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ECCCO Newsletter

NWAC's Environmental Conservation & Climate Change Office

Water Beings Edition

Native Women's Association of Canada

L'Association des femmes autochtones du Canada

In This issue

The theme of the March 2021 edition of the ECCCO E-Newsletter is ‘Water Beings’. These beings are a part of our rivers, lakes, and oceans and either thrive in saltwater or freshwater. Water beings include the swimmers, the crawlers, the flyers, and those that grow amongst the water. This month’s newsletter focuses on stories that highlight the connection between Indigenous women and gender-diverse people’s relationships with water and the beings that live amongst it. When it comes to water and water beings, Indigenous women hold a close relationship in the protection and conservation of water in their communities. Climate change and other environmental issues pose major threats to water beings found across the land from coast to coast. In this edition, these stories highlight those relationships held by Indigenous women and their communities for generations.

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An Indigenous Perspective on Aquatic Invasive Species Management

By: Jade Gabri

Canada's coastline is the longest in the world, measuring 243,041 km (Statistics Canada: International perspective, 2016). Indigenous coastal communities, as well as inland communities along major shipping channels have been impacted by marine transportation. Indigenous women, traditionally known as Water Carriers or Water Protectors, play a significant role in providing a representative voice for water beings in these aquatic environments.

As an Indigenous woman, growing up along the shores of the Kaniataonwanenneh, or "big waterway", I have become accustomed to the impacts that marine transportation has had on the St. Lawrence River at Akwesasne. I have worked extensively on water quality, fisheries habitat protection, and aquatic invasive species (AIS) projects. These stewardship and environmental protection projects allowed me to work closely with water and water beings.

A marine vessel with a destination to the Great Lakes, must pass through the St. Lawrence Seaway. On average, vessels are estimated to carry more than 160 million tons of cargo through the St. Lawrence Seaway each year (Research and Traffic Group, 2014). The greatest environmental impact to this inland waterway has been ballast water releases by marine vessels. Ballast water is used by ships to stabilize vessels when loading and unloading cargo. These releases have the potential to introduce aquatic invasive species (AIS). With more than 100 ports located in the St. Lawrence Seaway inland waterway, there has been an introduction of 186 different AIS due to ballast water releases (Save the River, 2019).

AIS are at an advantage, colonizing, and out-competing native aquatic plant species. For humans, this overgrowth can affect recreational water activities, such as swimming and boating, or the harvesting of medicinal plant species. Habitat rehabilitation and AIS removal is costly. Cutting and removing such plants may also have the potential to cause a re-rooting or the further spread of the species into nearby aquatic environments (Rideau Valley Conservation Authority, 2016).

Two worldviews exist with the management of invasive species. There is a western perspective that says an invasive species are something that needs to be managed and controlled. Alternatively, an Indigenous perspective holds respect for plant nations, where animals provide teachings on how to use this new plant species (Reo & Ogden, 2017).

The study titled, “Anishnaabe Aki: an indigenous perspective on the global threat of invasive species” (2017), delves deep into the conceptualization of invasive species from an Indigenous perspective. This study is led by Nicholas Reo. Reo is an assistant

professor of Native American and Environmental Studies at Dartmouth College and citizen of the Sault Ste. Marie Tribe of Chippewa Indians of Michigan. Laura Ogden, anthropologist, collaborates with Reo on this study. This study conceptualizes plants as part of a nation, with the freedom to migrate just as humans or other animals would (Reo & Ogden, 2017). This Anishnaabe perspective tells that with the arrival of a new plant nation Indigenous people must learn the importance, use and purpose of this new plant species (Reo & Ogden, 2017). This knowledge is primarily obtained through watching and learning how other animal interact with these new plant nations (Reo & Ogden, 2017).

Each perspective is beneficial given different environmental circumstances. Indigenous women and two-spirited persons working in environmental conservation and protection have the opportunity and gift of two-eyed seeing. We can differentiate or integrate these two world perspectives in a way that acknowledge all our relations and beneficial to all nations on Turtle Island.

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Searching for miskanāhk

By: Heather O'Watch

When you think of the prairies, you don't often think of the western painted turtle. The western painted turtle is one of only two species that can be found in the grasslands of the western provinces. The other species is the snapping turtle. The western painted turtle has been around the prairies since even before the ice age, and, although having a long history in the prairies it is most often overlooked because of its rare sightings. The decline in sightings can be linked to the loss of habitat since the introduction of industrial agriculture which now covers over 61.6 million acres in the province (StatsCan, 2018). Although not considered endangered in a report from the Committee on the Endangered Wildlife in Canada, habitat loss is increasingly a risk to the turtles due to the impacts of climate change. (COSEWIC, 2006). The loss of habitat and increasing realities of climate change has a major impact on the western painted turtles as freshwater beings. With changes in landscape from agriculture, urbanization, and infrastructure such as roads as well as the oil and gas industry, it is no wonder the western painted turtle has become a legend or surprise to most Saskatchewan residents.

Although there is rarity in sightings now, stories of the turtle amongst the Indigenous communities in the prairies capture the journey of these water beings. In Nakota they are referred to as kēya, and or in Dakota patkaśa. In Saulteaux, they are referred to as mininac, while in Cree the word for turtle is miskanāhk.

I grew up hearing stories from my mother about how back in the 60's and 70's her family would go swimming in large sloughs and sometimes see turtles in the water. She recalled seeing them more in her childhood as opposed to in her adult life. This could be an indication of the decrease in their population based on their habitat change. She also shared that water around her community changed since her childhood. She described the water being a lot clearer and people using it more often for recreation and necessity. We were driving to our home community last summer and th3 topic of surface water came up again. My mom shared that one way to tell if the water in sloughs is polluted is by looking at the trees and animals that are near it. If the trees near the sloughs are dead and there are not many birds or insects in the water, this is an indication of the quality of the surface water. My mom explained that animals know more than we do and sometimes it takes looking at them for the answers.

Agricultural run-off is an issue amongst Indigenous communities in southern Saskatchewan as it directly affects the water sources of cisterns, and surface water such as sloughs. (Patrick, 2018) This could be the reason why miskanāhk are becoming harder to encounter in the prairies.

Thinking back on my own experience with miskanāhk, as a small child my father found one crossing our road one morning. He picked it up and brought it home where we kept it as a pet for a few years until one day it escaped from its enclosure and made its way back into the bushes. I never saw miskanāhk after that.

A friend of mine told me of her experiences growing up near Cowessess First Nation, a community along the Qu'Appelle Valley. She said that miskanāhk can still be spotted in the early summer months along the banks and or sometimes crossing the road. Her family still lives along the valley near Crooked Lake and over the years has rescued a few from potentially dangerous roads. Her stories of seeing miskanāhk are similar to my own where the sightings of these turtles are more far and few between than for the older generations.

So where is miskanāhk now? More recently, researchers from the University of Regina along with the Royal Saskatchewan Museum had started to collect data specifically on the population of the western painted turtles in southern Saskatchewan. The study tracked a number of turtles living within Wascana Park in Regina. In 2016, the largest recorded turtle was found in the Wascana marsh. The turtle measured 26.6 cm and was estimated to be over 100 years old. It was quite a surprise as the turtle was found in a city park where there is high traffic of human activity especially in the summer months. Its origin or whether it lived in the city park a majority of its life is unknown. (Marchand, K. A., Poulin, R. G., & Somers, C. M. (2018)

However, for Indigenous communities the data can be found in the stories of encounters with miskanāhk. Stories such as my mother's, my friend's, or even my own where we have all crossed paths with miskanāhk. They are stories that provide a look into the changes of the water and decrease in turtle population, which can all be linked to the environmental changes in Saskatchewan. As we look ahead miskanāhk may disappear entirely and leave only stories behind. This is the consequence of climate change and its effect on all walks of life including miskanāhk.

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The Soul and Spirit of the Whale

By: Isabel McMurray

Whales have long held an important spiritual and cultural role in Inuit society. There is evidence that Inuit hunted bowhead whales in Greenland 4000 years ago. Scientists currently believe that whaling in North America began between 1200 and 1400 years ago, off the coast of Alaska and moved east as Inuit migrated across the North into the Canadian Arctic.

Whales are central in many ceremonies and practices, to build and solidify the human-whale relationship. For instance, the undersides of whaling canoes are traditionally decorated in a way to convey the whaler's respect for the whale. Inuit whalers understand whales will inspect these canoes to gain a sense of how their body would be treated after the hunt. If the whale finds the whalers are appropriately respectful, they allow themselves to be taken.

For a long time, the government imposed a moratorium on whaling, after non-Inuit whalers significantly over-fished.

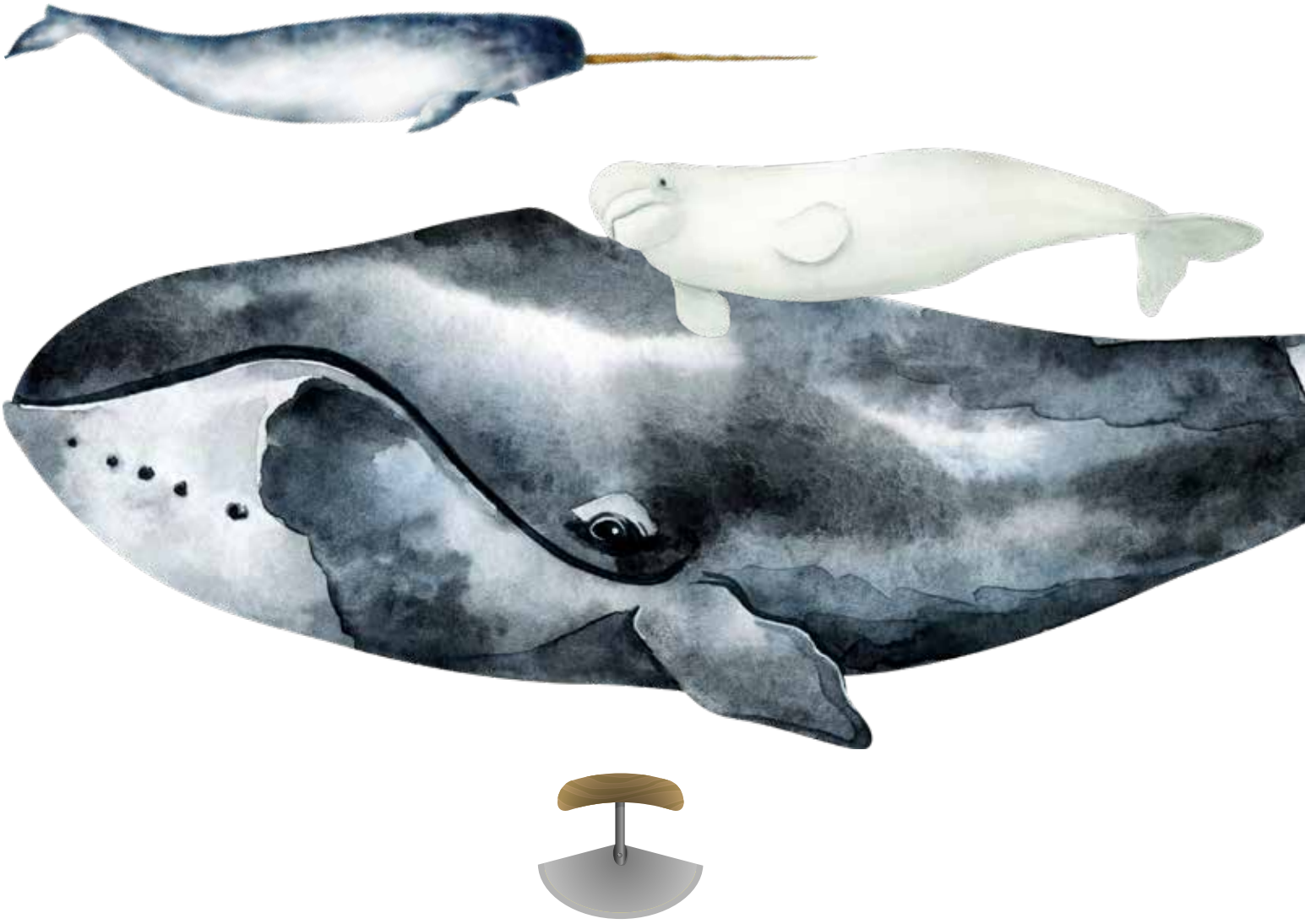
Inuit communities are beginning to hunt whales again. In Iqaluit, hunters harvested bowhead whales in 2011 and 2018. The hunt is an important community effort. Older hunters lead, passing knowledge and ceremony

to younger hunters on whom they rely for help and labour. Traditionally, women process the meat and skins into food, clothing, and shelter for their families. Each successful hunt can feed hundreds within a community, which is particularly significant in the Inuit Nunangat, where purchasing perishable and non-perishable foods is prohibitively expensive.

The whale hunt revival marks an important moment for Inuit communities, but brings with it concerns regarding modern pollution and climate change. Scientists surveying harvested whales found every single healthy, adult beluga contained microplastics. The plastic likely comes from prey the beluga caught and ate, indicating how microplastics can be transferred up the food chain.

Scientists know less about how chemicals transfer from microplastics into the beluga meat and fat tissues, nor how the animals' bodies process these chemicals. Women who consume whale meat and blubber store these pollutants and chemicals in their fat tissues in ways that differ from men. Given the intense spread of plastic pollution in the Artic, this is particularly worrisome.

In this uncertain time of the COVID-19 pandemic and climate change, we have an opportunity to think about what kind of world we would like to rebuild after this is over. We can rethink how best to the tackle plastic pollution and noise pollution that affects whales, and work to build a safer, more sustainable, greener economy.



Indigenous peoples of British Columbia and their Connection to Pacific salmon

By: Dana Hickey

The Port Alberni area of Vancouver Island is on the traditional territory of the Hupacasath and Tseshaht (or c̓išaaʔatḥ) First Nations. Like my Anishinaabe relatives living around the French River in Ontario, these Indigenous people are fishers. They are Salmon People. Pacific salmon of various species migrate to the Alberni Inlet and surrounding waters.

I grew up eating pacific salmon. I learned that salmon are sacred. The Peoples of the Nuu-chah-nulth Nation have a sacred relationship with the lands and the waters of Vancouver Island's west coast. I witnessed the concern of the c̓išaaʔatḥ people about the health of the salmon, which is adversely affected by the impacts of non-Indigenous salmon fisheries and industry. c̓išaaʔatḥ fishers maintain close relationships with the salmon year after year, and they have relational knowledge on the health of salmon populations. For many decades, these fishers had been noticing a myriad of changes in the salmon. As a child, I felt powerless when I first realized how the impacts of colonization were accelerating on the west coast. In recent decades, climate change has become another terrifying threat to salmon health and biodiversity.

Pacific salmon have an average life span of four to five years. The life cycle begins in fresh water, and depending on the species, young salmon spend five months to two years in their natal stream before migrating to the ocean. After migrating back to their natal stream to spawn, the life cycle ends. "Each spring, young salmon swim out to sea, where they will grow and feed killer whales, sea lions and other marine mammals. In the fall, bears, wolves, eagles, gulls, and a host of other wildlife gather in the estuaries and along rivers to feast on the returning fish. The end of the salmon life cycle brings renewal to the rainforest, delivering an annual pulse of ocean-derived nutrients."[1]

Few species have been as central to the ecological health of the Pacific Northwest as wild salmon.[2] Salmon are a "keystone species" within B.C.'s coastal ecosystems.[3] They are a critical food source for many land and marine species and they are a vital part of Indigenous culture, social structures and economies.[4] According to Indigenous leaders, the cumulative impacts of more than a century of mismanagement, industrial logging and overfishing, plus climate change, have led to record-low salmon returns in 2020.[5]

Steep declines in wild salmon stocks corresponded with the rise of fish farms, and this has been well documented.[6] The use of open net pen fish farming in offshore, coastal areas or in freshwater lakes, is considered a high-risk aquaculture method, since open net pens or "cages," allow for a free exchange between the farm and the surrounding environment.[7] Overcrowded ocean pens are breeding grounds for sea lice, which can spread disease to wild salmon and can be deadly to juvenile wild salmon migrating past the pens.[8] Pesticides and antibiotics are used to combat parasites and high rates of disease. Therefore, there is a free exchange of harmful chemicals, waste, parasites and disease between the farm and the ocean, causing harm to wild salmon populations and to other organisms.

Indigenous Peoples have an interdependent relationship with salmon that reaches back to time immemorial. Indigenous salmon management systems promoted the sustained productivity of precolonial salmon fisheries.[9] Indigenous women have played leadership roles as supervisors of harvesting, fish selection and the smoking process.[10] They continue to take leadership roles in the fishing economy, as well as engaging in public and political processes to defend the rights of the salmon, the water, and the land.

A current study called *The State of Pacific Salmon* is being undertaken by the Trudeau government at the Standing Committee on Fisheries and Oceans. Indigenous leaders such as Bev Sellers from Xat'sull (Soda Creek) First Nation continue to collect and present evidence of the crisis. In February of 2021, Ms. Sellers advocated for a collaborative approach to salmon management and conservation. Ms. Sellers presented on behalf of the Indigenous Leadership Initiative, whose first recommendation is: "*Reconcile with Mother Earth. Recognize that everything we do on the land is connected to and affects the health of the water. Reflect this in decision making.*"[11] This is a crucially important call to action, and it is one of the most overlooked. The realities of climate change are beginning to force governments to consider more sustainable policies.

Advocates and experts are recommending prudent action that includes movement away from open net pen fisheries to in-river, terminal fisheries that are managed according to Indigenous principles of sustainability and selective harvesting. Indigenous scientists and community leaders have concluded that revitalizing Indigenous fishing management systems and technologies – such as dip nets, fish traps and weirs – could support the sustainable harvest of salmon and strengthen Indigenous governance.[12] Indigenous communities are seeking a transition from central management by the Department of Fisheries and Oceans, to collaborative local area management groups that include Indigenous Peoples on an equal basis.[13]

I have a reoccurring dream about a river so packed with fish, that there is just enough water between the salmon to keep them moving. The river is literally pulsating with fast running salmon. Perhaps as a child, I heard a story like this. For Indigenous women, B.C.'s coastal biodiversity is vital for the survival of families and cultures. Many aspects of their well-being and empowerment are connected to their responsibilities toward pacific salmon. These responsibilities include sustaining traditional ways of being for future generations. Therefore, environmental degradation and changes to biodiversity directly affect the health and well-being of Indigenous women. With the expertise of the Nuu-chah-nulth Nation of Vancouver Island's west coast and other Salmon People of the Pacific coast, we can, and we must, protect and restore sacred wild salmon stocks.

***About the author**: Dana Hickey is Anishinaabe woman, and a member of Dokis First Nation in Northeastern Ontario. Dana grew up in B.C. in the 1980s and 90s, and through marriage Dana has family from the Tseshaht First Nation on Vancouver Island.*

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The Good Seed

Indigenous Women, Wild Rice, and Colonization

By: Carly Schaum

Wild rice, known to the Ojibwe as ***manoomin*** or the good berry, is an aquatic plant that grows in the shallow waters of rivers and lakes in some areas of Turtle Island, primarily in the Great Lakes Basin. Technically a species of grass, the edible grain of the water plant has provided key sustenance to the Indigenous peoples of the Great Lakes Basin for centuries. ***Manoomin*** provides a complete source of protein, a good amount of fibre, and is high in antioxidants. Considered a whole grain, it may decrease the risk of type 2 diabetes and contribute to heart health, according to Healthline.com. (McDonell, K. 2019)

As an Indigenous girl growing up in the Rainy River valley, the wild rice harvest was a highly anticipated and integral part of the annual fall cultural celebrations. While learning the traditional methods of preparing the rice, from drying to winnowing, I listened to the teachings of the local elders and felt gratitude for the cultivation of wisdom that went beyond just processing grains. I remember fondly the kind faces of the women who handed out popped ***manomin*** and blueberries to fuel our young hands in helping prepare the feast of fish, waterfowl, and the good berry.

Manoomin is essential in the oral histories of Anishinaabe peoples in the Great Lakes area. Amelia Katanski details the history, how the Anishinaabe migrated to the Great Lakes region from the Atlantic after receiving a prophecy of a place where the food grows on the water. (Katanski, A. 2017)

Traditionally, the wild rice harvest was considered the domain of women. Minnesota anthropologist Frances Densmore documented in the early 1900s how Ojibwe women in Wisconsin and Minnesota organized the harvest. Prior to collecting the grains, the women would canoe into the stands of grass and mark areas to be harvested by binding stalks together. In doing this they not only managed the ecosystem of the ***manoomin***, but they also established their own governance of the source of sustenance. While managing the harvest, they taught their children and came together from multiple families to carry out the work and distribute the rice. (Child, B. 2012) Author Brenda J. Child details in ***Holding Our World Together: Ojibwe Women and the Survival of Community*** that the increased influx of settlers into the area impacted this matriarchal food system and the growth of the wild rice.

Successful growth of the grass is heavily dependent on water levels. Fluctuations caused by damming or other human activities can negatively affect the wild rice harvest in an area. Even in 1969 a study at McMaster University by A.G. Thomas and J.M. Stewart noted how water level changes during key stages of growth would affect performance of the plant. Too-low or too-high of water levels resulted in less grain yield, and rapid fluctuations could result in breakage of the stalk (Thomas, A.G., Stewart, J.M. 1969). More recently an article in the Lakehead Law Journal stated, "The draining of wetlands to make room for farmland and development, as well as the construction of hydroelectric dams, are contributing to the loss of Canadian and American wild rice stands." (Desmarais, S. 2019)

On top of the easily observable human impacts to rivers and lakes like hydroelectric dam construction and wetland drainage, ongoing changes to global climate have the potential to negatively affect wild rice stands in North America. A report published by the United States Global Change Research Program details how higher volumes of spring flood water due to changes in climate can prevent germination of the wild rice plant, and that

drier summer conditions are shifting prairie conditions eastward towards the Great Lakes, negatively affecting the habitat of the *manoomin* and providing advantage to competing water species adapted to the drier conditions. (National Assessment Synthesis Team, 2000)

The effects of colonization and climate change have reduced women's role in the key sustenance activity of wild rice harvesting, and the growth of the wild rice itself. As water keepers perhaps Indigenous women and girls are the best equipped to revitalize and advocate for the sustenance economy of this water plant, and in the process revitalize the leadership they once held over the *manoomin* harvest.

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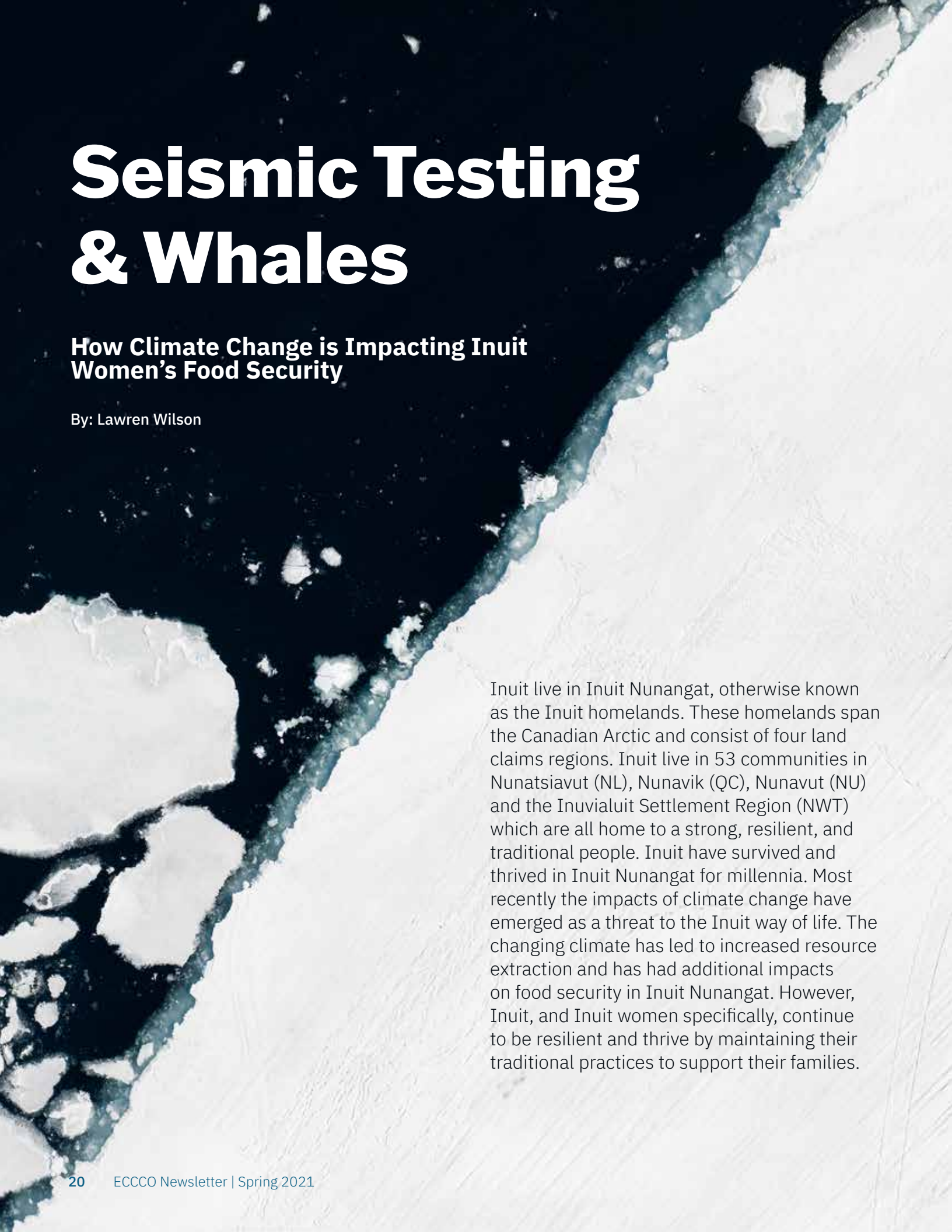

Seismic Testing & Whales

How Climate Change is Impacting Inuit Women's Food Security

By: Lawren Wilson

Inuit live in Inuit Nunangat, otherwise known as the Inuit homelands. These homelands span the Canadian Arctic and consist of four land claims regions. Inuit live in 53 communities in Nunatsiavut (NL), Nunavik (QC), Nunavut (NU) and the Inuvialuit Settlement Region (NWT) which are all home to a strong, resilient, and traditional people. Inuit have survived and thrived in Inuit Nunangat for millennia. Most recently the impacts of climate change have emerged as a threat to the Inuit way of life. The changing climate has led to increased resource extraction and has had additional impacts on food security in Inuit Nunangat. However, Inuit, and Inuit women specifically, continue to be resilient and thrive by maintaining their traditional practices to support their families.

At the centre of Inuit culture is their reliance on country foods. The hunting and sharing of country foods allows Inuit to share their values, culture, and knowledge with each other. For Inuit, country foods the consumption of whales, caribou, musk ox, seal, and walruses for cultural, nutritional, and physical needs. Unfortunately, at this time, the hunting whales is restricted due to conservation efforts by the government of Canada. These restrictions as well as the impacts of climate change on Inuit women and their communities have led to a mixed diet of country and costly store-bought foods, causing increasing food insecurity in Inuit Nunangat.

For Inuit in Canada, their homelands are warming faster than the rest of the planet (Zhang, 2005). The warming temperatures caused by climate change worsen the integrity of the sea ice, and with less ice, places like the Northwest Passage are becoming easier to access (Bickford, 2017), resulting also in an increase in resource extraction activities within the region. Seismic testing is being used to find deposits of oil or gas within the ocean floor. Airguns are used to project a “blasting” noise against the sea floor and measure the echo that bounces back, indicating whether a deposit is there or not (Center for Biological Diversity, n.d.). The blasts are repetitive and can sometimes last 24/7 (Bickford, 2017). One airgun used along Baffin Island reached up to 230 decibels (Cucknell, et al., 2015). For context, jet planes are 120 decibels and exposure at 85 decibels can cause damage to hearing (Mayer, 2018).

This has raised questions about the impacts of seismic testing on the lives of water creatures such as narwhales, beluga, humpback, and bowhead whales that migrate through Inuit Nunangat, as whales engage in activities that require echolocation, which can be potentially impacted by seismic testing (Greenpeace Canada, 2017). Loss or disturbance of hearing could cause major behavioural implications such as changes to migration routes. As a result, it is of great importance that airguns are not used in areas containing critical habitats (Cucknell, et al., 2015) or migration routes which ultimately impact Inuit traditional practices and the country foods they consume.

An important example of potential negative behavioural impacts for whales due to seismic testing took place in 2008, when 1000 narwhals were found dead along Baffin Island. During their usual migration time, seismic testing had been conducted along their migration route. Once the testing was concluded, the narwhals began with their migration. Unfortunately, the timing of their departure coincided with the time the sea ice was building up and the whales became trapped (Heide-Jorgensen, et al., 2013). The airguns used during September and November of that year were heard throughout Baffin Bay resulting in the noise deterring the whales from departing until testing was over (Heide-Jorgensen, et al., 2013). Of course, this change in migration patterns and the significant loss to the narwhal population would have a large consequence on Inuit food security. Unfortunately, narwhals are not the only whales to display avoidance to seismic testing. Belugas have been recorded avoiding noise levels of 130 decibels due to seismic testing from up to 20 kilometers away (Cucknell, et al., 2015). Migrating bowhead whales have also displayed this type of behaviour from as far as 30-50 kilometers away (Cucknell, et al., 2015), causing concern for the viability of community hunts.

Due to an overall decrease in ice cover due to climate change, it has become harder for the Inuit to predict the movements of whales (Smithsonian, 2017) and now with a decline in populations and changes in migration patterns due to the impacts of seismic testing, it is an even more pressing issue for communities that lack food security (Skura, 2016). New exploration for resources, has created additional conditions that are threatening the Inuit's right to eat their own food and pass down their culture to the next generations (Greenpeace Canada, 2017).

As there is a lack of a significant agricultural growing season in Inuit Nunangat, whale meat and blubber, among other types of country foods, are relied upon for nutrition by Inuit communities (Hoover, et al., 2016). Having whale as a food source is even more important now since food prices are high and often unaffordable for many in northern communities (Greenpeace Canada, 2017). Country foods are healthier and more sustainable than the store-bought food Inuit may purchase (Greenpeace Canada, 2017). Inuit women have also stated that the availability of traditional country foods, like whale, has decreased significantly. It is projected that with the impacts of climate change, food security will become an increasingly important issue faced by Inuit women, which could potentially be exacerbated due to the additional impacts of resource extraction and seismic testing (Berti, et al., 2008).

Fortunately, and in the spirit of true Inuit resiliency, the impacts of climate change and resource extraction methods will not deter Inuit women from providing for their communities. After a century of not hunting bowhead whales, hunters from Clyde River, Nunavut successfully hunted one (Wernick, 2014). Two of these hunters were proud women who harpooned and made strikes at the whales, securing food for their community (Wernick, 2014). Their resiliency within a changing climate is truly hopeful and inspiring for others across their homelands and across the globe.

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Indigenous Women as Water Carriers and Knowledge Keepers – The Importance of Interconnectedness

By: Romeo Joe Quintero

The Canadian beaver carries with it a number of symbolic meanings that differ between Indigenous communities. To the Blackfoot, beavers are understood as water folks who taught them to grow tobacco and use the sacred pipe (Redish & Lewis, 2009). Beavers are also seen as creative, skillful, and talented water creatures because of their tremendous contribution to the water ecosystem. As semi-aquatic animals, beavers rely on water to survive. Their homes are built in and around freshwater ponds, lakes, and rivers (Bird, O'Brien & Petersen, 2011). By building dams around their habitat, they can purify the quality of water and create new water source that attracts species like birds, fish, and amphibians (Bird, O'Brien & Petersen, 2011). More importantly, beavers do not hibernate in the winter, and are good source of food for some communities where availability for fresh meat is limited. In historic and modern times, First Nations women have been involved in the hunting and preparation of beavers.

Some First Nations, such as the Mi'kmaq and Koyukon have hunted beavers in the spring, while Eastern Abenaki and Cree have been reported to hunt beavers in the fall and winter (Kuhnlein & Humphries, 2017). During the fur trade, First Nations women had the advantage over European men in navigating the wilderness of North America. They were knowledgeable of trapping techniques and fur preparation, while some were directly involved in trading (McDowell, 2018). In addition, First Nations women and men understood the practice of rotational hunting to preserve traditional food sources. They were also aware of various ways to convert beaver parts into something functional. These included the

use of beaver bags for cradling children, and the use of beaver pelts for trimming parkas and slippers. They also used beaver materials for medicinal purposes (Kuhnlein & Humphries, 2017). Although this is in a particular time in the past, First Nations women still hold this knowledge today.

The Indian Act had the capacity to remove Indigenous status by separating Indigenous women and children from their communities (LaBoucane-Benson et al., 2012). For the Cree First Nations in Alberta, this meant the disruption of the ***wahkohtowin*** teachings that informed their relationship with all living things (LaBoucane-Benson et al., 2012). The separation of Indigenous women and children from their communities resulted in the diminishment of some traditional practices. This included the traditional way of catching beavers using nets and spears, which were embraced by First Nations because it allowed them to selectively choose older beavers to hunt and leave the young ones to reproduce (Kuhnlein & Humphries, 2017). The conventional ways of hunting and preparing beavers were largely not passed down to the younger generation who were forcibly taken to residential schools. As a result, an intergenerational gap of cultural knowledge in food security exists between community elders and the younger population. First Nations women have had to compensate for the inaccessibility of food by acquiring them from the global market. This is troublesome as their customary food systems provided them with nutritious foods rich in protein, iron, and zinc, which are limited in the market (Guyot, 2006).

Global climate change has negatively affected the water ecosystem—the very ecosystem where beavers build their damns that provide nurseries for salmonids (Bird, O'Brien & Petersen, 2011). It is creating additional stress to beavers because of rising water temperatures, increasing erosion of lands, drought, wildfire, and irregular flooding (Bird, O'Brien & Petersen, 2011). These changes are destroying the habitats of beavers and disrupting their natural flow of life. In addition, the frequency of new infrastructures and privatization of lands have led to the lethal removal of beavers, as landowners see them as pests.

Indigenous worldviews about water creatures are wide and varied. Yet, what lies at the core of these multiple truths is the importance of interconnectedness. This means that "everything a person encounters in life belongs to the entire existence of the world that everyone must be mindful about" (LaBoucane-Benson et al., 2012, p. 12). However, the past and ongoing projects of settler colonialism, combined with global climate change, are reshaping the relationships of Indigenous women and beavers with water. To restore the scaredness of water, society must recognize the importance of Indigenous women as water carriers and knowledge keepers.

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