

She put a cutting edge on a new idea

BY STEVE KRAUSE

Drones have come to land and drones have come to air. Now they're going to sea, too.

That's the idea behind SeaTrac, which bills itself as the next wave of uncrewed surface vehicles. Alessandra Bianchi, who labels herself the "Communications Queen Bee of SeaTrac," explains that "people would like autonomous boats for jobs in the water that are dirty, dull, dangerous or expensive."

Bianchi says there are plenty of uses for drone boats that don't threaten any existing maritime occupations. SeaTrac, headquartered on Hoods Lane in Marblehead, is the brainchild of two longtime entrepreneurs, Buddy Duncan and James "Jigger" Herman. They met in the hallway of the MIT naval architecture department, and discovered they both had entrepreneurial sides to them.

"They have been collaborating ever since — and very successfully," said Bianchi, who, as well as being the communications director, is

married to Herman. With a journalism background, Bianchi used to cover startups for Inc. Magazine. Now, she's actively working for one.

"The karma of the universe has come to make me humble and appreciative of how challenging it is to make something out of nothing," she says.

Duncan and Herman's first company was Cutting Edge Inc., a forerunner of computer-controlled fabric cutting machines. That ended up as high as No. 86 on Inc's list of fastest growing companies in North America.

HomeLogic, the second startup by the two, specialized in home automation almost a decade before the term "smart home" came into being.

Duncan was passing time in a Chinese hotel room one day, overseeing manufacturing of HomeLogic components when he saw, on YouTube, videos of autonomous surface vessels. He thought he could do better, and when he and Herman could get together, they

got to work.

They spent the next two years designing and building a red prototype boat. Their second model, this one yellow, has more speed (5 knots), solar panel power (750 watts), battery capacity (6.75 kilowatt hours), motor power, payload capacity (70 kilograms), easier launch and recovery, and a lower price point by half than alternative autonomous vessels.

"Their mantra is to make products that are simple, reliable, and cost-effective," said Bianchi. "That's their playbook. They have learned how to solve problems for demanding customers."

Bianchi said the company approaches customers in the military, scientific and commercial fields — commercial meaning offshore wind, oil and gas.

"All these stakeholders are interested in collecting real-time data in the water, whether


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Alessandra Bianchi demonstrates a state-of-the-art drone boat.

PHOTO: ALESSANDRA BIANCHI

it's temperature or turbidity (the level of clarity in the water), waver height, and other

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water-column parameters, such as nutrient makeup of what's actually in the water," said Bianchi.

Also, she said, cameras and sensors can be strapped to these boats to survey what lies on the ocean floor.

"You have to know what the topography looks like, for example, if you want to put an offshore wind tower on the ocean floor," she said.

Drones have become part of life in other areas, she says, from Roomba vacuum cleaners to aircraft.

"Now," she said, "they've come to the sea. And the ocean covers 71 percent of the planet. It's like the Wild West of blue technology."

Bianchi says SeaTrac's way of measuring the amount of harmful red tide material in the water is much more accurate.

"That's really a big deal," she said. "That much algae in the water can close beaches to tourists."

Another potential benefit might be listening to sharks, she said.

"I don't think they make sounds," she said, "but they have some predictable behaviors. There's a 'shark whisperer' on the Cape now who has tagged some of them. He is

studying migratory shark behaviors. He says he can learn a lot by the precise behavior he could capture, in theory, on the boat. If you can dream it up, it might be feasible with an uncrewed surface vehicle."

There are practical advantages to this too. Uncrewed boats don't require overtime.

"Our boat will work overtime for as long as you want," she said. "It doesn't require food. Just sunshine. There's smart technology inside of it, it can plot a course and it can change course on the fly. It can 'mow the lawn,' or do tight patterns back and forth. Maybe a person might be seasick doing that, but not our boat."

The only real human requirement is the "man in the loop."

"Somebody will want to be watching what the boat is doing and where it's going," she said. "We can do it for the customer, or they can. You can be at your desk sipping a cup of coffee as your drone is doing what you would have been doing."

"If you learn some new piece of information that makes you want to change your course, it can be done with the click of a mouse. On good days, I feel like I'm in a James Bond movie. On challenging days, I wish I'd taken more math courses."

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