered in the Anglo-Spanish fight for control over land (Clayton, 2000).

[9] Translates to "white person"

The loss of place names, which code for culturally significant practices, suppressed the transmission of critical knowledge and meanings that the Nuu-chah-nulth used to relate to and understand their land, resources, history, and social relationships (Boillat et al., 2013; Coté, 2010; Lynch, 2019). These damaging interactions between Nuu-chah-nulth Nations and fur traders fostered resentment, anger, and racist sentiments that the Nuu-chah-nulth were the "inferior Other" (Clayton, 2000, p.75) compared to their white, Euro-American counterparts. Euro-American fur traders could not understand or appreciate the complexity of Nuu-chah-nulth governance structures and traditions surrounding trade, partly because they could not or would not respect that the Nuu-chah-nulth operate(d) under their own cultural, economic, and political structures. Eventually, the severe decline in species who were targeted by the fur trade led to the development of the International Treaty for the Preservation and Protection of Fur Seals, enacted in 1911, with Canada a cosignatory (Ravalli, 2009).

The absence of sea otters during the height of the fur trade had pronounced ecological effects. During this time for example, shellfish (e.g., clams, oysters, and sea urchins) abundance grew exponentially while kelp forests were disappearing due to overconsumption by the otter's natural prey, urchins (Estes, 2015). As the severe ecological impacts of the otter's disappearance on coastal ecosystems were later realized by the United States and Canadian Governments, a transnational effort was enacted by both Governments to reintroduce the sea otter along the West Coast. Individual sea otters from northwestern Alaska were captured and reintroduced to five geographic areas: British Columbia, and the majority of coastal areas in the following U.S. states: Alaska, Washington, Oregon, and California. Reintroduction efforts were successful for all locations except for Oregon (Nichol, 2015). Sea otters now inhabit 25-33% of their historic range in Canada (Government of Canada, 2011).

The Nuu-chah-nulth were not consulted in regard to the reintroduction efforts organized and directed by the Department of Fisheries and Oceans[10] (DFO) (Salomon et al., 2015). The loss of an integral predator in Nuu-chah-nulth's territorial waters for over 50 years meant Nuu-chah-nulth Nations became accustomed to an increase in seafood abundance. With the otter's reintroduction these seafood sources were negatively affected, undermining Nuu-chah-nulth Nations food sovereignty. When the DFO reintroduced sea otters to Nuu-chah-nulth waters, they disregarded and ignored Nuu-chah-nulth territorial authority, reminiscent of earlier colonial policies that undermined traditional governance structures and customs, like forced attendance at residential schools for school-aged children and the banning of potlatching (Coté, 2010; Salomon et al., 2015). Since the reintroduction of sea otters, the Nuu-chah-nulth have been working to take back governance of managing sea otters in their territorial waters (Pinkerton et al., 2019).

Beginning in 1999, Kyuquot/Cheklesahht Nation drafted a sea otter management plan (with support from Uu-a-thluk and input from other Nuu-chah-nulth Nations) in response to growing food insecurity concerns (Pinkerton et al., 2019). Around 2002, further development of the draft management plan presented the opportunity to broaden the scope of SARA negotiations with the DFO. These negotiations grew in importance after the sea otter was formally listed under SARA as "Threatened" in 2003, meaning the otter now had newfound protections afforded to it by the Canadian State. This draft was the first Nuu-chah-nulth-driven management plan for sea otters and was modeled off of Sitka's Sea Otter Management Plan. The goal of this plan was to gather qualitative data on sea otter population counts, update literature reviews on sea otter biology, archaeology, and ecosystem interactions, and to increase community outreach and education on sea otter impacts and population growth. The team succeeded at completing these

[10] The DFO is the Canadian-State's ministerial branch that manages Canada's marine ecosystems and fisheries (Department of Fisheries and Oceans Canada, 2021a).

objectives, but the report was never finalized by Kyuquot/Cheklesahht, Uu-a-thluk, nor the DFO (Pinkerton et al., 2019).

After treaty talks around the sea otter management plan stalled, Kyuquot/Cheklesahht accepted an invitation from Uu-a-thluk the DFO to participate in the Sea Otter Recovery Team, also known as SORT; SORT meetings took place from 2002-2003. What was supposed to be a push towards co-management of sea otters led by the Nuu-chah-nulth ended prematurely, when several key Nuu-chah-nulth leaders refused to take the project further because they felt the DFO was not respecting or considering their viewpoints and knowledge, with Pinkerton et al. (2019) stating, "They ceased participating when it became clear that there would be no consideration of [Food, Social, or Ceremonial fisheries] or human health needs or governance aspirations of the [Kyuquot/Cheklesahht] First Nations" (p.1034).

Around the time the management plan was being developed and SORT meetings took place, the Vancouver Sun published an article titled "Vancouver Island first nations band plans to kill sea otters for their pelts" with the subheading "It's an 'aboriginal right' to shoot the 'cute' animals for ceremonial clothing, spokesman says" (Mitges, 2007, n.p.). While it's unclear what, if any, impact the article had on not moving forward with the management plan, a quote included in the article from an animal rights director Peter Hamilton illustrates resentment within the conservation community around sea otter harvesting, with Hamilton saying: "Hamilton said he feared that shooting otters could result in injuries and suffering, adding that natives should discontinue the traditional practice as they have the taking of slaves. "It's a barbaric past and the blood must not be on the hands of present generations"' (Mitges, 2007, n.p.).

In 2012, an update to Kyuquot/Cheklesahht's sea otter management draft has been piloted but not officially adopted by the NTC or Nuu-chah-nulth Nations (Pinkerton et al., 2019),

This plan envisions self-regulation that is based upon the Nuu-chah-nulth worldviews of balancing the needs of the ecosystem and its human and nonhuman inhabitants. It would allow for localized management structures and projects created alongside each Nuu-chah-nulth Nation and their Ha'wiih, a shift towards reinstating hereditary governance structures in ecological management. Establishing a sustainable harvest of sea otters that would also allow for ceremonial uses of the pelts is another key component of this draft plan (Pinkerton et al., 2019).

At the time of writing, Nuu-chah-nulth sea otter management is led by Kyuquot/Cheklesahht, with input from other Nuu-chah-nulth Nations, and support provided by Uu-a-thluk (Pinkerton et al., 2019; Uu-a-thluk, 2021a). Uu-a-thluk has an ongoing "Sea Otter Assessment and Education Project" (n.p.) that was established in 2000 and has conducted sea otter surveys and oil spill response trainings, documented community knowledge via community mapping, and prepared education and outreach materials for Nuu-chah-nulth and non-Nuu-chah-nulth entities (Uu-a-thluk, 2021b).

Methodology

Interviews

Between August 2020 and March 2021, I conducted five semi-structured interviews via Zoom with individuals who represent key facets of sea otter conservation and management in an Indigenous Nations and Canadian context. My interviewees included Jenn Burt, British Columbia Marine Program Lead for Nature United, Uu-a-thluk biologist Roger Dunlop; Uu-a-thluk Fisheries Manager Eric Angel; a DFO program leader who works with sea otter management and wishes to remain anonymous; and Joshua Charleson, an elected Chief Councilor for the ḥišk^{w}ii (Hesquiaht) Nuu-chah-nulth Nation.

Interviews included on average ten questions and addressed themes of: 1) relationships with sea otters, 2) existing co-management regimes, 3) relationships between Nuu-chah-nulth Nations and DFO, 4) differences in governing values and principles between Nuu-chah-nulth Nations and DFO, and 5) Indigenizing sea otter management. Each interview lasted for approximately one hour. I provided a background of the project's co-developed objectives and envisioned material and policy outcomes before beginning each interview. Interviews were recorded with consent for transcription purposes. While each interviewee has a unique background and standpoints, I used feminist standpoint analysis to identify emergent cross-cutting themes during and after interviews. Interviews were further contextualized through a critical discourse analysis (see below for more information on this methodology; Nonhoff, 2017)). of related sea otter content from management and non-profit organizations in Canada.

Critical Discourse Analysis

Critical discourse analysis is a qualitative methodology that allow for a "[critical], [descriptive], [interpretive], and [explanation of] the ways in which discourses construct, maintain, and legitimize social inequalities" (Wodak & Meyer, 2009 in Mullet, 2018, p.116) with an emphasis on how language is a "power resource" (Willig, 2014 in Mullet, 2018, p.116). To provide context for my interviews, I examined and analyzed key documents and past projects on Nuu-chah-nulth sea otter management plans, relationships, and experiences of living alongside sea otters to perform a critical discourse analysis (Nonhoff, 2017). Examples include the Coastal Voices Report, DFO's Sea Otter Management Plan, and the Visioning the Future of Kelp Forest, Sea Otter, and Human Interactions Report (Fisheries and Oceans Canada, 2014; A.K. Salomon et al., 2020; Salomon et al., 2018a). I adopted a critical discourse analysis approach as a means of evaluating existing structures of sea otter management to understand the normative concerns of

Nuu-chah-nulth and non-Nuu-chah-nulth actors and institutions. Data drawn from these sources for my critical discourse analysis also allow me to incorporate more Nuu-chah-nulth voices into the discussion, as COVID-19 presented interviewing limitations with community members.

Feminist Standpoint Analysis

Feminist standpoint analysis is a methodology derived from feminist standpoint theory which seeks to consider the plurality of human conditions and experiences by comparing multiple views on the same phenomenon to produce knowledge (Hawkesworth, 2006). This methodological approach is relevant here because it allows for a deeper understanding of how the DFO and Nuu-chah-nulth Nations are approaching and informing sea otter management. I conduct a feminist standpoint analysis to illustrate the different approaches and ontological foundations the Nuu-chah-nulth and DFO bring into their relationships with sea otters and management (Ardill, 2013; Hawkesworth, 2006). Data from my interviews and critical discourse analysis provide the context and background for the standpoints of multiple actors.

Results and Discussion

From this multi-method analysis, I conclude that Nuu-chah-nulth voices and priorities continue to be excluded from sea otter management on Vancouver Island due to structural, normative, and ontological factors. Addressing these barriers allows me to propose several steps that can aid in responding to and rejecting these exclusions. The first barrier is the deep structural inequalities in current sea otter management systems. Second, there exist conflicts between the normative and material priorities of Nuu-chah-nulth Nations and the DFO, which at some level can be understood as a proxy for the broader sea otter conservation movement. Finally, stark differences in the ontological bases for sea otter management exist between the DFO and Nuu-

chah-nulth Nations, which are important because they underscore why it remains so difficult for the DFO to accept Nuu-chah-nulth Knowledge as equally valuable sources that can inform effective sea otter management.

Current sea otter management is primarily rooted in Canada's claim of sovereignty over Nuu-chah-nulth Nation's territories and resources; the Canadian Government asserts its authority of managing and protecting otters from its claim to stolen Indigenous land. As with other Indigenous Nations' rights recognized by the Canadian State, the DFO's recognition of Nuu-chah-nulth Nations' rights to co-manage sea otters is only acknowledged insofar that this co-management does not "throw into question the background legal, political and economic framework of the relationship itself" (Coulthard, 2007, p.451) Within this structure, Nuu-chah-nulth sovereignty in managing sea otters is "nested" (A. Simpson, 2014, p.12) within the Canadian State's sovereignty. However, this does not exhaust the inherent, resurgent sovereignty of Nuu-chah-nulth Nations. Establishing a system of sea otter management founded upon Nuu-chah-nulth values, ontologies, knowledge, and governance experience would then be an act of "refusal" (p.1) to accept the colonial system of recognition (A. Simpson, 2014).

Structural Inequities

"They say that our knowledge is valuable, but they never use any of it, it goes nowhere…" – Joshua Charleson

The DFO was incorporated in 1979 and is classified as a '"Ministerial Department" (Government of Canada, 2021, n.p.). The Government of Canada (2021) describes the DFO's role as supporting "strong and sustainable economic growth in our marine and fisheries sectors" (n.p.) and that the DFO "contributes to a clean and healthy environment and sustainable aquatic ecosystems for Canadians through habitat protection, oceans management and ecosystems

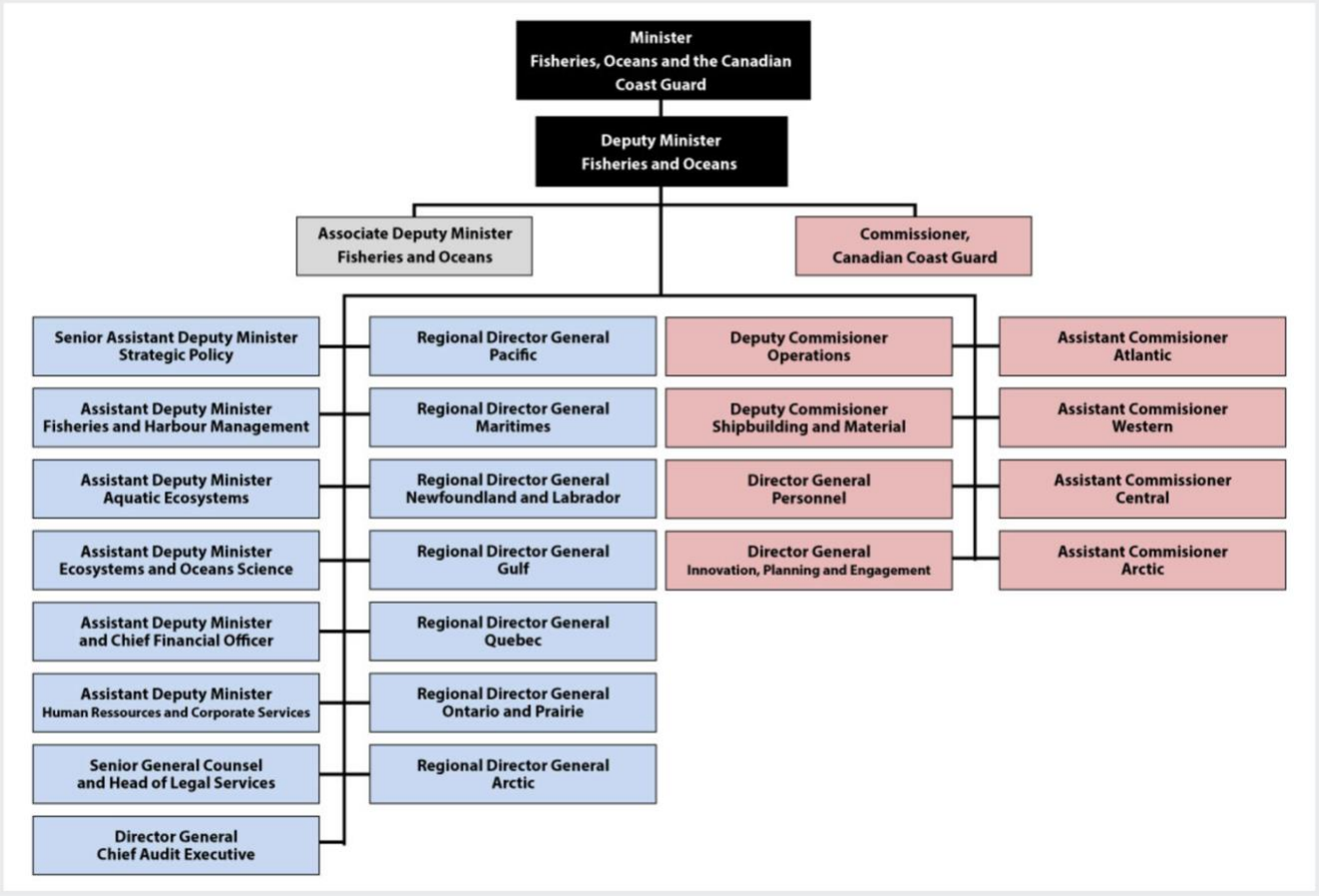
research" (n.p.). The organizational structure of the DFO is a hierarchical, vertical, and top-down governance approach (Fig. 1), with its national headquarters being located in Ottawa and regional office scattered throughout Canada (including British Columbia) (Department of Fisheries and Oceans Canada, 2021b). Nuu-chah-nulth Nations fall within the DFO's "Pacific/Pacifique" management region.

Sea otter management follows a single species-level approach to ecosystem management, where a singular species is the sole focus for a given conservation plan (Fisheries and Oceans Canada, 2014; Milner-Gulland et al., 2014). In the most recent management plan for sea otters prepared by the DFO, eight threats to sea otters were identified: environmental contaminants (i.e. oil spills), illegal kill, entanglement in fishing gear, environmental contaminants (i.e. persistent bioaccumulating toxins), disease and parasites, vessel strikes, human disturbance, and directed harvest by First Nations (Fisheries and Oceans Canada, 2014). The DFO's current approach to sea otter management include: conducting population surveys and population health studies, oil spill response trainings, supporting and enforcing legislation designed to further sea otter conservation, and education and information exchanges with different stakeholders, including First Nations (Department of Fisheries and Oceans Canada, 2019; Fisheries and Oceans Canada, 2014).

Sea otter population count surveys are a commonly conducted by both the DFO and certain Nuu-chah-nulth Nations. In essence, conducting a sea otter population count means visiting areas along Vancouver Island's coastline where otters reside, and counting the number of sea otters visible (utilizing binoculars); this may be done from land or on a boat. Counts are conducted periodically and help inform sea otter management plans and future directions (Fisheries and Oceans Canada, 2014). Hesquiaht periodically conducts sea otter counts in a

similar manner and provides this data to the DFO to help inform otter management. For the DFO, this exchange of information is viewed as an example of successful co-management, but for many Nuu-chah-nulth Nations, further evidence of unaccountable structures and disconnect around collaboration calls into question whether or not sea otter co-management is actually successful.

Figure 1. DFO's organizational structure is hierarchical and many of the established regional roles intersect with the Nuu-chah-nulth Nation's spatial location (Fisheries and Oceans Canada, 2021).



In my interviews, a common theme among Nuu-chah-nulth leaders, professional staff, and allies, was that the DFO's organizational and management structures exclude and obscure Nuu-chah-nulth priorities. For example, Joshua Charleson is an elected chief of Hesquiaht, and among those Nuu-chah-nulth leaders to express frustration over the hierarchical structure of the DFO and centralized approach to management. Joshua frequently referred to the structure of the DFO as one culprit for poor communication and transparency in current management, saying:

"Somebody sitting in Ottawa is making decisions that affect Hesquiaht without talking to Hesquiaht." Nuu-chah-nulth professional staff affirm this analysis in the same vein; Eric Angel of Uu-a-thluk fisheries noted the "mismatch between a centralized federal department with responsibility for something at a very local scale," as a critical barrier to enacting localized and inclusive decision-making around the current management of sea otters on Vancouver Island. Joshua clarified that he has interacted with individuals at the DFO who were friendly and wanted to help, but they did not have the authority to do so from the DFO's home office in Ottawa. In much the same way, Eric also noted that the DFO's attitude around where their power and management approaches are derived – Canadian Federal and Judicial law – make them "slow to change".

One example of how this centralized approach limits the DFO attempts to engage with Nuu-chah-nulth Nations, is the way in which sea otter counts are viewed disparately by both DFO and Nuu-chah-nulth actors. My anonymous DFO interviewee cautiously acknowledged and specified that the current and only connection between the DFO and Nuu-chah-nulth "always comes back to the sea otter count data," gathered every year by the DFO to evaluate current sea otter population numbers, per its management plan objectives. While my DFO interviewee admitted to not having "a working relationship with the Nuu-chah-nulth," they also noted the potential for a collaborative effort around gathering sea otter count data as one way of fostering a working relationship, saying, "there could possibly be more coordination of surveys."

What also stood out in this conversation was the sheer value placed by the DFO on sea otter population counts, described by my interviewee:

> The work that I do, the survey work, is the backbone for the sea otter work; nobody does that work, I may add. Its painstaking; I've given a lot of my life to it. It takes enormous dedication to go out there and collect *good* data. [emphasized good]

The DFO claims that it utilizes population data gathered by Nuu-chah-nulth Nations to further inform sea otter management but Joshua, having collected sea otter population data in Hesquiaht, has had a completely different experience altogether. When we spoke, he remarked that he is "unsure what DFO even does with our numbers," adding that "…[t]hey rely on us and our data to go up and [get sea otter counts] every year. I don't know what they're doing with that data to try and help our territory and our people."

There remains a major disconnect around how Nuu-chah-nulth Nations are contributing to this form of data collection that informs current otter co-management, suggesting that this co-management relationship is uncertain and weak at the most basic level. The disconnect around how Nuu-chah-nulth actors are actively trying to participate in this form of data collection is especially disconcerting because the sea otter population count data is currently the primary co-management effort between the DFO and Nuu-chah-nulth Nations. Co-management efforts will do little to strengthen the working relationship between the DFO and Nuu-chah-nulth if there are not explicit discussions and expectations around how that jointly gathered data will be used. Inequitable interactions and poor communication will reproduce unequal relations between the DFO and Nuu-chah-nulth Nations, to the detriment of ecological sustainability and human well-being.

One way to understand the uncertainties, structural deficiencies, and power imbalances embedded in current management approaches by the DFO is through the lens of settler colonialism. As Wolfe (2006) theorized, settler colonialism is an ongoing process because of the practices that continue to produce systems of erasure against Indigenous peoples. This theorization of settler colonialism is important because it acknowledges and identifies that settler colonialism is still happening; it is not a singular event that ceased once formal status as a colony

within the British empire ended 150 years ago. Theorizing settler colonialism as an ongoing process can help to identify avenues for dismantling these systems of oppression through Indigenous-led decolonizing efforts. Jenn Burt, Nature United's British Columbia Marine Program Lead, connected this view of settler colonialism to conservation in our interview when she explained that "…[c]onservation comes from colonial roots. Some conservation organizations acknowledge that, and try to work to decolonize that work, but ultimately a lot of conservation work comes from the idea of separating people and nature." Jenn also noted that current efforts to manage and conserve sea otters is inextricably linked to past and present colonial processes.

Eric identified the systemic disconnect between the DFO, broader sea otter conservation movements, and Nuu-chah-nulth Nations because of the lack of consideration for how settler colonialism continues to impact the Nuu-chah-nulth:

> [There is a] lack of capacity within the Nations because they are still very much dealing with the impacts of colonialism, the impacts on their lands and resources. Just being able to find the time within those communities and the people who could actually devote the energy needed to bring about change in terms of sea otter management is huge. There's all this rhetoric around capacity building, and I suppose its well-meaning, but it's really misguided because it is treated [by the DFO] as if this is a purely quantitative problem where you can add a few paid positions for a year, and everything will magically change; *it's a systemic problem.* You're still heating the communities with diesel, they don't have water supplies, there's no good access to healthy foods, the list goes on and on. (emphasis added)

Not understanding or acknowledging how settler colonialism continues to produce systems of inequality that undermine current co-management of sea otters serves as another site of inequality over how Nuu-chah-nulth knowledge and efforts to co-manage otters are interacting with DFO structures of management.

The first identified barrier to establishing Indigenous resurgence in sea otter management, inequality in the DFO's management approach, is crucial to acknowledging the longstanding

interference in Nuu-chah-nulth ecological relationships that started with colonization and continued throughout the fur trade, up through the era of residential schools and present-day manifestations of colonialism. This complex series of relations makes undoing these feelings of uncertainty in order to improve collaborative relationships, difficult. Structural factors are compounded by a second barrier: normative distinctions in the priorities of the DFO and Nuu-chah-nulth.

Divergent Normative and Material Properties

Feminist Standpoint Analysis is a methodology that accepts the intimate role of values that is embedded in our production of knowledge and differences in knowledge-subject positions, to better illuminate the politics of divergent normative positions and material priorities (Moreton-Robinson, 2013). Considering divergent normative and material priorities for the Nuu-chah-nulth and DFO is essential to understanding how to move forward in supporting a resurgence of Nuu-chah-nulth governance in sea otter management. The DFO prioritizes expanding the sea otter population and limiting human interactions. The primary and pivotal Nuu-chah-nulth priorities for establishing Nuu-chah-nulth resurgence in sea otter governance were consistently identified across all my methodologies as: food security, food sovereignty, and limiting sea otter expansion.

DFO Priorities

"Overall, I don't know what happens when six or seven different communities want the sea otter population depleted. What happens then?" – Anonymous DFO Interviewee

DFO Priority #1: Expanding Sea Otter Population

Sea otters are listed as a species of "Special Concern" under Canada's Species at Risk Act (SARA) (Government of Canada, 2011). The DFO's Sea Otter Research Program conducts population surveys to estimate population numbers and health studies. Research is aimed at understanding the otter's recovery and subsequent changes to coastal ecosystems. The Sea Otter Management Plan states that the Government's objective is to "conserve abundance and distribution [of sea otters] in Canada…and promote the continued population growth and expansion into formally occupied regions such as Haida Gwaii, Barkley Sound, and north mainland British Columbia coast" (Fisheries and Oceans Canada, 2014, p.27). My anonymous DFO interviewee further added to these DFO objectives, noting, "if you're going to see a species completely delisted, then it is going to be fully functioning or contributing its full role - probably. Its populations are considered secure, even if they're small."

The DFO's interest in supporting sea otter expansion is deployed via a common-practice conservation model typical of Euro-American natural resource management (i.e., population counts and use of protective laws, like SARA). What is surprising or even alarming about this model is the level of uncertainty around the long-term impacts of their sea otter reintroduction efforts. My interviewee acknowledged that little is known about how to manage a population after its rebounded and recovered under the definition of Canadian natural resource management laws, like SARA, telling me: "I don't think there is a well formulated vision for what we do once [species] are recovered or what are the implications [of recovery]." The disconnect between conservation and long-term management within the DFO is an excellent illustration of what Joshua repeatedly described to in his interview: that the government is unprepared on how to manage this newfound relationship to sea otters after they've been successfully conserved.

DFO Priority #2: Limiting Human Interactions

Limiting human-sea otter interactions is an international governance strategy for sea otter management, as they can be greatly harmed by frequent human interactions (Fisheries and Oceans Canada, 2014; U.S. Fish and Wildlife Service, 2020). In Canada, human disturbances are listed as a threat to the recovery of sea otters in the Government's management plan (Fisheries and Oceans Canada, 2014). Human disturbances are typically associated with tourism, like too close of contact between otters and kayakers, boat tour-related noise and interactions, and over familiarization due constant interactions with humans (Barrett, 2019).

The gap between how the DFO approaches managing human relationships with sea otters versus how the Nuu-chah-nulth approach this relationship is a major impediment to incorporating values of reciprocal relationships between humans and the natural world into otter management, and also impedes appreciation for Nuu-chah-nulth values and knowledge of sea otters that support the well-being of humans and non-humans. Without this understanding and incorporation of Nuu-chah-nulth relational knowledge, you cannot have a resurgence in Nuu-chah-nulth sea otter management. Humans are seen as a threat to sea otter conservation by the DFO. This is not a fully unfair assessment; the fur trade and oil spills have established that humans can be detrimental the survival of the sea otter as a species (Bodkin et al., 2012). What is unfair and unfounded is the assessment that the Nuu-chah-nulth have been and remain a high threat to the otter's existence.

As established in previous sections, Nuu-chah-nulth Nations and sea otters co-existed for thousands of years prior to colonization. Nuu-chah-nulth Ha'wiih and fishers established practices that allowed for otters and Nuu-chah-nulth to harvest shellfish alongside one another; there was not an all or nothing approach to managing otters where either Nuu-chah-nulth or sea otters had the right to exist and eat, but not both. Chief Waakitaam Peter Hanson of qaaẏuuk̓ʷ/

čiiqƛis (Kyuquot/Cheklesahht), remarked in the Coastal Voices Report: "The way our people did in the past, is that they kept [sea otters] away from where we were, close by, like all around the islands out here. They hunted them there and kept them off the sea urchin beds so they didn't take everything. It could be done again." (Salomon et al., 2020, p.13)

However, the Nuu-chah-nulth are bearing a brunt of the repercussions of colonial sea otter management and continue to be depicted as a threat to otters, even though its Euro-American mismanagement that has created this situation of uncertainty. Eric, for example, expressed bewilderment as to why the Nuu-chah-nulth successfully coexisting with sea otters for thousands of years is not a starting point for Euro-American management. The DFO sea otter management plan's foundation is a major impediment for appreciating this success and viewing sea otters and humans as part of the same ecosystem, as evident in its identification of sea otter harvesting as a threat to their recovery, a reference to First Nation's harvesting practices (Fisheries and Oceans Canada, 2014). I conclude this discussion on the DFO's priority of limiting human interactions with a quote from a DFO sea otter manager that demonstrate hesitancy and misunderstandings of Nuu-chah-nulth relationships with sea otters: "The other thing is to be careful about is what's promised. You might be able to deplete otters and complete a subsistence harvest. Maybe you deplete otters and can harvest clam biomass in a bay. But whether or not you can deplete otters and still have a viable sea otter population and sustain a commercial fishery, I don't know."

Nuu-chah-nulth Priorities

"…with all of these big marine mammals, it's too much of an imbalance to all be in one place."

– Joshua Charleson

<u>Nuu-chah-nulth Priority #1: Food Security</u>

Food security has become a key concern amongst Nuu-chah-nulth Nations since the unauthorized reintroduction of sea otters to their waters (Burt et al., 2020; Gartaula et al., 2017; Lang & Barling, 2021; Pinkerton et al., 2019; Salomon et al., 2015). Sea otters are voracious eaters. For example, in areas where sea otters have been reintroduced, exposed abalone is sixteen times lower compared to areas where sea otters have yet to recover (Salomon et al., 2020). Joshua consistently and emphatically expressed the substantial concern around food security in his territory that transcends to other Nuu-chah-nulth Nations noting that it has been "about two decades" since "we've been able to harvest enough clams to feed ourselves, never mind having a commercial clam fishery where we could make a bit of money for our community members." Ensuring there is adequate quantities to feed community members historically important dietary foods, like clams and urchins, remains a top concern for Nuu-chah-nulth Nations, and as for many Indigenous Nations, sovereignty over the guarantee of food harvesting is inextricably linked to food security.

Nuu-chah-nulth Priority #2: Food Sovereignty

Nuu-chah-nulth Nations do not harvest sea otters as a source of food (Anne K Salomon et al., 2015). Rather, Nuu-chah-nulth harvesting of sea otters in strategic quantities is a means of protecting Nuu-chah-nulth food harvests. Therefore, sea otter harvesting is an enactment of Nuu-chah-nulth food sovereignty, and as such, is an expression of Indigenous resurgence within Canadian State borders. Utilizing strategic otter harvesting to ensure Nuu-chah-nulth Nations can harvest and consume shellfish is an embodiment of Indigenous food sovereignty's emphasis on "Indigenous responsibility, mutuality, kinship, and relationships with the natural world" (Coté, 2021, p.8).

The critical need to enact Nuu-chah-nulth food sovereignty extends beyond a sole protection of Nuu-chah-nulth food security, as attacks against Indigenous food sovereignty impacts other areas of Indigenous self-determination and knowledge generation (Coté, 2016; Whyte, 2018). Eric described the holistic aspects of food sovereignty as including a transfer of intergenerational knowledge and time spent in relation with the land and sea:

> Fisheries were woven into every aspect of people's lives here, and when you strip away fisheries you strip away a lot with it. When sea otters come back, they don't just affect food security, it also means people aren't getting out on the boat so they're not seeing these areas to gather shellfish, they're not spending time on the land, learning the language, in the same way [as before sea otter reintroduction]. They're losing Elders due to health issues. The intergenerational knowledge is then impacted. All these impacts through the whole system that Western science cannot begin to accommodate.

Eric's remarks effectively embody the Indigenous food sovereignty theories previously discussed, demonstrating the multi-faceted impacts on value and knowledge systems that Indigenous communities experience when colonialism and settler-colonialism erode food sovereignty.

Current barriers to self-determination and implementation of traditional and culturally meaningful sea otter harvesting to protect food supplies without significant DFO interference arguably undermines the food sovereignty of Nuu-chah-nulth Nations. As a result, current sea otter management then becomes another extension of the colonial state. The DFO's classification of First Nation's sea otter harvests as threats to otter existence and interference in harvests via its bureaucratic organizational structure that severely slows the process of harvesting otters (see pages 37-39), are examples of colonial entities undermining Nuu-chah-nulth food sovereignty and collective continuance (Whyte, 2016). A key enactment of Nuu-chah-nulth food sovereignty is the strategic harvesting of sea otters to limit further otter population expansion into Nuu-chah-nulth harvesting areas, the topic of the following Nuu-chah-nulth priority.

Nuu-chah-nulth Priority #3: Limiting Sea Otter Expansion in Shellfish Harvests

With limited otter harvesting occurring in Nuu-chah-nulth waters, sea otters are impacting food security by reducing the number of available shellfish. Food sovereignty is being undermined when the Nuu-chah-nulth have to consult with the DFO on harvesting otters, or when they lack the resources and/or time needed to harvest an effective number of otters that would protect food security. Joshua told me in our interview that "With the lack of [Hesquiaht] population up [in our territory] the sea otter is running rampant now. It's gotten to the point where we need to do something immediately… with all of these big marine mammals, it's too much of an imbalance to all be in one place." The low numbers of Hesquiaht people that Joshua is referring to stems from the lasting impacts on Nuu-chah-nulth Nations from centuries of colonialization, such as forced removals from their lands, widespread death due to disease, seeking outside economic opportunities due to a shift to a cash economy, and the forced attendance of residential schools (Coté, 2010). Joshua followed up on this statement with references to imbalances in Nuu-chah-nulth hereditary ecosystems that occurred because of the settler fur trade. Increasing the harvest of sea otters would better ensure food security as an enactment of Nuu-chah-nulth food sovereignty, and also serves as a re-establishment of traditional Nuu-chah-nulth governance practices.

Joshua believes that harvesting is the solution to ensuring Nuu-chah-nulth Nations can access valuable food sources: "The complete loss of entire clam beaches and crab baskets - it takes a toll on you, and Hesquiaht wants to figure out a way to get that back. The only way to do that is to do some meaningful harvests of sea otter populations." Similarly, an ʕaaḥuus (Ahousaht) Elder remarks on the Nuu-chah-nulth relationship with sea otters in his interview with SFU researchers:

> People have to understand how valuable the sea otter is to our people. We have great histories. We have been with them for years and years, thousands of years. Big chiefs use sea otters to recognize a great chief amongst our people. The sea otter can bring back all the histories of people before. (Salomon et al., 2020, p.5)

It is of the utmost importance to note that the act of harvesting itself is a revival of historically important relationships with the environment and non-human inhabitants, while continuing work being done to reinstate ecosystem balance.

Limiting sea otter population expansion into more of the Nuu-chah-nulth's shellfish harvesting areas is pivotal for uplifting current Nuu-chah-nulth food sovereignty enactments and to opening up additional opportunities to restore the relationships that underly Nuu-chah-nulth food sovereignty. Increasing current otter harvesting efforts helps Nuu-chah-nulth Nations protect their remaining shellfish numbers and works to restore a balance of the marine ecosystem, where humans, otters, and other non-humans are equally considered, protected, and respected in management. The three Nuu-chah-nulth priorities discussed here are all based on the premise of restoring ecosystem balance and promoting an Indigenous resurgence in relationships to the natural world by rooting future sea otter management in Nuu-chah-nulth Knowledge, values, and practices. Such work has not been accommodated by the DFO, arguably due to the starkly different priorities and approaches to managing sea otters, as discussed in the previous section.

Divergence in Ontological Standpoints

Understanding the problematic ways in which ontological standpoints between the Nuu-chah-nulth and DFO diverge from one another and are manifested in political arrangements around conservation management, is critical to first acknowledging and then working towards challenging contemporary power relations. The political structures within sea otter management in Canada work to separate Indigenous Nations from the ecosystem and exclude Indigenous

ontologies in governance practices. Coulthard's (2007) theorization of Indigenous recognition in Canada addresses the limits of recognition by the Canadian-State and can be applied to the context of ecosystem management. Nuu-chah-nulth rights within ecosystem management are only recognized by the DFO and Canadian Government because of Canada's colonialist legal court system and federal policies (i.e., Constitution Act). This means that the rights of Nuu-chah-nulth Nations are being recognized by the colonialist forces that subjected them to this system of recognition-based existence. Coulthard argues that this system of recognition means Indigenous Nations in Canada cannot modify or transcend power and politics in colonial relationships; colonial institutions will always work against Indigenous ontologies because of their objectives to erase and assimilate. As such, there needs to be a transformative shift towards Nuu-chah-nulth resurgence in sea otter management rather than continuing attempts to rework the system that excludes Nuu-chah-nulth values, lived realities, and governance knowledge.

Stark differences in how the Nuu-chah-nulth and DFO each approach and manage sea otters in relationship with humans allow for the ongoing disagreement between the DFO and Nuu-chah-nulth around what should be prioritized in sea otter management. These differences further contribute to resistance by the DFO around supporting the application of Nuu-chah-nulth sea otter governance practices and values in sea otter management. As such, it is important to understand the ontological aspects of both the DFO and Nuu-chah-nulth and how they inform their relationships with sea otters.

DFO Ontologies

Through my analysis of interviews and related documents, I have found that a myth of "scientific objectivity" functions within the DFO to mask the dominant ontological commitments of the institution. Specifically, the dominant DFO ontological aspect that informs its otter

management approach is a scientific dualism that establishes a human-nature dichotomy (Caillon et al., 2017) and manages the two as separate and independent beings. As is common within conservation institutions (see page 14), the DFO affords charismatic species extra attention and protections, a tangible example of this human-nature separation.

Myth of Scientific Objectivity

The values, norms, and epistemologies of knowledge systems that are marginalized within the European and Euro-American institutions committed to scientific dualism[11] are often scrutinized by professional scientists for their supposed lack of objectivity. Such systems are held up against the standards and perceived objectivity of "science"[12] which ignores the complex values, norms, and ontologies informing the creation and conceptualization of science itself (Shermer, 2017). While feminist science scholars began challenging this mythology more than three decades ago (Haraway, 1988), practitioners of cosmopolitan science themselves now discuss whether or not science can be "value-free" (Wallington & Moore, 2005, p.873). Ecological management led by Euro-American institutions relies on a particular understanding of cosmopolitan science as value neutral, but in actual fact any practice of "science", like all human practices, is motivated by particular normative commitments (González, 2001; Haraway, 1988).

[11] I define scientific dualism as the ways in which the "human-nature dichotomy" (Caillon et al., 2017, p.2) are informed and produced by cosmopolitan sciences. González (2001) defines *cosmopolitan science* as a descriptor for "bodies of knowledge which are truly cosmopolitan or international in scope, in the sense that they draw upon science traditions from many societies around the world (Chinese, Indian, European, Mesoamerican, etc.) …and they are practiced in many different countries, by people from many different cultural and ethnic groups." (p.280). He further argues that practioners of cosmopolitan sciences "radically restrict the field of scientific inquiry to only a few variables" (p.280) and effectively code theories universally in rules and/or scientific laws. Examples of cosmopolitan sciences include ethnobotany and agroecology. I frame the DFO's practice of science specifically as a practice of cosmopolitan science.

[12] González (2001) theorizes science as a practice that seeks to find truths about the world. Everyone who engages with science "begin with given frameworks, conduct practical experiments, analyze results, and modify given frameworks or invent new ones when faced with too many anomalies" (p.23) González stresses the importance of defining science as a practice because it acknowledges that local knowledge systems, including Indigenous knowledge systems, are also practicing science via empirical observations, formulating and testing hypotheses, and revising assumptions over time as needed.

In this case, scientific dualism partitions humans from non-humans allowing the former to manage the later as separate entities (Caillon et al., 2017).

Throughout our interview, the DFO manager I spoke with consistently asserted that their cosmopolitan scientific training and role as a DFO scientist precluded their ability to speak to co-management of sea otters with the Nuu-chah-nulth. When I asked if they had thought about co-management and the challenges that underly it, they responded "Um, no I haven't, partly because I'm in the science branch." (This is a reference to the DFO's bureaucratic division of knowledge disciplines (see Fig. 1)). While discussing potential concerns around how an increase in sea otter harvesting may impact the sea otter population, the DFO manager stated that these concerns and others "aren't really in my purview to worry about, because I'm in science.", thus emphasizing that their role as a practitioner of cosmopolitan science precludes them from openly discussing the normative complexities of co-managing species with Indigenous Nations, partly because the DFO organizationally silos practitioners based on their disciplinary training. Additionally, this belief that cosmopolitan science means practicing science objectively, further masks the normative commitments that cosmopolitan sciences serve and disseminate in conservation and ecosystem management.

The origins of Canada's sea otter management in cosmopolitan science are also found in its management plans and government webpages. The DFO Sea Otter Management Plan (2014) identified key factors that may jeopardize the otter's ongoing existence, and all of the factors were supported by quantitative scientific references and engagement with scientific studies. Furthermore, all of the highlighted publications and reports on the DFO's webpage for its sea otter research program are studies produced by cosmopolitan science practitioners, signifying to

the reader that the DFO is utilizing “objective” and “value-free” knowledge to inform its management approach (Department of Fisheries and Oceans Canada, 2019).

Haraway’s (1988) theorization of situated knowledges and challenging of scientific objectivity is useful in confronting both the reduction of non-scientific systems in conservation management and the DFO’s strict observance of cosmopolitan sciences’ traditions and norms, such as the application of the scientific method and the veneration of quantitative data in sea otter management. According to Haraway (1988), all knowledge, including scientific knowledge, is socially constructed. Haraway argues that science is often seen as a quest for truth and universality but is reductionist because it is “enforced as the standard for all the translations and conversions." (p.580) The subjugation of other knowledges then prioritizes particular practices of science over others (i.e. scientific objectivity). For example, a Euro-American ontological aspect within this realm of scientific objectivity is the assumption by many scientists that rationality (or human cognition) is the sole requirement for advancing knowledge, giving it a self-imposed knowledge acquisition supremacy (Atleo, 2004).

While the DFO attempts to fall back on scientific “objectivity” as the epistemological foundations of their management of species and ecosystems, Nuu-chah-nulth governance systems rooted in Nuu-chah-nulth knowledge are viewed as less legitimate and considered by the DFO as less capable than cosmopolitan science of informing sea otter management. My DFO interviewee only acknowledged work being done by Nuu-chah-nulth biologists when asked about co-management with Nuu-chah-nulth Nations during our interview, and no references were made as to how non-cosmopolitan scientific knowledge could inform co-management. This is a concrete illustration of how within the DFO, there remains commitments to cosmopolitan science as the only objective and legitimate knowledge system. Consequently, this commitment

then produces hesitations and resistance from the DFO towards expanding sea otter management to acknowledge and incorporate multiple forms of knowledge. Beliefs held by DFO actors that their practice of cosmopolitan science means they are producing objective knowledge to inform otter management through generations of objective "truths" about the sea otter's role and place in the ecosystem. However, these objective "truths" are actually informed and produced by the normative commitments of cosmopolitan science and manifestations of scientific dualism.

Specialization and Knowledge Fragmentation

A closely related issue that arises from the DFO's commitment to cosmopolitan science is the problem of knowledge fragmentation and siloing of expertise based off of different disciplines (Balietti et al., 2015; González, 2001). As alluded above, this both informs and is reinforced by the DFO's adoption of a hierarchical, vertical organization structure based off of different specializations (see Fig. 1). Preference for cosmopolitan sciences and a strict adherence to disciplinary boundaries is premised upon the myth of scientific objectivity that holds up the practice of cosmopolitan sciences as impartial knowledge systems, and as such, should be the primary basis of ecosystem management. The DFO's bureaucratic division of responsibilities contributes to its hesitation to incorporate multiple epistemologies and ontologies holistically in ecosystem management because it encourages managerial roles to be based on different knowledge specialties, (i.e., natural science and policy implementation; see Fig. 1), rather than an integrated or holistic knowledge approach.

Nadasdy (2003, 2005b) argues that efforts to merge ontological systems in co-management are undercut due to underlying power relations. Because of the structures of ongoing colonialism, DFO practices that are siloed based on different knowledge specializations under one otter management approach means co-management may function in the real world to

subordinate Indigenous knowledge systems to non-Indigenous ones. What emerges are ontological clashes between the different knowledge systems, making effective co-management grounded in respect for all knowledges seemingly impossible. This failure is evident in the ineffective sea otter co-management efforts (supposedly initiated by the DFO), discussed in the previous section, between the DFO and Nuu-chah-nulth Nations.

Separating Humans and Nature

The DFO follows the Euro-American model of conservation, as explored in the literature review (see pages 17-19), where conservation proceeds from the assumption that humans and nature are to be separated from one another (e.g., establishment of national parks) (Cronon, 1996). Protecting nature while allowing human societies to develop is seen as more secure when conservation and management systems regulate human interactions with nature (Domínguez & Luoma, 2020; Dowie, 2009). The human-nature division is evident in the management approaches utilized by the Canadian government. For example, the DFO's development and management of Marine Protected Areas (MPAs) and identification of human disturbances and Indigenous Nations harvesting as threats to otter existence are examples of this separation (Department of Fisheries and Oceans Canada, 2021a). These practices are also evidence of a dominant DFO ontology—a scientific dualism that separates humans and non-humans—resulting in the prioritization of sea otters over the food sovereignty of Nuu-chah-nulth Nations.

In practice DFO sea otter management is aligned with a single-species management approach.[13] Devoting research efforts towards studying and conserving the health and abundance

[13] Canada asserts that it utilizes ecosystem-based management and multi-species approaches in its management and conservation of biodiversity but says sometimes a single-species approach is needed (Government of Canada, 2020). Single-species approaches to conservation management conserve a singular species in the hopes that the conservation for that species will have trickle-down effects for other species within the same habitat (Runge et al., 2019). A multi-species management approach is designed to conserve and support more than one species (Runge et al., 2019). Similar to multi-species management, ecosystem-based management works to protect, re-establish, and/or restore an entire ecosystem's resilience, with consideration for biotic and abiotic factors (Delacámara et al., 2020).

of one species, sea otters, has significant ramifications for co-management with Nuu-chah-nulth Nations. A single-species management approach that is highly premised on separating humans from that species under the guise of conservation, is a sharp divergence from Nuu-chah-nulth ecological governance laws that view ecosystems holistically; humans, living, and nonliving beings are all part of the ecosystem and as such, must all be considered in every management approach.

Within contemporary conservation practice, scientific dualism often leads to prioritizing the conservation of a species afforded a special status within the ecosystem that makes them worth conserving more than others. Sea otters, for example, have also been dubbed as an 'umbrella species', which are specifically selected to receive some sort of conservation status because their protection may have wide-ranging, positive conservation repercussions for many other species (Mayer et al., 2019; United States Geological Survey, n.d.).The sea otter's umbrella, or keystone, species classifications comes partly from its assumed influence on maintaining kelp beds via urchin consumption (Estes, 2015). But this view is not widely shared among Nuu-chah-nulth Nations. For instance, Joshua challenged this conception when he told me, "There's this whole myth about people saying, you get more sea otters you get more kelp; we've actually lost a lot of our kelp since the sea otters have come around. It's not that simple." Joshua's assertation illustrates how widely supported knowledge and commonly held perceptions amongst ecologists and conservation biologists about sea otters are not always upheld by Nuu-chah-nulth experiences of living alongside sea otters and the natural environment. And yet, the assumptions of cosmopolitan science often overdetermine management practice, because of the relative power of the institutions involved.

All three definitions do not acknowledge humans as being included in the ecosystem or humans being dependent upon the ecosystem and/or species.

Charisma as Capital

In addition to its status as a keystone and umbrella species, the sea otter benefits from extra conservation attention due to its charisma. Few will debate the cuteness of sea otters, and the otter's charisma was mentioned by several of my interviewees. Jenn remarked, "sea otters are really fricking cute!", and Eric acknowledged that he himself could spend hours watching sea otters. However, he also expressed frustration over the abuse of sea otters' charisma to garner public support for conservation, which often excludes Indigenous Nations from the narrative, or scrutinizes their traditional relationship with sea otters. Eric believes:

> There's no question that charismatic species have far greater traction with the general public that may not know very much about their ecosystems and world they live in. I have long had a skeptical view on campaigns that rely on charisma. You have no commitment to people really understanding the issue. You just have commitment to being able to emotionally engage them so they will open their pocketbooks or write a letter. I think it's a profoundly damaging way to engage in conservation campaigns that will ultimately backfire. It doesn't build deep commitment to outcomes. The public interest of cute and cuddly sea otters is a broad scale, where the injustice perpetuated is an extremely local one where an Elder is much more vulnerable to diabetes because of lack of access to seafoods, and that injustice is not visible.

Roger Dunlop also pointed out that it all comes down to how a person is affected by the return of sea otters that drives their perceptions of the animal, noting that many folks who enjoy driving out to Vancouver Island to enjoy the charisma of sea otters "don't have to live with [the] consequences" of the otter's reintroduction.

Nuu-chah-nulth food insecurity is in large part a result of the single-species management approach to sea otters. For example, as stated by my DFO interviewee, the sea otter has "become the poster child for this issue [of successful species reintroduction], actually…because of the strong role they play in nearshore ecosystems and the clearly documented role they have in reducing invertebrates, which people have *come* to rely upon." The also acknowledged that the

agency has little understanding of what to do when a species has been successfully conserved and begins to impact its ecosystem and/or humans.

> In the marine environment we are seeing recovery of top predators, of large grazing species like whales, with important implications for fisheries because of its contribution to the system. I don't think there is a well formulated vision for what we do once [species] are recovered or what are the implications [of their recovery]. I think the sea otter, as you know, [has] become the poster child for this issue, actually.

Failing to consider the long-term ramifications on Indigenous food security in DFO sea otter management highlights how the DFO's ontological commitments fail to see humans interconnected to and reliant upon the non-human world.

Current institutional relationships and funding streams make it difficult for the DFO to reform itself. It's well known, for example, and was noted by my DFO interviewee, that their work is often financially supplemented by conservation NGOs who also rely on the sea otter's charisma. The Vancouver Aquarium's use of Joey, the sea otter pup, to help fundraise during the pandemic (Ocean Wise, 2020) is but one example of a conservation NGO strategically utilizing the sea otter's charisma to increase public support and raise funds.[14] "If one species is down listed from SARA," my interviewee told me "our budgets become more limited to work on them. So, there are lots of NGOs that we work with for certain research topics and species. It's not a good solution [to helping down listed species] …the model is not very secure." Attempts to merge multiple epistemological and ontological systems into one co-management approach are hampered by the dependence of DFO and conservation NGOs on the public charisma of sea otters, who play an outside role in determining management priorities. Depending upon this

[14] The Vancouver Aquarium seems to have no clear acknowledgement of their work's impact on Nuu-chah-nulth food security, sovereignty, and ecological relationships, at least that is accessible by the general public (Ocean Wise, 2020).

precarious funding model may have real ramifications for Indigenous Nations who are experiencing first-hand the repercussions of ineffective sea otter co-management.

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The myth of scientific objectivity is a poor mask for the DFO's normative and value-laden commitments when it comes to sea otter management. As an ontology that separates humans from non-humans, the scientific dualism that guides DFO management policies today gives sea otters additional conservation protections to the exclusion of many Nuu-chah-nulth concerns. Contrary to the assumed objectivity of cosmopolitan science, the DFO makes sea otter management decisions based on its' own ontological commitments and values, both of which are informed by the DFO's situated knowledges (Haraway, 1988). Engaging in normative choices to prioritize sea otters over Nuu-chah-nulth food sovereignty creates real consequences for Nuu-chah-nulth Nations. All of these shortcomings of co-management are amplified by the problem of knowledge fragmentation. In comparison, Nuu-chah-nulth Knowledge systems are holistic and diverge sharply from the DFO's scientific dualism. As such they offer a potential foundation for sea otter management that both upholds food sovereignty and supports a resurgence of Nuu-chah-nulth self- governance.

Nuu-chah-nulth Ontologies

Structural inequalities and distinctions in normative priorities between Indigenous Nations and Canadian State actors are often reinscribed through the dominance of State-ontologies in Canadian resource management contexts (Nadasdy, 2005a). On the other hand, recent moves for Indigenous self-determination in ecosystem management highlight the value and importance of upholding Indigenous ontological aspects (via values, histories, and

knowledges) in ecosystem governance. This trend is both a means of diversifying the ontologies that inform and guide management (Muller et al., 2019; Nadasdy, 2003), while simultaneously supporting Indigenous resurgence and self-governance. My conversations with Nuu-chah-nulth actors and allies highlighted three key Nuu-chah-nulth concepts that are critical to better understanding the ontological aspects that produce the values that underlies historical sea otter management and serves as a blueprint for future management: hišukʔiš ċawaak[15] (Everything is One), ʔiisaak[16] (Respect with Caring), and ʔuʔaaɬuk (Taking Care of)[17].

hišukʔiš ċawaak – 'Everything is One'

hišukʔiš ċawaak, which translates as "Everything is One", is valued for its embodiment of Nuu-chah-nulth relationships to the natural world and is embedded in Nuu-chah-nulth ecological governance practices. hišukʔiš ċawaak is an ontological theory and governance value that has been theorized in an academic setting by Richard Atleo, an ʕaaḥuus scholar and Hereditary Chief. In his book *Tsawalk: A Nuu-chah-nulth Worldview,* Atleo describes hišukʔiš ċawaak as a Nuu-chah-nulth perspective that "is inclusive of all reality, both physical and metaphysical" and which "predate[s] conscious historical notion of civilization and scientific progress." (Atleo, 2004, p.xi). hišukʔiš ċawaak assumes, he writes, "That the universe is unified, interconnected, and interrelated" (p.xix) and applies these assumptions to the metaphysical and physical realms located in Nuu-chah-nulth origin stories (Atleo, 2004).

Atleo argues that nature is not stagnant, meaning that Euro-American scientists collecting empirical data are working with something that becomes obsolete and not representative of reality the moment its recorded; this is the very same data used to drive non-Indigenous sea otter

[15] English spelling: heshook-ish tsawalk
[16] English spelling: iisaak
[17] English spelling: Uu-a-thluk

management in Canada (i.e., population counts and ecological modeling). Contrasted against the general practice of cosmopolitan science in fields such as ecology, biology, etc., Atleo's theorization of hišukʔiš ċawaak suggests "there is a unity, or meaningful interrelationship, between all the variables of existence, whereas the dominant scientific methodology assumes that variables are not significantly related unless proved otherwise." (p.125)

Joshua explained hišukʔiš ċawaak in our interview, saying: "We have a saying in Nuu-chah-nulth, hišukʔiš ċawaak, that means everything is connected. You can't have healthy populations of one thing without another; everything is codependent." Joshua also gave a great example of hišukʔiš ċawaak, unrelated to sea otters, but is a helpful visualization for what happens when an ecosystem becomes out of balance:

> In March I was in Hesquiaht Harbor and there were 120 grey whales all eating the herring eggs. They've been coming up in greater and greater numbers over the years. I think there are so many so greatly concentrated is because there's just a lack of herring spawn. You used to get herring spawn all up and down the coast…with the overfishing and reduction fisheries we haven't had any really good herring spawns so it's kind of working down the line. They're like the main backbone of the ecosystem, the herring. Like, you don't think of the herring being that big of a contribution to the ecosystem, but it really just runs the entire ecosystem off the West Coast of Vancouver Island. Well, at least it used to.
>
> Ocean survival is not as good anymore and the herring are really unhealthy, and that's really what drives our ecosystem in Hesquiaht. We have regular summer die-offs now and we've sent in samples to the DFO but have not gotten any clear answers. There's a lot stacked up against the herring and to me it's one of the steppingstones that needs to be recovered. We need to make sure that what feeds the rest of all of our marine mammals and the rest of our fish remains strong. We actually had a pretty good spawn in Hesquiaht Harbor, but we have 120 gray whales and 5000 sea lions in there as well. So, the thousands of eaters and probably half a million ducks and everything all down there eating all of the herring eggs. I don't know how much survives through all of that to come back [and spawn next year]. *You can see the imbalance*. [emphasis added]

While hišukʔiš ċawaak can be understood as a critique of certain reductive aspects in Euro-American cosmopolitan science, it also resonates with some elements in biological conservation discourse. For instance, Jenn Burt also spoke of the importance of ecological balance from the

viewpoint of a researcher trained in cosmopolitan sciences, "If you take out all the sea otters you dramatically change the system. If you don't harvest any sea otters, you dramatically change the system. There is a balance there that needs restoring."

Both Joshua and Jenn's perspectives around ecological balance, where everything is one and rely upon one another for survival[18], stand in stark contrast to the two historical extremes in Euro-American management of sea otters. First, we know sea otters were removed entirely from the system due to capitalist commodification, resulting in the depletion of the environment and near loss of an entire species due to the fur trade. Secondly, there has been more recently a "successful" attempt at a reconciliatory reintroduction of sea otters by the DFO without any regards as to how another drastic change to the ecosystem may impact humans and the environment. A lack of consideration for impacts on the system as a whole, including humans, seems to be a consistent theme in current otter management that perpetuates the ongoing lived realities of seafood depletion for Nuu-chah-nulth Nations. Given this history, reorienting management around the principle of hišuk?iš ċawaak offers the potential to holistically approach ecological governance as an interconnected system rather than as a system of individuals, which current ecosystem management models follow.

ʔiisaak – 'Respect with Caring'

Another key Nuu-chah-nulth ontological principle is ʔiisaak, meaning "Respect with Caring". Respect for all living and non-living beings that sustain(ed) Nuu-chah-nulth communities is a critical component of Nuu-chah-nulth governance (*Hawilthpatak Nuu-Chah-Nulth: Nuu-Chah-Nulth Ways of Governance*, 1999). As Joshua told me in our interview,

[18] Jenn and Joshua's mutual understanding of a holistic ecological balance also shows that the concept of balance is one where there is productive affinity between Nuu-chah-nulth ontologies and non-Nuu-chah-nulth allies, and may be an example of grounding ecosystem management in a Nuu-chah-nulth ontological aspect and governance law to which non-Nuu-chah-nulth actors may eventually be invited on terms set by Nuu-chah-nulth Nations.

managing sea otters is historically rooted in taking care of people and the natural world. For example, sea otters are respected both for the gift they give to Nuu-chah-nulth Nations, and for their right to exist and eat as living beings.

The urgent need to manage the sea otter population through increased harvests therefore exists in tension with the relation of ʔiisaak between sea otters and Nuu-chah-nulth peoples. While recognizing the need to cull otters to protect Nuu-chah-nulth food supplies, Joshua also expressed his intent to do so in accordance with customary practices of care and the preparing its pelt, saying:

> We don't want to go out and kill [a lot of sea otters]; none of us want to be wasteful. We don't want to go out there and kill 500 sea otters and leave them floating out there. We want to make sure they're used, and it take several days to do a hide, so you have to be really committed.

For Joshua, the building pressure to protect food sources by significantly reducing the sea otter population, is held in balance with the time and energy required to effectively and appropriately work a sea otter hide. Embodying ʔiisaak in sea otter management means utilizing harvest as a management technique and an act of care; to allow the continuation of meaningful cultural practices of wearing and sharing pelts, while also allowing the otter to exist in its own territories without encroaching on Nuu-chah-nulth food sources. Rushing harvesting to the point where the process of preparing a pelt is also hurried or omitted all together, what Joshua said he does not want to happen, would not be an embodiment of ʔiisaak.

Ineffective sea otter management led by non-Indigenous entities to the exclusion Indigenous Nations' values, knowledge, and ontologies, does little to truly care for and respect the environment. While the DFO's management strategy hopes for and supports the expansion of the otter population, it does so without meaningful consideration for Indigenous food security. The potential tradeoffs to achieve immediate food security pose new challenges to Nuu-chah-nulth

values and traditional practices, which have been undermined for centuries through colonialism and the structures of settler colonialism (Coté, 2010; Wolfe, 2006). While today's ineffective management practices allow these structures of colonialism to continue, ʔiisaak affords the opportunity to reorient sea otter management around practices in respect for the otter and Nuu-chah-nulth food sovereignty alike.

ʔuʔaaɬuk – Taking Care of

The final Nuu-chah-nulth ontological principle that was consistently identified as critical to understanding how the Nuu-chah-nulth approach ecological governance, is ʔuʔaaɬuk, which means "Taking Care of". On ʔuʔaaɬuk, Joshua explained to me that it means:

> [L]iving and being connected with our natural environment and not trying to 'conquer the wilderness'. Living in a way that does not disrupt the natural order of all living things. Never taking more than you need and never letting anything go to waste. Respecting the environment, the same way that you would respect the person you love most.

As Joshua noted, this law is dramatically different from the Euro-American model of conquering wilderness or scientific dualism where nature is seen as separate from humans. With ʔuʔaaɬuk, humans take care of the natural world, and the natural world takes care of humans. Similarly, Eric,[19] who manages the Nuu-Chah-Nulth agency that takes its name from this concept, contrasted ʔuʔaaɬuk and the Western notion of stewardship, explaining:

> It's similar to a Western idea of stewardship, but stewardship is bound up in some biblical notion that is thought as someone who's acting on behalf of property owner. Here, [with ʔuʔaaɬuk], that's not the case at all. It's a responsibility we share. The Ha'wiih have received their authority from the Creator, so they have a responsibility gifted to them from the Creator. We all have that responsibility as well and we take that on in our fisheries program. It's very similar to co-management, taking care of together.

ʔuʔaaɬuk is rooted in responsibility to living beings, both human and non-human (*Hawilthpatak Nuu-Chah-Nulth: Nuu-Chah-Nulth Ways of Governance,* 1999). Nuu-chah-nulth Nations thereby

[19] Eric is non-Indigenous, so his definition of ʔuʔaaɬuk comes from the many Nuu-chah-nulth individuals and Elders he has worked with at Uu-a-thluk.

have a responsibility to take care of sea otters, and taking care in this context means selectively harvesting and honoring harvested otters via respectful preparations of the pelt and adornment by Ha'wiih.

During our interview, Eric also recalled something the respected Nuu-chah-nulth Elder, Cliff Atleo, once told him: that Nuu-chah-nulth hunters deployed a historical practice where when a sea otter was harvested, the carcass would be hung on a pole as a warning to its relatives not to eat the Nuu-chah-nulth's shellfish. This act was not to make it so that sea otters could not eat, rather, it was a warning that the Nuu-chah-nulth had their harvestable areas and the otters had theirs. This act took care of the sea otters and humans, because the two are a part of the marine ecosystem, not separate. The late Hiišiiqwth Natalie Jack, of qaaƛ̓uuk̓ʷ/c̓̓iiqƛ̓is (Kyuquot/Cheklesaht Nation) also explained this relationship of caring for sea otters and the Nuu-chah-nulth to a team of researchers from Simon Fraser University:

> I would like to believe that the federal government will be open to negotiations as to our way of life in our territories and that we can come up with a plan that will sustain our people and the ocean life. I believe that if we use the information that our Elders know of, how it used to be in the past, that we work with that, hopefully the powers that be would work with us and come up with a plan that is going to be sustainable for the people and the sea otters (Salomon et al., 2020, p.24).

Equally caring for humans and non-humans through ecosystem management is a sharp divergence from DFO management that prioritizes the dominance of sea otter populations above Nuu-chah-nulth food sovereignty and governance authority. ʔuʔaaɬuk as a management approach supports enactments of Indigenous food sovereignty as well as the ongoing existence of sea otters, because ʔuʔaaɬuk means caring about the well-being of both.

Next Steps in Supporting a Resurgence in Nuu-chah-nulth Sea Otter Governance

The dynamics discussed above illustrate that the current sea otter management system dictated by the DFO continues to exclude Nuu-chah-nulth ontologies, knowledge, and

epistemologies in many forms, whether it be in population counts or harvesting politics. Indigenous sovereignty is dynamic and evolves according to the needs of the Nation (Stark & Stark, 2018; Mutu, 2020). Nuu-chah-nulth values, like hišukʔiš ċawaak, ʔiisaak, and ʔuʔaaɬuk, have the potential to shape and inform a novel, resurgent Nuu-chah-nulth sea otter governance space to the benefit of Nuu-chah-nulth Nations' food sovereignty. Enacting Nuu-chah-nulth food sovereignty in this novel resurgence space can also help restore Nuu-chah-nulth relationships to ecosystems and its inhabitants, thereby supporting healthy Nuu-chah-nulth communities (Coté, 2021).[20] This project aims to identify several steps on the path towards establishing this novel Nuu-chah-nulth resurgence space in sea otter management.

Critical Step #1: Adopt a Reality-driven Sea Otter Approach

The first critical step is applying and integrating Atleo's (2004) theorization of hišukʔiš ċawaak—a view of reality that acknowledges and centers the multitude of recognizable, nonphysical, and unseen variables—in the emerging space of Nuu-chah-nulth sea otter governance. Atleo's "theory of reality" incorporates the worldview that sees "the universe…as network of relationships" (p.118). This theorization of hišukʔiš ċawaak demands unity and requires the assumption that "all variables must be related, associated, or correlated" (p.117). Applying hišukʔiš ċawaak's view of reality to sea otter governance would center Nuu-chah-nulth food sovereignty, values, language, knowledge, and many other variables in sea otter management, and better addresses the interconnected and holistic relationships that exist between

[20] Cote (2021) argues that health for Indigenous peoples means having access to traditional foods and the traditional harvesting methods. Access to traditional foods is directly related to "physical, spiritual, and emotional health" (p.10). Harvesting, preparing, and consuming traditional foods strengthen familial and communal relationships, and allows for the sharing of Indigenous Knowledge within Indigenous Nations.

humans and non-humans. This would ensure that the realities of Nuu-chah-nulth communities are not ignored in management. Therefore, the concept offers one possible foundation for a resurgent Nuu-chah-nulth space in otter governance.

Sea otters are being managed by the DFO from a remote and distant scale aimed at conserving the otter by means of limiting human impacts from interactions; in Joshua's experience important decisions are carried out from Ottawa, a landlocked province far removed from the Nuu-chah-nulth realities of living alongside sea otters. The Canadian public's adoration for sea otters is also mostly from afar, and unlike the Nuu-chah-nulth Nations, does not have to experience the reality of living amongst sea otters and struggling to find healthy and consistent access to dietary staples. This current approach privileges the context of the Canadian public's support for sea otters over the lived realities of Nuu-chah-nulth Nations who are at the frontline of the sea otter co-management failure, a common theme in experiences of environmental injustices, especially among Indigenous peoples (Gilio-Whitaker, 2019).

In contrast, Atleo's theory of reality is grounded in the lived experiences of Nuu-chah-nulth Nations and the interconnected nature of their systems, rather than the broader settler-state's relationship to the natural world that encourages resource exploitation with unforeseen consequences. There needs to be a shift from the current approach that prioritizes the ecosystem benefits and charisma of the otter over Nuu-chah-nulth realities, to a praxis of reality that centers Nuu-chah-nulth Nations relationships with and mutual inhabitance of the natural world. This praxis of reality views people as part of the ecosystem, a divergence from the existing management system that separates humans and nature.

Critical Step #2: Embed Nuu-chah-nulth Governance into Management

Embedding Nuu-chah-nulth governance values into the foundations of sea otter management will be key to supporting Nuu-chah-nulth resurgence and would bolster otter management by recentering a complex knowledge system that has been practiced for centuries. As noted above, Nuu-chah-nulth successfully co-existed with sea otters for 10,000 years, before the fur trade decimated the sea otter population. Such success should signal to the DFO and other practitioners of cosmopolitan science that the Nuu-chah-nulth hold valuable and effective ecological governance knowledge that takes care of the environment while supporting human life. Rooting future sea otter management upon Nuu-chah-nulth ontological principles like hišukʔiš c̓awaak, ʔiisaak, and ʔuʔaaɬuk would Nuu-chah-nulth people's needs, priorities, and into ecosystem management.

Several interviewees remarked that such refusal to see the success behind Indigenous Nation ecological governance systems is rooted in the legacy effects of colonialism and institutional racism, further illustrating the need for a new, transformative Nuu-chah-nulth centered system. This step requires a deep examination of the DFO's current institutional structures that allow for the ongoing exclusion of Indigenous Nations from management decisions by which they are most impacted. An examination of the rigidity of adherence to cosmopolitan science's self-perception of objectivity and the resulting tepidness at accepting Indigenous Knowledge as legitimate is also required.

Embedding Nuu-chah-nulth governance practices into sea otter management may not necessarily mean excluding the DFO from all facets of decision making; determining the degree to which the DFO may be included or excluded from a novel Nuu-chah-nulth governance system will most likely vary amongst Nuu-chah-nulth actors. Rather, it uplifts and re-establishes Nuu-chah-nulth governance systems that were successful prior to colonization in management. A

resurgence of Nuu-chah-nulth sea otter governance could afford the opportunity to implement Whyte's (2013) call to embrace collaborative, cross-cultural, situational learning between Indigenous and non-Indigenous entities in ecosystem management. Restructuring the system in this manner would acknowledge Nuu-chah-nulth lived realities and complex, mature knowledge systems while better ensuring all actors in the management arena consider different knowledge processes and long-term implications for ecological governance (Whyte, 2013).

Critical Step #3: Support Emerging Practices of Nuu-chah-nulth Resurgence in Territorial Governance

Decades into the sea otter's successful reintroduction to Nuu-chah-nulth territorial waters show that the current exclusionary practice of co-management between the DFO and Nuu-chah-nulth Nations is ineffective. Nuu-chah-nulth Nations continue to experience food insecurity because their ability to enact their food sovereignty in the current sea otter management space is significantly undermined by the DFO and Canadian State writ large. In practice, Nuu-chah-nulth sovereignty over food, territories, living and nonliving beings (i.e. sea otters) is nested (A. Simpson, 2014) within the Canadian State's sovereignty, and remains greatly limited by what the Canadian State chooses to recognize. The Canadian-State's ambition to control Nuu-chah-nulth territories within its borders is predicated on the disruption of Nuu-chah-nulth Nations' ecological relationships and collective continuance (Whyte, 2018). A resurgence in Nuu-chah-nulth governance of sea otter management would be an enactment of food sovereignty, an "on-the-ground [practice] of freedom" (Coulthard, 2007, p.456), and a challenge to assimilative Canadian State policies and practices.

Nuu-chah-nulth Nations are already challenging the limits of Canadian authority when they fill in management gaps left open by the DFO. Examples of Nuu-chah-nulth Nations

responding to the gaps in current DFO-led management include: the use of strategic sea otter harvesting to better manage shellfish populations; collaboration with non-Nuu-chah-nulth Indigenous Nations whose waters are also impacted by the sea otter's return; re-establishing Nuu-chah-nulth governance systems, such as organization of Ha'wiih, advisors, community, and potlatches, which foster accountability to all beings through the sharing of knowledge (*Hawilthpatak Nuu-Chah-Nulth: Nuu-Chah-Nulth Ways of Governance*, 1999); and Nuu-chah-nulth-led fisheries management (i.e., aquaculture, production partnerships, and training Nuu-chah-nulth individuals to help manage territories) as a means of better ensuring access to valued marine food sources (Nuu-chah-nulth Seafood LP, 2019; Uu-a-thluk, 2021c). Each of these are also examples of Nuu-chah-nulth Nations enacting food sovereignty.

These enactments of food sovereignty enactments both support, and are supported, by a Nuu-chah-nulth resurgence of territorial governance, where Nuu-chah-nulth knowledge, values, and priorities are the foundation of decision making. Nuu-chah-nulth resurgence in sea otter management would also be a lived assertations of cultural and political authority beyond the current politics of recognition (Coulthard, 2007; A. Simpson, 2014). Nuu-chah-nulth resurgence practices contradict the legal fictions and assumptions the Canadian State actively perpetuates about itself as a sovereign entity with the right to govern and control Indigenous Nations within its self-constructed borders. Filling the DFO-created gaps left by ineffective co-management arrangements are all acts of "refusal" (A. Simpson, 2014) to adhere to the Canadian State's limited recognition of Nuu-chah-nulth sovereignty.

In March 2021, the Nuu-chah-nulth and Haida Nations came together for a sea otter workshop that featured input and perspectives from Heiltsuk First Nation leaders. For many, this workshop was a way of further fostering a return to pre-contact Indigenous relationships in the

Pacific Northwest, as well as a signal to the DFO that the Indigenous Nations of Canada do not have to go to them for permission before embarking on sea otter management strategy building (E. Angel, personal communication, March 3, 2021). Continuing to build relationships with other Indigenous Nations who have also been impacted by the sea otter's return, via formal and informal settings, would offer an opportunity to diversify the knowledge (Whyte, 2013) approach that informs Nuu-chah-nulth governance of sea otters. Strengthening bonds between and within Indigenous Nations as it relates to marine management upholds Indigenous Knowledge and governance structures and helps re-establish the inter-Nation relationships that were eroded and suppressed starting with colonialism and continuing with settler colonialism. Continuing to prepare and develop projects between and within Nations, is a resurgent strategy of Indigenous sovereignty over food and territories.

In this way, Nuu-chah-nulth Nations might strategically refuse to fit knowledge, experience, and priorities within the DFO-led system of co-management. If Nuu-chah-nulth Nations so chose, the DFO could be invited back into the space after the plan was developed and ready to be implemented. The DFO would be invited to act on its responsibility to respond to Nuu-chah-nulth priorities in sea otter management. To accomplish this the DFO would need to undergo major reforms such as: working with Nuu-chah-nulth Nations at all stages of sea otter management; sending DFO representatives with actual decision-making authority to work with Nations on management; and, accepting Nuu-chah-nulth knowledge as valuable to informing management plans and approaches. A Nuu-chah-nulth-led system of sea otter governance has the potential to further the mutual goal of conserving and managing sea otters held by both the Nuu-chah-nulth and DFO. Indigenous-rooted relationships with other sovereign political bodies are a longstanding means of pursuing a mutually envisioned future based upon responsibilities of

caring for humans and the natural world (Stark & Stark, 2018). Emphasizing a mutual objective can help guide navigation of Nuu-chah-nulth and DFO relationships in this novel resurgence space.

Conclusion

This thesis has explored Nuu-chah-nulth First Nation's relationships with kʷakaƛ, or sea otters, and illustrates the complex, power-laden relationships between the Nuu-chah-nulth, sea otters, and Canadian State. Historic relationships between Nuu-chah-nulth Nations and sea otters have been disrupted through centuries of colonial injustices, as evident by the weakening of Nuu-chah-nulth self-determination over ecological governance by the Canadian State. Attacks on Nuu-chah-nulth ecological governance and food sovereignty have led to food insecurity for Nuu-chah-nulth Nations. Opportunities remain around collaborating on management of sea otters between the DFO and Nuu-chah-nulth Nations if Nuu-chah-nulth values, knowledge, and priorities are both affirmed and centered.

Three key reasons for ineffective co-management were identified in this thesis. First, structural inequalities undermine the ability to successfully co-manage sea otters with the DFO and demonstrate the disconnect around what co-management of sea otters looks like under this current system. Second, DFO and Nuu-chah-nulth normative and material properties in sea otter management diverge from and clash with one another. The former seeks to conserve and expand the sea otter population by limiting human interaction with sea otters. The latter wish to support the existence of sea otters while still ensuring food security for the Nations through enactments of food sovereignty, such as strategic harvesting of sea otters, to better ensure access to shellfish.

These stark differences in priorities stem from the divergence between DFO and Nuu-chah-nulth ontological aspects. Key DFO ontological commitments identified in this thesis

include an adherence to scientific dualism—with its strong separation of humans and non—and mythology of objectivity. Because of their charisma, sea otters are also highly favored under this human-nature divide. These Euro-American ontological aspects illustrate how the DFO privileges certain knowledge systems over others and sees knowledge systems that do not rely on the practices of cosmopolitan science as less legitimate and less worthy of informing management. This privileging has real consequences for current co-management, as it destines the merging of multiple epistemological systems into one co-management space for failure. Such failure is evident in the ineffective co-management of sea otters between the DFO and Nuu-chah-nulth Nations.

In contrast with the DFO's ontological aspects that silo and compartmentalize Indigenous Knowledge and realities in sea otter management, Nuu-chah-nulth ontological principles prioritize and uplift holism, interconnectedness, and relationality. This project identified three such examples and their implications for ecological management, including: hišukʔiš c̓awaak (Everything is One), ʔiisaak (Respect for Caring), and ʔuʔaaɬuk (Taking Care of). The findings and analysis of this thesis support calls for a resurgence of Nuu-chah-nulth governance in sea otter management as a transformative praxis of Nuu-chah-nulth self-determination and sovereignty over food and territory. These enactments would challenge the limits of the Canadian State's self-perception of sovereignty and hegemony, and simultaneously allows for revitalizing Nuu-chah-nulth relationships and governance practices.

In support of this resurgence effort, I have identified three critical steps with the potential to shift from the current exclusionary co-management model to a model of Indigenous resurgence in ecological governance. First, adopting a reality-driven approach into sea otter conservation and management, inspired by Atleo's (2004) *Tsawalk*, centers the lived experiences

of Nuu-chah-nulth Nations who are directly impacted by sea otters and minimizes outside influence from stakeholders who do not live in relation to them. Second, embedding Nuu-chah-nulth governance laws into sea otter management and conservation would support the revitalization of Nuu-chah-nulth ecological governance practices that enabled the successful co-existence between humans and sea otters for thousands of years. Finally, the third identified step is to continue supporting the emergence and practice of multiple forms of Indigenous resurgence. Examples of resurgence that help create novel Nuu-chah-nulth governance systems include inter-Indigenous Nations relationship building, Nuu-chah-nulth led partnerships to govern the ecological world, and training Nuu-chah-nulth individuals as leaders in ecological governance. A key question within this step is whether and how the DFO will find a way to properly engage within these novel Indigenous-led management spaces.

Future research on supporting Indigenous resurgence in sea otter management and conservation may examine the complexities around shifting from to a reality-driven approach in Indigenous sea otter management that centers the lived realities of Indigenous Nations. Another important avenue for future research may be an examination of how negotiated, entangled sovereignties (Dennison, 2017) between Indigenous and non-Indigenous Nation emerge and are reflected in sea otter management. Examining the presence of entangled sovereignties and how they may be navigated in these emerging resurgence spaces is especially important as Indigenous Nations continue to challenge and confront the limits of Canadian State authority through the enacting of self-determination and sovereignty over their territories and relationships with all life-sustaining beings.

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