Coastal Children's Museum

Planning a capital campaign to build a new museum that is "green" and resilient to expected coastal flooding due to warming oceans

Jessie Haas

Coastal Children's Museum, in Rockland, Maine, (where the motto is, "We play to learn") is a small museum focused on the environment of the mid-coast of Maine, which comprises the counties of Knox, Lincoln, and Waldo. The mission of the museum is "to provide children and families the opportunity to explore, discover and learn about the natural world, the arts and sciences, and the diversity of Maine's mid-coast, through play." Board president Gayle Bedigian believes it is the only children's museum in the country with the unique stress on climate and the marine environment. A member of the Association of Children's Museums, Coastal has been in the same location for fourteen years and has struggled through and survived the recent onslaught of Covid, Monkey Pox, and RSV virus epidemics.

This has not been without impact, however. Due to a small bank account and abbreviated schedule, the museum has had to cut staff. The Educational Curator, currently the only staff member, keeps the doors open two days a week, Fridays and Saturdays.

The hands-on touch tank at the Coastal Children's Museum is a popular exhibit.

Students go plankton fishing on the pier in front of the Coastal Children's Museum. (Courtesy photos)

One day when the curator couldn't make it in, Bedigian ran the museum for the day. She said, "I was running here and there trying to check people in and lecture about our touch tank when a young man with two beautiful daughters came in and witnessed me running like a crazy person. He kindly asked what he could do to help me, and I asked him to answer the door, which he did. Then he asked what else he could do, and I asked him to start a computer. After many tries, he wasn't able to do that. On his way out he said, 'I am going to help you,' and I thanked him kindly. I thought no more about it until two or three weeks later when I got a call. 'Hi Gayle, I know how I can help you. I am going to give you some money.' I thought, 'How wonderful!' I had no expectations. I was gob smacked when a week or so later we received a check for $50,000. All he said was, 'Just please keep this museum open.' I just cried and cried."

The museum is very hands-on and interactive, with popular exhibits including a full-sized OPTI sailboat, an Under the Sea room with tropical fish and seahorses, a wind tunnel, a bear cave with a tunnel and tubes game, arts and crafts space, a wood workshop, a puppet stage, and the popular touch tank— yes, you can touch some of the sea creatures in the tank, which include sea stars, hermit crabs, sponges, and tube worms. There is a special exhibit which teaches children about Maine islands, and the museum offers the Learn About Maine Islands Learning Kit, which includes developed lessons, about two weeks' worth for K-3 students, with materials based on Kelly Briggs's book, Island Alphabet.

The museum is cramped for space at its current location, and the board is planning a capital campaign to build a new museum that is "green" and resilient to expected coastal flooding. To that end, they have engaged Weston Wright Architects, a firm which specializes in building for global warming and sea level rise and has also designed and remodeled other children's museums and schools. Wright is the author of a 2022 book, *More Water, Less Land, New Architecture,* which discusses resiliency from the Neolithic to the present, and proposes a next generation of coastal architecture. Of the Old Colony School, a Montessori school in Hingham, Massachusetts, Wright said in a 1995 *Boston Globe* article, "The school should boastfully acknowledge that children are here. It should be screaming about life, learning, fun, creativity." Along with that joyful shout, Bedigian intends a new building to be an exhibit to inspire creative future construction for coastal communities confronting climate change. Philanthropists who love children and nature will be welcomed with open arms.

Jessie Haas lives in an off-grid cabin in southern Vermont with husband Michael J. Daley. She's the author of 41 books for children and adults, including Revolutionary Westminster. ♻

Renewable Energy Program at Vermont State University

Students Contribute Energy Solutions for Vermont Municipalities

John Kidder and Allan Baer

The Renewable Energy bachelor's degree program at Vermont Technical College was founded almost 10 years ago to prepare students for rewarding professional careers in the renewable energy sector as managers, designers, and engineers. This program has a strong foundation of courses in engineering, science, and technology blended with business and management.

Vermont Tech students with Nate Brigham and Allan Baer on the second site visit at the Village of Johnson Water and Light Garage. Shown is Colby Surprenant, Nicholas Holbrook, Nate Brigham, Ryan Fish, Henry Pentland, Liam Henchey, and Allan Baer.

Some exciting developments are happening this summer. In July 2023 Vermont Technical College joins the other state colleges to become Vermont State University (VTSU!), expanding the opportunities for the program. Also, this summer the Renewable Energy program will be reviewed for external accreditation under ABET, which accredits most engineering programs at universities in the U.S. Starting in the 1960's, all the 2-year and 4-year engineering technology degrees offered at Vermont Tech have been accredited by ABET. Once the accreditation for the Renewable Energy BS degree is completed, VTSU will be one of only a few institutions in the U.S. offering an ABET accredited engineering program that focuses specifically on renewables.

Each year graduating seniors in the Renewable Energy program complete a "capstone" project that engages them to apply the cumulative knowledge, experience, and skills gained through their university studies to address real-world problems with the design and engineering of energy efficiency and renewable energy systems. A key goal of the Renewable Energy program capstone project is to support and engage with Vermont communities by soliciting projects from town energy committees, municipalities, and other community stakeholders that are looking for technical solutions to local energy challenges.

For the spring 2023 semester the capstone project focused on Vermont Act 172 and the Vermont Municipal Energy Resilience Program (MERP), which provides support and funding to Vermont municipalities to increase energy resilience, reduce energy use and operating costs, and curb greenhouse gas emissions. Vermont Tech is partnering on the project *Cont'd on p.33*

Renewable Energy at VSU

Cont'd from p. 32

with Allan Baer of the Renewable Nations Institute (RNI) with the goal of extending the work from the spring 2023 capstone course as a template for how students can contribute to efficiency and renewable energy workforce needs to support state and federal funding opportunities.

The MERP is administered by the Department of Buildings and General Services (BGS) and the Regional Planning Commissions (RPCs), who will assist municipalities to apply and complete energy audits and other steps to receive MERP funding. The application process will start in spring 2023 with the audits and project work occurring into 2024. Given this timing the capstone project was geared to provide preliminary energy needs assessment as well as work in design, engineering, performance modeling, life-cycle costing, implementation planning that could be of value to a small rural municipality to help inform them of what options they have for reducing carbon emissions and energy costs with a project that qualifies for state and federal funding.

The project began in January with a team of six Vermont Tech students - Thomas Ferguson, Ryan Fish, Liam Henchey, Nicholas Holbrook, Henry Pentland, Colby Surprenant – working with VTC professor John Kidder and Allan Baer from RNI. The team began the process by reaching out to various stakeholders, such as regional planning commissions and municipalities, to collect information, understand the key elements of the MERP, and explore potential projects.

After several meetings and considering different projects, the students chose to work with the Village and Town of Johnson Vermont and the Lamoille

Vermont Tech Renewable Energy student Liam Henchey with Tori Hellwig from the Lamoille County Planning Commission and Nate Brigham from the Village of Johnson collecting nameplate and other information about the buildings' systems during a site visit in March 2023. (Courtesy images)

County Planning Commission. The project involves the Water and Light Garage for the Village Garage is the municipal maintenance facility of the Johnson Water & Light Department of the Village and Town of Johnson. The Vermont Tech team is working with Erik Bailey, Brian Story, and Nate Brigham from the Village of Johnson as well as Tori Hellwig and Rob Moore (VTC '14) from the Lamoille County Regional Planning Commission, all of whom have been supportive with their time and guidance on the project. The student team completed the first site visit in mid-February and are actively working on the assessment, design, and engineering work.

The project provided capstone students with complex, real-world project experience that demonstrates their ability to apply specific engineering skills acquired and developed over the four-year Renewable Energy degree program. For the Village and Town of Johnson it provided technical assistance and decision support services (at minimum an ASHRAE Level 1 Energy Audit) pursuant to the submittal of an application for EERE project funding under the provisions of Vermont Act 172. An important goal of the project was to demonstrate the capacity of a student workforce to deliver vital community services under a variety of experiential learning pedagogies --- Work-Study, Service-Learning, and Work-Learning-Service --- to meet the objectives of the 2022 Vermont Comprehensive Energy Plan.

On April 26, the students presented the project results at a session on the Randolph campus with keynote remarks from Lt. Governor David Zuckerman and Secretary of State Sarah Copeland Hanzas. Following the session there was a panel discussion of how the work-learning-service model could be expanded at VTSU to support university students while they apply their education and skills towards helping the state meet energy transformation and climate goals.

John Kidder is the Professor of Engineering Technology, Vermont Technical College. Learn more at www.vtc.edu.

Allan Baer is the President of Renewable Nations Institute. Learn more at www.renewablenations.online . ♻

VTC student Colby Surprenant collecting data on the environmental conditions with Tori Hellwig from the Lamoille County Planning Commission and Nate Brigham from the Village of Johnson.