Northeast Region

Aroostook Band of Micmacs

Long Sought Sovereignty

The Aroostook Band of Micmacs in northeast Maine was only just federally recognized as of November, 1991. However, along with that hard-fought recognition, came federal dollars to purchase small tracts of land. Fred Corey, Natural Resources Director for the Tribe, says that the goal of his department is to manage those lands in ways that foster the sovereignty of the Tribe.

While celebrating their sovereignty, the Tribe also faced challenges. Around 80% of the 1,300 tribal members qualified as low income, and health concerns such as diabetes, hypertension, and obesity were prevalent. The Behavioral Risk Factor Surveillance System (BRFSS) measures behaviors that promote health such as not smoking, seeing a doctor, and eating healthy foods. Corey says that the Tribe scored below other tribes in the region and below national averages as well.

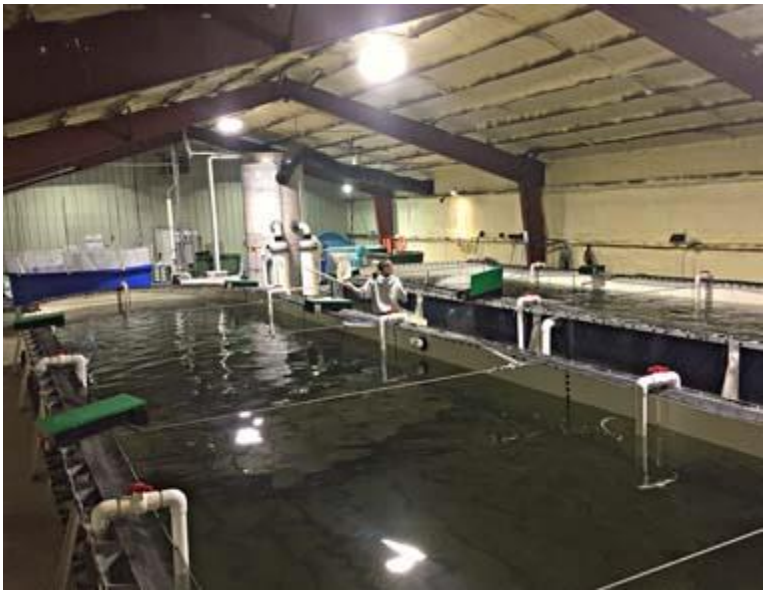
Historically, the Tribe resided in coastal areas during warm months with fish and seafood acting as their primary food sources. During the winter, they would migrate inland, ice fishing and hunting moose, a lean source of protein. Corey says that the Tribe has been disconnected from these traditional healthy food sources due to readily available foods, many of which are heavily processed. Moose have been hunted nearly to extinction and damming the rivers has restricted the Tribes access to wild salmon. Without these subsistence food sources, Tribal members have turned to less healthy options.

Climate change is also affecting fish populations. Eastern Brook Trout, the only trout native to the Eastern United States, flourishes in clean cold waters. It has been on the decline for decades due to habitat loss and warming water temperatures. The Eastern Brook Trout Joint Venture (EBTJV) is a partnership spanning local governments, organizations, and citizens to protect and restore the species. One of EBTJV's recommendations is to divert stress on wild populations of brook trout by producing fish in hatcheries for consumption.

Recently hatched brook trout at Micmac Fish Farm

Mature brook trout at Micmac Fish Farm

The wind turbine overlooks the Micmac Fish Farm



The raceway layout inside the Micmac Fish Farm

Visions for Sustainable Foundations

With newly acquired land, the Aroostook Band of Micmacs began looking into ventures that prioritized sustainability, promoted the health and well-being of the Tribe, and fostered a deep connection to their traditional ways of life. A brook trout fish hatchery served all of these goals. In 2009 the Tribe applied for and was awarded a grant from the U.S. Fish and Wildlife Service to build the hatchery along with a five-year grant in 2015 from the Administration for Native Americans to develop and maintain operations.

Corey said that the goal was to not only establish a functioning hatchery, but to build the business on a foundation of sustainable practices. He and Tribal Council Member Norman Bernard attended a course at Cornell University, learning about the latest developments in sustainable aquaculture.

Around the same time, the Tribe received a USDA Rural Development Grant to establish a Tribal farm and a community market. Combining these two projects, the Tribe would be able to develop a cohesive vision with the hatchery, farm, and market working together. The Tribe contracted Aquacare out of Bellingham, WA to design and build a hatchery. The hatchery welcomed the first batch of trout eggs in the spring of 2016.

The Micmac Fish Farm is a recirculating aquaculture system. This means that while the hatchery holds 35,000 gallons of water, only 1,000 gallons are flushed out each day. The water is pumped to leach fields, allowing it to seep back into the water table. Fish waste is captured and used as fertilizer on the produce fields and orchards. A wind turbine offsets the electrical needs of the hatchery, heat pumps assist with heating, and planning is underway for solar and other sources of renewable energy.

The hatchery is designed around a 'raceway' layout with elongated pools as opposed to circular pools. This makes efficient use of space and resources while providing a more natural swimming pattern for the fish. The trout that the hatchery produces are free of chemicals, antibiotics, dyes, and fillers. The fish are delicious with a robust pink flesh that is high in Omega 3's. Corey says, "It is widely accepted that land-based fisheries are the future of aquaculture."

The hatchery employs a continuous harvesting model as opposed to batch harvesting. While this creates a balancing act for the hatchery manager, it means there is little-to-no downtime at the facility. Small fish are sold as fish for stocking ponds and lakes. Medium sized fish are sold to local restaurants. Larger fish are sold to fish markets. The tribe houses a food-grade commercial kitchen where they dress out fish for special orders. Corey says that lately outdoorsmen have been coming in to purchase coolers of fish for easy meals while they are camping.

Trout dressed and ready for sale at the Micmac Farm Market

Cooking up fish chowder in the Micmac kitchen

Smoked fish served up at a Tribal event

Food Sovereignty and Feeding Their People

Most important, however, has been promoting a connection between Tribe members and local, healthy foods. Corey works with the EPA Fish and Shellfish Program and in past years they have issued public warnings about the dangers of wild fish consumption. For example, in Maine, expectant mothers were advised to limit wild fish consumption to a single serving per month due to contaminants and heavy metals. Corey said that after this campaign they found that people were simply avoiding fish altogether instead of finding clean, healthy options. Concerns grew that expectant mothers were not getting the necessary levels of essential Omega 3 fatty acids needed for infant neural development. By farming brook trout through land-based aquaculture, the Tribe is producing a safe and delicious alternative to wild caught fish.

When they first began to offer fish for sale at the Micamac Farms Store Corey wasn't sure if members of the Tribe would buy in. He partnered with the Tribe's diabetes program, distributing educational information about the health benefits of land-based farmed fish along with store vouchers to each person who came into the clinic. Quickly, the fish became a popular item, and the store has since expanded to selling homemade chowders and smoked fish. Both the produce from the farm and the fish from the hatchery are offered at a discounted rate to Tribal members. Corey says that the main role of their Marketing Manager is to reach out to Tribal members and entities in order to connect people with these nutritious food options.

Corey jokes that before the hatchery the Tribe had the local pizza parlor on speed dial for almost all Tribal events. The Tribe has since purchased a large smoker which they transport to

local events where they are able to smoke fish onsite. He said there is a sense of pride at being able to serve delicious healthy food that was produced by the Tribe on Tribal land.

A Strong Foundation for Future Expansion

The Tribe is now in its final year of seed money and the hatchery, farm, and market are well established. The hatchery produces 12,000 pounds of fish annually. The farm produces fruit, vegetables, tree seedlings, and maintains pollinator habitats. The market sells fish, produce, ready-to-eat items, traditional hand woven baskets, and offers cooking classes. Collectively they provide jobs for 3 full time employees and 4-6 part time or seasonal workers.

The three operations have been well-received by the surrounding community. Many organizations have toured the hatchery including local boy scout troops, the Knights of Columbus, and the Kiwanis Club. Recently, a local school included a tour of the hatchery as part of their curriculum on ecology and aquatic ecosystems. Going forward, every seventh grader will visit the facility each year.

Corey is pleased by the success of the hatchery and says that the Tribe is continuing to look for new ways to bring healthy local foods to their people. Discussions are underway regarding a second facility that would work in conjunction with the first. Corey is eager to share the knowledge the Tribe has gained about land-based aquaculture and welcomes discussion with other Tribes that might be considering similar ventures. He hopes the work the Micmac Tribe is doing can inspire and enable other environmentally sustainable projects.

A busy day at the Micmac Farm Store

Local students get a tour of the hatchery

References and Resources

- Aroostook Band of Micmacs
  - http://www.micmac-nsn.gov/index.html
- Behavioral Risk Factor Surveillance System
  - https://www.cdc.gov/brfss/index.html
- Eastern Brook Trout: Roadmap to Restoration
  - https://easternbrooktrout.org/reports/ebtjv-roadmap-to-restoration
- Eastern Brook Trout Joint Venture
  - https://easternbrooktrout.org/
- United States Fish and Wildlife Service
  - https://www.fws.gov/grants/
- Administration for Native Americans
  - https://www.acf.hhs.gov/ana/programs/seds
- Aquacare
  - http://www.aquacare.com/
- Micmac Fish Farm
  - https://www.facebook.com/MicmacFarms/
- USDA Rural Development Grant
  - https://www.rd.usda.gov/programs-services
- EPA Fish and Shellfish Program
  - https://www.epa.gov/fish-tech/fish-and-shellfish-program-newsletter-2018
- Micmac Farms Store
  - http://www.uniquemainefarms.com/uniquemainefarms.com/Micmac_Farms.html

Project Contact:
Fred Corey
Natural Resource Director
Aroostook Band of Micmacs
207-764-7765
fcorey@micmac-nsn.gov

This profile was developed in September, 2019 by Amanda Kapp. Institute for Tribal Environmental Professionals, Northern Arizona University, with financial support from the Bureau of Indian Affairs. The profile is available on the Tribes & Climate Change website: www7.nau.edu/itep/main/tcc/Tribes/. The tribal climate change profiles featured on the website are intended to be a pathway to increasing knowledge among tribal and non-tribal organizations interested in learning about climate change mitigation and adaptation efforts.

Special thanks to Fred Corey for his assistance in developing this profile.

For more information please contact:
Nikki Cooley, Co-Manager
928/523-7046
Nikki.Cooley@nau.edu
Karen Cozzetto, Co-Manager
928/523-6758
Karen.Cozzetto@nau.edu

Citation: Kapp, A. (2019) Aroostook Band of Micmac Indians, September, 2019. Institute for Tribal Environmental Professionals, Northern Arizona University. Available at: www7.nau.edu/itep/main/tcc/Tribes/ne_micmacs

---