

# EDUCATIONAL PASSAGES: Using the “Sailing F

Educational Passages founder Dick Baldwin: “I realized I could build a model, equip it with GPS, and watch it sail across an ocean while I stayed dry and warm.”



Robert Drake

**Unmanned mini-boats sailing the seas inspire students in a myriad of subjects, from oceanography to meteorology and beyond.**

BY MARY R. DRAKE

“WHEN A SMALL BOAT goes to sea,” said Dick Baldwin, “it’s off on an adventure.” A physical therapist in Belfast, Maine, he has exchanged his solo-sailing passion for building ocean-crossing model boats that sail downwind month after month with no outside assistance.

“Build in a GPS that transmits to a satellite so anyone can track the voyage on the web,” said Baldwin, “involve students, and you’ve really got an exciting program. It’s multi-generational, with infinite learning possibilities—boatbuilding, ocean currents, winds, chart reading, earth science, maritime history, even foreign languages and international relations come into play when the boats land on a distant shore.”



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Students at Wagner Middle School in Winterport pose with their mini-boat. The training ship *State of Maine* launched the boat off Portugal in May.

Baldwin proved his concept in 2008. One of his two-foot-long, unmanned, epoxy-covered foam models sailed downwind 1,993 miles in 78 days after being released by the Arctic

schooner *Bowdoin* off Sable Island, Nova Scotia. Another sailed 1,202 miles in 29 days before coming ashore on the Newfoundland coast.

“You can’t help but be inspired by Dick’s ideas,” said Laurence Wade, who was captain of Maine Maritime Academy’s training ship *State of Maine* until his retirement last April. He enthusiastically contributes his expertise and contacts in the global, federal, and Maine maritime industry. Wade, Baldwin, and David Lathrop—Baldwin’s tech-savvy college roommate—created Educational Passages, a hands-on educational experience for students in grades three to twelve.

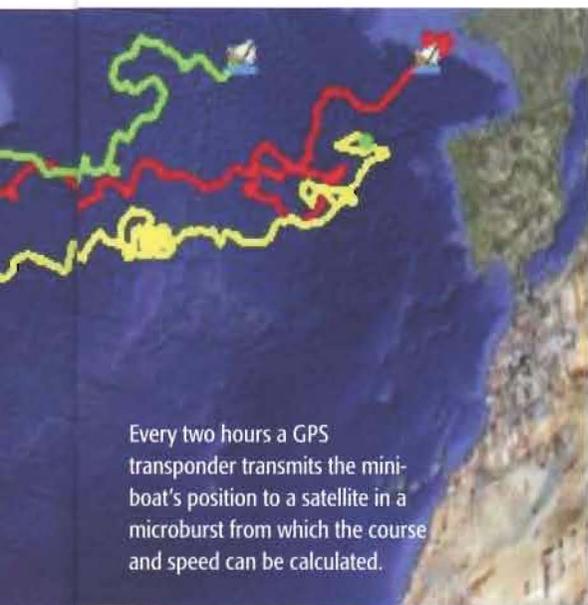
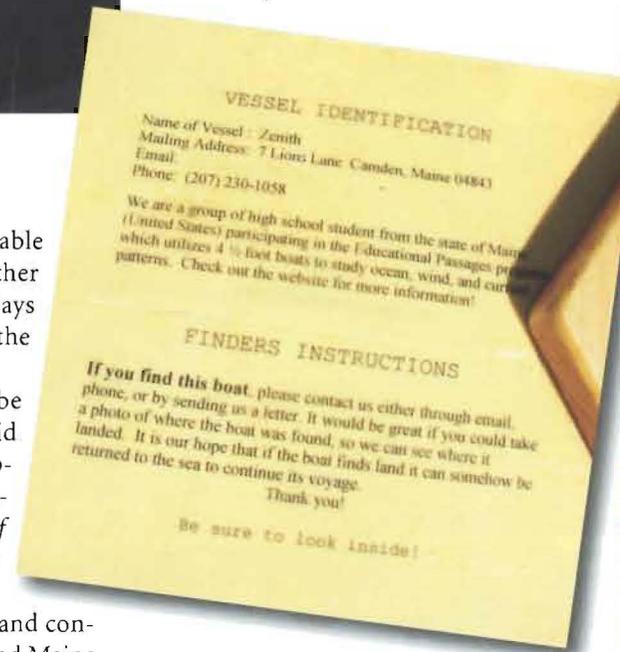
“If you’ve got to learn,” said Wade, “why not have fun?”

Aided by naval architect Mark Fitzgerald of Camden and sailmaker Doug Pope of Rockland, Dick Baldwin

expanded and refined his unmanned, unsinkable, self-steering prototype. The latest design is 56 inches long and carries a diamond-shaped sail that can pivot 360 degrees around the mast.

“The swept-back eight-pound stern skag keeps the boat upright and going straight ahead,” said Fitzgerald. “As long as the mast is standing, the boat will sail downwind.”

Every two hours an AX-Tracker T3 GPS transponder embedded on deck



Every two hours a GPS transponder transmits the mini-boat’s position to a satellite in a microburst from which the course and speed can be calculated.

Robert Drake photo of enhanced Google Earth image

transmits the mini-boat’s position to a satellite in a microburst from which the course and speed can be calculated. A watertight canister in the hull holds information about the students who sent the boat on its way. Instructions for the finder are fibreglassed onto the deck. Wade calls each mini-boat “a twenty-first-century message in a bottle.”

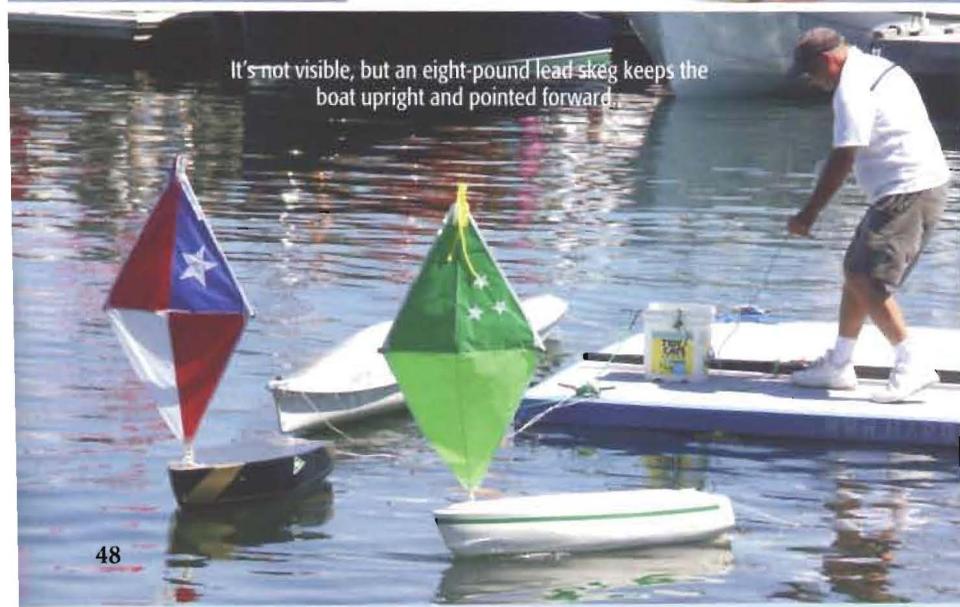
Of the 12 student-built boats



Cadets from the Maine Maritime Academy training ship *State of Maine* retrieve a mini-boat.



To prevent excessive marine growth, each mini-boat now receives a coating of anti-fouling paint prior to launch.



It's not visible, but an eight-pound lead skeg keeps the boat upright and pointed forward.

launched so far, one sailed 8,743 miles through seas that were as high as 30 feet and survived a hurricane. A Dutch tanker picked up another off the coast of Europe. A third crossed the Atlantic and is now in a pub in Ireland; soon, it will be relaunched to continue its voyage. A fourth, after arrival in Nova Scotia, went on a truck ride. A fifth seems to have been claimed by a tribe in the Panama jungle. Who knows what's in store for future mini-boats?

Baldwin caught the sailing bug as a child, racing Blue Jays at the Pettipaugh Yacht Club in his hometown of Essex, Connecticut. By college, time and other constraints reduced his sailing to building



Students at the Midcoast School of Technology in Rockland take Hull No.1 out of the mold. The class is building ten boats for launch in May 2012.

models for local kids to sail at a nearby park. In 1972, family roots drew him to Maine for a two-year job. He never left.

In his 50s Baldwin bought a Luders 33 and resurrected his dormant dream of solo ocean sailing. Among other adventures he participated in two Bermuda One-Two Races.

"One day I came home wet and bone-tired," he said. "I realized I could sail anywhere I wanted, but I didn't have to. I could build a model, equip it with GPS, and watch it sail across an ocean while I stayed dry and warm." He sold his Luders and began experimenting with models.

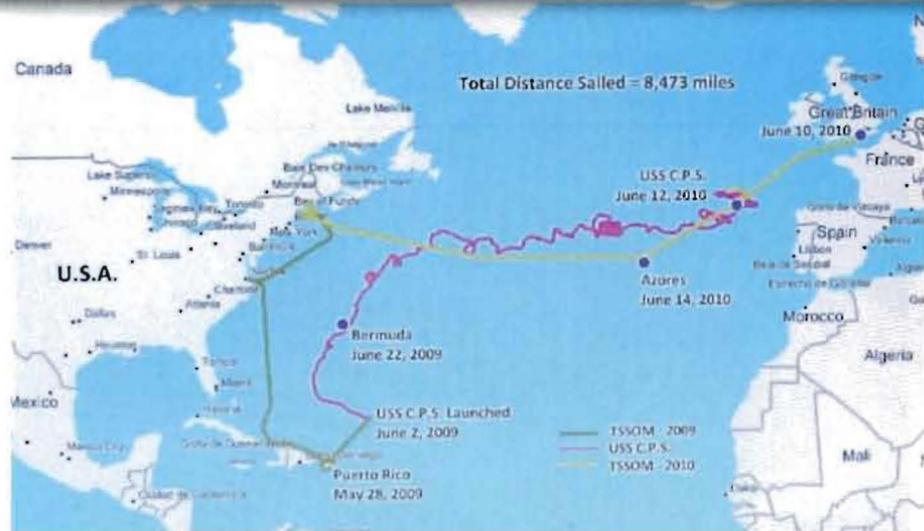
Now 64, Baldwin has reduced his day job to three days a week so he can coordinate Educational Passage's many facets and find schools or organizations to sponsor the mini-boats.

"Our niche," he said, "seems to be middle schools, gifted and talented classes, and after-school programs, such as Portland's Compass Project and others

like it. Teachers in public schools have to teach to a standardized curriculum, and usually don't have the flexibility or finances to include our program."

"Educational Passages is exactly the interdisciplinary project I wanted for my Explorer students," said Michele Campbell, who teaches Wagner Middle School's gifted and talented program in Winterport. "When I discovered it on Google, I thought it was awesome. The learning possibilities are endless, even before we got the boat."

The Winterport project began in the fall. Outside speakers enlivened geography, map reading, and maritime history, among other topics. Seventh grader Kurt Speed, for example, 13 years old, who had devoured *National Geographic* articles on marine life and sunken ships for years, enjoyed studying the early explorers' routes around the North Atlantic. A schoolwide vote confirmed his boat name suggestion: *Pridetanic*. "At first it was confusing when oceanography professors from the University of Maine explained



The track of the USS *CPS* illustrates current patterns in the northern Atlantic.

winds, waves, and currents," Speed said. "But now I understand, and it was so fun tracking the mini-boats and how they followed the Atlantic Circle or went other places." The Educational Passages program strengthened his resolve to attend Maine Maritime Academy and serve on a foreign-going merchant ship—a big change from life on his family's goat farm.

*Pridetanic* was built by students at

Rockland's Midcoast School of Technology. "My kids decorated our boat with pictures of Winterport and squeezed 'Wagner Pride' school pins, bracelet, and T-shirt into the canister," said Campbell, whose only boating experience is an occasional canoe ride. "Their finder's instructions asked that the boat be taken to a local school."

In April 2011 students from four



Robert Drake

Students are engaged by the Educational Passages program, but to participate, fund-raising is involved.

schools delivered their mini-boats to Maine Maritime Academy, then toured the campus and the training ship *State of Maine*. The ship left Casine in May with the boats as deck cargo. *Pridetanic* was launched in the mid-Atlantic and is following the trade winds and currents toward Spain. It is hoped that it will con-

tinue along the Atlantic Circle to the Caribbean. Winterport's Michele Campbell said, "We've tracked *Pridetanic* continually except during the transmission break when cadets took it down below to paint the bottom and put on the rig."

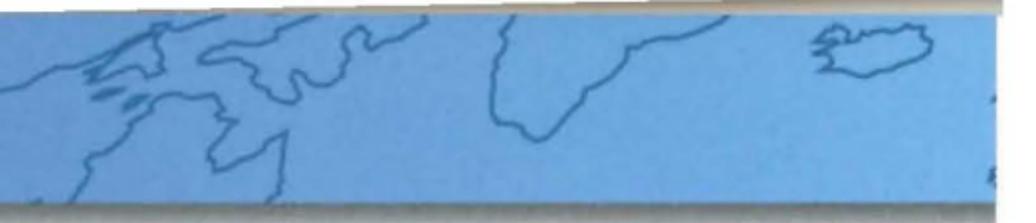
Anyone can track the boats that are still transmitting at [www.iboattrack.com](http://www.iboattrack.com).

One of the 2011 boats is following Christopher Columbus's Atlantic Circle route from the Azores to the Caribbean. A boat from the Islesboro Community School successfully completed the same passage the previous year, having been picked up by a fisherman off Grenada.

"You never know where they'll go," said Baldwin. In the November 2010 mini-boat Race to Europe, the Brazilian freighter *Fenella* launched five boats off Puerto Rico in the expectation that they would enter the Gulf Stream and sail to Europe. Instead, they were hijacked by Mother Nature, who sent them to the Dominican Republic, Cuba, the Bahamas, and Panama.

International relations and foreign languages come into play when a mini-boat nears a distant shore. "Our schools have contacted our embassies, schools abroad, American yachties, and ex-pats to help retrieve their boats," said Baldwin. "Many finders don't want to give the boats back. They're treasures from the sea."

As *Island Pride*, the Mount Desert



Community Sailing Center's mini-boat approached the Panama coast, volunteers contacted the Cruisers' Net to request that yachtsmen in the area keep an eye out for it. The boat landed in a remote jungle area and was tracked on short jaunts along the coast—probably to native tribal villages—then inland. Retrieval attempts by U.S. Embassy staff and Cabot Lyman, owner of Lyman-Morse Boatbuilding of Thomaston, who was in Panama at the time, were unsuccessful.

*Uber Sail*, from Castine area schools, was picked up off La Havre, France, by a Dutch LNG tanker. "Because the ship had AIS (Automatic Identification System)," said Wade, "we watched on the web as it proceeded to Scotland, then Belgium. The kids corresponded with the chief engineer who was to send the boat back."

*Zenith*, sponsored by Camden Hills Regional High School's gifted and talented program, went ashore on a Nova Scotia beach after following the winds from Newfoundland for 40 days and 927 miles. "One of our volunteers using Google Earth located our boat in a truck in a driveway," said Baldwin, who previously tracked the boat going down a highway at 35 miles an hour. "We phoned the homeowner. She met the schooner *Bowdoin*, which took *Zenith* back to Camden, where it's displayed."

Another mini-boat, the USS *CPS*, crossed paths with the *State of Maine* in mid-Atlantic in June 2010. Cadets hoisted aboard the tiny craft, encrusted with 250 pounds of gooseneck barnacles, with a cargo net. Since then, all mini-boats are given a coat of antifouling bottom paint.

Naval architect Mark Fitzgerald has further refined the computerized mini-boat design for the upcoming May 2012 rally. The skeg, for example, is now made from a single steel sheet with a six-pound lead bulb on the bottom.

Jay Stein of Lyman-Morse Boatbuilding in Thomaston is building hull and deck molds for the refined design. "Dick Baldwin and I are a good team," said Stein. "He has a passion for the journey, I have a passion for building." Stein will assist Richard Irving's boatbuilding students at the Midcoast School of Technology, "If they need me," he said.

Irving's first-year students will build some mini-boats of hand-laid fiberglass. The second-year students will build some

of the boats of vacuum-infused resin, which will produce strength with light weight. The job is an excellent service project for the Midcoast School, especially since it has a fascinating electronics component.

The influence of Educational Passages is steadily widening. Baldwin serves as an unpaid director—cajoling, praising, delegating, and inspiring his growing cadre of volunteers. Other businesses and organizations assisting with the project include Bohndell Sails, Hamilton Marine, Holland Boat Shop (who built the original mold), Husson University (whose Boatbuilding School in Eastport built last year's boats, and whose media students designed the web site), the Kiwanis, the Maine Windjammer Association, Massachusetts Maritime Academy, Penobscot Bay & River Pilot Association, Penobscot Marine Museum, and Ships Operation Cooperative Program, whose web site tracks all U.S. maritime academy training ships.

"The boatbuilding students will produce 10 boats for our May 2012 launch, so I must find more schools," said Baldwin. He, Wade, and affiliated oceanographers make presentations to schools and organizations in Maine and beyond to attract more participants. "So far, Youthlinks and the Rockland and Millinocket, Maine, schools; the John Winthrop Middle School (my old elementary school in Essex, Connecticut); and the Glastonbury, Connecticut middle school will have boats. The Massachusetts Maritime Academy (with Cape Cod schools); and schools in Millinocket, Maine; the Boston area, and Martha's Vineyard are also interested," he said. "It'd be great to have a boat or two from the Great Lakes.... Do you know someone in Chicago who'd help?"

Both adults and students are fascinated by the Educational Passages program, but to participate, fund-raising is involved. Each school must raise the \$1,500 per-boat cost and \$50 per month tracking fee. Student bake sales and spaghetti suppers help but are usually not enough; finding an organization to assist with the funding can be necessary.

"Educational Passages is one of the coolest programs around promoting science and technology," said Mark Fitzgerald, who hopes yacht clubs can excite kids

about how boats are developed and sailed. "All youth should have the experience of taking a concept and using technology to create a real object—especially a sailboat. Maine's maritime industry depends upon it."

Laurence Wade, who served 51 years at sea, is now maritime liaison with the federal government, sees the program expanding even more via technology. "The *State of Maine* has launched NOAA's drift buoys for several years," Wade said. "In 2012, Educational Passages will embed more sophisticated sensors in some mini-boats to see if they would be a cost-effective alternative to drift buoys."

"Our mini-boats are a natural progression from the post-World War II Propeller Club Adopt a Ship program, where school children 'adopted' a ship and corresponded with its crew. Nowadays, kids e-mail Dick and me, call students abroad using Skype, and watch life aboard the *State of Maine* and other training ships via the Internet. Developments by Astrium GEO-Informational Services (SPOT-Monitoring) and DeLorme Mapping, GPS, and Digital Data Technologies (personal GPS) are opening up even more remarkable opportunities for our boats."

As Jay Stein of Lyman-Morse said, "Educational Passages is a huge opportunity to learn, for anyone—school kids to grandparents in all walks of life." ★

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*Mary Drake of Trevett, Maine, is a freelance journalist specializing in nautical subjects. Several years ago she sailed around the world on Scud, a reproduction of Capt. Joshua Slocum's yawl Spray, that the family built in their backyard.*

**FOR MORE INFORMATION**  
Educational Passages, 451 Lincolville Ave.,  
Belfast, ME 04915;  
[www.educationalpassages.com](http://www.educationalpassages.com)

To track the mini-boats, go to  
[www.iboattrack.com](http://www.iboattrack.com) and click on  
"Educational Passages—Mapper"

To track the voyages of maritime academy  
training ships, go to [www.socp.us](http://www.socp.us), click  
"Links" and "Follow the Voyage"

In addition, [www.maineboats.com](http://www.maineboats.com) posts  
updates on its "Educational Passages  
Ocean Project" link.