Identifying Best Practices in Fisheries Monitoring and Stewardship Training for First Nations Youth

by

Haley Milko

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Name:	**Haley Milko**
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Examining Committee:	**Chair:** Neil Ladell PhD Candidate

Evelyn Pinkerton
Senior Supervisor
Professor

                        _____

Vicki Kelly
Supervisor
Associate Professor
Faculty of Education

                        _____

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Abstract

In British Columbia, fisheries management policies in the last few decades have severely diminished access for a generation of youth to knowledge of traditional governance, ecological economies, and cultural practices. However, legal precedents, the completion of the Truth and Reconciliation Commission, and activism are changing the status quo such that colonial relationships in resource management are no longer viable. This research looks at best practices for, as well as opportunities and challenges facing fisheries monitoring and stewardship programs because they are a promising way to bridge generational gaps in access to and knowledge of the ocean environment, and because resource monitoring is a foundation for a community's capacity to govern. Overall, the research contributes to a better understanding of how stewardship and monitoring training programs can contribute to the larger vision of coastal First Nations in their desired return to First Nations governance of their marine territories.

Keywords: First Nations; Youth; Fisheries; Co-management; Stewardship; Monitoring

With gratitude to my parents, and to Patrick

Acknowledgements

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List of Acronyms

AAROM	Aboriginal Aquatic Resource and Oceans Management
AFO	Aboriginal Fishery Officer
AFS	Aboriginal Fishing Strategy
BC	British Columbia
CFN	Coastal First Nations-Great Bear Initiative
CSN	Coastal Stewardship Network
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EBM	Ecosystem-Based Management
FSC	Food, Social and Ceremonial Fisheries
GEM	Gitxaala Environmental Monitoring
HIRMD	Heiltsuk Integrated Resource Management Department
LNG	Liquefied Natural Gas
LUCID	Learning for Understanding through Cultural Inclusion and Imaginative Development
MaPP	Marine Planning Partnership for the North Pacific Coast
NCSFNSS	North Coast-Skeena First Nations Stewardship Society
NNFC	Northern Native Fishing Corporation
PAR	Participatory Action Research
PICFI	Pacific Integrated Commercial Fisheries Initiative
PNW-LNG	Pacific NorthWest Liquefied Natural Gas
RMS	Regional Monitoring System
SCC	Supreme Court of Canada
SEAS	Supporting Emerging Aboriginal Stewards Community Initiative
SMFCA	Sustainable Marine Fisheries and Communities Alliance
SVOP	Small Vehicle Operator Proficiency
TESA	Tsimshian Environmental Stewardship Authority
TRC	Truth and Reconciliation Commission
TTC	Tsimshian Tribal Council
VIU	Vancouver Island University

Chapter 1.

Introduction

1.1. Setting the Stage

First Nation[1] coastal communities must have access to their traditional livelihoods in order to ensure the long-term sustainability of their food, economic stability, cultural identity and community health (Gregory & Trousdale 2009, Turner et al. 2008). In Canada and in British Columbia (BC), colonialism has long been present in resource management policies that have denied First Nations access to their resources as well as a voice in management decision-making processes. Combined with other culturally destructive policies like the residential school system and the banning of potlatches, colonialism has created inter-generational trauma and a variety of social issues within many First Nations communities, including high unemployment and a generation of youth that have limited knowledge of traditional governance, ecological economies, and cultural practices (GSGislason 2013, Jackson 2014, Miller 1996, Natcher & Hickey 2002, Schlag & Fast 2005, Turner et al. 2000)*.*

This context has been rapidly changing. First Nations have been using legal action and the court system to demand that Canada and BC respect their rights from the moment

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[1] I will primarily use the term "First Nation" throughout this discussion because it emphasizes the nationhood status of Indigenous groups in Canada, as well as their existence in Canada prior to colonization. According to the Independent Commission on International Humanitarian Issues, "Indigenous" refers to peoples defined according to four elements: 1) pre-existence in a geographical area, 2) non-dominance in society, 3) cultural difference, and 4) self-identification as Indigenous. I use the term Indigenous when referring to First Nation peoples and epistemologies internationally. "Aboriginal peoples" is a term used to describe the First Nation, Métis, and Inuit peoples of Canada in legal documents like the *Constitution Act* and in discussion of legal rights, and I use this term within these contexts.

it was no longer illegal for them to organize politically and hire legal council[2]. In 2015, the Truth and Reconciliation Commission submitted its report and calls to action. In December 2012 Idle No More, an ongoing protest movement against legal infringements on First Nations rights, was formed. On June 26, 2014 the Supreme Court of Canada ruled for the first time that Aboriginal Title, which refers to First Nations land rights, had not been extinguished in a specific area of BC claimed by the Tsilhqot'in First Nation. With a declaration of Title comes a suite of authority over resource management and development decisions. Since the *Tsilhqot'in* decision, the provincial government has met twice with leaders of BC First Nations, and on September 10, 2015 the parties approved a reconciliation document that could function as a guiding document for future economic, social, and legal relationships between the province and First Nations (Meissner 2015).

This discussion focuses on one way that coastal First Nations are building their capacity to manage the resources in their marine territories, while at the same time bridging some of the inter-generational knowledge gaps created as a result of colonialism. I focus on fisheries monitoring and stewardship programs, as they have been identified as a promising entry point for First Nations youth to gain knowledge of their territory, fisheries, and ocean conditions (GSGislason 2013, O'Donnell et al. 2013, Pinkerton et al. 2015), and because it is through resource monitoring that communities collect and analyze data on resources, a foundation for their capacity to devise approaches to governance, as well as the rules governing resource use (Pinkerton & Weinstein 1995, Pinkerton 2009). Overall, my research seeks a better understanding of how efforts (in the form of the stewardship training programs and monitoring experience) to bridge the generational gaps in access to and knowledge of the ocean environment contributes to the bigger vision of coastal First Nations in their desired return to First Nations governance of their marine territories and resources. The central research question is: *How can training in fisheries monitoring and as resource guardians best support First Nations to grow their traditional governance and resource management capacities?*

[2] In 1927 the *Indian Act* was amended (Section 141) to forbid any First Nations person or Band council from hiring a lawyer to make claims against the Crown, and forbid them from organizing to raise money to do so. This provision was not lifted until the 1951 amendments.

1.2. Structure

Out of respect for the protocols of Indigenous research methods, I begin with a reflection on who I am, and why I have been drawn to undertake research in this area. The methods chapter also includes an explanation of the Indigenous ethical and epistemological foundations that have been central to my research, as well as a description of all methodological approaches used in my inquiry. The following chapters relate what I have learned. Chapter two provides an overview of the historical and current political, legal, and legislative context that frames the research, outlines how the practice of co-management can be used as a governance framework around which new relationships in resource management can be built, and describes the monitoring and stewardship training programs that I have studied. Chapter three addresses the question: what barriers to involvement in ocean-related activities and jobs do First Nations youth on the BC north coast face? The chapter emphasizes the negative effects of fleet rationalization on both First Nation commercial and Food, Social and Ceremonial (FSC) fisheries, and therefore limits opportunities for youth to get involved in both these fisheries. The chapter highlights how this in turn restricts the transfer of background knowledge of the ocean that is essential if one wants to work in stewardship or monitoring positions. The chapter also emphasizes that consistent funding is the primary barrier to the ability of stewardship programs to build their capacity to offer training to and ultimately hire more youth. Chapter four focuses on "what works" by answering the questions: 1) What measures could enhance the ability of fisheries and stewardship programs to increase their program and job creation capacity? and 2) how are different programs and organizations working together to create more opportunities for youth to build a stewardship or monitoring career? The chapter emphasizes positive examples of partnerships between organizations, the importance of collaborative action amongst First Nations, and leadership. Chapter five examines how First Nations stewardship, development, and fisheries programs are engaging with and taking advantage of new opportunities in environmental monitoring related to prospective Liquefied Natural Gas (LNG) development. Chapter six re-situates stewardship programs within the broader context of the process of decolonization within resource management and more broadly within First Nations communities themselves, prior to the final chapter, which relates specific "best practices" for stewardship program content and delivery. The discussion

closes with reflections on the teachings of the research project: what a vision for the future of stewardship programs, and ultimately power-sharing in resource management, could look like in BC, as well as how the research and writing of this work has been a personally transformative process.

Chapter 2.

Methods

In a chapter describing Indigenous research methodologies, Manulani Aluli-Meyer, a Hawaiian Indigenous scholar of education pedagogies and epistemology, describes a process of arriving at meaning that I have followed and so wish to relate here. Aluli-Meyer (2008) describes the process through which the researcher moves as a triangulation of three sources of knowledge, which she describes metaphorically as the body, mind, and spirit. The researcher begins by gathering empirical data (the body), then moves into a consciously subjective process of reflection to arrive at knowledge (the mind), and finally, through contemplation, to an understanding of what truthful insights from their research can be implemented in the world (the spirit). Through the triangulation of these three forms of knowledge the researcher comes to fully understand how "data [can move] towards usefulness" (Aluli-Meyer 2008).

This discussion has been written in a narrative form that spirals inwards (from personal reflection to context to research results) and outwards (from results to context to personal reflection) in order to bring the reader with me through each of the steps described by Aluli-Meyer. Beginning with the outer rings of this spiral, the first section of this chapter lays the foundation for my understanding: the ethical and epistemological approach that I have tried to be true to throughout my research and my writing of this discussion. The second section is a personal self-reflection on where I stand within the research context, and how my personal history has informed the direction of my inquiry. The remaining sections in this chapter attend to describing the research process: the research location and the steps of and considerations surrounding the empirical data collection that was undertaken for this research project. Chapter three continues the inward narrative spiral by describing the context that has framed the research endeavor. Chapters four through nine describe the knowledge I have gained through reflection on the information gathered (Aluli-Meyer's second step), and in the conclusion the narrative spirals outwards once more, as I reflect on what visions for the future can be applied from my research in the world, and on my own personal journey.

2.1. Encircling the Research: Epistemologies and Ethics

This section is offered as a reflection on the ethical underpinnings of this research, and an exploration of how this research inquiry is not only an academic contribution, but also a form of activism. The research process and results are a form of activism because I explore practical ways to support First Nations resource governance within the context of historical and ongoing struggle of First Nations people in Canada against (neo)colonialism and the ongoing process of reconciliation. Although my research was initially scoped to employ ethnographic research methods in the field (such as interviews and participant observation), my methodological approach has evolved over time to be more appropriate to the research context and to allow me to better express the complexity of the issues addressed as well as the lessons that I have learned. Accordingly, the research process, analysis, and the writing of this discussion have been informed by a variety of different research traditions that emphasize the responsibility of the researcher to create some action, or to articulate a vision for the future, that will inspire change within the research context and within the world more broadly. The methodologies from which I have drawn inspiration and guidance include Participatory Action Research (PAR), Narrative Portraiture, and Indigenous research epistemologies and hermeneutics. I began my research with a grounding in principles of action research. As I began to analyze and write this discussion, I needed methodologies and frameworks to help me understand the lessons that research participants were sharing. Using the lenses of Narrative Portraiture and Indigenous research methodologies has helped me understand and express the lessons and teachings I have been given throughout my research in a way that is respectful of their complexity.

2.1.1. On Action Through Research

Some of the elements of PAR, Narrative Portraiture, and Indigenous research epistemologies and hermeneutics that underlie this research are their shared commitment to action or transformation through research, and the acknowledgement of the critical role played by context during each step of the research process. In PAR, underlying tenets that inform projects include: "a desire to engage in self- and collective reflection to gain clarity about the issue under question, [and] a joint decision to engage in individual and/or

collective action that leads to a useful solution that benefits the people involved" (McIntyre 2008). Although this research could not, as a two-year Master's project, follow all aspects of PAR methodology described by McIntyre, at its conception and throughout the research process this project has maintained a clear goal of action (the creation of a list of "best practices" for stewardship training programs) that was developed with partner organizations, particularly the Coastal Stewardship Network (CSN). Similarly, although I have not followed all aspects of Narrative Portraiture as developed by Sara Lawrence-Lightfoot, I have used a narrative voice as well as descriptive vignettes in the writing of this discussion to honour the goal of Portraiture of "speaking to broader audiences beyond the academy, thus linking inquiry to public discourse and social transformation" (Lawrence-Lightfoot & Davis 1997).

Manulani Aluli-Meyer clearly articulates several principles of Indigenous epistemologies that form the bedrock of this discussion. The first of these is that the search for knowledge is driven by spirituality, which, within the Indigenous worldview, means that knowledge is connected to place and to community; in other words, knowledge is connected to the cultural context: "an epistemology of spirit encourages us all to be of service…research is bound in meaning and inspired by service to others or to our natural environment" (Aluli-Meyer 2008). The second important principle is that of utility and knowledge, that: "knowledge that does not heal, bring together, challenge, surprise, encourage, or expand our awareness is not part of the consciousness this world needs now" (Aluli-Meyer 2008). Third, on relationships and knowledge, Aluli-Meyer writes that knowledge is a by-product of exchanges and connections with other people, which creates an imperative question that must be considered by all researchers: "will your research bring forth solutions that strengthen relationships with others or will it damage future collaborations?" (Aluli-Meyer 2008). The lessons or teachings of this discussion (which are discussed in the final sections "a vision for the future" and "personal reflection") are offered in the spirit of the principles described by Aluli-Meyer (2008), Donald (2011), and others, as well as the action-orientation of PAR and Narrative Portraiture, all of which compel the researcher to find the constructive in the work they have undertaken as part of their implicit responsibilities, to "change the world one reader at a time" (Lawrence-Lightfoot & Davis 1997).

2.1.2. Context and Subjectivity

All of the research methodologies described above emphasize the importance of context in relation to the interpretation of research findings. As described in Portraiture, context consists of: the internal context (the literal time and geography of place), the personal context (the researcher's position and perspective), and the historical context (the culture and ideology of the place throughout history) (Lawrence-Lightfoot & Davis 1997). The value of the specific context in Portraiture aligns with Indigenous epistemology: it is through attention to detail in cultural specificity that universal or causal principles are found (Aluli-Meyer 2008). Therefore, it is up to the researcher to tease out the "delicate empiricism" (Aluli-Mayer 2008) of the different stories from their data and to reflect on what in the narratives could have relevance for a vision of the future[3]. Similarly, in his discussion of hermeneutic inquiry, David Smith (1991) describes how the researcher, in analysis, must "hear [the stories of participants] in the present", which "does not just mean simply being aware of vibrations on the eardrums, but a registering of them within the deep web of sounds and voices that make up the structure of one's consciousness as language, memory and hope…hermeneutical consciousness is always and everywhere a historical consciousness, a way of thinking and acting that is acutely aware of the storied nature of human experience." Hermaneutics is "a form of radical thinking suspicious of prescribed solutions that seeks to engage with difficulty and ambiguity…by remaining right in the midst of tensionalities [of a situation or context] rather that searching to rise above or move beyond them" (Donald, 2011). Dwayne Donald describes a research methodology called "Indigenous Métissage" that specifically uses hermeneutic inquiry by committing to a philosophy that Donald calls ethical relationality. Ethical relationality is an ecological way of understanding the relationships amongst humans "that does not deny difference, but rather seeks to understand more deeply how our different histories and experiences position us in relation to each other," and thus provides guidance on how to express the tensions that exist within research contexts and to see these tensions "create opportunities for new knowledge and understanding to arise" (Donald 2011). Following in the tradition of these methodologies challenges me, as a researcher, to do two things: first, to pay

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[3] As an example of this principle in action, my initial research focus on "best practices for monitoring and stewardship training" has led me to a much broader and deeper understanding of the role of education and location in First Nations cultural revitalization and well-being.

particular attention and to be specific about the internal and historical context that frames my research, and, second, to be vigorously self-reflexive about my position and intent within the research. Providing this context and engaging in self-reflection not only strengthens the validity of the research findings, but also increases the relevance of the work by making it culturally responsive and reciprocal.

2.2. Self-Reflection

McIntyre (2008) writes that the emphasis on reflexivity in PAR "provides me with the opportunity to attend to how my personal biography informs my ability to listen, question, synthesize, analyze, and interpret knowledge." Aluli-Meyer (2008), writing about the principle of Indigenous epistemology that acknowledged the role of causality and intention in the creation of knowledge, emphasizes that a researcher must critically self-reflect on his or her intention in doing research. So now I ask, what was mine?

I am a Canadian woman in my mid-20s from a middle-class family of Scottish and Ukrainian decent; as such, I benefitted from a great deal of inherited privilege. I grew up in Chelsea, Quebec, a small, semi-rural town of about six thousand people that is situated on Algonquin territory, just across the river from Ottawa. As a child, I was lucky enough to live in a quiet home surrounded by forest. I was introduced by my parents to a love of nature through cross-country skiing and hiking in the Gatineau Hills as well as in the Rocky Mountains and canoe camping in Ontario. My father was an ecologist and my mother worked on issues of gender equality and human rights in international trade, so between the two of them, I grew up with dual concerns about social justice and the environment. I still remember driving along the highway in the Caribbean with my parents and seeing lines of "houses" constructed of tin and cardboard, and wondering how it was that people had to live in such places. I also remember my mum explaining why we would not stay in any of the fancy resorts because of her concern with how these resorts impact local communities. Not that I thought about this as a child, but I believe that this background firmly shaped my areas of interest as I went to university in my late teens, and my firm belief that one's work should be done in service of society.

I don't remember having much awareness about the First Nations in Canada as a child and teenager, beyond the limited and Euro-centric Canadian history that we were taught in grade six. One of my childhood friends was Algonquin. However, I have no memory of being aware of that fact, only of being envious of her beauty and the relative wealth of her family. It was when taking a course on human rights in CEGEP (Collège d'enseignement général et professionnel) that I decided that I wanted to pursue a career path that would be in the service of social justice issues. During my undergraduate degree in Political Science, I took three courses that made a strong impression on me: the first was Aboriginal Politics in Canada, where, among other topics, I was introduced to the idea of treaty federalism[4]. The second was a course in First Nations Studies taught by a wonderful Cree professor, who introduced us to different ways of understanding history, spirituality, and ways of relating to nature, and who also spoke of his time attending one of the Residential Schools. The third was Religious Ethics and the Environment, wherein the class investigated how religion/spirituality form the bedrock of different worldviews, and how these worldviews in turn inform the way nations engage with the natural environment. I wrote my honours thesis on gender and the Comprehensive Land Claims process, and left my undergraduate degree knowing that I would eventually want to do a Masters degree on some issue that combined issues of social and environmental justice. At the time, I was interested both in First Nations and resource management in Canada as well as the political situation in Zimbabwe. However, while taking a break from school I travelled on a volunteer exchange to Benin, in West Africa. This experience showed me that my place should be in my own country, where I feel at home and where there are many troubles as well as relationships that need healing of which I am a part, and which I should therefore contribute to. I began to read widely in the academic literature and came across ideas of co-management, which struck me as a wonderful way of approaching issues of power, governance, and environmental justice. I was drawn to British Columbia by the mountains, and by a deep love of the beauty of coastal First Nation artwork. Most of all, I wanted to do research in British Columbia because I saw, and still see it as a place where, due to the almost complete absence of historical treaties, there is a great potential for creativity in imagining how the relationships between First Nations and non-First Nations governance systems can work, especially in resource management. Shortly after

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[4] See Keira Ladner's work on visions for Indigenous self-governance, particularly "Up the Creek: Fishing for a New Constitutional Order" (2005), in the *Canadian Journal of Political Science.*

I started my Master's program, the Truth and Reconciliation Commission came to Vancouver and closed with a march of as many as 70,000 people in the pouring rain in Vancouver, and I participated. In designing this research project with the guidance of my supervisor and suggestions from Ecotrust Canada and the Coastal Stewardship Network, it has been my hope that this research would not just be an academic exercise to attain a Master's degree, but that it could also offer something of use to these organizations and potentially to the people in First Nations Fisheries and Stewardship Offices that I would speak with. It is in the spirit of Reconciliation and reciprocity that I designed the research project so that I would be speaking with both representatives of Fisheries and Oceans Canada and First Nations resource managers and Guardians, because I imagined that, at an individual level, they would agree on many points. It is my hope that the results of this research can offer a vision, or at least spark the imagination, of what fisheries and ocean stewardship programs can look like for both parties in the future.

2.3. Study Site

This research was conducted in Prince Rupert in July and August 2014 and April 2015. Prince Rupert is located on the north coast of British Columbia, within the traditional territory of the Tsimshian Nations (composed of the Metlakatla, Lax Kw'alaams, Gitga'at, Kitsumkalum, Kitselas, and the Kitasoo/Xaixais Nations) and Gitxaala Nation. Members of these nations live in villages in the region (Figure 1, Appendix A) as well as in Prince Rupert. A significant number of members of the Nisga'a First Nation also live in Prince Rupert, and the Nisga'a Lisms Government is represented there by the Gitmaxmak'ay Nisga'a Society. Prince Rupert was chosen as the base camp for this research because of its historical and continuing importance as a major fishing port and its central location amongst many First Nation communities. Additionally, the research builds on previous work done by a current PhD student in our co-management group in my university department who has worked in Prince Rupert, and who identified the research topic as an

area needing attention. Prince Rupert has a population of 12,508[5] (2011 Census Profile, Statistics Canada). The 2011 National Household survey for Prince Rupert lists 4750 people who identify themselves as Aboriginal. Historically, forestry, pulp mills, and canneries played an important economic role in the region.[6] Menzies and Butler (2007, 2008) provide a comprehensive history of the commercial fishing industry on the north coast, which was built on the foundation of existing Aboriginal fisheries. Before the arrival of the commercial industry, the First Nations of the north coast had caught salmon first through theuse of tidal stone traps, then through drag seine nets (Menzies & Butler 2007). Then, as documented by Menzies and Butler (2008): "with the establishment of canneries hereditary chiefs, who organized production, integrated the sale of salmon to the canneries into their established patterns of trade, sale, and community consumption." Tsimshian drag seine camps operated until 1964, when they were officially shut down by the Department of Fisheries for "conservation" reasons," and license limitation that will be the discussion of the next section continued to make it more and more difficult for First Nations fishermen to make a living. Currently the major industries in Prince Rupert include fishing, tourism, and the port facilities, although fishing has been in a decline for over 20 years.

2.4. On Conducting Research with First Nations Communities

Menzies (2001) draws attention to the history of colonization and expropriation that underlies relationships between researchers and Indigenous peoples, and marshals social scientists to recognize and use their work to counter these acts. He articulates his call

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[5] 2001 population in Prince Rupert was 15,302, and in 2006 it was 13,392 (steady decline). In 2006, 4,660 residents of Prince Rupert identified as Aboriginal, meaning approximately 35% of the population is Aboriginal. http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-594/details/page.cfm?Lang=E&Geo1=CMA&Code1=955&Geo2=PR&Code2=59&Data=Count&SearchText=Prince%20Rupert&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=955

[6] Location – Map, description of Prince Rupert (demographic stats, etc) / brief history as a fishing town to set up context (of fleet rationalization?), First Nations in the area (demographics, location of fisheries/stewardship offices in Prince Rupert – *aka, justify why Prince Rupert was a good location*)…discussion of inclusion of central coast key informants due to participation in CFN-GBI

thus: "if anthropology is to play a useful and progressive role in the process of decolonization, it will ultimately require a political commitment in support of First Nation peoples and an unambiguous recognition of the colonial role played by mainstream social science paradigms" (Menzies 2001). In my own research, I've tried to do this by framing the more practical aspects of this work (developing a list of "best practices" for training programs) within a critical look at history that acknowledges how various colonial acts by the Canadian government and citizens have shaped the context in which the research ultimately took place. I have also tried to live up to this call by choosing to develop a research project that organizations that work for First Nations have said would be useful to them (see chapter eight on the work of the CSN and assertion of First Nations governance), and by giving back to these organizations by writing a discussion that shows some ways to apply what I have learned over the course of my research project.

Menzies (2001) also outlines four steps to a respectful research relationship with First Nations. These are: 1) initiate dialogue, providing the Nation with a detailed research plan or letter of intent that he/she is prepared to modify at the request of the Nation as necessary; 2) refine research plan in consultation with the Nation; 3) conduct research in teams that facilitate the transfer of knowledge and skills from the researcher to the community members, and 4) remain in contact with the community throughout the writing and revision process, holding discussions to analyze the results with the community where possible. A "research package" that describes the research process and results should also be left with the community. Menzies notes that these are general guidelines; every step will not be possible or advisable in every case given, for example, the scope and duration of the project. In my research, I have attempted to follow these steps to the greatest extent possible. Although I was not working with one particular First Nation community, I developed this project with input and support from Ecotrust Canada and in particular the CSN. When first approaching members of the different First Nations, I provided as much detail about the aims of the project as possible, and signed a research protocol agreement with the Metlakatla Nation that addresses issues such as publication and intellectual property. I also went through a review process with the Gitxaala Nation, who concluded that since my research was not particular to their Nation, that it would not be necessary to sign a similar research protocol agreement. Within the limitations of my project it was not possible for me to work with research partners from any community, but

it is my hope that the list of "best practices" generated by my research will be of use to Ecotrust Canada and in particular the CSN. Finally, I have struggled with my inability, due to the dispersed and varied nature of the people I spoke with, to have a community meeting to get feedback on results. While I was in Prince Rupert I spoke with Professor Menzies on a few occasions, and met and attended a feedback session given by one of his Masters students to the Gitxaala community. I particularly remember how Professor Menzies underscored the fact that, even though her results were very preliminary, he was insisting that she give back to the community before returning to Vancouver, in case she could not return at a later date. I came away from the evening feeling guilty and somewhat hypocritical: although I wished to act with integrity and respect according to Indigenous research protocols, I knew I would not be able to hold a similar feedback session. To "make up" for these shortcomings, I have tried to follow Indigenous research protocols by giving back to the people who gifted me with their time and knowledge in other ways. I have sought feedback from several key informants through follow-up interviews conducted in April 2015 and from every person interviewed via email. I will also be returning the results of the research to all participants in the form of a non-academic report. Finally, while working with the CSN as an intern to fill graduate program requirements, I contributed my knowledge and 80 hours of work to help construct a funding proposal for a three-year stewardship training program for both the Coastal First Nations and Nanwakolas Council[7] Guardian Watchmen programs. The proposal was ultimately successful, and the training program will start in the late fall of 2015.

2.5. Research Methods

While in the field, I used ethnographic research methods, including participant observation (living in community, going to events, informal conversations and meetings, going out on a monitoring tour with Gitxaala & Lax Kw'alaams staff) and the maintenance of field notes, with the majority of data coming from semi-structured interviews and many informal conversations and meetings that took place between July 1-August 19, 2014, and April 2-21, 2015. My field notes took the form of both unstructured direct observation of

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[7] The Nanwakolas Council serves seven First Nations on northern Vancouver Island and adjacent south central coast areas of BC by facilitating land and marine resource planning and economic development activities (Nanwakolas Council 2015, pers. comm., November 4, 2015).

the study site, which provides useful contextual information that can be helpful in interpretation of other data (Yin 2003), and a more comprehensive note-taking structure. Comprehensive note-taking consists of writing down systematically and comprehensively everything that happens during the researcher's time in the field – this could also be called a detailed research "log" (Wolfinger 2002). By taking comprehensive notes, I increased my methodological self-awareness by making my tacit knowledge (my initial and evolving expectations and assumptions about peoples' behaviours and attitudes) explicit. Ultimately, "tacit knowledge is the most important consideration in determining how particular observations are deemed worthy of annotation" (Wolfinger 2002). Keeping comprehensive fieldnotes has helped me to keep track of emerging themes throughout the research process and to be self-reflexive when transcribing and interpreting interviews in order to reduce biases common to qualitative research. For example, respectfully describing the tensions and complexity of First Nations engagement with LNG proponents (discussed in chapter six) required me to keep a very open and non-judgemental mind throughout my research and analysis.

Thirty-one semi-structured interviews were conducted with a broad range of people, including representatives of the CSN, Ecotrust Canada, and Fisheries and Oceans Canada (DFO), First Nations young adults[8] who had taken one of the training programs examined, other First Nations young adults within the community, and a range of participants who included First Nations fisheries program and stewardship office managers. Semi-structured interviews were chosen as the appropriate format because this structure: "allows the researcher and the interviewee to jointly guide the interview…which can lead to unanticipated discussions that the researcher may not have foreseen prior to the interview" (Huntington 1998, see also Natcher & Hickey 2002); interviewees are thus more accurately portrayed as co-participants in the research process. Questions that guided the interviews are provided in Appendix B. This interview format allowed me to direct discussion towards specific questions that were identified

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[8] During interviews, the terms "youth", "young adults", and "younger generation" were used interchangeably depending on appropriateness, and referred to people between the ages of 19 and 40. Interviews were not conducted with youth younger than 19 due to research ethics restrictions, and, given the advanced age of many working in the fishing (and related) industries, anyone younger than 40 was considered to be part of a different age cohort that could be called "youth".

through my literature review, but also allowed me to remain open to issues and topics of importance that I had not foreseen and that emerged during the discussion. A poignant example of this occurred when speaking with one man in particular. When I asked him about First Nations roles in monitoring and enforcement of fisheries, he responded by telling me about the priority within the compliance and enforcement branch at DFO to build trust and voluntary compliance, especially within First Nations communities. He described some of their activities, and emphasized the importance of the Canoe Journey[9] and the workshops on restorative justice that DFO has held for fisheries officers, and to which they invite the First Nations in the area. This man, like so many who shared their knowledge with me, was a Two-Eyed Seer[10], and was giving me teachings on Indigenous governance, and clues to how fisheries governance in the future could look. Upon reflection months after the interview, I came to understand the teaching he was giving me. He was showing how, in a First Nations worldview, wherein each individual rightly understands their connections and responsibilities to all other human and non-human beings in the environment, enforcement of laws and regulations is not necessary. However, since cultural teachings have been broken in many communities by colonialism, what is needed now are activities like the Canoe Journey and like restorative justice that restore trust and revitalize culture.

To select interviewees, I initially relied on already existing contacts at the CSN, Ecotrust, and at Simon Fraser University who have already conducted research in Prince Rupert to put together a list of first contacts. I then used community networking in order to broaden the scope of my interviews, following some of the guidelines for selecting informants suggested by Spradley, for example, that an informant be thoroughly

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[9] Paul Mercer of the Nisga'a Nation created the Gathering Strength Canoe Journey in 2006. Each year, youth from many of the different First Nations on the north coast participate along with RCMP and DFO Fisheries Officers. Participants paddle a route that can take an entire month (for example, from Prince Rupert to Metlakatla, Alaska, in 2013). While on the journey, the canoes stop in villages on the way and take part in traditional feasting and dancing. The journey was started to help youth learn about and reconnect to their traditions and culture, to build bridges and relationships between different Nations, as well as between youth and enforcement agencies (Perry 2011, and Interview, August 6, 2014).

[10] As first described by Elder Albert Marshall of the Mi'kmaw Nation and published in Bartlett et al. (2012), Two-Eyed Seeing is: "the gift of multiple perspective…it refers to learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing and from the other eye with the strengths of Western knowledge and ways of knowing, and to using both of these eyes together, for the benefit of all."

"enculturated" in their field (Spradley 1979). It was certainly not possible within the scope of this study to speak with people representing every perspective on the vast array of issues surrounding succession in the fishing industry as well as monitoring and stewardship training programs. However, I spoke with people coming from as wide a range of organizations and backgrounds as possible, and sought saturation in interview responses to determine when an idea or issue had been sufficiently covered. The majority of interviews were conducted in person in the interviewee's office or in local coffee shops, and a few interviews with people located on the central coast were conducted over Skype. Validation of research results was done through electronic circulation of preliminary research results (poster, powerpoints) to all interview participants, follow-up interviews with key participants that were conducted in Prince Rupert in April 2015, as well as circulation of a draft for further feedback.

An additional component of data analysis comes directly from the CSN, who conducted an online survey in January 2015 of Guardian Watchmen and Stewardship Technicians to get feedback about desired delivery and content of their training program. The CSN has shared this data with me, and I have analyzed this data in the R environment for statistical computing, and incorporated the results into my findings on training program best practices (R Core Team 2015). Finally, the recommendations for training program best practices outlined in chapter eight are also informed by numerous conversations and research undertaken while completing a course-based internship with the CSN in 2015.

2.6. Considerations of Reliability, Validity, and Authenticity in Qualitative Research

The reliability of a study "refers to its replicability and stability over time" (Schensul & LeCompte 2013). External reliability, the ability of another researcher to come to the same conclusions as the original researcher if following the same methodology in a similar setting (Schensul & LeCompte 2013), has in particular been traditionally applied to quantitative research, where study design and external conditions can be closely controlled. In qualitative research the goal is not usually to be able to exactly replicate a study, but to ensure that each step of the methodology is transparent enough that other

researchers will be able to identify any inappropriate steps, and that they could replicate and apply the methodology in other similar situations (Schensul & LeCompte 2013).

Both Schensul & LeCompte (2013) and Yin (2003) describe several methods to enhance the external reliability of qualitative research that I have used throughout this study. Those that I have followed include: recording all steps taken during fieldwork, including "the nature and the context of the researcher's relationships with the study population and the research site…[and] the social contexts and situations of the research"; being aware of and describing potential researcher biases, and keeping track of with whom, where, and when all interviews took place (Miles & Huberman 1994, Schensul & LeCompte 2013, Yin 2003). The easiest ways to record the above conditions, considerations, and processes is through the use of fieldnotes, and by using a study database (NVivo) to record all steps that have been taken throughout the research process to maintain a clear "chain of evidence" (Yin 2003).

Throughout my research, I have been concerned primarily with two types of validity. The first is *construct validity*, which refers to whether the measure the researcher is using is actually appropriate to the question to be answered. In semi-structured interviews, questions used in interviews make sense to the person being interviewed, and the terms used must mean the same thing to the person being interviewed as to the researcher (Schensul & LeCompte 2013, Spradley 1979). For example, I was careful to explain to the people I interviewed what ages I was referring to when I said "youth", or the "younger generation." The second type of validity of concern is called *internal validity*, which refers to "the degree to which the responses obtained from respondents are a valid reflection of how those respondents felt and thought about the topic," and to what extent study results represent the reality of the people or situation studied, as the research subjects would define it (Miles & Huberman 1994, Schensul & LeCompte 2013). The issue of construct validity was addressed in my research by informing interview questions and selection of interviewees on the basis of: a) an exhaustive review of relevant academic and grey literature, and b) by pre-testing interview questions for comprehension and appropriateness (Schensul & LeCompte 2013, Spradley 1979). The use of multiple sources of evidence was also extremely important to ensuring interval validity because it

allowed me to use *converging lines of inquiry,* a process of triangulation[11], to verify the accuracy of research findings (Schensul & LeCompte 2013, Yin 2003). In my research I identified and compared perceptions of the CSN and Ecotrust's monitoring training programs' strengths and weaknesses through the triangulation of multiple sources of knowledge (Miles & Huberman 1994, Yin 2003) including CSN, Ecotrust, and DFO staff members as well as youth who have already taken one or both of these training programs. To further ensure that my research results were internally valid (that a sufficient amount of interviews have been conducted to accurately represent the different targeted sample populations), I sought saturation in responses to interview questions (Schensul & LeCompte 2013).

A last concept that I have applied is that of *authenticity*, which is similar to the concept of *external validity*, the ability to generalize from the research findings of a specific study to a broader population. *Authenticity* is the standard that is used in Narrative Portraiture, and it refers to the portraitist's efforts to "document and illuminate the complexity and detail of a unique experience or place, hoping that the audience will see themselves reflected in it…the portraitist is very interested in the single case because she believes that embedded in it the reader will discover resonant universal themes" (Lawrence-Lightfoot & Davis 1997). Similarly, according to Indigenous epistemologies, universal truths are reached through attention to culturally specific hermeneutics (Aluli-Meyer 2008). I have incorporated the principles and process of Narrative Portraiture by doing my best to authentically interpret and represent the different threads of stories that emerged through the interviews and time spent in Prince Rupert. I also believe that many of the "best practices" for monitoring training programs discussed in chapter five could be applied outside of the north coast region, keeping in mind that community needs and resources will likely be different in other regions.

Except where interviewees preferred not to be recorded, all interviews were audio-recorded, transcribed, and coded using NVivo qualitative data analysis software. Detailed notes taken during non-recorded interviews and meetings were also coded. My

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[11] Triangulation is a research technique that facilitates validation of data through cross verification from two or more sources. In particular, it refers to the application and combination of several research methods in the study of the same phenomenon

interpretation and analysis of interviews primarily follows the grounded theory approach to qualitative research. This process is iterative; interviews are coded according to major themes as they emerge during the initial reading, and subsequent cycles refine, combine, and explore relationships between and amongst the codes to identify categories of ideas (Glaser & Strauss 1967, Strauss & Corbin 1994). These categories have in turn been grouped into the major themes and narratives that are presented in chapters four through eight.

Chapter 3.

Background and Research Focus

3.1. Spiraling In: A Portrait of the Context

This chapter builds upon the epistemological and methodological foundations introduced in previous chapter by describing the context in which my research has taken place. The first section situates the research questions by providing an overview of the historical and current political, legal, and legislative context that frames the research, and then bridges into the second section, which provides an overview of how the practice of co-management can be used as a governance framework around which new relationships in resource management can be built. Finally, in the third section I describe the monitoring training programs that I have studied.

3.1.1. On Neoliberalism and Reconciliation in Canada

The Summary Report of the Truth and Reconciliation Commission (TRC) was released in June 2015, ending a five-year period of truth-telling and reflection, and opening the door for a new period of reconciliation between the First Nation and settler citizens of Canada with 94 calls to action. The TRC defines reconciliation as: "an ongoing process of establishing and maintaining respectful relationships. A critical part of this process involves repairing damaged trust by making apologies, providing individual and collective reparations, and following through with concrete actions that demonstrate real societal change. Establishing respectful relationships also requires the revitalization of Indigenous law and legal traditions" (TRC Summary Report 2015). It is clear that although the Canadian government and the Canadian public have made some steps towards reconciliation, there is still a great deal of work to be done. As the Indigenous scholar Robert Yazzie (2000) writes: "colonialism is a situation in which people in Washington, Ottawa, or other neocolonial capitals make decisions that affect the lives of Indigenous peoples without effectively involving them or reaching consensus *with* them. Postcolonialism will not arrive for Indigenous peoples until they are able to make their own decisions. Colonialism remains when national legislatures and policy makers make

decisions for Indigenous peoples, tell them what they can and cannot do, refuse to support them, or effectively shut them out of the process." Examples of such forms of colonialism in Canada still abound, from the persistence of provincial and federal governments in appealing court decisions decided in favour of First Nations appellants to the highest level of the legal system time after time, to the underfunding of First Nations education and organizations. This discussion is written within the context of reconciliation, and within the "Comeback" (Saul 2014) of First Nation peoples in Canada, as has been made explicit by the Idle No More movement and as described by John Ralston Saul. As Saul (2014) writes, one of the biggest challenges facing all Canadians today is to change their narrative from one that has essentially negative associations with Aboriginal people to one that truly recognizes Canada's past and creatively imagines what a future of reconciliation could look like. It is up to every Canadian to ask: "whether we want to play our role as citizens – as treaty people. Or whether we are going to hang on to our old habits – no matter how disguised as sympathy or ignorance or technical difficulties or legal difficulties or budgetary difficulties – and so betray our obligations as Canadian citizens" (Saul 2014).

3.1.2. The Colonial Context, Past and Present

Canada's colonial history has systematically undermined the connection between First Nation peoples and their lands, resources, and culture through assimilationist laws

and legislation such as the reserve system and enfranchisement clauses[12] under the *Indian Act* and the banning of culturally important ceremonies such as the potlatch (Turner & Turner 2008, Turner et al. 2000). One of the most culturally destructive policies was the residential school system, which removed generations of First Nation children from their parents and communities and forced them to learn Euro-Canadian languages, values, religion, and ways of being. This attempt to assimilate the First Nations of Canada has deprived many First Nations people today of knowledge of their lands, languages, cultures, and traditional livelihoods (Miller 1996, Turner et al. 2000, Jackson 2014).

3.1.3.   Neoliberalism in Fisheries Policies as Economic Colonialism

In the BC salmon fishery, government policies from the late 1880s onward were designed to erode traditional management control over access to the resource. Examples of these policies include: the licence requirements of 1888 which designated First Nation fisheries as a non-commercial food fishery; rules governing allowable areas for fishing such as the Barricade Agreements of 1905, which made inland fishing illegal, and the destruction of salmon weirs (Pinkerton 1987)[13]. Neoliberal fisheries policies since 1980s

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[12] For example, The *Indian Act* defines, among other things, conditions of Indian "status" in the eyes of the Canadian government. Importantly, only status Indians were allowed to live on reserve lands and be acknowledged as members of an Indian band; the Canadian government controlled the membership of First Nation communities, and thus the access of First Nations to their rights as members of these communities. The *Indian Act* definition of "Indian" is fundamentally gendered. In the original 1867 legislation, an Indian was defined as: "any male person of Indian blood belonging to a particular band; any child of such person; any woman who is or was lawfully married to such person." A woman who married a non-Indian was enfranchised, meaning she lost her Indian status and with that the right to live on reserve lands and call herself a member of her Nation. Moreover, only male members of a band could vote or run in the band council elections, and women could not hold certificates of possession of land. Men thereby became the only members of the community who held power in the eyes of the Canadian government. The *Indian Act* was amended in 1951 to reinstate women's right to participate in the election of Band council members and to take part in Band meetings, and In 1985 the Trudeau government enacted Bill C-31, "An Act to Amend the *Indian Act*" in an attempt to bring the *Indian Act* in line with the gender equality provisions of the Charter. Specifically, Bill C-31 allows Indians who became disenfranchised because of previous versions of the Act to regain Indian status under Section 6(1) of the *Indian Act,* and states that any individual having one status Indian parent has status under Section 6(2) (this only partially fixed the gender discrimination, see Report of the Royal Commission on Aboriginal Peoples, Volume four, Chapter two). Bill C-31 also addresses the right to band membership by amending the *Indian Act* so that Indian status is no longer linked to with band membership.

[13] For example, of the estimated 3000 First Nation fishers on the Fraser River in 1892, only 40 had independent fishing licenses (Garner and Parfitt 2006).

have continued to erode First Nations' access and control to their resources, and can hence be called a modern form of colonialism[14]. These policies have been characterized by: a strong emphasis on property rights and economic efficiency, government cutbacks, and devolution of responsibility and risks to the private sector. Examples in the northern fishing fleet include the fleet rationalization (reduction in fishing licences and boats) regimes, area licensing, and downloading of monitoring costs to the fishing fleet (Pinkerton & Davis 2015). As Pinkerton and Davis (2015) recount, neoliberal policies in the salmon fishery started in earnest with the publishing of the Sinclair Report of 1960: "The British Columbia license limitation policy, which followed in 1968, required all salmon fishermen to have licenses for that fishery and established various programs requiring certain classes of licenses and certain sizes of boats to exit the fishery…licenses could be sold and combined in order to phase these vessels out. The objective was to consolidate licenses into fewer, larger, and more efficient boats which, it was believed, would capture more rent." (Pinkerton & Davis 2015). Continuing concentration of fishing licenses and pressure to move to an industrial fleet, and fleet rationalization and capital intensification under the *Davis Plan* (1969) and the *Mifflin Plan* (1996), continued to cause a now well-documented phasing-out of smaller, often First Nation-owned boats and disproportionate job losses in First Nation and other coastal fishing communities. For instance, "Our Place at the Table", a report by the First Nation Panel on Fisheries in 2004 quotes numerous testimonies from First Nations showing dramatic reduction in participation in the commercial fishery. In Alert Bay, for example, participation has dropped from 90% to 10%. Both the First Nation Panel on Fisheries report (2004) and another by McRae and Pearse (2004) assert that it is the privatization of ocean resources that has made the cost of access to the fishery skyrocket and pushed out First Nation fishermen. McRae and Pearse summarize: "previous license-retirement programs depleted [native fishermen's] numbers because many were so indebted that they had no alternative to selling out. Inflation of license values has presented a formidable barrier to entering the industry, and low earnings in the salmon fishery in recent years, coupled with the special difficulties aboriginal people face in securing access to financial resources, have resulted in many leaving." In summary, the preference of Canadian fisheries management for neoliberal

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[14] Neoliberalism can be understood as a form of modern economic colonialism of all small, fishing-dependent communities who are being forced out by large-scale fishing enterprises – colonialism in this sense is not limited in its impacts to First Nations peoples.

policies has transformed the fishery from a fleet made up of many locally owned boats supporting coastal communities to a highly concentrated, industrial fishery (Walter et al. 2000, Pearse and McRae 2004, First Nation Panel on Fisheries 2004, Ecotrust Canada 2004, 2015).

The loss of economic and cultural sovereignty caused by these policies has contributed to numerous societal problems facing First Nations coastal communities, including high unemployment, particularly amongst youth under 25, and a generation of youth that have limited knowledge of traditional economic and cultural practices. A recent study by GSGislason & Assoc. Ltd. on the BC fishing industry labour market confirmed that significant barriers to the intergenerational transfer of fishing licenses and to the entry of youth into the industry remain to this day, due in part to new neoliberal policies in the seine and gillnet salmon fisheries that dissolved long-standing policies about a percentage (of profits) based wage-share system for crew and skippers who did not own a boat or license (GSGislason & Associates 2013, Pinkerton 2015). Other recent studies in coastal communities in Alaska and Newfoundland have similar findings: youth in these communities value and respect fishing as a traditional and commercial enterprise, but they do not perceive it to be a viable career due to barriers of entry, growing expectations of completing a college degree, and the perceived need to move to urban areas to earn a living (Schlag & Fast 2005, Lowe 2012, Neis et al. 2013, Power et al. 2014).

Other forms of neoliberalism that affect fishing communities today include industrial development along the coast or in the ocean, which has been dubbed "ocean grabbing" (Bennett et al. 2015). As Pinkerton and Davis (2015) explain, "Fishing people must increasingly compete for ocean space with a variety of new interests, including: oil and gas exploration and development, wind and tidal energy development, marine recreation and tourism, aquaculture, shipping and marine transportation, bio-prospecting, seabed mining, military operations, and scientific and technical research. While some efforts have been made to introduce marine planning projects in an attempt to manage tensions stemming from increased competition for coastal space, such projects have sometimes had the effect of legitimizing and creating space for new forms of industrial development, while effectively shutting many historic ocean users out of the process altogether." The relevance of this form of neoliberalism for First Nations on the north coast

of BC will become apparent in chapter five in the discussion of the effects of the proposed liquid natural gas (LNG) development around Prince Rupert.

Finally, budget cuts to DFO can be seen as another form of neoliberalism: "sweeping budget cuts to fisheries and ocean science and management budgets stemming from neoliberal policies have necessitated a reconceptualization of the roles played by both state and citizenry in the regulation of ocean activities. Faced with diminishing resources, government fisheries and ocean management agencies have been increasingly forced to rely on a diverse array of public–private partnerships with universities, non-government organizations, and private corporations in order to carry out their mandates. This fits seamlessly into the neoliberal view that the state should assume more of an overseeing role and share more responsibilities with the private sector" (Pinkerton & Davis 2015). Because of funding and staff cutbacks, the last 10 years have been characterized by a slow collapse of DFO capacity to monitor (and therefore make management decisions concerning) the salmon fishery in BC, especially on the north and central coast. This collapse began with an inability to effectively and sufficiently monitor salmon streams (Peterson et al. 2005, Price et al. 2008), and has more recently spread to at-sea catch monitoring and observing. DFO is currently in a self-declared process of delegating monitoring responsibility and costs to industry, as is evident from DFO's *Strategic Framework for Monitoring and Reporting,* which states: "harvesters are responsible for collecting, recording, and communicating all fisheries monitoring data" (DFO 2012c). As will be discussed in the results chapters, this decentralization of control has both positive and negative effects. It does create a window of opportunity for First Nations to fill monitoring and observer positions, but at the same time First Nations fisheries and stewardship programs are left with very little support from the DFO, and suffer as well from general underfunding of Aboriginal Fishing Strategy (AFS) agreements.

3.1.4.　The Legal Framework

Under s. 91(12) of *The Constitution Act,* the Federal government has jurisdiction over seacoast and inland fisheries. However, jurisdiction over fisheries has long been contested; some scholarship frames the question "who has responsibility over fisheries management" as an ongoing jurisdictional debate between the federal, First Nations, and

even provincial governments that reflects different understandings of territorial sovereignty and constitutional relationships (Ladner 2005, Harris 2001). Under the *Fisheries Act*, the federal department of Fisheries and Oceans Canada is responsible for the management of marine fisheries.

The legal context that frames the rights of BC First Nations to monitor and manage their fisheries derives from a succession of mostly successful court cases by First Nations since the repatriation of the Canadian Constitution in 1982. Section 35 of the *Constitution Act* pronounces that: "the existing aboriginal and treaty rights of the Aboriginal Peoples of Canada are hereby recognized and affirmed" (*Constitution Act,* 1982, s 35). Importantly, the *Constitution Act* does not specify which Aboriginal rights are constitutionally protected, which has led to a large volume of court cases by First Nations seeking recognition of specific rights, very often to land and resources. The first landmark case that pertains to fisheries is *R. v. Sparrow*, wherein the Supreme Court of Canada (SCC) established the right of the Musqueam Band (BC) to fish for food, social, and ceremonial (FSC) purposes and set an important precedent for the rights of all First Nations (Harris & Millerd, 2010). *Sparrow* also established a "minimum infringement principle" test by which the government may constitutionally infringe on an Aboriginal right: 1) there must be a "substantial and compelling" social objective, and 2) the Crown's fiduciary duty must be satisfied (*R. v. Sparrow,* 1990).

In 1996 two important cases were brought before the SCC. The first of these is *R. v. Van der Peet,* involving the Stó:lō Nation (BC), who claimed their right to a commercial fishery. In this case, the SCC devised a three-part test (known since as the *Van der Peet* Trilogy) to establish the existence of an Aboriginal right. For an Aboriginal group to claim an activity as a right, the activity must be: 1) an element of ancestral practice, custom, or tradition; 2) integral to the Aboriginal society in that it marked it as distinct; 3) have been practiced with continuity between past and present (Harris & Millerd 2010, Walter et al. 2000). Walter et al. (2000) argue that *Van der Peet* definitively established the right of First Nations to steward (manage) their resources under *The Constitution Act.* In the same year, in *R. v. Gladstone* the SCC recognized the right of the Heiltsuk Nation to a commercial herring roe fishery. However, the Court also extended the reasonable infringement principle to include reasons of economic and regional fairness towards non-Aboriginals (Harris & Millerd 2010).

Other important cases that establish legal precedent for Aboriginal fishery rights include *R. v. Marshall* and *Marshall II* (1999), wherein the SCC found that the Mi'kmaq have the right to a subsistence fishery to support "a moderate livelihood," and that the government may infringe on this right to a) achieve conservation goals; b) pursue regional and economic fairness and the recognition of non-Aboriginal fishers, following the *Gladstone* precedent (Harris & Millerd 2010). Court cases that pertain to commercial fisheries include *Lax Kw'alaams Indian Band v. Canada* (2008), wherein the BC Supreme Court ruled that the historical subsistence use of the fishery by the Band does not establish the existence of a commercial right to fish. By contrast, in the *Ahousaht* case (2014), the SCC has recently confirmed the right of the Nuu-chah-nulth to a commercial fishery.

Three other SCC cases have created important precedence in Aboriginal law as it pertains to governance and Title to land. In the first, *Haida Nation v BC,* the SCC found that the Crown owes a duty to consult and accommodate Aboriginal people with regard to development in their claimed territory, and it ruled that the strength of the claim determines the extent of the consultation owed. Additionally, there is no duty for the parties to agree on the outcome of consultation. In *Delgamuukw v BC,* the SCC ruled for the first time that Aboriginal Title exists and that it is inalienable to anyone but the Crown, and, significantly, acknowledged the authority of oral history. In *Delgamuukw*, the SCC also established a three-part test to determine whether Aboriginal Title exists, and a two-part test to establish whether infringement is justified. Finally, in a landmark ruling in 2014, the SCC declared in *Tsilhqot'in Nation v BC and Canada* that the Tsilhqot'in Nation has Aboriginal Title to a large tract of non-reserve land. This ruling rejected previous "postage stamp" interpretations of Aboriginal Title, wherein Title was only found in areas of intense and exclusive use. The SCC ruled that Aboriginal Title is the "right to choose" how those lands will be used, including the right to manage the lands according to Tsilhqot'in traditional laws and to derive economic benefit from the land. Finally, although there are some exceptions under which the governments of Canada and BC may have jurisdiction over Aboriginal Title lands, they may only interfere with the consent of the Tsilhqot'in Nation, and if consent is not obtained, then any interference must be justified according to the test set out in *Sparrow* and elaborated in *Delgamuukw*. Legal scholars and practitioners have suggested that conservation of a species could, for example, meet this test, but it is not yet proved whether economic benefit would (UVic Law 2014). This ruling has dramatically

changed the legal reality within which any resource development or extraction in BC takes place, as it has implications as well for the duty of the Crown to consult and accommodate First Nations who have Title claims that have not yet been established in court.

3.1.5.   The Legislative Framework

In response to both the court cases described above and international statutes, Canada's and BC's legislation both permit and prescribe co-management of fisheries and ocean resources by local and First Nations groups. For example, under the *Aboriginal Fisheries Strategy*, which was announced following *Sparrow* in 1992, annual 'comprehensive fisheries agreements' are negotiated by DFO with Aboriginal groups. AFSs authorize FSC and/or commercial fisheries (Harris & Millerd 2010). Canada's *Oceans Strategy* (2002) explicitly confirms the spirit of Article 21 of the Rio de Janerio Summit (1992), where Canada and 177 other countries recognized public participation in decision making as a "prerequisite" to sustainable development (Kearney et al. 2007). The *Oceans Strategy* commits Canada to an oceans governance and management model based on collaboration and consultation with stakeholders, and recognizes that "in some cases, Integrated Management and planning may be achieved through co-management" (Fisheries and Oceans Canada [DFO] 2002). Heaslip (2008) suggests moreover that BC's "New Relationship" vision for government-to-government relationships with First Nations obliges the government to pursue collaborative monitoring with First Nations that is respectful of Aboriginal rights (Heaslip 2008).

Other statutes, policies, and frameworks that have been implemented by DFO that are supportive of co-management and of building the capacity of First Nations to manage and monitor their fisheries include harvest agreements (which are 25-year renewable fishing licenses that allocate a First Nation a percentage of the Total Allowable Catch) that were negotiated alongside the Nisga'a, Tsawwassen, and Maa-nulth Treaties (Harris & Millerd 2010) and the AFSs. Recently, DFO's *Pacific Integrated Commercial Fisheries Initiative* (2007) (PICFI) recognized and affirmed the important role of First Nations in commercial fisheries, and stated that a movement towards shared stewardship of the fishery is one of their strategic priorities (DFO, 2007b).

As part of PICFI, First Nations participate in the negotiation of regional, yearly Integrated Fisheries Management Plans, and DFO supports the participation of Aboriginal groups in "advisory and decision-making process used for aquatic resource and oceans management" through the Aboriginal Aquatic Resource and Oceans Management (AAROM) program. This program provides funding to Aboriginal groups to establish aquatic resource and oceans management bodies. Of particular relevance to monitoring training and monitoring jobs is the inclusion of the Aboriginal Fishery Officer (AFO) initiative as a sub-component of the AAROM program for collaborative management. This initiative would provide training for an AFO by DFO, and the objective of the initiative is: "for Aboriginal groups to have established their respective enforcement regimes (e.g., appropriate command-and-control structures) and AFO cadre, where *AFOs are extended full powers and authority as DFO Fishery Officers but are employed and housed by the host organization*" [emphasis added] (DFO 2012a).

3.1.6.   The Marine Plan Partnership for the North Pacific Coast

The capacity of First Nations on the BC coast to monitor their resources is particularly relevant at this point in time, as the Province of BC and the 18 First Nations who participate in the Marine Planning Partnership for the North Pacific Coast (MaPP) announced the completion of four sub-regional Marine Plans on April 27th, 2015 (Figure 2, Appendix A). Each of the four sub-regional Plans (Haida Gwaii, the North Coast, the Central Coast, and North Vancouver Island) have been designed within the structure of the MaPP Regional Action Framework, so although there are differences within the plans in terms of priority issues and actions, all share a common Ecosystem-Based Management (EBM) framework built on principles of ecological integrity, human wellbeing, and governance and collaborative management. All of the Plans set up specific frameworks for joint management; for example, the first stated purpose of the North Coast Plan is to: "provide a framework for joint or shared management of marine and coastal areas in the North Coast through an ecosystem-based approach to management and marine resource decision-making" (Marine Plan Partnership 2015). Although the North Coast Plan specifically states that it does not address the issue of recognition of First Nations enforcement authority, the plan does address building First Nations capacity for monitoring and enforcement in detail. For instance, one of the objectives articulated in the

Plan is to strengthen existing or create new relationships to facilitate collaborative ocean governance, and stated strategies include: "develop[ing] First Nations opportunity for direct representation in ongoing governance structure, advisory body, or management processes", and "support[ing] efforts to expand the role of First Nations in monitoring and enforcement activities" (Marine Plan Partnership 2015). Finally, in the section of the North Coast Plan on Compliance and Enforcement, the Plan: 1) recognizes the need for greater on-the-water presence for enforcement and compliance; 2) acknowledges that First Nations are best placed due to location of remote communities, but currently do not have a legal enforcement mandate for reserve lands and lack the resources for comprehensive monitoring, and, 3) acknowledges that First Nations are seeking recognition of their enforcement authority as part of their Aboriginal rights and title, including acknowledgement of First Nation laws within their territories. Strategies included in the Plan under this section include enhancing the capacity of First Nations surveillance (monitoring) and enforcement programs and: "develop[ing] and/or expand[ing] First Nations training programs and opportunities, including apprenticeship with other agencies" (Marine Plan Partnership 2015). Finally, one of the priority actions in the Plan that appears under the category "Governance", with the desired outcome being "meaningful government to government partnerships are established", is the strategy: "jointly review and, where appropriate, establish formal agreements between First Nations and applicable provincial agencies that greatly enable First Nations involvement in compliance and enforcement activities" (Marine Plan Partnership 2015).

3.2. Monitoring Rights and Co-Management as a Step Towards Governance and Enactment of Enforcement Powers for First Nations

3.2.1. Co-Management: a Framework for Allowing Creative Forms of Governance

Regaining control over resources and returning to practices informed by traditional management is one important way by which communities have been able to counteract loss of traditional culture and identity, and the numerous related societal problems (Richmond et al. 2005, Turner & Turner 2008, Turner et al. 2008). In particular, research

in psychology as well as recent scholarship examining social-ecological systems have emphasized the importance of connection to culture and land to the well-being of indigenous youth, and "the need to invest in the intergenerational relationships of people to places" (Chandler & Lalonde 1998, Chandler & Proulx 2006, Barlindhaug & Corbett 2014, Ingold 2000, Rasmus et al. 2014, Power et al. 2014). Co-management (also often called community-based management), is the relatively egalitarian sharing of power to manage resources between local communities or organizations and government (Pinkerton 1989), and is an important alternative to government command and control regulation of common pool resources (Agrawal 2002). Figure 1 shows a continuum of the degree of collaboration in co-management based on the role of the government and the role of the community, from a low level of power sharing to a high one.

Representative and Technocratic Democracy

Participatory and Empowered Democracy

Co-Management

Role of Government: Prescriptive

Sharing of Knowledge and Authority

Role of Government: Coordinating, Facilitating, and Supportive

Role of Community: Advisory

Role of Community: Inclusive, Equitable, and Effective Decision-Making

Degree of Collaboration

Low

High

Figure 1.   Participatory Government and Community-Based Management
Table Adopted from Kearney et al. (2007)

Co-management is one method by which Aboriginal peoples have had success in regaining control over resources and returning to practices informed by traditional management, which emphasize the responsibility that First Nations have to take care of the land and resources for future generations. Examples of fisheries co-management arrangements include: the Gitksan management of commercial and food fisheries on the Skeena River in northern BC, (Gottesfeld et al. 2009, Pinkerton & Weinstein 1995); the western Washington State Tribes after the Boldt Decision (Ebbin 2009, Pinkerton 1992); the West Coast Vancouver Island Aquatic Management Board (Pinkerton 2005), and the

groundfish and clam fisheries in the Bay of Fundy (Kearney & Berkes 2007, Wilson & Wiber 2009). In each of these examples, the degree of power and the responsibility for management of the resource exercised by the First Nation or representative body varies, but all cases are characterized by some degree of sharing of responsibilities, power, and various management rights (Pinkerton & Weinstein 1995). These range from the right to access a resource, to allocation, to devising the rules that govern the management of that resource, and finally to participating in making policies based on a vision of the purpose of management. Although some examples of co-management in fisheries in BC exist (as evidenced by the examples given above), co-management towards the high end of power-sharing is far from the norm, and First Nations are calling for the implementation of "real" co-management in fisheries, which recognizes and affirms an Indigenous approach to resource management, as "long overdue" (First Nation Panel on Fisheries 2004). As explained by Donald (2002), Cajete (2005), Aluli-Meyer (2005), Ross (2014), Indigenous governance systems are rooted in Indigenous Knowledge (IK), which is drawn from many sources including the environmental, the mythic, the artistic, the visionary, the communal, and the spiritual (Cajete 2005). Donald (2002) explains the philosophy of ethical relationalism that is a cornerstone of Indigenous worldviews: ethical relationalism is the awareness at all times of the interconnectivity of relationships amongst all human and non-human beings in the world. The centrality of relationships in IK imparts a responsibility to people to take care of all life forms. Indigenous governance systems based in an IK-based worldview therefore have no need for enforcement of rules, because every person is aware that their primary responsibility is to respect and steward all relationships.

Such a form of resource governance is fundamentally different from the current status quo within Canada, wherein exploitation of a resource is assumed, and governments construct laws and regulations to limit that exploitation, and employ conservation and fisheries officers to enforce these laws. The value of co-management is that it creates policy (and imaginative) space wherein different governance paradigms can be explored. As expounded by John Ralston Saul, who better to monitor and govern the lands and resources in Canada then First Nations? (2014).

3.2.2.   The Importance of Monitoring

As the previous section suggested, resource monitoring is crucial to the co-management process because it enables communities to collect and analyze data on resources, a foundation for their capacity to devise or enforce rules governing resource use. This is true within the Canadian context (based on the Western worldview described above). Within a governance system based on IK, the primary rules are respect and stewardship based on ethical relationalism. However, resource monitoring is still critical, because it is through monitoring environmental conditions that a detailed understanding emerges of how ecological systems change over time. Within the current Canadian context, wherein Canadian governments still hold most power over resource governance, data collected through monitoring can provide leverage for First Nations communities. For example, Pinkerton & Weinstein (1995) and Gottesfeld et al. (2009) describe how the training of Gitksan fisheries technicians and the accumulation of valuable catch monitoring data and methods led to the eventual coordinating of their management system with DFO, and the establishment of the Gitksan and Wet'suwet'en Watershed Authorities and the Skeena Fisheries Commission. Pinkerton & John (2008) recount a similar case study from the west coast of Vancouver Island, where the increasing accuracy of clam harvest counts helped the local management authority gain regulatory legitimacy.

Similarly, resource monitoring, especially when done in partnership, or at least when data are shared with the co-managing agency, is important for trust-building between local communities and government agencies. Local resource monitoring links information to decision making more directly (Cundill & Fabricius 2009), and provides the co-managing agency with proof that local communities and groups are capable of providing detailed and relevant data (Gottesfeld et al. 2009, Pinkerton & John 2008, Pinkerton & Weinstein 1995). At the heart of the matter, monitoring is critical to successful community-based resource management. It is through data collection that communities gain the capacity to make evidence-based resource management decisions, which gives them power vis-à-vis governing institutions who may not have data of the same quality. Therefore, successful monitoring is a crucial building block for communities who seek the authority to make and enforce rules for harvest and habitat protection (Pinkerton 2003). And, finally, to address my research question: "how to create opportunities for youth to be employed in ocean-related fields," monitoring jobs have been identified as a promising

entry point for Aboriginal youth to gain knowledge of their territory, fisheries, and ocean conditions (GSGislason & Assoc. 2013, O'Donnell et al. 2013, Pinkerton et al. 2014), and can, as this discussion will show, play an important role in cultural revitalization and reconciliation.

3.3. Monitoring Programs: Building Skills to Govern on the Coast

This section provides an overview of two of the organizations that currently offer training in monitoring and stewardship on the north coast of BC and which were the organizations upon which this research was focused: the Coastal Stewardship Network (CSN) and Ecotrust. Training programs are extremely important for First Nations to build their capacity to monitor, to both assert their authority as resource managers according to their own laws and traditions within their territories, and to increase their legitimacy as monitors and co-managers of fisheries and ocean resources in the eyes of DFO. Building this capacity is particularly relevant following the announcement of the MaPP Marine Plans in April 2015. This section outlines the mandates and goals of CSN and Ecotrust, and describes the components of their training programs.

3.3.1. The Coastal Stewardship Network: Supporting Indigenous Governance

The Coastal Stewardship Network (CSN) is a project of the Coastal First Nations-Great Bear Initiative (CFN), an alliance between the Wuikinuxv, Heiltsuk, Kitasoo/Xaixais, Nuxalk, Gitga'at, Metlakatla, and Haida Nations that was formed in 2000 to support member nations in: increasing their resource management capacity, developing and implementing marine and land use plans, and developing sustainable development and economic opportunities[15]. The CSN began in 2005 under the name the Coastal Guardian Watchmen Network to act as a technical alliance to support and facilitate dialogue between resource management practitioners in CFN member communities, who became called "Guardian Watchmen." The name was changed in 2012 to the Coastal Stewardship

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[15] http://www.coastalfirstnations.ca/about/history, accessed September 3, 2015

Network to reflect a broadening mandate to support CFN resource stewardship offices (including stewardship directors and managers, as well as the Guardian Watchmen and technicians) to manage, monitor, steward and protect their lands and waters (Kotaska 2013, CSN 2014b). The CSN supports local Guardian Watchmen programs by organizing networking opportunities amongst member Nations, through the development of tools such as the Regional Monitoring System, which Guardian Watchmen use to collect and store data on the issues of concern that they are monitoring, and by offering a Stewardship Technician Training program for new and current Guardian Watchmen (CSN 2014b).

The Guardian Watchmen programs supported by the CSN are fundamentally an assertion of the authority of First Nations to govern their territories through the monitoring of ocean and coastal environments and activities therein (Kotaska 2013). However, although the Guardian Watchmen derive their jurisdiction and authority from traditional laws and the understanding of Indigenous governance, this does not preclude cooperation between the Guardian Watchmen and Canadian government-designated enforcement officers, for example, through supporting the reinstatement of restorative justice. The Guardian Watchmen vision includes the following statement which demonstrates their willingness to collaborate on resource management initiatives: "we will work with the federal and provincial government (through management agreements that respect the title and rights of First Nations) to ensure coordinated and robust monitoring and enforcement throughout our territories" (CSN 2014b).

The Regional Monitoring System (RMS) was developed by the CSN in 2009. The RMS is regionally coordinated approach to gathering, compiling, and analyzing relevant data on a set of priority indicators. Data is collected using field cards and a mobile device called CoastTracker is entered into an online Data Management System, and is used by First Nations to learn more about and address the issues they are concerned about in their territories and region-wide (CSN 2014c, Kotaska 2013). The RMS was developed to use standardized data in order to create opportunities to eventually share data with Canadian government agencies. Examples include: "RMS spawning salmon data [which] can be exported and shared with [DFO], and cultural and ecological site visit data that can be used to fulfill co-managing reporting requirements with BC and Canada" (Kotaska 2013). Kotaska (2013) reports that such data has already been used by CFN member Nations to negotiate with DFO for permanent and seasonal crab fishing closures in some areas. The

RMS underwent an independent evaluation in 2013-2014 to assess, among other things, the potential to scale up data collection on different indicators, and to look into data sharing protocols and data management system options that would allow First Nations to retain ownership of their data but also meet the requirements of government agencies (pers. comm., April 2, 2014). Based upon recommendations in the evaluation report, a redesign process for the RMS has recently been launched (Olson et al. 2014., pers. comm., August 11, 2015).

3.3.2. The CSN Stewardship Technician Training Program

The most recent iteration of the Stewardship Technician Training was offered through Vancouver Island University (VIU) from June 2013 – March 2014. The training consisted of seven units that focused on training to monitor ocean conditions of direct concern to the Coastal First Nations: (1) Monitoring Environmental Resource Use to Promote Compliance; (2) Documenting and Presenting Field Compliance Data; (3) Archeology and Culturally Modified Tree Inventory Training; (4) Parks and Protected Areas; (5) Environmental Monitoring; (6) Resource Management Seminars, and (7) Marine Motor Servicing. Many of the modules employed scenario-based training and excursions into the field to practice measurement and monitoring techniques. Additionally, the resource management seminars brought in experts from the field to engage participants, and the marine motor servicing unit in particular was a practical and hands-on learning experience (CSN & VIU 2013, Thomson 2014). Units were offered as two-week sessions in different locations on the north and central coast (Hakai Beach Institute, Prince Rupert, and Port Hardy) in an attempt to bring the training program closer to the communities of program participants; an earlier iteration of the Stewardship Training had been offered out of Northwest Community College in Prince Rupert and ran for four continuous months, which required some participants to be absent from their communities and families for a long time period (pers. comm., 2/04/2014). These changes in method of program delivery, as well as changes to the subject matter of the units offered, came out of a detailed training needs assessment that had been done following the completion of the Northwest Community College training program (pers. comm., 2/04/2014).

3.3.3. Ecotrust Canada At-Sea Catch Monitoring Training Program

Ecotrust Canada offers salmon catch monitoring training on the north coast for the salmon seine and gillnet fisheries. Their mission is to build the local infrastructure and expertise for a coastal community and First Nations led monitoring, compliance, and traceability program. Their goals are to train locals to become monitors and co-managers of their local resources, create local labour opportunities, and provide the necessary skills needed for locals to make the most of these opportunities (Ecotrust Canada 2014a). Ecotrust Canada also works to "support the establishment of relationships between DFO and First Nations communities around monitoring, compliance, and traceability programs," to help provide employment opportunities at DFO for community members, and to "build capacity for First Nations to engage with DFO in future monitoring, compliance, and traceability programs programs and enable more consistent, affordable, and higher quality data for fisheries management" (Ecotrust Canada 2014a). This goal is consistent with the rationale for the training program, which recognizes monitoring as the keystone of a sustainable fishery, and the importance of *local* observers, who have "local, expert knowledge and concern for the future of the fishery because they are invested in the area and the health of their community" (Ecotrust Canada 2014a), a statement that written by Saul (2014), quoted earlier.

Topics of study for the seine and gillnet commercial fleet monitoring training include but are not limited to: fisheries management, Fisheries Acts & regulations, First Nation fisheries and co-management, salmon management, catch monitoring programs, observer conduct/rights/duties, fishing vessel operations, fish identification and classification of marine animals and seabirds, salmonid life history and biology, commercial fishery data collection, biological sampling methods, catch sampling, and chart reading. The exact content of the training program is customized for each delivery, based on the needs of participants (pers. comm., 7/04/2014). Throughout the training program, guest presenters deliver information and answer questions. Presenters include: representatives of DFO (from stock assessment, fisheries management, and Conservation and Protection branches); First Nations; Environment Canada; the Vancouver Aquarium, and fishermen (Ecotrust Canada 2014b).

Chapter 4.

Neoliberal Fishing Policies and Other Major Barriers

This chapter gives voice to several dominant narratives that have emerged in response to the question: "*what barriers to involvement in ocean-related activities and jobs do First Nations youth on the North Coast of BC face?*" The first section summarizes the response that appeared most often throughout my interviews: that neoliberal fishing policies have restricted opportunities for youth to get involved in the fishing industry. In the second section, I describe how the reduction of the commercial fishery has had a negative impact on many First Nations' FSC fisheries, and therefore affected the ability of youth to exercise their cultural rights to harvest and eat traditional foods from their territory. The third section connects the loss of cultural knowledge of fishing and traditional territories with the ability of youth to participate in emergent stewardship opportunities. Finally, in the fourth section I shift my focus from the spiraling effects of fleet rationalization to discuss some of the other major barriers to youth involvement in stewardship work that have been repeatedly raised by research participants.

4.1. Major Effects of Neoliberal Fishing Policies

4.1.1. Barriers of Entry for Youth to the Fishery

The effects of neoliberal fisheries policies such as fleet rationalization[16] on fishing communities have been well documented in the literature, as discussed in chapter one. During my interviews, a total of 18 youth, fisheries technicians, and managers all clearly pointed to the loss of access to boats through various federal government buy-back programs, the high cost of licenses, and the area licensing scheme that was brought in

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[16] Fleet rationalization refers to the planned reduction of the size of a fishing fleet through, for example, buy-back programs targeted at small boats. The goal of such programs are to minimize fishing effort and costs and maximize economic returns – the basic idea is that it is more economically efficient for a fishery to be composed of fewer large boats than many small ones.

under the Mifflin plan as the reasons why it is now extremely difficult to make a living off the fishery[17]. This relatively long quote from a First Nation research participant summarizes the effects of the various programs on First Nation fishermen, communities, and youth:

> If you go back to the 60s [in Gitxaala], there were 15 drag seine licenses but the same number or more commercial seine boats. And so the commercial fishery was totally integrated within the traditional fishery for most of the 20th century. That means that you can live, you can make a livelihood, you can stay on the north coast, and you have opportunities. So, the first thing is having a viable fishery; that provides for the youth. And then, of course, that just looks after itself. They move through the fishery, they see it's a possibility. Right now, most young people would look at the fishery – first of all, they have no way to get into it – so, it's all controlled, all the licenses are controlled by big companies, they're all the people who actually own the licenses by and large sit down south, they're not really based in Prince Rupert…and what all that did is mean – you know, this is this beautiful idea of rationalization. So it ramps up the cost of entry into the fishery, did not actually have a successful operation, because you really since the 50s and 60s had to go coast-wide as a commercial fishing operation. You now have to have two seine licenses, you have to have two or three gillnet licenses, you have to have two or three troll licenses to do this, and it basically pushes – plus with the move more recently now with the troll fleet, they're putting quotas on the boats. The whole thing, which is a complete, real, you know, social disaster. So, what that means is it moves – in the Aboriginal communities, and in particular in the village communities, where you don't have a lot of spare cash floating around, it means that when the opportunity to sell licenses or buy licenses comes around, it leaves [the North Coast]. (Interview July 14, 2014)

Here, the way in which rising costs and restricted fishing opportunities had a devastating effect on the ability of Aboriginal fishermen to afford to continue to make a livelihood out of fishing is clearly explained. Additionally, the interviewee points out that financial barriers to fishing are in fact a social issue, because fleet rationalization has limited the control of Aboriginal communities and their youth to choose a traditional means of making a livelihood that has existed for thousands of years. Through fleet rationalization policies, power has been shifted from northern fishing communities to license holders in the south.

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[17] In their report to the Pacific Fisheries Resource Conservation Council (2006), Garner and Parfitt write that 50 years into the fishing industry boom in BC, "as many as 10,000 First Nations people derived their primary livelihood from commercial fishing and processing." However, in 2003 the total number of First Nations in the commercial fishing industry was 2,684 (including part time and seasonal employment).

These overlapping issues of access to licenses and power were raised repeatedly in my conversations with research participants. Two fisheries technicians I spoke with, both of whom are in their early thirties, talked clearly about how there has been a major concentration of licenses and fish processors into the hands of a few powerful people. To paraphrase, they explained that there used to be a variety of processers down on the waterfront, but they've all been bought out by Jim Pattison (owner of the currently largest processor, Canadian Fishing Company [Canfisco]) over the years. Now Pattison controls everything; his company buys the fish and sells it, as well as the licenses. So some actors buy up license after license as people get out of the fishery due to cost, and become armchair fishermen who make huge profits selling the licenses through a bidding process (Interview April 9, 2015).

The affects of the license limitation policy of 1968 combined with the single gear and area licensing policies brought in by the Mifflin Plan in 1996 (described in Pinkerton & Davis 2015 and Garner & Parfitt 2006), have had the combined effect of making fishing simply too expensive to be worthwhile. As one Fisheries Program Manager explained to me, although approximately 90% of the commercial fishermen in his community only have a salmon gillnet license, they would need to have halibut, herring, and salmon licenses for several different areas to be able to make fishing year-round employment (Interview July 30, 2014). As described by a Metlakatla Nation member: "yeah, I think that there's a definite decline in terms of, on its own, it's not a real viable career any more. I mean, you used to be able to fish for the summer and have the winter off if you wanted to. And now that's, you can't do that anymore, you have to do other things. So I mean the return that you get from fishing, it's kind of not worth the effort" (Interview July 7, 2014).

In addition to the challenges listed above, youth who are not in a position to inherit a boat and license from a family member face astronomical start-up costs. Many youth are in this position; six different participants explained to me that whole families have become locked out of the fishery after losing their boat during the buy-back programs. As one fisheries technician in his early 20s explained:

> I think it's harder these days. You know, when I grew up commercial fishing, there weren't a lot of people my age that I knew that would do it, or actually stick with it, who were actually…wanted to do it. I wanted to do it, but there was just, no future in it for young people… I used to fish in the 90s, and

there was actually big – fishing was big even in the 90s and 2000s kind of changed a little…I think if you're likely to get an inheritance kind of thing, where you've got your grandfather's boat and license, you might be able to afford to do it. But, you know, a young person can't go and, you know, they can't go and just get a boat and net and go out there and fish and lease a license and make money. You can't do that, I mean, you can't even – I mean, how does a young person get a boat even? I mean, there's a lot of incentive for business, um, grants and stuff like that, but does your average person know how to write a business plan? You know, even consider, you know, getting all your ducks in a row to get a boat, get a license, and actually be able to go fish it? And make a living? I don't think there's very many people who could do that. In fact, I don't know of anybody my age or younger that could do that. (Interview August 1, 2014)

Numerous other people that I spoke with mentioned that the cost of starting out, which includes a boat, a license, and gear, is prohibitive, and that the maintenance costs such as gas and insurance are increasingly expensive as well. As documented by Ecotrust (2004, 2015), these costs weigh heavily on existing fishermen as well. The director of the Northern Native Fishing Corporation[18], recounted how the majority of the fishermen who lease licenses from the NNFC cannot afford to have insurance. This is an extremely high-risk situation: in the summer of 2013, one fisherman's boat sank. Although he escaped with his life, he was left with nothing (Interview August 7, 2014).

4.1.2.   A Generational Shift

That fishing is no longer considered to be a viable career path for youth represents a significant generational shift. A prominent member of the Native Brotherhood of British

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[18] The NNFC was incorporated in 1982 when the Gitxsan-Wetsuweten, the North Coast, and the Nisga'a Tribal Councils came together and formed the company with funding from the government, and purchased a fleet of what had previously been rental boats and licenses from BC Packers Corporation. The impetus for the formation of the NNFC was to counteract some of the negative effects of neoliberal fishing policies described in chapter three on First Nations fishermen. The NNFC sold vessels to Native fishermen, and they own and lease licenses. At one time they were a large operation with a boat shop in Port Edward, a mobile vessel that could go on the water to service boats, and a large fishermen service department, which made sure that all fishermen had insurance on their vessels and their lives. Due to fleet rationalization policies, in the early 90s the company was forced to downsize, selling all servicing equipment and reducing from a staff of approximately 20 to one person, two in the high season (Mabel Mazurek, Manager, Northern Native Fishing Corporation, interview August 7, 2014; Northern Native Fishing Corporation, 2015)

Columbia[19] described how when he grew up, his family moved to different villages as the season progressed; during this time, he was always working on fishing boats. This was the common way of doing things only a short while ago.

> See, in our family, my sons do go fishing…So my son, you've seen the picture, he's crew on a seine boat. He could run a boat himself if he wanted to. He can run my boat. So he watched and learned, he was taught well. Cause he didn't, he wasn't just on a boat with me, he was on the boat with his uncles, his grandfathers. That's how, that's how we all learned. (Interview August 5, 2014)

Although there are still many people in his family who fish, this man believes that in general there's been a strong generational shift in involvement and interest in fishing amongst youth. Now, he said, you have to look closely to see if a kid has a special aptitude and passion for fishing.

This kind of generational shift has been well described in the literature on the "graying of the fleet" in Alaska and in other areas of Canada such as Newfoundland and Labrador (Lowe 2012 and 2015, Power et al. 2014). In Prince Rupert, one community member who works closely with the fisheries summarized the situation for me:

> There's people that are still really interested [in the fishery], but it seems that despite the fact that there's still, you know, we have fish in the water, we still have a cannery, we still have people that want to engage, it seems to be that, at a national level, we're not creating policies or situations whereby there's going to be a fishing industry for people to engage with much longer. So even though people want to get involved, people don't necessarily want to be fishermen anymore, but if you don't have fishermen, you don't have a fishing industry. (Interview July 10, 2014)

Some youth that I spoke to had worked as fishermen, now spoke with some regret about not being able to afford to continue fishing commercially, and even of being discouraged by family members who are fishermen themselves. As one youth told me: "my grandfather, at one time he wanted me to fish, and then, when I started getting 14, 15, 16, he says, 'you know, I know you love it and you'd do anything to go out fishing', but he says "don't become a fisherman." (Interview August 1, 2014). The experience and analysis of the

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[19] The Native Brotherhood of British Columbia is a membership organization that represents First Nations fishermen, tendermen, and shore workers in BC.

situation that this youth provided highlights the narrowing of options that other community members described: the salmon fishery on the north coast no longer appears to be a viable option to the next generation, despite the fact that it still operates.

4.2. Connection Between Rationalization of the Commercial Fishery and the FSC Fishery

Fleet rationalization has not only affected First Nations communities on the north coast by making the commercial fishery generally unviable for youth; the loss of commercial fishing boats in First Nations communities has also had a large impact on Aboriginal FSC fisheries. First Nations interview participants described a situation wherein almost the only people in their communities who fish are commercial fishermen, since most people can't afford to own and maintain a boat just for food fishing. Additionally, the way in which food fish are distributed within many communities has changed. As a manager at Gitxaala Environmental Monitoring[20] (GEM) explained:

> Like right now we're kind of in a transition period, because of the recent decline of the commercial fishery. That being – 5 years ago, 10 years ago, commercial fishermen – and I'll use salmon as an example – commercial fishermen made enough money in the salmon fishery, gillnets, primarily, that they could spend a bit of their own money on gas to go out and food fish for their extended family and for the community. However, because of the economic times right now, I mean, commercial fishermen are barely scratching out enough to cover expenses. So they don't have that extra bit of pocket money to go making food fishing trips. So the last few years, or, not last year because of the – the um, the return to the Skeena was so poor last year, but for the last three years we've been using a community food fish distribution program. (Interview August 5, 2014)

Under the GEM food fish distribution program, the fisheries program covers the cost for commercial fishermen to fish for the community. The program then collects and verifies the amount of fish (usually salmon and halibut) caught, and makes sure that the fish is distributed to community members. Metlakatla, which has gone from having 30 or 40 fishing boats in the community down to 12, also uses a distribution program. Participants that I interviewed spoke with mixed feelings about this bureaucratization of food fishing.

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[20] Gitxaala Environmental Monitoring is the Gitxaala Nation's environmental research and development organization.

Whereas some participants who work as fishermen were enthusiastic about the program because it provides a bit of extra cash to fishermen at the beginning of the season, which can help with maintenance coasts, others were more cynical. Those who were more reserved pointed out that although the programs are successful in the eyes of DFO, because the amount of fish caught is verified through a FSC monitoring program, in the context of an aging fleet, such programs could have severe implications for food security in the future and the transfer of cultural knowledge. One manager from the Metlakatla Nation described the challenge facing Metlakatla in the future by using the old saying "give a man/teach a man to fish:

> You give a man a fish, you feed him for the day, [*interviewer: you teach a man to fish*] – you feed him for a lifetime. Metlakatla has taken their program, is giving a man a fish...In a very short time, because of the cultural and generational differences, and the fact that there is no real money made in fishing any more, the "give a man a fish" is going to die out for Metlakatla, because nobody's going to be fishing any more…in the bigger picture, what damage are you doing to the Nation? [The fish distribution program has] got nothing to do with our culture and our tradition, it's the actual activity of being able to – of having the freedom to go out and fish. Well, in 50 years, what's it going to look like? Two people going out? What's it going to look like in 100 years? (Interview July 4, 2014)

As this quote points out, even though fish bought from fishermen through such programs are often distributed in accordance with traditional protocols (for example, Elders in the community have priority to receive fish, followed by others who don't have easy access to fish), the number of people, especially youth, who are involved in this process is limited to however many people are hired by the fisheries program. Not only are fewer and fewer community members involved in the culture of fishing, fewer youth are able to learn about traditional protocols and rules of conduct around fishing, which includes responsibilities towards the community. Within this context, how should youth learn about community social obligations in a meaningful way?

4.2.1.   Loss of Access to Boats Enhancing an Urban-Rural Divide?

> In Hartley Bay we have a few different sites that you would consider, I guess, camping sites. Where we would go seasonally. There's our fall site, we would follow the salmon in the summer, there's a spring camp; in winter people would usually stay in Hartley Bay. Before that they would stay in our old village, which we call Old Town. But, people don't migrate like that

anymore, I think that's my point. And, because we have these permanent homes, because we don't rely on our boats as much, that has changed how we engage with our territory. Our boats become more of a tool as opposed to a lifestyle. And, maybe now people will travel – they'll go and harvest somewhere that they can do in a day, as opposed to "I'm going to take my gillnetter, and go out here, and dedicate two weeks". (Gitga'at Youth, Interview August 15, 2014)

The concurrence of fleet rationalization and rising expectations about education and availability of services are having an impact on where First Nations on the north coast are choosing to live, and on the ways in which they engage with their territories evolves. In her study of rural Alaska youth, Lowe (2015) describes a tension between the desires of youth to work in a "hands on" environment like fisheries and their expectations to get college training for office-based jobs. Similarly, many First Nation families on the north coast have re-located from their villages to Prince Rupert in search of jobs, and so that their children have more educational and extra-curricular opportunities. However, living in the city often means that youth have fewer opportunities to learn about their culture. As discussed previously, many First Nation families living in Prince Rupert get food fish distributed to them through their Nation's fisheries program, and several participants I spoke with said that children have not even learned how to process the fish. There are some notable urban initiatives in Prince Rupert that have developed to counteract this loss. These include the work of the Prince Rupert Youth Hub, which, when it receives donations of fish, invites Elders to teach youth how to process (clean, fillet, and can) fish, and the Gitmaxmak'ay Nisga'a Society (the branch of the Nisga'a Lisims Government in Prince Rupert), which has built two community smokehouses in the last two years, and is building a commercial smokehouse and planning on running programs to get youth to catch salmon to be processed there and sold. However, despite these initiatives and some cases where a family member living in Prince Rupert owns a fishing boat, the movement away from villages to Prince Rupert in general has created a situation wherein younger generations have less access and exposure to fishing and opportunities to get out on the water. This loss is especially pronounced if their family doesn't own a boat so that they can go back to the village periodically. When I asked one man from the Gitxaala Nation whether it is more difficult for him to take his kids out into the Nation's traditional territories to teach them about harvesting and preparing food now that his family has moved to Prince Rupert, he replied: "yeah it is, that's, that has to do a lot, for me, with finances. [interviewer: *The cost of gas?*] Transportation. I used to own a boat, but I don't anymore, so I'm kind

of…on a venture to try to get another boat, so I can take them out" (Interview July 28, 2014).

Participants pointed out that living in a relatively isolated village like Lach Klan (the contemporary village of the Gitxaala Nation located on Dolphin Island, also called Kitkatla in English) does not mean that youth have been unaffected by a loss of fishing boats. I was told that the community of Lach Klan went from having about 12 gillnetters to five, and that now more people use small speedboats to go gillnetting for food fish. One man I spoke with suggested that this means that people are not able to go out to more distant locations and generally people take shorter trips. Additional, people cannot bring others out with them in the boats as easily. These changes have in some cases made it more difficult for youth to get hands-on experience fishing, and made it such that less people are involved in fishing in general. Nevertheless, the same interview participant suggested that although not as many kids go out fishing, they do participate in all the preparation of the seafood, for example, smoking salmon and seal, and jarring. In contrast, he said that a lot of youth in the city work for fast food restaurants, whereas when he grew up in Kitkatla, work was hands-on and related to the household (Interview, April 10, 2015).

4.3. Connection Between Fishing Background, Fleet Rationalization, & Stewardship Work

The barriers youth face to pursuing a career as a fisherman and to learning traditional harvesting practices through time spent out on the ocean can create a huge barrier for youth who may want to pursue a career in fisheries monitoring or stewardship. All but one of the people I interviewed who worked as either a Guardian Watchman or a fisheries technician had worked previously as fishermen, until they got out of fishing and into their current line of work because there was no money in the fishery[21]. The story told

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[21] Multiple factors have affected the value of the Skeena commercial salmon fishery. The most important factors have been lower ocean and freshwater productivity since 1998, changes in management priorities (such as weak stock management under the the *Wild Salmon Policy* (2005)), and fluctuating global and domestic market prices of wild salmon.

to me by one man, who trained to be a DFO-designated AFO and works for the Heiltsuk Integrated Resource Management Department (HIRMD) as a Guardian Watchman, is representative of many that I heard:

> I guess in the past I started off working just as a fisherman. And back then, the fishing was good, then I decided the fishing was no good, and I decided to change jobs, and this fishery – fisheries work came up – fisheries co-management came up – and I put my name in there and I was chosen to be one of the workers, and they said they needed our fisheries guardians, so I put my name in for the fishery-to be trained as a fisheries guardian. (Interview July 16 2014)

The technicians and Guardians that I interviewed described how, through working as a commercial fisherman, they learned skills that are absolutely critical to other fisheries and ocean-related job. As one fisheries technician, told me:

> Oh, it was huge, it was huge. Yeah, [my colleague] says it all the time, you know like, I don't see how we could do this without having that prior experience. And just being able to understand sort of, First Nations culture, traditional use of resources, being able to understand commercial, being able to understand recreational. And just being able to understand how First Nations manage their resources and how government manages – they're different, you know" (Interview August 1, 2014).

In addition to obvious skills like understanding how boats work and the technicalities of different fisheries, participants described how one learns critical ocean navigation and survival skills when working as a fisherman that many youth today do not know. One manager at HIRMD described the disorientation he's seen amongst many youth when they do have the opportunity to go out on the water in their territory, whether when joining a fishing expedition or older Guardian Watchmen on monitoring tours: "in regards to our Guardian Watchmen that we have now, their background was, like my own […] I knew the territory through fishing. And unfortunately nowadays I guess with the younger folks, when you take them out around the corner here, they're basically lost some of them. They don't have that background" (Interview August 8, 2014).

As discussed in chapter one, fleet rationalization policies such as the *Mifflin Plan* have negatively effected fishermen by increasing the difficulty of participating in multiple fisheries and thereby managing risk. (Evelyn Pinkerton, pers. com., August 29, 2015 and Eric Angel, pers. com., December 16, 2015).

In addition to not having the kind of background that equips them with the knowledge and skills essential for ocean-related careers, participants thought that it is likely that youth growing up with less access to boats may not even realize that opportunities exist to get into stewardship work. One fisheries technician told me that his fishing background had a big influence on the kind of career he wanted to pursue:

> I guess ever since I was like, young, I've always spent time on the water; either commercial fishing or sports fishing, traditional food fishing, harvesting. Started there, and just the interest for being on the coast and being on the water. Kind of started there, so from there my sort of direction was, just being in the marine environment, mostly fisheries-related. (Interview August 1, 2014)

Likewise, when I asked one manager whether he thought that youth have less interest in stewardship roles due to a lack of knowledge of opportunities, this interview participant responded:

> Actually I think, you know, I agree with that probably 100%. And it didn't happen overnight either, this has been going on I guess, or that has been going on for a while where the number of vessels in the communities has decreased so much over time, and sometimes whole families were – I'm not sure of the word I'm looking for – were I guess locked out from the boat because they basically had no boats. So, I recall growing up with my own kids, and going out seaweed picking. And we – my daughters brought their friends along, who, you know, hadn't ever been on a boat before, whereas my kids, they basically grew up on the boat. (Interview August 8, 2014)

The comments above clearly show that without access to a boat, many youth are growing up without the opportunity to learn about the ocean and their territories, and further connects this loss of knowledge to interest in ocean-related careers. This inter-generational loss of knowledge has implications for the design of stewardship training programs that will be discussed in chapter eight. Educational opportunities that already exist in order to address these gaps will be introduced in the next chapter on opportunities.

4.4. Other Major Barriers to Youth Involvement in Stewardship Work

There are many challenges that youth who would like to pursue a career in stewardship or monitoring work face beyond those attributable to fleet rationalization

policies. The following section provides a snapshot of those that interview participants pointed to most often and identified as the most significant.

4.4.1.   Insufficient Funding, Job Security, and Capacity Building

The summary table of interview codes created within NVivo shows that I've coded "funding" 85 times from 26 different sources. This is an indicator of just how challenging it is for First Nations fisheries and stewardship programs to expand their programs and create jobs when their funding is chronically insufficient and inconsistent. There are a variety of funding sources that programs can tap into; although this is not an exhaustive list, they include: federal and provincial government, industry (revenue-sharing agreements and impact-benefit agreements), internal funding from the Band Office (which might be from the government, as with the AFS), from major non-profits, and through other research partnerships, as with universities. However, in most of these cases, funding cycles are yearly, which is hugely challenging for program offices since they rarely have the capacity to be constantly writing new proposals. In other cases, as with some funding agreements through industry, a Nation may be limited by the mandate of their partner organization. In the case of the money transferred to fisheries programs through the AFS agreements, many people I interviewed pointed to the fact that funding through the AFS has not increased since the 1990s, despite rising costs of operation and increasing responsibilities that these programs are trying to take on. As one DFO Fisheries Officer and First Nation man explained:

> It's pretty tough to run a program in a community with 150 grand or whatever they get from here, which has never changed. They still get a big chunk of money, and our operating budget here is probably pretty similar…It's trying to operate on that, that capacity a lot of them are building in these communities, is going way beyond what they can fund, unfortunately. There's so many programs and projects. (Interview August 6, 2014)

Inconsistent and insufficient funding not only critically hinders to the ability of programs to expand and run their programs, but also to train and hire new stewardship and monitoring staff, especially in the long term. When I asked one manager from Metlakatla whether there are opportunities available for monitoring or stewardship jobs, he replied:

It's kind of hard to say. There's lots of development, and I think there is lots of room for monitoring and being stewards on the land and water. But you know, it's – in terms of like the Guardian Program and the Fisheries Program or the Stewardship Office, it's all kind of run on basically funding. And, we're, they're pretty much maxing out in terms of just – we've kind of maxed out our program dollars in terms of what we're doing. (Interview July 7, 2014)

This challenge is not only faced by First Nations-run programs. The same manager quoted above recalled that the same problems afflicted the DFO Aboriginal Guardian Program when it was first developed. Training was provided for several years:

And then they stopped it. It hasn't started again. So funding, resources…wasn't consistent, so you start to lose those guys who are trained to the nth degree but just has the responsibility to observe, record, report, and so they started going elsewhere. Some got absorbed by DFO and became Officers, but that was the major impediment to it being a successful program, the resources. (Interview July 4, 2014)

This story raises a second critical point. Not only are programs limited in their ability to train and hire new staff, they are often unable to retain those staff, because the jobs they can offer are often sporadic, seasonal, or short-term. Although all of the fisheries and stewardship offices I spoke with had numerous and extremely diverse projects on the go, more than enough to keep a large staff occupied year-round, they often can't afford to hire more than a few people to work for them on a full-time basis. Interview participants told me that building the capacity to employ more people as technicians or Guardians is a slow process:

That's a tough one, we've struggled with that one…in terms of making a full-time job out of monitoring and stewardship. You know, certainly in the last, our fisheries program in the last two years, we've, we've hit a capacity where we've added another full-time technician, and we're probably pretty close to adding – to being able to add a third full-time technician. (Interview August 5, 2014)

When I asked the manager quoted above whether he saw there being more barriers, other than money, to getting young people involved in fisheries monitoring and stewardship work, he replied:

No. No, I don't think so. I think I can find warm bodies. I think I can get through the infrastructure stuff. It's just being able to give meaningful

employment to people, right? There's no sense training a guy and saying "hey, I might call you up for a couple of weeks in the summer." I mean, that's just not what I want to do, right? So no, we'd love to take a lot of our young guys, and mentor them, and bring them up. I mean, that's, personally, that's important to me, when we hire people, and I provide as much mentoring as I can, right? (Interview August 5, 2014)

Comments such as those above highlight the need for funds to be sufficient and sustained for mentoring, and also raise the issue that programs need to be able to offer meaningful employment in order to attract and keep employees, for more than a couple of weeks at a time. Some programs end up stuck, unable to find qualified people to run short-term monitoring or sampling projects when they do get a chunk of funding from somewhere. In other cases, if a program cannot offer an attractive, full-time salary to someone who has taken stewardship training, they are probably, as with the DFO Aboriginal Guardian Program, going to lose that qualified person to another job. As one manager explained:

And that's, that's the other kind of thing – one of the considerations to train them is that, um, if you can't give these guys full time opportunities to work, and then, I mean, obviously they're going to look for opportunities elsewhere…it's good and bad. It's great to provide people with training, and to see them, as individuals, go on to make careers elsewhere. But the bad part is, we're not always meeting our own capacity needs that way. (Interview August 5, 2014)

Programs therefore are often caught in a Catch-22, wherein they need to spend money to train people to work on a particular project, but then they cannot afford to keep those same people on as staff; this brings them back to where they started. Most programs are able to build up capacity slowly – one way to do this is creating a "pool" of qualified people by offering training to select people who are not core staff but may not have another full time job. However, for most programs, capacity-building is slow going.

Finally, the job insecurity that goes hand in hand with any job dependent on openings in the commercial salmon fishing presents a particularly frustrating situation for youth who are trying to get a foot in the door to a fisheries-related career through working as a commercial fisheries monitor. I asked youth whether they saw a job as a commercial observer to be a viable option for a summer job that could, potentially, lead to a more

stable monitoring career. One young fisheries technician shared the following thoughts, which are representative of many that I heard:

> You know, Ecotrust wasn't, you know, didn't really pay the bills kind of thing. It's like 250$ a day, and you're working like 19 hours some of the days, right? You're leaving the dock at 5am and not getting back, until, you know, late into the night. At the end of the day you're working for like 11 or 12 bucks an hour, you know. You can't sustain yourself on that. The amount of time you put into it almost wasn't worth the pay, but the experience was good…Same thing with DFO, CREEL surveying, that was seasonal: shifts were really varied and kind of…you know, it wasn't a 9 to 5 kind of operation, which is kind of nice, you know, I like have flexible hours. At the same time you want to know what day you're working, so you can plan" (Interview August 1, 2014).

For this youth, the jobs he took as a commercial and recreational fisheries observer created a lot of networking opportunities, and eventually led him to finding a stable job at the Lax Kw'alaams Fisheries Program. However, he also told me of friends who are working as observers for DFO who, although they are passionate about their job, "can't afford to do it" (Interview August 1, 2014). As another young fisheries manager put it:

> I think you've got to be really fortunate in order to make that work. Cause I mean, there's not a lot of openings, and it's a tough go. You've got to have some sort of flexibility and some sort of other job to really make a living. Cause yeah, you're looking at, you know, two days this week, and one day last week, and then they're talking about shutting it down here and stuff already, so I mean, their season's almost done in four weeks. So I mean you've definitely got to have some other sort of job, and that job has to be flexible in terms of, you know, the unpredictability of openings and closures." (Interview July 7, 2014)

4.4.2.   Funding Cuts at DFO Reduce Opportunities for Collaboration

It is the vision of many First Nations to run their own monitoring and stewardship programs in accordance with Indigenous worldviews, governance structures, and restorative justice systems, as well as in a government-to-government relationship with provincial and federal departments. Nevertheless, almost everyone I spoke with recognized that on a local level, there are many benefits to First Nations and federal departments like DFO working collaboratively. From Bella Bella up to Prince Rupert, both First Nations managers and Fisheries Officers whom I interviewed spoke positively about the support each party can offer the other. However, the funding cuts that DFO has

experienced in the past few years have reduced opportunities for collaboration and support by DFO. One fisheries officer told me that the Conservation and Protection branch at DFO used to offer DFO-trained Aboriginal Guardians working for First Nations fisheries offices more support than they can currently. He described some of the support that they are still able to offer, but explained that what they can offer is not sufficient:

> Every year we offer restorative justice training, we pay for it. Like I said we offered the circle course last year, the peace-making circle, which is a really good course in itself. So we still do offer – it's hard to keep it coordinated, because there's no one person, or two persons, helping the communities along, and that in itself would be invaluable. (Interview August 6, 2014)

In the end, it all does come down to capacity-building, and the biggest (but certainly not the only) the bottom line for that is funding. However, this does not mean that the funding barrier in fisheries and stewardship programs face is insurmountable, and neither are the barriers of access and loss of knowledge caused by fleet rationalization. In the next chapter, I will present several strategies and initiatives that First Nations fisheries and stewardship programs and their partners have used that are having some success.

Chapter 5.

What Works?

As a counterpoint to chapter four, which provided an overview of many of the barriers faced by First Nations youth who want to get into marine monitoring or stewardship work, this chapter addresses the questions: 1) *What measures could enhance the ability of fisheries and stewardship programs to increase their program and job creation capacity?* and 2) *how are different programs and organizations working together to create more opportunities for youth to build a stewardship or monitoring career?* Since the previous chapter clearly showed that many of the barriers youth face are related to job security, which in turn is rooted in the capacity of different programs to create full-time positions, the first section of this chapter looks at two aspects of governance that were repeatedly raised in interviews as being essential to an organization seeking to expand its program capacity: coordinated action and relationship building. The latter three sections of the chapter look at specific strategies and partnerships that existing programs have cultivated in order to create more opportunities for youth who have taken monitoring or stewardship training, such as offering fisheries observer training that covers multiple aspects of marine science and management and research and restoration partnerships. The sections also examine the ways in which programs have engaged younger youth who, due to the effects of fleet rationalization described previously, have lost some of their connection to their land and environment.

5.1. Governance

5.1.1.   The Benefits (and Challenges) of Coordinated Action

Coordinated action is one of the best strategies that communities can pursue to increase their capacity and position of power within collaborative management situations; at the same time, it can be extremely difficult to sustain. There have been several attempts to create and sustain regional monitoring networks on the north coast for these very reasons: to pool resources (financial, human, etc.), and to increase the capacity of north

coast First Nations to monitor their territories and have a more authoritative voice in resource management decisions vis-à-vis the provincial and federal governments. The Tsimshian Tribal Council (TTC), which existed from 1988-2005, was one such centralized governing body with a broad mandate, from treaty negotiations to coordinating an Aboriginal Guardian and Fisheries Technician program. The TTC is illustrative of the benefits of collaborative governance in the realm of resource management and monitoring. The benefits were clear: the TTC's Guardian program had trained one Guardian and one Fisheries Technician to undertake fisheries research and monitoring for each of the Tsimshian communities, which greatly increased the capacity of all programs to undertake marine monitoring projects and monitor their FSC fisheries. After the TTC dissolved, all fisheries programs experienced a huge loss of skills and capacity for monitoring, as each of the Nations was required to assume the costs of equipment and training separately, and nearly all of the Guardians and Fisheries Technicians previously trained left to pursue their careers elsewhere, in a more stable job environment. The challenges that the TTC faced and the reasons for its dissolution are not the focus of this section, but they may have been many of those that are common to collaborative organizations. These include: external political and management standards that create pressure to centralize and bureaucratize decision-making, the difficulty of reconciling competing and sometimes contradictory goals amongst member groups, and crises in the external political, economic, or ecological environment (Pinkerton and Keitlah 1990). Despite these challenges, it seems, however, that some of the Tsimshian Nations are returning to collaborative action in the face of new development proposals: the Metlakatla, Kitselas, Gitxaala, Kitsumkalum and Gitga'at are members of a newly formed Tsimshian Environmental Stewardship Authority (TESA), an organization that aims to work together (*bax laansk* in the Tsimshian common language, Sm'algyax) to assess the environmental impacts of LNG development around Prince Rupert (Jang, 2015).

The CSN has been pointed to as a successful venture in collaborative monitoring in part because of some of the indirect benefits of coordinated action, such as networking and improvement of important resource information flows among the member nations. One manager from the Heiltsuk Nation, who has been involved in the Network as it developed, said to me:

> You know, the Guardian Watchmen [project] has become […] fairly instrumental in connecting our communities to work together not only at the Guardian Watchmen level, but levels beyond that. [Interviewer: *how so?*] There's a stewardship director's group now, and before that I knew a little bit of folks in…the surrounding communities, and after the Guardian Watchmen connections I guess, the interaction became I guess more regular, and there was a lot of sharing in relation to species information, on management, and it just worked a lot better. (Interview August 8, 2014)

In addition to sharing information and building relationships, the leadership of another organization, the North Coast-Skeena First Nations Stewardship Society (NCSFNSS)[22], illustrates some of the ways in which a central coordinating body can be particularly beneficial for geographically dispersed communities working with a federal government body. As one DFO Fisheries Officer put it:

> I know when we do planning for eulachon, we do eulachon monitoring, [someone at the NCSFNSS] heads it [up] for all the communities, and it works, having a body like that working for the communities, it definitely helps. It's more centralized, it allows us to get together and voice our concerns together, whereas travelling to each community is [difficult], so they're definitely stepping in the right direction, helping the communities. (Interview August 6, 2014)

In this example, the NCSFNSS enables the different communities to speak together, lending them more authority when working with government, and facilitates logistics such as travel, which can be particularly difficult and expensive in remote regions.

5.1.2. Leadership

Effective and committed leadership is one of the essential conditions for the success of any management body, particularly when that body brings together actors belonging to different groups. Pinkerton (1989) notes that "co-management is more likely to develop if there is an energy centre: a dedicated person or core group who applies consistent pressure to advance the process…[and] it is important to remember that the

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[22] The NCSFNSS is an organization that facilitates collaboration between First Nations on the north coast and lower Skeena River on regional and community sustainable marine use planning that was established in 2005. The member and partner Nations of the NCSFNSS are: Metlakatla, Gitxaala, Gitga'at, Kitsumkalum, Kitselas, and Haisla First Nations (NCSFNSS 2015).

successful operation of co-management ultimately rests on the relationships among human actors…the motivations and attitudes of key individuals can make or break co-management, no matter how much legal backing or supportive arrangements an agreement has." Similarly, Gottesfeld et al. (2009) attribute the successful development of the Skeena Fisheries Commission in part to the presence and continuity of leadership by individuals in different member Nation communities[23]. These same elements have evidently played a role where monitoring and stewardship programs have had success on the north coast. One interview participant, who works for the NCSFNSS, attributed a great deal of the success of the CSN to individual leadership and vision:

> I also think that they just had some really great champions in that program, and, you know, when Claire [Hutton] got it off the ground, she did a great job. She did a really good job of bringing people together. And she'd listen to what people wanted and then she made it happen, so the next time she saw them, she said "there, I'm delivering a product to you", and then they moved forward. (Nicole Kaechele, interview July 29, 2014)

Leadership within the CSN was essential to getting the program off the ground; now, to keep the program running and growing (for example, to improve data collection as a stepping stone towards assuming compliance and enforcement responsibilities), interview participants have pointed to the need for leadership within individual stewardship offices. One stewardship program manager put it this way:

> I don't think it's from the training programs; I think it's from the leadership who are putting these programs together to say "look" – to grab them by the shoulders and say: "Look. This is a program that's going to manage our lands and waters. If you don't want to be serious about this, I don't want you to be part of the program." And I think that's where it is. Well, in their defense, a lot of them don't have the proper governance in place so that they can do stuff like that. They don't have the bureaucracy in place. So it's a challenge…Yup, they all presented their point of view, and the majority

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[23] There has been a great deal of literature within the resource management and political science literature that have identified leadership as a key factor underlying the success of multi-party management initiatives. For example, both Smith and Gilden (2003) and Pinkerton (1991) identify leadership as critical to the success of watershed councils. Gutiérrez et al. (2011) provide a regression tree model analysis that examines 130 examples of co-managed fisheries and graphically represent quantitative relationships between predicator values and co-management success; they identify leadership to be the most important attribute contributing to success.

of the issues are leadership, you've gotta have strong leadership supporting it, otherwise you don't have a program. (Interview July 4, 2014)

Two key issues are discussed here: that strong leadership with a vision *and* effective governance structures are essential to successful monitoring initiatives, not least because for employees to take a career in monitoring seriously, their leadership must as well. Again, leadership and governance should be based in Indigenous Knowledge of ecological relationality. An event on climate change action that I attended on a cold night in April 2015 in Prince Rupert made this aspect crystal clear to me. The first speaker of the evening was motivational; his talk was intended to inspire the audience to pursue the many small actions that could substantially reduce their environmental impact. The second speaker of the evening was Roy Henry Vickers, a celebrated First Nations Canadian artist of Tsimshian, Haida, Heiltsuk, and British decent. That evening, Roy Vickers stood up and gifted the audience with the teachings of the medicine wheel. He described the aspects associated with each of the four directions, how they represent the journey that each man or woman takes on their life through the stage of visioning, healing, engaging with community, and finally, once wisdom is attained, to taking on leadership and walking the path of a warrior. In giving us this teaching, Roy Vickers also imparted to each person in that auditorium the responsibility to follow the medicine wheel path in our own lives to enact change within the world. There was respectful quiet in the auditorium after Vickers finished speaking. Unlike the first speaker, Vickers had not spoken directly about climate change, nor had he provided a clear checklist of ways to change. I believe that the entire audience, like myself, was absorbing the power of his words and feeling the weight of responsibility engage in deeper reflection on how our individual visions and actions could impact this world.

Finally, to return to the context of leadership within a stewardship program, youth interviewed emphasized that a good leader must not only have a vision for where the program will go in the future, but she or he must also be supportive of a youth's career development. As one fisheries technician explained:

The success of employees is really based on management…my colleague and I have had the opportunity to make, you know, to have a sense of empowerment by management, to say "we could go do this training, there's this opportunity, take it or leave it", you know, [we] are able to decide for ourselves, "oh, that's a neat opportunity, I'm going to do it", and get ready

to do it, right? Whereas, other programs, employees aren't given the opportunity to make those decisions, or given the opportunity to go forward with some other training. You know, it kind of limits them, right?" (Interview August 1, 2014).

In this case, the leadership demonstrated by the manager described is based in the Indigenous values of respect and non-interference (Ross 2006). As a result, the youth interviewed was enthusiastic about his job and future because he has an active role in making decisions about what kind of training he would like to take that would advance him along his career path. In turn, the program he works for benefits from the new skills he and his colleague have been able to learn. This stands in contrast to other cases participants spoke of, where technicians and Guardians ultimately moved on to other jobs because they could not find room for development within their current position.

5.2. Relationships

5.2.1. Relationships to Build Program Capacity

Relationships are fundamental to the ability of an organization to function internally and to complete projects successfully, especially when a project involves many different organizations and stakeholders. As Pinkerton (1989) states: "the new human relationships or roles which develop and persist [through co-management are] the ultimate test of the permitting institutions." On the north coast, fisheries and environmental monitoring initiatives can involve many different First Nations with often overlapping territories, environmental and conservation non-profits, and different branches of the federal or provincial government. Throughout my time in Prince Rupert, different fisheries managers and technicians spoke about the value of working with the fisheries technician and or monitoring teams from the different Nations in the area, and with some frustration about how political differences and disagreements over territorial boundaries can get in the way of such teamwork:

> We're technicians; we go and do field work; it's all fine and dandy, and you get back to your fisheries manager, or your chief and council, and it's all of a sudden, "why the heck were you working [...] with Port Simpson", right? But, you know what, we're working towards the knowledge of the same resource, right? Regardless of territorial boundaries. Everybody should be

on the same page, and everybody should be thinking about the best interest of the resource, or, you know, for the people." (Interview August 1, 2014)

When asked how to overcome political differences that hamper the ability of different Nations to work together, one stewardship program manager replied clearly: "Relationships. The ability to say: "bureaucracy, go do your work. Politics – we can fight all we want. But there's no fight affecting the operations" (Interview July 4, 2014). When strong personal relationships exist amongst those working in First Nations government and resource management offices, political differences can be debated and discussed at one level of government, without affecting the operation of mutually beneficial collaborative projects and programs.

Relationship building is key to building capacity not only within different First Nations, but also between DFO and First Nations. Many people at DFO and the First Nations offices whom I interviewed spoke positively about the collaboration that has grown between their organizations. For a short-staffed DFO responsible for many remote areas, working with local First Nations can greatly expand their ability to monitor environmental change and enforce fisheries regulations. This has been the basis for collaboration between DFO and the GEM, who have overseen commercial salmon monitoring in area 5 (Figure 3, Appendix A), which is situated within the Gitxaala Nation's territory. As a manager said to me about working with DFO:

> Working with the guys at the local DFO office is great. I mean, I can walk in there and talk to almost anybody and spend a day in that office, and they know me, they know what kind of person I am, they know what kind of program we're running. You know, that doesn't mean that we agree with everything that DFO's doing, as a national department, right? So there's times that we have to yell and scream and tell DFO to F-off, and there's times and places where we can work with them on a technical, scientific level. That's just knowing which is which. I mean, in the end we're all concerned with a lot of the same things, right? (Interview August 5, 2014)

These comments are illustrative of the point made earlier: when solid relationships have been built between people working for different organizations, disagreements over specific policies, goals, and mandates can be worked through constructively at one level, while collaboration on specific projects continues unimpeded, to mutual benefit.

5.2.2. Collaboration Amongst Programs: Building Occupational Pluralism

Occupational pluralism, the engagement of an individual in several different jobs over the course of a year to make a living, has often been identified in the academic literature as a means by which small-scale fishing communities remain resilient in the face of changing ecological and economic conditions (e.g., Pinkerton 2015, Neis et al. 2013, Lowe 2012). Since major barriers to youth pursuing ocean-related careers such as monitoring include job security and insufficient pay, several of the organizations in Prince Rupert that have built positive relationships over the years are now collaborating to increase the skill sets acquired by, and job opportunities available to, youth who have taken monitoring or stewardship training. Examples include a partnership between Ecotrust Canada and a local First Nation's funding opportunity, which allowed Ecotrust Canada to deliver an extended fisheries observer training in 2014. Whereas the DFO-required training program for a commercial fisheries observer lasts only two to three days, in 2014 Ecotrust Canada delivered an 11-day program that touched on topics such as: fisheries regulations and their history, fisheries management and marine species biology. The goal of this extended program, as explained by the manager of the marine monitoring program in Prince Rupert, is:

> [So that] we're also able to speak to the ways that marine monitoring is used outside of commercial fisheries, so whether it's monitoring the FSC fishery, [or]whether the expertise that you learn in fisheries monitoring means that you can maybe work as an environmental consultant for the work that's happening up here regarding potential industrial developments. So there's people who went through our program and now they have more information when they go out and they're doing, you know, beach surveys, or marine fish surveys, with, you know, an LNG pipeline group, saying, you know, what is here and what would the potential impacts be? It was also a way of creating basic knowledge with local community members, and by doing it through outside funding, commercial fishermen didn't have to pay for it; we could do a two-week training and we could cover all this other stuff. (Interview July 10, 2014)

The extended observer program that Ecotrust Canada ran is part of a strategy that has been developed by the Sustainable Marine Fisheries and Communities Alliance (SMFCA), which is, as its name suggests, an alliance of commercial fisheries and marine planning organizations and local governments (First Nations and non-First Nations). SMFCA was formed in 2008, and its members have been working together to develop locally designed

solutions for successful and sustainable commercial fisheries and coastal communities. Major topics in the SMFCA Strategic Plan include Fish Management and Monitoring Compliance Traceability, under which a much greater role for First Nations collaborative management and monitoring is envisioned. One of the points of action identified in the Strategic Plan is to train First Nations monitor the FSC fisheries, with the intent that monitoring skills will be transferable to recreational and commercial fisheries. The idea of this initiative, as explained to me by a participant in SMFCA, was to have First Nations living in remote communities trained to monitor all the different fisheries, and to help these people gain additional marine knowledge and skills. With such a broad range of skills, those who led the initiative hoped that monitoring could become a full-time job in the summer, and that monitors would have the skills to work another ocean-related job during the winter months. As this interview participant explained:

> We need – you now, you've probably heard this before – [our idea was that] all the different communities [would] have those people ready [to monitor the fishery], instead of having to, you know, bring those people in at high cost. Have those people ready, and then if we have that opportunity for fishing, they'll be right there ready to go, to do the monitor work, that's our dream. That's our dream, but then, you've probably heard from XX, they can't just sit around, after they've been trained up, they often get taken by someone else…or else they get hired by somebody else." (Interview August 7, 2014)

In some cases, such initiatives have been successful: I spoke with one young woman who was working as an FSC monitor for the Metlakatla Fisheries Program, who told me that there are several other youth who were also able to work as both an FSC and commercial fisheries monitor. However, the narrative quoted above makes clear that the SMFCA dream is still a work in progress, for many of the reasons that were discussed in the previous chapter, such as variability of commercial openings in the salmon fishery, which creates cash-flow uncertainty for commercial monitors. As one employee at DFO said to me when commenting on the potential for occupational pluralism in fisheries monitoring: "it's not like we haven't thought about that. It's interesting that it's hard to execute that actually" (Interview August 1, 2014). At this point, it is unclear what steps will be necessary to make efforts like SMFCA more successful. However, the next section suggests some strategies that, if expanded to include more partners bringing more funding to the table, could be a step in the right direction.

5.3. Research and Restoration Partnerships

Stewardship and fisheries programs are exploring a wide range of options and strategies to advance their work and build capacity, despite the funding challenges they face. Several programs I spoke with have been successful in establishing research and restoration project partnerships that provide them with funding and, in some cases, scientific support. Examples include a research project partnership between the Moore lab at Simon Fraser University (results of their project on the biology of salmon in the Skeena estuary and implications for the Pacific North-West LNG project will be discussed further in chapter six, and the partnership between the Gitxaala Environmental Monitoring office and the University of British Columbia, which has been facilitated by Professor Charles Menzies, an anthropologist and member of the Gitxaala Nation. Students of Professor Menzies collaborate with the GEM office on a variety of archeological projects of direct interest to the Gitxaala Nation. Additionally, First Nations offices are seeing more opportunities for research collaboration with the growing industrial interest in the north:

> It's also worth mentioning, with all of the attention that we're getting here on the north coast, we're getting a lot of – not just the proponents doing research, but you're getting a lot of […] I mean government's doing some, but you're also getting a lot of third parties looking at the area, doing independent research. So there are opportunities to partner up with some of those organizations and institutions as well. And we're looking into that as well." (Interview August 5, 2014)

Some stewardship offices have also been successful in leveraging funding for environmental restoration projects, and have involved youth in restoration work, which can be a bridge into a stewardship. A prominent example is the Kwakusdis river restoration project that the Heiltsuk Nation has taken on:

> Like the Kwakusdis river restoration project is more of a young person's job I guess. They're, you know, they're hauling and moving logs, and gravel placement and things like that. And those sort of jobs are available here. And I guess the more projects that [have a] need for younger, stronger kids. And they do pick up fairly quickly. And our older crew working alongside them, you know, always have discussions and inform them about all sorts of stuff." (Interview August 8, 2014)

As explained by the manager from the Heiltsuk Nation quoted above, youth working on the Kwakusdis project are not only exposed to work that is rooted in taking care of their

territory, they also receive informal stewardship mentoring from older Guardian Watchmen staff through such opportunities.

5.4. Programs for School-Aged Youth

> The youth that spend a lot of time on boats and going out to go do their own fishing, hunting activities, whatever, they're the ones that are more in tune with what the fishery program can be. And the ones that don't have that access have, I guess, limited awareness. They only know what they've been told, or what they see on TV, or what they may have heard through the media. (Interview July 28, 2014)

Many stewardship and monitoring offices have pointed to the importance of exposing youth to environmental stewardship principles and activities early, so that youth who have not had the opportunity to go out into their territory and engage with the environment (through activities like fishing) are aware that stewardship work can be a rewarding career. Different Nations and stewardship offices work within their means to create as many opportunities as possible for youth to participate in stewardship activities through school outings, or to host summer students. The largest organized example is the Supporting Emerging Aboriginal Stewards Community Initiative (SEAS) in Bella Bella and Klemtu. SEAS was started in 2009 and is a partnership between First Nations communities and schools and environmental non-profit organizations. The program's vision is to help re-connect youth with their traditional territories, and program elements include new school curriculum, field trips with Elders, mentorships between youth and local professionals or Elders, and summer internship programs with Band Councils and stewardship offices (SEAS 2015). Several stewardship office managers that I interviewed pointed to the SEAS program as a positive initiative that they think is having an impact, in that more youth are showing an interest in stewardship work. They noted, however, that it can be challenging to take youth out during the school year winter months, due to weather conditions.

Other endeavors include a youth summer work program run in Kitkatla, and the participation of school youth in Coho restoration projects with the Kitsumkalum Fish and Wildlife office. All of these engagement efforts are a step in the right direction; as one Kitsumkalum Guardian explained:

Essentially when we first thought of the project we wanted to bring the students in, show them how to set a beaver trap, and it's for Coho enhancement, side channels stuff like that. And you show them, this is how we do it, this is why we're going to do it, enhance the Coho, let the Coho come out and all that kind of stuff. And they're very interested in that, they get out into the field, get out and do the berry picking and that, all different kinds of aspects, depending on what time of the year it is. So, it's…the students in there are coming back to the land, you could say. (Interview July 28, 2014)

However, interview participants stressed that all of these programs have a limited capacity to take on summer students due to limited finances. As a Guardian Watchman for the Heiltsuk Nation told me: "the summer students only [come] once a year, but we do have quite a few of young people who put their names in, their names in for work. But we only can hire so much, we just have them on call" (Interview July 16, 2014). Increased funds to pay the salaries of summer students as well as efforts to create links with future employers would improve the situation.

All of the examples of collaboration to increase youth exposure to stewardship work and broaden the skills learned by those who take monitoring training are steps in the right direction, and all result from long-term investments in relationship building. However, as all interview participants emphasized, funding, especially consistent funding (often from government sources), remains a principle challenge to capacity building. The next chapter will take a closer look at one of the new sources for monitoring funding that has emerged in Prince Rupert as a promising, if contentious, opportunity.

Chapter 6.

LNG – New Opportunities in Environmental Monitoring?

The livelihoods of people living on the north coast have always been dependent on the rich natural resources in the region. As described in chapters three and four, Prince Rupert has experienced a gradual change from a resource economy based primarily on the commercial fishing and canning industry to one in which fisheries are declining and port activities, extractive industries, and tourism play a larger role. Currently, the north coast region and Prince Rupert in particular have been the focus of intense interest by the BC government and industry proponents as a prime location for liquefied natural gas (LNG) export terminals[24]. Although no LNG proponents based in Prince Rupert have made a final investment decision, the environmental assessment (EA) work that has been ongoing for the last couple of years has altered the opportunities that exist for youth in monitoring, as some First Nations organizations and businesses are well-positioned to win EA survey work contracts from industry proponents and consultants.

This chapter highlights several of these employment opportunities, and some corresponding questions and concerns presented by the proposed LNG developments for First Nations' stewardship and development offices. Section one describes some of the job prospects that have become available to First Nations through the EA process. Sections two, three, and four address challenges and concerns. Section two focuses on the environmental concerns that underlie any potential agreement between First Nations and industry proponents. Section three highlights three areas on which First Nations are focusing when negotiating relationships with LNG companies: the types of job training that LNG proponents will fund, the types and duration of jobs that will become available through LNG projects, and the importance of life cycle and cumulative effects monitoring.

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[24] The 2011 *BC Jobs Plan* emphasized the importance of LNG for BC's economy, and set a goal of developing three LNG terminals by 2020. Eight of the 20 proposed LNG projects in BC would be located close to Prince Rupert, which is attractive as a LNG port location because it is close to the natural gas deposits in north-east BC, provides a fast shipping route to Asia, and provides a relatively less treacherous tanker route than that available from Kitimat, the other northern option for export terminals.

Section four describes how the influx of industrial activity in the region has, in some cases, shifted perceived employment opportunities from fisheries-related work to the extractive industries, and corresponding concerns that this shift could further distance youth from their territories and traditional cultures.

6.1. New Opportunities in Monitoring Through LNG

> I've seen, since I've started, a tonne of changes with the onslaught of industry and the opportunities [and] the conflicts that potential industry here is bringing. So, like you said, some of the Nations that we work with are getting opportunities to get more young people out in the field doing more comprehensive monitoring work, because they're helping with some of the environmental assessment work. And I think that's really interesting and really great, especially for those Nations who have the resources to help coordinate and project manage their own members, so that people from the community can get out and work with Stantec or Triton now, or some of the other consulting or contracting companies that are coming in to do the EA work. And I think there [are] a lot of positives to that. (Interview July 30, 2014)

The LNG boom in Prince Rupert has had a dramatic affect on First Nations stewardship and development offices. On the one hand, as will be discussed in more detail later in this chapter, these offices are under pressure to build capacity to both engage with the many industry proponents and conduct independent research and monitoring projects. On the other hand, because industry proponents realize that projects within the traditional territory of one or more First Nations will not go ahead without those Nations' consent[25], the First Nations on the north coast are in a relatively powerful negotiating position from which they can negotiate impact-benefit agreements. Additionally, many industry proponents and the companies they have contracted to do assessment work have realized that their long-term relationships with First Nations will benefit from involving community members in EA work, even if they are not otherwise required to do so. Therefore, many consulting companies conducting EAs are providing funding for First Nations to take relevant training courses. As an interview participant from the GEM office told me: "First Nations want to build the capacity to have technicians in their Nations who have the skills

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[25] See discussion of First Nations rights and title (particularly since Tsilhqot'in and implications for resource development projects) in chapter one.

to do continual environmental monitoring of the activities on the coast; the big driver is LNG proposals" (Interview April 8, 2015). The funding that LNG companies and contractors are willing to put into environmental monitoring training has opened up a window of opportunity for many stewardship and development offices to build their monitoring capacity, and for new First Nations businesses.

Khtada Environmental Services, LP (previously Metlakatla Triton, hereafter referred to as Khtada), is a First Nations environmental consulting office that was formed through a limited partnership between the Metlakatla Development Corporation and Triton Environmental Consultants in 2013[26]. When I spoke with the then-director of Khtada in 2014, the company had been successful in training First Nations, particularly youth, to work as environmental technicians, and in winning contracts from industry proponents. As the former director described:

> Now we have about 11 technicians, junior technicians, as we could call them, to go into the field on multiple projects. We have archeology, we have soil sampling, we have reconnaissance work, we have CMT [culturally modified trees] observation and identification, we have geophysics, fisheries, marine fisheries, and we have rare plant studies, pretty much everything that could impact the environment with every industry. We have workers working in those capacities…we prioritize First Nations people because it falls into our vision of why we're running this company […] we want to have First Nations people in the capacity that they feel like they're protecting this territory, right? (Interview July 10, 2014)

Khtada is a good example of a First Nations organization that has been able to strategically form a partnership with a consulting company to create job opportunities for First Nations in Prince Rupert. Other First Nations development and stewardship offices in Prince Rupert are building the capacity to follow suit. For example, the GEM office is building its capacity to work with consultants on environmental assessments by investing in technical training (for example, marine mammal surveys, Bear Aware, SVOP[27]) for community

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[26] The Metlakatla Development Corporation is an independent business arm of the Metlakatla First Nation that has been working for the sustainable economic development of the Nation and its members since 1989. For more information about the services offered by Khtada see: http://www.khtada.com. [Need to double-check date with Paul or Anna]

[27] Small Vehicle Operator Proficiency. The SVOP is a Transport Canada certification to operate a small commercial boat less than five tonnes for passenger and cargo boats (e.g., crew boats, sports fishing, whale-watching boats), and less than 15 gross tonnes for commercial fishing.

members who are interested in environmental monitoring work and are under-employed. Currently, GEM has developed a partnership with another company to bid for survey contracts, and their end goal is to have the capacity to win contracts from the industry proponents independently (Interview April 8, 2015).

Other First Nations programs are capitalizing on environmental assessment activity in a slightly different way. As one fisheries technician explained:

> You know, there's a lot of money kicking around, there's a lot of projects to be done, especially with the pressure of LNG, there's so much more research that we're hoping to start. You know, there's money now for it too, right? […] Coming from industry. (Interview August 1, 2014)

This youth works for the Lax Kw'alaams Fisheries Program, which, during the summer of 2014, was exceptionally busy with contracts from industry proponents. Although the majority of their work was as a ferry service for consultants doing EA surveys (as opposed to working on the EA surveys themselves) the profits that program has earned has made it possible for them to retrofit and expand their fleet of boats. As a result, the program is better able to undertake a variety of marine and fisheries monitoring projects that are determined by the interests and priorities of the Nation's membership.

6.2. Environmental Concerns vs Economic Opportunities?

When driving along highway 16 between Smithers and Prince Rupert, my eye was caught by billboards staked in ditches or nailed high up on trees. Many of the signs say: "save our salmon – no pipelines!", or simply depict "LNG" with an X through it. Others assert: "say yes to jobs!" The signs depict the division that exists within the region that proposed LNG pipelines creates, as residents in the Bulkley Valley and along the Skeena River are faced with an apparent choice between an influx of economic activity in their region and the threat of environmental disaster. At an evening event in Prince Rupert, the city's young mayor expressed the dilemma: although he and his council have a strong background in and commitment to environmental sustainability, Prince Rupert is facing a multi-million dollar infrastructure deficit – and an influx of cash from and LNG proponent would help the situation.

The tension between environmental values and economic opportunities faced by all people who would be touched by LNG development is evident within First Nations communities around Prince Rupert. Although the activity surrounding LNG EAs has created job opportunities for First Nations in environmental monitoring, the potential construction of export terminals has generated extremely high levels of concern about the effects of LNG export on the marine environment[28]. Many First Nations stewardship and development offices find themselves challenged to walk a fine line between their environmental concerns and the job opportunities offered by industry proponents. One fisheries technician described the experience as one where they are: "damned if we do, damned if we don't [engage]" (Interview July 28, 2014). Unlike the response to the Enbridge/Northern Gateway pipeline proposal, wherein First Nations along the entire length of the proposed pipeline route and on the coast were opposed to the project, First Nations on the coast and along LNG pipeline routes have differing views of LNG projects[29]. Since some Nations began to build their monitoring capacity to engage with proponents to take advantage of EA contracts, the remaining Nations must choose between engaging

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[28] This concern is shared by First Nation and non-First Nation communities alike; the range of potential environmental impacts is broad, from impacts of noise from tankers and liquefaction plants on whales to spill risk. Pacific NorthWest LNG (PNW LNG) has become a focal point, as the proposed site for the LNG terminal is on Lelu Island, and a bridge would need to be built over Flora Bank, an area of prime eelgrass habitat for juvenile salmon. For more information see http://moorelab.wix.com/moorelab#!rights-and-salmon/cdko. The Prince Rupert Environmental Society and the T. Buck Suzuki Environmental Foundation in Prince Rupert have also been active in organizing information sessions regarding LNG. For example, they invited David Hughes from the Canadian Centre for Policy Alternatives to present his report "A Clear Look at BC LNG" in April 2015, and have created and distributed information pamphlets on the likely effects of the Pacific NorthWest LNG project on the Skeena estuary that highlights salmon. The United Fishermen and Allied Worker's Union-UNIFOR has also collaborated with the Prince Rupert Environmental Society and T. Buck Suzuki Environmental Foundation to submit comments on the PNW LNG Project Environmental Impact Statement Application on many issues, from dredge toxins and contamination health to salmon habitat concerns. See http://saveourskeenasalmon.org/ouractions/comments-on-pnw-lng/

[29] Although Lax Kw'alaams rejected a more-than 1-billion dollar cash offer in return for support for the PNW LNG project in May 2015, both the Kitselas and the Metlakatla Nation have signed impact-benefit agreements with LNG companies. An impact-benefit agreement is a formal contract between a First Nation and a resource development company that outlines the impacts of the project (i.e., environmental and social), the commitments and responsibilities of both parties, and how the First Nation community will share in the benefits of the resource development through employment and economic development. By contrast, several interior Nations, including the Carrier-Sekani Tribal Council, the Gitxsan, and the Wet'suwet'en have either stated that they will not allow LNG pipelines through their territories, or have actively evicted and blockaded companies doing exploratory work for pipelines from their territories, citing insufficient consultation and environmental concerns (Prystupa, 2014).

or being left behind, even though they may be strongly opposed to LNG due to the risks development poses to the environment and their culture. One interview participant elaborated:

> For us it's […] difficult, and it's complicated, working with these companies. First and foremost, the environment, our culture, comes first, right? And our negotiations with these LNG companies, [those are] the principles we base them on. We're not about to – we certainly see the opportunities with these companies, there's certainly going to be a lot of research done in the next two to five years. Whether we can take advantage of that is yet to be determined. So it's – yes, there are opportunities, and we see these opportunities, but we are not going to compromise some of our principles to take advantage of [them]. (Interview August 5, 2014)

The tension between environmental values (both personal and cultural) and economic opportunities was shared widely amongst interview participants. One First Nations youth described the dilemma he faces between not wanting to see Prince Rupert "die" as a coastal town and the excitement he feels over the potential for economic growth in the region, and his passion for environment protection (Interview August 1, 2014). Another woman spoke of her personal struggle to reconcile competing interests:

> And for some of the […] potential industries I think there are long-term benefits because I think the industries will probably continue to have ongoing monitoring, and they'll try and support some level of First Nations continued collaboration on that. So, I can see a positive in that, but it also makes me nervous and makes me feel really sad about what could potentially change on the coast. And if we're going to be monitoring a lot of negative impacts, do we really want the monitoring work? (Nicole Kaechele, interview July 29, 2014)

First Nations are addressing these tensions and fears in a variety of ways. The Tsimshian Environmental Stewardship Authority is an alliance of five coastal Nations that was formed to: "help establish baseline monitoring programs, provide information to the communities about project impacts and potential mitigation measures, develop conditions to address environmental concerns for proposed projects in the territory, support the engagement of First Nations in the environmental assessment process and maintain a regional forum to discuss projects and mitigation measures" (Thomas, 2015). Six First Nations (including Lax Kw'alaams) and researchers from Simon Fraser University have undertaken research and published a letter in *Science* warning of the potential threats of the Pacific NorthWest LNG terminal to Skeena River salmon (Moore et al. 2015).

One fisheries technician, who works for the Lax Kw'alaams Fisheries Program, described how he comes to terms, personally, with doing work that supports the LNG proponents:

> It's kind of an interesting position we're in right now, because the community of Lax Kw'alaams, right now they're really […] not for LNG whatsoever, yet our entire fisheries program right now is supported by LNG and […] we're providing the service and expertise and knowledge to help them carry out these environmental assessments. You know, I guess there's two ways to look at it, right? One is, you're working for LNG, you're providing them with all the means and knowledge to go carry out an environmental assessment. And then the way I look at it, is that, we're out there providing vessel services, transportation, local knowledge, expertise, you know, when we get to intertidal stuff, or marine stuff that we're more experienced with, or even some of the [archeology] stuff. We're able to assist in *how* [emphasis in original discussion] they carry out their day, how they go about collecting their stuff, and making sure that they actually collect stuff, you know? We're there to watch them, you know. And when they're doing something that we think isn't enough, we tell them. We tell either them, or the project managers…we'll certainly tell our management, say "hey, I don't think that they did this very well". (Interview August 1, 2014)

For First Nations around Prince Rupert, refusing to engage with LNG companies is not a viable option. However, as the quotes above illustrate, First Nations are engaging on their own terms to take advantage of funding to train their stewardship and fisheries staff, thereby enriching their ability to undertake independent monitoring and assessment projects. At the same time, by participating, they are in a position to assess whether or not the EAs are well done, and, as the research by the six Nations and the Moore Lab shows[30], to provide scientific evidence to back up challenges to EA decisions.

[30] In partnership with six First Nations, the Moore lab study consists of a juvenile salmon (Chinook and Sockeye) sampling program that identified the genetic stock of salmon within three kilometers of the proposed PNW-LNG terminal site, and traced the origin of the salmon throughout the watershed. Their work identified 40 different salmon populations from at least 10 different First Nations territories throughout the Skeena watershed. In the *Science* letter, Moore et al. argue that their results demonstrate that the LNG company has not adequately considered the impact of their project on the environment and on the Aboriginal Rights of up-river First Nations, as PNW-LNG primarily consulted with marine First Nations.

6.3. Relationships with an LNG Proponent

6.3.1. What Kind of Jobs and Training, When, and For Whom?

One of the major concerns for First Nations is that LNG proponents rarely disclose their project timelines. First Nations stewardship offices are taking a calculated risk by investing time and money into building their capacity for environmental monitoring, because with no final investment decision made by any of the LNG companies to date, they have no assurance that there will be funding to support their training programs, and to employ those they train, in the long term[31]. In April of 2015, people I spoke with at both Khtada and the Lax Kw'alaams Fisheries Program indicated that they had been much less busy with contracts from LNG proponents than expected, and they did not know whether or when business would pick up. By contrast, managers from other First Nations offices have expressed confidence that they will continue to win monitoring and assessment contracts from LNG companies for several years at least.

Even in the short term, although the opportunities for EA work are not insignificant, they fall short of offering longer-term job security, an issue identified in chapter four. Interview participants have pointed out that most jobs are limited to short contracts to work on EA assessments, which tend to last only a few days or a week. Additionally, it seems that many LNG proponents and the companies working for them are only willing to train people in basic surveying skills and safety requirements, and are reluctant to provide funds for training that could help people build the bank of skills necessary for a long-term career as a technician. For example, as a technician from GEM told me:

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[31] Many sources have challenged the BC government's claim that LNG exports will provide a multi-billion dollar revenue source for the province on economic, as well as environmental grounds. The comprehensive report, *A Clear Look at BC LNG,* was published in May 2015 by the Canadian Centre for Policy Alternatives and authored by David Hughes, a geoscientist with over four decades of experience working in the oil and gas field in Canada and the US. Major findings from the report that underscore the fragility of economic claims related to LNG include: overestimations of gas supplies that are available for export; the potential for LNG exports to compromise Canada's energy security, because "medium to high levels of LNG exports from BC would require Canada to become a net importer of natural gas, simply to meet domestic need", and that there are considerable risks to companies entering the LNG industry due to the potential for rising domestic and lowering international gas prices and the structure of the BC LNG tax (Hughes 2015).

I guess right now, we've actually gone through some online training with Stantec, one of those LNG consultants. We got the Bear Awareness, WMS, their online training. And there's other stuff that's needed, like for long-term jobs. Like the bigger [ones like the] fish master's ticket and SVOP. I guess, because we just had a meeting recently with a lady from Stantec, kind of had discussions about training too, what long term careers are available, if are any for people around this area, the type of training that it would require. [*Interviewer: And what came out of that, what did they say?*] Ah, they – she said that she'll look into it, get some feedback at a later date. Cause it seems that the only, only part that we're involved directly right now is the survey work, environmental assessment work. (Interview July 28, 2014)

The apparent reluctance of some LNG companies to offer quality (defined as permanent and high-skilled) jobs or learning opportunities many be indicative, as one man suggested cynically, of a negative attitude by industry towards First Nations businesses that he had previously thought was disappearing in the region. It could be that many of the industries are simply trying to get enough First Nations participation in EAs that they can claim to have the support of a Nation for their development project – thereby securing the elusive "social license[32]". In the current situation, wherein stewardship offices are competing for EA contracts, offices sometimes end up choosing to hire older community members who already have boat skills due to their background in fisheries, instead of more inexperienced youth, in order to build a strong reputation with the consulting companies. A notable exception is Khtada, which, since it has a stable partnership with Triton Environmental, is able to concentrate specifically on helping youth build their careers. However, First Nations are not willing to accept whatever it is that an LNG proponent offers. The stewardship and development office managers that I spoke with have emphasized that they want funding to be available on their own terms. As one manager elaborated:

That's something that we are talking [about] with one of these LNG proponents. They have money to spend on training, and we have certain training needs. But we're not going to train a bunch of people just to go work for this particular proponent, we want to make it a win-win situation, and train guys for the basics, with their SVOP, their VHF[33] marine

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[32] "Social license" has become a major buzzword in resource development circles since the early 2000s with the growing recognition by industry that in order to avoid expensive conflicts (including court cases), it is necessary for them to win the support of local communities (Prno and Slocombe 2012).

[33] Very High Frequency (VHF). A Radio Operators Certificate-Marine (ROC-M) is required to operate a VHF radio.

certificates, their First Aid, where if they don't – ah, if they don't make a career in an "LNG-related field", in quotations, they have the basic training requirements to go work on a commercial fishing boat, and the basic requirements to go work with the Canadian Coast Guard, to lead into other careers. (Interview August 5, 2014)

As the quotes in this section illustrate, First Nations are committed to negotiating a relationship with LNG proponents that does not sacrifice their economic interests, one aspect of which is employment for their community members. Although First Nations have been taking advantage of piecemeal contracts because, as the example from GEM shows, such opportunities do benefit under-employed community members in the short term, they are pushing for LNG companies to commit to funding training and offering jobs that will benefit their communities in more enduring ways. First Nations want their community members, and particularly their youth, to be trained in transferrable environmental monitoring skills, and they want LNG companies to commit to longer-term business relationships.

6.3.2. First Nations Asserting Their Priorities: Cumulative Effects and Life Cycle Monitoring

Many First Nations are suspicious of the motivation behind those conducting EAs, and are critical of the timelines LNG companies produce for this essential stage in the development proposal:

What [LNG consultants] are out there for is…anyone's opinion, right? Whether they're out there just to look like they're out there, or whether they're out there to really say: "hey, this project shouldn't go ahead because of this, this and this" […] No one really likes to share their timeline either, that's one of the things…you ask them "how long, you know, how many years are you going to be at this sort of environmental stage?" Most of the companies kind of rush it, and that's the thing that most First Nations have been really, sort of, lobbying against, you know, these deadlines are too soon. (Interview August 1, 2014)

All of the interview participants I spoke with were cautious in their assessment of the quality of EA work done by the consulting companies hired by LNG proponents, and were very clear that they are not willing to compromise their environmental values. The rejection by Lax Kw'alaams of Petronas' billion-dollar offer is the starkest example of this. However, other First Nations are asserting their commitment to environmental principles by forcing LNG companies to prioritize cumulative environmental effects and life cycle monitoring.

The conditions under which a cumulative effects assessment is triggered in BC is convoluted[34], but First Nations are insisting on cumulative environmental assessments. For example, in the North Coast Marine Plan developed under MaPP, the monitoring of cumulative effects is one of four overarching management objectives. Life cycle monitoring of development projects is equally important. As one manager stated:

> So we've said [to the LNG company]: "you can hire any prime contractor you want, we don't care. But you're going to pay our contractor who does the studies for us, and then they're going to feed it to us. They'll feed it to you too, but that way it's a separation of the conflict." There's a lot of monitoring. We have 12 people working out there every day for the last month. They're all doing these little studies that are required from the proponent. So – there's lots of opportunities for youth, and that's good, and it could play out that these turn out to be the future Guardian Watchmen. But if an LNG facility does go in, Metlakatla's position is that the proponent will have to pay Metlakatla [to run] a monitoring program for the life of the facility. So again, you won't have the fox watching the hen house, we're going to do it. (Interview July 4, 2014)

This statement illustrates several points: the general distrust that many First Nations have of the diligence with which LNG proponents conduct environmental assessments; the potential for youth to get training and employment in environmental monitoring and how this connects with stewardship programs like the Guardian Watchmen; and the importance of monitoring throughout the entire life cycle of a potential project.

6.4. Industrial Jobs and Cultural Connections

> One thing too that I didn't mention before [that] is one challenge now as well [is that], with a lot of development proposed for the region is that there's

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[34] The *Canadian Environmental Assessment Act* (CEAA, 2012) Section 5 and paragraph 19(1) set out reasonably clear legislation that determines when a cumulative effects assessment is triggered. Under the BC *Environmental Assessment Act* (2002), things are less clear. A cumulative effects assessment may be required in BC by either a procedural order (from a minister) or in the terms of reference issued for a specific project. However, the guiding document for preparing project description for EAs in BC suggests that cumulative effects need only be assessed for projects that trigger the CEAA 2012 process.

sort of competing interests and competing job prospects…just hearing the experiences of some of our communities, they have a tough time retaining staff for fisheries work or monitoring work because people can get paid better doing, you know, jobs for some of the plants. (Interview July 24, 2014)

Beyond LNG, the north coast region is seeing increasing industrial development in general, and this is having an impact on the ability of First Nations fisheries programs to recruit staff since, with their generally shoe-string budgets, they cannot afford to staff many full time, well-paid positions. Several managers that I spoke with in Prince Rupert reflected on a shift that they've seen, wherein youth have begun to go after jobs with industry that are well paid and offer benefits, even if they are lower-skilled jobs. One Fisheries Officer also told me that he believes that industry-related jobs are also appealing to youth above pursuing a career in fisheries with DFO (Interview August 6, 2014).

None of the comments quoted above were made to denigrate jobs in industry. Rather, they express peoples' concern with an apparent trend away from fisheries-related work (a resource that has long sustained the cultures and economies of the north coast), towards one that is supportive of short-term extraction that people believe is fundamentally unsustainable. One youth from the Gitga'at Nation expressed his concern that the emphasis that is being placed on the opportunities with LNG and other industrial jobs could create an environment in which youth are further distanced from their culture:

> And, yeah, that's a theme right now, with industry booming, is that you go to these trade shows. I mean, even like Aboriginal youth conferences. And industry's right there. And it's really scary. And, generally, I would say that any of those jobs will create further disconnect between the young generation and their territory…I mean, there's no way that L- whichever, I could throw out any gas company's name – their funding is going to come down to me, as a graduate student, doing, working on research on decolonization. And First Nations studies, and Anthropology, right? It's going to go to the kids who are studying trades. And […] not to say trades are bad, or whatever – it's just they're going to gear them as much as possible to be industry-prone [whereas there are people who have] these jobs that have to do with environmental assessments, or Guardianships, and all these things, that help them engage with the territory more. And ah – you'd hope that a good amount of positive comes from that. (Interview August 15, 2014)

The youth quoted above identifies two critical points: not only are jobs in industry potentially distancing youth from traditional cultural environmental values, but also, the funding for education that comes from industry is not likely to be available for First Nations to use as they like, with "no strings attached". In a sense, this continues a colonial relationship whereby the provincial or federal government exerts control over First Nations education. Additionally, the same youth expressed concern about the type of mindset that could be created in some First Nations communities through the emphasis the government is placing on the importance of jobs:

> The way of thinking, and the way information is given to us, it's: "jobs are great, jobs are good, jobs are going to save us. You grew up with all these struggles in your life, but once you get a job: woo-hoo, they're gone!" That's not the case, whether you're on-reserve or off-reserve, Aboriginal communities need healing on a deeper level, need all these things on a deeper level, and that comes from engagement with the land, engagement with culture, engagement with family. And chances are that industry-prone jobs aren't going to add to that. (Interview August 15, 2014)

The concern articulated by this interview participant is that by providing funding that promotes industry-related jobs training, and prioritizing economic growth as the primary way of bettering society, the government is sending a message that the best way for First Nations in difficult social and economic situations to increase their well-being is though accepting resource extraction jobs, when the reality is that many communities need to go through a deeper process of healing together—a process which may be in conflict with some types of resource extraction jobs. The following chapter will provide more discussion of these issues by elaborating on the connection between youth education and technical training, stewardship jobs and the process of cultural re-vitalization, and healing within First Nations communities.

6.5. Reflections

Chapter three introduced the concept that forms of neoliberalism that affect fishing communities are a form of colonialism; these forms included industrial development projects that compete with traditional ocean uses and exclude the people who have traditionally ocean-based livelihoods from decision-making processes (Pinkerton and Davis 2015). The experiences relayed to me by interview participants regarding LNG

highlight that the way in which LNG development proceeds (or not) is a test of whether colonial approaches to resource development remain in BC. As they engage with LNG proponents, First Nations are in a process of envisioning how they want the resources in their territories to be used, and they are asserting their rights to their territories. This can be seen through the efforts of stewardship, development and fisheries offices to take advantage of the funding available through LNG proponents (either directly through contracts as in the case of Lax Kw'alaams, or indirectly through funding training as with many of the other offices) to build their program's capacity and provide training and jobs for community members. First Nations have used the legal precedents set by court cases, particularly Tsilhqo'tin, to make LNG proponents take their priority environmental concerns seriously, have withheld their consent to projects where they do not feel their concerns have been adequately addressed, and are developing strategies to undertake their own evaluations (TESA). Ultimately, First Nations are negotiating jobs that will align with their cultural values and priorities, and relationships that have the potential to reinforce rather than weaken their political and cultural institutions. And, although at this point it is not clear whether any of the long term opportunities for environmental monitoring jobs related to the LNG industry will materialize, the efforts the different Nations are investing in building their monitoring capacities will remain essential in the future, given the more general industrial boom in the north.

Chapter 7.

Narratives of Decolonization: Stewardship, Education, and Culture

"The power of narrative is absolute." So writes John Ralston Saul in the first chapter of *The Comeback* (2014). Taking his lead from many Indigenous scholars, Saul summarizes the major colonial narratives that have dominated Canadian thoughts about and relationships with First Nations people over the last couple of centuries: sympathy, guilt, and dismissal. Saul's message is powerful; it is a call for Canadians to recognize and embrace the new narrative that is emerging in Canadian history: the social, economic, and cultural comeback of First Nations peoples.

Both narratives described by Saul inescapably shape resource management on the north coast of BC. The power of both narratives became particularly apparent in my research as interview participants responded to questions about stewardship work and youths' connection to their environment by speaking about community efforts at decolonization through cultural education. The context that these responses have challenged me to situate the role of stewardship and monitoring training programs within is partially described in chapter three: the effects of historical and ongoing colonialism on communities. However, as Saul writes in *The Comeback,* even more present is a strong counter-narrative of decolonization in First Nations-Canadian relationships. Chapter three alluded to the role of programs like the Coastal Stewardship Network's Technician Training in the decolonization of resource management. This chapter gives voice to another aspect of the counter-narrative: the ways in which stewardship programs fit into the decolonization of First Nations education and can thereby contribute to efforts at community healing.

Section one takes a step back from stewardship programs, first by providing an overview of key literature on First Nations education and decolonization, and second, by highlighting local educational efforts that help reconnect youth with their culture. The second section takes a look at stewardship training as a means through which youth can learn about and re-engage with their traditional territory. Section three elaborates how

training programs could contribute further to community healing through a deliberate incorporation of Indigenous pedagogies.

7.1. Education for Decolonization: Regional and Local Examples

Stewardship programs represent only a small piece in the much larger effort of educational decolonization that is starting to take place within some Canadian school systems. First Nations education featured prominently in political discussions/debates in Canada in 2014 and 2015,[35] but there has been significant research and development in integrating Indigenous knowledge and pedagogies in Canadian schools since at least the early 2000s. As Indigenous scholars, educators, and activists like James [Sákéj] Youngblood Henderson, Linda Goulet, Keith Goulet, and Marie Battiste have long pointed out, the curriculum taught in most Canadian schools continues to be based in Western epistemologies that have historically denied the validity of Indigenous ways of knowing and learning, a process that de-legitimizes First Nations' cultures. This culturally blind approach has long-lasting, harmful effects on First Nations students' ability to thrive and succeed in both academic and non-academic aspects of their lives (Henderson 2000, Goulet and Goulet 2014, Battiste 2002, TRC 2015). As Marie Battiste wrote in her 2002 report to the National Working Group on Education and Indian and Northern Affairs Canada:

> No educational system is perfect, yet few have a history as destructive to human potential as Canada's with its obsession with assimilating Indians. In this coercive system, more than three out of every four Aboriginal students fail. The random achievement of the few who do succeed, however, does not directly relate to success in life nor in parenting nor in caring for others. The racism inherent in the system drains students of their capacity for achievement in all aspects of their lives. It is time to change the educational outcomes for Aboriginal youth by fully integrating their knowledge and heritage into an educational system that values and respects Indigenous ways of knowing and allows Aboriginal students to

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[35] The Government of Canada introduced Bill C-33, the *First Nations Control of First Nations Education Act*, which has been put on hold following Second Reading in Parliament in 2015, due largely to criticisms by many First Nations that the act allocates far too much power to the Minister for Aboriginal Affairs, fails to protect treaty rights, and provides insufficient funding to First Nations schools.

embrace and celebrate who they are instead of making them doubt themselves. (Battiste 2002)

With this context in mind, the next section highlights several notable community and regional educational initiatives on the north coast of BC that were identified by interview participants as playing a crucial role in addressing both inter-generational gaps in cultural knowledge and the well being of First Nations youth.

7.1.1.　First Nations Cultural Curriculum

Students should not have to leave their Indigenous identities behind in order to be successful in school. It is incumbent upon teachers to find and incorporate Indigenous knowledge and understandings (epistemologies) and to use Indigenous practices and methods to support learning and fully develop students' potential (Goulet and Goulet 2014).

Interview participants described several initiatives on the north coast that they believe incorporate and prioritize First Nations epistemologies, and that are helping youth either stay connected or re-connect with their culture. In Hartley Bay, the school calendar year is shaped around certain traditional harvesting practices: all of the students go, for example, to harvest seaweed in the spring; this is "reading week" (Interview August 15, 2014). Similarly, in Kitsumkalum, the reserve school follows the provincial curriculum, but has added experiential learning about cultural practices through activities like building a smokehouse and bringing the children on berry picking expeditions (Interview July 28, 2014). In both cases, instead of separating youth from their environment, school curriculum connects youth to traditional harvesting practices. As one man said, the result is that youth are starting to "come back to the land a bit" (Interview July 28, 2014).

Positive examples are not restricted to schools in First Nations communities. In 2001, School District 52[36] entered into a partnership agreement that aims to increase the educational opportunities and success of First Nations students. The agreement is based

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[36] School District 52 encompasses the communities of Prince Rupert, Port Edward, Metlakatla, Kitkatla, Hartley Bay, Lax Kw'alaams, and Gingolx (Kincolith). Fifty-nine percent of the district's students are First Nation.

on respect for First Nations languages, cultures, and histories, and includes a commitment to developing engaging and culturally relevant curriculum (Wilson 2013). Major programs that have been developed as a result of the partnership agreement include the Sm'alygax language program[37] and the Learning for Understanding through Cultural Inclusion and Imaginative Development (LUCID), which uses Indigenous pedagogies such as learning through experience to teach students Indigenous worldviews[38]. According to the *Aboriginal Engagement Partnership Agreement Annual Report* (2011-2012), learning outcomes among First Nations students since the introduction of these programs have been mixed[39]. However, teachers of Sm'alygax in Prince Rupert believe that the language program has made a big difference to many youth; whereas many youth may have known nothing about their culture and language before starting the program, now they are proud of their culture (pers. comm., August 5, 2014).

7.2. Indigenous Knowledge and the Land

> Indigenous knowledge is also inherently tied to land, not to land in general but to particular landscapes, landforms, and biomes where ceremonies are properly held, stories properly recited, medicines properly gathered, and transfers of knowledge properly authenticated. Ensuring the complete and

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[37] The Sm'alygax language program is offered from grades five through twelve in Prince Rupert and Port Edward, in the pilot all-day Kindergarten in two schools in Prince Rupert, and in all grades in Hartley Bay and Kitkatla.

The Sm'algyax curriculum is an approved provincial curriculum; students who successfully complete Sm'algyax curriculum can be approved for their second language requirements for university entrance (Wilson 2013).

[38] LUCID "promotes both the use of Aboriginal content, resources, and involvement with the community. An emphasis is placed on local contexts, authentic experiences, and cooperative learning. The aim is to bring learning alive for students as they connect their hearts and minds to construct their own understanding" (Wilson 2013). LUCID coordinators and teachers have developed a range of culturally relevant supplementary resources, narratives, and teaching units.

[39] The Aboriginal Education Agreement 2011-2012 Report measures student performance in many areas: literacy (including Sm'algyax language proficiency in grades 11 and 12, using participation rates and final grades); mathematics, and secondary school graduation. Literacy and mathematics comprehension is measured at various grade levels, using different indicators. There was a slight downward trend in performance of First Nations learners from 2011-2012 as compared to the previous five years. The report also includes data on attendance, and found that most of the students missing 30 or more days of school are First Nations, which could have impacted academic performance. The report suggests that a decline in employment and increase in poverty levels over 2011-2012 may have had an impact of families and student attendance (Wilson 2013).

accurate transmission of knowledge and authority from generation to generation depends not only on maintaining ceremonies, which Canadian law treats as art rather than science, but also on maintaining the integrity of the land itself. (Battiste 2002)

Scholars and teachers of Indigenous epistemologies and education in Canada and around the world have singled out the inseparability of Indigenous education, culture, and the environment. As Gregory (Tewa) Cajete writes:

The environmental foundation [of tribal knowledge] forms a context through which the tribe observed and integrated those understandings, bodies of knowledge, and practices resulting from direct interaction with the natural world. This foundation connects a tribe to its place, establishing the meaning of tribe members' relationships to their land and the earth in their minds and hearts…The environmental foundation of tribal education reflects a deeper level of teaching and learning than simply making a living from the natural world. For American Indians, as with other nature-centered indigenous cultures around the world, the natural environment was the essential reality, the place of being. Nature was taught about and understood in and on its own terms. (Cajete 2005)

Many interview respondents spoke about environmental knowledge, the connection of youth to their territories, and stewardship in a way that echoed teachings similar to those of Cajete above. When visiting the office of Khtada for an interview, I was shown the Tsimshian seasonal rounds posters series[40] on their office walls, which they use in the training of environmental technicians to emphasize the connection between their work and traditional values and practices such as stewardship of the land and resources (Interview July 10, 2014). When I asked one fisheries technician what he believed was the importance of having young people engaged in the fishery as well as with the ocean environment and their territory in broader terms, his response emphasized the responsibility to care for and respect the environment that is central to Indigenous worldviews: "I feel it's really important. It's way up top of the list. It all has to do with education, respecting the land. Everything that we've learned from our Elders and our Ancestors about respecting all life, basically. Respecting the health of the environment" (Interview July 28, 2014). The same man spoke about his experience growing up learning traditional harvesting practices, and described how he had become out of touch with this

[40] The poster series is a set of 13 posters, which illustrate Tsimshian cultural activities throughout the year. The posters are locally developed educational resources.
http://sd52.bc.ca/abed/?page_id=223

knowledge upon moving to the city. However, through his work as a technician, where he worked on projects on traditional values and research protocols, he said he has been able to revisit the teachings learned from his parents and grandparents:

> I guess the kicker for me was having that lifestyle of being a fisherman, hunter, harvester, relying on big tides when we can go get our traditional foods; having that I guess connection to – not only certain areas, [but being able] to actually revisit areas where my ancestor's ancestors had been harvesting for [generations]. It's things I think about when I'm out there, I got to remember my parents as they were when they were alive, my brothers. (Interview July 28, 2014)

These examples illustrate how environmental monitoring and stewardship work can act as a bridge for First Nations who have either not previously had, or who have lost the opportunity to engage with their land and environment, to reconnect with or learn traditional teachings about the ways their people have used and taken care of the resources within their territories.

7.3. Stewardship Education Across Generations

Beyond the obvious role for stewardship training in teaching traditional knowledge of the land and environmental principles to youth is the potential for such training to be a forum where Indigenous Knowledge and pedagogies can be central to teaching. Indigenous pedagogies are founded upon an understanding of learning as a life-long process, where knowledge comes from understanding of myths and visions, direct relational experiences with family and community, and the natural environment, and art (Battiste 2002, Cajete 2005, Aluli-Meyer 2008). Through art, myths and visions are explored, expressed, and passed on as teachings (Cajete 2005). This understanding of lifelong learning is very different from the mainstream understanding in Western education systems, wherein lifelong learning often refers to adult education programs. As Cajete writes, "Indigenous education is at its very essence learning about life through participation and relationship to community, including not only people but plants, animals, and the whole of nature (Cajete 1994). The SEAS Community Initiative, which was discussed in chapter five, explicitly tries to integrate several of these principles through experience-based learning for youth, and through facilitating the establishment of mentorships

between Elders and youth. Projects like these, which nurture cultural learning and employ Indigenous epistemologies, are an integral part of decolonization in many communities. As one youth pointed out, decolonization involves deep community healing, and there is potential for stewardship programs like the Guardian Watchmen to grow in a way that supports this work:

> There's so many aspects of, or so many different ways to go through that, to understand healing, to understand this. We need our land, we come from the land, we need [it] to know who we are. The more disengaged we are from the land, the less we know who we are as Tsimshian people. As Gitga'ata from Hartley Bay, however you look at it. We need that land. So we need to find ways to keep our people engaged with our communities, and engaged with our land. Guardianships are amazing. I think they – yeah, the whole idea and concept is much needed, and we need people, and we need to take young people, as well as older people, and have them work together. (Interview August 15, 2014)

The vision for what the Guardian Watchmen and other stewardship programs could be that this youth expresses is one in which knowledge gaps are bridged by mentorship and co-learning across generations. This process affirms an Indigenous pedagogy and worldview, and thus contributes towards the process of healing colonial scars. The Guardian Watchmen program is already on this path, as it exists, as argued in chapter three, as an assertion of First Nations' authority to monitor and govern their territories. However, there is considerable potential for the CSN and other stewardship programs to be designed in a way that both advances First Nation's authority in resource management and affirms Indigenous epistemology and pedagogy so that Guardian Watchmen can take on a central role in the healing of First Nations communities through the revitalization of an Indigenous understanding of resource governance. The following chapter suggests some "best practices" for training program design, delivery, and content.

Chapter 8.

Building Capacity for Enforcement

As discussed in chapters three and seven, First Nation stewardship programs fill many important roles on the coast. Stewardship technicians and Guardian Watchmen monitor environmental conditions, wildlife, fisheries, and tourism activities. Guardian Watchmen assert their Nation's authority over their traditional territories through their presence on the water, and the data they collect builds the capacity of their Nations to take on greater powers and responsibilities in the management of resources within their territories. Stewardship programs therefore contribute to the decolonization of resource management in BC, which has largely ignored the rights and responsibilities of First Nations within their territories, and they play an important role in cultural revitalization through the involvement of youth. Finally, stewardship programs are well positioned to incorporate Indigenous epistemologies and pedagogies in their design and delivery, and thereby be part of the decolonization of education and healing of communities.

This chapter addresses the research question: "*what are "best practices" for training programs that serve First Nations resource guardians looking to assume a larger role in fisheries and marine management and enforcement?"* The chapter is broken into four sections: section one describes content that should be included in a training program, and section two focuses on various aspects of program delivery, including instruction styles, location, and duration of courses. Section three draws attention to the theme that emerged as a "bottom line" for developing a stewardship program on the coast that is effective in the long term: the need for standardization of stewardship training. Section four looks to an example from Australia for ways in which some of the core challenges facing stewardship programs on the north coast can be resolved.

8.1. Stewardship Program Content

Recommendations for program content are based on a variety of sources. Table One summarizes the course content of two post-secondary programs in resource management enforcement from which DFO and the Ministry of the Environment often hire

graduates to become fisheries and conservation officers, and compares the program offerings to the content of the CSN 2013-2014 Stewardship Technician Training program. Frequencies with which topics needing attention were identified during interviews with First Nations technicians and Guardian Watchmen, stewardship office staff, and DFO fisheries officers are also reported in Table One. The results of a survey done by the CSN on the training interests and priorities of Guardian Watchmen and stewardship program staff are also presented, and are compared with interview responses.

8.1.1. Review of Post-Secondary Enforcement Officer Training and Comparison with CSN Stewardship Technician Training Program

There are several post-secondary programs in BC that offer certificates and diplomas in law enforcement and/or resource management (Table 1 in Appendix C, shows a summary of all programs reviewed). Table 1 compares only those offered by Lethbridge College and Vancouver Island University (VIU), because the accreditation provided by these programs includes both resource management *and* law enforcement. This qualifies graduates to apply directly for a position as a Fisheries Officer or Conservation Officer. Lethbridge College is located in Alberta, but is included here because the course offerings are similar to those of the VIU programs[41]. This suggests that these programs together could be used as a standard for resource management and conservation enforcement programs. Both the Lethbridge and VIU programs offer two levels of certification: a diploma level following two years of training, and a Bachelor's degree that builds upon the previous diploma and consists of two additional years of training. Complete lists of courses offered by these programs with descriptions can be found in Appendix C. Although DFO only requires applicants for Fisheries Officer positions to have two years of post-secondary education, and the Conservation Officer Service merely states a preference that applicants hold a degree or a diploma in resource management and law enforcement (DFO 2012b, Ministry of Environment 2015), positions are increasingly competitive and therefore higher levels of education are desirable. Table 1 clearly shows that the training offered by the CSN is much more condensed than that received by an individual at a post-

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[41] With the exception that aquatic and fisheries management courses cover lakes and rivers, not marine environments.

secondary institution. However, the goal of the CSN program is not to prepare graduates

specifically for a career

Table 1.   Enforcement Officer Post-Secondary and CSN (2013-2014) Program Content

Program	Diploma in Natural Resource Compliance Lethbridge College	Conservation Enforcement - Bachelor of Applied Science Lethbridge College	Diploma in Resource Management Officer Technology Vancouver Island University	Bachelor of Natural Resource Protection' Vancouver Island University	Coastal Stewardship Network Technician Training	Identified in interviews as needing attention (frequency)
Duration	2 years	4 years (Diploma + 2 years)	2 years	4 years (Diploma + 2 years)	32.5 days (7 modules)	
First Nations law, rights, and traditional resource management	0.5 (plus 1 dependant on specialization)	0	0	1 (elective course)	0	1
Verbal Communication	1	0.5	0.5	0.5	2	10
Report / other writing	1	0.5	1	1	2	2
Computer skills (data entry, etc)	Included throughout	Included throughout	Included throughout	Included throughout	0.5	2
Technical skills	Fire management	Various field technological skills, dependant on specialization	small motors, fitness, self defense, small firearms safety & practice, various field skills	0	small motors, variety of field monitoring techniques	4 (self-defense) 1 (enviro. monitoring)

Program	Diploma in Natural Resource Compliance Lethbridge College	Conservation Enforcement - Bachelor of Applied Science Lethbridge College	Diploma in Resource Management Officer Technology Vancouver Island University	Bachelor of Natural Resource Protection' Vancouver Island University	Coastal Stewardship Network Technician Training	Identified in interviews as needing attention (frequency)
Investigation skills for enforcement and the court system	3	6	5	3	2	3 (legal note taking) 2 (evidence gathering)
Legislation and Law	2	1	1	0	0.5	8
Basic Biology and/or Ecology	6	0	6	0.5	0.5	3
Math/Stats	1	0	1	0	0	
Natural Resource Management	3	4 (specialization dependant)	5	2	2	
Parks	1	2 (specialization dependant)	1	0.5	2	
GIS / mapping	2	0	1	1	0.5	
Field Study	0	2	1 (two week practicum)	1 (semester-long job practicum)	0.5	

Note: 0.5 = no specific course, but skills practiced

in enforcement with a federal or provincial agency, but rather to build the capacity of their Nation to monitor and enforce both Canadian and Indigenous ways of governance and laws in their territories. Therefore, what is important to note in Table 1 is where there are congruencies and gaps between the categories of knowledge covered by the post-secondary programs and the CSN training.

With this broader mandate in mind, Table 1 demonstrates that the CSN training, as offered in 2013-2014, does offer a reasonably comprehensive, basic training in environmental and compliance monitoring (a detailed description of the 2013-2014 modules can be found in Appendix C). However, as the seventh and eight columns show, there are important topics not specifically covered by the CSN training (legislation and law, biology/ecology, computer skills, math, and GIS, First Nations law/rights in resource management) as well as areas that interview respondents believe need greater attention (verbal communication, legislation and law, biology/ecology, report writing, computer skills, First Nations law/rights in resource management, and a variety of technical skills). An area that does not specifically appear in the table, but which is critical if Guardian Watchmen are to play an important role in cultural revitalization, is Indigenous Ecological Knowledge and Indigenous Knowledge: a course, or courses, that integrate Indigenous worldviews. Within the table, the most striking gap is knowledge of federal and provincial resource management laws and regulations: in 2013-2014, legislation was not taught in any specific course, and in interviews, eight different individuals highlighted this weakness. Five interview respondents believed that Guardian Watchmen should take more training in investigative skills, including legal note-taking and evidence-gathering. Four individuals underscored the importance of training people in Guardian Watchmen positions in basic self-defence techniques – as one First Nations Guardian emphasized, they often work in remote areas, and although every effort should be taken to avoid physical confrontation with an individual breaking, for example, fisheries regulations, they said it would be a good idea to have some knowledge of physical self defense techniques (Interview July 28, 2014). Finally, 10 different interview participants highlighted the need for more training in verbal communication and other "soft skills", including training in reading body language, approaching and dealing with resource users who may be violating regulations, and interpersonal communication with other team members.

A category that does not explicitly appear in Table 1 could be called "basic skills" – this includes literacy, numeracy, and computer skills. Table 1 shows that two people identified a greater need for training in both report writing and computer skills. However, beyond these specific skills, interview participants who were involved in delivering the CSN Stewardship Technician Training underscored the need to offer support in literacy and numeracy in a sensitive manner. These participants suggested that those taking the Stewardship Technician course undertake a pre-evaluation of such skills, and that ongoing support be offered to individuals who need help with the written components of courses (Pers. Comm., January 12, 2015). A related category not included in Table 1, but of utmost importance, could be called "personal development / confidence-building." At least five different interview respondents emphasized the importance of working with Guardian Watchmen to build their confidence in their capabilities. As one fisheries officer commented when describing his experience working with Guardian Watchmen on joint patrols:

> You know, when you're talking with fishermen, whether they're commercial or recreation or Aboriginal, you kind of have to have a gift of gab, to kind of talk about a lot of things to get people talking, and I find that most of our Aboriginal Watchmen that we take out, we kind of have to coax them to get them to talk. And that might just be because of experience, they might not be confident with what they're doing, or maybe it's because they're in the presence of us, it could be. But we see that they need to get a little bit more confident […] Quite often it's not easy. A lot of these Watchmen, they're First Nations and they're approaching a vessel, and quite often the fishermen get their backs up right away, and that's why it's uncomfortable. But I think if the Watchmen are very professional, and ask the right questions, and are articulate, those things will improve tremendously. And I think that comes with training and confidence and knowing what they're doing. (Interview June 26, 2014)

This comment brings to light many intertwined issues. First, Guardian Watchmen interact with a variety of people as part of their duties, including sometimes hostile individuals who may hold negative stereotypes regarding First Nations. Second, the silence of the Guardian Watchmen must be interpreted with a cultural lens: in Indigenous pedagogies, youth and apprentices learned through listening to stories, observation and experimentation, and the emphasis was on self-learning, as opposed to being taught and tested on specific facts as in the Western educational system (Goulet and Goulet 2014, Battiste 2002). Finally, the silence of the Guardians in this case could reflect the loss of

self-confidence and "silencing" of many First Nations voices that has been one of the results of the loss of cultural grounding caused by colonization. Given this context, it is doubly important that Guardian Watchmen have an accurate knowledge of resource laws and regulations, and that they are confident of their authority.

A final area in which the CSN training appears to be a bit lacking is in basic ecological and biological knowledge. Currently there are no specific courses on, for example, marine and terrestrial species identification. Three interview respondents identified this area as one in which more training is needed. Again, courses in Western ecological knowledge should be intertwined with teachings in Indigenous Ecological Knowledge.

8.1.2.   Results from the CSN Guardian Watchmen Training Survey for Guardian Watchmen and Stewardship Technicians Interests Survey

In January 2015, the CSN conducted an online survey of Guardian Watchmen and Stewardship Technicians to assess their training needs. Table 2 highlights the top activities by interview question category with the percentage of interested and very interested responses. The original bar charts showing responses to each survey question, grouped according to category, can be found in Appendix D. Although only seven people responded to the survey, there was a respondent from nearly every Nation served by the CSN[1].

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[1] The CSN conducted two surveys of the training and professional development needs of CFN stewardship office staff, one to be filled out for Guardian Watchmen and other stewardship technician staff, and one for stewardship office directors and managers. The links to both surveys, which were conducted using SurveyMonkey, were open from January 5th to 20th, and were sent to all stewardship office staff in CFN member nations. Staff were instructed to answer whichever survey(s) they felt were most suited to their position, as stewardship office staff often fill several different roles. Although survey participants were encouraged to fill out the survey individually, in some cases one person filled out the survey on behalf of the entire stewardship office. The Guardian Watchmen survey was sent to 14 people from six of the seven CFN member Nations, and received seven complete responses representing five of the six Nations. Representatives from the remaining two Nations responded to the survey for stewardship office directors and managers (not analyzed for this discussion). The response rate for the Guardian Watchmen survey was 50%. However, a more relevant indicator of the validity of survey response is that responses are representative off nearly all Nations.

Table 2. **Top Activities and Interests from the CSN Guardian Watchmen Survey**

Category	Top Activities	Percentage Interested	Percentage Very Interested
Environmental Monitoring	Stream damage	57%	43%
	Development project impacts	43%	57%
	Marine and foreshore	43%	57%
	Water quality	43%	57%
	Wildlife surveys	43%	57%
Field Monitoring and Research Skills	Training in the CSN Regional Monitoring Strategy (RMS)	86%	14%
	Data quality improvement	43%	57%
	Field skills for research	71%	14%
Additional Topics	*Scattered interest*	*Scattered interest*	*Scattered interest*
EBM and Land Use Objectives	*Scattered interest*	*Scattered interest*	*Scattered interest*
Fisheries Sampling	Stream assessments	57%	43%
Leadership Development & Interpersonal Communication	Dealing with challenging people	43%	57%
	"Verbal Judo[2]"	43%	57%
Monitoring Environmental Compliance	Legal note-taking	57%	43%
	Writing official reports	57%	43%
Office and Computer Skills	*Range of moderately interested responses*	*Moderate interest*	*Moderate interest*

Descriptive statistical analysis of the CSN surveys reveals a high congruence in expressed interest with interview responses. For instance, the high level of interest for many of the proposed training areas under "environmental monitoring" is indicative of the importance of the ocean environment (habitat and species) to many coastal First Nations, as well as their concern with the impact of development projects. The interest of survey respondents in improving their field monitoring and research skills through using the RMS

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[2] "Verbal Judo" is a term used by many enforcement officers to describe the verbal communication skills an enforcement officer must have when dealing with potential hostile situations.

and improving field data quality attests to the importance of consistent data collection and storage to build governance capacity. A reasonably high interest in training in field skills for research projects further demonstrates the value that the Guardian Watchmen and stewardship programs are placing on gathering quality data and building capacity to do scientific research that supports their Nations' priorities. Similarly, under the category "monitoring environmental compliance", particular interest was shown for categories relevant to enforcement: field note taking for documenting environmental offenses (legal note-taking) and writing official reports to other agencies. Each of the other four questions in that category received more moderate, but still positive, responses. In particular, respondents showed at least moderate interest to the three categories that deal with legislation and regulations, which reflects the need for instruction in this area expressed during interviews.

Under the category "leadership development and interpersonal communication", interest levels ranged from somewhat interested to very interested for each topic area, with never more than one "somewhat interested" response. Categories that were particularly relevant to monitoring and enforcement scenarios (dealing with challenging people and verbal judo) each had only interested and very interested responses. Although there were only two topic areas under the fisheries sampling category, the high interest levels in learning to conduct ecology and habitat stream assessments underscore the importance of fisheries to the various First Nations, as well as the need for Guardians to be educated in these areas so that they can apply ecological knowledge to governance. Respondents showed varied interest in the categories ecosystem-based management and land use objectives implementation, which is reflective of the diverse needs and priorities of the different First Nations, which depend, largely, on where they are located. Similarly, under "additional topics", a category that included a variety of technical certifications, scattered interests are likely due to the diversity of location-specific skills needed by Guardian Watchmen and technicians.

As many interview respondents pointed out, the dispersed and remote nature of many communities combined with limited funding for training creates a major challenge for programs offering stewardship training to coastal First Nations. For example, the CSN training program was delivered in 2013-2014 in regionally central locations to stewardship staff from Nations from Haida Gwaii to the central coast. Not only does this geographical

dispersal create logistical challenges, but the CSN training must strike a balance between serving the specific needs of Nations working in a variety of environments (for example, some Nations work more in rivers and streams, whereas others work almost exclusively in marine environments), and offering a curriculum that covers skills necessary for compliance monitoring work in all areas (for example, knowledge of legislation and communication skills). As one program manager reflected:

> The Guardian Watchmen training that comes out of the Coastal First Nations [Great Bear Initiative], I think it's a good place to get some of the general overall kind of skills or requirements to go out into the field, I think [that] is probably the best way to put it. In terms of specific training, I think that it's too high-level, that it's too regional […] so the basic boat skills and general interview techniques – they're all really very basic in terms of the types of training. When it gets actually to the training we need, they're for projects, and they're about fulfilling requirements, getting out into the field. So, we end up chasing after things like swift water rescue [because] it's very specific to requirements for specific types of projects. (Interview July 7, 2014)

The main issue raised was the tension between the long-term goal of the CFN that the CSN serves: to establish a basic standard of skills and practices for Guardian Watchmen in Nations along the length of the coast (this theme will be addressed further in later sections), and the shorter-term, project-based qualification needs of various stewardship offices. This issue is compounded because, as discussed in earlier chapters, stewardship offices are generally stretched beyond their capacity. As a result, staff are often less able, or willing, to take time off work for training that is not tailored to an immediate, project-based need.

8.1.3. Certifications

A final theme that emerged in the realm of training content needs is support for technical certifications. As the quote above illustrates, many respondents prioritize their need to attain specific certifications to undertake projects over participating in more general training. Certifications that interview participants identified as important are shown in Table 3.

Table 3.   Certifications Identified During Interviews

Certification	Frequency
First Aid	1
MED A3 / SVOP	4
Radio Operator	2
Swift Water Rescue	2
Bear Aware	4
60-Tonne Boat Operation	1

That interview participants frequently responded to questions about training needs by identifying certifications emphasizes the tension between the short-term needs and long-term goals of stewardship programs. The CSN does not necessarily have the capacity to coordinate delivery of certification programs (all of which are offered by a variety of other agencies), as well as offering stewardship technician training. However, all of the certifications listed above are basic to a job that involves working on the water, and are therefore necessary for most stewardship office staff. This suggests that a Guardian Watchmen training program could require that Watchmen obtain these certifications either before or early in their employment, and that a training program budget should include financial support for these certifications. In the Stewardship Training proposal that I helped write with the CSN and their partners at Nanwakolas Council, VIU, and North Island College, we devised a program that would recognize the skills that Guardian Watchmen already have and provide a coherent "ladder" for the attainment of qualifications. The program includes the following stages in an attempt to address several of the gaps identified in the discussion above: 1) an assessment of core competencies such as math, writing, and computer skills; 2) an assessment of pre-requisite certificate courses required within the context of each Nation. Certificate courses will be offered through each Nations' Band or Development Office with efforts to coordinate regionally over the course of the three-year training; 3) development of personal career goals and training plans with each program participant, and 4) establishment of mentorship relationships to support participants with core competency development over the course of the program (VIU and CFN 2015).

8.1.4. Discussion: "Mainstreaming" Indigenous Knowledge in Stewardship Training

As alluded to when examining table one, the critical component that has been largely invisible in this analysis is what could be called "cultural competency", training for Guardian Watchmen in Indigenous Knowledge, or the worldview from which traditional governance forms flow. The previous chapter made amply clear the value of Guardian Watchmen to community healing and cultural revitalization. The existence of Guardian Watchmen programs, and the presence of Guardian Watchmen out on the water, are excellent steps, but for Guardian Watchmen programs to fulfill their potential in this regard the links between their roles as stewards of their territory and community healing need to be made more explicit. There are ways to do this through changing how the programs are delivered, which will be discussed below, but the training content of stewardship programs must also integrate Indigenous Knowledge throughout. One example of a way to do this has already been suggested: to weave together TEK and Western science in ecology and biology courses. Similarly, course designers and instructors should ensure that TEK is not erased from courses offering environmental surveying techniques. One way to accomplish this is to ensure that instructors of these courses are Two-Eyed Seers, people who have an understanding of both Indigenous and non-Indigenous worldviews.

This may be a daunting task. However, in the VIU-CFN Stewardship Technician Training proposal we identified, and included in the lesson plan, some ways to make IK central to the training program. The first course we included is adopted from VIU's academic and career preparation courses: The Indigenous Learning and Recognition Portfolio, wherein students develop a personal portfolio of their prior learning experiences and skills. The intent of this course is to provide students with "a reflective process…to help students begin to record their past experiential learning, thus validating knowledge and skills that come from family, community and cultural backgrounds" (VIU 2015). Second, we included in the proposed training program a course called "cultural awareness", to be delivered partly in class and partially in community as a field course with community Elders. The in-class component will introduce students to both pre-and post-colonial contact context in the relevant region, as well as Indigenous Knowledge systems and how Indigenous worldviews inform governance and Indigenous laws and justice systems. Finally, the course prescribes two days of fieldwork for each student to

be held in their community, wherein they will go out on their territory with Elders to "gain a knowledge of their territory, learn about their Nation's policies regarding protection of cultural sites, and be introduced to basic language skills" (VIU and CFN 2015). Although two days in a short period of time, the training program is a condensed, module-based program on a small budget, so the inclusion of these units does strongly set the tone for the program.

8.2. Delivery

8.2.1. Location and Duration

As discussed in chapter three, the CSN has experimented with different delivery formats for Stewardship Technician Training. Based on feedback following the first delivery of the program, they decided to offer program modules in two-week sessions in different locations on the north and central coast in an attempt to bring the training program closer to the communities of program participants. Feedback offered by Guardians, technicians, and stewardship office staff interviewed for this research underscored once again the difficulty experienced by stewardship office staff in taking lengthy periods of time off from work for training. This is a particularly important issue where training program budgets do not have room to pay Guardian Watchmen for participating in the training to make up for lost wages. The delivery format the CSN used in 2013-2014 received generally positive feedback from interview participants. Although some interview respondents stressed that taking even five days out of their work and family lives is difficult, others acknowledged that ongoing training is a form of professional development that is necessary to any job, and that offering training on a regional basis can foster long-lasting relationships between Nations. As one Guardian Watchman remarked:

> I liked […] going to different communities and doing the training […] as long as it wasn't more than two weeks at a time. Yeah, I like that. And it kind of worked here, for work also. Because that's not [too] long, to get somebody else to come in and work for you for a couple of weeks. And it worked for my family and all that, because it's not that long to be away. Yeah, but two months is too long. It's good to see everybody else too, you make some life-long friendships out of these guardian stuff, these meetings and guardian training and conferences and that. Because most of the people, probably 60% of the people are still there from the beginning. And, like I

said, as long as – for me anyway – as long as it's not over two weeks, it's fine. (Interview July 15, 2014)

This respondent identified several barriers that discourage Guardian Watchmen from participating in training opportunities: offices are often over-extended and cannot afford to lose staff, particularly since replacing them is difficult, and many Guardian Watchmen have family obligations. Another Guardian pointed out that extended programs can be particularly difficult for families if the person leaving to take training elsewhere is the main fisher or hunter in the family:

> And especially, you know, usually somebody who wants to work in this kind of field is always in the field. You know, harvesting for their family. They're the harvester, they're the fisher, they're the hunter, or whatever. And this is an extended family, this is not just the immediate family. So…not only do they suffer, the immediate family suffers, the extended family suffers, and you know, that weighs on a person. (Interview July 28, 2014)

Because the majority of hunting and fishing happens during the spring, summer, and fall months, and because stewardship offices are correspondingly busier during these times, many interview participants stressed that training should only take place during the winter months. At this time, travel may be more difficult on the coast due to winter storms, but staff is more likely to be available.

8.2.2. Delivery Format

A related delivery issue is the format in which training is offered. Interview participants repeatedly stressed the value of hands-on, or experiential learning. Indeed, many of the skills that Guardian Watchmen need can only be learned through experience or at least simulated situations. As discussed in chapter four, many of the people currently working in stewardship positions are former fishermen: they often are people who have spent their lives working out of doors, and who therefore may find classroom-based learning very challenging. One fisheries technician, who participated in a fisheries guardian training offered by DFO, described the difficulty that he and many participants had with the almost exclusively classroom based format: "with the nature of our jobs, you know, this in-school training, in terms of being in class all day – you really lose a lot of guys. Because they're always used to being on the boat, or, you know, doing something

outside" (Interview April 9, 2015). Several people also stressed that experiential learning aligns better with traditional Indigenous pedagogies, which stress participatory learning.

> Hands-on learning is definitely – that's how, you look at First Nations culture, it was all verbal. It was all – this is how you do it, you know! You've got two hands and a brain, and that's how you learn, right? By showing. And I think that's really instilled in a lot of people still. Um, you know, if you look at some of the courses that I've taken with [other technicians], or other people, when they give them a book this thick to read they're just kind of overwhelmed […] I don't like doing it either, I definitely don't, but I've kind of adapted to different learning techniques. (Interview August 1, 2014)

As explained by scholars such as Battiste (2002), Cajete (2005), Aluli-Mayer (2008) and Goulet and Goulet (2014), Indigenous Knowledge arises through interactions with family, community, the natural world, art, stories, and myths. Indigenous pedagogies emphasize self-directed learning – children must interact with all of these elements and come to understand teachings at a physical, cognitive, emotional, and spiritual level. Such a holistic way of teaching and learning is difficult to achieve in the classroom alone. Finally, experiential learning techniques are sensitive to the fact that many of the stewardship office staff who belong to an older generation may not have attained a high level of classroom education:

> In terms of best practices, I think […] a lot of it is just understanding where we come from. And let's face the facts, a lot of people don't have the education that you'd assume we have. So training has to be very specific and geared to that kind of hands-on learning. You know, we've seen a lot of people come in, and you spend a half hour in the classroom, then you go outside and you get your boots wet and your hands wet for an hour. And that works, right? (Interview August 5, 2014)

Although classroom components are inescapable for most compliance monitoring and enforcement topics, modules offered by the CSN have employed scenario-based training wherever possible, as well as excursions to practice measurement and monitoring techniques. They, and other groups developing training for First Nations, have also experimented with other formats to balance the costs of delivery. Some people have expressed an interest in online learning, at least for modules or sections of modules that are theory-based, as well as a way to provide low-cost support to people struggling with basic skills such as literacy and numeracy. There are many online platforms that enable

interactive and supported online learning, such as video chatrooms (pers. comm., July 3, 2014). Interview respondents expressed moderate support for such ideas:

> I think some online courses would be pretty good – but, yeah, it's kind of hard, tough to say, 'cause, for Guardians it's nice to get the hands-on training right out in the field. Kind of doing the exact work on your own kind of territory I think is good. When you go and do stream walks on somebody else's creek and it's just this kind of arbitrary exercise. So, you know, delivered in the communities specifically for the communities, more along that line. (July 7, 2014)

A training format that the CSN has recently experimented with could help resolve the issue raised by the interviewee above: how to balance online and general learning with training in skills that are area-specific? In the fall of 2014, the CSN worked with James Stephen a former Federal Fishery Officer and Senior B.C. Conservation Officer (Ret'd) to deliver one-on-one training to Guardian Watchmen from the Nuxalk Nation. The training consisted of five days, with one day of in-class work and the remaining time spent out on the water doing patrols, which allowed the instructor to provide guidance and mentoring during real life enforcement situations, a format that is reflective of an Indigenous "look, listen, and experience" pedagogy (Interview January 12, 2015). The integration of this kind of tailored support into a training program could supplement basic skills taught through a mixture of online and participatory modules. The example also highlights the importance of mentoring in stewardship training programs, particularly since many interview respondents have drawn attention to the need for confidence-building activities and support. Interviewees have suggested that mentoring should be mixed with formal training, in order to help translate lessons learned in the classroom to practices in the field (James Stephen, Former Federal Fishery Officer and Senior B.C. Conservation Officer (Ret'd), interview January 12, 2015), and mentors could also have an online presence to provide support for basic skills like literacy. The practice of Ecotrust Canada in their Fisheries Observer program is also instructive: although it is too expensive for Ecotrust Canada to provide mentoring that is integrated with training (Interview July 10, 2014), they ensure that there is an experienced person present to support each Observer on their first shift. Additionally, as one youth described: "when we're done we go do a review of how it felt when we were at-dock or at-sea. They'll ask us how was it, and if there were any complications […] yeah, it's nice that they're there to help us" (Interview August 9, 2014). Having stewardship staff fill out such reviews periodically, and especially following their

first few patrols, could draw attention to areas that need more attention during the training and help the CSN to provide support as soon as it is needed. The CSN does facilitate monthly conference calls with Guardian Watchmen during which any issues can be raised, but institutionalizing this kind of feedback mechanism could help flag issues early.

8.2.3.   Addressing Inter-Generational Gaps

Chapter four pointed to the generational gap that exists between younger and older generations in knowledge of their territories and the ocean environment. Another key difference that interview participants raised when reflecting on inter-generational changes is interest in using technology. As one stewardship director put it:

> There's a change in generation. There's those people who've been there 30 years, they're on the ground guys, they've known their territory for all their lives, and they survive and they flourish in that environment. But this new technology is confusing them. The other generation that's coming in, that's young, brash, thinking they know it all – but they don't have the same work ethic [...] But it's this new technology stuff – some of these young guys, they're mapping their route, and they're putting it outside of the CoastalTracker, they're doing their own. And the older guy's like "I don't know what he's doing, he's just sitting there playing his game." So there's two different – two generations doing the same job…so how do you mesh them? (Interview July 4, 2014)

Older Guardian Watchmen tend to have a background in fisheries and therefore have a deep knowledge of the ocean environment and a work ethic based on years of early mornings and long days, but may struggle with classroom learning scenarios and new technologies. In contrast, youth taking stewardship training typically have less knowledge of their territories and have been called "lazy" by several older interview participants, but may bring other skills, such as the ability to use newer technologies with ease. One instructor pointed out that this means that those delivering a stewardship training program need to be sensitive to the learning styles and strengths of both older and younger generations, and should take advantage of the contrasting knowledge bases as fertile ground for cross-generational instruction and mentoring (James Stephen, Former Federal Fishery Officer and Senior B.C. Conservation Officer (Ret'd)', interview January 12, 2015). For example, older participants could be encouraged to share their land-based knowledge

and provide mentoring to your participants, whereas younger participants can be engaged in demonstrating the use of new technological devices.

Another way to bridge generational knowledge gaps, and to return to some of the principles of Indigenous pedagogies outlined in the previous chapter, is through the involvement of Elders in stewardship training programs. At least ten interview participants identified the benefits of involving Elders in training programs both to provide an historical perspective on, for example, First Nations fishing rights, and to provide local and traditional ecological knowledge.

8.3. The Bottom Line: Standardization and Recertification

> Standardization of training is very important. For the Guardian Watchmen, some people have had three days of training at a conference, or have taken that plus the two Hakai courses, and/or have taken the one-on-one training offered last fall as well. People have dribs and drabs of training. The Guardian Watchmen program won't be as effective as it could be if First Nations up and down the coast are at different levels of ability. (James Stephen, Former Federal Fishery Officer and Senior B.C. Conservation Officer (Ret'd), interview January 12, 2015)

The quote above comes from a former conservation and fisheries officer who has been working with the CSN to develop and deliver the Stewardship Technicians training for several years. DFO fisheries officers, First Nations stewardship directors, and Guardians all relayed the same message when asked about the biggest barriers facing the development and expansion of stewardship programs like the Guardian Watchmen. As one stewardship director remarked: "I would say we're building on relationships with the federal and provincial agencies, but I think the biggest barrier is that standard of training. Like once we get that going, and the recognition from those other programs that the Guardian Watchmen do have the skills, and do have the training [career opportunities in stewardship will improve]" (Interview July 4, 2014). Since Guardian Watchmen work (and will likely continue to work) with federal enforcement officers, the Guardian Watchmen program must be respected and trusted by federal agencies if stewardship offices are to take on greater responsibilities in enforcement. Several comments by fisheries officers indicate that this is not yet the case:

And [they need] some meaningful training. Because, you know, the officers, the officers who work for me now, most of them have a minimum of two to three years of schooling and then experience, they get started with me and then we train them some more. The Watchmen program I think is just a few weeks….But I think, I'd like to see some of these Watchmen attend a two year course at [Vancouver Island University], a resource enforcement program. I know that's a big undertaking, and they have expenses. And that usually stops them from completing this, which stops them from progressing. (Interview June 26, 2014)

As this quote illustrates, fisheries officers working for DFO recognize that it is not easy for the gap between taking module-based training and two or three years of post-secondary enforcement education to be bridged. The same fisheries officer remarked as well that the skills needed to work as a Guardian Watchmen are, currently, different from those required for enforcement:

I know that they have quite a varied work description, they have quite a few different things that they do, but when you do enforcement, you really do have to focus and know the rules, and it's a full-time job, and to have all these other things that they have to do, that's good for their training as a Watchman, but it's not that great to be an enforcement officer. (Interview June 26, 2014)

Although it is not explicitly stated, the fisheries officer above acknowledges that Guardian Watchmen have different skills, specifically, Indigenous Knowledge. Additionally, this comment illustrates that the content, and rigour, of stewardship training needed will depend on how the role of the Guardian Watchmen develops. Currently, the powers of a Guardian Watchman are "observe, record, report", and do not extend to enforcement of laws and regulations. At this level, it is still necessary to develop a standardized program across the coast, and to focus on all of the content elements discussed earlier in this chapter. However, as the Guardian Watchmen build the capacity of their program towards taking on enforcement responsibilities, standards will likely have to develop accordingly (a list of the skills and knowledge required for a fisheries or conservation officer enforcement position and a fisheries officer work description can be found in Appendix E).

In addition to standardizing training, a critical component of a respected stewardship program is recertification. As one program manager remarked, in response to the question of whether the CSN training programs have been helpful: "most definitely. And unfortunately […] the training is somewhat sporadic. I would have liked to have seen an

annual training program, where folks were able to anticipate the training, and we were able to plan better. But unfortunately it's all dependent on funding availability" (Interview August 8, 2014). Annual or biennial training and recertification would be a huge investment, but it is an issue that was pointed to by employees of DFO and First Nations alike as handicapping Guardians trained by both the CSN and the DFO Aboriginal Guardian Program. One Guardian pointed out: "DFO, Conservation Officers, RCMP officers, they all take yearly re-qualifications; we don't. You know, maybe once every 20 years, once every 10 years, or how it goes by" (Interview July 28, 2014). Recertification would provide Guardians with an opportunity to meet and share experiences with colleagues, to revise and learn skills and, importantly, to become updated about changing legislation and regulations. (pers. comm., August 14, 2014). This last point is particularly important, as some Guardians indicated that although they interact with fishermen regularly, they are not certain about how their legal designation has changed since they took their initial training; as a result, they appear, and sometime are, less confident in their position of authority.

8.4. Australia's "Working on Country" Program: Bridging the Funding and Training/Employment Gaps

As earlier chapters have repeatedly made clear, one of the biggest challenges to building the capacity of stewardship programs is funding. This is not only the case for the Guardian Watchmen training offered by the CSN, but affects the DFO Aboriginal Guardian Program equally. As one fisheries officer observed:

> Historically, in my experience, DFO will put on a guardian training program, the funding will fall through, you know, a couple of years later, and those guardians will just fall off the map […] There's no secure job, there's no support, there's no training, consistent training, it's doomed for failure…it's well-intentioned, you know, but we're spinning our wheels here, my friend. [And] if you talk to [Guardian Watchmen], they're willing to take training, I mean, they've had bits and pieces […] you know, I don't see all their training resume, but I know that the training they've taken would not qualify them in any other enforcement agency. […I know a Guardian who] could tell you what training they've taken, and I think he'd be very candid in the sense that they want more training, they want more accountability, they want a uniform policy that's enforced, they, you know, they want to build capacity amongst their community. (Interview July 2, 2014)

The CSN has been learning from Indigenous stewardship programs that have been successful in other countries. For example, the CSN has been in contact with and has organized learning exchanges with Indigenous Rangers working in the Australian Working on Country program. Working on Country was established by the Australian government in 2007, and provides multi-year funding for training Indigenous peoples to work in environmental protection and management on their territories. Through the program, the government provided over $244 million (in Australian dollars) from its inception to June 2013, and has made available over $320 million from 2013-2018. As of November 2015, there were 775 Rangers employed in the program (full-time equivalent contracted positions), and 108 Indigenous Ranger Groups (Australian Department of the Prime Minister and Cabinet 2015). Rangers hired under program funding undergo a skills assessment and work with one of several registered training organizations to develop a training plan and are hired in a full-time position with salary. The Ranger Program is "stepwise": Rangers are hired at a trainee level and take training courses (a certification in conservation and land management) throughout their first year of employment that qualify them to work under supervision. To continue working as a Ranger, they must then complete a higher level of certification that qualifies them to work with limited supervision. Following completion of the second level, there are advanced and specialized training opportunities available. Training is ongoing throughout the year and organized to be complementary with work schedules (Department of the Environment, Water, Heritage and the Arts 2009). Overall, the interviews conducted for this research suggest that long-term, reliable funding is the critical ingredient for success that is lacking on the BC coast, and interviewees have suggested that a three-year funding cycle might be a minimum investment requirement with which the CSN could, for example, offer a stepwise training program with apprenticeship positions.

Chapter 9.

Conclusion

9.1. Conclusions from each Chapter

Within Canada and BC, a shift is beginning in federal, provincial, and First Nation relationships. Legal precedents, the completion of the TRC, and government policies such as the *New Relationship* are all changing the status quo such that colonial relationships in resource management are no longer viable. First Nations are re-claiming their rights and responsibilities to manage the resources in their territories, and co-management is gradually being accepted as the new reality by at least the BC provincial government, as evidenced by the completion of the MaPP Sub-Regional Plans. The strength of co-management is that it creates space for co-governance, which would require that resource management systems embrace and take as their foundation Indigenous, as well as Western, worldviews. As part of this process, monitoring and stewardship programs are vital ways for First Nations communities to both assert their authority to govern their territories, and to build capacity to govern with evidence-based resource management decisions. At the same time, fisheries monitoring and stewardship positions have emerged as potential important entry points for First Nations youth into ocean-related careers in communities that have experienced a dramatic reduction in numbers of boats, and corresponding loss of ocean access, a consequence of decades of neoliberal fisheries policies.

Within this context, my research has asked several key questions about opportunities and barriers for First Nations youth wishing to get involved in ocean-related employment on the north coast of BC. The study has focused in particular on the ways in which stewardship and monitoring training can be designed to best meet the diverse needs of First Nations communities and fisheries, as well as their role in Canadian fisheries. The first question this research has asked is: *"what barriers to involvement in ocean-related activities and jobs do First Nations youth on the North Coast of BC face?"* The stories that interview respondents shared clearly show that neoliberal fisheries policies have effectively restricted opportunities for youth to get involved in the fishing

industry due to loss of boats and licenses, and increasing operating costs. Moreover, reduced participation in the commercial fishery has had a correspondingly negative impact on many First Nations' FSC fisheries. The barriers to participation in both commercial and FSC fisheries affects the ability of youth to exercise their cultural rights to harvest and eat traditional foods from their territory, and creates further barriers to intergenerational transfer of knowledge and youths' participation in emergent stewardship opportunities.

In addition to the effects of fleet rationalization, interview participants raised several other major barriers to youth involvement in stewardship programs. The most predominant of these, the chronically insufficient and insecure funding of stewardship programs (which limits their ability to provide secure, full-time jobs), has been a dominant recurring theme throughout this discussion as this impacts the perception of stewardship as a viable career.

Equally important are answers to the questions: 1) "*What measures could enhance the ability of fisheries and stewardship programs to increase their program and job creation capacity?* and 2) *how are different programs and organizations working together to create more opportunities for youth to build a stewardship or monitoring career?"* Chapter five discussed three fundamental aspects of governance that are essential to an organization seeking to expand its program capacity: coordinated action, relationship building, and leadership. Interview respondents also pointed to the many organizations on the north coast of BC that have formed strategic partnerships to create more opportunities for youth and to increase stewardship program capacity, such as offering fisheries observer training that covers multiple aspects of marine science and management, and research and restoration partnerships with universities and environmental non-profits. Finally, many people highlighted the benefits of and their efforts to engage youth at a younger age through education partnerships and student summer programs.

On the north coast, new opportunities in environmental monitoring related to the (potentially) burgeoning LNG industry have changed the playing field of opportunities available to youth. Although interview respondents expressed severe concerns about the environmental, and potential socio-cultural impacts of LNG terminals, First Nations development and stewardship programs offices are challenged to walk a fine line between their concerns and the opportunities for economic development offered by industry

proponents. Although many of the jobs available through LNG proponents are sporadic and short-term, First Nations programs have in many cases been able to take advantage of these opportunities and the associated training to build their program capacity and provide employment for community members. Although the future of LNG and sustainability of associated funding for monitoring is unclear, First Nations are nevertheless leveraging legal precedents to make their concerns a priority for the LNG proponents, and to negotiate jobs and relationships that will align with their cultural values and priorities. Ultimately, the way in which LNG development proceeds (or not) is a test of whether colonial approaches to resource development remain in BC, as First Nations are in a process of envisioning how they want the resources in their territories to be used and are asserting their rights to their territories as they engage with LNG proponents.

Stewardship programs are important within the larger context of decolonization in Canada. As discussed in chapter seven, stewardship programs are a means through which youth can learn about and re-engage with their traditional territory. They also can have a role to play in the decolonization of First Nations education, thereby contributing to efforts toward community healing through the deliberate incorporation of Indigenous pedagogies and Indigenous Knowledge in training, program design, and delivery. Stewardship programs can also, as the example of the SEAS program on the central coast and the efforts of many offices to offer at least a few summer student positions show, play an important bridging role for youth to engage with their territories. Such partnerships with schools and community groups are important first steps. Survey data, a review of post-secondary resource management enforcement programs, and interviews revealed many "best practices" in content and delivery for training programs that aim to prepare First Nations to assume a larger role in fisheries and marine management and enforcement. Topics that need more coverage in stewardship program include: legislation and law; verbal communication and leadership skills development; biology and ecology; "essential skills" such as literacy, numeracy, and computer skills; GIS; and First Nations law and rights in resource management. Moreover, there are a variety of technical certifications and location-specific courses that would benefit particular programs. Most importantly, cultural awareness/Indigenous Knowledge courses and components must be more explicitly incorporated as central to all stewardship training.

The dispersed and remote nature of many communities combined with limited funding for training creates a major challenge for programs offering stewardship training to coastal First Nations. Because of geographical dispersal, training program providers must deal with logistical challenges and balance the specific needs of Nations working in a variety of environments with their mandate to offer a curriculum that covers skills necessary for compliance monitoring work in all areas. Interview participants underscored the difficulty of taking long periods of time away from their jobs and family responsibilities to attend training in regionally-central areas, which highlights the need for paid leave to be provided. At the same time, most interview participants indicated that a two-week module format is a good compromise that also provides occasions to network and build relationships. Interview participants repeatedly stressed the value of hands-on, or experiential learning, but also expressed interest in delivery formats that incorporate online learning with online tutoring and/or mentoring as support for theoretical components. A final point regarding the delivery of stewardship training relates to the range of ages of stewardship training program participants. Instructors should undergo cultural competency training as they must be sensitive to the community context (including how colonial legacies in some cases create learning barriers) and Indigenous learning styles. Moreover, instructors must be sensitive to the learning styles and strengths of both older and younger generations, and should take advantage of the contrasting knowledge bases as fertile ground for cross-generational instruction and mentoring. Many interview participants also either recommended or responded positively to the idea of involving Elders in stewardship programs, as this is a vital to teaching of Indigenous Ecological Knowledge.

Finally, the theme that emerged as a "bottom line" for developing a stewardship program on the coast that is effective in the long term is: the need for standardization of stewardship training. With standardization, stewardship technicians and Guardian Watchmen can build a respected reputation with federal and provincial enforcement agencies as well as with resource users. Recertification is also essential, and would provide Guardians with an opportunity to meet and share experiences with colleagues, to revise and learn skills, and, importantly, to become updated about changing legislation and regulations.

9.2. Lingering Challenges and a Vision for the Future

An area that was not specifically addressed during most interviews, but which nevertheless overshadows the ability of First Nations to take on greater responsibilities in monitoring and enforcement, is the degree to which federal and provincial agencies are willing to share powers with First Nations governments and stewardship offices. As discussed in chapter four, 19 interview participants referred to positive outcomes when First Nations and DFO work collaboratively. However, questions relating to which powers would be shared in a monitoring and enforcement co-management scenario, and how even the balance of power would be, remain as an area for future inquiry. Additionally, although the completion of the MaPP Sub-Regional Plans is an important step forward, the federal government is conspicuously absent from this agreement. This severely limits the jurisdictions in which the marine plans and provincial-First Nations joint monitoring and enforcement programs can apply. The fundamental question that underlies both of these points is: to what extent will the provincial and federal governments embrace reconciliation? As John Ralston Saul (2014) writes, Canada is a treaty country whose history has largely been one wherein the Canadian government has ignored its responsibilities to First Nations people. Reconciliation requires building relationships that are based on the rights of First Nations people, and that affirm Indigenous worldviews.

Within resource management reconciliation demands a move to higher levels of power-sharing in which Indigenous worldviews and governance systems are embraced. The Canadian government has built a system of rules and technocratic models to manage the exploitation of resources, and employs officers designated with policing powers to enforce these laws. Behind this system lies a worldview that is generally unacknowledged, but that is based in the deeply held assumption of the industrial nation-state that humans have the right to extract profit at the expense of the natural world. This is evident in the expression of neoliberal economic principles in resource management. In contrast, Indigenous governance is rooted in a relational worldview, called ecological relationalism by Donald (2011). Indigenous Knowledge informs governance, which in turn informs systems of relationships amongst humans and the natural world. Within a traditional Indigenous system, there is a different conceptualization of "policing". For example, individuals like Guardian Watchmen monitor the activities of community members to

ensure that protocols for resource use (based on a relational worldview) are observed. When people behave in ways that are not respectful to each other or the environment, systems of restorative justice are in place to educate them and restore the balance (Ross 2014).

At a policy level, now is the time for Canadian governments to accept the rights of First Nations to govern the resources in their territories, and to hopefully celebrate how embracing an Indigenous worldview in resource management could enrich all Canadians. For example, a resource management system based on principles of ecological relationalism and which uses restorative justice instead of fines and the court system to punish non-compliance could be very effective; voluntary compliance promotion through education is already a large component of DFO Fishery Officer activities (pers. comm., August 6, 2014). At an operational level, as Guardian Watchmen programs on BCs coast build capacity, and relationships between Guardian Watchmen and provincial and federal enforcement agencies strengthen, there are many opportunities to heal broken or mistrustful relationships within communities.

As earlier chapters have repeatedly made clear, one of the biggest challenges to building the capacity of stewardship programs is funding. Should long-term funding be secured, there are examples from other countries illustrating how the Guardian Watchmen program could develop and what a stewardship training program could look like. The CSN has been developing a stewardship training program that builds on the framework and lessons from the Indigenous Ranger program in Australia. The CSN with VIU, and Nanwakolas Council with NIC, have developed and recently received funding to offer a stepwise training program that will support the development of a Guardian Watchman network along that coast that is both responsive to the individual monitoring needs of different Nations, and collects regionally-relevant data. This stewardship training program incorporates content designed to validate and educate participants in Indigenous Knowledge. The vision for how Guardian Watchmen programs will continue to evolve includes the bringing together of generations (youth of all ages and Elders) in the delivery of program training and in the ongoing work of the Guardian Watchmen. Future iteration of the program could seek to even more explicitly develop apprenticeship positions for young Guardians with Elders and more experience Guardians. Interview participants often mentioned that this sort of inter-generational collaboration contributes to the processes of

community healing and cultural renewal that are so central to the process of decolonization and reconciliation in Canada. There is work to be done before First Nations governments and stewardship programs have the capacity to assume enforcement authority in their territories, but this research has shown that the building blocks for a coast-wide network of First Nations stewards are in place, and there are multiple examples of positive and mutually beneficial relationships between Canadian enforcement authorities and First Nations programs. The way forward is clearly to build on these relationships; to do so will require political will, and would benefit enormously from significant long-term funding to help stewardship programs build their capacity.

9.3. Personal Reflection

This discussion opened with a personal reflection before spiraling inwards to focus on the research results. To conclude, this discussion spirals outwards once more as I reflect upon what and how I can apply what I have learned. Throughout my research, I have been gifted with the time and teachings of the many people who shared their experiences with fisheries and resource stewardship, as well as their personal stories. As I began to organize what I'd learned into this written discussion, I realized that I needed to go deeper, to develop an understanding of Indigenous worldviews in order to truly comprehend and be able to express the interconnectedness of First Nations cultures and resource management, the impacts that historical and ongoing colonialism have had on First Nations culture, and how different models of resource governance can contribute to the decolonization of resource management and reconciliation amongst First Nations and non-Indigenous Canadians. I acknowledge the guidance of my supervisor, Dr. Evelyn Pinkerton, who recognized this need and introduced me to Dr. Vicki Kelly, who has guided and supported my nascent understanding of the Indigenous epistemologies, hermeneutics, and pedagogies that inform Indigenous governance systems. Through this exploration, I began to understand some of the fundamental differences between a First Nations resource management system and the Canada one, and my research became a journey towards learning Two-Eyed Seeing (Bartlett et al. 2012).

Although I am still learning, I hope that I have been able to share what I have learned to articulate the crucial role Guardian Watchmen have to play in reconciliation. I began

this research with the hope that the product would be useful, as I believe work should be done in the service to society and the environment. I have been fortunate enough to work with the CSN throughout the research process, and to give back to them by using my knowledge to help design a new iteration of their stewardship training and contribute to what was eventually a successful funding proposal. I am also lucky to be able to share what I have learned with the people I have connected with at DFO, at a time when DFO will be implementing their (2012) Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Region. As I move forward in my career, I hope to be able to follow the path set out by Roy Vickers during his talk in Prince Rupert, when he taught that the way of a warrior is to put their vision into action. My vision is, and my actions will be, to continue to work on issues of marine governance with First Nations and Canadian governments, and to put the understanding I have gained in the service of moving reconciliation forward in Canada.

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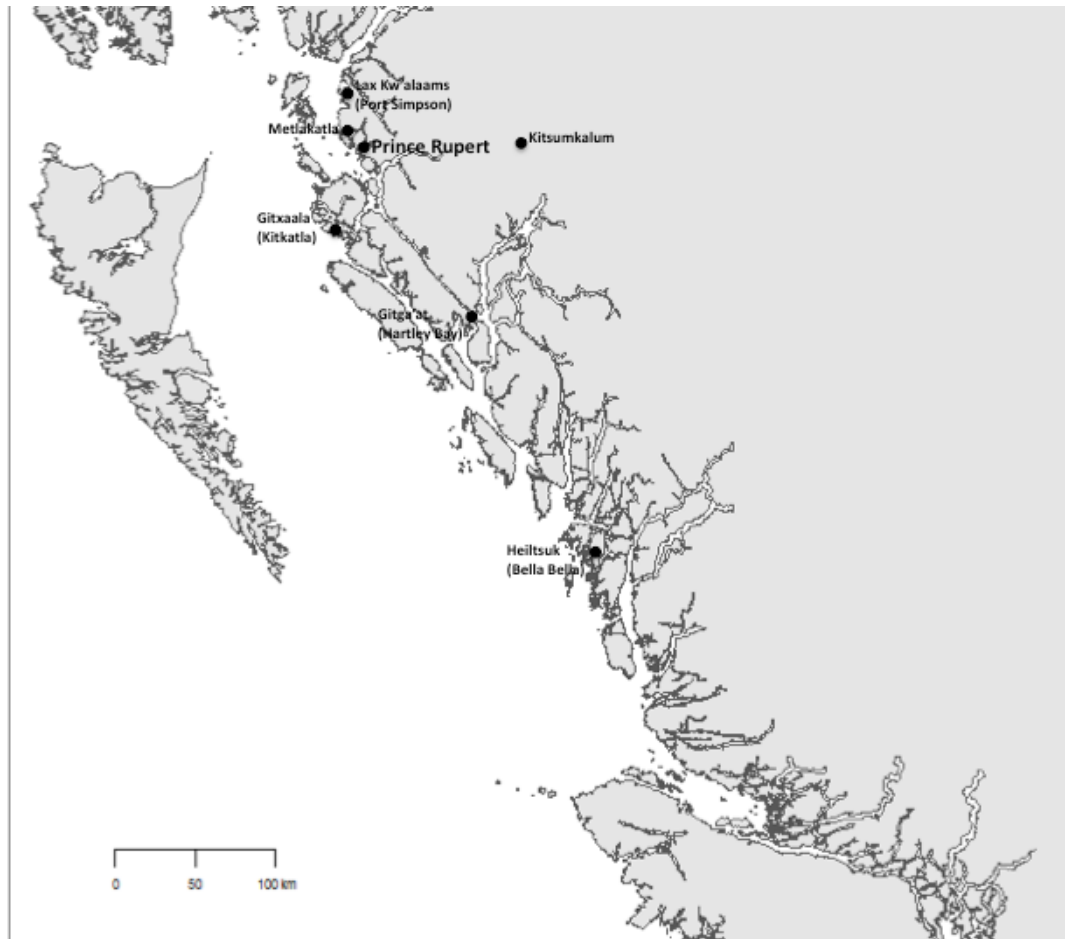
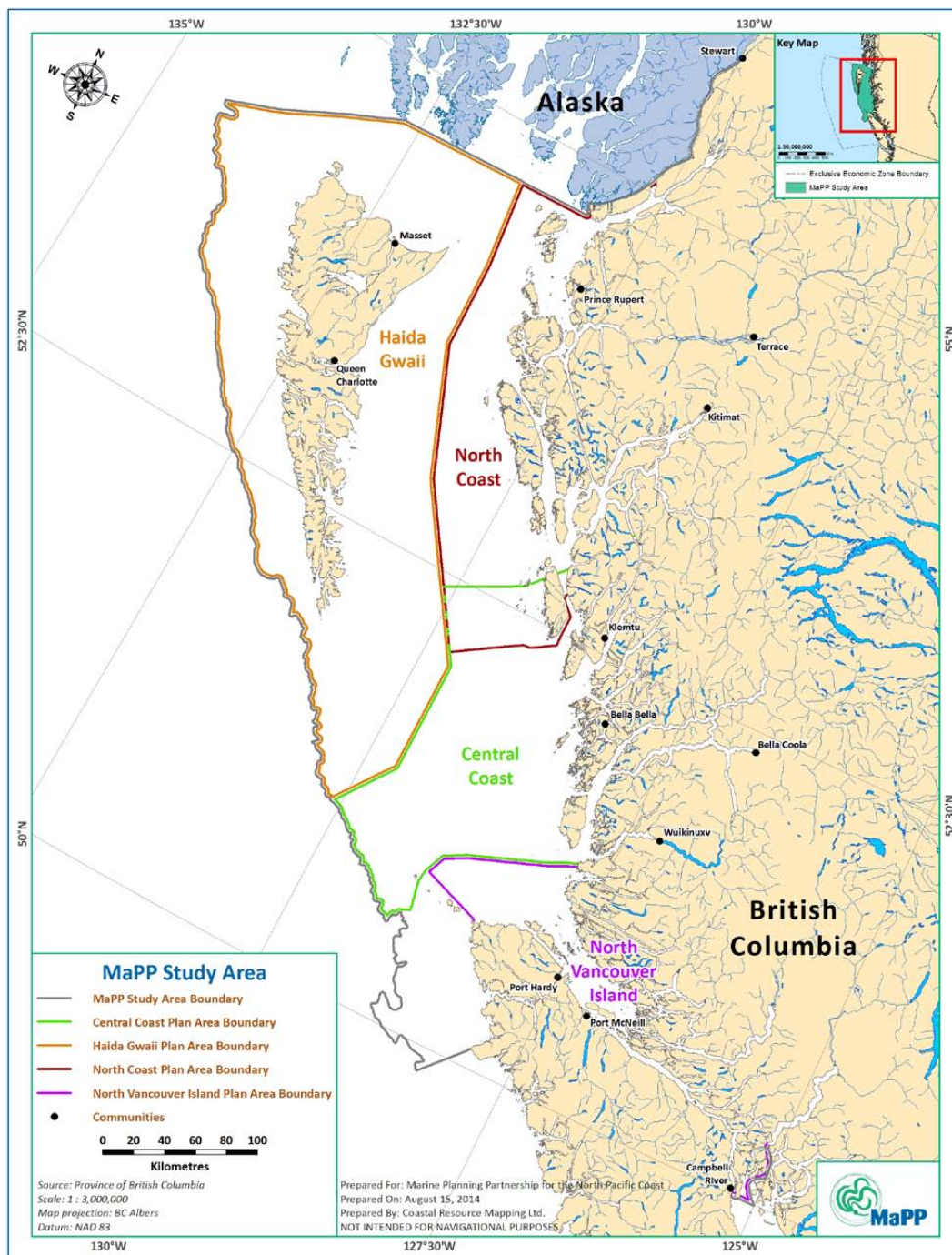# Appendix A.

Maps

Figure A1.   **Map of Communities**

Figure A2.   MaPP Study Area
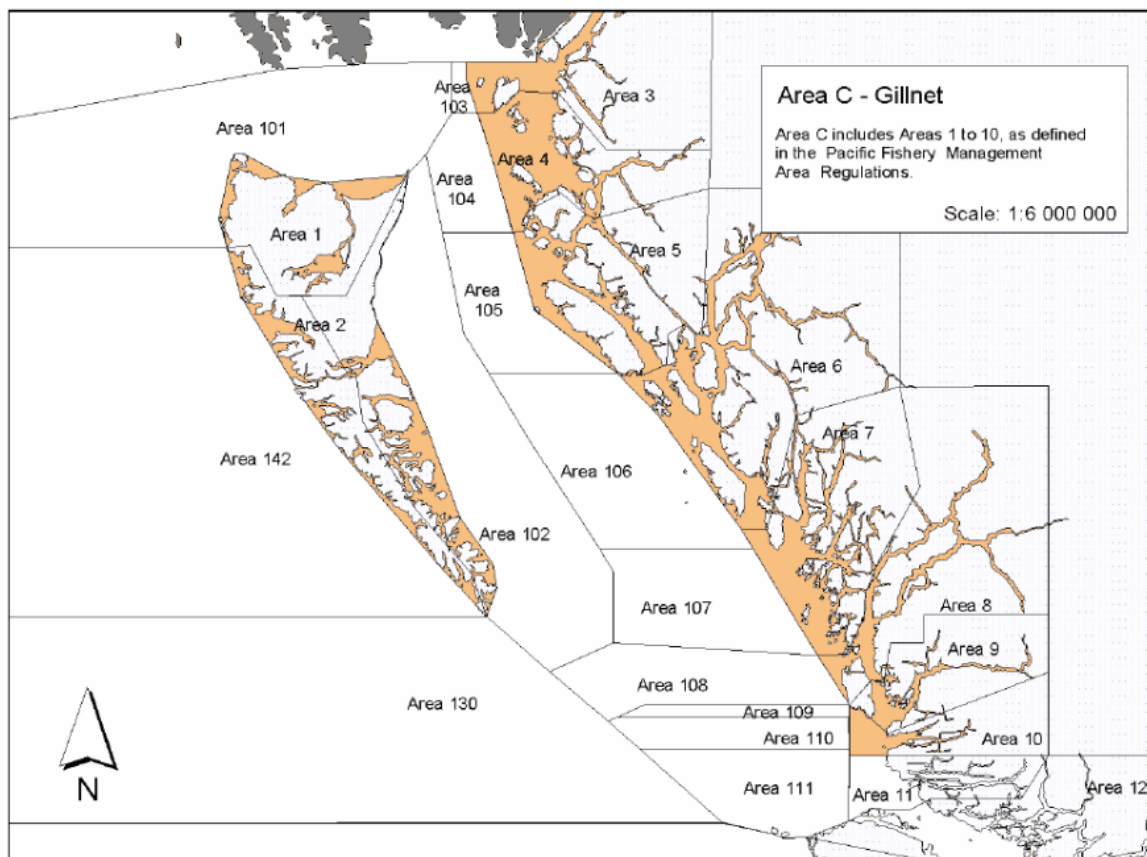(Marine Plan Partnership 2015)

Figure A3. **Map of Commercial Salmon License Area C**
(DFO 2013)

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Appendix B.

Interview Questions

People Who Have Been Involved in Designing and Delivering Monitoring Training Programs

1. Could you describe the main goals of the training program?
2. Could you describe the main components of your training program?
3. Why did you choose to focus on these particular areas?
4. Can you describe the delivery of the training? (e.g., location, duration, teaching techniques)
5. Why did you choose this method of delivery?
6. Which training approaches/techniques did you use that were most and least successful?
7. What skills do you hope program participants will take/have taken away from the training?
8. Are there any topics that you didn't cover that you would have liked to?
9. Where does the funding for the training program come from?
10. Where do you think funding should come from or: a) monitoring training programs, and b) to hire monitors?
11. Do you know of people who've been hired after taking your training / how many?
12. Do you have much knowledge about the CSN/Ecotrust Training?
13. If yes, are there any aspects of their training that you think would enhance what you already offer/could be incorporated into your training programs?
14. *(if training program focus is on fisheries)* To what extent have you collaborated with DFO in designing or delivering your training program?
15. Could you describe any particularly positive or negative experiences?
16. Based on your experience working with DFO, what do you think they'd like to see in order to certify graduates of your training program as fisheries enforcement officers?

Representatives of Fisheries and Oceans Canada

1. Can you describe the fisheries and ocean monitoring training programs you know that are or have recently been involved with in the north and central Pacific region? For example, this would include all training by DFO for Aboriginal Fisheries Officers and Fisheries Guardians under the AFS strategy, commercial at-sea observer and monitoring training programs offered by third-party organizations, and training programs offered by First Nations or First Nations organizations.
2. What is your opinion of these programs?
3. What do you know about the Ecotrust and CSN monitoring training programs?
4. Have you had any experience working with either of these organizations on their training programs?
5. Ecotrust has been working with DFO and delivering monitoring training programs since 2010, after outbidding several other organizations which formerly oversaw the monitoring of fishing activity. How is Ecotrust different from these other organizations?
6. Did you know people in the previous companies that did the monitoring?

7. Could you describe anything that comes to mind about how the Ecotrust approach is different from theirs?
8. What would you like to see more of/included in First Nations-delivered training programs that would make DFO more likely to grant officer certification to fisheries and oceans monitors trained by these programs?
9. How and what monitoring data are shared between DFO, fisheries monitors, and First Nation?
10. Where do you think funding should come from for a) monitoring training programs, and b) to hire monitors?

First Nations Youth Who Have Taken Monitoring Training (age = 19 to approx. 35)

1. What would you like to do to make a living?
2. What attracts you to this occupation?
3. What do you do now?
4. What do you like about this…?
5. Do you see a future for yourself working around the ocean?
6. What aspects of working on the ocean (e.g., commercial or sport fisheries, guiding, etc.) attract you?
7. Why did you choose to take *x* training program?
8. Do you think that taking the training program has helped you reach your goals? *Check specifically for employment goals, if applicable.*
9. If not, what barriers have you come up against since then?
10. What were the most important things (skills) you learned during the training, and why?
11. Could you describe which of the training program units were most useful to you, and why?
12. Could you describe which of the training program units were least useful to you, and why?
13. Which of the training program units would you have liked to go into more depth?
14. Were there skills that you would have liked to have learned that the training program didn't touch on?
15. Do you see yourself taking other training programs in the future?
16. Would you go on to complete some of the certificate programs offered through VIU (if interviewee took CSN training)?
17. Have you received any follow-up support since completing the training program?
18. If yes, what kind? Was it helpful? Would you have wanted different/more support?
19. If no, would you have wanted support? What kind?

First Nations Youth Who Have Not Taken Monitoring Training

1. Have you thought about the kind of things that you'd like to do*?*
2. What kind of things, including jobs, have you done in the past?
3. Can you tell me a bit about what you'd like to do to make a living?
4. What attracts you to this occupation?
5. What do you do now?
6. What do you like about this occupation?
7. Do you see a future for yourself working in the marine environment?
8. What aspect of the ocean environment (e.g., commercial or sport fisheries, guiding, etc.)?

9. What do you think your strengths are/what are you most knowledgeable about/in what areas are you experienced?
10. Where would you most enjoy using these skills?
11. If you have the opportunity to build on these skills or learn new ones, what would you most like to learn how to do?
12. Have you heard of any fisheries or ocean monitoring training programs?
13. If yes, do these programs interest you? Why or why not?

Other Community Members

1. What would you like to see more or less of in terms of resource use or development around your community? In other words, there's lots of proposed LNG development, but there's also fishing, tourism, etc…
2. Where do you see the future of fishing going?
3. What is the importance of young people to the fishery?
4. What is the importance of young people to taking care of the land and ocean?
5. Do you think that monitoring is a good entry point for young people into resource stewardship/fisheries?
6. Is there a demand for monitoring jobs in your community? *(either from the community, government, or industry)?*
7. Where does that demand come from?
8. What barriers do you face to creating job opportunities in resource stewardship or guardian roles (generally), and fisheries monitoring (particularly)?
9. What barriers do you face to engaging young people in these opportunities, where they exist?
10. What opportunities would you like to see created for monitors or guardians?
11. Have you been involved in any way with the training programs offered by Ecotrust, the CSN, or DFO?
12. If yes, could you describe your impressions of those training programs (pros and cons)?

Appendix C.

Enforcement Officer and Stewardship Training Course Content

Table C1.   Summary of Programs Offering Resource Management and/or Enforcement Training

Program	Length	Accreditation
Law Enforcement Studies Diploma (BCJI)	2 years	Diploma
Bylaw Compliance and Enforcement and Investigative Skills Certificate (BCJI)	12 weeks online, 6 days interactive	Certificate
Diploma in Natural Resource Compliance (Lethbridge)	2 years	Diploma
Conservation Enforcement - Bachelor of Applied Science (Lethbridge)	2 years + Diploma in Natural Resource Compliance	Bachelor degree
Diploma in Renewable Resources (Fish, Wildlife, and Recreation) (BCIT)	2 years	Diploma (technologist level)
Law Enforcement Preparatory Program (NVIT)	1 year	Certificate
Environmental Resources Technician Certificate (NVIT)	1 year	Certificate
Environmental Resources Technologist Diploma (NVIT)	2 years	Diploma (technologist level)
Aboriginal Leadership in the Justice System Certificate (NVIT)	1 year	Certificate
Aboriginal Leadership in the Justice System Diploma (NVIT)	2 years	Diploma
Applied Coastal Ecology Certificate (NWCC)	3 semesters (1 year)	Certificate
Applied Coastal Ecology Diploma (NWCC)	3 semesters (1 year)	Diploma **higher course concentration
Diploma in Resource Management Officer Technology (VIU)	2 years	Diploma

Bachelor of Natural Resource Protection (VIU)	2 years + Diploma in RMOT	Bachelor degree
Environmental Protection - Diploma of Technology (Kwantlen Polytechnic University)	2 years	Diploma (technologist level)
Aboriginal Justice Studies (Native Education College)	1 year (3 semesters)	Certificate (SFU recognizes 24 credits towards a B.Crim)
Environmental Technician Certificate Program (VIU-can be offered in-community)	5 weeks (consecutive or non-consecutive)	Certificate

(BCIT N.D., CSN and VIU 2013, JIBC 2015a; 2015b, Kwantlen Polytechnic University 2014, Lethbridge College N.D.a; N.D.b, Native Education College 2016, NVIT 2016a; 2016b; 2016c, NCC 2015, VIU N.D.a; N.D.b; N.D.c)

VIU Diploma in Resource Management Officer Technology – Detailed Course Listing (VIU N.D.a)

Small Motors: An introduction to the operation and maintenance of small two and four-stroke engines. Emphasis is on stationary gas engines and outboard motors.

Fisheries Technical Report: Independent study project on B.C.'s fisheries resources. Term report and oral presentation required.

Wildlife Technical Report: Independent study project on B.C.'s wildlife and parks resources. Term paper and oral presentation

Resource Acts & Regulations I: A review and application of all Acts and Regulations pertaining to the protection of fish, wildlife, and the environment relating to enforcement and protection in B.C.

B.C. Fisheries: Identification, biology and management of B.C.'s fisheries resources

B.C. Wildlife: Identification, biology and management of B.C.'s wildlife resources

Introduction to Parks and Protected Areas: An introduction to the park and protected areas in BC including municipal, regional, provincial, and federal jurisdictions. The course will also include an overview of the park systems in the other western Canadian provinces

Field Skills: A series of practical workshops to provide students with practical skills that may be required while working in the fish, wildlife, forestry and parks field. Students will become familiar with various practical skills as identified by the instructors, RMOT Advisory Committee, and various natural resource agencies

Introductory Zoology: An introduction to the biology of invertebrate and vertebrate animals from ecological and evolutionary perspectives. Emphasis is on the diverse behavioural, physiological and ecological

adaptations of living animals. Labs emphasize taxonomic classification, evolutionary trends and functional morphology of the major animal phyla.

University Writing and Research: An introduction to critical thinking and reading, academic writing, and research skills, consistent with the conditions and expectations students encounter as readers and writers at university.

Life History and Management of Salmonids: A review of salmonids natural history in B.C.; the implications of life-history patterns; and the opportunity these patterns provide for fisheries managers, including a review of government stocking and enhancement strategies, as well as fisheries regulation

Intro to Statistics I: An introduction to statistics for the technology programs. Topics include descriptive statistics, probability, probability distributions, confidence intervals, hypothesis testing, linear regression, correlation and chi-square tests

Habitat Management: Description of fish and wildlife habitat, methods of assessing and monitoring habitat characteristics, and procedures for habitat protection and restoration. Course includes field projects in fish and wildlife habitat monitoring techniques

Resource Management Seminars: Seminar sessions dealing with current B.C. and Canadian issues in natural resource management and protection

Field Practicum: A two-week, off-campus field practicum with an incumbent Fishery, Conservation or Park Officer, or approved equivalent

Fitness, Self Defense, Small Firearms Safety and Practice: Physical fitness and self defense with small firearms safety training. Students are required to meet a physical fitness standard. Range practice is included

Enforcement Project Report I: Independent study project dealing with enforcement issues related to B.C. and Canada's fish, wildlife and parks resources. Report to Crown Counsel is prepared

Enforcement Project Report II: Continuation of independent study dealing with enforcement issues related to B.C. and Canada's fish, wildlife and park resources. A second major report to Crown Counsel is prepared

Legal and Investigative Procedures I: An introduction to investigative procedures used in natural resource law enforcement to enable the student to apply applicable legislation

Legal and Investigative Procedures II: Procedures for enforcing Acts and Regulations, investigative procedures such as gathering and securing legal evidence, conducting searches and seizures

Court and Administrative Procedures: Case preparation, legal reports, court rules and protocol, presenting evidence, and administrative requirements and procedures

Wildlife - Human Conflicts: An examination of wildlife/human interactions in B.C. Large carnivores, ungulates, and smaller species of wildlife impact on human lives and property in many ways. Topics include bear, cougar and wolf attacks, human response to close encounters, and carnivore feeding habits on ungulates

Invertebrate Identification & Biology: A three-hour lab course mainly devoted to the identification of important B.C. invertebrates for RMOT students

Forest Ecosystems and Hydrology: An introduction to the basic structure and function of forest ecosystems and forest hydrology. Topics include plant identification of the major forest site indicators, noxious weeds and poisonous plants, plant uses. Biogeoclimatic ecosystem classification and site assessment, forest soils, tree species identification and silvical characteristics, principles of forest hydrology including the hydrologic cycle, watershed analysis and function, stream morphology, stream processes, stream flows, water quality, drainage structures, forest roads and soil erosion control

Introductory Spatial Analysis for the Environmental Sciences: A broad overview of spatial analysis tools and techniques used in the environmental sciences. Topics include map making, map reading, surveying, GPS, air photo interpretation, satellite image analysis and Geographical Information Systems (GIS). Lab exercises apply these tools to environmental and natural resource management issues. This course involves some fieldwork

**During the program, students are required to complete Occupational Level I First Aid (or equivalent), in accordance with Worksafe BC requirements.

VIU Bachelor in Natural Resource Protection – Detailed Course Listing (VIU N.D.c)

Forensic Anthropology: An examination of forensic anthropology for criminology and anthropology students. Examines the archaeology of the crime scene, the retrieval of contextual information, the science of osteology, pathological conditions, trauma, and cause of death evidence. Includes process of identifying human remains through sex, age, stature

Advanced Field Skills: An advanced study of skills required for the fish, wildlife and parks field, with a focus on experiential learning. Topics include plant, wildlife and fisheries management principles, conducting ethical research, environmental education, physical ability test theory and practice, job readiness skills, first aid, and others as required

Environmental Monitoring: An overview of environmental impacts and the common tools used in environmental monitoring with emphasis on aquatic habitats. Topics include environmental impact sources, industrial pollutants, habitat alterations, the biological responses to environmental disturbances at all levels of the ecosystem, and the common methods for environmental monitoring

Natural Resource Forensic Investigations: This course will cover forensic investigative techniques used in natural resource protection. Field exercises will reinforce class theory to ensure that students will be prepared to investigate and gather evidence related to natural resource violations, such as fish and wildlife poaching, and forestry and pollution infractions

Elective*

Business and Technical Writing: An introduction to business and technical communication skills with a focus on documents (such as letters and reports) and presentations. Topics may include planning, outlining, summarizing, presenting data, handling references, and editing. The course comprises several practical assignments, including a formal report and an oral presentation

Geographic Information Systems: An introduction to geographic information systems, including spatial data theory and analysis. Topics include spatial and attribute data, analytical operations and modeling. Lab exercises apply software-based methods for displaying and analyzing vector and raster spatial data. Applications of GIS to natural resource and urban and regional management issues are assessed

Research Methods in Natural Resource Management: An examination of the theory and practice involved in planning and conducting research, including data analysis techniques and report preparation. Specific discussion and examples are directed towards the natural resource management area

Advanced Investigative Procedures: An examination of the theory and practice of advanced law enforcement procedures used in conducting complex legal investigations. Topics include why investigations fail, intelligence gathering and probes, vehicle and foot surveillance, undercover operations, informants, ethics, securing crime scenes, enforcement equipment, major case files, link analysis and flow charting

Elective*

Advanced Field Practicum in Natural Resource Protection: A work experience or internship semester that involves student participation in the natural resource protection field, either through compliance and enforcement or management options. Students will collaborate with a sponsoring agency and the development of job related competencies will be a focus of both practicum options

Lethbridge College Diploma in Natural Resource Compliance – Detailed Course Listing (Lethbridge College N.D.a)

Terrestrial Ecology: A study of the interrelationships between living organisms and their terrestrial environments with an emphasis on elements of the physical world which shape and define ecosystems.

Plant Taxonomy: A study of the identification and classification of gymnosperms and angiosperms including trees, shrubs, grasses, grass-likes, and forbs. Emphasis is placed on the phenotypic taxonomic characteristics while recognizing the influence provided by genotypic features.

Scientific and Technical Writing

Earth Sciences: An introduction to the processes that shape the landscapes of North America. It will include components of geology and geomorphology as they apply to the field of natural resource compliance.

Statistical Methods

Zoology: A study of the orders and major families of mammals and birds with an emphasis on evolutionary biology, ecology, distribution, and behavior.

Parks and Recreation Operations: An introduction to field management, operations and maintenance procedures common to provincial and federal park systems. Emphasis is placed on operational prescriptions and related strategies for ensuring the integrity of the land base, visitor facilities and services, and public safety. A field trip is a required component of this course.

Introduction to Natural Resource Law: An introduction to the Canadian legal system and sources of natural resource law. The role of resource law enforcement is a focus in addition to select resource laws that regulate air, land, fisheries and wildlife.

Map and Aerial Photo Interpretation: An application of map reading, types of maps, their uses, and interpretation of map features. Other topics include black-and-white and color aerial photographs and satellite imagery is reviewed in relation to global positioning systems (GPS) and geographic information systems (GIS).

Patrol Procedures: A skills-based approach necessary for students to conduct effective and efficient enforcement patrols. Areas of study include responsibilities and techniques, dealing with complaints, planning, conducting and evaluating patrols, compliance checks, searches, profiling resource users, basic maintenance, use and care of specialized enforcement tools and equipment, communication methods, and organized resource crime. Not available for supplemental.

Court Procedures: An examination of the Canada Evidence Act and Rules of Evidence pertaining to testifying in criminal court. Addresses

the roles of the prosecutor, defence counsel, investigator and witness with a focus on officer testimony in court.

Grasslands and Forest Resources: A study of grassland and forest ecosystems with an emphasis on ecological processes, plant succession, responses to disturbances, habitat classification, and integrated management strategies. Rangeland, forest and riparian health assessments are studied and practiced along with woody and herbaceous plant identification and vegetation inventory procedures.

Principles of Wildlife Biology: This course covers the various factors affecting wildlife populations such as habitat, predation, behaviour, hunting, diseases and parasites. Issues and problems facing wildlife populations are discussed including harvest strategies and recovery efforts. A complementary lab presents a survey of Alberta birds and mammals and an introduction to common techniques used in wildlife management.

Fire Management: This course involves the study of wildfire management, specifically, fire weather, fire behaviour, wildlife control, fire ecology, and the use of fire as a prescriptive management tool. The course has lecture, lab, and field components, linked together to provide a range of learning opportunities. The lecture component includes theory and concept that provides a background to the application of field and lab work, emphasizing hands-on experience and the practical application of knowledge gained in the course.

Field Investigation Techniques: An introduction to the field component of a natural resources investigation, from the time a call is received to the time the field portion of the investigation is completed. Topics include recording and responding to a complaint, and processing a crime scene including crime scene management, photography, evidence collection, complainant statement taking and field forensics.

Natural Resource Legislation: This course covers the study of statutes, regulations and relevant case law pertaining to fisheries, parks, wildlife, and the environment, including the historical and constitutional aspects of this legislation. Overview of native hunting and fishing rights are part of the course.

Interpersonal Skills in Enforcement: This course covers the interpersonal skills needed to handle sensitive situations encountered when dealing with the public in the renewable resources conservation field. Emphasis is placed on verbal judo and technical communications. Students further enhance their verbal and written communication skills through various exercises.

Principles of Fisheries Science: This course is an introduction to fishery science, basic lake and stream survey techniques, and the identification, biology and management of important species. Factors of aquatic productivity, introductory population dynamics, regulations and fish habitat are related to the objectives and tools of management.

Conservation Biology: This course examines the scientific basis for the management and protection of biological diversity. Important topics will include habitat fragmentation, minimum viable population analysis, the role of genetic variability, metapopulation concepts and community-level processes. Practical applications are addressed using case studies that incorporate the principles of ecosystem management.

Lethbridge College Conservation Enforcement: Bachelor of Applied Science – Detailed Course Listing (Lethbridge College N.D.b)

Administrative Procedures: Organizational structure and administrative procedures common to governmental agencies and private organizations involved in the management of natural resources are investigated. Additional topics include supervision, management principles, work planning, risk management, employee programs and the relationships between management and organized labor.

Environmental Compliance Techniques: This course examines the role of environmental inspectors and investigators in ensuring public and private industrial operations comply with environmental legislation established to protect the environment against degradation or damage. Compliance options and alternatives are presented in dealing with violations. The principles of administrative law form a major part of this course.

For Environmental Monitoring and Compliance Specialty one of the following options:

• Environmental Impact Assessment: This course is an introduction to the environmental impact assessment (EIA) and auditing processes in Canada. Topics include the history of EIAs and audits and the relevant legislation from several provinces and the federal government. The methods and techniques used to collect data to undertake EIAs and audits are included in the laboratory component in the course.

• Water Quality: This course covers water quality parameters specific to several end uses. Causes and sources of inorganic and organic pollution are discussed. Laboratory skills include appropriate sampling procedures and specific analytical methods required for monitoring physical (sediment), chemical and biological/microbiological parameters that affect water quality. Characteristics of normal healthy lakes, streams, rivers and groundwater sources are discussed along with water treatment methods used to mitigate quality degradation.

• Containment Management: This course is an introduction to the fundamentals of managing a variety of contaminated sites. Topics include causes of contamination and chemical analysis and identification of contaminants. Site assessment techniques such as site mapping and sampling are undertaken in relation to human health and safety precautions.

For Fish, Wildlife, and Parks Specialty one of the following options:

- Parks and Protected Areas: An overview of management of parks and protected areas including operational work plans, budgets, and user services. The focus is on managing the balance between conserving and protecting natural resources with park user demands. The roles and functions of park personnel will be examined.

- Problem Wildlife Management Techniques: The investigation and control of wildlife damage to crops and the predation of livestock will be examined. Controlling nuisance wildlife and problems are an ongoing duty for enforcement officers and agricultural field personnel. Methods of prevention and control used in the field by resource management agencies are covered.

- Cultural Diversity in CEN: Canada's diverse cultural heritage presents many challenges when resource management is considered. Cultural tradition often influences the perspective that individuals have to the conservation and management of natural resources. This course will examine the different cultural groups present in Canada with regard to their perspectives on natural resource use. Particular attention will be given to the Aboriginal culture and how it relates to resource use within the Canadian legal framework. This course will also explore the relationship between cultures other than the typical Euro-centric Caucasian culture and natural resource law enforcement in Canada. Students will learn how different cultures relate to natural resource law enforcement and will understand why these differences may exist.

Case Management: A focus on the integration of a wide variety of concepts, skills and procedures in the context of a complex investigation or case. Learners, working in teams, will be actively involved in investigating a broad range of incidents and will take the cases from occurrence or complaint through to disclosure to Crown Counsel.

Environmental Law: An examination of Canadian legal institutions that shape environmental law by examining specific court and administrative law decisions. Topics will include legislative and common law processes and remedies available to respond to violations, claims and investigations. Linkages between environmental issues of the day, and policy and legislation will be examined.

Issues in Resource Enforcement: A series of short, topical presentations that deal with contemporary problems or issues unique to the discipline of conservation enforcement are explored. A critical review is conducted on media articles and research reviews in the resource field.

Crisis Intervention: An application of the theoretical concepts and skills acquired in previous courses. Focuses on the mechanics involved in a crisis situation including areas such as victimology, human interaction and human behaviour. Skills and techniques for safe and effective intervention and mediation using exercises, simulation and reflections are emphasized.

Two Directed Field Studies

Field Enforcement: An exploration of the practical field enforcement functions common to conservation enforcement agencies. Topics include agency and academic standards for interpreting and applying legislation, conducting regulatory patrols, performing competently within agency policies, procedures, directives and guidelines, and completing and issuing various enforcement documents.

Community Involvement: Community support is essential to the success of conservation enforcement field personnel. Community support and relations will be developed and fostered through a variety of initiatives including educational/public involvement programs that complement their duties and benefit management and protection of natural resources.

Administrative Techniques: Students acquire, demonstrate and apply knowledge relevant to the placement agency/organization including organizational structure, administrative responsibilities, policies, procedures, directives and mandates.

Senior Enforcement Project: A self-directed learning experience in which students research and report on key issues relevant to one or more of the goals of conservation law enforcement through a series of briefing notes. Topic selection must be relevant to the needs of the placement agency and location.

Independent Study: A self-directed learning experience in which students pursue a research topic encompassing one or more of the goals of conservation law enforcement. Students are required to demonstrate abilities in reviewing literature, collecting and analysing field data, and advanced written communication skills. Initial outlines of proposed studies require approval by the faculty supervisor.

For Environmental Monitoring and Compliance Specialty one of the following options:

• Habitat Protection: Students acquire the skills and knowledge necessary to interpret environmental legislation designed for natural habitat protection. Students utilize approved techniques to identify and investigate disturbances, and identify and evaluate incidents of non-compliance and develop appropriate courses of action.

• Program Management: Students will be directly involved with the planning, management and delivery of a program related to the field of conservation enforcement or habitat protection. Review and implementation of applicable agency policies applicable to the program will form the basis for program management.

For Fish, Wildlife, and Parks Specialty one of the following options:

• Hazard Assessment and Public Safety: An acquisition of skills and knowledge necessary to recognize and respond to public safety incidents. Students will be expected to actively participate in the planning and delivery of Occupational Health and Safety Standards, hazard recognition and mitigation.

- Problem Wildlife Field Techniques: Wildlife damage to crops, property, livestock as well as wildlife-human conflicts are complex and politically sensitive issues. Students develop competency in wildlife control, capture, and conflict prevention techniques. A large component of this course will deal with issues such as public safety, policies and procedures, depredation investigation and incident planning.

Training Program: Coastal Stewardship Network – Vancouver Island University 2013-2014 (CFN and VIU 2013)

- Module 1: Monitoring Environmental Resource Use to Promote Compliance
    - 30 hrs over 5 days
    - Content:
        - Communications theory, role-playing (*soft skills*)
        - Safety protocols (check-ins, scenario risk assessment)
        - Evidence gathering, including note-taking and photography
    - *The learning outcomes for this module have been taken from the following courses located at Vancouver Island University, Nanaimo, B.C: RMOT 194, 295*
- Module 2: Documenting and presenting field compliance data
    - 30 hrs over 5 days
    - Content:
        - Note-taking from field scenarios with computer data entry
        - Report writing
        - Preparation of case file
        - Mock trail, potentially using restorative justice
        - Court protocols; rules of evidence in court
        - Office administration
    - *The learning outcomes for this module relate to the following courses located at Vancouver Island University, Nanaimo, B.C: RMOT 295 and 296*
- Module 3: Marine motor Servicing
    - 24 hrs over 4 days
    - Content:
        - Mixed theory and hands-on training of: outboard motors, 2 and 4 stroke theory and basic electrical and fuel systems. Basic mechanics and operation of ATV's and snow machines.
    - *Successful completion includes credit for Vancouver Island University, Nanaimo, B.C: RMOT 151*
- Module 4: Resource Management Seminars
    - 3.5 days (26 hrs – 13 two-hour sessions)
    - Content (attend seminars of resource management professionals)
        - Understand resource use and management strategies from a variety of disciplines relating to environmental protection and management.
        - Apply concepts learned in seminars, to technical field work
        - Improve listening and note-taking skills by attending all seminars and recording key points

- o *The outline for this module has been taken from the following courses located at Vancouver Island University, Nanaimo, B.C: RMOT 251 (Seminars) – successful completion will result in credit for RMOT 251*
- Module 5: Essential Environmental Skills
  - o 30 hrs over 5 days
  - o Content:
    - ▪ Covers week 1 of VIU's Environmental Technician Certificate Program (a 5-week program, can be delivered in-community) https://www2.viu.ca/nrep/environment/Certificates/aet.asp
- Module 6: Parks and Protected Areas
  - o 30 hrs over 5 days
  - o Content:
    - ▪ Park classification system
    - ▪ Park legislation
    - • Management principles for federal and provincial parks
    - • Resource management issues
    - • The environmental effects park visitors have on resources and remediation techniques
    - • Invasive species impacts in parks and management techniques
    - • Park and facility inventory techniques
    - • Fundamentals of park interpretation
    - • Fundamentals of park sign design
    - ▪ ***BCIT Parks Administration course and exam are included in this course***
  - o *The learning outcomes for this module have been taken from the following courses located at Vancouver Island University, Nanaimo, B.C: RMOT 202 – Parks and Protected Areas*
- Module 7: Archaeological and CMT Inventory Training
  - o 30 hrs over 5 days
  - o Content:
    - ▪ Describe archeology inventory project
    - ▪ Understand the requirements, protocols and safety issues associated with archaeological projects
    - ▪ Use survey equipment correctly and navigate in the field
    - ▪ Identify different archaeological site types, and describe cultural materials and features
    - ▪ Understand how to use archaeological survey methods
    - ▪ Take accurate and detailed field notes
    - ▪ Read maps and plot locations
    - ▪ Navigate to a site location
    - ▪ Record and map site features and materials
  - o *RISC (Resources Information Standards Committee) certification will be obtained by successful participants – course is coordinated by the BC Association of Professional Archeologists.*

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Appendix D.

Coastal Stewardship Network Guardian Watchmen Training Needs Survey Bar Plots
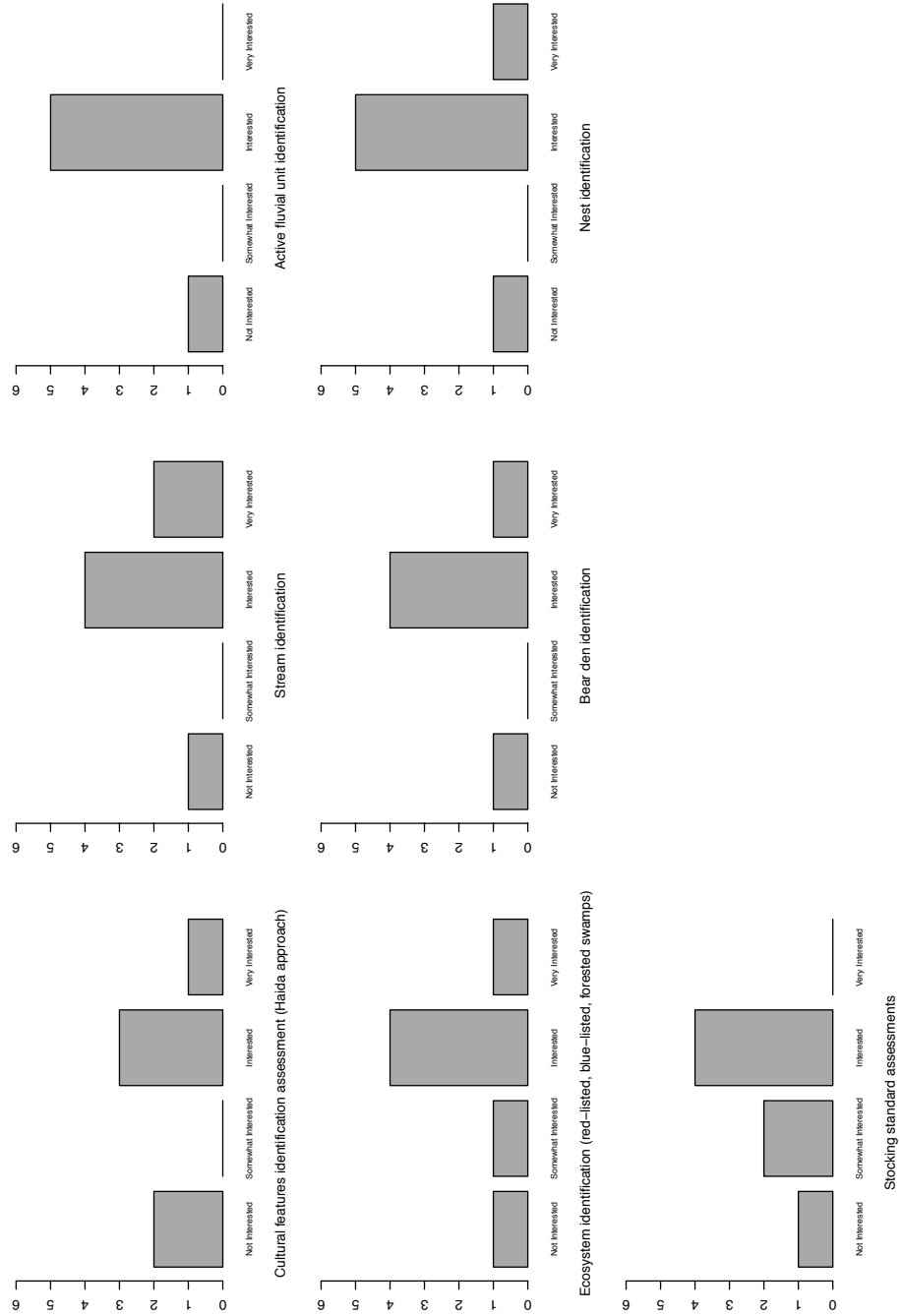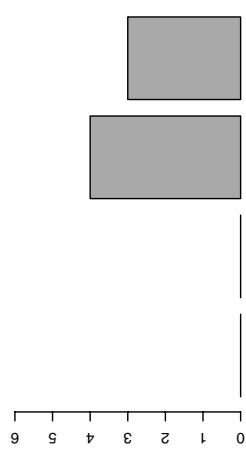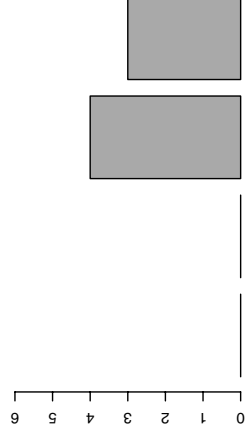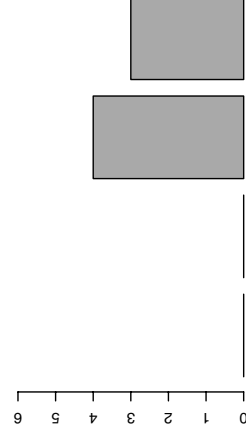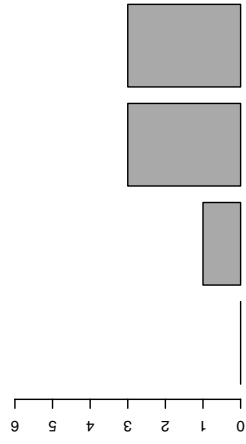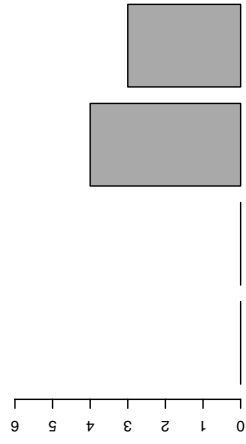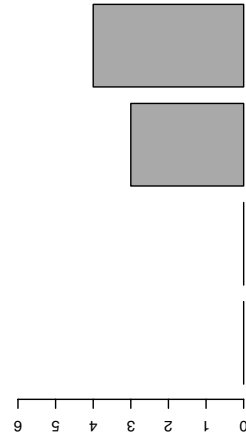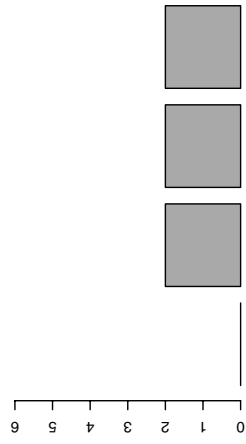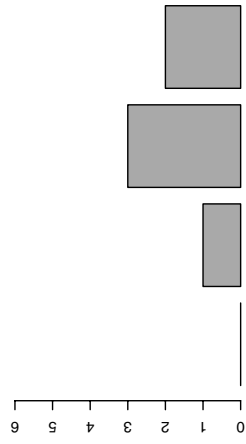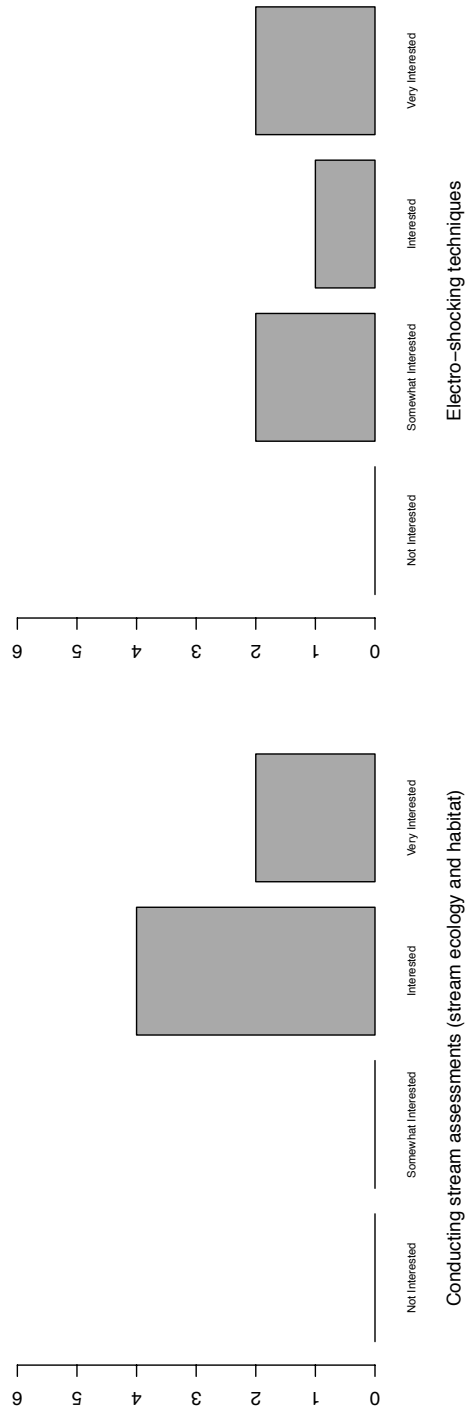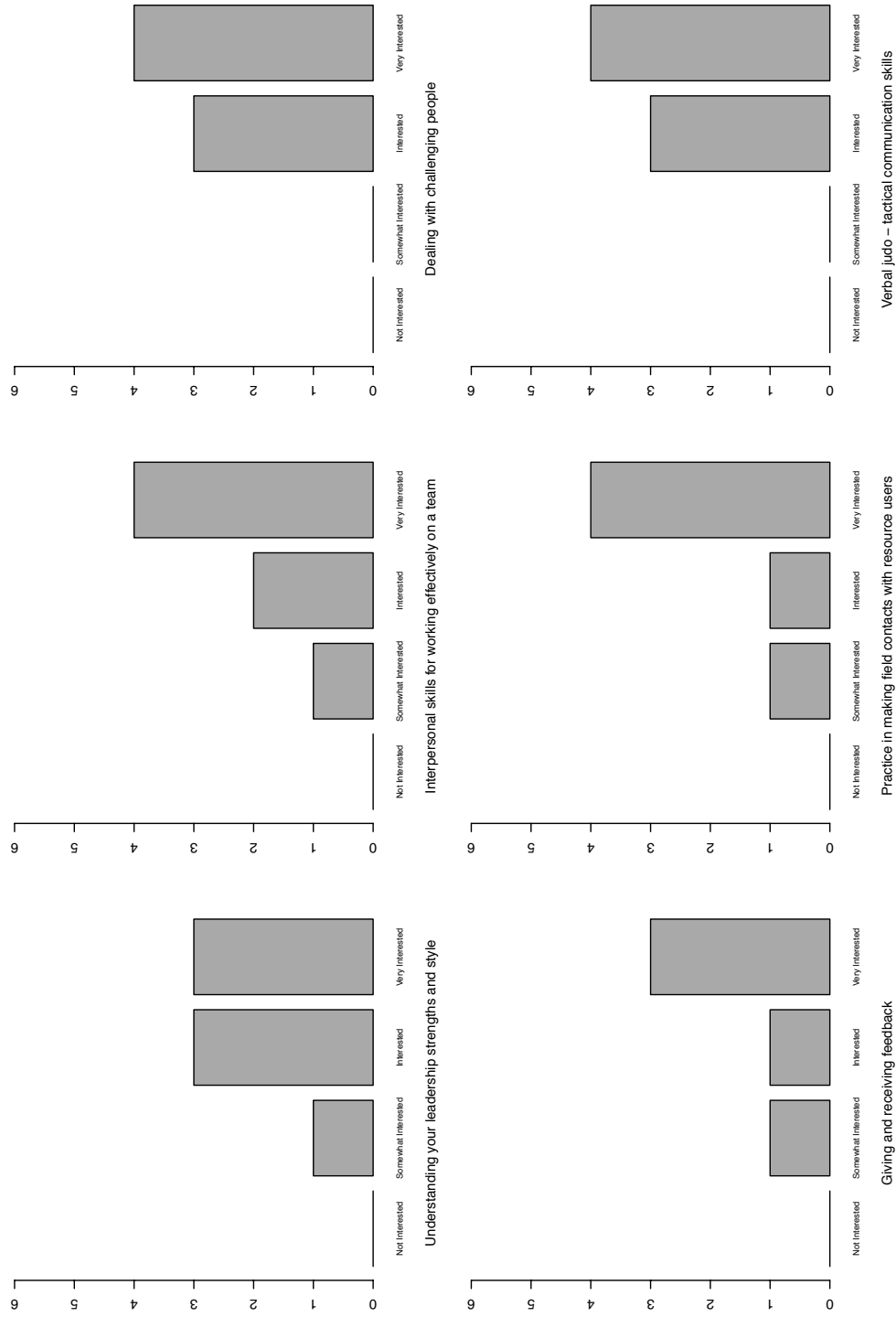
Environmental Monitoring

Field Monitoring and Research Skills
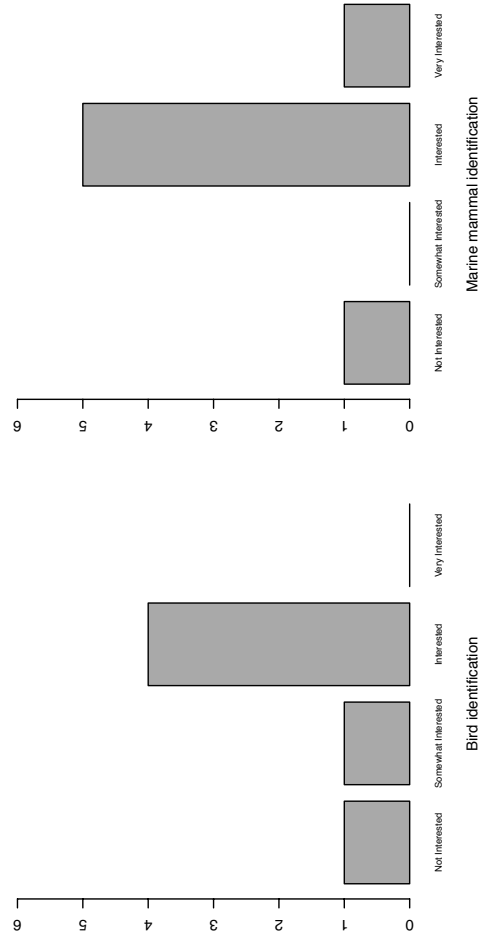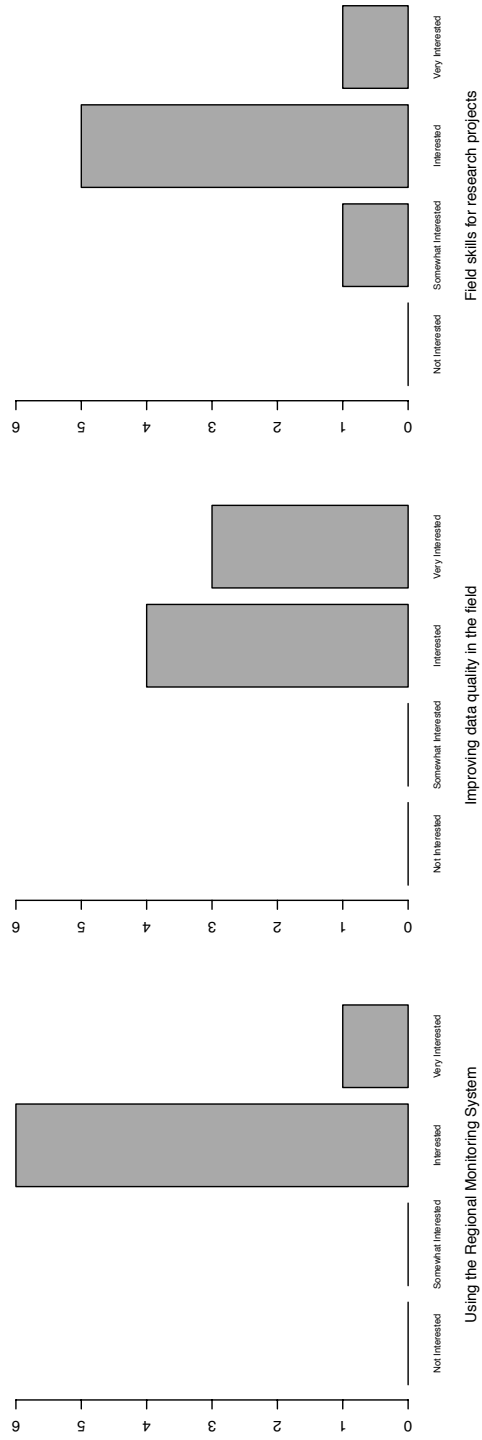
Fisheries Sampling

Leadership Development and Interpersonal Communication

Understanding your leadership strengths and style

Interpersonal skills for working effectively on a team

Dealing with challenging people

Giving and receiving feedback

Practice in making field contacts with resource users

Verbal judo – tactical communication skills

Monitoring Environmental Compliance

Environmental laws and regulations

Changes to federal Fisheries Act and provincial Water Act

Review of penalties for environmental infractions
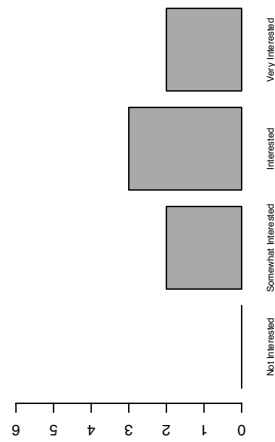
Improving field observation skills

Forensic evidence collection

Field note–taking for documenting environmental offences
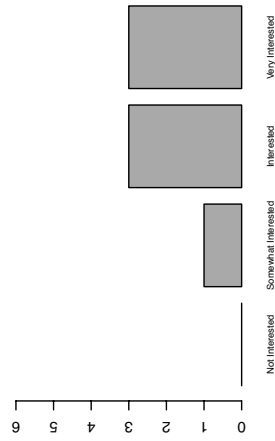
Writing official reports to other agencies
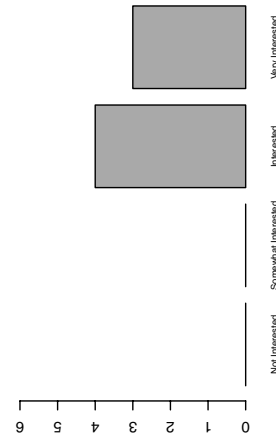
Office and Computer Skills

Additional Topic Areas

Emergency response training

Incident Command System (ICS) for Emergency Management

Shoreline Cleanup Assessment Techniques (SCAT) for oil spills (marine & freshwater)

Coast Guard Auxiliary Search and rescue training
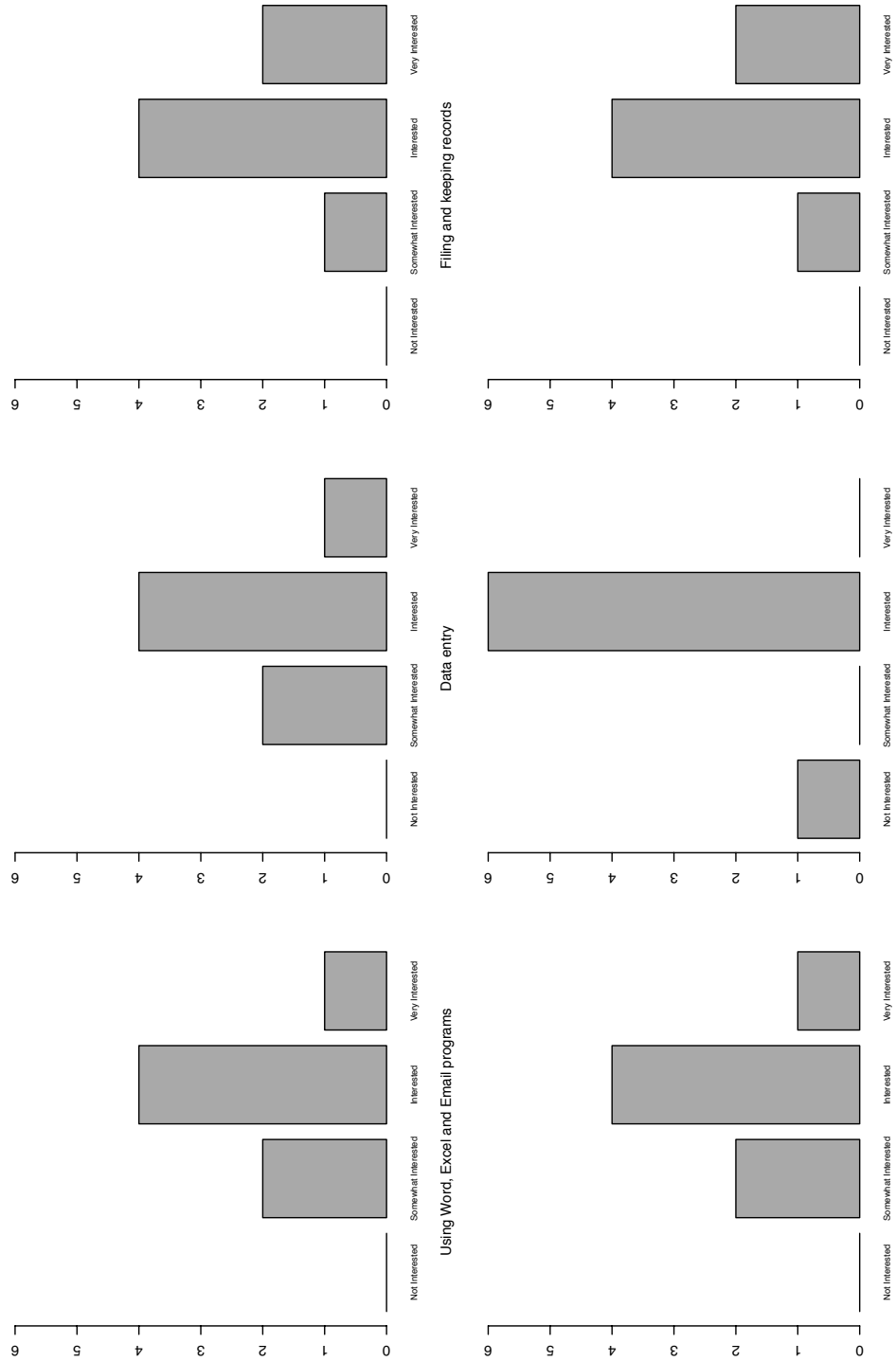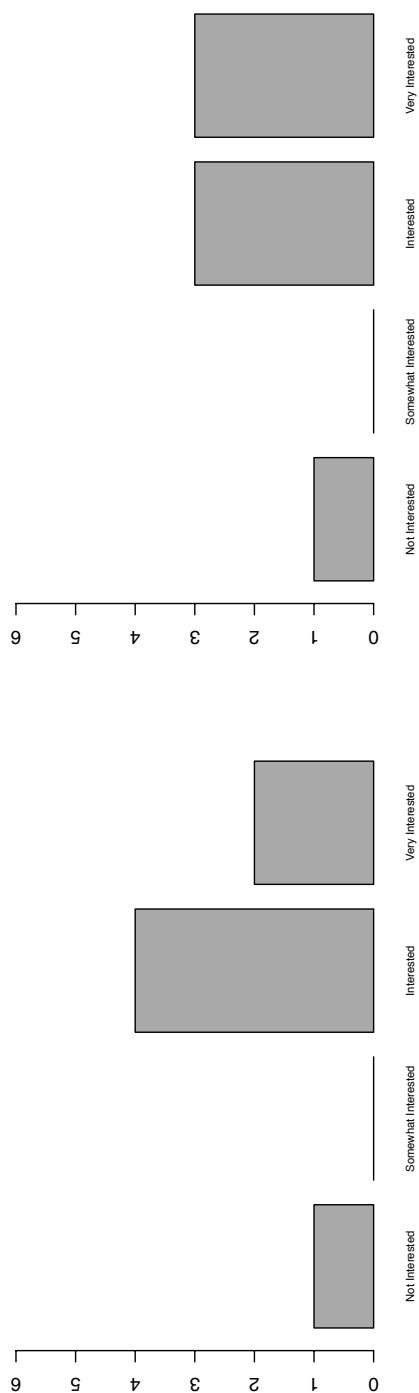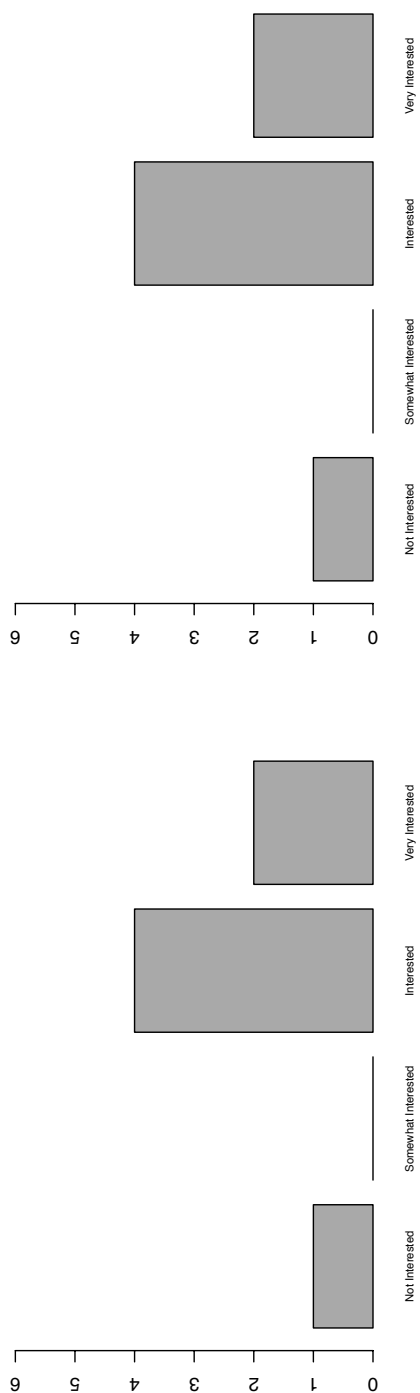
Appendix E.

Enforcement Qualifications and Work Descriptions

Table E1. **Qualifications (Employment and Training) for Fisheries Officers and Conservation Officers**

Criteria for Employment	Fisheries Officer (DFO)	Conservation Officer Service (Ministry of Environment, BC)
First Aid certificate	yes	yes
class 5 drivers license	yes	yes
security clearance	yes	yes
Workplace Hazardous Materials Information System (WHMIS) Certification	no	yes
Physical Abilities Requirement Evaluation (recruit level)	no	yes
psychological exam	yes	yes
medical exam	yes	yes
PSC General Competency Test (level 2)	yes	no
secondary school completed	yes	yes
post-secondary training in resource management & Law Enforcement or Criminology	2 years	preference for degree or diploma
Internal training program component	18 weeks in academy	6 months (12-16 weeks classroom, rest in field)
Internal, post-academy training phase	30 months	2 years

(DFO 2012 and MoE BC 2015)

Lists of Required Knowledge & Skills for Enforcement (DFO 2012 and MoE BC 2015)

Law Enforcement Skills

Types of enforcement

Use of force options

Note-taking

Rules of evidence

Statements/ interviews

Court procedures

Stakeouts

Data collection methods

Law Enforcement Ethics

Verbal skills/power of persuasion

Investigative techniques used in interviewing witnesses and accused persons associated with forensic investigations on major cases,

Computer forensics, accounting procedures and bookkeeping practices

Principles, procedures, judicial processes associated with criminal and civil law, and how the rules of evidence apply to enforcement activities when gathering the necessary evidentiary elements to establish a strong case for prosecution.

Fisheries/Wildlife Management knowledge

Species identification

Marine/freshwater fisheries biology

Fisheries management

Habitat

Fishing techniques

The operations of urban and industrial facilities such as pulp mills, sewage facilities, logging operations, mining, oil and gas, agriculture, highway or hydro projects subject to regulation under fish habitat legislation, and to know how to safely monitor these operations and safely collect evidence of violations (DFO, could apply to other agencies as well)

Legislation

All applicable Acts, Orders and Regulations

Acts and Regulations enforced by other agencies when a memorandum of understanding exists between "home" agency and another

Acts and Regulations that affect the collection and release of sensitive enforcement information and the nature and delivery of enforcement programs.

Canada Labour Code, departmental policies and procedures.

International Acts, Treaties, Fishing Plans, Fishing Agreements and Protocols with First Nation as they pertain to the safe delivery of enforcement actions associated with domestic and/or international fisheries inside and outside the 200-mile limit programs.

Memoranda of Understanding, protocols with the Royal Canadian Mounted Police, the Department of National Defense, the Canadian Wildlife Service and other departments and agencies to participate in collaborative enforcement operations and emergency response situations; international protocols and prohibitions where joint international patrols and/or enforcement activities are carried out.

Departmental mandate, objectives/organizational structures and the various roles and responsibilities of each regionally and nationally, how they affect the role of the work unit and enforcement and compliance activities and priorities associated with fisheries and fish habitat.

The role and responsibilities of third party contractors required in support of monitoring and enforcement activities

Practical Skills

First Aid

MED A3 / SVOP

Small and Large Prop Vessels

Swift Water Rescue

ATV Operations

Cross Cultural Awareness

Emergency Vehicle Operations

Emergency Survival

Firearms (rifle, shotgun, pistol)

Snowmobile Operations

Human Wildlife Conflicts

Ice Safety

Water Safety

4 X 4 driving

Installation and monitoring of tracking devices and other such surveillance equipment.

Fisheries Officer Work Description (DFO 2014)

Key Activities

Carry out compliance inspections, investigation activities and enforcement of the various Fisheries-related Act and Regulations that govern fishing activity in the aboriginal, commercial, recreational and international fisheries and protect the fish habitat and the aquatic environment. Arrest and detain offenders and carry out seizures.

Acting in the capacity of patrol officer or lead investigator, lead a team of Fishery Officers, search for, gather, analyze and validate forensic evidence in order to solve current and major cases, prepare court briefs, prepare and execute other court documents e.g. search warrants; provide advice to Crown Counsel in the prosecution of violation cases; act as crown and/or expert witness in court.

Participate in the planning and conduct overt and covert patrols by foot, vehicle, program vessel, CCG vessels, fixed and rotary winged aircraft, all-terrain vehicles and snowmobiles.

Participate in the priority setting, monitor, investigate and gather intelligence and/or conduct audits and collect information on fishing and habitat-related activities to provide status reports on harvest activities, habitat degradation or other major events to supervisor, fish/habitat managers including the Science Sector of the Department.

Promote stewardship of the fisheries resources and fish habitat among the private and public sector industries that may impact on fisheries resources, fish habitat and the general public.

Develop components of training programs, plan, train, mentor, lead and evaluate new recruits, colleagues and enforcement partners, and train individuals from other enforcement agencies and/or public organizations.

Act as a senior departmental liaison in communities and sole representative of Federal Departments in remote communities.

Provide expertise and assist, as required, other federal (e.g. Royal Canadian Mounted Police, the Canadian Wildlife Service), provincial, local and international enforcement agencies in fulfilling their mandate.

Plan, coordinate, develop and deliver public education and awareness presentations for the public and stakeholders.

Manage and deliver response to small-scale crisis situations, ensuring coordination, operational liaison and communication in support of field

operations as well as providing negotiation and consultation expertise to the parties in a dispute.

Assist in planning the work.

Skills - Knowledge

Acts, Orders and Regulations that govern fishing activity in the aboriginal, commercial and recreational fisheries and protect the fish habitat and the aquatic environment.

Acts and Regulations enforced by other agencies when a memorandum of understanding exists with DFO for their enforcement by Fishery Officers (e.g. Canadian Wildlife Service).

Acts and Regulations that affect the collection and release of sensitive enforcement information and the nature and delivery of enforcement programs. Proper application of authority and obligations is essential to offer professional service, mitigate departmental liability and/or embarrassment for senior management.

Canada Labour Code, departmental policies and procedures.

International Acts, Treaties, Fishing Plans, Fishing Agreements and Protocols with First Nation as they pertain to the safe delivery of enforcement actions associated with domestic and/or international fisheries inside and outside the 200 mile limit programs.

Memoranda of Understanding, protocols with the Royal Canadian Mounted Police, the Department of National Defense, the Canadian Wildlife Service and other departments and agencies to participate in collaborative enforcement operations and emergency response situations; international protocols and prohibitions where joint international patrols and/or enforcement activities are carried out.

Marine and freshwater fisheries biology/ecology to be able to understand the conservation objectives and contents of fisheries and habitat management plans.

Fishing techniques, aids to navigation, fishing gear, fishing vessel hold layouts, fishing license conditions and logbooks used by the various resource harvesters to be able to effectively and safely carry out enforcement and detect violations.

Installation and monitoring of tracking devices and other such surveillance equipment.

The operations of urban and industrial facilities such as pulp mills, sewage facilities, logging operations, mining, oil and gas, agriculture, highway or hydro projects subject to regulation under fish habitat legislation, and to know how to safely monitor these operations and safely collect evidence of violations.

Domestic and international fishing related business and an extensive understanding of the external environment including the political,

socio-economic and cultural concerns. Understanding how decisions or actions such as seizing vessels, vehicles, fish catches, equipment, issuing stop work orders (fish habitat) and/or forensic investigations (e.g.: shutting down fish plant operation) impact on domestic and/or international industries/companies/organizations, individuals and/or communities and on the Department's ability to fulfill its mandate.

Investigative techniques used in interviewing witnesses and accused persons associated with forensic investigations on major cases, computer forensics, accounting procedures and bookkeeping practices specific to the fishing industry to ensure the evidence gathered will support the prosecution in court. Fishery Officer training in this area is equivalent to an RCMP investigator.

Principles, procedures, judicial processes associated with criminal and civil law, and how the rules of evidence apply to enforcement activities when gathering the necessary evidentiary elements to establish a strong case for prosecution.

Fishery Officer authority as a Peace Officer under the Criminal Code of Canada when enforcing the Fisheries-related Acts, Orders and Regulations.

Techniques, practices and devices required for the safe operation of vessels and various patrol vehicles during the day, at night and in periods of reduced visibility (fog, rain, snow) for activities such as pursuit, armed boarding, towing of vessels, and roadblocks for vehicles.

Principles and techniques of the Incident Management/Intervention Model to ensure the safety of the Officer, colleagues and the public in the application of the Use of Force Continuum. Situations vary widely in intensity and can go from cooperative behaviour to the necessity for the application of lethal force to protect the officer, colleague or member of the public from grievous bodily harm or death. The officer must consider independently the entire use of force continuum options at a given time and choose the proper response based on training, experience and circumstances. There is a requirement to possess the qualifications to handle and use firearms.

Departmental mandate, objectives/organizational structures and the various roles and responsibilities of each regionally and nationally, how they affect the role of the work unit and enforcement and compliance activities and priorities associated with fisheries and fish habitat.

The role and responsibilities of third party contractors required in support of monitoring and enforcement activities.

Skills - Communication

Verbal and writing skills to interview suspects and witnesses, prepare court briefs and documents related to enforcement operations; to

present testimony in court for major investigations; provide persuasive arguments to gain the acceptance of individuals, client groups, heads of corporations, their legal counsel and the general public, who may have differing views regarding enforcement management, and to gain their acceptance on Departmental strategies and policies regarding fisheries and habitat management.

Computer skills to be able to deftly work on several computer programs and electronic documents in order to investigate, gather and link different pieces of evidence.

Verbal, writing and computer skills to conduct of education/information sessions for client groups to provide a better understanding of DFO conservation and protection objectives, programs and priorities; to explain Acts, regulations, policies, fisheries and habitat management plans and how they relate to the issues at hand.

Verbal skills and powers of persuasion are required to deliver response to small scale crisis situations, and to provide negotiation and consultation expertise to settle disputes.

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