The Serendipitous Transatlantic Tale of One Tiny but Mighty Boat

By Syma A. Ebbin

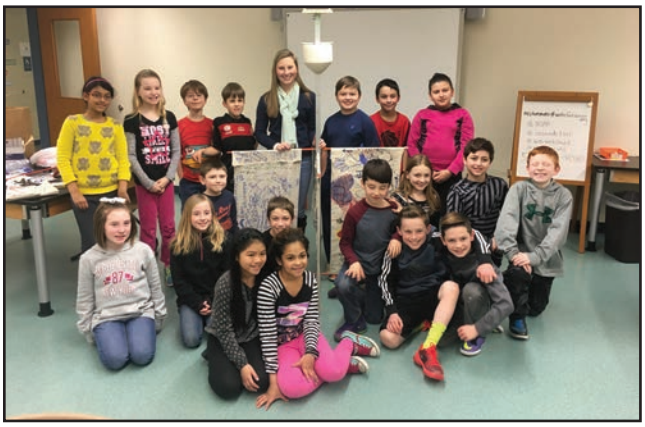
Just sit right back and
you'll hear a tale,
A tale of a fateful trip
That started from an ocean port
Aboard a tiny ship.

(slightly modified lyrics from the theme song to the TV show "Gilligan's Island")

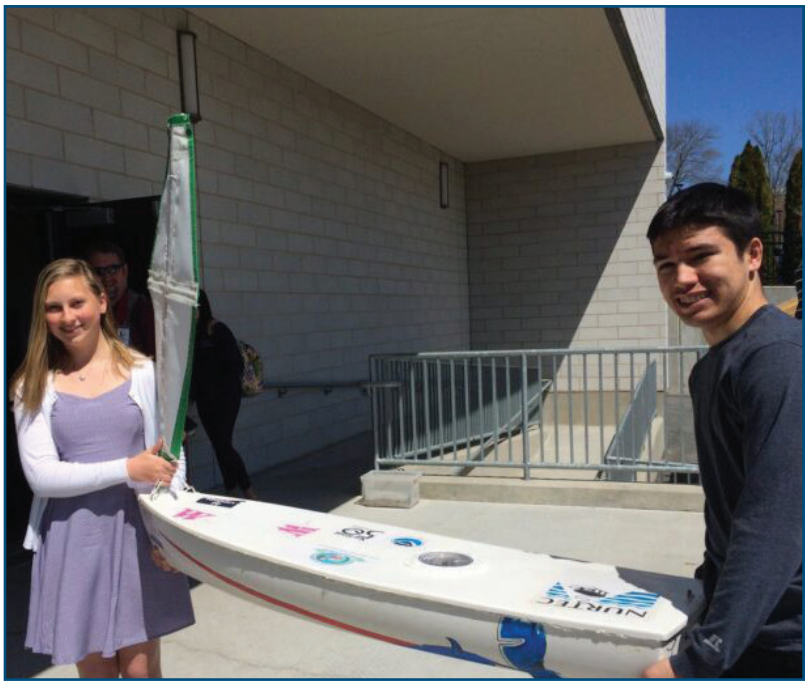
No, this isn't a tale about castaways. Rather it is a tale of an unmanned miniature sailboat and the people it connected.

Hailing from five different countries, they were linked by the ocean currents and winds that propelled the small but mighty vessel named the *Lancer* forward. Even more significant than the connections created was the impact that its voyages have had in amplifying ocean literacy around the world.

The story began in 2015 when Kaitlyn Dow, an avid sailor and student at Waterford High School, enrolled in a university-level oceanography class taught by science teacher Michael O'Connor. The course spanned the school year, allowing students to undertake year-long research projects.



Kaitlyn Dow, rear center, joins Martha Shoemaker's fourth-grade students at Quaker Hill Elementary School to show off the drifter they helped assemble and decorate. Photo by Michael O'Connor



Kaitlyn Dow, left, carries the sailboat *Lancer* into Waterford High School's swimming pool with another student to test its buoyancy before its first launch into the Atlantic in 2016. Photo by Michael O'Connor

"At the time I was a competitive offshore sailor, traveling all over the country competing," Dow, currently a deck watch officer in the Coast Guard, recalled. "After struggling for a long time to come up with an idea for this project I decided to combine my interests in science and sailing."

Her project began when the concept of ocean literacy was being advanced for K-12 classrooms in the United States and abroad. This was the backdrop for the serendipitous journey of the *Lancer.*

At this time, O'Connor met Dick Baldwin, sailor and founder of the Maine-based non-profit Educational Passages (EP), at a marine educators conference. He saw the small kit-built sailboat that Baldwin's organization designs and sells.

The mission of EP is "connecting people around the world to the ocean and to each other, which is one of those essential ocean literacy steps," said Cassie Stymiest, currently the executive director of the organization.

"It's a very, very powerful mini and a mighty boat that is a springboard for so many different things," she said.

At the same conference, O'Connor learned that Connecticut Sea Grant might be a source of funding for the project. O'Connor worked with Dow to draft a request. Connecticut Sea Grant awarded the funding, augmented by the Captain Planet Foundation, paving the way for the *Lancer's* launch.

After realizing that sensors wouldn't be available for the launch, Dow modified the project to compare the movement of two different types of ocean-going instruments: one would have underwater sails that would ride the currents; the other would be the five-foot-long *Lancer*, a keeled sailboat that would catch

the winds and currents. Both would be outfitted with GPS units to track longitude and latitude, sending data several times daily.

O'Connor engaged teacher Martha Shoemaker and her class of fourth graders at the Quaker Hill Elementary School to help construct and decorate the first drifter, a buoy with four underwater spars attached to sails. Dow's classmates helped build and decorate the *Lancer*, named after the high school's mascot. After a test run in the school's pool, the hull was filled with small gifts and messages for whoever found it.

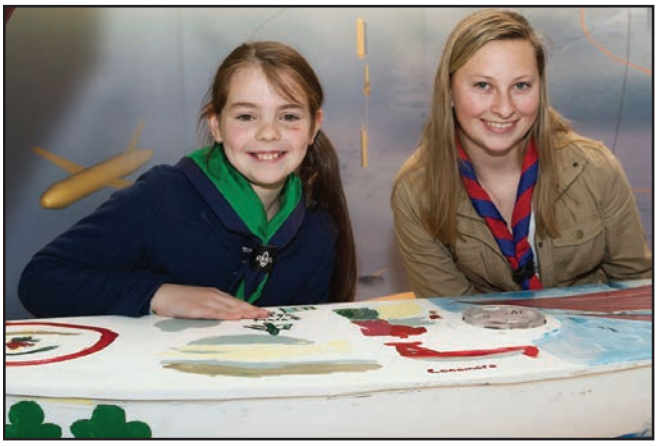
Both instruments were then launched at the edge of the continental shelf south of New York Bight on May 7, 2016, from the Woods Hole Oceanographic Institution's R/V *Neil Armstrong* during one of its first research cruises.

The voyages began!

The two instruments set out across the North Atlantic. The drifter traveled about halfway and stopped transmitting. The *Lancer*, however, glided over the continental shelf, underwater canyons and seamounts, caught the Gulf Stream, crossed the mid-Atlantic Ridge, and kept on sailing, nearing Ireland after four months.

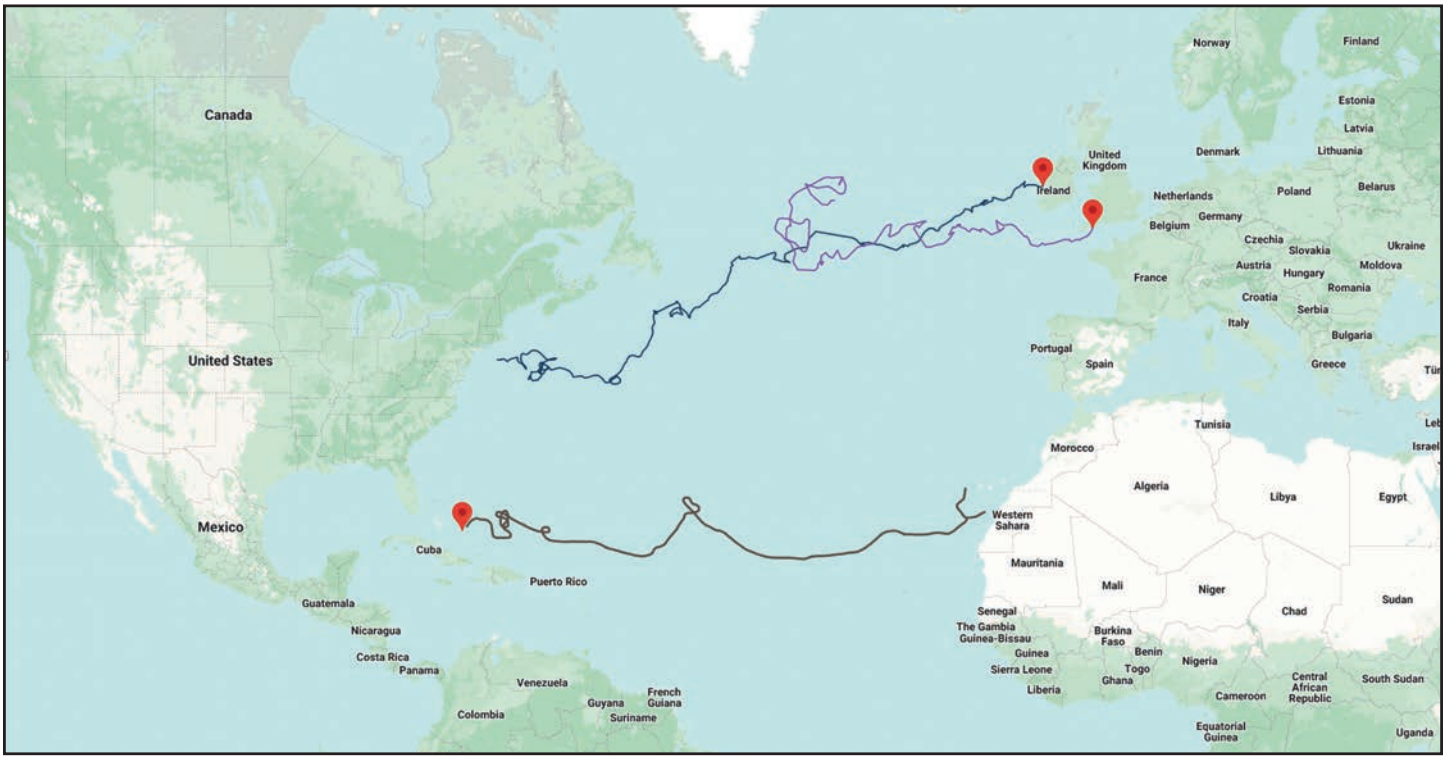
Dow and O'Connor sent a letter to the Irish minister of education, as well as other contacts in Ireland to alert them to the imminent arrival of the *Lancer*:

"A fleet of miniature unmanned sailboats is preparing to invade the West Coast of Ireland. Not to worry, this is a friendly invasion…We are hoping you or anyone else could recover our boat before it gets damaged in the surf. This is part of a hands-on learning program we are doing at Waterford High School… We are learning about oceanography, earth science, geography, navigation, and hope to have a meaningful international relations experience as well… Our boat is the *Lancer*… We are hoping students could meet her as she comes ashore or maybe your local fishermen can pick her up before she comes ashore. You'll find information about us in the watertight compartment and how you can email us for more information. Please take our boat to a nearby school so your students can learn as well… Let's work together, fix her up as needed and get her back to sea to continue her voyage. We'd love to see pictures and have a chance to Skype with you. Thank you."



Méabh Ní Ghionnáin, left, met Kaitlyn Dow when Dow travelled to Ireland to reunite with the *Lancer*. Both are wearing their Sea Scout uniforms. Photo courtesy of The Irish Marine Institute

The *Lancer* set ground not on the shore of an uncharted desert isle, but rather on rocky Garumna Island off the coast of



Cruise tracks of *Lancer's* three transatlantic voyages are shown on this map. During its first cruise in 2016, shown in blue, it travelled from the edge of the North American continental shelf to Ireland; during its second in 2017, shown in purple, it sailed from the middle of the Atlantic Ocean to England. On its third cruise in 2022, shown in brown, it launched from the Canary Islands and landed in the Bahamas in 2023. Screen capture from Educational Passages

Galway on Sept. 17, 2016. O'Connor received an email the following day from Neasa Ní Chualáin:

"Hello Michael! We are delighted and very excited that we recovered the boat. The girl who recovered the boat is my daughter Méabh Ní Ghionnáin, who is 8 years old. She can't wait to return to school tomorrow morning (with boat in tow!) and tell her story and what a story…"

Dow and O'Connor traveled to Ireland to meet the young girl and reunite with the *Lancer*. The Connemara Sea Scout group, looking for a boat project to take on, adopted the *Lancer* to make the needed repairs, an ideal arrangement since both Dow and Méabh Ní Ghionnáin are Sea Scout members themselves. Connecticut Sea Grant agreed to provide more funding to refurbish the *Lancer* for the second journey. The Marine Institute of Ireland agreed to relaunch the *Lancer*.

The Connemara Sea Scouts and boat builder Ciaran Oliver, who works on traditional Irish wooden boats called Galway Hookers, started repairing the boat. In an email to O'Connor, Méabh's mother Neasa Ní Ghionnáin recalled the long and significant connection her daughter and family have to the sea:

"Méabh's Dad is a fisherman," she wrote. "Her grandfather used to fish and her great grandfather and great great grandfather were fishermen too! Her grandfather and uncles own and sail Galway Hookers— traditional wooden work boats that have survived on the Galway coast."

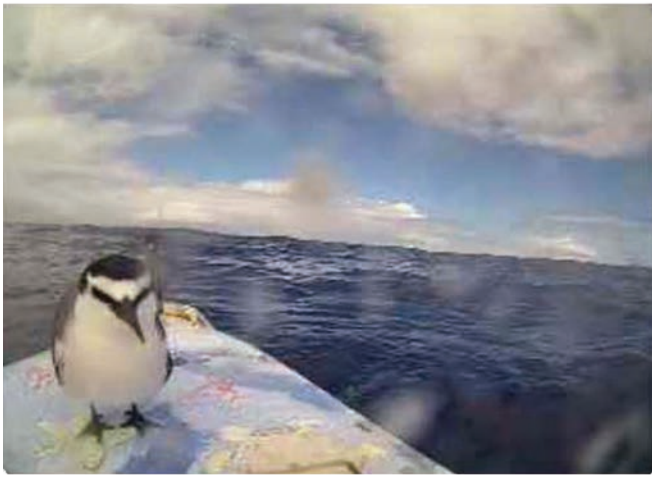
When the *Lancer* was restored, a dark red sail was attached to honor the Galway Hooker tradition.

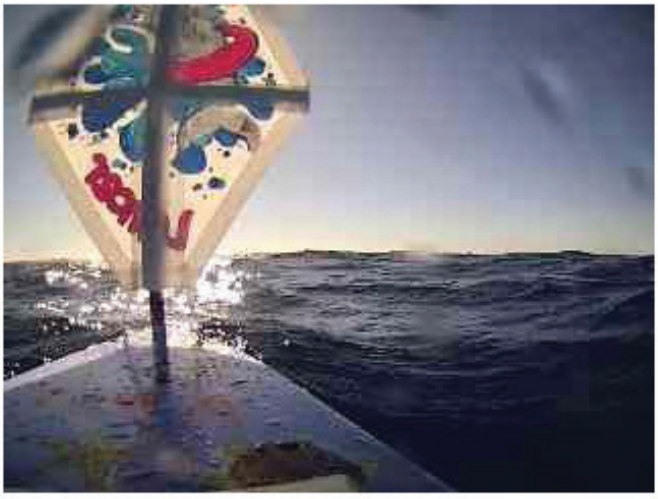
The Marine Institute's R/V *Celtic Explorer* relaunched the boat in the middle of the Atlantic on April 22, 2017, due west of Ireland and about halfway to Labrador, Canada. The weather did start getting rough, and the tiny ship was tossed. On June 14, O'Connor posted on the Lancer Twitter account:

"*Lancer* has not transmitted for 36 hours. It looks like it is circling a huge drain. Gale force winds & 20-foot waves…"

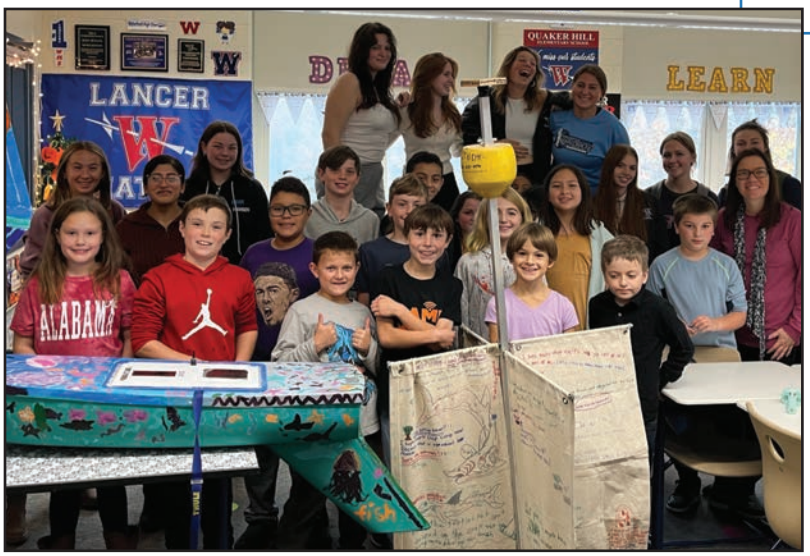
Educational Passages
@miniboats: Follow

This little birdie is catching a ride on the miniboat *Lancer*! Any of our bird friends out there recognize the species? @MakerBuoy's sensor pack for the win on this awesome pic! @DrifterWhs @OceanCTrust @ IEOocenaographia @ explorersedu





Top, the *Lancer*, missing its sail and mast at this point, picks up a hitchhiking seabird while moving south of Turks and Caicos on March 26, 2023. Center, the *Lancer* sails towards the Bahamas on March 7, 2023, under clear skies. Photos from camera onboard the *Lancer*



Waterford High School students stand with the fourth graders from Quaker Hill Elementary School who helped assemble and decorate the *Lady Lance* and an ocean drifter, launched in November 2022. Photo by Michael O'Connor

But the *Lancer* continued sailing, and on Aug. 4, 2017, its GPS announced it had arrived in a mooring field in the mouth of the River Yealms near the port of Newton Ferries in England. The boat was recovered and sent to a local school and put on a shelf.

While it sat shelved, the United Nations launched the Decade of Ocean Science for Sustainable Development, a focused time with broad aims of achieving the UN's Agenda 2030 ocean-related Sustainable Development Goals. The time for projects that advance ocean literacy had seemingly never been better.

The efforts to export the concept of ocean literacy were creating synergies observed by the many connections and interactions. In 2019, Stymiest met Nicola Bridge, president of the European Marine Science Educators Association. Bridge is also head of conservation education and communications at the Ocean Conservation Trust, based at the National Marine Aquarium in Plymouth, United Kingdom. This led to a partnership with that organization and the development of Project O.C.N. and associated STEMfest, an ocean and climate literacy program that engaged thousands of U.K. students. The *Lancer* was incorporated into the STEMfest project, refurbished, upgraded with a deck camera, two GPS units, sensors to collect air and water temperature data, as well as boat position and orientation.

The *Lancer* was relaunched on Dec. 1, 2022, from Tenerife in the Canary Islands, sailing west across the Atlantic. At the same time, O'Connor's class was building a sister ship, the *Lady Lance*, which was launched on Nov. 13, 2022. *Lady Lance* was successfully recovered in the Azores on May 12, 2023.

Ocean science is usually conceived of as *big* science. But according to the 2020 UN Global Ocean Science Report, average national investments in ocean science comprise only 1% of national research budgets, an amount that seems miniscule compared to the wealth of ocean resources that contribute to the global economy, estimated at $1.5 trillion in 2010. Given this, exploring the role of *small* ocean science—science on the scale of a high school student, a five-foot boat and a small amount of Connecticut Sea Grant funding—seems vital.

Taking a big-picture view, the story of the *Lancer* is a dynamic example of the sixth of the seven ocean literacy principles: "The ocean and humans are inextricably interconnected." The ocean is often thought of as a barrier, but in actuality it is a means of linking people, materials and ideas. Even today, the *Lancer* continues to illustrate this. It made its way to the Bahamas, where it ended up with students at the NGM Major High School. Dow, traveling on her Coast Guard cutter, met up with it there—another bit of serendipity. Recently, the boat returned to Waterford High School.

"I am thankful this project is something students at my high school have chosen to continue," Dow said. "I am sure for many students this is one of their first introductions to the maritime community. In my current role I work on the water daily and being able to introduce students to the maritime community is really important to me."

O'Connor said the *Lancer* demonstrated the power of experiential learning to engage students in ocean science.

"I think the *Lancer* provided a more interesting and personal hook to connect students to material that may be more dry," said O'Connor. "There's a lot of connections to ocean literacy. It was an opportunity to connect them to each other, to the content, and hopefully to the rest of the world."

Even at Quaker Hill elementary, the connections went deep. The fourth-grade class that helped build and decorate one of the original drifters also did activities about winds and currents and took a field trip on the Project Oceanology vessel to release coconut drifters that were recovered along the coast of Connecticut and New York. They had a virtual cultural exchange meeting with Méabh Ní Ghionnáin's school in Ireland.

"The cultural connections and ability to connect multiple ages is a key factor in the success of the program," O'Connor said.

Audrey Azoulay, UNESCO director-general, recently summed up the need to remain focused on ocean science.

"Ocean science is a journey—and one we are only just embarking on," she wrote. "Like navigators of old, we need to pool knowledge, join forces and stay on course."

Maybe what is required is engaged curiosity, appreciation and a bit of serendipity to achieve the ocean literacy needed to steward ourselves into a sustainable future. That's what the *Lancer* project brought to all the people involved.

"This program helps us take action in little bits, to understand what is needed and what we can do to solve problems," concluded Stymiest. "It's helping people navigate their own future."

Hosted by Ireland's Marine Institute, teacher Mike O'Connor, center, and Kaitlyn Dow, left front, travelled to Galway in February 2017 to reunite with the *Lancer* and meet Méabh Ní Ghionnáin, members of the Connemara Sea Scouts and boat builder Ciaran Oliver. In front of the group is the refurbished *Lancer* outfitted with traditional red sails and decorations depicting an historic Galway Hooker. Photo courtesy of The Irish Marine Institute