Manoomin gii-nitaawigiyaan
Makak, sensor for manoomin

By Bay Paulsen, Staff Writer

If manoomin (wild rice) plays a role in your life, whether you're harvesting it to feed your family, hunting waterfowl in the fall, or simply observing its life cycle as it grows each year on a nearby lake or stream, you likely know how sensitive this being is to disturbances like greatly fluctuating water levels, excess wave action, warming water temperatures, and increased frequency of historic floods.

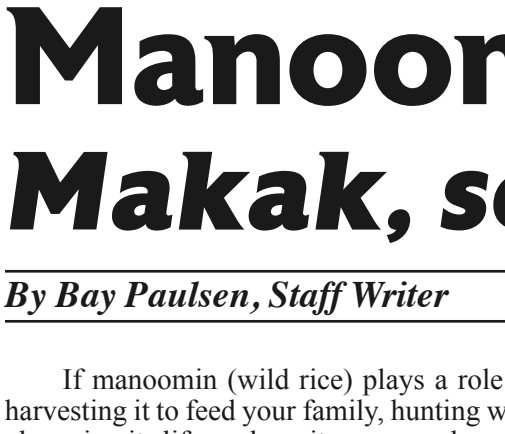
These factors and more have contributed heavily to the decline of healthy manoomin beds in the last several decades, and our continued stewardship requires us to keep very close observations on the plant itself, its lifecycle, and the water it grows in.

It's for this reason that Eric Greenlee, Computer Science PhD Student at Georgia Tech, is collaborating with GLIFWC, the Lac du Flambeau Tribe, and the 1854 Treaty Authority to use modern technology to help bolster our understanding of manoomin waters.

It comes in the form of sensor-containing buoys, bobbing on the edge of manoomin beds. They continuously collect data for water level, wave action, humidity, water and air temperature, and water and air pressure, all of which can be remotely viewed by the biologists in real time.

Water quality and environmental stability are very important to the rice. These plants live out their entire lives in shallow, gently moving waters in inland lakes and along the edges of rivers, growing in several distinct stages.

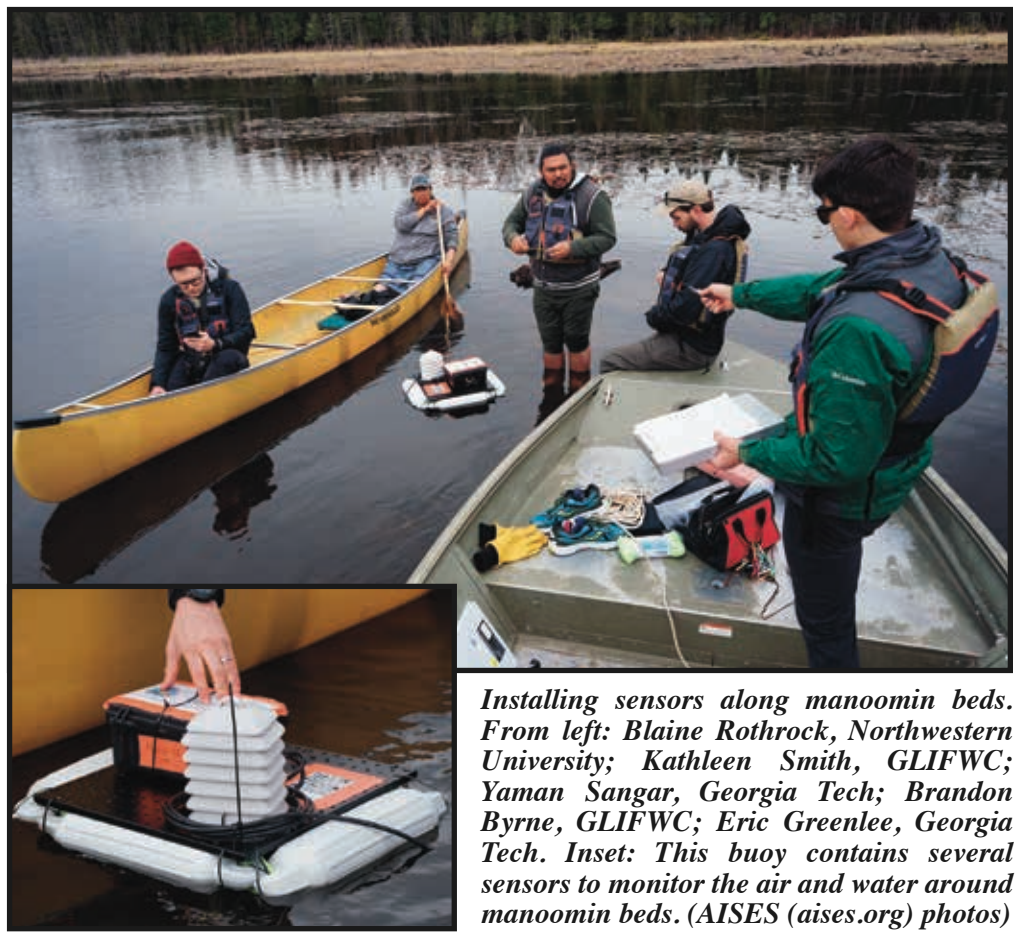
Seeds begin their lives embedded in soft sediment after falling from their mother plant in late fall. They will lay dormant throughout the winter, and most will germinate the following spring, entering the submerged stage in which a root system and up to four small leaves will begin to form. These long leaves will gradually grow through the water column to reach the surface, and by early summer, they will lay flat on top of the water. This is known as the "floating leaf" stage and is where the plant is most vulnerable.



Maajiigin manoomin (the rice is starting to grow). (B. Paulsen photo)

Its buoyant leaves and underdeveloped root system allows it to be easily uprooted when the water is excessively disturbed, such as with high winds, flooding, or large boat wakes, all of which has become more common with climate change and human recreation.

By mid-summer, aerial shoots can be seen protruding from the water's surface, beginning the emergent stage. By now, the roots have taken a stronger hold in the sediment, and the plant is less vulnerable to mild and moderate disturbances.



Installing sensors along manoomin beds. From left: Blaine Rothrock, Northwestern University; Kathleen Smith, GLIFWC; Yaman Sangar, Georgia Tech; Brandon Byrne, GLIFWC; Eric Greenlee, Georgia Tech. Inset: This buoy contains several sensors to monitor the air and water around manoomin beds. (AISES (aises.org) photos)

Over the next few months, these stalks will grow two to five feet above the water and will develop flowers, then seeds, and in early to mid-fall, harvesting will begin. This harvest is the gift given to us by the manoomin plant and the water it grows in. This is why the protection of the plant and the water is so important, and these specialized buoys offer a new way to collect crucial observations.

This data will bring more understanding about the connections between human activities and manoomin, and it will help inform which acts of stewardship we need to prioritize, whether that's educating about the effects of climate change or implementing more regulation such as no-wake zones.

If you are out and about in Ceded Territory waters and come across any of these buoys yourself, you will find contact information and a QR code. Visit *www.manoom.in* to learn more about the project.

Control season for problem plants starts in June

Odanah, Wis.—GLIFWC is continuing efforts to work with populations of potentially harmful non-native species in 2024. These efforts include a focus on priority species of non-local beings such as Dalmatian toadflax, European marsh thistle, leafy and cypress spurge, purple loosestrife, wild parsnip, garlic mustard, teasel, yellow flag iris, and non-native phragmites.

Work will take place from June through September, primarily within the road rights-of-way of Ashland, Bayfield, Douglas, and Iron counties. Efforts may include manual removal (hand-pulling, digging, removing flower heads, etc.), spot applications of herbicide, as well as biological control for spurge and loosestrife.

Hundreds of non-native (or "non-local") species have been introduced to the western Great Lakes region, primarily as a result of human activities. Many of these introduced species are relatively harmless. However, some non-local plant species have aggressively moved into native ecosystems where they have been documented to cause environmental and economic harm, and even harm to human health. These species typically lack the natural predators and other natural forms of control that typically help maintain a balance in their native ranges (often parts of Europe and Asia).

Introduced species can negatively impact plants, wildlife, livestock, and humans. For example, garlic mustard can outcompete many native plant species, such as spring ephemerals in wooded floodplains. Purple loosestrife and non-native phragmites threaten wetlands and coastal estuaries by displacing native plants, reducing diversity, and degrading habitat for native wildlife. The sap of leafy and cypress spurge contains a compound that can be toxic to deer and cattle and spurge plants can displace native plants and forage crops. Yellow flag iris is also considered poisonous, and populations can expand quickly, forming dense monotypic stands that replace and crowd out native aquatic plants. Exposure to the sap of wild parsnip can lead to a condition called phytophotodermatitis, caused by chemicals in the sap that make the exposed skin of humans and animals hyper-sensitive to sunlight. This can result in mild to severe rashes, blistering, and skin discoloration that may last several months.

GLIFWC's control efforts are conducted with a goal of learning from and respecting these introduced non-local beings, as we do our part to protect native ecosystems, treaty-protected resources, and biodiversity in the Ceded Territory.

For more information, please contact Travis Bartnick at (715) 682-6619 ext. 2166 or email at *tbartnick@glifwc.org*.

← ***Thriving in grasslands and roadside habitats, leafy spurge can be toxic to domestic and wild four-legged animals. GLIFWC employs a combination of biological controls, manual removal, and herbicides to help keep a lid on non-native species, helping maintain biodiversity in the Ceded Territory.***

(S. Garske photos)