*Research**Horizons***

@ **A unique Web portal developed by the Georgia Tech Research Institute gives middle school students the opportunity to enter the world of oceanographic research.**
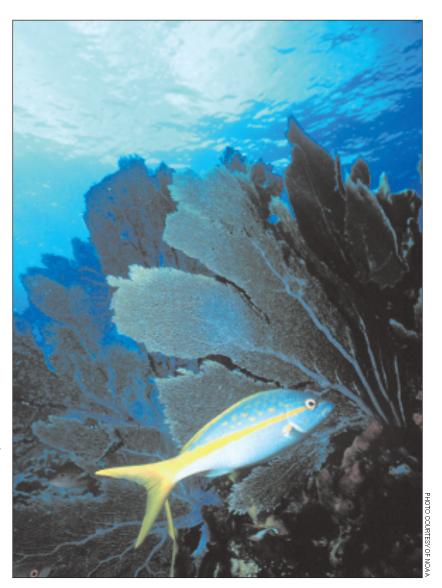
Learning Tool for Landlubbers

SeaMaven lets middle-schoolers step into researchers' shoes.

It's tough to acquire a taste for oceanography when you're surrounded by urban asphalt, farm fields or suburban malls. Yet with SeaMaven, land-bound, middle-school students can enter the world of marine biology and related sciences.

Developed by researchers at the Georgia Tech Research Institute (GTRI), SeaMaven is a unique Web portal (www.**seamaven**.org) that gives students access to continuous, near-real-time data collected from naval platforms 60 miles off the coast of Georgia.

Eight platforms, currently operated by the U.S. Navy for flight training, have been equipped with sophisticated sensors to monitor various ocean and meteorological conditions, such as barometric pressure and dissolved oxygen in water. Located both above and under the water, these sensors are part of an observational network used by researchers, weather forecasters and environmental resource managers.

In cooperation with the Savannah-based Skidaway Institute of Oceanography, which manages the network, GTRI uploads data every hour to SeaMaven. This enables students to participate in a variety of learning activities — from mapping the ocean floor to understanding the moon's effect on ocean tides.

LEFT: *Using data from the SeaMaven Web portal developed by the Georgia Tech Research Institute, middle school students can participate in a variety of learning activities — from mapping the ocean floor to understanding the moon's effect on ocean tides. Here, a yellowtail snapper swims beside a seafan on the ocean floor.*

PHOTO COURTESY OF NOAA

"SeaMaven gives students a better idea of how science is applied in the real world," says Jim Demmers, project director and a senior researcher in GTRI's Information Technology and Telecommunications Laboratory.

Demmers' inspiration for SeaMaven stemmed from his work with Foundations for the Future, a collaboration of Georgia Tech researchers that helps K-12 educators incorporate technology into classrooms throughout Georgia.

BY T.J. BECKER

PHOTO BY JIM DEMMERS

"Students can read about ocean management in a textbook, but that doesn't really give them a clear idea of what marine scientists do," Demmers explains.

"SeaMaven also helps students understand the connection between people's activities on the mainland and how that affects the ocean," he adds. For example, middle-schoolers can analyze how onshore rainfall and runoff affect ocean salinity, a concern for the shrimping industry.

Four introductory exercises help youngsters navigate the site and provide background material for scientific experiments, followed by five advanced learning activities. Students can use SeaMaven on their own or work in groups to create hypotheses and projects.

Funded by the National Science Foundation, SeaMaven began in 2003 when Demmers met with a group of middle-school teachers to seek recommendations for learning activities to be included in the Web portal. Last fall, students at Dickerson Middle School in Marietta, Ga., tested a prototype of SeaMaven.

"Doing the pilot test was a big deal for our students," says Joseph Baker, a sixth-grade science teacher at Dickerson. "It meant a lot to them that someone wanted their opinions and that not merely adults, but scientists were actually listening to them."

One of the features the students especially liked about SeaMaven was an ask-the-scientist page where they could e-mail questions to researchers. Yet perhaps the biggest draw was SeaMaven's authenticity. "This isn't something in a book. It provides real data from a place that's near them," Baker says. "There aren't many things like this that are available to classrooms — especially for free."

SeaMaven makes learning "stickier," observes Dawn Adams, internship coordinator at Wheeler High School's magnet program, who helped Demmers develop many of SeaMaven's online exercises.

For example, being able to look at a lunar calendar and then see tidal measurements change over the course of several days — one of the advanced learning activities — makes a stronger impression than just reading a book. "It makes more sense if students can see it happening," Adams explains. "They might memorize information, and even make "A"s on tests, but it doesn't stick with them unless they see a real connection."

Based on reactions from the pilot test, Demmers has been fine-tuning SeaMaven and expects it to be ready for widespread use this fall.

Perhaps his biggest challenge has been meeting students' expectations. "You have to be able to capture their attention right away," Demmers says. And that's not easy in an era where overexposure to television has shortened attention spans. "Not surprisingly," Demmers adds, "many of the students wanted less text in SeaMaven — and more videos and games."

@ **Read more at: gtresearchnews. gatech.edu/reshor/rh-ss05/ seamaven.html**

The sun sets over the water off Skidaway Island near Savannah, Ga. In cooperation with the Skidaway Institute of Oceanography, Georgia Tech Research Institute researchers have developed a Web portal that gives middle school students access to continuous, near-real-time oceanographic and meteorological data.