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Learn more about fly-fishing this Saturday.

## You can learn how to fly-fish

By ANNA McCARTNEY  
Contributing writer

Want to get rid of your cabin fever? Don't miss an afternoon of fly-fishing instruction at the Presque Isle State Park Rotary Pavilion on Saturday from 11 a.m. to 4 p.m.

This free event is open to the public and is for both beginners and experienced fly-fishers.

Beginners will learn the basics of fly-fishing, how to choose the right equipment, hands-on fly-casting instruction and fly-tying basics.

Experienced fly-fishers will learn tips on improving steelhead fishing, nymph fishing and mastering the dry fly.

Door prizes and raffles will be held to sponsor a youth to attend the Trout Unlimited summer camp.

The Caldwell Creek Chapter of Trout Unlimited and educational staff from Pennsylvania Sea Grant and Presque Isle State Park will provide instructions.

Thanks to Fish USA for sponsoring this event.

Food and beverages will be available for purchase at the pavilion.

Reservations are appreciated and should be sent to [eco1@psu.edu](mailto:eco1@psu.edu).

**ANNA McCARTNEY**, a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at [acm40@psu.edu](mailto:acm40@psu.edu).



CONTRIBUTED PHOTO

PA Sea Grant Maritime Educator David Boughton gets ready to deploy a student-made drifter buoy.

## Buoy project combines math, science in class

By ANNA McCARTNEY  
Contributing writer

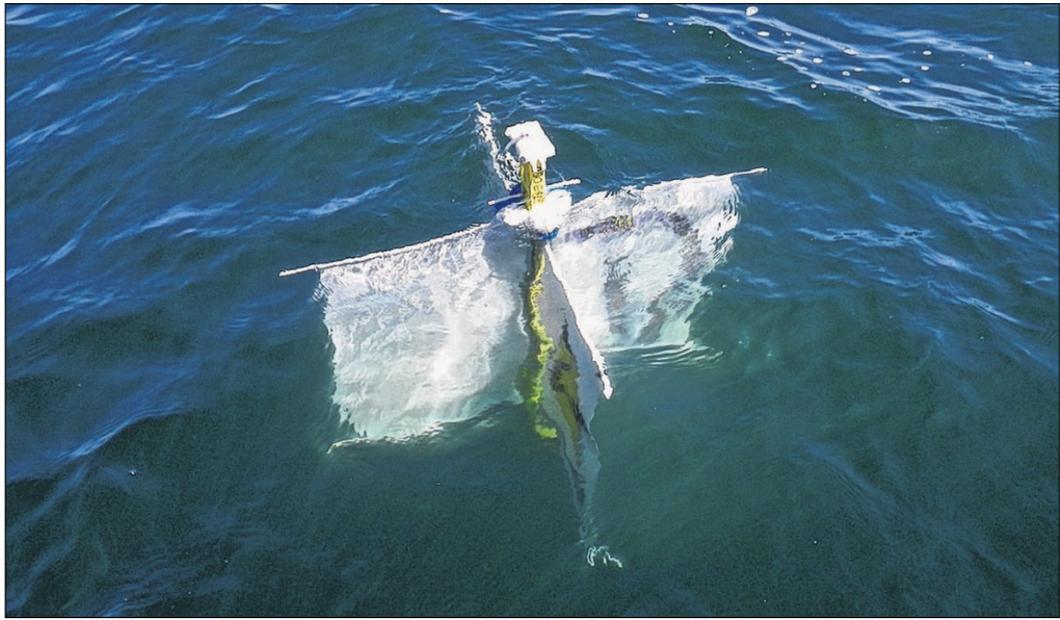
The National Oceanic and Atmospheric Administration is working with students across the globe to place floating buoys throughout the oceans and Great Lakes. PA Sea Grant is working with students to deploy buoys in Lake Erie. The buoys will drift with the help of currents and record their location as they travel.

Satellite transmitters on the buoys record locations, which are monitored by students and researchers. Data collected at several NOAA websites identifying locations and course-tracking models can be used to make this a great activity to integrate math

and science. Classes may construct buoys or adopt existing ones to monitor.

For more information, contact David B. Boughton, maritime education specialist, at 720-0746 or e-mail [dbb11@psu.edu](mailto:dbb11@psu.edu). To see the paths for drift buoys deployed by Penn State University/PA Sea Grant/Regional Science Consortium, visit [www.nefsc.noaa.gov/drifter/](http://www.nefsc.noaa.gov/drifter/). On the list of items click here for 2011, 2012, 2013, 2014" and look for Penn State on the list.

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CONTRIBUTED PHOTO

The National Oceanic and Atmospheric Administration is working with students across the globe to place floating buoys throughout the oceans and Great Lakes. PA Sea Grant is working with students to deploy buoys such as this one in Lake Erie. Satellite transmitters on the buoys record locations, which are monitored and used by students and researchers to track Lake Erie currents. The data benefits search-and-rescue operations, shipping and weather forecasts.

## Kids get their drift

### Lake buoy project boosts students' science skills

By ANNA McCARTNEY  
Contributing writer

Since 2010, students in the Erie region have been helping scientists track the patterns of currents in Lake Erie with drifter buoys they help build.

Under the direction of Pennsylvania Sea Grant Maritime Education Specialist David Boughton, students have built drift buoys, two of which were deployed on Dec. 7, 2014.

Built by students at Iroquois Elementary and Fort LeBoeuf Middle School, these buoys were affected by a prevailing northwest current that drove the drifters toward the U.S. shoreline. One made landfall on Dec. 18 and was recovered at North East. The other, which was caught up in the ice offshore from Silver Creek, N.Y., by Dec. 21, has not yet been recovered.

The National Oceanic and Atmospheric Administration (NOAA) is working with students to place floating buoys throughout the ocean and Great Lakes. Thousands of other buoys are adrift all over the world to collect data, according to Jim Manning from NOAA at Woods Hole, Mass. These buoys support the Great Lakes Observing System (GLOS) and the International Ocean Observing System (IOOS) data-collection and modeling projects. "With the help of PA Sea Grant and these students, we now have more buoys in the Great Lakes. This data is important because it benefits search-and-rescue operations, marine shipping and our general understanding of the processes of the lakes," said Manning.

Scientists such as Manning value student participation and the data they gain to develop models of current patterns in Lake Erie. Their help allows hourly transmissions via satellites to a NOAA data-collection station. The information can help scientists track oil spills, improve weather forecasts and better understand where animal and plant species mi-

grate throughout the oceans and Great Lakes.

Students such as Fort Le Boeuf seventh-grader Olivia Cornwell appreciate doing real science that is used by real scientists. "We monitored both buoys and collected info on water and air temperature, wind speed and direction, wave height, rainfall, buoy distance and speed and developed a hypothesis of how conditions might affect the buoy movements. I liked the project because we weren't just taking notes and being tested. ... We were actually part of an interactive science project," she said.

Michael Moulton, her teacher, agrees. "It gives students an opportunity to not just learn about water dynamics, part of the oceanographic unit, but to experience science first hand," he said.

"We have deployed over 12 drift buoys and would like to include more schools in this project," said Boughton. "The benefit to students is undeniable and the data collected has aided the development of a Lake Erie current map that is available through NOAA to assist with scientific research."

No one knows better than Boughton that each buoy has a story to tell, including the only buoy that tracked west instead of east. It was deployed in the fall of 2012 and was recovered at Conneaut Harbor, Ohio. After Hurricane Sandy transitioned to a post-tropical cyclone, it tracked across Pennsylvania, bringing prolonged damaging winds and large waves that affected the path of the buoy.

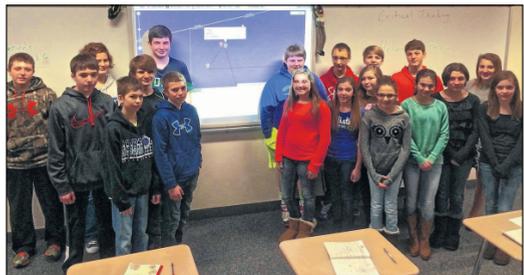
To see all the buoy tracks and the Great Lakes current maps, check out the websites on today's page. For more information, contact Boughton at [dbb11@psu.edu](mailto:dbb11@psu.edu) or call 720-0746.

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DAVID BOUGHTON/Contributed photo

Conneaut Port Authority Harbor Master Denver Spieldecker assists with the recovery of a 2012 Behrend student-built buoy at Conneaut Harbor after Superstorm Sandy made the buoy veer west instead of east.



DAVID BOUGHTON/Contributed photo

Fort LeBoeuf students tracked the drifter buoys on the white board behind them each day and logged the data to develop graphs and a hypothesis about what influenced the buoy's track.



ANNA McCARTNEY/Contributed photo

Hugh McCartney collects the buoy rescued by Randy Graham of North East, left, after it made landfall near his property in December.

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Check out these websites to learn more:

- [www.nefsc.noaa.gov/drifter/](http://www.nefsc.noaa.gov/drifter/)
- [www.glerl.noaa.gov/res/glctfs/currents/](http://www.glerl.noaa.gov/res/glctfs/currents/)
- [www.ndbc.noaa.gov/](http://www.ndbc.noaa.gov/)
- [www.paseagrant.org](http://www.paseagrant.org)

Use the weather page to find the following for today: temperature, precipitation, Lake Erie Marine forecast including wind speed, waves, and water temperature, and Lake Erie water levels. Track these values daily. Answer the following questions: How does the water temperature of the lake compare with the air temperature? Use the regional weather map to compare the air temperature for cities closest to the lake with those farther away.

