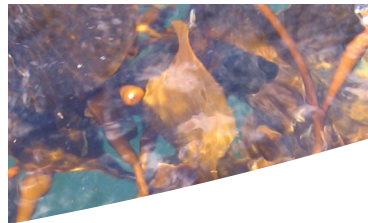
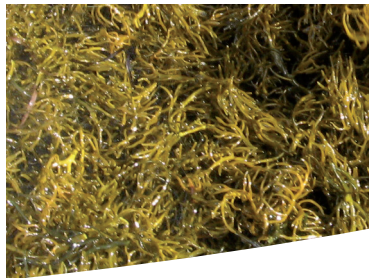
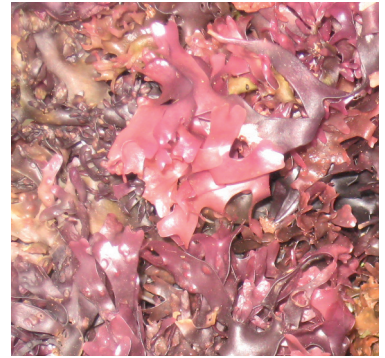
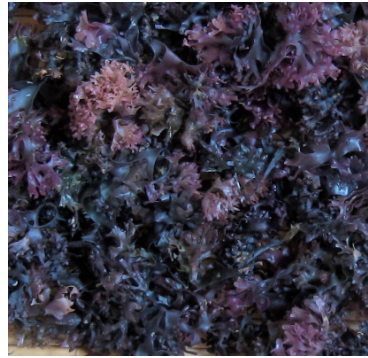
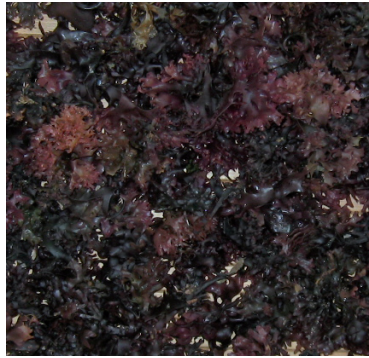
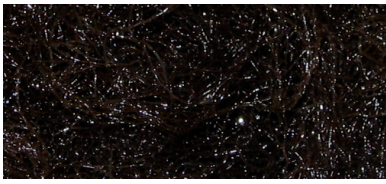
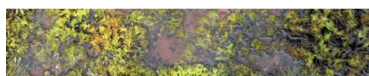


MEDICINAL SEAPLANTS OF THE MI'KMAQ AND WILLICHE



Social Economy and Sustainability Research Network
Partenariat sur l'économie sociale et la durabilité
Bridging, Bonding, and Building / Renforcement des liens et des capacités



UPEI UNIVERSITY
of Prince Edward
ISLAND

MEDICINAL SEAPLANTS OF THE MI'KMAQ AND WILLCHE



Dolores Le Vangie and Mariana Soto Quenti

August, 2008

The Research Partners:



Institute of Island Studies (Canada)

Consejo General de Caciques Williche de Chiloé
[The Grand Council of Williche Chiefs]



Mi'kmaq Confederacy of Prince Edward Island

The researchers would like to thank all participants for their invaluable contributions to this project.

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The report was authored by Dolores LeVangie, under the supervision of Dr. Irené Novaczek (Institute of Island Studies).

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Preface

This report was written as a result of the work I accomplished as an “Indigenous Economic Development Intern.” The Canadian International Development Agency (CIDA) allocated funding for this project as part of the Youth Employment Strategy; via a non-governmental organization, the Atlantic Council for International Cooperation (ACIC).

The Canadian half of this internship took place in Charlottetown, Prince Edward Island and the partners involved in the design of the internship were: Dr. Irené Novaczek who is the director for the Institute of Island Studies (IIS), at the University of Prince Edward Island (UPEI) and Randy Angus who is the Director of Integrated Resource Management for the Mi'kmaq Confederacy of PEI (MCPEI). The overseas placement for this internship was on the Island of Chiloé, Chile. The Chilean partners were the Bosque Modelo de Chiloé (BMCh) with then manager Santiago Elmúdesi Franco as one supervisor and the Consejo General de Caciques Williche de Chiloé (Grand Council of Williche Chiefs [GCWC]) with Manuel Muñoz Millalonco as another supervisor. Manuel is in charge of public relations between the GCWC and groups outside of Chile. He is also a professor of Anthropology at the local University (ARCIS).

The internship ran from October 2006 until June 2007 with 5 months being spent in Chile. I would like to thank Cheyenne Francis who greatly assisted me with the PEI portion of the fieldwork and also Mariana Soto Quenti, field staff for the GCWC health program, who was my field companion throughout the duration of my time spent on Chiloé Island.

The theme of the internship was Indigenous Economic Development where my goal was to examine traditional, medicinal uses of seaplants by the Mi'kmaq of PEI and the Williche of Chiloé Island; and to assess their interest and ability to develop their economy based on value added products.

The report comprises three phases. The first provides the purpose of this research and how these issues relate to wider social problems. This sets the context of the project

while the second phase talks about the fieldwork, including the methodology. The third phase goes into the research findings, and provides an ethnographic profile of the Williche Council of Chiefs' health program entitled Kume Mogen Rüpü [A Way to Balance] which is a complementary intercultural health program, and then concludes.



Introduction

Issues of inclusion and empowerment are critical to the economic development and continued existence of cultural practices of aboriginal peoples throughout the Americas. The importance of economic development is highlighted because many Indigenous people around the world live in poverty and are in a constant struggle to maintain access to their land. Even though Indigenous people are entitled to have access to their ancestral lands, outside powers (governments, companies) who seek to use or purchase Native lands—and more importantly the natural resources that are attached to them—are able to take advantage of Indigenous people because of a social power imbalance, and political clout. Indigenous people are often not given a choice in the matter and are the only ones fighting for their land and human rights.

By losing access to their land, Indigenous people are also losing the plants and animals that contribute to the ecosystem and which are intricately tied into their lifeworld. The marginalization of traditional wisdom¹ and lifeways by non-indigenous persons, which has taken place since colonization and continues to the present day, has contributed to the ongoing decline of cultural practices. Through this research I hoped to assist the Mi'kmaq and Williche in their attempts to build upon the cultural practice of using marine plants for food and medicine, with the goal of cultural and economic development for the Indigenous people to whom this information belongs.

Purpose

The purpose of this project was to identify opportunities to enhance traditional medicine practice and diversify the local economy by building on indigenous knowledge of edible and medicinal marine plants.

This project serves to support and extend the work of social economy organizations dedicated to the sustainability of Indigenous communities by learning, building upon, and exploring knowledge of natural resources. The project also wanted to

¹ The Canadian Oxford Dictionary (2008) defines wisdom as: experience and knowledge together with the power of applying them critically or practically.

investigate if there were Mi'kmaq or Williche healers who would want to build their local capacity for natural medicine and entrepreneurship, in whatever way they deemed appropriate.

A qualitative study of two Aboriginal cultures, the Mi'kmaq of Atlantic Canada and the Williche of the Chilean Patagonia, was performed focusing on their traditional uses of seaplants. Many cultures around the world use seaweed and other marine species for medicinal purposes as well as for food. **This report will look at the importance of the current uses of seaplants, the issues around the disappearance of traditional information, and what the current sustainable practices are, with an over-riding interest in how the Mi'kmaq and Williche can best benefit from this research.**

The four organizations that have come together for this project did so because they share the common aims of wanting to contribute to the economic diversification and cultural survival of marginalized indigenous communities on Prince Edward Island, and la isla de Chiloé [Chiloe Island].² The means to reach these aims were through 1) documenting community development opportunities based on cataloguing indigenous knowledge of marine plants 2) increasing understanding between Mi'kmaq and Williche peoples, as a first stage in development of further projects.

Through this partnership each of these organizations—from the University to the community—and cultures—Atlantic Canadian, Chilotes of Chiloé, Mi'kmaq of Atlantic Canada, and the Williche of Chiloé—may learn from the others and share their experience in both traditional and academic knowledge, not just about marine plants but also for sustainable forest management, holistic medicine, food security and cultural survival. It should also be noted that this is only one of the many partnerships that are established between Indigenous and non-Indigenous cultures in North and South America, with the help of various organizations.

Significance of Study to the Wider Social World

Although the general Canadian population may think of themselves as living above the poverty line, First Nations in Canada are not as fortunate; according to CBC News “Canada’s high ranking on the United Nations’ human development scale would dramatically drop if the country were judged solely on the economic and social well-being of its First Nations people” (2005). Aboriginal peoples are discriminated against by mainstream society both in Canada and in Chile. As with Aboriginals in other parts of the world, Canadian First Nations are constantly trying to regain their land and maintain the traditions that are associated with it. This becomes even more difficult when they are faced with the hardship of poverty and associated illnesses.

² The organizations are: Institute of Island Studies (IIS), The Mi'kmaq Confederacy of PEI (MCPEI), The Bosque Modelo de Chiloé (BMCh) and the Consejo General de Caciques Williche de Chiloé (Grand Council of Williche Chiefs [GCWC])

Affordable and available health care is a pressing issue around the world and is a human right unavailable to many people. The sustained relationship between First Nations and Europeans has led to ill-health for First Nations. This was not just caused by pathogens “but by the colonial policies and practices of the Canadian Government” (Kelm, 1998:xix). Once people got sick from non-local illnesses they received very poor, if any, assistance from Euro-Canadians (Kelm, 1998). This continued on throughout history and “the Department of Indian Affairs was seldom able to provide services that were much above the lowest possible quality... the department did not consider the provision of non-Native medicine to be an Aboriginal right” (Kelm, 1998: 175). After the smallpox pandemic, tuberculosis hit Native communities in Canada hard in the early 1900s. Kelm (1998) notes that the responsibility for this pandemic falls on the deteriorating condition of reserves, residential schools, and the lack of First Nations treatment facilities. This is especially worth noting since Aboriginals were not allowed into the sanatoriums for Euro-Canadians, and one was not built for Native people until 1941.

Today, Canada is seen as a country with a healthcare system that is inclusive and meets the needs of all Canadians, yet as a United Nations report from 2005 stated in regards to the health of northern Aboriginal communities, “cases of tuberculosis are six times higher than the rest of Canada [and] life expectancy among the Inuit is 10 years lower than the rest of Canada” (CBC News 2005). The rate of tuberculosis among Aboriginals is a clear indicator of the unequal standards of living and health in Canada. The high rate of tuberculosis also shows that there is a relationship between a person’s social condition and the kind of illnesses that they may develop. A report released by Health Canada entitled “Tuberculosis in First Nations Communities, 1999” shows us the seriousness of this disease in Canada even in our recent past:

The notification rates of active TB disease among First Nations communities in 1992 and 1999 were 74.8 and 61.5 per 100,000, respectively. There are a number of factors contributing to the persistence of TB . . . Analyses show TB is much more likely to occur in communities with higher levels of household crowding, and in communities located in remote areas far from physician services. It is recognized that improvements in social conditions would contribute enormously to the elimination of TB. (Tuberculosis 1999:1)

The national and international reputation of Canada as a “developed” country should be questioned when examining the health and living standards of our aboriginal population. Unfortunately this means that the current generation (as in the past) of aboriginal youth in Canada are being raised without the same advantages and opportunities as non-aboriginal youth. More recently a report was released by UNICEF Canada stating that:

Child poverty remains a persistent problem, mental illness and other serious health problems like obesity are on the rise among children . . . The poverty rate for aboriginal children is close to three times that of other Canadian children, children in some aboriginal communities lack access to adequate housing, clean water and good education and Aboriginal children are disproportionately represented in the child welfare and youth justice systems. (Fitzpatrick 2007)

Even though these reports have been disseminated on national and international levels, the average Canadian citizen is inattentive to this evidence. The current situation is that the overall health of Indigenous people is at a lower standard than non-Indigenous people. When I talk about health I am referring not only to the physical, but also to the emotional, spiritual and mental health of these individuals.³ If our current health care system is not reaching Canadians who live on reserves, then what options do these people have?

By enhancing traditional medicinal practice and wisdom you are empowering people with the ability to take care of their own health; to do something now with the current situation. But that is not enough. Traditional medicines will not cure diabetes, tuberculosis, AIDS, or high blood pressure. We also need to understand the relationship between colonialism and illnesses in aboriginal communities today. One of the questions we should be asking ourselves is: does there exist an idea of healthcare that is more holistic than what we currently have, and, how can it combine cultural and scientific medicinal knowledge in an effort to increase the health of not only indigenous Canadians, but of all citizens; while at the same time giving respect and recognition to Indigenous medicinal practice?⁴ The importance of this question for Aboriginal Canadians relates to the use of and access to natural resources that provide medicine, and to the high cost of pharmaceutical drugs in comparison to the low cost of traditional medicine (when traditional medicine is used as a preventative measure).

³ Many Indigenous cultures refer to the physical, emotional, spiritual and mental health of a person. In Canada this is known as the teachings of the Medicine Wheel.

⁴ Using the spiritual, mental, physical and emotional aspects of human life, along with unique cultural practices.



The Field Work

Methodology

Considering the nature of this project, a qualitative approach was taken combining primary, participatory research (including interviews and participant observation) with literature searches. Because this project took place under the Institute of Island Studies at UPEI and involved research with Aboriginal communities, particular forms of ethics approval were required. The academic world uses a written ethics form that is designed and approved by the University, as a research institution. In addition, ethics approval was needed from the Aboriginal communities and organizations: for the Mi'kmaq, by the Mi'kmaq Confederacy of PEI; and for the Williche, by their Grand Council of Chiefs. At the time of this project neither Aboriginal organization had a written document for ethics approval, however this obstacle was overcome by a spoken ethics agreement with the organizations; they also recognized the ethics process of the University of Prince Edward Island. Confidentiality and anonymity have been extended to all participants; all names in this report have been coded (pseudonyms).

Three semi-formal interviews and one telephone interview were conducted in PEI between November and December 2006. The fieldwork was concentrated in the communities of Lennox Island and Scotchfort, and it was carried out with the help of Cheyenne Francis. Cheyenne is a field researcher with MCPEI and she was able to set up the interviews for this project in the First Nations communities, as suggested by MCPEI. The target population for this project was older male and female members of the Mi'kmaq community because they were thought to be the individuals who would remember Mi'kmaq uses of seaweed. The face-to-face interviews were held in the participants' homes, averaged two hours, and signed consent was given. The telephone interview was a quick conversation and oral consent was given.

The overseas fieldwork for this project took place on the Islands of Chiloé, Tranqui and Cailin, which are located in an archipelago off the southwestern coast of Chile, between February and May 2007. Once in Chiloé the project was officially approved by the Williche Council of Chiefs, ethical issues were discussed with the Grand Chief of the Williche

and the fieldwork was conducted under the supervision of Manuel Muñoz. The targeted population was adult males and females, with the emphasis put on Williche living in rural, coastal communities.

I had to learn the appropriate cultural guidelines and language (Spanish) for conducting research among the Williche, such as how to gather and obtain information and data collectively and individually. My previous experience in qualitative research among the Mi'kmaq greatly assisted me with this endeavour. In most situations the interview took place in the participant's home, in between their daily tasks. Since the majority of people interviewed make their living from the land and sea, I considered that I was taking away from their work time while they were answering my questions. Due to the nature of this research I was unable to make pre-contact with the majority of people who were interviewed. Permission to enter the community was granted by the Williche Council of Chiefs and participants for this research project were found by knocking on doors.

In total there were twelve informal interviews, ongoing participant observation, and conversations with members of the Williche culture. Due to the fact that the participants were unaccustomed to being tape recorded, a recorder was not frequently used. In all interview situations oral consent was given, and the interviews were transcribed in Spanish, then translated into English. The timeline of the interviews was as follows: three participants in Wentamó were visited once in February. The Island of Cailín was visited twice, once in March and once in May, with five families in total participating. The Island of Tranqui was visited once in April and yielded four participants.

The methodology for this project also followed the ethical principals of the *social economy* and the practice of *action research*. In my opinion one focus of the social economy is to help build upon community development from a bottom-up perspective (grassroots), while being respectful of the community and the individuals involved in the research. Self-sufficiency and achievement of the better well-being of the society are overriding goals.⁵ Action research involves participant groups throughout the research, with the focus on them as the beneficiaries of and contributors to the research process and results. More than this, Stringer notes (Esterberg 2002:135) participatory methods are “conductive to the formation of community—the ‘common unity’ of all participants.”

In both instances after information was collected, workshops were held to disseminate local and academic knowledge on the utilization of algae (seaplants). In Chile the workshop was held in April with the purpose of drawing information from the participants through informal discussions, and to teach about the Mi'kmaq use of seaweed; I also used this opportunity to share academic information about Chilean seaweeds. In PEI, Canada the

⁵ To learn more about the Social Economy and Sustainability Research Network go to www.msvu.ca/se and www.upei.ca/iis/socialeconomy

final workshop was held in July and included a presentation on the Williche, and how their culture uses Chilean seaweeds.⁶ In both situations the participants and the organizers of the workshop taught and learned from one another.

Goals and Objectives of the Overseas Component

The following were the main goals for the overseas component of the project as stated in the description of the internship; all of these goals were achieved.

1. Assess opportunities for product development based on indigenous use and knowledge of marine plants through use of a participatory approach:

The health centre (Mapu Ñuke) of the Williche Council of Chiefs has a strong foundation for developing products based on indigenous use and knowledge of medicinal plants; they prepare a wide range of medicines based on their natural resources.⁷ These medicines are prescribed and sold at the health centre and in various communities when the healers from the centre do field medical visits or rounds. Other situations, like the week long Biodiversity Fair that is held in Castro during February, make these products available to the general public.

Currently the health centre's main focus is on plants and trees from the forest and not the sea; however they do have one medicine for ulcers, problems with the colon and gastritis that is made with *cochayuyo*, a local brown seaweed. To date the facility and capacity are in place for further development of products based on marine plants, although at this point the access to traditional information is limited. Hopefully this will change in the near future, through qualitative research in the communities.

2. Identify local marine plants and conduct ethnobotanical surveys:

The majority of the ethnobotanical surveys were conducted on the Island of Tranqui and on the outskirts of the south Castro harbour, Chiloé. From these surveys, samples of nine different species were collected and dried on herbarium paper. Some samples were left with the health centre in Chiloé and others were brought to Canada and shared with the Mi'kmaq.

3. Develop displays on the use of seaweeds for food and medicine in the environmental education centre:

Two displays were developed while I was working in Chiloé. One was constructed for the environmental education centre in the Bosque Modelo building and the other was presented

⁶ As of 2009 I was still disseminating the information from this report by giving workshops in other Mi'kmaq communities.

⁷ The health centre (Mapu Ñuke) is the actual building where the GCWC's health program is housed. It is located in the countryside of Chonchi. This location was chosen because the Williche have ancestral land there.

to the Williche Grand Council and is being housed at the health centre. The information presented on the displays is a combination of academic information and local knowledge regarding medicinal uses of seaplants gathered from the interviews with the Williche.

4. Document seaweed products now sold in Chiloé markets:

At the moment there are numerous factory-made products that contain seaweed, from shampoo to ice cream. These products are to be separated from the micro level seaweed products that are sold in Chiloé markets. As of May 2007 the seaweed products sold in markets were the raw, dried seaweeds themselves. *Luche* (*Porphyra columbina*) and *cochayuyo* (*Durvillaea Antarctica*) are sold in their dried state in most local markets and some grocery stores. Both of these plants have medicinal properties but the majority of people are unaware of these uses, and only eat these plants because they enjoy the taste.

Other seaplants like *pelillo* (*Gracilaria chilensis*), *luga roja* or *cuero de chancho* (*Gigartina skottsbergii*), and *llapín* (*Nothogenia fastigiata*) have medicinal properties but in general are only collected to sell to factories, which use the natural extracts such as agar and carrageenan for the production of the previous mentioned commercial products. The exact amount of all the seaweeds that are harvested and sold in Chiloé each year is unknown; however to give you an indication of the amount of seaweed that is harvested in Chile, Ricardo Norambuena (1996) states that:

In the last fourteen years the production of seaweeds in Chile has ranged from 74,000 to 229,000 wet metric tons per year and has included about twenty species . . . The only source of this production has been the exploitation of natural beds, except for *Gracilaria* [pelillo], which is the only case of commercial cultivation . . . Marine algae have been exploited in Chile for over 30 years, currently consolidated as an important economical activity. (371)

In order to understand what this means for the economy of Chile, Bernabé Santelices tells us that:

The value of semi-processed and processed algal products reached about US\$ 34,000,000 a year in 1993, and it is expected that this value will keep increasing due to the expansion of existing plants and the addition of a new carrageenan processing plant. (1996:2)

5. Assess the opportunity for development of value added health products and the development of a seaweed entrepreneur project:

In my opinion there is a strong opportunity to develop value added health products such as facial creams, and this could be accomplished in the laboratory at the health centre. A seaweed entrepreneur project would be a great benefit for the Williche people who are currently living in moderate to low economic conditions. Many of the rural communities

do not have running water or electricity. There is an interest among some members of the community to export seaweeds (like *cochayuyo*) and also to create other products in Chiloé to sell to tourists.



There are already some ideas for such products as these key chains, which would easily be sold to the many tourists who visit Chiloé each year.

This photo was taken during my field work in Wentemó and is of tiny bundles of cochayuyo.

In meeting the objectives and goals for the internship there were various activities and challenges. I have created a section highlighting these, Appendix A, where I go into detail about my experience as an international intern, as well as information about the workshops that were given.



Research Findings

Data Analysis

In the past the use of seaweed was prevalent in both PEI and Chiloé, however the information today is not easy to access, and in both cases seaweed does not appear to be widely used as medicine. (This last point will be developed further in this section.) One reason for the low availability of information on PEI and Chiloé is that in both instances it was difficult to find any written material on traditional uses of seaweed. This is not a surprise considering both cultures use oral means of communication over written. When written material was available it was usually not written by Aboriginal people.

For this project most information came directly from the fieldwork with Mi'kmaq and Williche, in the form of semi-formal interviews, casual conversations and participant observation. In general there are three categories that most people can fit into with regards to the information that was available:

- 1. Those that do not possess knowledge about the sea and / or the algae in matters related to health and illness.***
- 2. Those that possess the information, but they do not recognize its importance.***
- 3. Those that have the information but choose not to share their knowledge.***

Once the fieldwork was completed it was quite evident that the majority of people interviewed (the majority being those in Chile) fell into the second category: people who have the knowledge but they do not recognize its importance. When they are described as not recognizing the importance of the information, what I mean by this is that the person does have knowledge on the subject, but does not recognize the information as “important” in their day-to-day lives and therefore is unconscious of having the knowledge. The knowledge might have been learned as a child but, not being relevant for adult life for various reasons, it was relegated to long-term memory. This means that they have the information but since they do not

consciously or frequently use it, it becomes unconscious, and eventually forgotten.

If asked a general question about seaweed a member of the culture might not think they have relevant information, but if they are given examples, prodded carefully or asked specifics they can provide a wealth of knowledge.

There were also some members of the culture who did not fit into any of these categories, and for those people I am the most thankful. With both the Mi'kmaq and Williche I was able to converse with at least one person (mostly women) in each culture who still held onto the traditional wisdom and were able to apply it. These individuals showed me that there is still a place in today's world for the use of seaweed as medicine; they have been consciously using it since they were children. One finding from the interviews that was especially informative was how important seaweed was for the Mi'kmaq, "a survival plant . . . it was used for medicine, for food, for shelter—it had many purposes" as Anne stated (personal interview, Dec. 6, 2006). It also became clear that the opportunity is there to increase the awareness of this knowledge among other members in the community. With that being said I will now move on to the information that was gathered from the Mi'kmaq of PEI and the Williche of Chiloé.

Prince Edward Island

The research for this part of the project was conducted through literature searches and interviews. The amount of information found in texts was very limited and there were few texts available, however some interesting information was found. According to Wallis and Wallis (1955:133) the Mi'kmaq would eat raw dulse (red algae) if they had internal worms. The Glooscap Heritage Centre in Truro, Nova Scotia also passed along the information that seaweed was used traditionally by the Mi'kmaq to relieve sore muscles, especially during the change of seasons (E-mail, Nov. 2006). These two sources show that the Mi'kmaq did indeed use seaweed, which gave me hope for finding information during interviews. Seaplants are used by Mi'kmaq in a variety of ways medically: to heal stings, bruises, bones and general sicknesses; as food to be eaten raw or cooked; as a tea; for covering potatoes in ground ovens; to smoke meats and fish; as a survival plant providing warmth and insulation; as fertilizer; cosmetically; and culturally as a feature of Kluskap legends.

From the field research that was done in PEI, I have separated the findings into three categories. These include the various uses of seaweed or marine algae (medicinal, food and other), information on collecting seaweed, and the role it plays in their mythology. These charts describe the information found in PEI from the interviews related to the medicinal, edible, and general uses of local seaweeds. The seaweeds are identified by pigment group (red, green or brown).

Red Alga

Dulse (*Palmaria palmata*)

Food Uses and Preparation

Eaten fresh or dried

Boiled

Dried and stored for winter use

Green Alga

Sea Lettuce (*Ulva*; *Enteromorpha*)

Medicinal Uses (external) **Other**

Heals stings from jellyfish

Facial masks to remove dead skin cells.
Removes boils and planters wart.

Brown Alga

Rockweed (*Fucus*); **Kelp** (*Laminaria*)

Medicinal Uses (external)

Heals bruises and black eyes

Healing and straightening of bones

Heals hoarse throat or a throat infection

Not Identified by Name

<i>Medicinal Uses (external)</i>	<i>Food Uses and Preparation</i>	<i>Other</i>
To heal gangrene To heal burns	Eaten raw Used for salt content To make tea While boiling potatoes or eels.	Fertilizer. In the Wigwam seaweed was used as insulation on the ground, as blankets and also brooms were made from it.
	Cooked on the shore on hot rocks during powwows. People would dig a hole, put potatoes in it and cover it with seaweed.	It was used cosmetically: to get rid of cellulite and would also give you healthy, shiny hair.
	It's good to provide the smoke for the smoked salmon. If you are having smoked fish, you put the seaweed on top of the fire and it gives off the smoke	As a fire starter. To make small baskets. Added to tobacco in pipes. Mythology (see below)

Seaweed also made its way into Mi'kmaq mythology. One direct reference is in a Kluskap [Glooscap] tale about the creation of Spencer's Island, which is located off the coast of Nova Scotia. The story says that Kluskap's teapot was flipped over and that became Spencer's Island, and then the tea leaves as they washed on shore were the seaweed (Ottawa House By the Sea Museum 2006). Seaweed was also used in relation to mythological creatures: 1) as a home for fairies on the beach, and 2) when a large amount of seaweed was washed on shore it was said to be hair from the mermaids brushing or shedding (Anne, personal interview, Dec. 6, 2006).

It is also local knowledge that the Mi'kmaq used seaweed as a tea, "that was our tea at one time was the seaweed, . . . there is a seaweed that if you drink the tea from it you will know who you are going to meet, and if you carried it with you in your medicine pouch, you will meet your love mate" (Anne, personal interview, Dec. 6, 2006).

These examples show how, at one point in time, seaweed was fully intertwined in Mi'kmaq culture, from the use as a mechanism for survival to the traditional oral stories that have been passed down through the generations—indicating its cultural importance.

Another main topic was how the seaweed was collected. This is important because it gives us an inside perspective on the traditional lifestyle of the Mi'kmaq people. For example everyone generally collected the seaweed, and trips were often made to the beach:

Some times an elderly woman just needs to go down and get some seaweed, she will get some seaweed, but I remember times when it was a family outing where my mother would make sand bread [bannock] and while she is making that we are collecting wood for the fire, we are collecting the salt off the rocks or off seaweed, we are collecting seaweed and we were fishing for clams to have with our bread. We all exercised and bathing, and so it was a family outing and they would be washing clothes. (Anne, personal interview, Dec. 6, 2006)

The seaweed itself was collected fresh from the water, sometimes by boat, or it was hauled off the beach by horse and wagon. It would usually be collected in the fall, but could also be collected throughout the year, even in the wintertime. According to the participants it depended on what they would be using the seaweed for as to whether or not they would use it fresh or dried. “If I want it for medicine I probably would go towards the water, if I wanted it for cooking purposes I probably would take the one on the shore because salt does multiply, so the longer its sitting there the more salt that’s in it” (Anne, personal interview, Dec. 6, 2006) or “When dead it would be brought in by the tide, it would be in big drifts. Irish moss was picked fresh” (Fred and Betty, personal interview, Dec. 12, 2006). From these two statements it is not easy to generalize on how, when or what state the seaweed was in when collected. However, it can be seen that its desired use dictated the type and condition of seaweed sought and it was used frequently, year round and played a part in their everyday lives.

As previously mentioned the majority of participants for this research fell into the category of having the information but being unaware of its importance today; however while conducting my research in PEI I also encountered people who would fit into the third category, people unwilling to share their knowledge. It was generally known in the community that there were certain individuals who had previously given information on the uses of seaweed or would be good people to ask, but when approached for this project, they did not wish to be questioned. The reasons for this are surely complicated, but warrant further inquiry.

Chiloé

The research conducted in Chile was based on qualitative fieldwork, and the questions were specific to the medicinal uses of seaplants. No written texts were found with information on traditional uses of seaweed (this does not mean they do not exist). However, there was one article that stated a “chewed cud of two types of seaweed” was found just south of Chiloé Island on the mainland of Chile, at the archaeological site of Monte Verde dated to

be between 13,000 and 33,000 years old (Archaeological Institute of America, 1999). More recently a second article discusses the uses of seaweed at this particular site in greater detail:

Several algae fragments were partially burned, suggesting that they had been dried, probably for transport from the coast or for storage, or were cooked. The fragility of soft leafy seaweeds, their unlikely preservation in archaeological sites and yet their widespread dispersion in hearths and braziers across the site and their combination with other medicinal plants in the form of masticated cuds suggest their value for both food and medicinal purposes. (Science, 2008)

The Williche are known to have traditional methods for using seaweed as medicine, which is part of the reason why they were the Southern partner with this project. In Chiloé the industry of seaweed is also very well established, and many people in Chiloé make their livelihoods from selling seaweed to factories or to local food markets. Commonly, local seaweed is placed in one of two categories, either used for food and/or medicine, or sold to factories. The Williche have an active seaplant culture and continue to use it medically: healing bones, burns, general muscle pain and sores, stomach and intestinal discomfort, and as a treatment for sick or frail pigs; as food generally eaten raw and cooked; covering potatoes in ground ovens, used for smoking; and fed to animals. It is also used as a fertilizer, cosmetically, and it provides a means of economic income. An interesting finding from this work was that the different types of seaweed would not cross over from one category to the other; for example, if the seaweed was sold to factories it was not seen as fit for human consumption and *vice versa*. This categorization shows the impacts of new “modern” realities in Chiloé.

Traditional medicinal uses of algae among the Williche are not as common today as they were in the past, but there are still some remedies practiced. *Sargazo* (*Macrocystis pyrifera*) is widely used to heal fractured bones and this was the most popular example given when I asked Williche what seaweeds were used as medicine. Through the research we also uncovered that *sargazo* is used to heal muscle, joint and rheumatic pain and to treat burns. The large brown seaweed *cochayuyo* is not only a delicious source of minerals and vitamins but it also works to heal problems associated with irritable bowel, intestinal problems, indigestion, ulcers and gastritis. It treats anaemia, and is given to babies to chew on to relieve pain from teething. One of the participants informed us “before the sea was lower, for which there was not *cochayuyo* [in the specific sector of Wentemó]. When the sea grew, grew *cochayuyo*.” Wentemo is located on the Pacific side of the island of Chiloé and this quote refers to the time before the earthquake of 1965. *Luche* is mostly cooked in a soup with shellfish. It is often served at lunch time, and rarely in the evening. There

are properties in *luche* that act as a relaxant, and cause a drowsiness with a feeling similar to the drowsiness one feels after eating turkey.

The information displayed below was collected from January to May 2007 on the islands of Cailín and Tranqui, and the community of Wentemó located on the Pacific side of Chiloé island. In order to protect the identity of the individuals and in accordance with the ethics agreement and culture of the Williche, only the geographical information is used as a reference: Cailín (C); Tranqui (T); Wentemó (W).

Red Algae

Luche (*Porphyra columbina*)

<i>Types of luche</i>	<i>Time of Collection</i>	<i>Uses</i>
<p>Three types of <i>luche</i> are recognized:</p> <ol style="list-style-type: none"> 1. <i>Luche chiuque</i>: which is thin and short; it grows closer to the beach and is yellow. 2. <i>Luche</i> for food. 3. The <i>luche</i> that grows further out is darker and thick; it is not known how deep it grows. (C) 	<p>The time for <i>luche</i> is between February and March. (C)</p>	<p><i>Luche</i> is served for all meals and it is consumed generally for lunch. (C) Also as a relaxant [you feel relaxed, after eating]. (C)</p>
<p>Two types of <i>luche</i> exist, the normal one and the <i>chiuque</i> (yellow). (C)</p>	<p><i>Luche</i> matures in June and July. In those months they harvest it for cooking. After this time it is dried and gone. (C)</p>	<p>There is very little <i>luche</i> left, it is collected to sell in the market. (C)</p>
<p>Two types of <i>luche</i> exist. The one that is eaten is blacker; it grows nearer to the sea [sub tidal]. The yellow <i>luche</i> is thin; the one that is used to cook is thicker. (T)</p>		<p>The yellowish <i>luche</i> is not eaten (<i>luche chiuque</i>), because the <i>tiuques</i> [birds] eat it, and also they feed it to the pigs to make them grow fat. It is boiled with water and then it is mixed with bran. (T)</p>

Luga (*Gigartina skottsbergii*)

Time of Collection	Other Uses
From December until April. (C)	To sell to factories. (C) and (T)
	As fertilizer when the seaweed is still damp, before it is completely dried. (C)
	The <i>luga</i> that is found here is very slimy; it is not sold. Here the only one that is sold is the black <i>luga</i> , which is coarser or more robust. Of course it is not sold more than the red <i>luga</i> (that is not found here). (T)

Llapín (*Nothogenia fastigiata*)

Medicinal Uses	Other Uses
Antiparasitic for hogs. It is boiled with bran. (C)	Fertilizer(C)
Food for the hogs so that they grow better. (C)	To sell to factories. (C and T)
Llapín is only used as a food for pigs, whether they are ill or not. It is boiled and mixed with bran.	
Does not serve for foods [human], but is given to the very small and weak animals. It is boiled until it remains thick and then is given to the animal. It is like a laxative; the animal gets rid of everything and then grows very fast. (W)	

Pelillo (*Gracilaria chilensis*)

Medicinal Uses	Other Uses
They do not know of any. (T)	The <i>pelillo</i> is not very favorable for the cultivation of potatoes, because it keeps the water in and they do not mature, but it is good for the cultivation of flowers. (T)
	The <i>pelillo</i> was brought from outside Chiloé, because the <i>pelillo</i> is cultivated. Before [when she was a girl] not so many algae were seen, only the <i>lamilla</i> [<i>ulva</i>]. (T)

Green Algae

Lamilla (*Ulva lactuca*)

Medicinal Uses	Time of Collection	Other Uses
It is used for burns, mixed with egg whites. (C)	There is no distinct time for harvesting, and it is found all year long. (C)	Historically they mixed the <i>lamilla</i> with manure, for fertilizer. (C)
Also it is used to alleviate burns (at first it feels very hot) (C)	It is harvested at the time of sowings, from July to September. (C)	As a fertilizer: when you sow the potatoes you put the <i>lamilla</i> over it on top, and to sow garlic you put it underneath. (C)
		As fertilizer for the garden. It is transported from the beach to the home, then left to rot until it turns into a paste; then you put this on top of the potatoes. (T)

Brown Algae

Sargazo (*Macrocystis pyrifera*)

<i>Medicinal Uses</i>	<i>Time of Collection</i>	<i>Other Uses</i>
<p>The <i>sargazo</i> is for healing bones: the leaf of the <i>sargazo</i> should be fresh. It is put over the stove, then mixed with beaten egg whites and sugar. Instead of egg they can use the urine of a boy. (C)</p>		
<ol style="list-style-type: none"> 1. For burns: put on when it is fresh and cold, directly on the area affected 2. Varicose veins: is left until it falls off by itself 3. Lumbago (rheumatic affliction in muscles of loins): as a poultice of sand, ashes, and urine of a boy, mixed together. It is cooled and is put in a small bag. It is later applied on the area affected. (C) 		<p>Fertilizer(C)</p>
<p>The <i>sargazo</i> is used for pains or soreness. It should be fresh (and without heating) (C)</p>		
<p>As medicine <i>sargazo</i> is used for rheumatic pains. The <i>sargazo</i> (leaf) is taken wet and applied on the area where there is pain, with abundant salt. This is left on for the whole night; in certain occasions the <i>sargazo</i> will fall off itself (when it has completed its effect). (T)</p>		<p>Food of the abalone (shellfish). (T)</p>
<p>It is used to fasten bones. It is heated on the stove and then applied. (W)</p>	<p>It should be gathered in the morning. (W)</p>	

Cochayuyo, Koiof (*Durvillaea antarctica*)

<i>Medicinal Uses</i>	<i>Time of Collection</i>	<i>Other Uses</i>
<p>There are two types of <i>cochayuyo</i>, “black” and “blonde.”</p> <p>The black <i>cochayuyo</i> is given raw to the people that have the “light blood”. The preparation is identical to that of the blonde <i>cochayuyo</i>. (W)</p>		
<p>The blonde <i>cochayuyo</i> is used when you have problems with ulcers, irritable colon & gastritis. (Chiloé workshop, April 2007)</p>	<p>October until February</p>	<p>For cooking a typical Chilote dish, curanto. (Common knowledge)</p>
<p><i>Cochayuyo</i> is given to babies to suck on while they are teething, to relieve the pain. (Common Knowledge)</p>		

Comparison of Williche and Mi’kmaq Uses of Seaplants

There were many similarities found between the uses of seaweed by the Mi’kmaq and Williche. They both used seaplants for a variety of things including: cooking in ground ovens, for healing bones, burns and skin problems, and as fertilizer. One finding is that both the Mi’kmaq and Williche use *Ulva* to help with skin problems and particularly to get rid of warts: “there was a lady who had warts, planters wart, and she even, just bathing in that [*Ulva*]; put it in your water and you just bathe, you don’t have to rub it on or anything” (Anne, personal interview, Dec 6, 2006) and in Chiloe this quote was taken from a seaweed workshop: “later all the part where

the *lamilla* [*Ulva*] was left, whitened the skin. What happens is that *lamilla* has much saltpetre [potassium nitrate]. It burns, for that reason it [*Ulva*] kills warts” (April, 2007).

When you ask a Williche person how seaweeds are used as medicine they will say that *sargazo* (brown algae) is used to heal broken bones. They take the *sargazo* and heat it on the stove until it is a bright green color, they will then mix it with sugar and egg whites, then wrap it around the bone. Brown algae are used to heal bones among the Mi'kmaq as well. They have used it in the past to help children who have bowlegs: “how I seen it now, this little baby was kind of deformed, the legs were a little deformed, and the mother was carrying it in a papoose cradle and I've seen the long seaweed put on both sides of the legs and then bound up, then closed up and kept in the cradle and the legs were straight” (Anne, personal interview, Dec 6, 2006).

Both groups also spoke about the use of seaplants when cooking in traditional ground ovens, usually for potatoes. Seaplants also made up a part of their daily diet. The method for drying the seaweed was very similar in both cultures in that they would use their natural surroundings, whether it is the beach, rocks, grass, or the side of the road. Both cultures used seaweed for multiple purposes and both are presently experiencing a decline in the traditional use of and the information regarding algae.

In order to survive and prosper indigenous people had to develop a complete understanding of their environment; knowing which plants and herbs (land and sea) would provide them with nutrients and medicine—ethnobotany. It is very interesting that these two cultures, which are placed in two different oceans and two different hemispheres, have similar uses for seaplants that are of the same family but not the same species. This shows how both of these coastal tribes fully understood their environment, and the importance that seaplants played in their eco-niche. Today, both groups express concern over the health of the oceans and note that you need to find a clean area to harvest any seaplants.

The Issue of Food Security

While the idea of eating seaplants is still around in Prince Edward Island, very few people partake in this diet. Ones like dulse can be found in grocery stores, and kelp is distributed through local markets. The tradition of seaweed pie, usually made with Irish moss, is still well known and a recipe for it is quite easy to find. However, with the exception of a few seaplant enthusiasts, it is a resource that remains underused for the purpose of health and nutrition by the local population. Some members of the Mi'kmaq community may still go out today and collect seaplants but depending on where they live, access to clean healthy beaches is not always available: “I would be more wary of collecting it now because of the pollution in the water but when I was young there was no pollution in the water, we didn't worry about it, there was no concern” (Anne, personal interview, Dec. 6, 2006).

In Chiloé the majority of the people we conversed with were reluctant to eat the algae that traditionally were not used as food. One seaplant called *pelillo* is a perfect example of this. *Gracilaria chilensis* (*pelillo*) is widely collected to sell to factories because it contains the polysaccharide agar, but it is also edible. Chilote people were very surprised that this seaweed could be eaten and that it carried health benefits. In the tradition of the current population, only two types of seaweed are used as food for human consumption: *luche* and *cochayuyo*. The other algae seem to suffer from a cultural stigma, since they have been destined for consumption by animals, for use as fertilizers, and now harvested for factory production. It is believed that due to this stigma there is reluctance to utilize these other seaweeds as food for humans, and even more so for medicine. It is not known exactly when or how these stereotypes arose.

The algae that are used as a source of food in Chiloé have also suffered cultural devaluation, with the consumption of and demand for these products diminishing. Those who have traditionally made their livelihoods from harvesting and selling *luche* or *cochayuyo* therefore seek new sources of income. In Chiloé the growing aquaculture industry also has a negative impact on the environment: polluting the very water where people traditionally collect shellfish and seaweed, and limiting the area where people are able to harvest. In the population in general, the traditional knowledge of algae (ways of preparation, utilization as medicines, etc.) seems to be diminishing. There are fewer families that use algae as food today than in the past. The majority of people in the archipelago of Chiloé who still use seaweeds frequently are those that reside in remote coastal villages where seaplants grow in natural form and where access to other commercial foods is difficult.

How is Traditional Information Disappearing?

This question can also be applied to the use and preservation of indigenous medicinal wisdom on a global scale and I believe the causes will be similar. Some of the interesting themes that emerged from this research were how both cultures are experiencing a decline in the use of seaplants, holders of local ethnobotanical knowledge are increasingly harder to find, and the information does not appear to be reaching the youth. In PEI very few Mi'kmaq actually use seaplants today, therefore the information is not being retained and the youth are not absorbing this part of their culture. When I asked Mi'kmaq about this I was told by one participant that people today are so used to going to the drug stores for medicine that you don't need to go to the beach or woods anymore. The need for this source of medicine has been taken away (George, phone interview, Dec. 2006). For another participant, Mi'kmaq do not use seaweeds today because "they are so into doctors today and if you gave a

doctor seaweed today they would try to make a capsule out of it anyway. I've given them a lot of healing ideas of things that I know that have worked to heal people, but because you have to use it in its natural form, they'd rather not" (Anne, personal interview, Dec. 6, 2006).

This question was also asked among the Williche, but pertaining to the use of seaweed as food more so than medicine:

¿Hay una diferencia para las algas marinas de ahora cuando tú cocinas y cuando tu fuiste joven?[Is there a difference now when you cook seaplants than when you were younger?]

Es diferente, porque ahora se cocina menos, menos cantidades y en menos tiempo también. Ahora, no sé, uno lo utiliza una vez a la semana o una vez al mes, una vez al año. Yo, el cochayuyo lo utilizo poco. [It is different because now it is cooked less, a smaller amount is used, not as much time is used for cooking. Now, I don't know, a person may cook it once a week, once a month or once a year. *Cochayuyo* I use a little.] (Maria, personal interview, April 16, 2007)

According to this answer the use of seaweed as a food has decreased. Seaweeds like *cochayuyo* and *luche* are sold in markets after they have been dried for personal consumption; *cochayuyo* in particular needs to be rehydrated for at least an hour before it is ready to be eaten, raw or cooked.

The explanations given by the participants for the decline of the use of seaweed, I feel, are not holistic enough to satisfy the question of how the information is disappearing. Although these answers bring new light to the subject at hand, the history of these cultures is so deep and has so many different roots that the answer cannot be summed up by only these single points. Historically, we know that these groups were irreversibly affected by the arrival of Europeans and saw their populations dwindle severely. The first Europeans to arrive in Atlantic Canada were in 1534 (Wallis and Wallis 1955). Harald Prins (1996: 53–54) refers to this period as the “great dying” where “75 percent of some 15,000 Mi'kmaqs died.” As the years passed Mi'kmaq were continuously forced and pressured to leave their culture and take on the ways of the white man. The history of Chiloé is not a simple story to tell. The population is a mix of indigenous tribes and Chileans. The island has suffered earthquakes and tidal waves; the human intervention of Spanish colonialists and Dutch pirates; and the geographic “accident” of being an island. The earliest signs of human activity in this area of Chile date back to 14,600 calendar years before the present, at the archaeological site of Monte Verde II (Dillehay et al., 2008).

Underneath current practices and attitudes is the subtext that the use of seaplants is seen culturally as something of the past for both the Mi'kmaq and Williche, if it is seen at all. In a world where salmon farms, fast food and office jobs are seen as progress, the harvesting and consumption of seaweed has fallen behind. There have been many cultural changes for these groups since colonization, and specifically for Williche over the last 50 years (tidal wave, influx of foreigners from mainland Chile and other countries, large scale aquaculture and the modern devices of the 21st century). These changes affect the everyday routine of the people. Because this island culture was protected by its isolation, the modern changes are having a quick and strong impact on the lives of the Williche. A similar situation has occurred in the history of the Mi'kmaq people where they too have been under European rule for 500 years. The impacts from this have been felt continuously, with different cultural challenges but a similar outcome.

The results of cultural colonialism by both the Chilean and Canadian governments are evident here. I feel some of the larger themes attached to the decline of the utilization of marine and terrestrial plants are the attempted assimilation of indigenous cultures by the governments of these nation states; the drive and push to modernity; technology; the medicalization of health and an insistence on biomedicine as the only medicine; a lack of youth involvement; as well as everyday challenges that indigenous peoples of the Americas face owing to marginalization and discrimination. Currently, aboriginal knowledge appears to be dying out and we need to look at not only why this is happening but also how it can be prevented on a global scale. The purpose of this research was to collect traditional information. It was not until the collecting was started that the question of why there has been a loss of information was asked; therefore, future research needs to be conducted in order to fully understand the present situation, and to give the people who are affected by this a voice.

What Interest is There to Sustain Traditional Knowledge?

Regardless of the level of knowledge that the people I spoke with had about the uses of algae, they fit into one of three groups concerning their interest:

- 1. interested in the medicinal properties and as a source of food*
- 2. interested only in possible economic gains*
- 3. did not show any interest in the topic*

In PEI, while some people did not show any interest in the topic at the interview stage, people who attended the dissemination workshop showed enthusiasm and were curious about the different uses of seaweed for food and medicine. During the workshop people

openly spoke about stories they had heard in regards to the uses of seaplants and they wanted to know how they could use and collect local species.

The people of rural Chiloé who make their livelihood with seaweed showed a lot of interest in new ways of making money with seaweed. They were not as interested in utilizing the seaweed for its health advantages and much less as a highly nutritious food. Paradoxically, it was observed that the people originating from the urban centres are more disposed to incorporate the algae as part of a nourishing diet, but they have less access to acquire such food, except *cochayuyo* and *luche*, due to their urbanization. One reason, I suspect, for this is because the people who harvest the seaweed have a lower income level and the importance is put upon gaining income, while people in the urban centres are generally “better off” and can afford to be concerned with alternative diet and medicine. Further research should be done in order to compare these findings to the practices in PEI.

As the research moved forward it also changed direction from collecting information to exploring how to sustain the information. I realized that not only was I learning from the Williche but I also had the opportunity to share with them the academic knowledge on the different species of algae that I had gained from Dr. Novaczek. Having this type of information opened a window that allowed me to share with them the medicinal properties and food sources their local algae provided—these were unknown amongst them. This experience changed the focus of the project from not only what the Williche could share with me (local knowledge) but also what I could share with them (academic knowledge).

Sustaining Medicinal Traditions Through Practice

In regards to the prevention of the further decline of indigenous medicinal wisdom, I believe that examining the Health Program of the Williche Council of Chiefs entitled *Kume Mogen Rüpü* [A Way to Balance], will show how these practices can be maintained. From my experience the mixing of traditional and academic information has shown positive results when the goal is to benefit the indigenous cultures where this information came from. When you give someone the scientific explanation for why a certain seaplant heals burns, it raises the level of credibility that local information has and it compliments it at the same time. It is not just a “folk” remedy but a modern medicine that has been based on practice and results.

As a Canadian anthropologist I also see the benefit in encouraging and supporting the ability among aboriginal communities to re-teach themselves their cultural practices that have either been taken away from them, or have been lost due to colonization. Instead of Governmental institutions—not just in Canada and Chile,

but around the globe—taking the practices away from indigenous communities as they have done, I believe that these institutions have the responsibility to help restore and sustain them.

I will now use the health centre (Mapu Ñuke) of the Williche Council of Chiefs to illustrate how ethnobotany, indigenous medicine and biomedicine are brought together in this balance—medical plurality, and how this can help preserve and strengthen traditional indigenous wisdom and, more importantly, the health of these people.

Profile of Mapu Ñuke⁸

The Williche Council of Chiefs created their health program in the late 1990s and titled it Kume Mogen Rüpü which is “La Programa de Salud Intercultural Complementario Williche” [The Williche Complementary Intercultural Health Program]. The Council of Chiefs saw a need in their community for the use of natural resources that have been used as part of their traditional knowledge, and an integrated health program with government health authorities. The program itself is run in a rural community where the GCWC has been given land to build the health centre, or Mapu Ñuke as the locals refer to it. The objectives of this program are as follows:

- 1) To promote the development of how the Williche take care of the health of their people***
- 2) To support and teach the local health teams in the knowledge of the Williche culture***
- 3) To offer health attention (facilities) to the people and their families, based on complementary western and native therapies – to integrate original Williche therapies***
- 4) To enable professionals with the concept of intercultural and complementary health***
- 5) To contribute to the improved participation of organizations that are involved in health activities.***
- 6) To contribute towards the improvement of public health by including these models.***

I have included this profile because I see this as an example of medical plurality and it also shows that when traditional practices are supported, traditional information survives for longer and it reaches people at all levels of society. My work at the health centre became a focal point for me with this project, even though it was not included in the original design. During one week each month the centre is open to the public for medical visits. The clinic offers traditional and alternative methods of healing. While I was in Chiloé a patient was able to undergo assessment and treatment with biomedicine, acupuncture, herbal medicine, reflexology, reiki, and aromatherapy.

⁸ In the Williche language (Mapudungun) Mapu Ñuke translates into Mother Earth.

During this week of attention the medics from the centre also visit two Williche communities, which are not necessarily rural. When they do these visits they bring only local medicine with them. They promote the use of local medicine and they also teach prevention of common illnesses. If the problem is more serious they ask the person to visit the health centre or the doctor will give out a prescription to take to the pharmacy (which can be costly).

All of the local medicines are prepared, bottled and labelled at the on-site laboratory by Rosa Carimoney, the Lawentuchefe (herbalist) for the centre. Right now there are numerous types of medicinal products, which include 30 different kinds of drops, 8 different kinds of external lotions, various skin creams, massage oil and syrup for asthma. These medicines are prescribed, not only by Rosa but also by the medical doctor(s) at the centre. Since many Williche are characterized by low income the cost of the local medicine depends on the financial situation of the person. One bottle of medicinal drops can range from 2,000 Chilean pesos to 1,000 (500 pesos roughly exchanges into one Canadian dollar).

It is important to note that the illnesses suffered among Indigenous people in Chile and Canada are very similar, and I would even go so far as to speculate that the population in Canada has more serious health problems. From the fieldwork I conducted it was evident that for the Williche the majority of health problems consist of diabetes, hypertension (high blood pressure) and forms of depression. It is more common for females than for males to have depression, and very common in mothers after their first and second child. However, from general observation, levels of obesity and illnesses like cancer are much lower in Chile than in Canada.

The role that the health program and the physical space of the centre play for the Williche is vital to the preservation of traditional indigenous knowledge. The fact that their herbalist collects the plants, makes the medicines and prescribes them is why I feel the Williche are not lacking in their wisdom regarding medicines that come from the forest. If the centre did not exist then I believe the use of traditional medicine would sharply decline. Without the centre Rosa would not have her laboratory to create the medicine, nor the means to disperse it on a wide enough scale, to cover the cost of production. The centre is open to all peoples, not only Williche. This allows the traditional medicine to find its way into the mainstream alongside prescribed western pharmaceutical medicine. On a larger scale this also creates a positive and educational environment where natives and non-natives work together, which in turn helps to change some of the negative stereotyping that is often directed towards Indigenous people. The Biodiversity Fair in the town of Castro is held every February and draws thousands of people, both local and international. In 2007 the health centre had

its booth at this fair and sold out of some of the medicines that were provided. This example shows that the general public are aware of the value in these medicines; that “folk” medicine is a legitimate form of healing; and that people are comfortable with using forms of non-biomedicine.

Feria de Biodiversidad, February 2007 in Castro. The two black ash baskets were brought to Chile as gifts for the Williche Grand Chief—they were made by artisans from across Mi'kma'kik and were purchased on the First Nation Community of Lennox Island, in Prince Edward Island, CA. The table is spread with the various medicines and remedies that are made on site at the health centre.



In my opinion this centre plays a very large role in the activities of the Williche community and the future of this project. In addition to running the health program, the centre functions as a place to hold meetings concerning issues of environmental protection and regarding intercultural education in the classrooms of Chiloé.



Conclusion

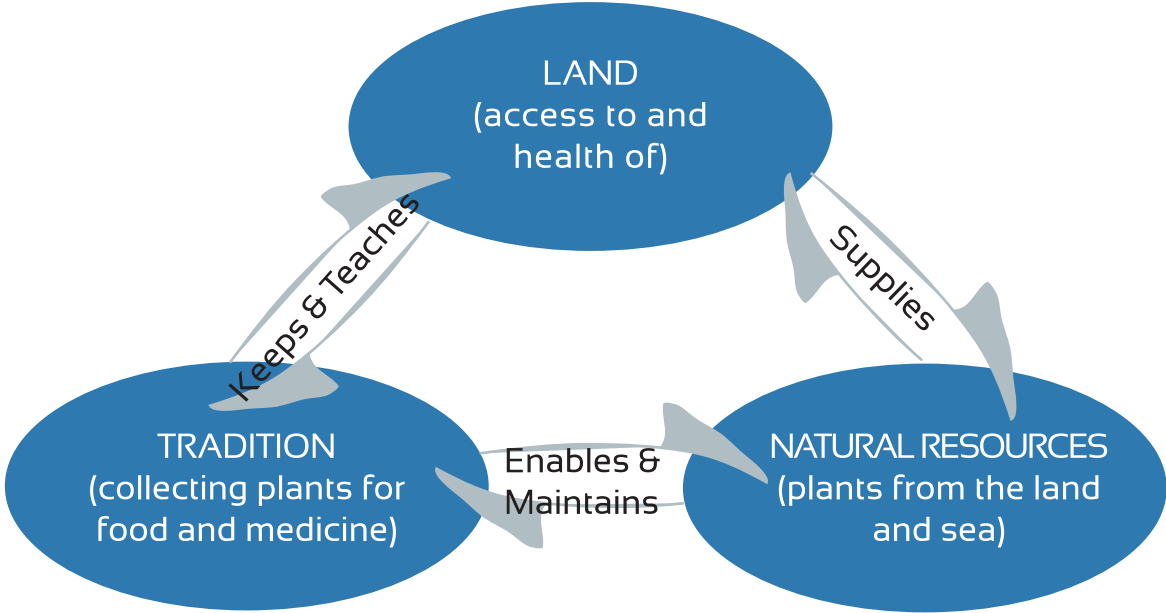
Firstly I would like to thank everyone who participated or assisted me with this internship, and I would like to recognize that I could not have done it alone. One reason for writing this report was in part to give recognition and a voice to the traditional forms of healing of both the Mi'kmaq and Williche. When speaking for someone else one needs to be careful in how one presents the information, and I hope that with this report I have given the Williche and Mi'kmaq an opportunity to speak for themselves. When one sees the conditions of these communities and understands the injustices that have been committed against them by governmental powers, it is truly awe inspiring that both cultures have been able to maintain aspects of their culture and the extensive knowledge of their eco-niche after 500 years of colonization.

In the visits to Aboriginal communities in Canada and Chile, it became apparent that the fight for land is of the greatest importance. I feel part of the importance of land is that it plays a large role in restoring aboriginal wisdom: land supplies natural resources; natural resources enable traditions to be practiced and provide life; tradition keeps and teaches how to use the gifts of mother earth in a sustainable way; the people who are able to practice their traditions have a healthy well-being; those with a healthy well-being are able to take care of themselves, their families, their communities and their environment.⁹ By losing access to their land, aboriginal people lose their culture, their sense of identity; they are disenfranchised across various themes. When a culture is knowledgeable in their traditions and they lose their land, they lose the practice of those traditions as well. This is the current situation in many aboriginal communities, which leads to the question: if they are given back their land will the traditions return, or will there not be anyone who remembers? Below I have created a diagram which outlines the relationship between access to land, natural resources and practicing tradition.

By increasing the emotional, spiritual, physical and mental experience of using natural

⁹ For more information on the idea of health and well-being in indigenous communities, see Adelson's work on "Being Alive Well."

resources, as they were culturally used in the past, Aboriginal agency will help the process of decolonisation. By being reconnected with meaningful cultural practices that are familiar, you are restoring identity. If traditional medicines are not recognized for their contribution in the wider world then they are not promoted, which can then affect the people who do need and use them.



What was Found

In this report I have presented a look at the importance of the current uses of seaplants (provides food and medicine to impoverished people; is an issue of food security), how this practice is disappearing (loss of access to resources, knowledge and tradition), and the importance of sustaining these practices. Reclaiming and protecting indigenous ecological knowledge is an important exercise to provide the basis for a community’s development. Through the utilization of natural resources and focusing on environmental stability, there is an opportunity for such development. Unfortunately, in the last century many cultures have been forced to adapt to the capitalist mode of production, which I feel has contributed greatly to the disappearance of their traditional medicinal knowledge. As mentioned earlier, the process of knowledge slipping away became apparent while doing this fieldwork. In some cases a person possessed the knowledge but did not recognize it as important. I received the impression that the information was “unknown” because of its lack of use in these communities. This can be related to the effects of colonialism; the colonized are battered culturally and psychologically, therefore the impetus

to practice traditions and value their importance may be weakened. Aboriginal knowledge around seaplants was present in both cultures, however it seems the area of seaplants is not as well known as the information about land plants and herbs. The information itself exists but is not thriving in the communities.

It is apparent amongst the Williche and Mi'kmaq that the youth in their communities are becoming less and less involved in their traditional cultural practices and also in the livelihoods associated with these practices (eg. fishing, hunting). From this research project there is the potential for future practices of small-scale production with natural resources (seaweed) giving the youth and wider community a form of encouragement to participate in learning the wisdom of their culture. If these aboriginal people have the agency to build upon the knowledge that already exists in their communities it can help to decolonize and restore the identity. The other side to this is that the Western world also needs to recognize the importance and value in local medicines.

The Benefits

When working in the area of cultural wisdom, who will benefit from the research is always a question that should be at the front of a western researcher's mind. Through participatory action research the community is involved in the development and implementation of the project. By having the Williche and Mi'kmaq involved in the planning and design of the research, the dissemination workshops and other events, the information for the project comes from the community and is then dispersed directly into the community.

Exploring the uses of traditional information, I feel, is one way to better understand cultural differences that exist and realize that the value of traditional information is relative to that particular culture and should not be devalued because it is misunderstood by others. When the wisdom of Indigenous people is valued in their own communities it should be recognized and valued outside of these communities as well. With decreased amounts of negativity focused on a culture that is outside of western society, it is hoped that there will be an opportunity for the decrease of stereotypes. In the case of medicinal practices, if western medical doctors and the wider society give local medicines the credibility that indigenous people have claimed for centuries, then it would positively reinforce recognition of traditional healing methods. I do not suggest that people should stop going to their doctor, but that there can be a balance between traditional (local) and biomedicine. This balance is especially important not only in Canada and Chile, but for the health of marginalized and economically disadvantaged people around the world.

The personal benefits for me were being able to spend time with both of these amazing cultures and to learn about the medicinal properties in seaweed, from both an academic and an ethnobotanical perspective. Alongside this was, and still is, the benefit of sharing with the Mi'kmaq and Williche what I have learned from them about edible and medicinal seaplants. This gave both cultures the opportunity to learn about the other and the similarities between their knowledge on the various uses of seaplants. Even though I was the person (often aided) who facilitated the "Knowledge Sharing Circles," the information came from the communities and the real work is to make sure the information does not only sit on a shelf, but that the results are known to all the parties involved.

The aims of this research were to contribute to the economic diversification and to the continued existence of cultural practices of marginalized indigenous communities on PEI and Chile. This was achieved through identifying opportunities to enhance traditional medicine practice and diversify the local economy by building on indigenous knowledge of edible and medicinal marine plants. These aims are important because Aboriginal cultures are often discouraged (or simply not encouraged) by the wider society to seek ways of empowering themselves towards improved quality of life. From this project it is apparent that there is not only the knowledge of edible and medicinal marine plants but also the capacity within the communities for the future possibility of creating a seaplant entrepreneur project, with either the Mi'kmaq or Williche, if they desire to do so.



Appendix A: Challenges and Activities of the Research

Challenges

With any type of ethnographic work there are challenges to face. Some of the ones that I faced while working as an intern were: personal, political, and ones that arise when working with a non-governmental organization. As in most cases the lessons one learns from the challenges undergone often serve to strengthen your skills for the future. The main challenges were community involvement/acceptance, NGO's funding issues, language, time or length of project and general cultural challenges a Canadian female would face working overseas.

One of the main challenges throughout the internship was becoming known and trusted in the Native communities. In Canada I had assistance from the Mi'kmaq Confederacy, specifically from Cheyenne Francis. Unfortunately I felt there was a lack of awareness in the community about the project and a lack of time to promote it. Following the ethics procedures of MCPEI, Cheyenne contacted all of the possible participants first to ask if they would volunteer to be interviewed; however many of them declined.

While in Chile it was also important to work within the cultural norms of the Williche, which meant I needed to be introduced to the appropriate people and invited into the communities. Even though I was there under the direction of the Williche Council of Chiefs, it was difficult to know community members. The council needed to become familiar with the project and me before I was able to conduct my research. This is often the case when doing anthropological work; time is needed to build rapport between you and the people in the communities. I was able to work in five communities, but at most had only visited them once or twice. The health centre did play an important role in my internship because I was able to meet other Chiefs and community members through meetings they were attending at the health centre. It seemed, however, in both situations that the native communities were not fully aware of the project or what I felt its potential was, which was a set back since my core

objectives were around collecting medicinal information from these communities.

The other challenge attached to this is the ability to develop rapport with the people you are going to interview, having the community accept you and the project you are working on. In PEI I had only three months to become involved in the community and interview people. I felt I had achieved a more open relationship with the communities once I had returned to PEI in the summer and had time to reconnect. This problem was also very similar with the Williche in Chiloé. Five months (really three months due to the lack of fluency in the local language) is a very short amount of time for the communities to develop trust in a foreign researcher. Even though I was welcomed into the Williche community it became clear that my project was not one of the main concerns at that point in time due to the various ongoing political conflicts. These conflicts range from issues of land rights, to discrimination from the Chile community at large, and also internal conflicts between the two Williche organizations, the Council of Chiefs (traditional) and the Federation (modern [governmental]). It became clear that these conflicts were engrained in the everyday lives of the people, often with communities split between one organization / religion and the other. The geographical space between communities also presented a set of challenges, when taking the amount of time allotted for the project into consideration. In both countries the communities are usually rural and have large distances between them. In Chiloé this was more of an issue because some of the communities are located in very remote areas or on small islands, which may only be accessible by boat, or on foot. The houses themselves are also spread throughout the countryside, and it was difficult to visit any place more than once. One benefit of this challenge was that I was able to visit remote Williche communities and experience the rural lifestyle.

The NGO that I was working with in Chiloé (BMCh) had its own challenges to deal with, that were due to funding and support cuts. When I first arrived in Chiloé, the Bosque Modelo was undergoing financial and organizational difficulties.□ Santiago Elmúdesi was unsure whether the organization would still be running at the end of January, and expressed his concern over not having projects for me to work on nor the time to spend with me. I came at an unfortunate time for the organization; on top of this I did not have the skills in Spanish necessary to make myself useful in the office. However, I was able to spend time with their microcredit officer and learned about this program. Given the situation of the Bosque Modelo, I rearranged my time to spend the majority of it with the different projects of the GCWC.

A personal challenge was my limited Spanish when I first arrived in Chile. I was able to have private lessons for a month, which were a great deal of help. I gained a functioning level of the language, although towards the end of my time in Chile

it was still quite difficult to communicate with people who live in the more remote areas (due to different dialects). Since the issue of time has already been addressed I will only point out that the amount of time allocated for this project was significant but more time would have given me the opportunity to fully increase my level of Spanish, further build rapport in the communities and conduct more fieldwork. These internships are designed as eight-month projects, regardless of the internship focus. This presented me with certain challenges due to the fact that the way to access traditional information is to become a part of the community, something that is not easy to accomplish in three or four months.

In short the challenges were difficult but rewarding at the same time. Working with the Mi'kmaq in PEI and the Williche in Chile required a different approach to research; it required learning the rules that guide these cultures. There is no guidebook that outlines these rules, but only the lessons learned on a day-to-day basis. One of the goals that arose for me during my internship was to be able to organize activities through self-direction. Towards the end of my internship I felt I had achieved this by conducting the workshops, generating successful fieldwork, and specifically in Chile accompanying the health center with their community visits, speaking at two rural, elementary schools and creating educational displays.

Activities

On the 10th of October I started work on the Canadian half of my internship with Dr. Irené Novaczek. For the first week in PEI I became oriented to UPEI, my colleagues and the work expected of me. A meeting was held with the Mi'kmaq Confederacy of PEI (MCPEI), where we discussed the project objectives, the issues surrounding gaining and maintaining ethics approval, and my introduction to the Mi'kmaq community.

Activities that I worked on during this period were receiving ethics approval from UPEI so that interviews could be held with members of the Mi'kmaq and Williche communities, and giving a presentation in Lennox Island about the project. My first presentation in an aboriginal community taught me how to improve skills regarding setting up meetings or presentations in these communities and the importance of networking. I applied for and received approval and funding from the Social Economy and Sustainability Research Network, Sub Node 2: inclusion & empowerment. This funding went towards travel costs and field equipment (digital camera, tape recorder). The Social Economy and Sustainability Research Network gives funding to community and university partnerships in an effort to promote sustainability and development through the means of research and community mobilization among social economy organizations; their principals have been applied throughout this research.

Through my work in the fall I was able to develop the skills needed to document indigenous traditional uses of marine plants. The skills I developed ranged from learning how to make dried samples of seaweed, to interview techniques that respect aboriginal culture, especially regarding traditional knowledge. With the library searches and fieldwork I did uncover a small amount of data.

Other activities that took place during this period were taking Spanish lessons, attending the 2006 Micro Credit Summit in Halifax, N.S.; and improving my understanding of organizational culture, structure and politics, especially when it comes to identifying the “stakeholders” in a particular project, how these different players become involved and what their interests are. There was also some media attention that was brought to the internship. Before I left for Chile, I was interviewed by CBC radio in Charlottetown, PEI and Sydney, NS, and by the local newspapers in these two towns, *The Charlottetown Guardian*, and *The Cape Breton Post*.

I arrived in Chile at the beginning of January to start the second phase or overseas component of my internship. My work was at first centred on orientation to Chiloé, including learning Spanish and becoming familiar with the traditional customs and everyday practices of not only the Williche culture, but also the culture of Chilotes (what people from Chiloé call themselves). My time was divided between the Health Centre, the office of the Bosque Model Chiloé (BMCh), and visiting rural communities on the Island of Chiloé and on the smaller islands that make up the archipelago of Chiloé.

For my fieldwork Mariana Soto, a fellow anthropologist who was hired by the Williche Council of Chiefs, greatly assisted me. Together we conducted informal interviews, collected seaweed to make specimens on paper, gave a workshop and presentations, created and dispersed educational pamphlets that held information on the local seaweeds, talked to two elementary schools, and helped in the general everyday activities of the health centre (Mapu Ñuke) along with their community medical visits.

My work in the health centre also involved helping Rosa Carimoney, who prepared the medicines at the centre and is also a healer there. She was able to teach me about the different medicinal plants in the area and how to prepare various medicines. During my fieldwork in Chile I was able to talk about the Mi'kmaq culture, collect information on the use of seaweed, and experience rural life with the Williche.

Between February fourteenth and eighteenth, the Biodiversity Fair took place in Castro, where I assisted the Bosque Modelo with various activities and helped the Health Centre with their booth, where they sold traditional medicine. I was also able

to go on a Microcredit field trip for one day, to the Island of Le Moy. I accompanied the Bosque Modelo Microcredit officer while he collected payments from the various clients, and learned hands-on how the Microcredit system works in Chiloé.¹⁰

Workshop #1

On April 26, 2007 Mariana and I held a workshop on seaweeds in the Health Centre. Members of the Corporación Municipal de Salud de Quellón¹⁰ were invited along with Williche community members. A total of thirteen individuals attended, three of whom were Williche women. I gave a presentation on Mi'kmaq culture and their uses of seaweed. During the workshop we mixed education materials with conversation and food. We were also able to teach the attendees new information about the local seaweeds in Chiloé and how they can be used for food and medicine. For the workshop we prepared informative pamphlets on the local seaweeds in Chiloé, in order to teach the general public about the health benefits associated with the uses of seaweeds. The idea of the pamphlets was / is for the paramedics from Quellón to distribute them in the communities when they conduct their medical rounds, and also as educational material to be used by teachers in local schools. The pamphlets also contain questions on local uses of seaweeds that will be answered and returned to the health centre. Mariana and I also prepared the lunch for the workshop, which consisted of different local seaweeds that the population does not traditionally consume. The significance of this was explained in the section entitled *Findings* under the Chiloé heading.

As previously stated one of the underlying objectives for this project was to build an intercultural relationship between the Williche and the Mi'kmaq with the hope of future indigenous knowledge exchanges. Through my work I feel this objective has been realized, for both the Williche and the Mi'kmaq. When I left Chiloé Don Armando Llaitureo Manquemilla, the Williche Grand Chief, told me that he was very pleased with my work in Chiloé and said that I was a good ambassador between the two cultures. I presented the GCWC with an educational display on the medicinal uses of seaweed. The poster consisted of a mix of scientific and local uses for seaweed along with photos. Another display was given to the Bosque Modelo Chiloé for their environmental centre.

When I returned to Canada in June for the final phase of this project I gave two presentations on my internship and held a seaweed workshop that informed the Mi'kmaq community in PEI on the uses of seaweed by the Williche. One presentation was for the ACIC breakfast meeting that was in Charlottetown and the second was for the community of Abegweit. The presentation in Abegweit taught me how to improve my skills for giving

¹⁰ This health organization is funded by the Chilean government and also brings health care professionals to rural areas. Often they work in conjunction with the Programa de Salud Williche and assist with travel logistics.

a presentation in an aboriginal community by tailoring it to their interests. As previously mentioned I had learned the importance of networking and put this to use while trying to organize a seaweed workshop in PEI. I started off by attending the festivities for National Aboriginal Day (21st July /07) and the National Day of Action (29th July /07) out of personal interest and to network with local members of the Mi'kmaq communities. Through these events I was able to find women who were very interested in a seaweed workshop and learning about the Williche.

Workshop #2

After the internship ended I was given funding by ACIC in order to have a seaweed workshop for the Mi'kmaq communities on PEI. The workshop was held on July 5th, 2007 at St. Paul's Hall in Summerside. This location was chosen because it is equal distance between the two communities of Lennox Island and Abegweit. It was also equipped with a boardroom and kitchen, which were essential to the workshop. The workshop was attended by 10 participants: 6 adult females, 2 adult males and 2 male youth and was conducted by Dr. Irené Novaczek and me.

The workshop started off in the kitchen where everyone worked together chopping up seaweed and preparing food. The participants learned how to make a salad, sea vegetable fritters, a hearty soup and a dessert that was made with Irish moss (local seaweed) and blueberries. While the cooking was taking place the youth helped to organize a display of different types of seaweeds, under the direction of Dr. Novaczek. The time in the kitchen also allowed for an informal opportunity to educate the participants on the health properties of seaweeds and to show them how to cook it; having them physically and mentally involved in the task. After the food was prepared I gave a presentation on the Williche and the seaweeds they use in Chile. The presentation was very open, the participants commented frequently, asked questions, and became engaged in conversations about the seaweeds from Chile and local seaweeds as well.

An information packet was distributed to the participants. This consisted of information on PEI's edible and medicinal seaplants, a general chart of medicinal uses of seaweeds, the recipes for the food that was cooked during the workshop, plus additional recipes and a sheet of thought provoking questions.

The workshop was a wonderful success with the goals and objectives being met and exceeded. The participants were enthused about what they were learning and even suggested having more workshops, located directly in the communities. This workshop also contributed to the building of two important partnerships, one between the Institute of Island Studies and the Mi'kmaq Confederacy of PEI, and the

other between the Mi'kmaq and Williche peoples. It was great to see the community members fully involved in the workshop and enjoying themselves, at the same time learning educational, cultural, traditional, and scientific information. One of the greatest accomplishments from this workshop was providing dietary information to the participants. It is hoped that they will take what they learned from the workshop (recipes with seaweed) and reproduce those in their homes.

I also assisted at the Small Island Cultures conference that was held in Charlottetown at UPEI, organized by the Institute of Island Studies. I aided in the setting up of an international art show that included works from a Chilote artist at a gallery in Charlottetown, and worked on translating painting descriptions from Spanish to English. During the conference I aided the presenters by taking care of the technical needs for each different presentation, i.e. digital projection, video, and Internet.

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