



OPASKWAYAK CREE NATION WETLAND ETHNOECOLOGY: LAND, IDENTITY AND WELL-BEING IN A FLOODED LANDSCAPE

Alli Morrison, Natural Resources Institute, University of Manitoba

INTRODUCTION

This document presents a summary of a University of Manitoba Masters research project that focused on enhancing the understanding of the sensitive wetland ecosystems located in the Saskatchewan River Delta through the use of the indigenous knowledge of the Opaskwayak Cree Nation.

Saskatchewan River Delta

The Saskatchewan River Delta (SRD) is the largest freshwater inland delta in North America, covering over 950 000 hectares. The SRD is located in the Mid-Boreal Lowland Ecoregion within the Saskatchewan River Basin, straddling the border of central Saskatchewan and Manitoba. Approximately 81 percent of the SRD consists of a diversity of wetland ecosystems, which provide valuable ecosystem services and support a large amount of biodiversity. In addition, extensive human activities are sustained by these water and wetland ecosystems including hunting, fishing, trapping, recreation and tourism. Accordingly, the SRD provides a variety of ecological, economic and cultural benefits.

APPROXIMATELY 81
PERCENT OF THE
SASKATCHEWAN RIVER
DELTA CONSISTS OF A
DIVERSITY OF WETLAND
ECOSYSTEMS, WHICH
PROVIDE VALUABLE
ECOSYSTEM SERVICES
AND SUPPORT A
LARGE AMOUNT OF
BIODIVERSITY.

The SRD is facing various threats due to the expansion of human influence. The SRD is fed largely by the Saskatchewan River, which supports a variety of upstream activities including hydroelectric generation, petroleum production, agricultural irrigation and drinking water. For example, the E. B. Campbell Dam, which formed Tobin Lake, was completed in 1963 and is located approximately 30 kilometres upstream of the SRD. The project has led to reduced sediment flows downstream within the SRD, creating enlarged downstream channels and reduced nutrient flows within the wetlands of the delta. As well, the Gardiner Dam and accompanying reservoir, Lake Diefenbaker, were completed upstream of the SRD on the South Saskatchewan River in 1967 and resulted in reduced peak water flows in the delta. Downstream developments have also had negative impacts on the SRD. For instance, the Grand Rapids generating station that was constructed in 1964 resulted in the permanent flooding of over 100 000 hectares of the lower delta upstream of Cedar Lake. Continued agricultural expansion and river diversion projects within the delta have also contributed to the deterioration of wetlands. The cumulative impacts of these upstream and downstream uses have resulted in the substantial alteration of the hydrologic regime in the SRD.

Prior to these developments, the Saskatchewan River had two annual high-water periods occurring in spring and early summer, which were important in depositing nutrients and sedimentary soils within the SRD. Equally as important to the wet periods, were the natural occurrences of drought in the river, which caused wetland water levels to decrease. It has been suggested that this wet-dry cycle ensured the overall productivity and fertility of the SRD. However, as a result of the aforementioned anthropogenic developments, the SRD has experienced drier conditions, potentially reducing the ability of the wetlands to provide important ecosystem services and to sufficiently support wildlife populations.

Management of water levels has been occurring in the SRD since the 1930s when the provincial governments of Manitoba and Saskatchewan, the federal government and private stakeholders attempted to stabilize water levels with the hope that it would lead to an increase in muskrat populations for trapping. Recognizing the importance of the SRD in supporting waterfowl populations, Ducks Unlimited Canada (DUC) began managing the wetlands in the 1940s using water control structures. Initially, water management by DUC was used to stabilize water levels to provide enhanced waterfowl habitat in the summer. However, more recent management plans have attempted to replicate the natural wet-dry cycle that has historically occurred in the SRD. These management efforts have had varied success due to the complex ecological interactions occurring within the wetlands of the SRD.

THE GRAND RAPIDS
GENERATING STATION
... RESULTED IN THE
PERMANENT FLOODING
OF OVER 100,000
HECTARES OF THE LOWER
DELTA UPSTREAM OF
CEDAR LAKE. CONTINUED
AGRICULTURAL EXPANSION
AND RIVER DIVERSION
PROJECTS WITHIN
THE DELTA HAVE ALSO
CONTRIBUTED TO THE
DETERIORATION OF
WETLANDS.



Opaskwayak Cree Nation

The Opaskwayak Cree Nation (OCN) has 5 433 registered members with 3 159 individuals living on the Reserve. The community, which has traditional territory located within the SRD, has participated actively in resource management since 1969 and signed an Agreement for the Joint Management of Natural Resources with the Government of Manitoba in February of 2007. The focus of the Agreement has been on improving natural resource management through consultation, increased communication and information exchange. The OCN has a long history of utilizing the wetlands located in the SRD for hunting, trapping and fishing as a source of subsistence. The wetland ecosystems are also of cultural importance to the OCN, acting as a location for families to participate in traditional activities.

The OCN and other First Nations communities living in the SRD have expressed concerns regarding loss of wildlife such as muskrat, moose and waterfowl due to impacts from anthropogenic developments in the SRD. Although ecological research has provided important scientific information for wetland management in the SRD, further research is needed on the impacts of altered ecosystems on local communities such as the OCN. Insights gained from indigenous knowledge could provide natural resource managers with an increased understanding of the economic, cultural and ecological impacts resulting from the altered wetland ecosystems of the SRD.

PURPOSE

The purpose of the research was to explore indigenous knowledge as it relates to the diversity of wetlands ecosites within the SRD that are used to provide ecosystem services to the OCN. Specifically, the objectives of this research were to:

1. Document OCN indigenous knowledge of the diversity and uses of organisms found within the wetlands;
2. Record OCN indigenous knowledge on the relationships amongst the organisms of wetlands; and
3. Understand how a reduction in ecosystem services provided by wetlands is impacting the well-being of the OCN people who use the SRD.

METHODS

The DUC Summerberry Marsh Research Project took place in the Summerberry Marsh Complex from 2007 to 2010, which is located within the traditional use area of the Opaskwayak Cree Nation. Due to the location of the existing project, as well as through community interest, the OCN and the wetlands utilized by the community were deemed to be logical in terms of selecting a bounded case study. As a result of the research interests in the indigenous knowledge generated through a close relationship with the land and because of the low levels of participation in traditional activities by younger generations, research participants were limited to adult or Elder community members that have or continue to practice wetland-based activities. Accordingly, the research team was comprised of six community Elders that were knowledgeable about the wetland ecosystems located within their traditional territory as a result of participation in hunting, fishing, trapping and/or plant gathering.

Data collection occurred over a four-month period from July to October 2011 and a trip to The Pas in January 2012 allowed the winter harvesting practices to be observed. Participant observation of the research team while taking part in wetland-based harvesting practices acted as a primary data collection tool. Interviews were conducted several times with each of the key participants of the research team. Access was also provided to interviews recently conducted by the OCN Natural Resource Council with sixteen structured interviews with nineteen community adults and Elders between July 2010 and January 2011. Document review was another important data collection method and included the evaluation of eighteen oral histories conducted by the local museum with twenty community Elders. A number of documents were also obtained from the OCN and DUC that provided an enhanced understanding of the history of the region, as well as the ecosystem management activities that have taken place in the SRD. Finally, verification workshops were conducted with members of the research team both during fieldwork, after data analysis and upon completion of the first draft of the thesis.



THE RESEARCH TEAM WAS COMPRISED OF SIX COMMUNITY ELDERS THAT WERE KNOWLEDGEABLE ABOUT THE WETLAND ECOSYSTEMS LOCATED WITHIN THEIR TRADITIONAL TERRITORY AS A RESULT OF PARTICIPATION IN HUNTING, FISHING, TRAPPING AND/OR PLANT GATHERING.



RESULTS 1 – A LIFE ON THE LAND

Wetland ecosystems provide a variety of services including carbon sequestration, flood control, cultural values, water purification, etc. However, the ecosystem service most often discussed by community members was that of providing 'reservoirs of biodiversity' for the mammals, birds, fish and plants that are harvested during water and wetland-based practices. The health of the animals and plants that comprise Cree food are commonly used as a measure of environmental health. Therefore, to achieve Objective 1, data were collected through the analysis of and participation in traditional harvesting activities that take place within water and wetland ecosystems of the SRD.

A Life on the Land Being Lost

Community members indicated a variety of negative impacts that have resulted in reduced participation in wetland-based harvesting practices. First, external factors including a limited demand for furs such as muskrat and beaver has reduced the monetary incentive for individuals to take part in the activities and for youth to take up the livelihood practices. As well, high levels of harvest were of specific concern for muskrat, moose and sturgeon populations. However, the impact to traditional harvesting practices most mentioned by community members was that of environmental degradation, which included issues related to water contamination and pollution that has increased the occurrence of disease in wildlife and diminished medicinal plant quality. There was also a concern with the altered hydrologic regime resulting from hydroelectric developments and past wetland management efforts. Habitat loss was also a major consideration as a result of permanent flooding from hydroelectric developments, agricultural expansion, increased human settlement and increased industrial activities such as deforestation.

Ultimately, the majority of community members indicated that there has been a reduction in the participation of wetland-based practices within the SRD by the OCN. This reduction has been attributed, in part, to the diminished wildlife populations and other ecosystem services resulting from altered environmental conditions due to development. As a consequence, the cultural identity of the OCN that is constructed out of a life on the land is being impacted by ecological degradation in combination with political and socioeconomic factors resulting from a long history of colonialization.

“Everything is Connected”

In regards to Objective 2 or the relationships amongst organisms of the wetlands, many community members indicated that all species, regardless of size or significance, are connected through the food chain. Accordingly, there is an understanding that negative impacts related to ecological degradation can be felt at all levels of the food chain. Individuals also indicated that all organisms contribute to the balance of nature and, as such, should not be neglected. Considerations such as these perhaps emphasize OCN community perspectives regarding the need for a more holistic ecosystem approach to natural resource management of the wetlands located within their traditional territory.

THE IMPACT TO
TRADITIONAL
HARVESTING PRACTICES
MOST MENTIONED
BY COMMUNITY
MEMBERS WAS THAT
OF ENVIRONMENTAL
DEGRADATION.

RESULTS 2 – MENOYAWENEK: “A GOOD WAY OF LIVING”

Ecosystem services are the benefits accrued by humans and which directly contribute to human well-being. As a result of the degradation of natural ecosystems, there can be deleterious effects on well-being. In understanding the impacts that altered wetland ecosystems are having on the OCN, the approach taken to achieve Objective 3 was that of examining the local criteria for well-being. The purpose of which was to determine whether the criteria are linked to those benefits attained through interactions with the natural environment and if well-being has, in fact, been impacted by a reduction in ecosystem services.

For the OCN, the Cree word that most closely represents ‘health’ is *menoyawenek*. *Meno* translates into ‘good’ or ‘well’ while *yawenek* means ‘living’, ‘alive’ or ‘being’. As a consequence, *menoyawenek* has been translated into ‘a good way of living’. Notably, *menoyawenek* does more than merely describe health in terms of the absence of disease but rather embodies an overall sense of leading a good life in all aspects.

According to those that have or continue to identify with a life on the land, the main criteria in contributing to *menoyawenek* included Cree food, physical activity, warmth and retention of the Cree language. Community members also indicated other factors that are necessary in achieving *menoyawenek* such as spirituality, education or following Christian doctrine and these should not be discounted. However, a continued emphasis was placed on the four factors of Cree food, physical activity, warmth and language.

The local criteria that emerged from the data indicated that interactions with the natural environment through the practice of traditional harvesting activities, along with language, contribute to well-being. Whether it be the increased nutritional value of the wild food products or the physical activity required to harvest these natural resources, community members emphasized that the ability to achieve ‘a good way of living’ were dependent on the services provided by healthy ecosystems. The criteria required to attain *menoyawenek* for the OCN demonstrate that a life on the land, in combination with retention of the Cree language, contributes to the cultural identity of the OCN and enhances well-being.

CONCLUSIONS

Although not the only reason for the diminished participation in wetland-based livelihood activities, the negative impacts to wetland ecosystems highlighted by community members have led to the reduction in the participation of traditional harvesting practices that contribute to the cultural identity of the OCN. Altered ecosystems have resulted in a decrease in the quality and quantity of the wildlife and plants most valued by the OCN. Degraded wetland ecosystems, in combination with various socioeconomic and political considerations, have contributed to a reduced participation in these customary practices. In other words, a reduction in the capacity of these sensitive habitats to provide important ecosystem goods and services has, at least according to the community members that have contributed to this research, contributed to a reduced ability to meet those criteria necessary in achieving *menoyawenek*.

RECOMMENDATIONS

This research documents the importance of managing for healthy wetland ecosystems within the SRD to maintain and, potentially, increase the level of participation in traditional harvesting activities by the OCN. In doing so, ‘a good way of living’ can be achieved through the continued expression of a cultural identity that embodies a life on the land. More specifically, lessons learned from this study can be applied

ACCORDING TO THOSE THAT HAVE OR CONTINUE TO IDENTIFY WITH A LIFE ON THE LAND, THE MAIN CRITERIA IN CONTRIBUTING TO MENOYAWENEK INCLUDED CREE FOOD, PHYSICAL ACTIVITY, WARMTH AND RETENTION OF THE CREE LANGUAGE.



towards successful community-based management of the natural resources within the traditional territory of the OCN.

Reflections on Management Options

Prior to making resource management decisions within OCN traditional territory, the nature of the relevant issues should be outlined and differentiated. In doing so, conservation efforts can become more relevant to the cultural, ecological and economic values of the community. The concerns addressed in this research relate to the reduced populations of muskrat, moose, waterfowl, fish and vegetation harvested through traditional wetland-based practices at a local scale. Reflections on OCN indigenous knowledge as it pertains to the management of these resources are offered below.

There are both cultural and ecological benefits related to the increased presence of muskrat in the SRD. However, the practice of trapping within the community would likely remain negligible even if populations rebound due to the low market value for furs. The limited feasibility of successfully earning an income from trapping coupled with changing community values limits the benefits that would be gained by increasing muskrat populations to enhance trapping practices. That being said, muskrat trapping has been a culturally important activity to the community since initial contact with European colonizers as both a source of food and for medicinal purposes, which is a consideration that should not be discounted when developing a management plan.

Although participation by OCN community members in wetland-based practices such as moose hunting, waterfowl hunting and fishing has been diminished, it appears that a greater number of individuals continue to take part in these activities today when compared with trapping. With regards to moose,

WITH REGARDS TO MOOSE, THERE IS A GENERAL CONSENSUS AMONGST OCN COMMUNITY MEMBERS THAT POPULATION ABUNDANCE IN THE REGION IS LOW AND REQUIRES IMMEDIATE ACTION.

there is a general consensus amongst OCN community members that population abundance in the region is low and requires immediate action. Manitoba Conservation conducted an aerial survey in the SRD in January of 2012 to determine more accurate numbers on the abundance of moose in the region. The results of the survey indicated that there are 317 moose located in the region. According to Manitoba Conservation, the number represents a minimum viable population with severe consequences for moose if numbers were to fall below the January count. Similar to the actions taken in nearby regions, a moratorium on moose hunting in the area could be put in place for the upcoming hunting seasons to allow populations to recover. However, First Nations hunters in the region retain the right to harvest moose for subsistence purposes. As a consequence, the OCN may want to consider levels of subsistence harvesting that would allow moose populations to recover and maintain healthy populations. There has been an indication that a voluntary moratorium for the OCN may be a reality in the near future. Instruments to achieve increased accountability within the OCN community may also be required to help alleviate pressures on moose populations. Recommendations on how to achieve this should come from the community



itself but could include increased monitoring in combination with fines for excessive levels of harvesting. The OCN have a long history of big game hunting in the region and, as such, there are important cultural implications in ensuring that moose populations can support sustainable levels of subsistence harvesting.

Waterfowl hunting remains an important and culturally relevant practice for individuals from the community. Concerns related to diminished waterfowl populations within the SRD are very real although not as pronounced as other wildlife concerns. This could be due to the fact that although numbers are reduced, there is still a relatively strong presence of these birds within the traditional territory of the OCN when compared with muskrat and moose populations.

According to observations in the field and from the data collected, both domestic and commercial fishing are activities that have relatively high participation rates. Unlike many of the other traditional harvesting activities, commercial fishing provides a source of income to individuals within the community and, as such, managing for fish populations may be an important component in a resource management plan. Similarly to moose populations, increased regulations and accountability within the OCN community may be required to minimize overharvesting of fish species, such as sturgeon.

With regards to traditional medicines, consultation with knowledgeable community members should take place to determine if there are any traditional harvesting areas that have a high cultural value and which may require that access be limited to plant harvesters. The continued local cultivation of species such as *wekās* could contribute to increasing the presence and, perhaps, use of culturally important medicines. Although the abundance in the region may have been reduced, the species discussed in this thesis along with other important plants used in traditional medicines remain available for harvest. Monitoring of these populations should be initiated to ensure that the quality of these plant species has not been diminished as a result of development activities.

The decline in wildlife and plant populations has largely been attributed to reduced habitat quality and quantity as a result of development in the region that has largely been out of the control of the community. With that in mind, financial investments and compensation from interests within industry and the government may be required to assist in conservation efforts. With adequate financial capital, community-based management efforts have an improved capacity to contribute to the ecological enhancement of the SRD.

These reflections on management options are based on the approximate levels of participation in activities as contributed by individuals through qualitative means. Determining the actual numbers of people who are taking part in traditional activities, as well as which wetland-based practices are the most commonly practiced may be a valuable exercise for the community. To ascertain accurate numbers, the OCN Natural Resource Council could administer a household survey of a randomly selected group of the community population regarding inquiries as to the frequency of their participation in a variety of traditional practices. The results of the survey would provide the OCN with quantifiable data as to where efforts should be focused regarding natural resource management activities.



EDUCATING COMMUNITY MEMBERS ON THE OVERALL IMPORTANCE OF WETLANDS IN THIS AREA COULD BE AN IMPORTANT TOOL IN ACHIEVING ENHANCED ENVIRONMENTAL STEWARDSHIP.

Holistic Approach to Management

Although ecological issues related to specific species have been outlined in this research, community perspectives regarding the management of the ecosystem also tended to emphasize the need for a more holistic approach at a larger scale. For instance, increasing overall water movement in the SRD through the decommissioning of water control structures or alleviating the impacts of road construction through the use of culverts could improve habitat quality for a diversity of wetland organisms. Further studies on the importance of water flow in the SRD for fur-bearing animals, moose populations, spawning grounds and plant communities could provide important information towards ecosystem management. As well, the OCN could become involved in water sampling events conducted at regular intervals to measure for levels of potential contaminants and turbidity. Information such as this could contribute to quantifiable data regarding the overall health of the wetland ecosystems within the SRD.

The shift towards an ecosystem-based or holistic approach to resource management inevitably encounters increasingly complex issues pertaining to scale. The effects of cumulative upstream impacts within the larger watershed remain largely out of the control of local land managers due to jurisdictional considerations across provincial boundaries. For example, water consumption in Alberta for the purposes of petroleum production and refining will likely continue indefinitely much to the detriment of downstream environments. To counter this and other issues of scale, nested systems of governance may be required to successfully manage for the health of water and wetland ecosystems within the SRD and the Saskatchewan River.

Along with considerations of scale and governance, establishing new relationships and fostering current partnerships between First Nations groups, local communities, government entities and private organizations at all levels could also contribute to enhancing the health of the SRD. Through these collaborations, innovative methods to resource management could contribute to returning the delta to a reservoir of biodiversity and support the important cultural practices of communities such as the OCN.

Educating community members on the overall importance of wetlands in the area could be an important tool in achieving enhanced environmental stewardship. Increased exposure of younger generations to traditional practices taking place in the natural environment through field trips and other avenues can lead to an increased awareness of the ecological and cultural significance of the wetlands located within the SRD. Through increased exposure to traditional teachings, cultural continuity can be enhanced and potentially result in a feedback loop leading to improved stewardship of the sensitive wetland ecosystems located within OCN traditional territory.

ACKNOWLEDGEMENTS

From the Opaskwayak Cree Nation, I would like to sincerely thank those individuals that comprised the research team including Elders Raymond Ross Lathlin, Mabel Bignell, Moses "Moe" Bignell, Stanley McGillivray, Philip Dorion and Oliver Bignell. Thank you also to the Elders that participated in the community interviews and museum oral histories.

In The Pas, thank you to Shaun Greer and Chris Woodward of Ducks Unlimited Canada. I would also like to thank the Sam Waller Museum for conducting the oral histories. As well, thank you to Manitoba Conservation for providing me with accommodations during fieldwork.

Thank you to my advisor, Dr. Iain Davidson-Hunt, and my thesis committee consisting of Ms. Mary Head, Dr. Michael O'Flaherty and Dr. Dale Wrubleski.

This research would not have been possible without the financial support of Ducks Unlimited Canada through the generous contributions made by Manitoba Hydro. Thank you.



UNIVERSITY
OF MANITOBA

