

custom fit

BY LEIGH MACMILLEN HAYES



I first met Seth Merriam when he walked through the door of my classroom at Lake Region Middle School in the early '90s. He was a class clown—an extremely creative class clown.

I'm happy to report that he hasn't lost that playfulness. It's part of his charm, which he has channeled into his work as a graphic designer for his family's business in Naples, Great Northern Docks.

A year and a half ago I met Seth again as he joined the staff from Lakes Environmental Association for the maiden voyage of a utility boat he'd designed that would ease the task of pulling a large scientific buoy out of Highland Lake in Bridgton. He'd brought along a drone to document the event, while LEA researcher Amanda Pratt and I took numerous photos from another boat.

I remember the laughs as Seth joked with the LEA staff, but also his command to us—“Don't look at the drone. Look natural.” Of course, we were all in awe of this little remote-controlled device flying above us.

The real story though was the collaboration. And it's a connection of networks that had been occurring on many levels over the



years that led to that maiden voyage of the utility boat.

Since 1970, the Lakes Environmental Association has conducted traditional bi-weekly water quality tests on our area lakes, but they upped the ante by purchasing two GLEON buoys in the past few years.

GLEON is an acronym for Global Lake Ecological Observatory Network, consisting of lake and technology scientists from all over the world who are trying to understand global change and human impacts on lake environments.

Sensors attached on and below this buoy capture conditions every fifteen minutes, while a solar-powered computer inside it records measurements of algae levels, water temperature, dissolved oxygen and clarity. These are transmitted to LEA via a cell signal.

From April through November, the buoy is deployed in the deepest spot of Highland and Long Lakes to collect these measurements.

This allows Assistant Director Colin Holme, Researcher Amanda Pratt, and LEA's Maine Lake Science Center Research Director, Dr. Ben Peierls, the ability to watch the effects of weather events, such as rain storms and wind, that may stir up nutrients in the depths of the lake and cause algal blooms or add more oxygen to the water column.

“With the data we are getting from the buoy, we can observe real time water quality information such as spikes in algae concentrations coupled with minor mixing events and this will help us make better management and policy decisions about the lake and watershed,” says Colin.

Additionally, the staff can make a connection to the greater world as they compare what is going on in our lakes region with what's happening in other lakes around the globe.

All of this would not be possible without funding from an anonymous foundation and lakefront residents.

Not only is collaboration important for funding and sharing of knowledge, but also for deploying, maintaining and hauling out the heavy and awkward buoy. That's where Seth and Great Northern Docks (GND) come into play.

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GND had helped with previous projects, so it was only natural to ask for their advice and aid once again. That is where Seth came onto the scene. He envisioned something similar to a kayak launch that GND had invented and began looking around the company's grounds for suitable materials.

Using a prototype of the kayak launcher that consisted of cedar planks atop styrofoam, he created a boat that he describes as looking a bit like a swingset, “but much more rickety.” It had to be assembled over water with an A-frame structure to support the winch that would lower or raise the buoy.

Two years ago, Seth and Colin gave the cedar rig a trial run—and Seth now grins broadly as he recalls how they stood on opposite sides of the two planks, which had space between for the buoy, and quickly realized they'd have to move simultaneously in order to keep the structure below their feet from creaking and cracking.

That first rig was OK and helped LEA perform the task, but really, its small platforms didn't allow much work space and any wave action added to the difficulty of lowering

the GLEON buoy in the middle of the lake.

And so, feeling like he was in a bind when it came time to haul the buoy out that fall, Colin asked Seth to help again.

Because it was fall, Seth felt he could devote some time to the creation of a sturdier craft and bypass regular production procedures at GND. In a short time frame, he developed a 3-D design, while Colin purchased a couple of pontoons with some holes from Moose Landing Marina.

A GND employee, Tom L., was interested in learning how to weld and began by fixing the holes. His contribution became vital to the project, though there was some tweaking involved in the overall process as Seth searched the GND yard for items that would work. In the name of recycling and reusing, he found aluminum from blemished dock sections and knew they would be perfect for the task.

The GND team custom fit and welded a Dura-LITE aluminum dock across the two pontoons, creating a back platform to hold passengers and equipment, including a hand-cranked crane. Catwalks, carpeted by Colin and Amanda, were installed over the front portion of the pontoons, leaving an opening between them.



There was concern that by cutting off the front, the strength of the boat would be lost, but that's where GND's many years of design, creation and installation of dock systems came into play. With their in-house ingenuity, they were able to stabilize the boat on all sides, making it easy and safe to work on the buoy from the catwalks, as well as lower and raise it.

Colin brought a motor to GND so they could mount it. And GND added a speed rail that could easily be popped off with a wrench when the time came to load the buoy. A swim ladder was attached to the inner part of the horseshoe-shaped boat to allow for easier access during routine maintenance.

The final product is a versatile utility

boat that LEA will continue to use for the GLEON buoy, and for other expanded water quality tests.

Both Colin and Seth admit that given the price of the buoy, they felt a heavy sense of responsibility and kept their fingers crossed during the maiden voyage in hopes that everything would work as planned. It did and continues to do so.

The utility boat is not a real pontoon boat. "We make docks," says Seth. "We don't make things that fly across the water." That's fine for LEA, as their need is not for speed, but rather to safely transport valuable equipment and staff.

Seth adds that Great Northern Docks was happy to take scrap aluminum and

"put it into something that's beneficial to the lakes and community because the lakes and community are important to us." In doing so, however, he cautions that it closes down production, so projects like this are made as exceptions, rather than the norm.

This donation by GND benefits all of us as it allows the LEA staff to assess collected data, which is made available at mainelakes.org so we can learn more about limnology and better understand the factors that contribute to water quality issues.

In the end, the creation of the utility boat provides an outstanding example of ways in which local for-profit and non-profit businesses can craft a win-win collaboration. 🌟