

Environmental Institute

October 2020

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Report Card

The Environmental Institute houses our Tribal College Extension programs

Mission Statement

To promote the education and cultural growth of the community in natural resources and the environment. The Environmental Institute supports and coordinates education, research, and outreach that serve our greater community.

Future Directions

The Environmental Institute is a leader and catalyst for a sustainable and culturally relevant use of natural resources. We connect our students and greater community with empowering opportunities and partnerships through culturally relevant research and programming.

Coping with the Pandemic

In this time of global pandemic the health and safety of our community is our priority. In March 2020 our methods of outreach, research, and education were changed to continue to serve our community while implementing social distancing best practices.

Thirteen Moons

A turtle's shell has a unique pattern of thirteen large scales in the center representing the thirteen moons of the lunar calendar. The circle of twenty-eight scales, circling the edge of the shell, corresponds to the number of days comprising the lunar cycle.



GICHI-MANIDOO GIIZIS

January
Great Spirit Moon

NAMEBINI GIIZIS

February
Sucker Fish Moon

ONAABANI GIIZIS

March
Hard Crust on Snow Moon

ISKIGAMIZIGE GIIZIS

April
Maple Sap Boiling Moon

WAABIGWANII GIIZIS

May
Flowering Moon

ODE'IMINI GIIZIS

June
Strawberry Moon

AABITA-NIIBINO GIIZIS

July
Mid Summer Moons (2)

MANIDOO GIIZISOONS

December
Little Spirit Moon

GASHKADINO GIIZIS

November
Freezing Moon

BINAAKWII GIIZIS

October
Falling Leaves Moon

WAATEBAGAA GIIZIS

September
Leaves Changing Colors Moon

MANOOMINIKE GIIZIS

August
Ricing Moon

Ashi-Niswi Giizisoog

Thirteen Moons is a Tribal Extension Program with a mission to:

- *increase awareness of natural resources,*
- *provide new opportunities for social interaction, and*
- *increase knowledge of the Ojibwe culture*

and goals to:

- *use the progression of the seasons to highlight the traditional uses, current issues, and economic opportunities of natural resources*
- *view harvest in both the traditional ways practiced by the Ojibwe people and local more conventional agricultural harvest*
- *build upon the outreach and partnerships of previous years to support the Food Sovereignty Initiatives (FSI) strategic plan goals to promote community resiliency through economic, health, and healing programming around fresh foods*

In order to fulfill these goals, the Thirteen Moons program publishes monthly features in the Fond du Lac newspaper and coordinates regular workshops on traditional resource ecology, management, and culture.



Workshops will continue to be held virtually until pandemic safety protocols allow for group gatherings

Workshops

- Seasonal Decorations using Natural Resources
- Herbal Products
- Snowsnakes & Snowshoes
- Sugar Bush
- Manoomin (wild rice) Camp
- Wild Foods Sampling
- Balsam Bough Harvesting

Partners

- FDL Ojibwe School
- FDL Resources Management
- Bimaaji'idiwin Garden Program
- University of Minnesota
- Great Lakes Indian Fish and Wildlife Commission (GLIFWC)
- USDA/NRCS
- NOAA *Climate Strong!* Camp

Participants and Outreach

- Nearly 3,000 community members served by 13 Moons programming
- Monthly pages in FDL newspaper *Nagahchiwonong*

Phil Savage: New 13 Moons Coordinator



Phillip Savage is an enrolled member of the Fond Du Lac reservation and MN Chippewa Tribe and Alumni of FDLTCC. Having been raised in the traditional Anishinaabe activities of the seasons led to a great understanding and appreciation for the work and perseverance of past Anishinaabe people. It also transitions smoothly into the 13 Moons program located at FDLTCC Environmental Institute and FDL Natural Resources, which focuses on the specific seasonal activities that deal with natural resources used in everyday Anishinaabe life. The continued practice and understanding of these traditions is 13 Moons coordinator Phillip Savage's mission at FDL and FDLTCC.

Thirteen Moons webpage <http://www.fdlrez.com/RM/13moons.htm>

Facebook <https://www.facebook.com/13-Moons-Ashiniswi-giizisoog-118178048248982/>

Bimaaji'idiwin



Bimaaji'idiwin Ojibwe Garden Program

Translated from Ojibwe, Bimaaji'idiwin can be understood as "saving each other's lives," or "symbiosis," reflecting the reciprocal relationship between Anishinaabe and cultivated plants. This is a heavy name to live up to and the Ojibwe Garden Program attempts to do so through education, outreach, and preservation. An important objective for the research and demonstration garden is to develop, expand, and maintain a collection of Anishinaabe and Native American heirloom crop seeds through a miinikaaniwigamig (seed library), which is a point of connection between a growing network of dedicated seed savers and our local gardeners.

Workshops

- Business Ag Training
- Growing Season Extension
- Food Initiative Strategic Planning
- Seed Saving demonstration
- Seed starting
- Garden planning
- Garlic planting workshop
- Oneida Corn Harvest

Projects

- Seed saving
- Farm Tours
- Demonstration Garden
- Farmers Markets
- 2501 Agricultural Outreach for Small Producers
- Restoring Fruit Trees and Bushes to Fond du Lac Community
- Farmer Producer Program
- Conference Attendance Support

Partners

- Gitigaan Program
- Mino Babaamaadiziwin Gitigaan
- Thirteen Moons
- Nahgahchiwanong
- Dibahjimowinnan
- MN SARE
- USDA OAO
- Fond du Lac Planning Department

Producer Training Program

FDL community members commit several hours a week to learning about sustainable and organic food production, which allows them to be successful in growing a farm business. Community members turned producers establish connections with other producers, marketing, service providers and USDA programs, and receive education on food safety, sustainable agriculture practices, pest and disease management techniques. Participants complete a business plan based on their goals for a future growing enterprise. **The program has grown from 7 to 20 community members participating in the second year.**

Food Sovereignty Initiative: *Vision for a sovereign holistic food system rooted in Anishinaabe values that is environmentally responsible and empowers a thriving, resilient community.*

The initiative aims to balance social and ecological needs and desires of the band while providing food in a sustainable manner, strengthening community resilience to natural resource vulnerabilities and risks. The Food Sovereignty Initiative will reduce the area's dependency on external food systems and enhance Tribal members' abilities to adapt to anticipated changes in food resources.



Sustainable Food Systems

Newly Funded USDA NIFA Sustainable Food Systems (SFS) Program

The new Sustainable Food Systems (SFS) Program is a three-pronged approach that includes implementing the SFS certificate in sustainable food pathways, increasing the growing capacity on campus, and supporting farmer-producer training.

Programming will be place-based, with a foundation in Anishinaabe perspectives and values to teach a holistic approach to growing and harvesting food. Our approach will be unique because it will be based not just on sustainably grown foods but also focused on harvested foods/medicines that are important to our community and region.



SFS Certificate Outcomes

- Implement the SFS certificate in sustainable food pathways that complements FDLTCC's current Environmental Science degree
- Support regional and Fond du Lac community members in their pursuit to become sustainable agricultural producers
- Provide internships to Fond du Lac Tribal and Community College students to pursue sustainability and agricultural based programs at Fond du Lac Reservation and other locations
- Increase hands-on research and demonstration agricultural learning space at FDLTCC campus
- Partner faculty with regional community members such as Elders, experienced farmers, and natural resource harvesters.

5th Annual Beekeeping & More! Symposium – February 2020

This one day annual event featured presentations by guest speakers Claire Lande of the Northeastern Minnesota Beekeepers Association, Bridget Mendel and Jessica Helgen from the University of Minnesota Bee Squad, Dr. Barry Brown regarding beekeeping in northern climates and Dr. Larry Connor, entomologist and author. Session topics included equipment, general troubleshooting, beginning beekeeping, queen rearing and management, wintering bees and bee survival in cold climates, keeping bees healthy, and bee language.

Current plans are to offer the 6th Annual Bee Symposium in February of 2021, whether virtually or in-person, to continue the tradition of pollinator education.



Check out a synopsis of our event:
<https://vimeo.com/434136979>



USDA RHSE: Cultural Responses to Healing Trauma, Fighting Opioids and Unlocking the Potential of Native Youth

This program engages Fond du Lac tribal youth with Ojibwe culture through regional resources, social networks, and generations of tradition to prevent and combat substance abuse. Addressing wellness in a holistic sense, the program integrates multiple community-level and culture-based practices such as mind-body medicine, circle keeping, and lacrosse. The activities hope to build on strengths to inspire and motivate youth toward healthier lifestyles for themselves, their families, and their communities.

Through the COVID-19 pandemic, activities and outreach successfully continued. Youth were presented with care packages promoting different resilient building activities such as seed starting, other gardening, sewing, and games.

After a year, the program was evaluated using Ripple Effect Mapping. During this process participants, program instructors, staff, and other community members identified 5 positive outcomes or themes, e.g., Strengthening a sense of community, Learning and applying healthy coping skills, Planting seeds of hopefulness, Reclaiming our culture and creating a sense of well-being, and Gaining confidence in positive leadership skills.

We are happy to announce that we will be offering this program through 2021 and will continue to engage in cultural activities with the youth to promote a healthy community.



USDA APHIS: Agricultural and Natural Resources Knowledge Immersion Camp

The APHIS summer camp program connects youth ages with agriculture and natural resource career pathways in an experiential setting. The series of two camps focuses on how these subjects connect to Ojibwe culture and natural heritage.

The fundamentals of the camp incorporate scientific training in understanding the relationship of plants to the soil, air, water and other organisms, with immersion into the fields of biology and environmental science.

Due to the COVID-19 pandemic and the unfortunate timing, this year's APHIS camps were not able to happen. In 2021 these camps will be offered in a safe manner determined by the changing landscape. The Camp series exposes youth to the field of agribusiness while they help to manage a local garden and experience running a profitable agricultural operation.

Gidakiimanaaniwigamig

Climate Strong! – Building Tribal Youth Leadership for Climate Resiliency

Climate Strong is an immersions camp for middle and high school youth to gain awareness of how climate change impacts cultural and community systems. The youth will gain leadership skills by understanding various climate change models and how to contribute to community resiliency strategies. Over the next three years, the program outcomes include:

- Providing outreach to community members; highlighting community resiliency issues facing our region
- Sharing of project results with partners
- Increasing community resiliency through adaptation of culturally relevant stewardship strategies that reduce climate change impacts on natural resources that support cultural practices
- Demonstrating leadership by tribal youth; Partnering with the UMN, UMD, and the Bell Museum to produce a FDL youth, “Water Story”, planetarium show
- Increasing community resiliency teaching skills by middle to high school educators within the Ojibwe Ceded Territories
- Increasing the number of community-based climate resiliency projects that reduce extreme weather impacts



Program Impacts

- 30-45 Native American K-12 students participating yearly
- Native American College Mentors participating in all camps
- 3 Native American students were placed in REU positions in partner research facilities
- 30-60 teachers working in schools that serve Native American students. These teachers are trained on the online G-WOW curriculum that increases climate change literacy by looking at climate change in the context of effects on Ojibwe lifeways
- Camp staff & High School leaders are being trained in arc GIS Story Map software, to be used as a professional presentation & communication, as well as teaching, tool

Partners

- University of Wisconsin Extension
- Great Lakes Indian Fish and Wildlife Commission
- NOAA
- Lake Superior National Estuarine Research Reserve
- 1854 Treaty Authority
- Fond du Lac Resource Management
- University of Minnesota, Twin Cities & Duluth
- Bell Museum, U of M St. Paul Campus

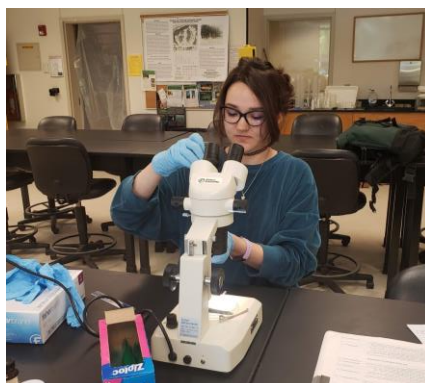
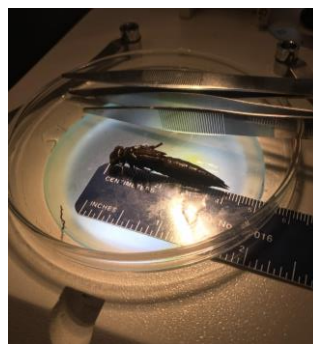


Fond du Lac Research

Tracking Mercury across the Watershed

The St. Louis River watershed is facing historical and future mining pressures which have affected subsistence lifeways and health of the Ojibwe people. Mining discharges, especially sulfates, are a major concern. Sulfates in mining discharge convert mercury to methylated mercury, a form of mercury easily assimilated by biological organisms. As methylated mercury becomes available to the aquatic food web the mercury accumulates in the tissue of plants, animals, and eventually the humans that consume the fish. In light of these health issues, Fond du Lac tribal researchers are looking at ways to track mercury in the St. Louis River watershed and in this case in particular, to understand mercury loading in the region.

New USDA-NIFA funding supports current research to study the influence of landscape type on bioaccumulation of Hg in Odonate (dragonfly) larvae in the St. Louis River watershed. The new research will help identify whether mercury is exported similarly from different landscapes into surface water and determine whether mercury bioaccumulates in dragonfly larvae at different rates moderated by the dominant land cover of a catchment and differences in food web structure.



Fond du Lac Tribal & Community College Research Objectives

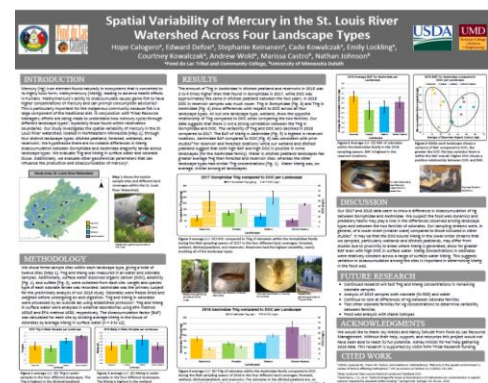
1. Give college students a hands-on opportunity to increase their skills, knowledge, and confidence in environmental science by conducting, analyzing, and reporting back on research that is critically important to the tribe
2. Provide networking opportunities where students connect with current research partners in the region
3. Create a final poster of research findings and present them to the science community sharing ideas as well as attend outreach events

Partners

- Fond du Lac Resources Management Air Quality and Water Divisions
- UMD Civil Engineering Department
- USDA Tribal Research
- Cloquet Forestry Center

Current Collaborative Research Projects

- Superior National Forest Rare Owl Survey
- Oak Blueberry Monitoring
- NASA SnowEx Satellite Mapping Strategies Monitoring Snow
- Mercury Research



Fond du Lac Research

New eDNA Funding Used to Track Aquatic Invasive Species on Tribal Lands

Fond du Lac students will utilize environmental DNA (eDNA) to detect the potential presence of rusty crayfish and zebra mussel in the watersheds of wild rice lakes. Both of these invasive species are a concern as rusty crayfish have been found to graze heavily on germinating aquatic vegetation and zebra mussels have been known to affect water clarity, which could lead to an increased growth of competing plant species.

Detecting invasive species proves most crucial at early stages of invasion when populations are low and the ability to successfully control and eradicate is most manageable, however this is often a difficult time to successfully monitor. eDNA, usually from macrobiota in water, offers a potential tool for detection at low population sizes.

The SnowEx Project provides quality snow measurements to NASA while at the same time providing valuable research experience to FDLTCC students

The project seeks to:

- Establish a relationship between SnowEx researchers, FDLTCC faculty/ staff and Fond du Lac Resource Management researchers
- Create a student research team to participate in and implement a regional SnowEx mission
- Provide a mentorship relationship between NASA researchers and FDLTCC students



VISTA Partnership

Two AmeriCorps VISTA (Volunteer in Service to America) funded by the American Indian Higher Education Consortium (AIHEC)



currently serve at Fond du Lac Tribal College. The **Food Sovereignty VISTA** collaborates with the Fond du Lac Band and the FDLTCC Tribal College Extension to encourage a community that is resilient to natural resource vulnerabilities and risks in regards to food sovereignty. The role of the **VISTAs Creating STEM Research Experiences for College Students** project is to design and develop impactful research experiences for undergraduate tribal college students that will prepare them for graduate education and/or successful professional careers.

Food Sovereignty VISTA 2020-21 Goals:

- Coordinate with, and cultivate, local stakeholders to identify and meet program needs in order to continue progress of FSI planning
- Build capacity of FDLTCC Agricultural Outreach programs to demonstrate and educate on sustainable food systems
- Build organizational capacity for Fond du Lac Tribal College Extension program

STEM VISTA 2020-21 Goals:

- Establish, maintain and strengthen partnerships with local, tribal, state and federal research organizations and agencies across private, public and nonprofit sectors for impactful student research experiences.
- Develop the systems and processes necessary to establish a pipeline of students completing impactful STEM research experiences at FDLTCC
- Help develop the financial resources necessary to sustain the project into the future

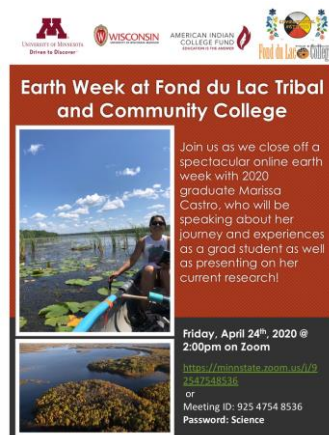
Campus Sustainability

The Sustainability Project

transforms FDLTCC into a space that supports our educational efforts on sustainability. By managing our campus to support sustainability we impact our students and greater community by providing hands-on opportunities to learn about agricultural, natural resources, and alternative energy issues, opportunities, and skills.

As a Tribal College, our mission encompasses the vision of sustainability as we seek to become more conscientious stewards of resources while promoting the language, culture, and history of the Anishinaabeg.

Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present but also in the future. Fond du Lac Tribal & Community College faculty, staff, and students implement changes on our campus that increase the ability of our college to be a leader in sustainability.



Indigenous Visionaries: Native Women Leadership Fellowship

The goal of the Fellowship is to support Native women leaders who have a foundation in Indigenous knowledge, culture, and history, and who will bring visionary leadership to Native communities in the future. Emily Lockling brings her experience in working in the bee yard and on methymercury research into continued work with the Environmental Institute this year.



Virtual Earth Week 2020: "It's a Small World"

Microplastics Day with Dr. Elizabeth Minor
"Plastic Pollution in the Environment: Insights from Lake Superior"

Raptor Research Day with Joe Barnes
"Peregrine Falcons as a Bio-monitor: A local study taken to a continental scale"

Spring Phenology Day with Glen Swanson
"Using iNaturalist and Documenting Spring"

Starry Skies Day with Cynthia Lapp
"Light Pollution in our Region"

Links for Green Living Day with Marissa Castro
"Smog of the Sea" movie stream



Campus Sustainability Projects

Gardening - accomplishing sustainable food initiatives

Greenhouse - innovating with solar energy

Bee Yard - understanding how pollinators work and sustaining a year-round hive





The Environmental Institute is dedicated to providing the education, skills, and research that will help our communities connect with Ojibwe culture, our natural resources, and knowledge on living a sustainable lifestyle.

Environmental Institute Catalyst for Change

The Environmental Institute is determined to be a catalyst for positive change in our community. Our programming concentrates on:

- Sustainable Food
- Sustainable Natural Resources
- Encourage students interest in Science Technology Engineering & Math (STEM)
- Connection with Ojibwe culture
- Community outreach



Upcoming Workshops

- Manoomin (wild rice) Camp
- Seasonal Decorations using Natural Resources
- Seed Saving and Food Preservation
- 13 Moons Pow Wow TBD
- 6th Annual Bee Symposium TBD
- Sugar Bush
- FDLTCC Earth Week

Contact us!

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Thirteen Moons

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