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## Seeing the Cape's future in shades of blue

WOODS HOLE – Building a pathway to move great ideas from inception to market is a primary goal of the inaugural Marine Robotics Entrepreneurship Forum later this month.

Sponsored by the Woods Hole Oceanographic Institution, the forum on July 23 and 24 will bring marine-research startup principals together with venture capital investors and representatives of established companies such as Raytheon and Lockheed.

“This is an exciting time,” said forum organizer James Bellingham, director of WHOI’s Center for Marine Robotics. “The technologies are getting mature enough that the market is willing to spend money on them. This intersection of capability and opportunity is very fertile ground.”

The ideas and relationships that come out of the gathering also could help spur the evolution of what community and business leaders are beginning to call the “blue economy,” where marine-related startups provide new job opportunities and help diversify the Cape’s business base.

The world of marine robotics includes research, support systems and software used to create underwater remotely controlled vehicles operated from the surface by technicians, autonomous underwater vehicles that operate independently and hybrids with both capabilities.

These devices are used by scientists to study the marine environment, the oil and gas industry for exploration and monitoring, government and private companies to ensure the structural integrity and security of underwater structures, the defense industry and others.

And this area, particularly around Boston, the South Coast and the Cape, is where much of the world’s marine robotics work is done.

“If you use an AUV, odds are it was built on Cape Cod or in Southeastern Massachusetts,” Bellingham said. “We really do, as a region, have enormous strengths in this area. We’re one of only a few places on the planet that does.”

Because radio waves can’t travel through seawater, transitioning from remotely controlled underwater vehicles to those that operate independently has required the development of new acoustic and optical technologies to support communications, navigation and other functions.

Much of this work is being done at WHOI, the University of Massachusetts Dartmouth and other research and educational institutions in the region, Bellingham said, and it’s not uncommon for researchers to spin off and create their own companies when they come up with a new and potentially viable technology.

In 1997, Bellingham was part of a group of MIT engineers that founded Quincy-based Bluefin Robotics Corp., which engineers and manufactures autonomous underwater vehicles. Hydroid LLC, located here on the Cape in Pocasset, was founded in 2001 by WHOI researchers who developed remote environmental monitoring units known as REMUS.

Hydroid is often cited as an example of the kind of marine research-related light industry that could work on the Cape. The company, which employs 148 people, opened a state-of-the-art, 40,000-square-foot building last October to house its engineering, manufacturing and quality assurance operations. Construction on a new 15,000-square-foot administration building is expected to begin this summer.

The company’s ongoing relationship with WHOI, easy access to Buzzards Bay and deeper waters for testing and a solid workforce have all been factors in its success, according to Hydroid President Duane Fotheringham.

“About 50 percent of our employees are from the Cape and in tune with the oceanographic community,” he said.

With about half the company devoted to specialized manufacturing, one of Hydroid’s biggest challenges is recruitment.

But, based in part on Hydroid’s input, Cape Cod Community College has created several certificate programs that can be applied to an associate in science engineering degree, and the company is encouraged at the prospect of a growing, trained workforce.

Fotheringham said that having more high-tech startups settle on the Cape will “build upon itself” by drawing and retaining younger, skilled workers and growing the economy.

“Creating a base of companies helps everyone. It helps bring in those people we are trying to attract,” he said. “We’ve proven you can grow a successful company on the Cape.”

The “blue economy” concept came out of the Cape Cod Chamber of Commerce strategic planning process last year, according to CEO Wendy Northcross.



The “blue economy” encompasses everything from technology to tourism. Kingman Yacht Center in Cataumet, home to a large number of pleasure boats each summer, is also where Hydroid keeps its fleet. Merrily Cassidy/Cape Cod Times file

A group from the chamber is working with the Cape Cod Economic Development Corp., which administers the chamber's share of Cape license plate funds, to draw up ideas and action steps for the regional policy plan update currently being worked on by the Cape Cod Commission.

The hope is that the "blue economy vision" will "inspire individuals, organizations, businesses, governments, etc. to adopt some piece of the work and begin to transform the Cape's economy into this opportunity," Northcross said in an email.

A discussion document describes developing a "business plan" for the Cape that will maintain the area's standing as "a world-class travel destination" and continue to promote the benefits of tourism.

At the same time, the plan would build on the Cape's existing water-based economy, including the area's global reputation in marine science and technology, to attract marine-related businesses.

A lot of industries fit under the "blue economy" umbrella, said Warren Rutherford of the economic development corporation.

Tourism, marinas, the commercial and recreational fishing industries and fish and shellfish farming are among them. Innovative technologies for treating wastewater also represent opportunities, he said.

"We're focused on what we can do to help others working on these economic initiatives succeed and how we can facilitate those discussions," Rutherford said.

The SmarterCape Partnership, made up of seven organizations including the chamber and the Cape Cod Commission, is considering making the "blue economy" the theme of next year's SmarterCape Summit. This year's summit focused on housing and drew approximately 300 participants.

Additionally, Northcross said, Peter Karlson, the chamber's "entrepreneur in residence," is working to incorporate the concept into this fall's Startup Weekend Cape Cod. Startup Weekend is part of a global movement to bring together people interested in starting businesses.

The Marine Robotics Entrepreneurship Forum is WHOI's version of a startup day.

"In 10 to 20 years, AUVs are going to be everywhere," Bellingham said. "We want to ride that wave. We want to help those companies be successful as they get bigger."

Having started Bluefin Robotics, Bellingham said he understands the challenges of running a company that fields systems in a harsh ocean environment and of attracting financial backers.

It's important to "educate the investor," he said, and he is optimistic that putting people from all sides of the equation together will benefit everyone involved and the field of marine robotics in general.

"We're getting all these smart people in the room thinking and talking about how to work together," Bellingham said. "At this early stage, it's not about competition but about growing the market, thinking where it will be 10 years from now, making sure we understand and meet the needs of emerging markets. We're all in the same boat."

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