

## Prizm Donates Underwater Research Vehicle to VIMS

Prizm Advanced Communication Electronics, Inc., of Baltimore, MD, has donated a Fetch-class Autonomous Underwater Vehicle (AUV) to VIMS. The 6-foot vehicle is named *Fetch 1*.

VIMS will recognize the gift by naming a new laboratory in Andrews Hall the "Prizm Laboratory for Advanced Marine Technology." Andrews Hall is the state-of-the-art research facility now under construction at VIMS. The building and laboratory are scheduled to open in spring 2007.

AUVs are small swimming robots that promise to revolutionize the science of oceanography in the 21st century. Vehicles like *Fetch 1* are finding increasing use in applications as diverse as fisheries management, homeland security, and assessment of harmful algal blooms.

Prizm, a leader in the field of marine electronics for AUVs, acquired the Fetch technology from Sias Patterson LLC, a firm co-founded by VIMS professor Dr. Mark Patterson.

Patterson and his graduate students will use the lab to conduct research that

will advance underwater robotics and related technologies for sensing the ocean environment.

"The new lab and *Fetch 1* will serve VIMS and the Commonwealth of Virginia as state-of-the-art research tools for marine science," says Patterson.

The donated vehicle represents a breakthrough in AUV technology, having already accomplished a number of firsts in the field. Developed in 1995 by Patterson and Mr. Jim Sias, *Fetch 1* was the world's first AUV developed around a desktop computer (the Apple PowerPC), and the first AUV developed commercially using private investment (it is the subject of US Patent 5,995,882).

*Fetch 1* also made the first-ever census of krill using side scan sonar from an AUV. Krill are a key component of life in the southern ocean and AUV technology will help monitor this important resource.

The vehicle has also been used to automatically count and identify fishes using its side scan sonar and a neural

network (US Patent Pending to William & Mary), and to survey water quality over coral reefs.

In its new home at VIMS, *Fetch 1* will serve as a key component of the Virginia Estuarine & Coastal Observing System ([www.vecos.org](http://www.vecos.org)), part of a growing network of ocean observatories around the world. Implementation of a nationwide ocean-observing network was one of the 12 critical actions recommended by the President's Commission on Ocean Policy in their 2004 report.

*Fetch 1* will also help train the next generation of undergraduate and graduate students, both during research projects and as part of Patterson's new course on ocean observing technology and applications, one of only a handful of such courses currently being offered in the U.S.



*Fetch 1* received a new paint job from technicians at Fox Auto Repair in Gloucester as part of its donation to VIMS. Here, Fox's Mike Reed shows off his handiwork.

## Students Receive EPA Fellowships

VIMS graduate students Amber Hardison, Erica Holloman, and Grace Saba have received prestigious EPA Fellowships that provide up to 3 years of support at \$37,000 per year for stipend, tuition, and other graduate-school expenses.

Hardison's EPA Star Fellowship will support her study of macroalgal blooms within the shallow coastal bays of Virginia's seaside Eastern shore, and how these blooms affect the retention of bay nutrients. Hardison is advised on the project by Drs. Iris Anderson and Liz Canuel.

Holloman is using her EPA GRO Fellowship to study the effects of mercury contamination on human health, particularly among minority populations.

Mercury, a pollutant that accumulates as people eat contaminated seafood, is the leading cause of fish-consumption advisories in and around Chesapeake Bay. Holloman's faculty advisor is Dr. Mike Newman.

Saba will use her Star Fellowship to explore how grazing of harmful algal species by zooplankton affects the zooplankton's production of dissolved organic carbon and nitrogen. Harmful algal blooms have been increasing in Chesapeake Bay and worldwide over the past several decades, but only a few studies have focused on how the presence of these blooms might affect zooplankton and nutrient cycling. Henderson is advised by Dr. Deborah Steinberg.

### Sea Grant

*continued from page 1*

"William and Mary really hit a home run on this," says DuPaul. "It's quite an honor to be designated a Sea Grant institution—it's really coveted among the states. There are only 31 Sea Grant programs in the entire country. It's a big deal. It's an important program for NOAA, and for each university."

Sea Grant is based on the Cooperative Extension programs at the nation's land-grant universities, in which extension agents assist farmers and gardeners in crop selection; control of weeds, pests, and disease; and soil management.

DuPaul says that the major public benefit of Sea Grant "is that it brings good scientific information to people and businesses on the coast—to help them make better management decisions for the stewardship of our marine environment."

For instance, Sea Grant's partnership with Virginia's sea scallop industry led to a sustainable harvest plan that has helped the industry grow into the Commonwealth's largest commercial fishery, with a total economic output exceeding \$150 million per year.

DuPaul adds that Sea Grant also promotes marine literacy for the general public. "Sea Grant has a long history of bringing marine awareness to the public through extension, advisory, and educational programs. Sea Grant began efforts

to build marine literacy in the 1970s and continues as a national leader in reaching industry, K-12 educators, and the public at large," says DuPaul.

The Sea Grant Marine Advisory Program at VIMS has been providing these types of advisory and educational services since Sea Grant funding first became available following Congressional passage of the National Sea Grant College Act in 1966. In fact, Dr. Bill Hargis, Director of VIMS from its founding in 1961 until 1981 (and a consultant to the National Commission on Marine Sciences and Engineering Resources during the 1960s), was one of the authors of the original Sea Grant legislation.

DuPaul says that's why "some of the language enacting Sea Grant is almost identical to the language in VIMS' mandate in the Code of Virginia. Bill Hargis was the one who was writing a lot of this back when Sea Grant was being drafted."

As Interim Director of the new Institutional Program, DuPaul looks forward to advancing stewardship of Virginia's coastal, estuarine, and marine resources.

"Sea Grant is a highly respected federal program that has a very successful track record in helping the fishing industry, coastal communities, and the public to manage and utilize marine resources more effectively," says DuPaul. "We're excited to now be leading that charge in the Commonwealth."



VIMS graduate students Grace Saba, Amber Hardison, and Erica Holloman.