

The Importance of Fish for The Cree Nation of Mistissini

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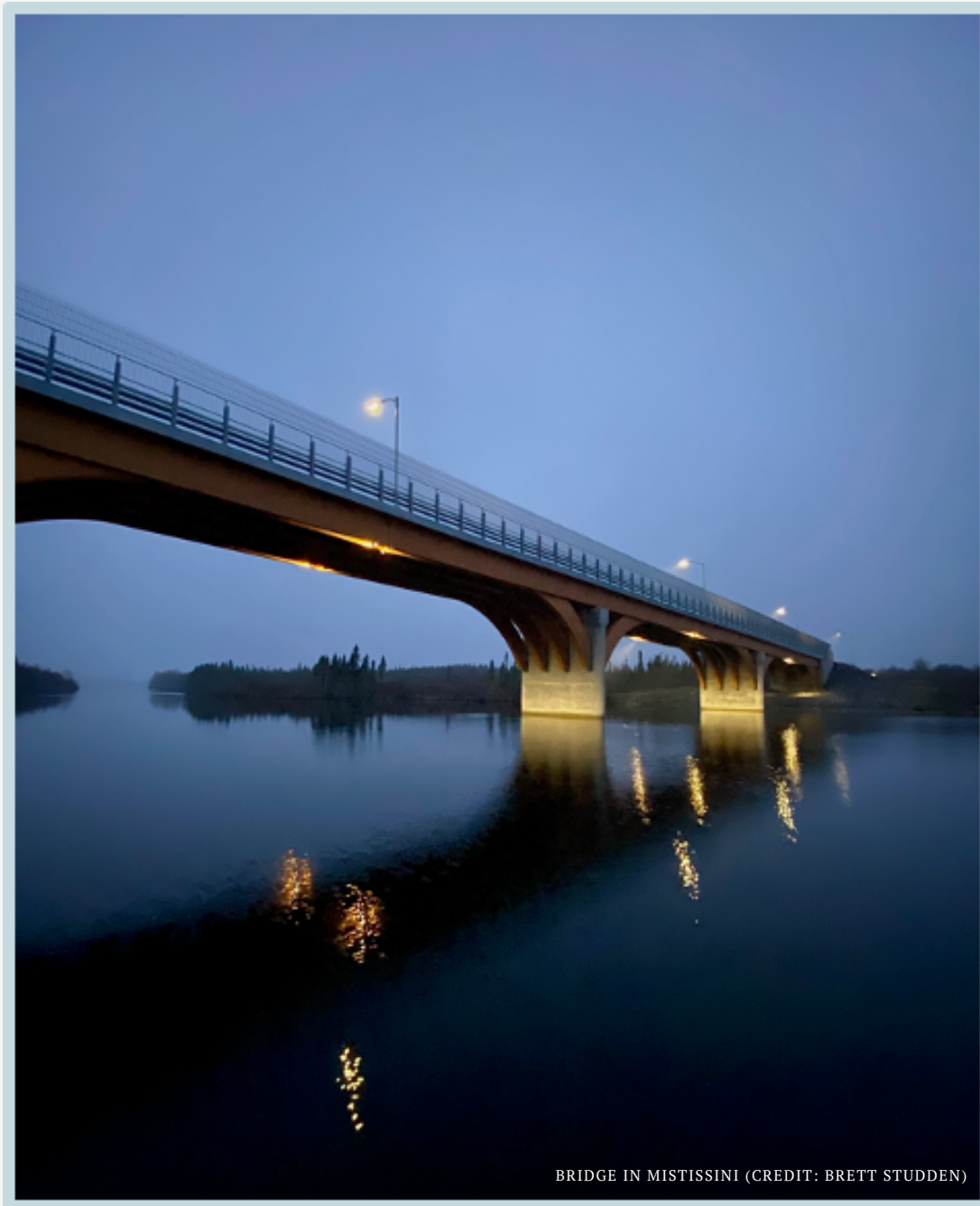
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SUMMARY

The Cree of the Eeyou Istchee territory have lived in a careful balance with the land for generations. Of the many gifts the land provides, fish stand out in their importance to the Cree. Fish are integral to the Cree way of life and so much more. To address the challenges facing fish, we must appreciate their importance to the Cree and pledge to respect the land so that future generations may continue to live in prosperity.



THE EYYOU ISTCHEE BAIE-JAMES TERRITORY

The Eeyou Istchee territory, meaning “Land of the People”, extends along the eastern shores of James Bay and encompasses a vast number of lake and river systems.

Approximately 18,000 Cree call this land home and have for thousands of years. The territory in Northern Quebec is divided into nine Cree communities:

Waskaganish, Eastmain, Wemindji, Chisasibi and Whapmagoostui. Waswanipi, Nemaska, Ouje-Bougoumou and Mistissini¹.

This land is sacred as it supports the Cree way of life. Fishing, hunting, and trapping have always been integral to Cree life. Here, traditional knowledge continues to be passed down from generation to generation.



"It is important to remember what was taught by the parents about hunting and trapping and to include spiritual practices in their everyday activities, not just survival skills. A child learns from their parents by example. They did whatever his parents did to learn the right way of living." -

The late Billy Blacksmith, Cree Nation of Mistissini



IMPORTANT FISH SPECIES FOR THE CREE



Mâsamek - Brook trout

Brook trout, also called speckled trout, are fish known for their colours and beauty. This predatory fish is an important food source for many Cree and is also sought after by many sport fishers. Spawning occurs in the fall, typically in tributaries of lakes and large rivers, away from summer feeding habitats.

Ukâss - Walleye

Walleye are typically one to three pounds in weight and are easily recognizable by their reflective eyes. They can be found upstream during the spring, where they spawn, and in lakes later in the summer. Walleye are consumed by many Cree and can be captured by trolling, jigging, or ice fishing. Most fishing derbies in the Eeyou Istchee territory are centred around walleye.



Cinusew - Northern pike

Northern pike are easily recognized by their long narrow body and pointed head. These fish are considered ambush predators and have the ability to swim fast in short bursts of energy. Exceeding well over 30 pounds in weight with a set of sharp teeth makes this fish a top predator in the water. Fishing derbies in the Eeyou Istchee territory also target the northern pike.



IMPORTANT FISH SPECIES FOR THE CREE



Namekuss - Lake trout

Lake trout can be identified by their forked tail and can grow to more than 50 pounds. These fish inhabit a range of water depths and can be caught in gillnets or through angling. Often enjoyed by boiling or smoking, this fish is nutritious, fatty, and has a large meat to body ratio. Larger trophy sized lake trout may pose health risks as high levels of mercury contamination and accumulation are known to occur.

Nomew - Lake sturgeon

Lake sturgeon are unique in their appearance with armour-like plates, a cartilaginous skeleton, pointed snout, whiskers, and bottom-facing mouth. Additionally, sturgeon live for a long time (55-150 years) and grow very large (2 m). Often caught in gillnets, this fish is a popular fish to eat among the Cree. Sturgeon take a long time to reach maturity (8-13 years). Even when they reach such a stage, they only spawn every three to four years, making them particularly sensitive to fishing pressure.



Namepiy - Sucker

Sucker is a term used to refer to several species of fish. The mouth of these fish is on the underside of the head and possesses large fleshy lips that help with their bottom-feeding lifestyle. These fish are often captured in gillnets without intention and while avoided by some fishers, play an important role in foodwebs for many rivers and lakes in the Eeyou Istchee territory. Some Cree still enjoy sucker as a food source despite being rather bony.



IMPORTANT FISH SPECIES FOR THE CREE

Miyâhkatuw - Burbot

Burbot are deep-water fish that spawns in winter (November-May) and are most often caught ice fishing or in gillnets. They are slimy and appear scaleless which sometimes deters fishers. Despite their appearance, some Cree still consider this nocturnal fish a food source. Many elders enjoy eating Burbot liver.



Nûtimîwâsiu - Cisco

Cisco are a smaller fish, growing to an average of 20-30 cm, and participate in migratory spawning during the fall. These fish are important for the ecosystem as they are considered prey for many of the predatory fish in the coastal areas of the Eeyou Istchee territory. Here, two forms of the same species are recognized and have been given the names: Kâcîkâsikumekw and Nutamesânîw-names.

Atihkamek - Whitefish

Whitefish are easily identified by the silver shine of their scales. These fish are a valuable food source for many Cree and are often caught in gillnets. Whitefish are bottom feeders and generally smaller than most predatory species found in the Eeyou Istchee territory. Their small size and minimal mercury accumulation make them a highly nutritious fish and a great food source.



THE IMPORTANCE OF FISH

"Many of us still hunt, fish and trap as a way of life and still live off the land. Despite the fact our traditional territory continues to be fragmented by resource development, our connection to the land, the waters, the animals, our spiritual beliefs, is still very intense and efficient. Cree traditional activities continue to be applied based on the six Cree seasons and each season brings on a different way to practice our culture." – Allan Saganash (told by a lifelong hunter/trapper and Waswanipi Elder)

LAKE VIEW FROM CAMP OSPREY (CREDIT: BRETT STUDDEN)

"For the Cree, all of it - the lands and waters, the plants and animals – is sacred." – Cree Nation Government

CHECKING A FISHNET (CREDIT: BRETT STUDDEN)



THE IMPORTANCE OF FISH

Culture

The Cree way of life is deeply connected with traditional ways of living like those engaged by generations of ancestors. Fishing, hunting, and trapping are all essential aspects of the Cree way of life and promote interconnectedness between the land and its people. At the most fundamental level, a sense of respect for the land and its inhabitants governs the Cree way of life, which has enabled the Cree to live in a balance with nature for thousands of years. For many Cree living in the Eeyou Itschee territory, fishing provides a means to connect with the land. Spending time outdoors and engaging in reciprocity with the land are inherent to Cree culture, such that fishing itself can be considered as part of the Cree identity.



Education is an important part of Cree culture, with traditions and knowledge being passed down from generation to generation. This extends to the Cree School Board and places of learning in the territory where fish and wildlife programs are developed in consultation with Cree elders to ensure traditional fishing practices are shared widely and preserved. For example, Cree language and culture are part of school curriculum in elementary and high schools in Eeyou Istchee.

Several teaching and healing lodges in the territory offer a means to connect with the land and provide hand-on learning experiences for Cree youth and adults. Here, traditional methods of fishing and net weaving are taught to visitors with the purpose of sharing knowledge and promoting Cree culture.

Traditionally, the roles of men and women complemented each other. For example, no hunter could succeed in the bush without the help of a woman skinning the pelts, cooking meals, cutting wood, making and checking fishnets, fetching water, and snaring. Women looked after the camp, picked spruce boughs and made clothes and other necessities. Recently, many Cree women have become more actively involved in fishing. It is now an activity shared and enjoyed by both men and women alike.



THE IMPORTANCE OF FISH

Food and Food Security

The consumption of naturally protein-rich foods, such as fish, makes up a large portion of the traditional diet of the Eeyou Istchee Cree. Whitefish, pike, trout, and walleye are some of the most widely consumed fish species. These fish are highly nutritious and are an important source of many vitamins, including vitamin D, B2, and A. Additionally, fish are high in healthy fats, which are excellent for heart health and the prevention of cardiovascular disease.

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Food security in Cree communities is a prevalent issue, leaving many people without access to food^{3,4}. This is made worse by the high food costs associated with remote living. Recently, there has been a push to become more self-reliant and begin urban agriculture practices, which can improve access to healthy food options for many Cree⁵. Continuing traditional fishing and hunting practices may also help address the issue of food security by reducing the need to purchase market food.

Returning to a more traditional diet may not only be less expensive but also better for one's overall health². The increased rates of food insecurity in many Cree communities pose increased health risks. Without access to a more traditional diet, expensive, processed, and sugar-rich foods are often substituted into the Cree diet. This is likely a large contributing factor to the rapidly increasing rates of diabetes and obesity^{6,7}. Despite this, most people prefer traditional food to store-bought alternatives. And so, traditional food sources, such as fish, must be cared for and conserved.



TRADITIONAL CREE SMOKEHOUSE (CREDIT: BRETT STUDDEN)



THE IMPORTANCE OF FISH

Food

Fish are an essential part of traditional food. Fish and game are especially popular among older Cree. While these foods are not always accessible to everyone, sharing amongst community members does improve access to traditional foods. Traditional ways of food preparation continue to be taught and passed down to younger generations to address food security and mitigate health risks. Thankfully, many fantastic ways to include fish in the traditional diet exist.



Boiled Lake Trout

This dish typically involves boiling lake trout with vegetables such as potatoes and onions. The broth is also known to increase the amount and richness of breast milk formed.



Smoked Trout

Lake and speckled trout are typically smoked under low heat for several hours and are sought after by many Cree



Fried Walleye

Walleye is traditionally battered in flour and fried in oil. This is a go-to for almost any meal

Examples of traditional ways of preparing fish by the Cree (credit: Norman Neeposh)



THE IMPORTANCE OF FISH

Tourism

The Eeyou Itschee territory is home to an extensive river and lake system that supports a large sport fishing and tourism industry. The Cree fishing and ecotourism industry is an important source of job creation and financially supports many of the communities in the territory.

Mistassini Lake has received recognition on an international scale as one of the best fishing locations in Canada. This is partly due to the beautiful landscape and abundance of large trophy fish. One overlooked aspect of this spot lies in the relationship between the visitors and the Cree hosts. The Mistassini Lake fishing experience is enhanced by the presence of well-maintained outfitting camps with experienced Cree guides to ensure memorable fishing trips.



OSPREY LODGE, MISTASSINI LAKE (CREDIT: BRETT STUDDEN)

Guiding is a rewarding and highly sought-after position occupied by experienced fishers who are not only skilled in fishing but also in navigation, cooking, and interacting with visitors. Many fishing guides have been fishing their entire lives and have invaluable traditional ecological knowledge of fish^{8,9,10,11}.

Wildlife Reserves in the Eeyou Istchee territory are a hotspot for many tourists looking to connect with nature. The territory is home to the two largest Wildlife Reserves in Quebec: Albnel-Mistassini-and-Waconichi Lakes and Assinica, which cover over 24,000 km². These reserves are also Cree owned and managed by the Nibiischii Corporation¹¹. Nibiischii translates as "Land of Water, the place where the great natural waters of the North are born"¹². The Corporation upholds five important principles: respect, engagement, quality, integrity, and equity, which contribute to the success of the Reserves¹². The Reserves host sustainable recreational fisheries, which are popular among both the Cree and visitors.



THE IMPORTANCE OF FISH

Community

One source of tourism in the Eeyou Istchee territory relates to fishing derbies. During the summer, a number of derbies are held, with visitors coming from all over to compete. During this time, communities experience a boost in the local economy and economic growth.

Fishing derbies offer economic value to the Cree, but also provide a means to foster relationships between and within Cree communities. However, there are different perspectives about derbies among Cree¹³.

For some Cree, fishing derbies are highly anticipated events where friends gather and bond over nature and fishing. Other Cree view fishing derbies as going against Cree traditions and/or have concerns about potential environmental impacts.

Recently the Cree Nation of Mistissini have developed a community-led monitoring program for their fisheries, in an effort to protect certain species from overharvesting. Community involvement has been a critical element to the successful management of Indigenous fisheries in the Eeyou Istchee^{14,15}.

Outfitting camps on Mistassini Lake now serve as a meeting place for the Cree Nation of Mistissini and other community groups. Here, visitors gather for discussion, followed by a day of fishing and connection to the land.

Overall, fishing can be viewed as a way to connect with friends and family, all the while connecting with the land the Cree calls home. On weekends, the Cree people gather at local fishing spots, which become a hotspot for conversation. A love for nature and the land has made fishing a popular pastime for many Cree people.



THE ISSUES EFFECTING FISH IN THE EYYOU ISTCHEE TERRITORY

Climate Change

The Eeyou Istchee Cree have already begun to feel the effects of climate change⁵. Many Cree fishers have noticed changes in the spawning time and location of fish⁵. This shift associated with climate change presents several challenges for those whose livelihoods are centred around fishing. For example, guides have had to adapt and find new locations as the habitat range of fish moves northward to avoid warmer temperatures in the south⁵.

Warmer temperatures linked to climate change reduce the time that winter ice covers lakes¹⁶. These unpredictable ice conditions may have significant effects on ice fishing. With shorter periods of ice cover come shorter ice fishing seasons and reduced reliance on fish caught in winter. In addition, climate change will likely reduce ice thickness, which may be a cause for concern for those venturing out on the ice. Improved ice monitoring may be a necessary precaution to ensure the safety of individuals.

Climate change may have important effects on the biology of fish¹⁷. As the temperature of water increases, oxygen content decreases, which has potentially harmful consequences for many fish species, like walleye, which require high levels of oxygen for successful spawning¹⁸. Furthermore, fluctuations in water level and oxygen content may reduce the connectedness of fish habitats, resulting in less diversity and a greater vulnerability to other pressures¹⁷.

Overfishing

Overfishing and harvesting have important consequences on the health of fish species and may result in the decline of fish populations¹⁹. Certain slower-growing fish species, such as walleye and sturgeon, may be more vulnerable to overharvest. Over time, overfishing may result in changes in the biology of fish species, with fish becoming smaller and maturing faster^{20, 21}. This occurrence is not ideal for the Cree, who rely on fish as a food source and income from tourism, derbies, and sport fishers.

One topic of debate concerns itself with fishing derbies. While derbies are beneficial for tourism and community relationships, concerns about their environmental effects have been raised. These events target the largest individuals in a population, which can have negative consequences as these individuals, especially females, are important contributors to spawning and the success of future generations.



THE ISSUES

Land use

Water systems and the animals that live there are a vital part of the Cree way of life. In preserving these resources, it is essential to protect not only the water but also the surrounding land. Nature is highly connected and changes to one area of land may also have influential effects on other areas.

Logging, Dams, and Mining

Land-use activities such as logging, the construction of dams, and mining have the potential to influence water systems and the fish that live there²². Logging in areas nearby water bodies can increase soil erosion and, more importantly, the release of natural contaminants such as mercury²³. The construction of dams can alter the natural flow of water, which may reduce or separate fish habitats²⁴. Mining can introduce several contaminants and change the pH of water, which may have negative consequences for fish species²⁵.

Contamination

One of the largest sources of contamination for water systems in Eeyou Istchee is mercury. Methylmercury, a poisonous form of mercury, is a neurotoxicant that poses a serious health risk²⁶. While it is naturally occurring, certain land-use activities like mining and logging can increase its abundance in water systems²².

Unfortunately, methylmercury is transferred to humans through the consumption of contaminated fish, and so the Cree people have a higher rate of exposure to mercury from traditional fish consumption than the general population. Researchers have found several adverse health effects linked to methylmercury exposure, including but not limited to tremors, changes in hand-eye coordination, and changes in eye movements²⁷.



THE ISSUES

Invasive Species, Parasites, and Disease

Invasive species pose a potential threat to native species through competition for resources and disruption of balance in the ecosystem²⁸. The introduction of invasive species can lead to population declines and even extinctions. One example of an introduced invasive species in the area is that of the rainbow smelt. The rainbow smelt negatively affects important fish species for the Cree through competition for resources and habitat²⁹. Non-native species can also be a source of parasites and disease, which may affect the health and survivorship of native species. This issue has become a cause for concern with fishing derbies¹⁵. With boats moving from location to location, invasive species can be unintentionally introduced through ballast water or via attachment to the hull of boats. These species may have harmful impacts on the environment resulting in a decline in the health and survivorship of native species.

Pollution

Pollution can take many shapes and come from many sources. For example, land-use practices may pollute and contaminate water systems when chemicals and toxins enter rivers and lakes through run-off and percolation into groundwater²². Furthermore, inadequate waste management and sewage removal may add nutrients into lakes and rivers, disrupting ecosystem balance³¹.

One prevalent source of pollution in Eeyou Istchee is the improper disposal of waste products. Examples of commonly littered items include cigarette butts, plastic products, cans, and fishing line and tackle. Littering can result in the pollution of water systems through leaching chemicals or introducing harmful microparticles and bacteria³⁰⁻³². The effects of littering result in decreased water quality and may have toxic effects on wildlife³². In addition, aquatic animals can become entangled, resulting in suffering and death.

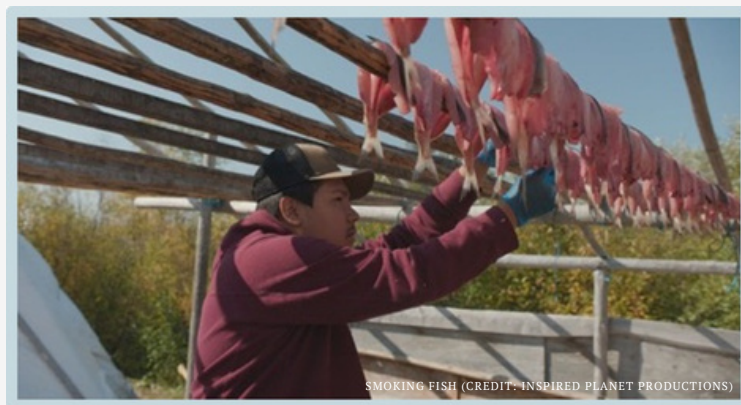


OVERCOMING THE CHALLENGES FACING FISH

Climate Change Adaptation

Adapting to climate change impacts might be a difficult challenge but the Cree are resilient people; they have kept their traditions and language alive. They lived off the land before colonization and continue to do so and therefore can sustain themselves. Support, importantly through listening, collaboration and not leading, of government agencies and non-indigenous organizations, will ensure the success of Cree initiatives, management plans and programs. The Cree have generations of ecological knowledge from their own people and environment that can be used to understand and adapt to the changes observed.

Knowledge is passed down through stories, legends, and word of mouth. Knowledge from elders, knowledge keepers, fishers, local guides, and tallymen is used by the Cree to identify spawning grounds and fishing locations where fish are declining. This knowledge has been incorporated into management plans and implemented through the use and application of mapping software.



Hands-on learning and training opportunities for community members to develop the necessary skills and tools in fish monitoring and mapping may assist the Cree in preserving fishes, their population, health and ecosystems. An important aspect of this is understanding overharvesting, taking more than one needs, and how it affects fishes and the local community.

Overharvesting

Listening to the community members voices and concerns about fish limits is an essential step in addressing overharvesting. The community members know their land and it's resources. Overharvesting affects their income, traditional diet, and land. Understanding contemporary harvesting trends, methods and spatial distributions will help the Cree maintain and establish sustainable fishing practices and management plans. It is important to uphold the Cree principle of not taking more than you need. By taking only what is needed, the gravity of overharvesting can be lessened.



OVERCOMING THE CHALLENGES FACING FISH

Logging, Mining, Dams

Land-use activities have the potential to have an impact on Cree's health, water systems, and land. Having information available for community members on how their land will be used, and how it will affect them and their resources is an important step in making informed decisions about land use. Organizations and companies that use the Cree's land should agree to the terms set by the community and those that voiced their concerns about land-use.



Contamination, Invasive Species, Diseases, Parasites

Following fish consumption guidelines and adjusting one's diet accordingly may reduce the risk of mercury-related health issues. Making informed decisions regarding land-use activities may help limit the presence and consumption of contaminants and industry by-products. Educational campaigns and/or monitoring programs for invasive species, including parasites and fish diseases, is an important step in addressing the issues facing fish health, survival and human health issues. Monitoring should aim to identify potential sources of disease, parasites, and invasive species. During derbies, boat washing stations may further assist in reducing invasive species introductions.

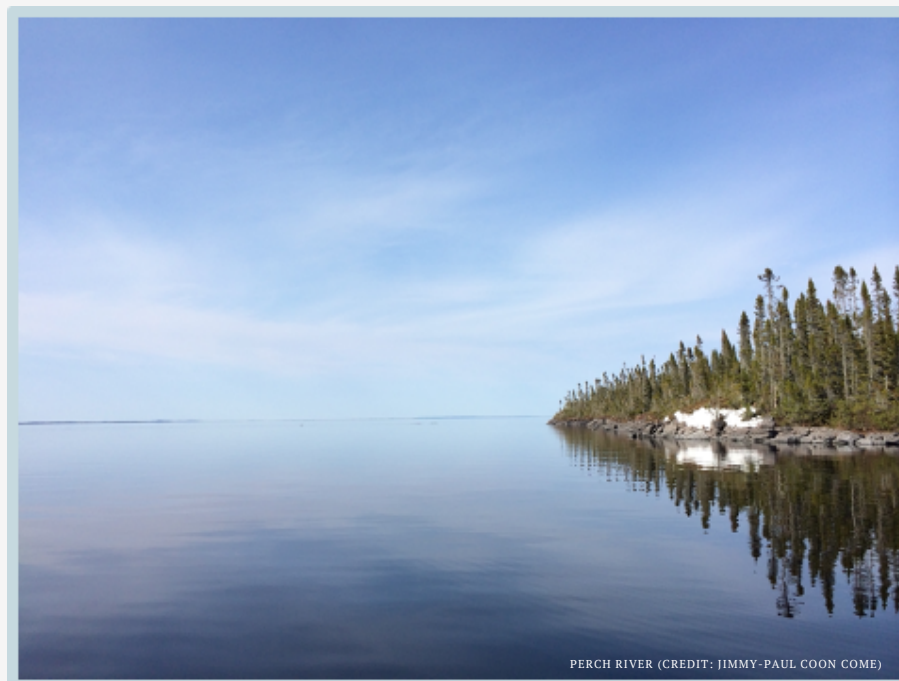


OVERCOMING THE CHALLENGES FACING FISH

Conclusions

The elders have an abundance of knowledge, from spawning times to fishing stories, and the changes they have witnessed over the years. By listening to their stories and what they have to say about conservation, management plans is an important step in overcoming the challenges facing fishes.

Several things can be done to assist in overcoming the challenges facing fishes including: training Cree community members regarding fish monitoring; listening to and educating the youth about conservation practices as they are the future; and ensuring the correct stakeholders have input in future management, conservation, and land use plans. Perhaps most important is listening, cherishing, and documenting the myths, legends, and stories of fishes told by elders. Those stories come with a lesson and important values on how to treat wildlife, fishes, nature and each other. This knowledge is part of the Cree way of life and passing it on to future generations will help to preserve the culture. The Cree know their own land, and how to sustain themselves as a community.



PERCH RIVER (CREDIT: JIMMY-PAUL COON COME)



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MIIGWECH - THANK YOU

