DOCUMENTING FIRST NATIONS PERSPECTIVES ON WATER:

ENGAGING FORT WILLIAM FIRST NATION

IN SOURCE WATER PROTECTION USING PHOTOVOICE

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Masters of Northern Environments and Culture

Lakehead University
2010

ABSTRACT

This research project was created through a partnership between the Anishnabe of the Gitchi Gami Environmental Programs, the Fort William First Nation Youth Council and Lakehead University. Together 13 members of the Fort William First Nation participated in a photovoice project to document perspectives on source water protection. Many First Nations communities are not involved in the creation of source water protection policy, which can increase the risk to drinking water supply. Through the use of photovoice this research examines community perspectives about water and peoples' connection to it. This exploratory research examined three themes: jurisdictional issues, threats and Traditional Ecological Knowledge. The use of photovoice is a positive way to increase involvement in and discussions about source water protection. This method provides the opportunity for communities to examine source water protection from a science-based perspective, and share their knowledge, experiences and understanding of source water protection from a Traditional Ecological Knowledge perspective.

ACKNOWLEDGEMENTS

The research was possible thanks to the Environment Ontario Drinking Water Stewardship Program grant awarded to Dr. Robert Stewart of Lakehead University and funding from the United Way Youth Scape awarded to the Anishnabe of the Gitchi Gami Environmental Programs (AGGEP). This research would not have been possible without patience and guidance of many people. Both the AGGEP and the Fort William First Nation Youth Council provided technical and personnel assistance, and a welcoming environment. Special thanks to Gail Bannon for her tireless work as community researcher performing interview as well as Georjann Morrisseau who spoke with the media and offered insight into organizational matters.

The Department of Geography provided guidance and assistance throughout the process, specifically my supervisor Dr. Robert Stewart, my committee members Dr. Martha Dowsley and Dr. Brad Wilson, and administrative assistant Jennifer McKee. The external examiner Dr. Chantelle Richmond provided a thoughtful and clear-eyed view of the research, further refining the final document.

I would like to thank my wife Melanie MacKenzie, my daughter Katherine and my family, for their help, patience and support, allowing me the opportunity to complete this research.

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1. Problem Context

1.1 Ensuring Safe Drinking Water

This study explores First Nations involvement in source water protection planning and provides recommendations for the development of policies and practices to allow the effective participation of First Nations communities in the management of drinking water in Ontario. Due to isolation, absent legislation, lack of capacity, resources, and control, many First Nations Communities across Canada suffer from a lack of reliable, clean drinking water. This has led to a mistrust of water management regimes in those communities (Brown and Hussain 2003; CESD 2005; CPHI 2004; Davies and Mazumder 2003; Hrudey et al. 2006; Eggertson 2008; O'Connor 2002). Coupled with a lack of capacity on the part of First Nation communities to engage in the protection of source water (INAC 2006; COO 2006), this lack of trust can lead to further problems in ensuring the health of citizens (O'Connor 2002). Through the government's use of neoliberal development policies and policies of assimilation, First Nations communities have not been able to effectively communicate or protect their interests. For example, many First Nations suffer health problems as a result of dispossession of their traditional territories, lack of control over their environment, exposure to contaminants and the ill effects of development (Arquette et al. 2002; Mascarenhas 2007; Schell et al. 2005). The poor health of many First Nations communities is directly related to the loss of culture, traditions and way of life due to the dispossession of the environment they and their ancestors have depended upon since time immemorial (CPHI 2004; Richmond et al. 2004).

The enquiry that followed the drinking water tragedies in Walkerton, Ontario and North Battleford, Saskatchewan have brought new attention to the issues surrounding

source water protection and its profound impact on health, the environment and the economy (CCME 2002). Source water protection as defined by the Lakehead Region Conservation Authority (LRCA) “is action taken to prevent the pollution and overuse of municipal drinking water sources, including groundwater, lakes, rivers and streams. Source water protection involves developing and implementing a plan to manage land uses and potential contaminants” (LRCA 2010, G-35). The Walkerton Inquiry raised awareness of the high potential for drinking water threats in First Nations Communities due in part to a lack of source water protection (Mascarenhas 2007).

The inclusion of First Nations Communities, and a First Nations’ perspective, into source water protection regimes has yet to be addressed (COO 2007). The practical methods for including a First Nations perspective is complicated by the fact that Native and non-native peoples have different worldviews (Overholt and Callicott 1982; Robyn 2002) and differing meanings of the term ‘involvement’. The use of more effective methods of inclusion, would allow Native cultures to enhance source water protection and provide a more holistic understanding of water (Ekins 1992; McPherson and Rabb 1993). There is the potential to provide native and non-native peoples with a social learning environment from which to develop a common vision for water management (Pahl-Wostl et al. 2007). The current lack of involvement of First Nations communities in source water protection policy threatens drinking water supplies. Through the use of photovoice methods and qualitative interviews this exploratory research will examine First Nations perspectives on water and develop themes, which seek to represent values. The use of this method and the results it produces will demonstrate its applicability in involving First Nations communities in source water protection.

1.2 Objectives of the Research

First Nations communities are often left out of source water protection policy development for a variety of reasons. Some of these reasons include issues of jurisdiction, competency, fairness, accessibility and culture (COO 2007). The lack of effective involvement puts First Nations people at increased health risks as they are prevented from protecting their needs and interests. The integration of Traditional Ecological Knowledge into source water protection policy offers opportunities to include First Nations communities and further create a more holistic perspective into the management of water resources. In this paper Traditional Ecological Knowledge is defined as "indigenous systems of knowledge, as well as cultural practices and methodologies related to the production of knowledge based on traditional belief systems, relationships to the environment, and community practices" (COO 2007).

Additional research is required to develop better methods of including First Nations communities in the development of source water protection policies. The goal of this project is to build on local community knowledge, serve their interests and encourage widespread participation at all levels (Flicker 2008). In order to progress this goal, an experiment using photovoice as a method of gathering perspectives on source water protection from the Fort William First Nation was used. This research project has three specific objectives. First, to create a photovoice project with the Fort William First Nation that, equitably involves community members and agencies in research that draws their personal knowledge and experience, and builds community capacity. The second objective will be to determine the feasibility of this method as a tool to be used in source water protection policy development in First Nations communities. Third, the

project seeks to explore Anishnabe perspectives concerning water and create a venue where Anishnabe people can share their views and issues regarding water security.

The photovoice methodology was chosen for its ease of use by participants, its ability to empower people as researchers and allow them to speak about their perspectives, and the limits it puts on academics to bias the research direction (Castleden et al. 2008). Photovoice also has the added effect of building community capacity to document, discuss and enhance decision-making (Wang 1998).

1.3 History of the Fort William First Nation

The interest of the Anishnabe of the Gitchi Gami Environmental Programs (AGGEP) in research and their past work mapping dumpsites and using photovoice on the Fort William First Nation made for an ideal partnership with Lakehead University. The Fort William First Nation is not currently part of the source water protection committee established by the Lakehead Region Conservation Authority even though its borders are located within the watershed. The community's close proximity to Lakehead University allowed for regular visits and meetings in the community, and allowed for greater and more intimate knowledge of the source water protection issues existing in the community. This proximity also allowed for a number of land/water-based fieldtrips and activities that further enhanced community knowledge and that of the researcher. The following sections will provide a short history of the Fort William First Nation (FWFN) including how their water source changed over time and elaborate on past legislation and other aspects of government involvement in dealing with drinking water on the FWFN.

The FWFN was interested in this project because the community is jurisdictionally linked with several ongoing municipal, provincial and federal water

management regimes that seek to ensure safe drinking water and the sustainable use of existing water resources in the regional watershed. Yet the community of Fort William First Nation has yet to participate or be meaningfully involved in any of these decision-making opportunities. For example, the majority of the Fort William First Nation now receives their water from the City of Thunder Bay via the Bare Point treatment plant, which is regulated by the province of Ontario. There is an absence of participation of Fort William First Nation members in the Lakehead Region Source Water Protection Planning Process under the Ontario Ministry of the Environment's Clean Water Act (2006); and there is an absence of participation in the Thunder Bay Remedial Action Plans under the Great Lakes Water Quality Agreement (GLWQA 1987). Each of these water management approaches, and the perspectives that implement them, have an influence on the treatment and supply of drinking water to the Fort William First Nation, the protection of source water and the elimination of drinking water threats from the watershed that encompasses the Fort William First Nation, and the remediation of human impacts that are concentrated in and around the Fort William First Nation territory. It is therefore an opportune time for community members to communicate their worldviews and perspectives as they relate to water so that they may enhance the development of water management strategies that affect them.

The ancestors of the Fort William First Nations (FWFN) people built the community along the north shore of Lake Superior near the mouth of the Kaministiquia River. The current Fort William Reserve was conceived through the Robinson Superior Treaty of 1850 and established in 1853 (Figure 1.1). As shown in Figure 1.2 there are currently a number of unresolved land claim issues concerning reserve lands taken, including frontage along the south of the Kaministiquia River (FWFN 2009). The current reserve itself is 5815.1 hectares, located to the south of Thunder Bay (INAC 2009 c).

As of October 2009, according to Indian and Northern Affairs Canada, the FWFN has a registered on reserve population of 892 and an additional off reserve population of 969 (INAC 2009 b). The median age of the population is 31.2 compared to the Ontario median age of 39.0. The median income is $35,200 compared to the Ontario average of $69,159, nearly twice as much. Overwhelmingly the language most spoken, and also the most common mother tongue of community members living on reserve is English. There are, however, four percent of respondents with a mother tongue other than English or French (Statistics Canada 2009).

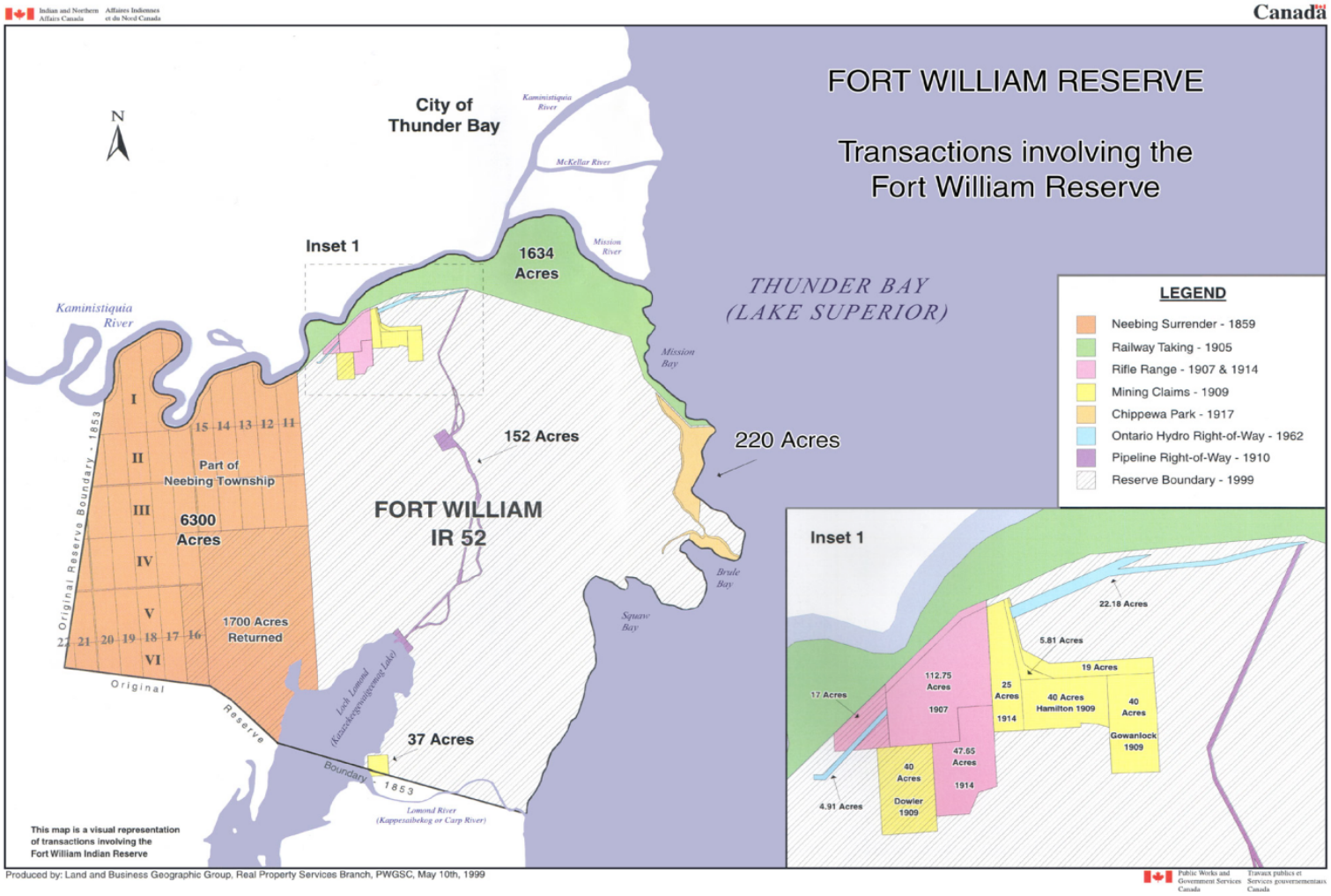


Figure 1.1
Fort William Reserve Land Transactions
Source: Indian and Northern Affairs Canada (1999 a)

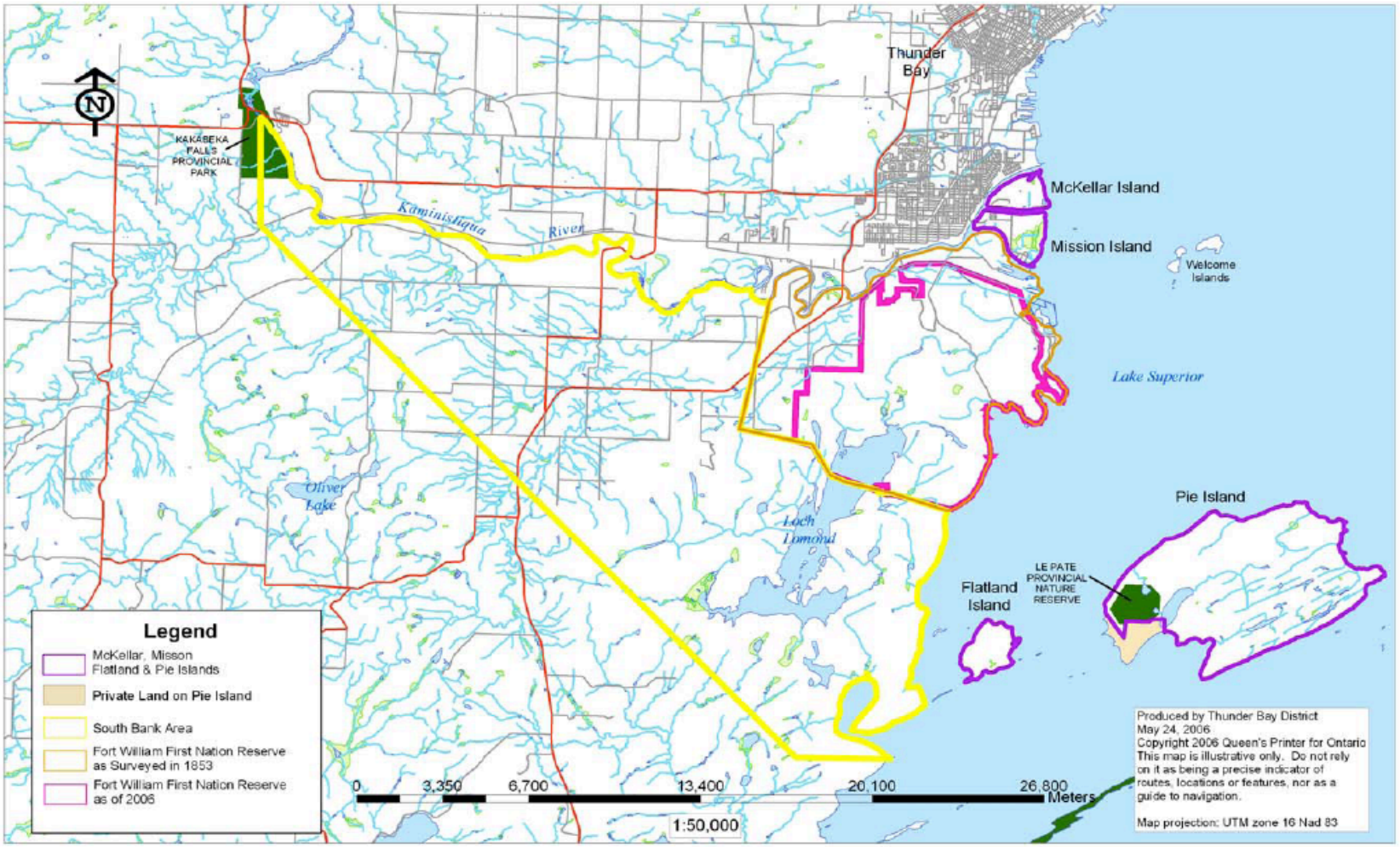


Figure 1.2
Fort William First Nation Map of Claim Area
Source: Ontario Ministry of Aboriginal Affairs 2009

1.3.1 Source Water and the Municipal Management of Drinking Water

Loch Lomond Lake, located on Mt. McKay within the Fort William First Nation and the Neebing Township, was the original source for drinking water for the Fort William First Nation, as well as the area of Thunder Bay previously known as the City of Fort William, beginning in 1909-10. The construction of the Loch Lomond Water Supply system was built out of necessity when the water supplying Fort William was contaminated in 1906 creating a typhoid epidemic. Building tunnels under the Kaministiquia River, and drilling tunnels through Mount McKay for a total cost of $500,000, resulted in the construction of the Loch Lomond water system (City of Fort William n.d).

In 2008, the water treatment facility that drew water from Loch Lomond Lake was decommissioned in favour of a city wide, one source facility, located on the shores of Lake Superior to the north of Thunder Bay. This facility known as the Bare Point Water treatment plant was constructed in 1903 and was expanded in 1978. After major upgrades in 2007 the City decided that it would service the entire city through this site including the Fort William First Nation (City of Thunder Bay 2009). In the time since the decommissioning of Loch Lomond, there has been discussion about how best to manage the lake and generate revenue for the community, but there are no known plans for the economic use of the lake at this time.

1.3.2 Assessment of Water and Wastewater Systems

In the Assessment Study of Water and Wastewater Systems and Associated Water Management Practices in Ontario First Nations Communities, performed in 2001 and prepared by the Ontario Clean Water Agency (OCWA), the FWFN was found to have very little information concerning its system. In most cases, the OCWA (2001)

was unable to rank the components of the Communal Water Treatment Supply because of a lack of information. This is largely due to the fact that the system is operated by the City of Thunder Bay. Many of the components for assessment of the Communal Sewage Treatment Facilities were not possible owing to a lack of information. The information that was available exposed a number of hazards including a lack of confined space, entry equipment or locks. With regard to reporting, it was revealed that there was no regular testing at the sewage treatment facility.

1.3.3 Provincial Management in the Lakehead Region Watershed

Figure 1.4 depicts the Lakehead Source Protection Area that is part of the Nipigon/Northwestern Lake Superior Watershed covering an area of 11,526 square kilometers (LRCA 2010). The Lakehead Region Conservation Authority (LRCA) is "mandated to ensure the conservation, restoration and responsible management of Ontario's water, land and natural habitats through programs that balance human, environmental and economic needs" (LRCA 2010, 3). The LRCA further provides input into watershed planning in accordance with environmental legislation. In cooperation with the local municipalities and through an advisory group made up of stakeholders, the main goals of the LRCA are "to develop and implement a program of water and related land management to: prevent the loss of life and minimize property damages from flooding and erosion; and maintain or enhance the quantity and quality of surface and ground water" (LRCA 2010, 3). The LRCA jurisdiction covers 2,718 sq. km along 200 km of Lake Superior and includes eight organized municipalities (LRCA 2010). The Lakehead Region Source Protection Authority (LRSPA) is housed within the LRCA and is the authority responsible for implementing source water protection in the Lakehead Region Watershed.

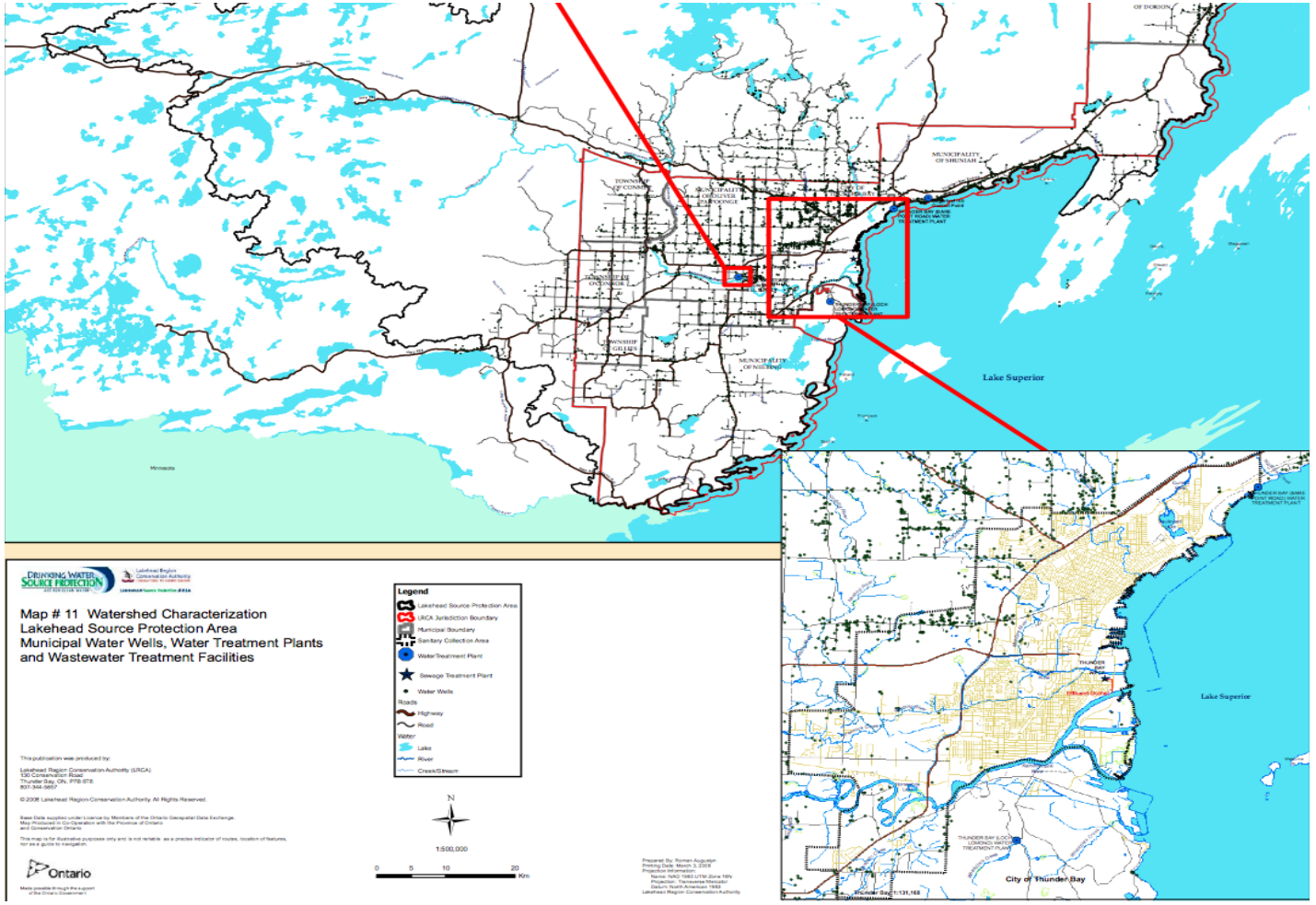


Figure 1.3
Municipal Water Wells and Water Treatment Plants
Source: Lakehead Region Conservation Authority 2008

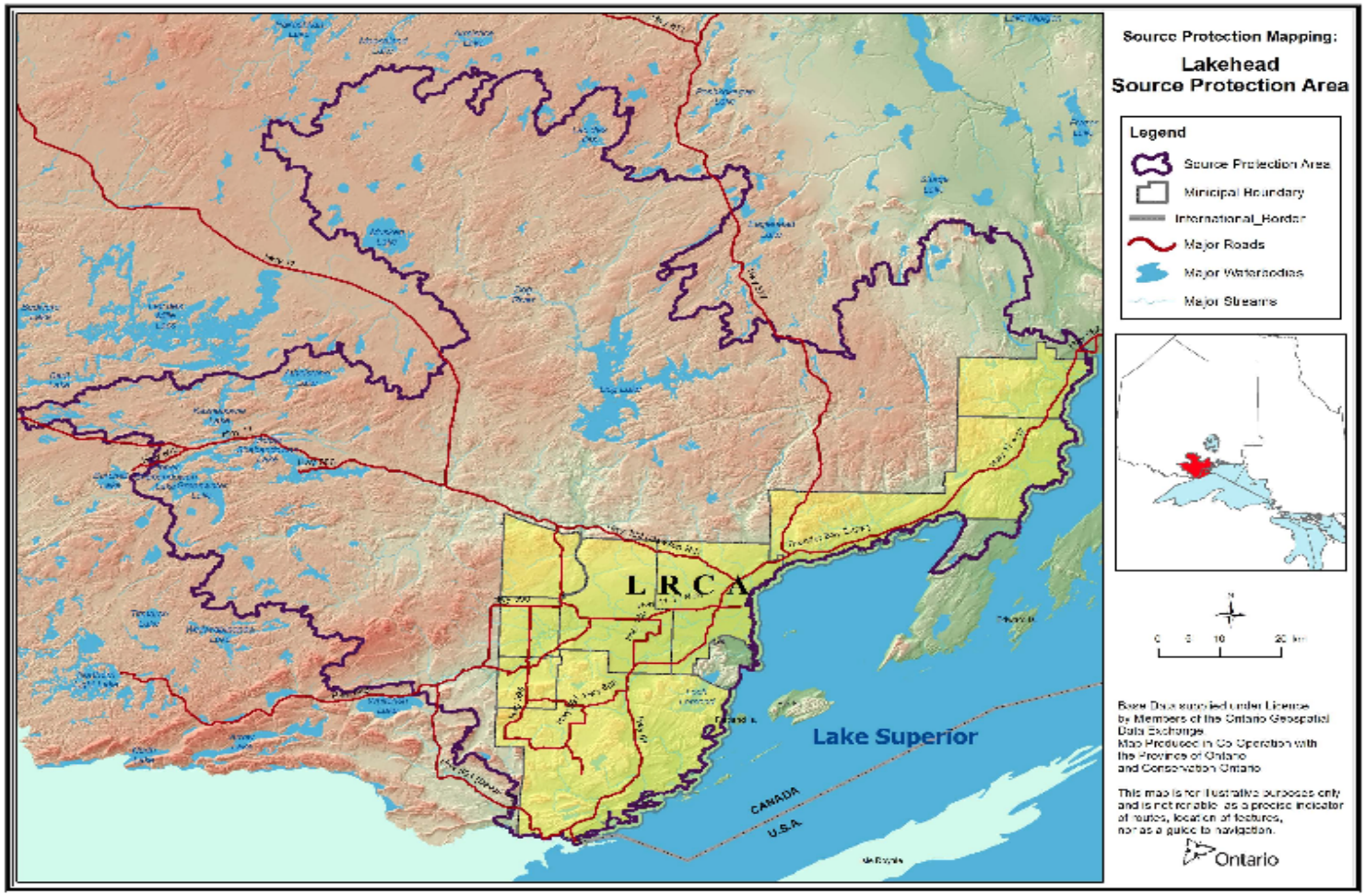


Figure 1.4
Lakehead Region Source Protection Area
Source: Lakehead Region Conservation

The current involvement process used in the LRSPA planning process consists of an advisory group, the Source Protection Committee (SPC), which is made up of public and private sector representatives that meet monthly to provide input and recommendations to the multi-year source water protection process outlined by the Ontario Ministry of the Environment. The SPC consists of 11 seats and is composed of the chair, members of the municipal sector (n=3), industry and economic sector (n=3), public interest and other interests sector (n=3) and the First Nations sector (n=1). Although the Fort William First Nation was invited to become a member of the Lakehead Region Source Protection Committee, this SPC seat has yet to be filled to date.

Other opportunities to be involved in the provincial source water protection process arise through outreach and public consultation periods that occur at least four times each year. Consultation is often required for the review of technical and planning reports that are available through the Environmental Bill of Rights. The LRSPA also provides a number of open houses throughout the year, and has focused on talking to residents that are specifically at risk of drinking water threats. At open houses, the public is provided the opportunity to comment on reports that consist mainly of scientific and technical information, and are focused on issues related to municipal drinking water systems only. In the recent Draft Proposed Assessment Report for the Lakehead Source Protection Area (LRCA 2010), Loch Lomond was not addressed as a water supply in the planning process, even though page 192 of the report identifies the need to develop a contingency plan and need for future water supplies in the watershed. It should be noted that according to the report on page 37, Loch Lomond recently supplied cold water of outstanding quality to the City of Thunder Bay. According to the 2010 LRCA report, the Bare Point supply may be at risk due to the potential lowering of

Lake Superior levels. The Loch Lomond watershed is part of the proposed development plan for the placement of industrial wind turbines. While this development is not identified as a threat to drinking water in the current planning process, the construction, operation and maintenance will impact the landscape, which, as an aquifer, is considered especially vulnerable (LRCA 2010; Piirik 2010).

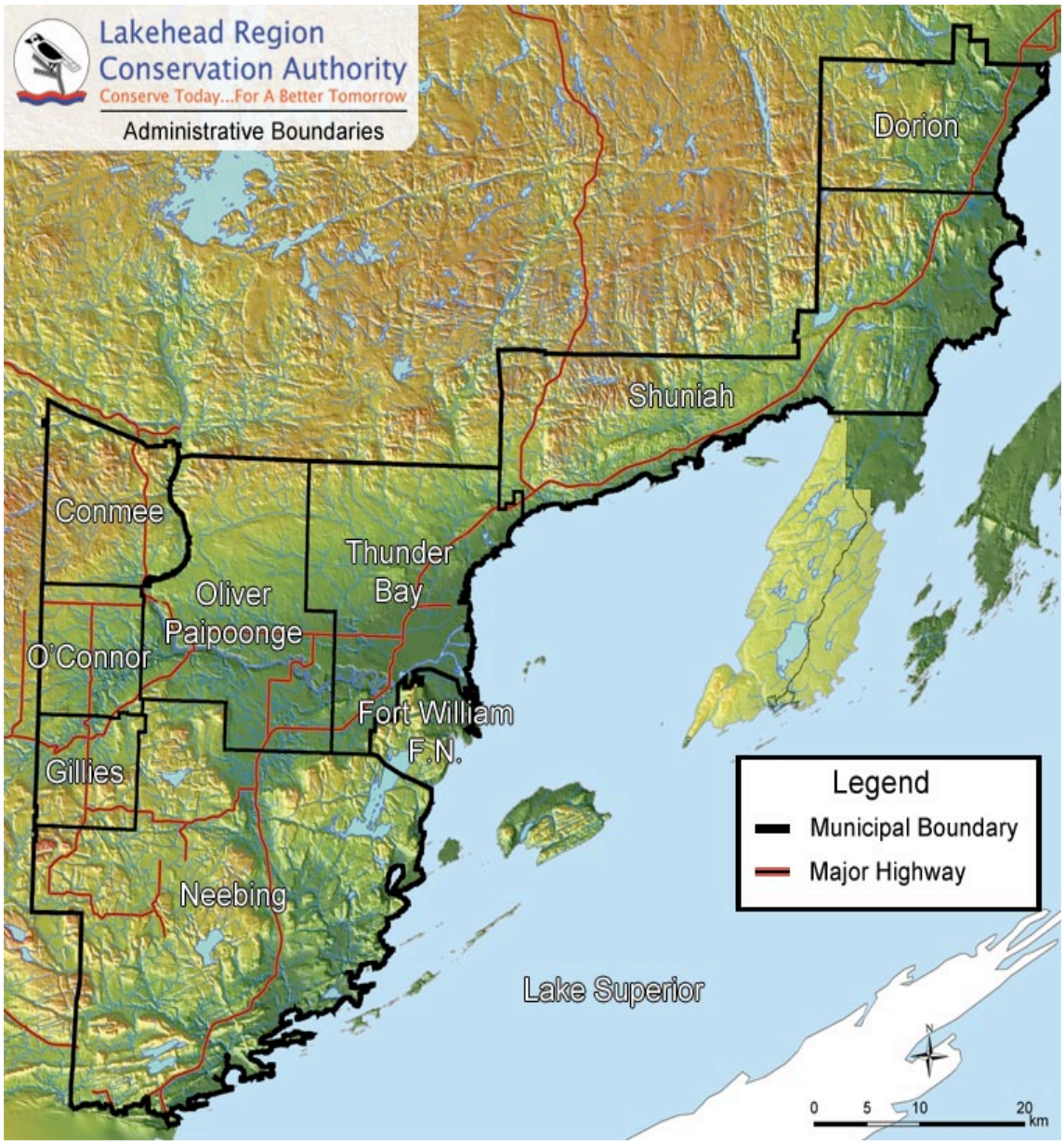


Figure 1.5
Lakehead Source Water Protection Area Administrative Boundaries
Source: Lakehead Region Conservation Authority

1.3.4 Federal/Provincial Remediation of the Thunder Bay Area of Concern

The lakeshore near Thunder Bay was designated as an Area of Concern (AOC) under the Great Lakes Quality Agreement of 1987. AOC's "are locations, where environmental quality has been degraded, compared to other areas in the Great Lakes and beneficial uses of the aquatic ecosystem are impaired" (Environment Canada 2010). The AOC is managed through a Remedial Action Plan (RAP) and seeks to restore beneficial use impairments that have resulted from point sources of pollution in and around the City of Thunder Bay. Figure 1.6 shows the Fort William First Nation and the City of Thunder Bay encompassed by the AOC boundary, and it is important to note that the water intake for the Bare Point treatment plant, which now services the FWFN, is located within the AOC to the north of the industrial core. The AOC process involves a degree of integration with the provincial source water protection planning process, and RAPs are mandated to include First Nations involvement. Involvement of a representative or community member from the Fort William First Nation in the Thunder Bay RAP, however, has not been achieved to date.

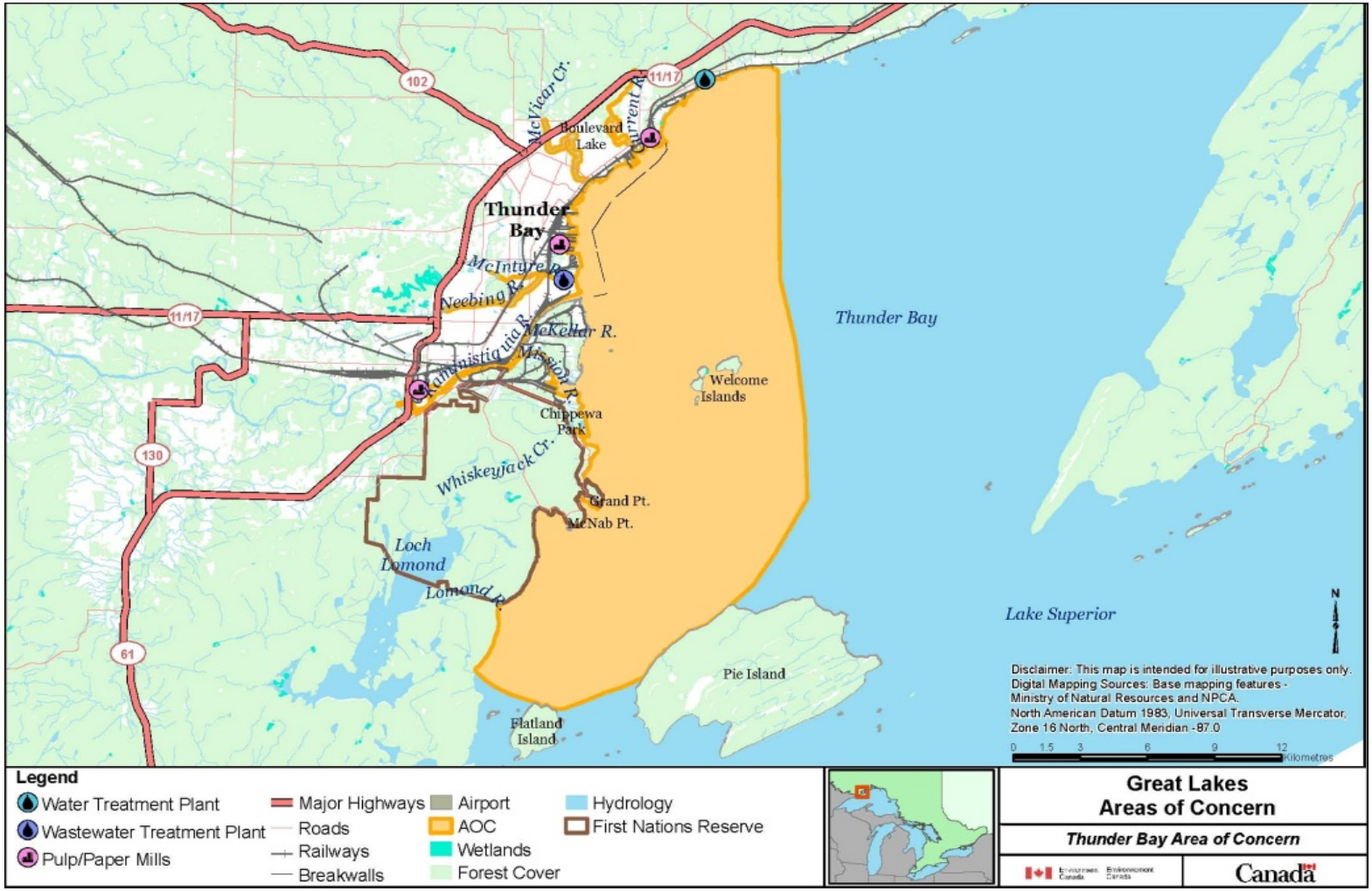


Figure 1.6
Thunder Bay Area of Concern
Source: Environment Canada

1.3.5 Emerging Opportunities: City of Thunder Bay Kam River & Islands Study

The City of Thunder Bay is currently seeking public input to begin rezoning and development plans along the banks of the Kaministiquia River bordering the city and the islands at the mouth of the river known as McKellar Island and Mission Island (Figure 1.7). The city has held two open houses, one in the city near the Fort William First Nation and the other on the reserve. Unfortunately, neither open house drew attendance from members of the band, with the exception of one person who attended the on reserve session. The member in attendance expressed disappointment with the format and questioned why the Band Council was not the one to organize this event, rather than the city, as areas affected would have impact on the reserve (Personal Communication, 2010).

The Fort William First Nation has long been in negotiations over land takings that happened along the south side of the Kaministiquia River and the two islands present in the delta. This study sought the input of City of Thunder Bay residents and Fort William First Nation members regarding the potential development of this area by asking participants to identify what type of zoning they would like to see along the banks of the Kaministiquia River. Participants were asked to choose from three terms, namely industrial, commercial and recreational and draw coordinating color lines along the shoreline to illustrate where they wanted to see the different zonings. However, this study did not address naturalization of any of the developed or to be developed areas. It is possible that the city may choose to develop areas along the river that will enhance water quality by reducing runoff, fixing contaminated sediment and enhance the ecology. If the attendance is any indication to the FWFN community's views on the current process it appears that there is little confidence in the City and their ability to provide for the Fort William First Nations community interests.

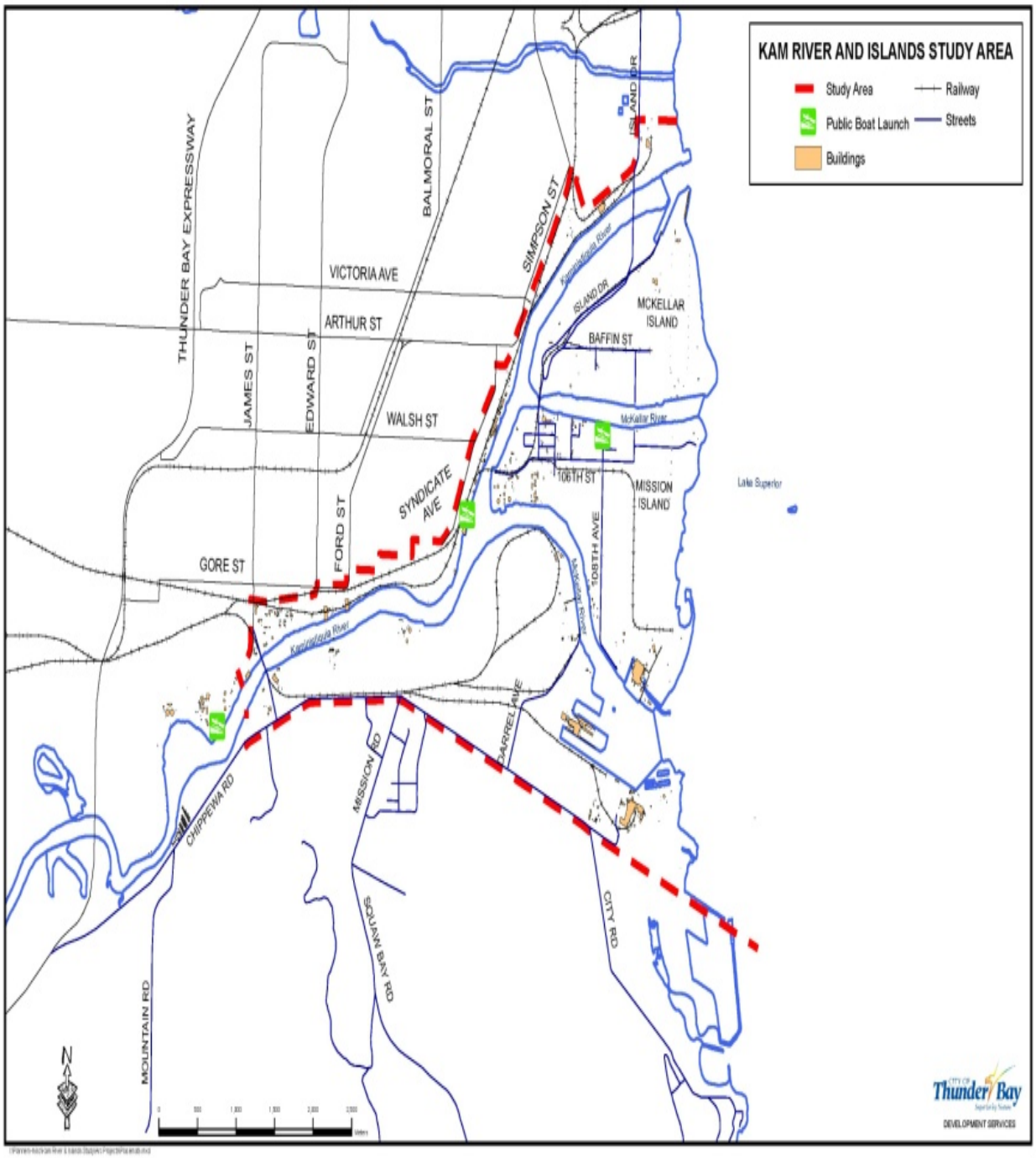


Figure 1.7
Kam River and Islands Study Area
Source: City of Thunder Bay

1.4 Applying the Research

It is evident that there is a complete lack of involvement by members of the FWFN in local and regional water resource management regimes. Alternative strategies and opportunities must be developed to ensure that a community perspective is present in these ongoing regimes. In partnership with the Anishnabe of the Gitchi Gami Environmental Programs and the Fort William First Nation Youth Council this research seeks to develop a community-sensitive technique for the involvement of FWFN perspectives on water using a photovoice research methodology. The methodology has not been applied in the water sector to date, and will thus seek to involve members of the FWFN in documenting community perceptions about water protection and management. In this thesis participants share their personal experiences and understanding of water through their local and Traditional Ecological Knowledge, their understanding of past and current water management regimes and identification of various threats to source water protection in their community.

1.4.1 Overview of Thesis

This thesis is composed of seven chapters. Chapter 1 has described the problem of lack of involvement by the FWFN in source water protection. Chapter 2 examines the published literature on many First Nation water quality issues, including current management approaches and the lack of source water protection. The multifaceted nature of source water protection will be examined from the literature on environmental management, and will address how the use of integrated water resource management and the multi-barrier approach can be used to address this complexity and uncertainty. Central to source water protection is the need for effective public involvement and the recognition that participation of First Nations communities is critical. However, for

effective involvement there is also a need for discussion and redress regarding environmental dispossession suffered by the community.

Chapter 3 explains the use of the photovoice method as a tool to enhance involvement and create capacity and develop community-based research. Community capacity has further been enhanced through the benefit of workshops and fieldtrips examining the watershed. Chapter 4 presents the themes identified by the community throughout the methodology. In this project participants identified jurisdiction, threats and traditional ecological knowledge as the main themes related to a community perspective of water issues. Chapter 5 will discuss the effectiveness of photovoice, the relationships between the theoretical literature and the themes identified by the community and highlight the opportunities available to decision makers in water management to enhance involvement. Chapter 6 will list recommendations that encourage First Nation involvement in source water protection. Chapter 7 will conclude the thesis by providing insights from the project and promote the use of participatory methods to enhance the understanding of source water protection issues from both the First Nations and mainstream perspective.

2. Literature Review

2.1 Introduction

Drinking water systems in rural, remote and First Nations communities are much smaller and often more vulnerable, making the community more aware threats. These threats can include the absence of source water protection, the lack of certified treatment operators (INAC 2003), inadequate resources (Grose et al. 1998), unenforceable legislation (SDWF 2009), insufficient monitoring, missing or broken

equipment, limited infrastructure and a lack of record keeping (Pope 2006). This study will examine the Fort William First Nation community's perspective on source water protection. Literature from a variety of disciplines, have informed this project, including geography, law, anthropology, political science, biology and health. Due to the ongoing negotiations and debate of water quality issues in First Nations both inside and outside of academia, it was necessary to use peer reviewed literature, government sponsored studies and reports from non-governmental organizations and political-territorial organizations that represent First Nations.

This chapter will first review the current state of water quality issues in First Nations in Canada including the lack of source water protection on reserves and the lack of involvement of First Nations people in the decision-making process. This review will illustrate the need for greater public involvement of First Nations in source water protection. The lack of success of current public involvement practices and the variety of issues present in source water protection for First Nations people may require a new methodological approach that allows the community member to create his/her own vision of research and essentially become the researcher. The complex nature of these issues demands interpretations that will not be unduly influenced by researchers who are unfamiliar with all the underlying issues specific to First Nations people and the case community. The photovoice methodology allows for empowered participants to become researchers, exploring and analyzing their own community and issues and presenting these issues for discussion among other community members and representatives. This aspect will be more thoroughly reviewed in Chapter 3.

2.2 The Nature of Water Quality Issues for First Nation Communities

Water quality issues are a critical topic for First Nations Communities, according to a 2003 Indian and Northern Affairs Canada report, due to deficiencies in the treatment of source drinking water, a lack of certified water treatment plant operators, and a lack of source water protection (INAC 2003). Supplying small remote communities with safe drinking water can also be problematic and costly. Grose et al. (1998) listed a number of issues concerning the provision of drinking water in remote communities. This includes the limited tax revenue generated from small communities to pay for a water supply system that is often much more costly than one built in larger communities with a large tax base. Source water is often of low quality, animals can contribute to high levels of cryptosporidium, surface water sources can sometimes undergo rapid level changes making it difficult to adapt to adverse conditions, resources such as manpower and equipment to maintain the numerous small sites require a great deal of travel time causing greater expense. Some sites are inaccessible during certain times of the year and the demand often varies throughout the year due to tourism and seasonal migration (Grose et al. 1998).

As a result of these types of issues, Canadian First Nations Communities are some of the only people not protected by safe water legislation in the developed world (Graham 2003). “Though INAC has a fiduciary responsibility to provide safe drinking water on First Nations communities, …Canada does not have legally enforceable federal regulations for water quality” (SDWF 2009, 6-7). The provincial government is the primary manager of water systems, which includes water quality protection, regulation of drinking water, and wastewater services. The federal government is responsible for the overall safety of water and its associated variables, policies, and

research (Vanijnatten and Boardman 2002). First Nations find themselves in a particularly awkward situation as they are often caught between provincial and federal government jurisdictions as water related issues arise. Currently, there are no mandatory regulations for water quality on First Nation reserves and no plans to establish an integrated water resource management program.

McKay and Moeller (2002) describe a number of improvements observed when mandatory regulations were chosen over voluntary guidelines in a study in Australia. These included an increase in public assurance of health and environmental goals, reduced risks to water quality, increased amounts of reliable data, and better coordination of monitoring, sampling, and information dissemination. "Fundamental goals for water supply management should be water quality, public health, transparency, and confidence in procedure, and economic benefit" (McKay and Moeller 2002, 114). McKay and Moeller's key recommendations are mirrored by Pope's (2006) report on Kashechewan, who also found great improvements to the community's water treatment system once procedures were established that met provincial standards such as 24 hours a day, seven days a week monitoring, automated equipment and proper record keeping by workers that are properly trained.

In a number of cases, the infrastructure available does not meet the needs of the actual number of people that depend on the treatment system. Record keeping of on-reserve populations such as Kashechewan, are inadequate, reducing the resources that are allocated to the community (Pope 2006). This pressing issue makes source water protection planning all the more important as the community waits for much needed upgrades to water treatment infrastructure.

Johnson (2003) showed water quality reports do not always incite the intended or even an adequate level of response. Providing information though water quality reports

to citizens is not only essential from an ethical perspective but also in a democratic context. It is clear, however, that the mobilization or reassurance of customers concerning drinking water safety requires more than simply a report, even for those able to identify violations, meaning that that there is a need to establish communications that will effectively inform customers about drinking water quality (Johnson 2003).

2.2.1 Making Decisions

There is a need on the part of government to realize that creating social equality requires the recognition that some members of society will not "naturally" benefit from political decisions. While reserves are often given authority over their local and immediate systems, they are granted few resources. The larger public or private interest is often dominant in the management of the landscape (Bolay et al. 2005; Windsor and McVey 2005). At the core of the issues on First Nations Reserves is the continued erosion of the status of citizenship through the deprivation of property rights and restrictions on access to places that sustain a reasonable standard of living (Lalloo 1998). There is a need for the recognition of place-based citizenship in policies to realize the equal citizenship of First Nations people. Policies need to go beyond the monetarist capital subsidy scheme, and work with the broader issues of property and place. Policies need to improve access to socio-economic resources, stress collectivism rather than individuality by creating environments that foster a sense of belonging and shared community by addressing special needs (Lalloo 1998).

The social, economic and environmental conditions of Aboriginal people are generally worse than those of non-Aboriginal people (CPHI 2004). This includes education, employment, income, housing, water and sewage systems, and available and affordable nutrition options. A lack of piped water and inadequate sewage in

crowded households are strongly associated with increased incidences of shigellosis (highly infectious diarrhea) and tuberculosis (CPHI 2004).

Not having control over important aspects of living contributes to ill health (Chandler & Lalonde 1998). There is a need for cultural continuity, which includes six aspects, namely community self-government, control over traditional land base, the presence of band controlled schools, community control over health services, the presence of cultural facilities, and control over police and fire services (Chandler & Lalonde 1998). In British Columbia, communities with all six of these aspects had a suicide rate that was virtually nil, where as in communities with none of these services the youth suicide rate was 138 per 100,000 (Chandler & Lalonde 1998).

Water policy must be clear and enforceable to be effective. However, if there is no flexibility or resources to assist in appropriate community implementation, problems will persist. Wide ranging community driven plans must be implemented over monetarist schemes, with broad based approaches that incorporate local knowledge resulting in a higher likelihood of community adoption.

2.2.2 Source Water Protection

Many First Nations Reserves do not have source water protection policies, threatening their drinking water supply due to unmanaged potential contamination sources (INAC 2003). “Land use and water use are inseparable; so many of the changes in quality detected within a water body can be traced back – either directly or indirectly – to man’s activities in or on the land within the catchment” (Keirle and Hayes 2007, 208). Water crises are regional and generally caused by different reasons from one area to the next. Therefore, it is imperative that source water protection be context specific, locally derived initiatives that reflect the socio-political, economic and

environmental realities of the area (Pollard 2002). Traditionally, water is tested within the distribution system and at the consumer's tap. There are a number of drawbacks to this method of monitoring. Tests to determine microbiological results are not immediate. Neither are the more complicated tests such as those for pesticides or herbicides. The slow detection of problems can allow contaminated water to enter the distribution system, and at worse, be consumed (Keirle and Hayes 2007). There is, therefore, a need to test water further up the supply chain. This can be accomplished through source water protection, risk assessment, public involvement and monitoring throughout the water supply chain, from source to tap. These approaches offer the ability to identify problems to safe drinking water early, thus, reducing the risk to consumers and limiting the amount of treatment needed to provide safe drinking water (Keirle and Hayes 2007).

There are a number of barriers facing the implementation of source water protection, as no one body in Canada has overall control of land use and water. Government boundaries often fragment catchment areas, seriously impeding effective action, consciousness and the integration of source water protection. In the context of an Indian Reserve, the Band Councils, Health Canada and INAC administer water and wastewater services. However, there is currently no clear mandate to monitor the watershed when providing safe drinking water. Land use policies are generally administered by the provincial government, which means that the watershed areas on the reserve are not part of the source water protection plan. The provinces, while responsible for safe drinking water for their citizens, are not directly responsible for water quality on First Nations Reserves as these territories fall under federal jurisdiction.

2.3 Wicked Problems

> As we know, there are known knowns. There are things we know we know. We also know, there are known unknowns. That is to say, we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know (Donald Rumsfeld 2002).

Poorly defined problems with diffuse boundaries cannot be separated from other problems making technical methods for problem solving inadequate (Hisschemöller and Hoppe 1995). There is thus no clear way to determine one single discipline necessary to solve the problem and conflicting values and facts interwoven among the various actors involved (Rittel and Webber 1973). Issues without a definitive end that prevent a clear understanding and hold many significant sources of uncertainty have been describes as wicked problems (Rittel and Webber 1973). Water issues are wicked problems, as decision makers must contend with multiple factors that are dynamic in nature and offer no clear resolution due to the large number of stakeholders who define the problem differently. Even the feasibility of the solutions may be viewed differently due to the variety of stakeholder perspectives (Caron and Serrell 2009). Solving a wicked problem requires structuring of the problem, to produce a new vision of the problem, which is essentially a political activity. Policymakers, often not realizing the biases present in their policies, prefer not to define problems as wicked in an effort to reduce complexity (Hisschemöller and Hoppe 1995).

Hisschemöller and Hoppe (1995) referencing Hisschemöller (1993) explain four types of policy problems as shown in Figure 2.1. The wicked or unstructured problem is when there is no consensus or certainty, yet there is discomfort with the current situation. The tame or structured problem is when there is consensus and certainty. The moderately tame or structured problem arises when there is agreement on the

values and uncertainty of the relevant knowledge or when the relevant knowledge is agreed upon but the values are in question.

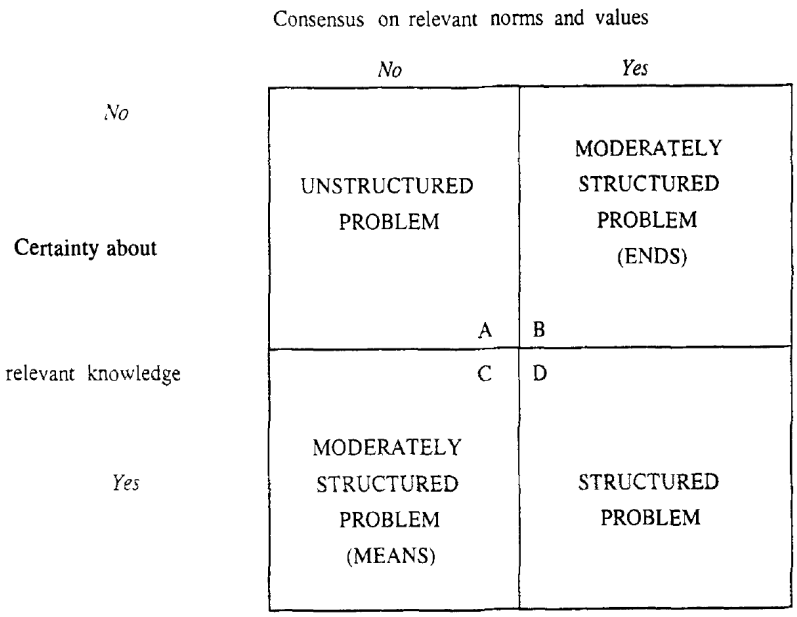


Figure 2.1
Four Types of Policy Problems
Source: Hisschemöller and Hoppe 1995, 44

Regeer and Bunders (2009) referencing Hisschemöller et al. (1996) contend that a learning process must be created so that different actors can participate when it comes to effectively dealing with unstructured problems. The emergence of concepts such as Integrated Water Resource Management (IWRM) and the Multi-Barrier Approach (MBA) demonstrate the need for strategies by the water sector to address water issues as wicked problems. Through the application of IWRM and the MBA a system of checks and balances is enhanced by the addition of perspectives, methods and processes. Source water protection is the first step in applying both concepts to managing drinking water.

2.3.1 Integrated Water Resource Management

IWRM is a move away from the reductionist management of water towards a coordinated management of different components of the resource, between various sectors and stakeholders, across administrative boundaries. Effectively, IWRM is a response to the awareness that water issues are wicked problems. IWRM "is an approach to improve efficiency in water use, promote equity in access to water and to achieve sustainability" (Butterworth et al. 2010, 69). Furthermore, IWRM seeks to avoid inefficiencies and conflicts as well as address trade-offs and minimize negative impacts caused by certain actors by creating a more holistic approach (Butterworth et al. 2010).

Adequate technical and financial support, by the federal and provincial government, to develop integrated water resource management (IWRM) for rural and remote communities is the most responsible and efficient way to ensure public health. Rural and remote communities often have a more difficult time ensuring the safety of drinking water for their residents. This is clearly demonstrated by the list of communities that gained national attention over the years. Communities such as Walkerton, North Battleford, and Kashechewan are small, rural, or remote. While these communities have garnered national and even international attention, many other communities with similar water problems are going unnoticed. There is a need to explore the water issues faced by small and remote communities, particularly First Nations Reserves, including the barriers to preventing water contamination, dealing with the contaminated water and some of the possible solutions that might be used.

Integrated water resource management (IWRM), among other things takes into account water quality, pollution control, economics, public health, the environment and ecology, socio-cultural issues, storage, use, and public involvement (Bouwer 2000).

IWRM is a process, change, and approach that puts water resource use into an economic framework, by using equitable means, and emphasizing ecosystem sustainability. It is crucial that there is community involvement for sustainable water resource management to be successful. The knowledge, experience and opinions of local communities, who are the key stakeholders, is required for effective resource management (Dungumaro and Madulu 2003). Due to the complex nature of water and the shared responsibility of multiple stakeholders in its management there is a need for a less technical approach and more social processes (Pollard 2002). The capacity of communities to protect source water, integrate and maintain new and existing technology, create policy, involve the public, and enforce legislation, all impact the ability to operate a program of integrated water resource management. One of the key frameworks to ensuring safe drinking water that was developed from the early principles of IWRM is the application of the Multi-Barrier Approach.

2.3.2 Multi-Barrier Approach

While no approach can guarantee absolute protection from risk at all times, the multi-barrier approach is the most effective way to manage drinking water systems (CCME 2002; O'Connor 2002). “The multi-barrier approach is an integrated system of procedures, processes and tools that collectively prevent or reduce the contamination of drinking water from source to tap in order to reduce risks to public health” (CCME 2002, 5). The multi-barrier approach identifies all potential control barriers and their limitations within three major elements that include 1) source water protection, 2) drinking water treatment and 3) drinking water distribution. As Figure 2.2 illustrates, these elements are integrated into a system of procedures and tools beginning with:

- water quality monitoring and management of water supplies from source to tap;

- legislative and policy frameworks outlining who is responsible for each aspect of the drinking water system and their responsibilities;

- public involvement and awareness, essential to maintain appropriate levels of partnership and communication;

- guidelines, standards and objectives that provide utility managers and system owners with drinking water quality targets; and,

- research and disease surveillance that leads to the development of science and technology solutions.

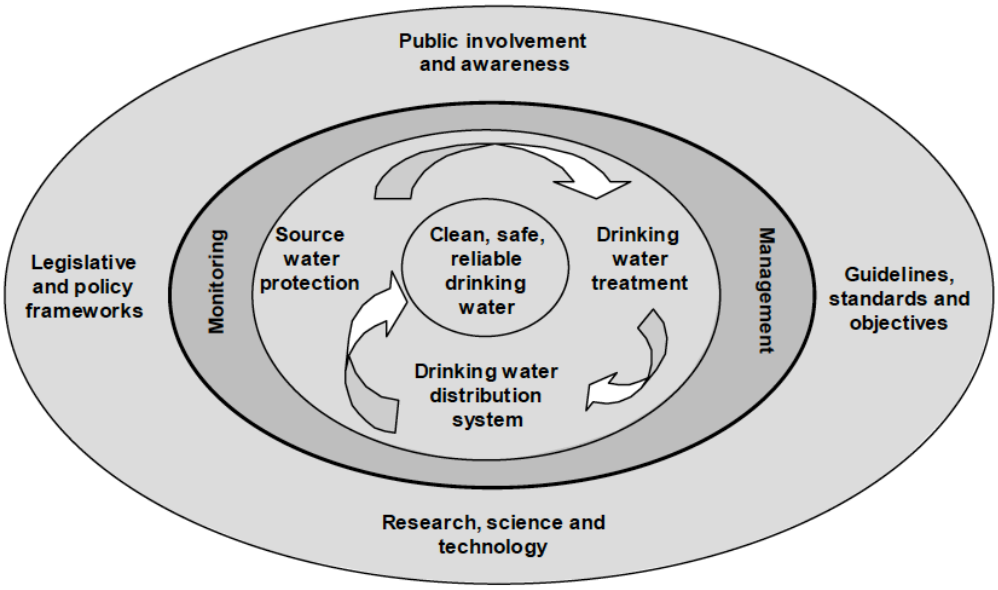


Figure 2.2
The Multi-Barrier Approach
Source: CCME 2002

Figure 2.3 further details the source water protection component of the multi-barrier approach. Source water protection, which includes both surface water and groundwater, is critical to avoiding drinking water contamination. This is achieved through the coordination of stakeholders to prevent, minimize, control pollution sources and enhance water quality both over the short and long term.

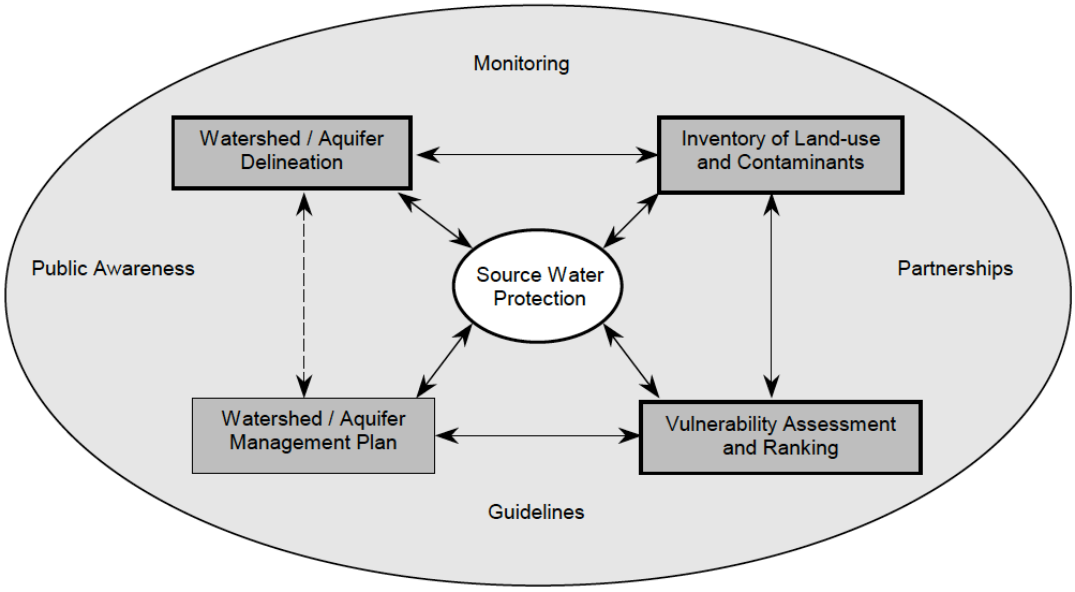


Figure 2.3
Components of Source Water Protection
Source: CCME 2002

At their core, both IWRM and the MBA are attempting to address the wicked nature of water issues by involving the various interests in the management of water from source to tap. In both IWRM and the MBA, public involvement is critical to achieving success, and critical to the integration of socio-cultural, socio-economic, socio-political and environmental factors of water management.

2.4 Public Involvement

> *Without a comprehensive, well-planned effort to include the public in the development and implementation of drinking water management plans, it is unlikely that the program will be successful (CCME 2004, 30).*
>
> *Public awareness and involvement in the drinking water program is extremely important for achieving the program's goal and objectives and should not be underestimated. Effective public involvement ensures stakeholders recognize and understand the drinking water program's policies and activities. It also enhances the legitimacy of decisions made and ensures the program's goals reflect public concerns, values and priorities (CCME 2004, 170).*

The province of Ontario has taken steps forward in working with First Nations people by creating a portfolio for Aboriginal Affairs. While this is a significant action in itself, it does not yet address the issues of Aboriginal rights and the consultation process. Nor does it consider Native perspectives and values. Additional expertise is required to ensure that the process to consult Native and non-Native people allows for complete fairness and competence in the current model. Continued study is necessary to determine possible steps to enhance and continue the evolution of the consultation process to a more participatory process that includes Traditional Ecological Knowledge. Most importantly, appropriate resources are needed for First Nations Communities to create their own knowledge database that can be used by the community to reconcile the links and gaps between Traditional Ecological Knowledge (TEK) and Scientific Ecological Knowledge (SEK) thus allowing for fair and equal access to the public involvement process. Continued review and analysis of the public involvement process in the context of alternative understandings is essential to creating an equitable process for everyone.

Even with all the various obstacles to obtaining agreeable outcomes, involving the public is widely accepted as integral to protecting the environment. Public participation was front and centre during the Rio Earth Summit, Agenda 21 and a dominant component of Sustainable Development discussions. Those discussions led to the conclusion that the public interest may best be served by involving the public in making decisions concerning their environment (Tabbush 2004). Public consultation allows participants to identify issues and interests before a project begins so they can be included in the design process, consequently creating a more balanced approach (Tabbush 2004). Public participation recognizes that local communities understand their needs and problems best and thus have solutions to address those issues (Sekher

2001). For the process to be effective however, the participants must be viewed as equals to be listened to, rather than students needing to be educated (Wolfe et al. 2001). The antiquated idea that 'if only the public understood what I the expert know, the public would see I was *right'* must be completely rejected (Daniels and Walker 1996). The imparting and collection of information is not effective consultation but rather a component of it (Wolfe et al. 2001).

The public is made up of various groups and individuals holding different and sometimes competing views. To solve issues of this nature in an equitable manner, a venue allowing rational debate must take place, thus constricting the use of power (Tabbush 2004). In order for this venue to be effective, there is a requirement for fairness and competence, which Tabbush (2004) explains through Webler's (1995, 38-39) definitions that fairness allows "equal opportunities to determine the agenda, the rules for the discourse, and to speak and raise questions, but also equal access to knowledge and interpretations" and competence as "shared social constructions of reality… understandings about terms, concepts, definitions and language use; the objectified world of outer nature; the social-cultural world of norms and values; and the subjective worlds of individuals… this is accomplished through the use of established procedures". Therefore, if the involved Aboriginal community is allowed to choose how they would like to be involved, this only partly addresses the issue of fairness. It does not address competence, therefore putting into question the quality of the process. While the established process of public involvement is clear, the ability to define and evaluate its success is difficult as there is no common methodology and a lack of empirical evidence (Todd 2001). Measuring success is often no easier in retrospect.

Effective management of water resources depends on the quality of the interaction between government, society and science (Turton et al. 2007). Furthermore,

the power relations between stakeholders at different scales and the way decisions and information is communicated between the various levels of government from source to tap is crucial for good water governance (Simalabwi 2007). Recently the Engagement Sessions organized by INAC for the Federal Action Plan on Safe Drinking Water for First Nations (SDWF 2009) was clearly seen as a failure by the Advanced Aboriginal Water Treatment Team (AAWTT). "It is the opinion of the SDWF's AAWTT that participant expectations were not met, and that the sessions were simply a means to 'sell' the concept of provincial guidelines" (SDWF 2009). "Few First Nation voices were heard at the engagement sessions, but enough were present that INAC is able to claim they were 'engaged'" (SDWF 2009).

2.4.1 Traditional Ecological Knowledge

The inclusion of Traditional Ecological Knowledge and the community's unique history of environmental dispossession are key considerations when seeking First Nation involvement. According to Menzies (2006) mainstream resource management's inability to recognize the implications of long-term resource use and extraction practices has led to the devastating loss of resources and habitat. Traditional Ecological Knowledge (TEK) on the other hand has been created through long-term involvement with the local ecosystem, consequently it is important to maintaining a sustainable environment and biodiversity, an opinion strongly expressed in the Rio Declaration 1992 Earth Summit (Smyth 1999).

Largely due to political and economic reasons, historically Native cultures, beliefs and knowledge have been repressed whenever conflict arose with western values and institutions. Only when non-western practices could be equated as similar to western practices were they validated and accepted with at best limited tolerance (Smajgl and

Larson 2007). Traditional Ecological Knowledge (TEK) is difficult to integrate into the mainstream Scientific Ecological Knowledge (SEK) system currently used to manage ecosystems because one does not explain or justify the other very well. TEK is a holistic understanding based on experience and observation, with a view of a complex web in which relationships exist and are negotiated. Limited in most cases to specific geographic regions, TEK is considered a way of life based on collective knowledge and requires input from a collective to properly implement those same practices (Smyth 1999). SEK on the other hand is reductionist in nature and seeks to confirm short-term observations into objective "truths" that are impervious to geography. These "truths" are written down as proven and quantifiable, offering little flexibility within its understanding, and in turn legitimizing the learned expert and the administrator applying that same knowledge (Tabbush 2004). Under SEK, nature is seen as an inert and passive resource for human consumption that can be managed for our needs (Kapoor 2001). In TEK the negotiated relationships between man, animals, plants and spirits do not allow for a one-way discussion (Overholt and Callicott 1982; Robyn 2002), thus further complicating the First Nations ability to protect their interests and rights to the land within regimes dominated by SEK. TEK, however, has been effectively incorporated in the resource management literature through, among others, the work of Castleden et al. (2008) using the photovoice method and explored through the work of Davidson-Hunt (2003) and Kendrick (2003) showing that TEK and SEK can complement each other.

2.4.2 Environmental Dispossession

"Reserves are the creation of the colonists, Indians did not create reserves", "reserves were created as rural death camps for Indians, we were supposed to go there to die." (Alexie 2009)

While the issue of drinking water safety is a concept easily understood, its dependence on the landscape often makes it difficult to create effective and lasting decisions. Many of the communities suffer from a history and geography, which, has dispossessed them of their environment. Environmental dispossession is a process, which negatively affects First Nation health, and social environments as Federal government policies of assimilation have pushed Native communities to the political, social and economic fringes of Canadian society (Richmond and Ross 2009; Adelson 2005). First Nations access to traditional territories, have been denied and many have been relocated to areas selected by the authorities (Richmond & Ross 2009). These communities often find themselves located downstream, downwind and downgrade from non-native settlements and industries, disproportionally paying the price of exposure to contaminants and ill effects for development while others receive the benefits (Arquette et al. 2002; Mascarenhas 2007; Schell et al. 2005). Native people suffer cultural stress as well as reduced health and well being on an individual and a community level due to their physical displacement and use impairment of the land (Richmond and Ross 2009; Arquette et al. 2002). While the resource management and health authorities send out health warnings about consumption of negatively affected sources of food and water, the communities lose their ability to practice their culture as well as their subsistence and way of life. The inability and unwillingness of government to deal with environmental dispossession will continue to limit the communities' ability to deal with their most pressing issues. Furthermore, the continued marginalization of

First Nations people from decision-making that affects their community increases the risk factors to the community in aspects of mental, physical and social health. Without a clear recognition and understanding of First Nation peoples and their communities, effective source water protection for all is compromised.

2.4.3 Alternative Methods of Involvement

The use of community based research methods offer an alternative to the traditional practice of collecting public input. Photovoice offers an approach that engages the community in a way that respects their voice. Firstly, photovoice allows the participant to have greater influence on the research, thus limiting the researchers ability to influence the results. Secondly, the use of photographs creates a means in which members from outside the community can view what community members see. With the help of captions, the regional community and decision makers can link perspectives and places to their own understanding. Finally, the collection of photographs and captions can remain with the community as an archive of their community knowledge, which can be examined and added to in the future. The pictures and captions are not expected to provide a stand-alone record of perspectives, but are intended to represent the essence of common issues as communicated through differing perspectives that later emerge through dialogue between community members over time.

Research methods are often based upon already set values, allowing researchers to overlook issues that could potentially cause harm to communities, people, and cultures, by researching with the goal of solving problems and generalizing them in the process (Wang and Pies 2004). With the goals of recording community level beliefs and experiences, creating dialogue and analysis around those findings and

engaging policy makers to participate in that discussion, the photovoice method involves all levels of the community and reduces the impact of the researcher as the middleman. The participants lead the research, rather than acting as passive subjects for the researchers to study (Wang 2006). The emphasis is on research 'with' not 'on' respondents, giving them the power to drive the process and set the agenda as they select, contextualize, and codify the images important to them (Pearson and Ralph 2007).

Photovoice has been proven as an effective tool in the social welfare and healthcare fields (Wang 2004). However it has seen little use in the natural resources management field until the work of Castleden et al. (2008), which examined the effectiveness of the photovoice method in documenting Traditional Ecological Knowledge. This research will be exploratory in nature and seek to determine its feasibility as a tool in involving First Nations communities in source water protection planning.

2.5 Conclusion

The literature establishes an understanding of the nature of water quality issues for First Nations communities and links the problems around decision-making and the lack of source water protection in many of these communities. The chapter describes issues in the management of water and source water protection as wicked problems, and introduces the theoretical approaches of Integrated Water Resource Management (IWRM) and the Multi-Barrier Approach (MBA) as principles in the creation of a interdisciplinary framework that includes the public interest, science and government. First Nations communities are unfortunately still excluded from these processes primarily due to existing techniques of public involvement, the lack of acceptance and

integration of Traditional Ecological Knowledge into mainstream management and the past and current history of environmental dispossession that often underlies the health and social concerns of First Nations in Canada. Thus, the continued inability to bring First Nations communities and a First Nations' perspective to the planning process and resolve source water protection issues has implications that supersede limited democracy. These issues have a profound effect on the mental, social and physical wellbeing of the First Nation community and the communities that interact with them.

This research seeks to address the initial stages of involving diverse perspectives through an alternative methodology that places First Nation community members as researchers. By taking this first step members of a community are at the forefront of developing techniques that involve their community's perspective in meaningful and culturally appropriate ways. Such techniques also allow community members to express perspectives that incorporate factors of environmental dispossession within the narrow focus of existing source water protection planning. The theory and techniques of this approach will be discussed in the following chapter.

3. Methodology

3.1 Introduction

The objectives of this research were first, to create a photovoice project with the Fort William First Nation that equitably involves community members and agencies in research that draws their personal knowledge and experience, and builds community capacity. Secondly, to determine the feasibility of this method as a tool to be used in source water protection policy development in First Nations communities. Third, to explore Anishnabe perspectives, concerning water.

The Fort William First nation was an ideal case community because of the timeliness of the proposed photovoice methodology during a number of water resource management involvement processes in the Lakehead region. Also, the case community was appropriate as it provided existing research partnerships that enhanced the cost-sharing, resource and logistical aspects of the research objectives. For example, the photovoice methodology requires a number of iterations with the community over a period of a year and there was always a need to develop photographs and return them to participants in a timely manner for review and codification. Furthermore, the community has for many years been an integral partner in the provision of drinking water to Thunder Bay, thanks to the inland lake known as Loch Lomond. While drinking water is no longer drawn from the lake, the currently used site of Bare Point on Lake Superior is tied to the reserve through its watershed. The community therefore, fits geographically within the Lakehead Region Conservation Authority's (LRCA) watershed map (Figure 1.9). While the LRCA has not been able to secure participation from the Fort William First Nation in planning and advisory meetings, the area is still within the current drinking water systems watershed and is therefore of importance in maintaining a multi-barrier approach.

Together with the help of the Fort William First Nation citizen-based environmental organization, Anishinabek of the Gitchi Gami Environmental Programs (AGGEP) and the Fort William First Nation Youth Council, we worked to recruit residents ranging from youth to elders. We created and delivered sessions to brainstorm ideas about the meaning of water security. We then held workshops on basic photography and writing to sharpen our skills. Finally, we moved into the field to collect the data. Participants took photos of water security and the issues surrounding it. Once the photos were taken, participants selected the photos that best represented

the message they wanted to convey and were interviewed by the author or by Gail Bannon, Coordinator of the AGGEP, so that they could add context to the images, codify them and distill themes. Once all the participants had completed their interviews and the photos were printed into poster size the entire community was invited to see them and offer their own insight into what they saw. The research produced by the photovoice method was enhanced through the use of direct observation, unstructured interviews and fieldtrips.

3.2 Photovoice

3.2.1 The Case for Photovoice

Photovoice is based on theories of critical consciousness education, feminist theories and the impact of documentary photography (Wang et al. 2004 a). Critical consciousness education purports that solutions and strategies are developed by: sharing experiences, drawing connections between individual experiences, and relating those experiences to root causes (Wang et al. 2004 b). Both the participants and researchers are learners, who think critically and pose questions that examine society, economics, politics, culture and history in the context of their personal life (Graziano 2004; Wang and Pies 2004). Participants are given the opportunity to record their thoughts and realities on their own time rather than feel pressured to quickly respond to research questions, without having the time to reflect upon them (Graziano 2004). Feminist theory explains that those who have a voice have the power to create language, write history and make decisions (Wang et al. 2004 b). This method enables the community to research ‘with’ the researchers rather than to be researched ‘by’ the researchers (Pearson and Ralph 2007).

Participants were made aware of the fact that the camera is a powerful tool that requires a great deal of responsibility. The photographer must use their best judgment concerning the impact their photograph will have. Throughout the workshops and fieldtrips all participants were reminded of the importance of avoiding risk and being considerate, so as not to embarrass or shame others. The project demanded that photographs of people or private property that easily identified someone required written permission from the person affected. Furthermore, the photographers must then release the photograph to the project thus making themselves responsible for their photograph.

The ease of use, lack of technical skill, and limited dependence on language and literacy competence required for photography makes the photovoice method an excellent tool for all people to share their experiences, feelings, beliefs, and opinions (Moss et al. 2007). Plus, taking photos can be really fun. Photography is a direct way of seeing the world and offers visuals that can generate ideas that are different from what might be discovered through verbal or written interviews (Darbyshire et al. 2005). This is very important for people who speak a different language and come from a different tradition and culture of communication. Thus, the photovoice project builds capacity in the participants by providing them not only with the tools to take photographs and write stories, but also to present their perspectives and opinions to a wider audience, including decision makers.

3.2.2 Benefits and Limitations

In projects that have used the photovoice method, researchers and participants alike have touted the method as a success in creating effective and relevant data that is valid to both participants and researchers (Mitchell et al. 2007; Moss et al. 2007). The photovoice method can easily be modified to better meet the needs of both researcher and participant. This flexibility allows for greater accountability and can deepen the quality of data gathered. Participants are often quoted as having enjoyed the project as they are being listened to and are actively participating in the research.

The photovoice method has become a popular method to create Community-Based Participatory Research, which attempts to develop culturally relevant research models. Researchers in First Nation and remote communities are often met with mistrust and resentment, as past studies have created research fatigue and rarely deliver results accessible to the participant community (Castleden et al. 2008). First Nations people often complain of the researcher 'parachuting' into the community to gather data that may or may not be relevant to the community. More often than not the data collected is not returned to the community, leaving little incentive for people to engage with the next researchers to arrive (Castellano 2004). Researchers are often of the mainstream culture, having little insight into the communities in which they plan to study. As the 'outsider looking in', the researcher often misses the most significant causes and signs and are left studying the symptoms instead (Nowell et al. 2006). More often than not, the historical power imbalance, mistrust and racism between Indigenous and non-Indigenous people finds its way into the research process, highlighting the need for research methods that are culturally appropriate and participant driven (Castleden et al. 2008).

Photovoice creates a partnership between the researcher and the participant and allows for a more equal participatory approach, where the participant can shape the focus and target the research to their needs. Through the use of photography, participants capture their personal experiences and beliefs thus directing the project focus. The influence of the researcher on the application and results is reduced, allowing for an enhanced and more open process of information sharing. The photos taken and the captions written, while needed by the researchers to report on their findings, ultimately belong to the participants and community. Photos are returned to the photographer and in turn, when applicable, are given to the people photographed. The community has to decide what the photos are to be used for and what actions should follow with the information gathered.

The photovoice method may offer the venue needed to solve issues in an equitable manner as it fosters dialogue between participants, researchers and decision makers through equitable means. Reducing the power of the researcher is important to achieve fair, competent and rational debate. Jointly, the participant and researcher set the agenda, set the rules and have equal opportunity to participate with a common understanding and vision (Minkler, 2004). Before the ability to create real and lasting equitable solutions is possible, there is a need for a deep and open dialogue about perceptions. The intention of this project is to offer through the photovoice method, vision through the eyes of another. It is hoped that the use of photovoice will create dialogue that offers the potential for broad social action, encourage greater community involvement, build capacity and advocate on behalf of the wider community. This will be accomplished through the participation of individuals in the community and the sharing of their findings in the community of the Fort William First Nation and the City of Thunder Bay.

According to Castleden et al. (2008), there are however limitations to the use of visual tools, as not everything is observable and it can be a challenge to capture the intangible. It is anticipated that some of the participants may find this method frustrating, and may find it difficult to get certain concepts across, causing those ideas to be left out. Furthermore, the legitimacy of results may be called into question due to their qualitative nature and selective sampling. The, participants producing data using the photovoice method are not randomly selected largely due to the intense demands of the project upon the participants. There is a large time commitment involved in the training and performing of the method. Thus, participants are likely to be committed and interested in the subject matter as well as willing and able to participate in the necessary tasks over the long term (Nowell et al. 2006). The listed advantages and limitations are what make the method so powerful. The participants are the ones who will select and drive the values and solutions that are most viable, allowing them to make changes in the community.

3.2.3 Practice of Photovoice Methodology

One of the initial uses of the photovoice research method was by Caroline Wang (1998) who recognized the need to engage decision makers in the final process. This process demonstrated in figure 3.1, begins with recruitment and ends with the participatory evaluation and the work to reach others and create change.

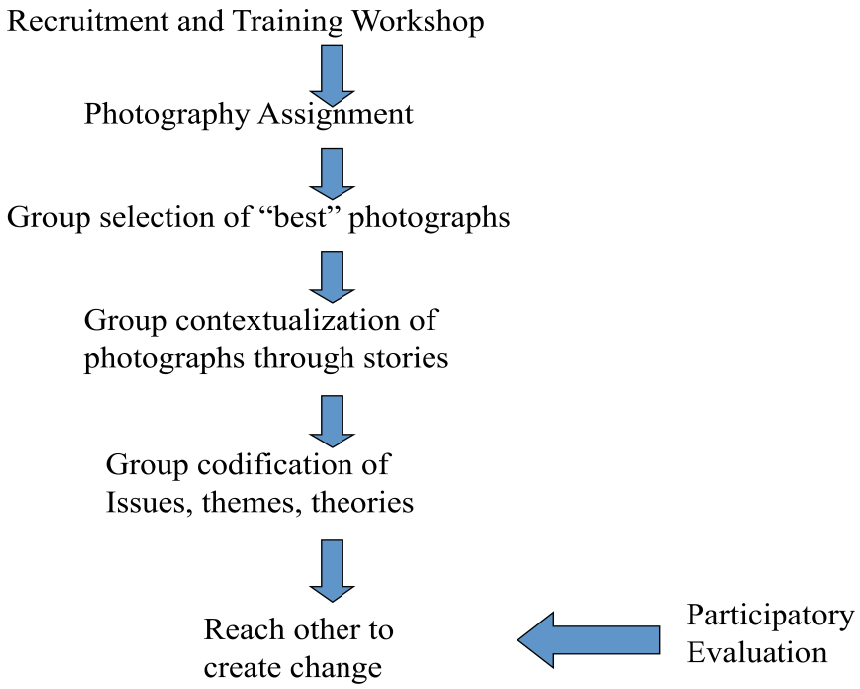


Figure 3.1
Photovoice Methodology
Source: Castleden et al. 2008 using Wang 1998

The method used for this project was adapted from Castleden et al. (2008) who applied the photovoice methodology in a similar manner as Wang et al. (1998), however operated the project as more of a loop system that continuously recruits and trains more participants in an effort to gather as much participation as possible by providing a variety of opportunities for participation. This method is demonstrated in figure 3.2. Similarly in this project, it was decided early on in the process that there would need to be regular opportunities for participants to join in and drop out of the process as they saw fit. Relying both on the contributions of Wang et al. (1998) and Castleden et al. (2008) the project was modified by the both the researcher, members of the AGGEP and the FWFNYC to better suit the community and the available capacity.

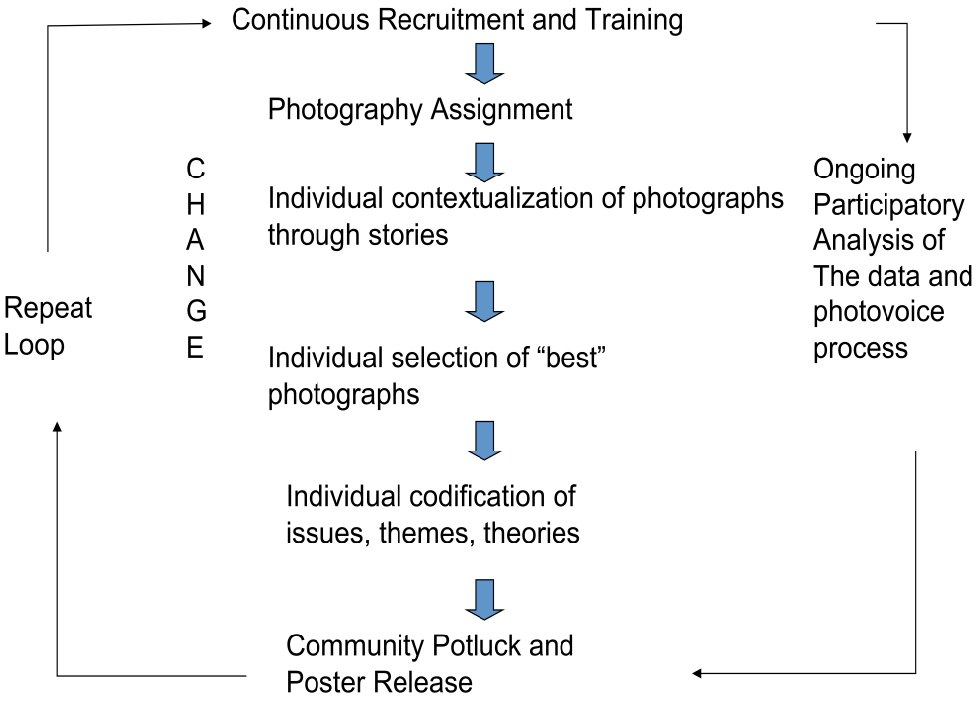


Figure 3.2
Photovoice Method with First Nation Community
Source: Castleden et al. 2008

Similarly to the Wang et al. (1998) model, the Fort William First Nation community was invited to view the images and offer their ideas and decipher themes from the images and captions at the end of the project. While at the same time the project relied on Castleden et al. (2008) approach where participants were individually asked to codify, issues, themes and theories. Figure 3.3 shows the integration of both methods which allows participants repeated opportunities to get involved with the community gatherings to happen at the end of the process. The release of posters to the community was repeated three times over three weeks in the evening from 4pm to 8pm in the Cultural Room at the Fort William First Nation Community Centre. Anyone who came was presented with food and beverages, conversation and if they were interested were asked to complete a questionnaire that contained the photographs and

captions that they were on display. These questionnaires were also sent to the Chief and Council with a stamped, self-addressed envelope inside.

Figure 3.3
Photovoice Method Adapted from both Wang and Castleden
Source: Adapted from Castleden et al. 2008

The three community potlucks and poster releases that happened at the end of the process, similar to the process developed by Wang et al. (1998) did elicit a large number of comments with a limited number of people completing the short questionnaire and offering their perspectives on the images. A final showing was held at the local Art Gallery where the community of Fort William First Nation and the City of Thunder Bay were invited. The Art Gallery showing which lasted from June 14th to July 3rd, 2010 was advertised through poster mail outs, email posting, the Art Gallery website and an interview on CBC Radio's Voyage North where host Jeff Walters interviewed Georjann Morisseau, member of the Fort William First Nation Youth Council and board member of the AGGEP, along with the author.

3.3 Direct Observation

Direct observation was also an important method to provide context for the information gathered through the photovoice method. Direct observation took place in a variety of settings including community meetings, workshops, field trips and through the community photo reviews.

Thanks to the close proximity of the Fort William First Nation to Lakehead University, the researcher had the opportunity to work closely with the Anishnabe of the Gitchi-Gami Environment Programs (AGGEP) and the Fort William First Nation Youth Council (FWFNYC) over a two-year period. This involvement through informal meetings, planning sessions, workshops, fieldtrips and project reviews allowed for a high level of both observational data as well as experiential, thus providing first hand knowledge to the study area and the development of relationships with individuals involved in the community. The relationship between the University, the AGGEP and the FWFNYC has been formed through countless meetings and discussions in the community, at the university, over the phone and through the internet, and in the researcher's opinion, will prove to be valuable for all involved into the future.

There has also been the opportunity to travel to Garden River First Nation and learn from discussions between First Nations, the Ministry of the Environment, Ministry of Natural Resources and business interests in the management of water. This event hosted by the Chiefs of Ontario was a great learning experience early on in the process and ultimately helped in forming a better understanding that influenced this research project. Speakers from each group including chiefs, elders, ministry representatives and businessmen spoke of water in many different terms in relation to their own experiences and vision for progress. While people were all very courteous and patient

with each other it was clear that they all found themselves coming from very different perspectives. Additionally, an undergraduate research assistant accompanied three youth from the FWFN to a youth gathering that focused on environmental issues and youth development.

The researcher has also taken the opportunity to get involved with the Thunder Bay Area of Concern (AOC), joining the Remedial Action Plan (RAP) and being a member of the Public Advisory Committee (PAC) in order to better research how these water management regimes integrate knowledge and perspectives with the Fort William First Nation. This has been and continues to be a valuable experience in creating an understanding of the many challenges faced by Thunder Bay and the Fort William First Nation to addressing water-related issues and developing partnerships, and this information was brought to community members of the FWFN. The ability to meet with various players, learn from them and to network with them has also been helpful in creating a broader understanding of water management and the process of involving the public.

3.4 Workshops

The workshops involved an initial introduction to the project, which covered an explanation of the project, its goals, the ethical considerations involved and the recourse participants were to follow if they had questions or concerns about the project. This included contact information for my Supervisor Dr. Robert Stewart as well as contact information for the Lakehead University Research Ethics Board. Participants in the workshop reviewed the letter of consent and examined the photo release form. Once formal matters were completed we moved onto the project itself by brainstorming the many words that come to mind when thinking about water. Everyone was encouraged

to write down those words on a large piece of paper with a marker. Once it seemed most people had managed to either fill their page or had run out of ideas we asked each person to tell the group what they had written. Each person's words were then transferred to a single sheet of paper. As participants shared their ideas the group discussed them comparing what they themselves had written to others.

Participants were then asked to take the same creative approach, however this time they were asked to draw pictures related to water instead of words. Again participants put marker to paper and drew images of water and related ideas. Once everyone had the chance to draw their ideas, each was asked to reveal their images and explain the meaning behind them. The drawing ranged from boats to toilets, water glasses to raindrops.

Discussion then focused on the variety of ideas that had come from both the brainstorming session with words and the session that used pictures to convey their thoughts. It was recognized that the ideas from the words and from the pictures were not all the same. Though some were the same or similar many were unique to one approach or the other. Discussion of using both methods to share ideas was seen as an effective way of communication.

The use of documentary photography was then brought to the group through the photovoice method. Twenty-four exposure disposable cameras were passed out to the group and we began a short workshop on using cameras, seen in figure 3.4. Attention was then focused to the power of photography and the importance of recognizing the need to respect the privacy of people who did not wish to have their photo taken. One of the participants had been part of a photovoice project in the past where garbage strewn about by a bear in front of someone's house had been photographed without their permission. The person whose house it was then saw the image at the community

centre and was very upset to see their property displayed in that way. The use of a release form was then discussed.

Figure 3.4
Photovoice Workshop
Source: author 2009

Finally participants were asked if they had any final questions or comments and were then asked to fill out a brief questionnaire about their likes and dislikes about the workshop. The only dislike mentioned by some of the group was the section on camera use as they felt they had more than enough knowledge to effectively use a camera. This group of five participants was followed by a second group of eleven, and a third group of two for a total of eighteen. These workshops were repeated concurrently. This ongoing recruitment ensured a high level of commitment through each stage of the photovoice and the majority of the recruitment took place during events and fieldtrips in the community. Some participants were more motivated to participate during the event or fieldtrip than to take the camera home. Some continued with the photovoice project in its entirety, while others completed only parts of it. Both participants who completed

the project and those who only participated partially offered a great deal of input into the study. The 13 participants who completed the project were asked to complete a semi-directed interview while those who did not offered their insight through informal interviews and discussions. Below table 3.1 illustrates the events that took place in the community as part of the project and the number of participants.

Table 3.1
Record of Participation

Organized Project Event	**Number of Participants**
Community Discussion & Project Invitation	40
Photovoice Workshop 1	5
Photovoice Workshop 2	11
Photovoice Workshop 3	2
Water Monitoring Fieldtrip at Crescent Lake	10
Tug Boat Fieldtrip 1	8
Tug Boat Fieldtrip 2	8
Jacob Wawatie Traditional Cultural Teachings	10
Water Life Video and Discussion	21
Pollution Control Plant Fieldtrip	11
Eli Pivnik Traditional Ecology Teachings	17
Community Photo Review 1	16
Community Photo Review 2	22
Community Photo Review 3	16
Art Gallery Exhibit Opening	18
Completed Photovoice project	13
Interviews outside of photovoice	8
Questionnaires (See Apendix)	9

3.5 Field Trips

Field trips were identified early on by project partners and participants as a good way to promote the project and recruit others. Field trips also offered value to participants by providing opportunities to experience different areas of the watershed. These activities also allowed the free sharing of ideas between participants, researchers and the invited guests guiding us on tours or sharing their knowledge. This informal setting revealed a great deal about perceptions that would otherwise not have been

discussed. These informal discussions allowed for a much better understanding on the part of the researcher and provided opportunities for direct observation.

While the project focused on the use of the photovoice methodology, the funding acquired was used to provide participants with the opportunity to examine their community from different perspectives by visiting sites that have bearing on drinking water quality. The goal of the field trips, were to provide opportunity to further develop an understanding of local perspectives and share scientific knowledge with the group. These excursions also offered an opportunity to share Traditional Knowledge through discussion and through the use of the photovoice method. According to one participant the fieldtrip allowed them to appreciate the scientific aspects of water.

Thanks to help from Lucie Lavoie from Eco Superior, our first fieldtrip was to travel to Crescent Lake on the Fort William First Nation with a number of participants to examine the water. The University's geography department provided a number of tools that allowed us to determine the pH levels, conductivity, clarity and turbidity of select sites. These were noted and the purpose of each measurement was explained (figure 3.5). Lucie then showed the group how to collect benthic invertebrates so that the group could examine the variety of insects and learn about their characteristics (figure 3.6).

Figure 3.5
Field Trip to Crescent Lake group learning about stream quality monitoring
Source: author 2009

Figure 3.6
Field Trip to Crescent Lake, Lucie Lavoie from Eco Superior collecting invertebrates
Source: author 2009

Probably the most informative field excursions were the two tours taken by tugboat with community members on the Kaministiquia River. Leaving from Keefer Terminal (figure 3.7), we traveled along the shoreline of Lake Superior up into the mouth of the Kaministiquia River until we reached the Bowater Basin, an area just

upstream of highway 61. On this trip we were able to travel both the lower Kaministiquia River and the Mission River allowing us to see the development along the shores of the river and on McKellar Island and Mission Island. Many of the participants expressed surprise as to the amount of development that was present along the river. Participants referred to the trip as an eye opener. For a number of the participants this tour was their first time actually being on the river, which runs along their community.

Figure 3.7
Fieldtrip on Tugboat tour of Kaministiquia River
Source: author 2009

The funding received from the United Way Youth Scapes and Environment Ontario Drinking Water Stewardship Program allowed the community to invite the founding member and director of the Kokomville Academy, Jacob Wawatie shown in figure 3.8, who shared his wealth of Traditional Knowledge as it pertained to water and the environment. Over two days, he shared his experiences, knowledge and the history of his people. This workshop allowed participants the ability to further discuss their knowledge and teachings, as well as the effects of past and current relationships with

"Western" ideologies. His teachings, for many of the participants, confirmed and supported their knowledge about water, the natural environment and the connections shared among all beings. His workshops also discussed the transmission of knowledge through various means. As he shared his knowledge, he relied heavily on traditional objects and tools of spiritual and functional purposes. This experience highlighted the importance of recognizing the various ways people perceive and communicate knowledge.

Figure 3.8
Jacob Wawatie
Source: Kokomville Academy

Our final field trip involved inviting Eli Pivnick (figure 3.9), a high school teacher from Sachigo Lake, to join us on an excursion at Loch Lomond where we collected plants, learned to identify them and how to prepare them for consumption. This activity drew 16 participants many of whom stayed over night on the shores of the lake. In discussions, many expressed their surprise at the number and variety of plants available to them as food. None of the participants I spoke to had ever eaten the plants that Eli prepared. Most notably were the rat root (acorus americanus), cattails,

dandelions, sarsaparilla, burdock and stinging nettle. Eli also identified a number of shrubs and trees that could offer sustenance either through their fruit, bark or pollen. One of the people said that this experience gave them greater respect for the environment as well as greater respect for their ancestors who knew and understood the environment and how to live with nature.

Figure 3.9
Eli Pivnik teaching about edible plants
Source: Matthew Roy 2009

3.6 Interview Process

Once the images were captured from a range of workshops, seminars, field trips and field research, the community photographers were asked to choose the images most significant to them, to contextualize the photographs they selected and identify themes as they relate to water and the management/protection of water.

Participants were interviewed on reserve or in a location of their choosing and lasted from half an hour to two hours. Some of the participants shared up to ten photos while others shared only two. Many of the interviews were audio recorded however

some were written down due to interviewee preference. During the semi-directed interview the photographer was asked to:

- Describe your **P**icture
- What is **H**appening in your picture?
- Why did you take a picture **O**f this?
- What does this picture **T**ell us about water?
- How can this picture provide **O**pportunities to improve water?

(modified from Graziano 2004; used by Hussey 2006; and Mamary et al. 2007)

This process allowed the participant to speak about the issues they found most important and allowed the researcher to document their ideas in an orderly fashion. While this line of questioning through the semi directed format worked very well for most participants, the process was considered cumbersome for others. Through the interview it was clear that some participants found the structure took away from the message they wanted to share. Mcintyre (2003) identified this as a problem quoting a participant that said “This is not just about looking at pictures. It’s about saying something meaningful about them”. The interviews focused on the results of the photovoice method and are the dominant component in the findings represented in the research.

3.7 Community Researchers and Interviewees

Interviews were sought from community members through the use of the invitations printed in the Anishnabe of the Gitchi Gami Environmental Programs (AGGEP) newsletter, as well as word of mouth through AGGEP members and members of the Fort William First Nation Youth Council. While there were no elders who participated directly in the photovoice method their Traditional Ecological Knowledge was revealed through the findings of both the youth and adult researchers who did take photos.

Thirteen community members participated in the photovoice method from beginning to end. A number of other community members took part in meetings, workshops, fieldtrips and photo reviews. Their perspectives were collected through unstructured interviews, direct observation or through the completion of the provided questionnaire. The majority of the results are supported by the interviews with the participant researchers involved in the photovoice method. There are however, other points of view that were not recorded by means of audio or video recorder but are the product of note taking during and after unstructured interviews. Participants involved in the photovoice method were asked to take part in developing overall themes.

Participant statements that are used in the results are identified using the letter A if they are an adult or Y to identify that they are a youth. The numbers are to identify which participant provided the statement quoted from the interview (e.g., A3 or Y2). The statements used in the results are for the most part from the photovoice interviews, however, comments and interviews that were captured informally at community meetings, workshops, and field trips or through the completion of questionnaires are also present.

3.8 Ethics

The Lakehead University Research Ethics Board granted approval of ethics to work with FWFN people on June 12, 2009, before the interview process began. The process consisted of a review of recruitment material, sample questions, potential risks, and the process of informed consent use with potential participants.

In an effort to ensure that we respected community wishes and process we worked very closely with the Anishnabe of the Gitchi Gami Environmental Programs (AGGEP) and the FWFN Youth Council who assisted us in obtaining written permission

from the Band Chief and Council and helped us develop appropriate methods to work with and recognize participant researchers and interviewees.

In an effort to provide anonymity to the participants who requested it, all participants who were involved in the project will not be connected to their interviews and comments. The only distinguishing characteristic separating participants is whether they are a youth or adult. Youth were defined by the criteria provided by one of our funding sources, the Youth Scape project of the United Way, who define youth as anyone under the age of 30.

4. Results

The first objective of this project is to create a photovoice project with the Fort William First Nation that equitably involves community members and agencies in research that draws their personal knowledge and experience, and builds community capacity. The second objective is to determine the feasibility of this method as a tool to be used in source water protection policy development in First Nations communities. Third, the project seeks to explore Anishnabe perspectives concerning water and create a venue where Anishnabe people can share their views and issues regarding water security. These objectives are ultimately oriented toward the goals of building on local community knowledge, serving the communities interests and encouraging widespread participation (Flicker 2008). The field trips were an opportunity to take photographs in the watershed, develop and share their perspectives and learn about their water system. The following chapter will identify and discuss the core themes captured through the photos, captions and interview excerpts from the participants.

4.1 Common Themes

Three core themes were captured by the images, interviews, workshops and three community meetings, where community members identified the commonalities of their own experiences by analyzing and codifying the information gathered. The first main theme identified was jurisdictional issues and the FWFN influence on the ability to participate in source water protection and other water resource management regimes. In general, community members expressed a distrust of water treatment systems largely due to an inability to govern the management of their water within a range of jurisdictions that did not adequately address the needs of the community. The outside management of their drinking water, their inability to effectively interact with decision making within narrowly defined management regimes, and the limited scope of source water protection in particular, were cited as subsections of this main theme. The idea that multiple government jurisdictions were managing water without a holistic view of the environment, was seen as problematic and limited a First Nations perspective within these decision-making processes. First Nation perspectives are holistic, while governments seek to compartmentalize decision-making in many areas.

Second, participants identified a large number of perceived threats that affected source water protection that are currently not included in the provincial source water protection process. Because existing source water protection focuses on two municipal drinking water systems and does not address other forms of drinking water in the watershed, such as spring water, there was a gap in what community members perceived to be threats versus those threats identified in the source protection process. Many of the FWFN participants identified threats along the shores of the Kaministiquia River, which essentially separates the reserve from the city. However, because this

river is outside the intake protection zone it is not considered a threat to drinking water (LRCA 2010). Rather the threats are to the river ecosystem, which was identified as being very important to community members.

Third, Traditional Ecological Knowledge was identified as a main theme that was important to community members, but was not incorporated into source water protection planning. Participants identified water as living and explained that various and complicated relationships exist between all beings and water. This knowledge and perspective is not addressed in provincial planning. This chapter will provide the results that support these main themes of jurisdiction, threats and traditional ecological knowledge through interview excerpts and the benefit of direct observation, followed by Chapter 5, a discussion of these results in relation to the literature on water resource management. There are also a number of opportunities identified by participants through the interviews that decision makers can use to the benefit of source water protection and the involvement of the FWFN. These opportunities will be shared here and further examined in the recommendations section in chapter 5.

4.1.1 Jurisdiction

One of the main themes identified throughout the research methodology and repeated in the meetings and workshops by members of the community was that of jurisdiction. Sub themes within this major theme also included issues of trust and environmental dispossession. The ability to govern their own interests was the main theme that participants identified. Community members spoke about their concern with the change from a dual source water system that relied on Loch Lomond (figure 4.1) to supply the Fort William First Nation (FWFN) and the former City of Fort William, to a single system that utilized Lake Superior to supply water to the entire city of Thunder

Bay and the reserve, and through municipal lands and infrastructure alone. During the first meeting held in the community, one of the youth present expressed his concern about this change without community input. The youth dismissed the test results taken in October 1997 from the Loch Lomond water system that showed the presence of Giardia. In his view, the test results were not valid but rather politics used to justify the use of a single source [Y8]. The presence of Giardia was attributed to the lack of a barrier filtration system, causing a 13 month Boil Water Advisory that was lifted on November 8th, 1998 when a temporary filtration plant was installed (Great Lakes Commission 2003). Other members expressed their concern with the fact that the city has severed ties with the FWFN concerning the use of Loch Lomond as a secondary system despite the long history both communities have had cooperating to provide clean, high quality drinking water to residents [A5]. The decision to no longer maintain the Loch Lomond water treatment facility, while considered by some to be a political decision, was viewed by others to be a decision based on economic factors and carrying capacity. Loch Lomond was considered by some to be unable to provide the quantity of water required for the whole city, consequently a secondary source would be required resulting in increased costs (A8). Common to all opinions was the idea that the community did not have the ability to govern their water.

"This lake gets its water from the rain. Why would the city choose Bare Point over this lake? How does the mill and other air pollution affect the water that enters into this lake?" [Y1]
Figure 4.1
Participant photograph

Participants [A8, A3] also expressed their concern at the present state of the Kaministiquia River and the past development that created great economic wealth for some in Thunder Bay and hardship for others particularly in the FWFN. The idea that water could be separated into different interests and jurisdictions, with no unifying law to protect everyone, was explained as contradictory to past and present realities and the perceptions held by the participants from the FWFN.

> *You can't exist on a reserve as a separate entity. You're part of a whole system. You're part of a cycle. You can't say to people you can fish, hunt and eat but we're going to do whatever we want on this side. It's going to affect you and you can't have a river be a division. There's no division of water. Water doesn't know that this is the reserve and the pollution doesn't stay on the side that is not. We don't own water. We can't own water. I mean, we can say that we own land but water chooses where it's going to go. If it's going to be in the sky, if it's going to be in the river, if it's going to be in the lake and we can't dictate which molecules are going to go where. And well, we can say that this is our water, but it's not. You can't own water and when somebody else pollutes it, it becomes detrimental to us.* [A2].

Participant [A2] also spoke of the loss of culture through the expropriation of land, in particular land along the water and the river itself. This was central to many participants' perceptions of the current jurisdiction of water management at the municipal, provincial and federal levels.

> The community *wanted to ensure that it (Kaministiquia River) remained part of our reserve so that people could fish and they wanted the entire south side, all the way running to Kakabeka Falls. The reserve didn't work out like that. The islands were given to the city and settlers, but how could you possibly be able to sustain a traditional lifestyle… When fishing is a major source of food and one side is destroying it* [A2].

Capitalist exploitation has precipitated the loss of culture through landscape modifications and the destruction of the environment through the dominance of one economy over another. Participants identified the trade-offs industries make, namely polluting in an effort to create jobs ([A2]). As citizens we are all responsible to a certain degree as *"we consume because we're not seeing the damage it's causing. We're unaware of that impact on all the pathways that it's taking."*([A2]) This last statement speaks to the disconnection from the natural environment that many of us have. The lack of foresight and planning for future generations was important to the theme of economy, particularly the lack of responsibility taken by industry. *"We really appreciate this waterway. But then when we're done with it – take our money and go. And leave it*

for someone else to go fix up"([A3]) (figure 4.2). *"Man is willing to spend so he can exploit the waterway. He's willing to do anything"*([A3]).

"Once it's abandoned and not making money anymore, just let it rot and fall apart, destroy nature. This is what we left behind.
We really like the water, but as soon as they don't make money forget the water."[A3]

Figure 4.2
Participant Photograph

Environmental dispossession was also illustrated through the loss of use of the water perceived by one participant [Y4] in figure 4.3, who described her own experience swimming in the Kaministiquia River as a child, *"as we got older and see how really disgusting that water is and how polluted it is, I can't believe I swam in that". "We knew it was dirty but to us it was just water and it was fun… I wouldn't let any kid swim there (now)"*. This participant further expressed distress with the water saying that *"there's something wrong with the water, it's sick, it's unhealthy and sharing it's sickness with other life forms around it"* ([Y4]).

"We used to swim here… we now see how really disgusting that water is and polluted it is I can't believe I swam in that… the water had a fish smell… It's so fun to be in water everybody loves to swim… I wouldn't let any kid swim there."[Y4]

Figure 4.3
Participant photograph

Another participant felt water to be important to mental health as it offered an escape from this world and allows insight into another. *"When I'm by water and I'm sad and it's rushing, it's like a calming feeling. It cleanses all that negativity that is put into my head in this world"* ([A1]). The same participant drew the connection of water to all the plants and animals that offer not only doors to mental health but to physical health.

4.1.2 Threats

The identification of threats was by far the most extensive theme that emerged throughout the methodology. The Bowater mill was the most referred to as a major threat to clean healthy water, yet mill effluent is not considered a drinking water threat in provincial management because of its distant proximity to the Bare Point Treatment Plant. The mill was identified as a source of water pollution as well as air pollution ([Y2, Y3,Y4, Y5, A1, A2, A3]). Victims of water and air pollution include animals, such as fish, and plants, such as trees ([A1]). Landscape modification through dredging of the water ways and the hardening of shorelines ([A3]) as well as the removal of trees and the

removal of rock from the landscape ([A1]) threaten all of us in ways that many do not understand because the impacts are not always seen or understood ([A1, A3]).

"We get weather that's 30, 35 below and this water doesn't freeze. It's disgusting."[A2]

Figure 4.4
Participant photograph

In figure 4.4 one participant spoke of how they were particularly concerned that the water downstream of the Bowater mill does not freeze completely over the winter months ([A2]) *"people wouldn't dare drive their skidoo there"*.

*"What would this place look like if we hadn't built this here?
Look what we did. What kind of animal can live here?
We made our money off this spot, now there's no more money
to be made, leave it there and take off. Eventually it will fall into the water."*[A3]

Figure 4.5
Participant photograph

The modification of the waterways and systems through dredging and the impact of industry and the movement of goods shown in figure 4.5 and figure 4.6, are considered a major source of pollution and disruption that cannot be fully appreciated as it happens below the surface of the water ([A3]). One of the participants explained that *"under water is it's own world"* ([Y7]).

"Piles right next to the water, what happens when it rains? How much thought was put into this? Is there a better way?"[A3]

Figure 4.6
Participant photograph

Many of the impacts were considered somewhat intangible as pollution of waterways often goes unseen. As one participant put it pollution is often *"out-of-sight, out-of-mind gives you the idea it's not my problem anymore"* [A2].

> *"This is the mill that's been there since I was a child… You can't tell me that it is ok to send [pollution] up into the environment… the fact that they thought that it would float out over the lake… We know that it gets blown over the city or over the reserve… I think that because it's been around so long and were so used to seeing it, we accept it."*[A2]

Figure 4.7
Participant photograph

Figure 4.7 is the Bowater Mill located directly across the Kaministiquia River from the reserve and is a large and sprawling facility with many large buildings, large smokestacks and holding tanks. It is impossible to miss especially on days where there is a large amount of output from the smokestacks. While not as visible from the reserve, there are also large wood chip piles that are clearly seen from the highway. The Bowater mill is unquestionably a dominant landscape fixture.

"Tires and containers left to rust that look like they could fall into the water. Waste just sitting next to the water, our drinking water. This could be easily removed. There's no reason for it to be there. This should be kept somewhere safe away from my drinking water and the place I used to swim." [Y4]

Figure 4.8
Participant photograph

Scrap yards were also identified as a threat, particularly the one in figure 4.8 located on the north bank upstream of the swing bridge. It was seen as a risk for *"chemicals coming out of the vehicles and going into the river"*([A2]). One of the participants was clearly frustrated by the

> *waste sitting right on our water …(an event could send)… all this stuff down into the water and who's going to pick it up? Probably no one. It will probably float down stream and into my drinking water. This kind of stuff here looks like it's easy to get rid of. It looks like it could be easily contained. And it looks like it doesn't even have a reason or a purpose to be there. It is just nonsense, why it's even sitting there. It's so close to our river and it's not doing anything of value.* ([Y4]).

Concern about complacency in dealing with pollution from spills or garbage, was shared by participants A2 and Y6. This complacency was seen by both to be due to a lack of awareness and a lack of knowledge about the impacts. Another participant spoke of concern for the large fuel storage tanks in figure 4.9, located further

downstream on the shore of the Kaministiquia River, questioning what contingency plans there were to address possible accidents ([A3]).

> *"These look safe cause they're being used right now. How much thought did they put into an emergency? What's their contingency plan? How much would end up in the river? This is just a picture of a catastrophe waiting to happen. Once something happens its too late. If this place closes down what will be left?"*[A3]

Figure 4.9
Participant photograph

The lack of buffer zones between the water and industry along the shoreline shown in figure 4.10 and figure 4.11, was seen as questionable, especially when many of the industries located along the water did not appear to require a great deal of access to shipping ([Y4, A3, A2]).

"I don't like how this is right on the edge of the river. There's nothing to protect the river, no fence, no plastic, no barriers to protect the water from what could be seeping into the river. Water is vulnerable, it can't protect itself."[Y4]

Figure 4.10
Participant photograph

The location of the wind turbines currently being debated by City Council was identified by a participant as a possible risk to the water that they consume from springs on Mount McKay.

> *If they start putting roads up there, people will go there, because people are curious and it will just dump up the reserve. You know, if I went up there and started seeing Robin's coffee cups up there lying around and empty cigarette packages and just garbage, I don't think I'd be drinking that, you know? Yeah, it's sad, but it's important to keep people away from it. You start putting people up there and this lake will become contaminated and the spring could be contaminated* ([A4]).

There seems to be no protection for the water from this large concrete industrial structure. This area was once serene and is now being polluted by this. What's leaking in? What's going in? What kind of residue is falling into the water? What is it doing to the life under the water? [Y4]

Figure 4.11
Participant photograph

In figure 4.12, one of the participants clearly identified the fact that the tugboat we were traveling on during our field trips is also considered a source of pollution as gasses are expelled from the engine ([Y5]).

"All the gases coming out pollute the water. What we're doing to our water isn't good, once it can't be fixed"[Y5]

Figure 4.12
Participant photograph

This point was not lost on the researchers and discussions ensued into how the research group of community members and university members might lessen our impact while doing research. Field trips following this excursion used canoes for convenience but also for their smaller environmental impact. This is clearly a unique perspective from that of governing water resource managers who continue to use sources of transportation that release pollution when studying/managing water issues.

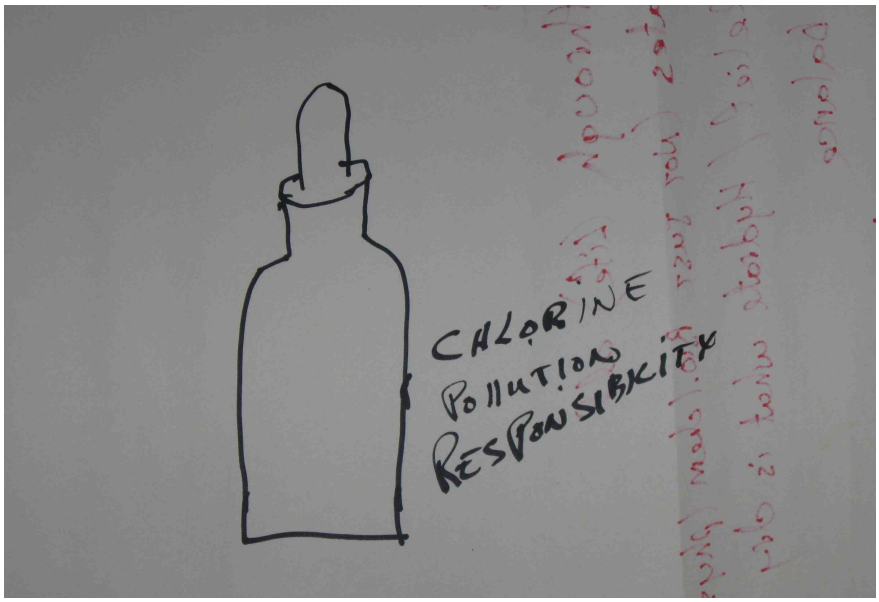
4.1.3 Traditional Knowledge

References to traditional knowledge were common among certain individuals in the project. The importance of prayer, the recognition of ancestor teachings and traditional lifestyles were frequently discussed by one participant who spoke of the mutually beneficial relationship between water and people. *"Water is healing because when you drink it, it provides that nutrition and life for us"* [A1]. *"We have no control over water but we have the responsibility to protect it"*, there *"needs to be a balance of water"* [A1]. The creator is recognized as providing water to the world and helping to protect it.

Water was described by participants in a variety of ways reflecting the variety of perspectives present and the various levels of traditional and local knowledge. Examples of comments related to the deep value for water in everyday life was evident among a high number of participants, who often spoke of water as being ever changing and holding great power. [Y1] described the water as holding a *"dark side and a light side"* and an ability to be *"very calm and very rough"*. [Y2] highlighted the esthetical beauty of water *"if we don't pollute"* it. The *"strength and power of the water"* ([A2]) was recognized for its ability to modify itself, the landscape and human created structures. Water has the ability to *"find its own way to flow"* ([A4]) and has *"its own destiny and its*

own story" [A1]. Participant [A6] linked water to mother's milk with a drawing of a baby's bottle during the workshop to illustrate his point *"Mother Earth feeds us like a mother feeds her child"*. Our inability to control water and its ability to *"find a way"* was repeated by a number of participants ([A1, A4, Y4]).

Figure 4.13 shows the image that one participant drew of a baby's bottle, which participants recognized as a very significant idea. This bottle was meant to convey the idea that we are dependent on nature and water is to us what a bottle is to a baby.



"Mother Earth feeds us like a mother feeds her child."[A7]
Figure 4.13
Brainstorming Session Drawing
Participant drawing

In figure 4.14, the importance of women in the protection of water, their responsibility to it and the current state of water conservation was expressed in energetic fashion by participant [Y4] who spoke of how *"…water gives life to everything and everybody and we forget that"* it's seen as *"…just another resource that we can use, pillage and rape and throw away at our disposal…we have to look at it as being the life-giver of everything".* Rivers are *"the veins of mother earth"* that *"continuously flow*

water through everything and if they're sick or polluted, they're just going to bring that sickness elsewhere and in turn our whole earth will be sick."

> *"I look at it as her being a woman and we're the water carriers and water has a very significant role in our life it's part of our responsibility to protect that water… water gives life to everybody and we forget about that and think about it as another resource we can use pillage and rape and throw away at our disposal but it's not like that we have to look at it as the life giver of everything… Rivers are the veins of mother earth and if they're sick or they're polluted they're just going to bring that sickness elsewhere and in turn the whole earth will be sick and all our water sources will be sick…*"[Y4]

Figure 4.14
Participant photograph

Traditional knowledge is *"our own science, but it's not always spoken"* [Y4], *"there's a lot to learn about the way water moves and there's a lot of ways to learn about it"* [Y6]. The interconnectedness of water to all things and all things to water was also expressed in figure 4.15 and figure 4.16 and by participants [Y4,Y6,A1].

"Water is all around us, part of nature, part of a whole system."[Y6]

Figure 4.15
Participant photograph

Some participants articulated these relationships in more elaborate terms in an effort to link our own deep relationship to water.

> *Everything all ties in together. So this water is one element but we need the trees, the water from this area to provide life for the trees. We need the trees to provide fires. … And we need the earth to provide soil for the trees. It all ties in with this water. It is the life source for all these elements and it all ties in. Everything relies on everything and that's what creates a balance. So when one of those things is taken out of there it creates a domino effect* [A1].

"If you don't have water, you don't have trees and if you don't have trees you don't have us."[Y7]

Figure 4.16
Participant photograph

Participants described water as being part of a relationship that held both power and weakness. The power of water to modify the landscape and the importance of plant life to the cooperative relationship in the modification process [A2] was tempered with *"how vulnerable water is to everyday life and to humans, really, and the way we treat it. It can't protect itself"* [Y4].

Culture and history are recognized as being shaped by the waterways. In figure 4.17 participant [A1] spoke of the *"waterways my ancestors traveled on"* as *"their lifestyle, so I'd say their culture"*. This participant spoke about the story of Green Mantle who saved her people from a warring enemy by leading them over Kakabeka falls and losing her own life in the process *"… she had to protect her people and give up her life, killed those people who were going to kill her people"*.

"With all the water going down to the rocks its like its own filter system… it churns the water up… It gets rid of all the debris and everything."[A1]

Figure 4.17
Participant photograph

The reasons for the importance of certain water sources were not explained however their significance was demonstrated through the teachings of elders or through past experiences. *"My mom always says (Mt. McKay) it's a spiritual mountain, it's a special mountain. Maybe getting the water from the mountain makes you feel better. This is a special spot for us to go and grab our water to drink."* ([A4]).

"Spring Water on Mt McKay. My Mother, my Brother and I collect water in our jugs here and drink this all the time for drinking water. This water tastes good, its cool and refreshing. My mom always says Mt Mckay is a spiritual mountain, it's a special mountain, maybe getting the water from the mountain makes her feel better." [A4]

Figure 4.18
Participant photograph

Figure 4.18, water found in its natural state flowing from a stream or bubbling from a source was considered desirable and pleasant while water drawn from the tap was considered to have an undesirable and unpleasant taste ([A1, A4]).

Participants articulated the relationships they saw with water through their traditional knowledge, however there was also a great deal of information that related to their own history and experiences with water. Experiences such as *"…hunting back there with my grandpa. It would be a perfect spot for animals to drink."* And seeing *"…lots of beavers in there and everything."* [A4] In figure 4.19, one participant spoke about their parents swimming in the Kaministiquia River, while in the same breath speaking of the death of their great grandfather when he fell off the swing bridge that crosses the waterway [A2].

"Rusty rotting old bridge with water lines going underneath… this bridge wasn't designed for cars. This river is so dirty and polluted here. My mother as a little girl used to swim here. My great grandfather died off this bridge."[A2]

Figure 4.19
Participant photograph

4.1.4 Opportunities

Participant researchers identified a number of opportunities from their work researching water, creating photos and sharing their knowledge. Their work has the opportunity to *"show people how beautiful water is"* ([Y1]), and create public awareness and education ([A2]). Seeing these images from the photovoice methods *"people would be more aware and more conscious of where their vehicles go, where their garbage goes and how it's affecting our whole system and our whole water and land cycle"* ([A2]). This in turn may encourage people to make an effort in *"cleaning up the water and not polluting"* (Y2, Y5) as they are sent on a *"pathway to make it a safer environment for animals and people"* ([A1]). One participant felt that this was an opportunity to remove the mill ([Y3]).

The participants also recognized the benefit of the fieldtrips and workshops they participated in for themselves and for others, and to develop dialogue among community members. *"Being on that boat, they might think they want to start going in the water more, stop helping pollute so we have beautiful waters"*(Y1). For some, the project *"was an eye opener"* (A2), that *"gave me a different perspective about the river"* (A3) and *"made me more aware… (and allowed me) to appreciate the scientific aspects of water"* (Y4).

5. Discussion

The following discussion connects the themes highlighted in the results to the work examined in the literature review. The main themes found namely jurisdiction, threats, traditional ecological knowledge and opportunities are examined through discussions of governanace, the identification of links, holistic perspectives and recommendations. The absence of source water protection on reserves including the Fort William First Nation (INAC, 2003) does not recognize the extreme importance of land use on source water quality (Keirle and Hayes 2007; Newson 1997). There is a need for a local approach (Dungumaro and Madulu 2003) due to the complex nature of water issues that is more social as a process and less technical (Pollard 2002). The current source water protection regime in the Lakehead region is failing to provide a holistic approach to water management. There are however, opportunities to change the current approach.

5.1 Governance

> Multi-stakeholder planning on a watershed basis is the key to source water protection. It is vital that First Nations be at the table when the resources they share with the rest of the community are at issue. Waters flow onto reserve and off, carrying their particular loads of contaminants. No one in a watershed should be required to import a problem from or be able to export a problem to a neighbour. (O'Connor 2002, 494)

This statement clearly articulates the importance of including a range of perspectives and situations from communities and groups in a watershed. Effective public involvement in source water protection policy is essential to create real communication, valuable partnerships, and authentic engagement from all members of society, particularly First Nations people. Multi-barrier approaches, while a valuable and appropriate tool for protecting source water, is only effective in its application when all

stakeholders are involved (O'Connor 2002), and when the sources of drinking water are identified among different users. For example, there is an assumption that the tap water is the only place community members draw their drinking water, whereas the research participants clearly indicated that FWFN members still use natural springs and rivers in the community. Without their participation in identification of natural water sources and hazards the security of our water system is reduced.

There is a need for broad public oversight that promotes public involvement and awareness (CCME 2002). Ontario's Source Water Protection committees are required to seek First Nation participation as written in the Clean Water Act, 2006 (O. Reg 288/07, s. 6 (2)). However, in the case of the Lakehead Region Conservation Authority Source Water Protection Planning, the Fort William First Nation (FWFN) has yet to be involved. Furthermore, the sources of drinking water and local threats identified in this research do not meet the requirements for our municipal sources of drinking water to be considered in the planning process.

Jurisdictional issues are one of the main impediments to First Nations involvement in the management of source water protection. Water defies geographic, jurisdictional and political boundaries, making divisions between federal, provincial and municipal governments in its management inadequate (Conservation Ontario 2001; Foerster 2002). First Nations Communities are subject to federal laws, which have yet to develop and enforce a drinking water strategy that meets the same standards as the province of Ontario. The differing laws and general lack of oversight create confusion around the management and involvement of First Nations in water protection and the identification of drinking water sources and threats. Furthermore, the federal government is responsible for reserve lands and navigable waterways, while land outside the reserve is the jurisdiction of the province. As water cannot be contained

within political boundaries, First Nations are often subject to land management decisions made by the province or by municipalities through a mutually shared watershed. As the Walkerton tragedy illustrates rather dramatically, management decisions made outside of political boundaries can have an tremendous impact on the quality of the water available to the public (O'Connor 2002). First Nations communities have severely limited legal authority over land outside their reserves and are often located downstream, downwind and downgrade from non-native settlements and industries (Mascarenhas 2007). Consequently, First Nations communities have limited ability to protect their most basic interests.

Jurisdictional issues present in watershed planning in the Lakehead Region Source Protection Area include, but are not limited to, the exclusion of the Fort William First Nation land in source protection planning and other Lake Superior watershed management (i.e. Thunder Bay Area of Concern and Kaministiquia River Study), the decommissioning of the Loch Lomond treatment centre and the placement of wind turbines without adequate dialogue with the First Nation community. The current Lakehead Region Conservation Authority (LRCA) Source Water Protection Plan excludes 5815.1 hectares of land located within the heart of the protection area because the Fort William First Nation falls under federal jurisdiction. Consequently, the plan does not include input from the Fort William First Nation leadership or the community. In addition, participants in the photovoice project expressed feeling particularly marginalized from the management of drinking water since the closing of the Loch Lomond water treatment facility.

Previously, Loch Lomond supplied drinking water to both the Fort William First Nation and to the Fort William region of the City of Thunder Bay. The partnership between the city and the Fort William First Nation to accomplish the provision of this

water gave residents a feeling of empowerment over the quality of water produced and a trust in the system as they identified Loch Lomond as an undeveloped area, recharged by rain and spring water. Since the City of Thunder Bay has decommissioned the Loch Lomond water treatment plant, this partnership no longer exists and Loch Lomond is no longer considered a major contributor to drinking water and therefore not a significant part of the watershed. As a result Fort William First Nation residents who participated in the research indicated that they now felt more disconnected from their drinking water supply, and consequently, worry not only about the safety of tap water but also the protection of the Lake from future development and human activity. These potential activities were not a concern when the source was used as drinking water, and protected under such use.

5.2 Identifying the Links

Threats to the drinking water system are typically classified as either chemical or biological. Through the use of testing, filtration and chemical treatment large communities in Ontario are able to ensure a relatively high degree of safety, which people depend on. While this system can breakdown causing dramatic events, the average Ontarian rarely experiences the threats to water safety. As the drinking water systems of the rural, remote and First Nations communities are much smaller and often more vulnerable the community is typically more aware of the threats. Common threats to drinking water in First Nations communities come in a variety of forms. These threats can include the absence of source water protection, the lack of certified treatment operators (INAC 2003), inadequate resources (Grose et al. 1998), unenforceable legislation (SDWF 2009), insufficient monitoring, missing or broken equipment, limited infrastructure and a lack of record keeping (Pope 2006).

Fort William First Nation is in a unique situation due to its proximity to the City of Thunder Bay, the City's industrial core, and its dependence on the Bare Point Water Treatment System, which is owned and operated by the city and subject to provincial legislation. The threats identified by community members are different from other First Nations communities who must operate their own water treatment systems. Participants from the Fort William First Nation identified threats that were holistic in nature and largely applied to source water protection. The Kaminisitquia River, which feeds into Lake Superior and separates the reserve from the city of Thunder Bay, was shown to contain a number of threats. These threats for the most part pertained to the industry developed along the Kaministiquia River. The section of river along the city and reserve has long been used as a shipping route and the shoreline for industrial development. The reserve has lost much of its access to the river and for the most part is confronted by industry along both sides of the river. It is this industry that is seen as a concern to the safety of drinking water by FWFN community members.

Water and air pollution was described as a threat not only to the water that the people depended on but also animals and plants. The dredging of the waterway, the hardening of shorelines, and the removal of trees and rock from the landscape, were all seen as threats to the water. Many of the threats were discussed as being unseen as they often take place underwater making them hard to identify and somewhat intangible. These concerns however, tangible or not, are not reflected as threats in the legislation governing the Lakehead Region Source Protection Authority (LRSPA). The LRSPA limits high-risk threats to 1000 meters surrounding the intake pipe at Bare Point or the wellhead in Rosslyn (Rosslyn does not supply water to the FWFN but is classified as a municipal drinking water source). None of the threats that were identified by the FWFN community fall within these areas.

Many of the concerns identified were land use issues. The proximity of the scrap yard, industry or machinery to the water's edge was viewed as incomprehensible considering that drinking water was drawn from the lake. Despite the proximity of these threats to the Bare Point intake pipe, community members regarded them as high risk. Participants were also concerned that there may not be an effective plan of action or contingency plan to deal with a spill or other form of water contamination. There was deep concern that those managing these areas were complacent and that the response to problems would stir little more than apathy from the broader community. The need to generate wealth was seen to supersede the need to protect the natural environment.

The concern over land management and its relationship to water is supported by the practice of integrated water resource management or the multi-barrier approach which is heavily endorsed in the Report of the Walkerton Inquiry (O'Connor 2002) and the Canadian Council of Ministers of the Environment (2002). The importance of land management in ensuring water quality is also recognized in the academic literature (Keirle et al. 2007). Activities that happen on the land ultimately affect the water.

Participants also identified our own actions and complicity in threatening the safety of our source water through the use of a tugboat to learn more about the Kaministiquia River. This revelation brought about discussion regarding the use of motorized watercraft for the purposes of our research. It was decided that in an effort to reduce our impact we would depend on non-motorized methods of water transportation when it was safe to do so. To the researchers knowledge this idea is unique to any of the research currently taking place in the watershed.

Many participants expressed concern over the use of chlorine in the drinking water system. They spoke of the local tap water disparagingly expressing distaste for it and a concern for their health. Many participants spoke of their regular consumption of

spring water and surface water flowing from Mount McKay. While the participants articulated their rationale and preference for these water sources it must be noted that some of these sources could pose a threat to their health if one of these sources were contaminated by heavy runoff or some other event. None of the users of these sources performed any sort of testing or treatment of this water before storing it or consuming it and these areas have been omitted as important sources under the provincial source protection planning process.

As this thesis is being written, Thunder Bay city council is debating the placement of wind turbines on the Nor'Wester Mountains, which many in the FWFN community fear will affect the Loch Lomond watershed. Unlike the federal government, the provincial government and municipalities do not have legal or fiduciary responsibility to First Nations people. This example shows that the lack of involvement of the community in water related issues as a result of jurisdictional issues also extends to non-water related planning processes that are as equally challenging to become involved in as a community member. Furthermore, the expertise to relate water issues within the planning process of establishing wind turbines, for example, is limited at the community level.

First Nations people continue to be marginalized by government agencies. They are often denied access to traditional territories, with many having been relocated to areas selected by government authorities (Richmond and Ross 2009). Consequently, First Nations communities disproportionally pay the price of exposure to contaminants and ill effects from development while non-native settlements receive the benefits (Arquette et al. 2002; Mascarenhas 2007; Schell et al. 2005). This lack of power threatens not only the natural environment in which First Nations people live but also their traditions and way of life. This is seen, for example, in the local fisheries where

there has been modification of spawning grounds and migratory paths for the movement of large ships into the river system.

In a recent community involvement session, hosted by the city of Thunder Bay, the development along the shores of the Kaministiquia River and the Mission and Mackellar Islands at the river delta was discussed. One of the city presenters explained that enough material had been dredged from the river to construct a wall that was 20 feet high by 20 feet wide that would stretch from Thunder Bay to Winnipeg. This is one of the many modifications that have been made to the aquatic environment in and around Thunder Bay that has left a lasting impact on the environment and negatively affected fish populations traditionally consumed by the people of Fort William First Nation. Few avenues are available to First Nations communities to address these issues. Offers to move communities to other locations, is an affront to the long heritage and deep connection to the land First Nations have and threatens their culture. First Nations people have and continue to use the courts in an effort to protect the environment that provides for them, however they do so at great cost and with mixed results (Walkem 2007). First Nations are often forced to shoulder the burden of proof when it comes to preventing development or seeking redress for ills caused by pollution (Richmond and Ross 2009). Without sufficient access to environmental, medical and legal experts to examine and analyze the complexity of pollution on the natural world there is little chance of success. Consequently, even with the assistance of the courts First Nations people remain marginalized (Richmond and Ross 2009).

5.3 Holistic Perspectives

Academics have recognized that First Nations people possess a well-defined sense of spatial identity (Windsor and McVey 2005). The global community recognizes

this special connection to the land (Paci et al. 2002). First Nations people have demonstrated the importance of nature since time immemorial through their art and culture (Ekins 1992; McPherson and Rabb 1993). Recently, the courts have come to recognize that First Nations people have a special relationship with the land both materially and spiritually and "…anything that undermines indigenous peoples' special relationship with their lands threatens "their cultures, their spiritual life, their integrity, and their economic survival" or in other words, threatens their existence" (Ross 2005, 1). First Nations people have an intimate understanding of the benefits nature provides and its impact upon our mental and physical health (Richmond and Ross 2009). The physical displacement and the loss of access to traditional land use, contamination of air, water, plants and animals, and the inability to prevent increasing encroachment on traditional ways of life has caused cultural stress, as well as reduced health and well being, both on a community and individual level (Richmond and Ross 2009; Arquette et al. 2002).

Some participants had a very clear sense of the spiritual importance of water in their life and spoke of the need for prayer, ancestor teachings and traditional lifestyle. Water's healing properties were articulated through experiences with elders (i.e. "My mom always says (Mt. McKay) it's a spiritual mountain, it's a special mountain. Maybe getting the water from the mountain makes you feel better"). The community's requirement to act as stewards of the water and the particularly important role for women in this task was recognized, as they are the water carriers. There are concerns that if the water is sick and polluted everything will be sick. Water was considered to have mother like qualities to feed us as a mother would a child. Water was also explained as flowing through rivers like blood through veins not to be considered as a resource but as a life-giver.

Respondents spoke about Traditional ecological knowledge as “our own science” that dwells heavily on recognizing the interconnectedness of all things. Academia recognizes traditional ecological knowledge largely through the idea of negotiated relationships between man, animals, plants and spirits (Overholt and Calicot 1982; Robyn 2002), tied in most cases to a specific geography and practiced through a way of life (Smyth 1999). Non-First Nations management schemes are limited philosophically to the management of resources for human benefit. First Nations are essentially at a disadvantage when trying to convey traditional ecological knowledge to resource managers simply because managers and decision makers do not recognize it as having the same value as scientific knowledge.

Methods such as those developed in this research and by researchers such as Castleden et al. (2008), must be further investigated and implemented as part of the environmental management process. Furthermore, systems of environmental management must be revised so that they are culturally appropriate to the First Nation Community, so that debates over values can be translated into effective change, otherwise the covert racist agenda will continue to be maintained (Paci et al 2002).

According to Newton et al. (2006, 47) “Communities are healthier places to live in when people have nature close to them”. Nature is important to all of us, regardless of culture, economic class or race, for many various reasons including economic growth, employment, pleasure and our health both mental and physical. The community of Thunder Bay and its economy is built upon the water and the bounty it offers the people that live here. We entice tourists, businesses, students and prospective residents with the appeal of the waterfront and the activities Lake Superior makes possible along with its beauty. However, despite the fact that nature and in particular water is an essential resource for all people, First Nation and non-First Nation people often have differing and

at times conflicting perspectives on nature, such as values and the nature of one's relationship to the land. Existing non-aboriginal water management systems takes a reductionist view of clean water offering a recipe for balance between chemical and biological contents in the water. It is a holistic view of water that will protect it into the future so that our descendants might enjoy the same benefits.

5.4 Recommendations

Recommendation 1: Provide opportunities for communities to explore their own watershed through participatory methods.

The photovoice method was an effective tool in learning about the Fort William First Nations perspectives on water because it allowed the community to lead the research on their own terms. While the project was an overall success there are a number of obstacles to overcome when creating such a project. Creating a photovoice project requires community support. This was facilitated through our partnership with the Anishnabe of the Gitchi Gami Environmental Programs and the Fort William First Nation Youth Council. Though we received a great deal of support, expertise and help from members of both groups, turn over at one of the organizations and the FWFN band council caused delays that created problems for some participants. The number of participants who completed the photovoice project from beginning to end was rather small considering the number of people who were involved as a whole. This is largely attributed to the amount of time required to complete the project and the commitment asked of participants in our study. The method also required a large amount of time and energy from the researchers. While this method is valuable in learning about a community's views it does require more time and effort than most organizations would be allotted to complete the task of involving the public.

This method is unlikely to find overwhelming support within government and its agencies due to many of the reasons above. The results are qualitative, rather than quantitative and must be deciphered and co-analyzed by the researchers and the participants. There is also the risk of unmet expectations. While the photovoice method did elicit a great deal of response within the community and a moderate amount in the city, at the time of this writing no great change has taken place in source water protection. During one of the showings of the photovoice in the city during Lake Superior Day on July 18, there was a couple who expressed interest in starting a petition to clean up areas along the Kaministiquia, particularly the scrap yard. It is yet to be seen if this will move forward without a champion to take such a task on.

The project did produce a large number of images reflecting threats to the watershed. These images not only provide a tool for awareness but also the ability to document these areas for the future. This record of impacts on the land is of great value for future management and rehabilitation.

Recommendation 2: Provide opportunities for the communities to learn, teach and interact within water management regimes.

Providing land/water-based opportunities for First Nations people to learn about the established drinking water system, scientific method and management schemes, as well as teach their own knowledge, source water protection will be strengthened. As First Nations enhance their competences in western science, the inclusion of Traditional Knowledge will increase. Furthermore, when it comes to outside interests, band councils and communities will enhance their ability to negotiate benefits for their communities. This process will allow the community to make more informed decisions when dealing with government that will address their needs and wants, while respecting their values and perspectives. It is hoped that further development of expertise will

create opportunities for the Fort William First Nation to be involved in the LRCA source water protection committee in a meaningful way as their seat currently sits vacant.

Recommendation 3: Recognize the value of Traditional Ecological Knowledge and support its local development.

The workshops focused on Traditional Ecological Knowledge allowed participants to learn about Elder teachings and relate those teachings to their own experiences, qualifying and strengthening their own understanding in ways that allow them to more readily articulate that understanding. The esthetic and spiritual nature of water is important to water management, which must not be limited to technical descriptions and considerations. The wealth of knowledge that was shared by the community should be recognized as part of the process of source water protection. Documenting Traditional Knowledge and applying it to environmental management plans is possible through the use of practitioners who have developed effective tools to apply this knowledge such as the work performed by Castleden et al (2008). Not only can traditional knowledge work with current government plans, but there is also a strong desire to see this knowledge integrated into policy to better protect water and the environment (COO 2007). This can be accomplished through "good communication between parties; respect for community traditions; support for First Nations; and the implementation of approaches that are iterative/parallel" (COO 2007, 2). These relationships offer opportunities to protect the environment that we all depend on.

Recognition and understanding of the fact that Native and non-native peoples have different worldviews (Overholt and Callicott 1982; Robyn 2002) is imperative to the establishment of processes that allow both communities to share, create understanding and protect their interests. Traditional Knowledge must be respected and recognized as being as relevant as scientific knowledge.

Recommendation 4: Provide resources for a parallel process that allows First Nations communities the ability to research and analyze their own watershed.

Through the establishment of a parallel approach to source water protection policy as suggested by the Chiefs of Ontario (2007) greater public involvement, transparency, and communication will ensue. The opportunity for nation-to-nation discussions through a parallel process complement the work currently performed by the LRCA, and nurture trust. This acknowledgement and support of different perspectives will allow the possibility to draw links between both traditional and scientific knowledge, enhancing understanding of the watershed.

Recommendation 5: Enhance and create new areas that allow people to access the water.

Water must not only be accessible so that we can see it, but also interact with it through watercraft, swimming, fishing and other related activities. The number of participants who had never been on the Kaministiquia River in a boat or even on its shore was surprising. There is however a certain level of fear about the Kaministiquia River's health. As one of the participants pointed out, they would not let their children swim in the area they once frequented, even though by some accounts the water is less polluted than now than in previous years.

6. Conclusions

The objectives of this project were to create a photovoice project with the Fort William First Nation that equitably involved the community to learn and build community capacity. Second, was to discuss the feasibility of such methods as tools in source water protection. The final objective was to explore Anishnabe perspectives on water. The photovoice method is an effective way to learn and create capacity as a method to enhance source water protection through the discussion of First Nations perspectives.

The photovoice method, used in close partnership with the Anishnabe of the Gitchi Gami Environmental Programs (AGGEP) and the Fort William First Nation Youth Council (FWFNYC), engaged the community in water security more than any of the current formal management routes have to this point. This project offers a lesson in working on a community level to create discussion around water security issues. This project while demanding a great deal of energy, time and effort on the part of the University researcher would not have been possible without the work and support of both the AGGEP and the FWFNYC. Without their support, permission from the band office, the recruitment of participants, advertisements, the planning of activities, events and meeting spaces would have made the project all the more difficult. On average one full day a week was required on the part of the University researcher to accomplish this project.

Many First Nations communities across the province of Ontario do not have access to clean, safe, reliable drinking water. Under the current management system, First Nations communities are invited to participate in the process. However, with few tools to adequately table their concerns and provide the necessary information their interests are not represented. The photovoice methodology offers a novel way to elicit

perspectives, opinions and concerns regarding the management of the water system. While using photovoice cannot provide all perspectives within a community it offers clear insight into a portion of those perspectives.

Ontario's Source Water Protection committee is required to seek First Nation participation as written in the Clean Water Act, 2006 (O. Reg 288/07, s. 6 (2)), however, the Community of the Fort William First Nation (FWFN) has not come to the table. With the provision of one seat and no financial resources to speak of, the process does not provide for the necessary expertise required by the community to make discussions fair and equitable. In the case of the Lakehead Region Source Protection Authority (LRSPA), all legal requirements have been met when the FWFN band council did not respond to requests to join the LRSPA, thus releasing the authority from further responsibility. The reserve and Loch Lomond are no longer part of the Source Water Protection Plans. Considering the long history and relationship the FWFN and the City of Thunder Bay have had in providing clean drinking water to both communities since the early 1900's, more should be done to maintain this mutually beneficial relationship to ensure water security into the future. By not including the geographic area of the Fort William First Nation or the Band Council in Source Water Protection Planning, the LRSPA is producing an incomplete document.

This research is exploratory in nature, and though it has developed interesting themes, there is a need to further explore them on a deeper level and in a way that is ongoing in the community through multiple water-related issues. There is a need as well to continue the exploration of participatory methods that allow communities to learn about water from a "Western Science Perspective" and teach from a "Traditional Knowledge Perspective". Future development of Traditional Ecological Knowledge will create a more complete picture of the environment and how we live within it.

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