



ENDURING EQUIPMENT: Darya Blout is the owner of composites and advanced materials manufacturer Canapitsit Customs LLC in Bristol, which designs and makes composite materials that can encase and protect instruments on underwater unmanned vehicles. Blout recently won a Materials Innovation Challenge award through the 401 Tech Bridge.

PBN PHOTO/RUPERT WHITELEY

Deep dive into composites

Company encases underwater vehicles **BY MARY MACDONALD** | MacDonald@PBN.com

EVEN AS A CHILD, Darya Blout knew she wanted to design something that would work better. The first dream was a racing sailboat. Now, through her own company, she's working on new materials for underwater unmanned vehicles that can withstand the intense pressure of full ocean depths.

Her company, **Canapitsit Customs LLC**, has a workshop in Bristol where she works with three contractors on designs for new materials that can encase and protect precious instruments, which will be sent to depths no human can dive to and survive.

The applications are more numerous than people would think, she said. The renewable energy, oil and gas industries are all looking for underwater vehicles that can check on their anchoring systems for offshore installations, such as wind turbines, oil rigs and underwater cable systems.

And of course, the defense industry is plunging into this heavily.

At this moment, Blout's work involves creating a composite material that will be strong enough to withstand the pressures of several thousand meters of ocean depth – which can reach 7,000 to 10,000 pounds per square inch – and anti-corrosive enough to survive the water.

Titanium, the current material

of choice, is expensive and heavy, which limits how long an underwater vehicle can stay submerged to do its work, she said.

"Because of that, and the weight being the primary issue, when you have an autonomous vehicle, you want to extend your mission duration as long as possible," Blout said. "If you can make the vehicle as light as possible, you're going to require a lot less power to move it around."

Canapitsit, which is named for a channel in the Elizabeth Islands where Blout has spent time with family, is producing smaller housings, which will contain electronics and instruments on the underwater vehicles. She's also doing work for the sailing industry.

As she got started in 2018, on many summer days she would field emergency calls from people seeking help in fixing a broken part for a high-end racing sailboat.

"During the summer, you get a call on a Saturday afternoon because someone broke something

and they needed [it] to be rebuilt by 10 a.m. the next day because that's when racing starts," she said.

Now she works at a slower pace, but still long hours. The establishment of her own business hasn't meant fewer hours. Instead, she's working all those hours for herself.

In December, after learning about a competitive challenge through the newly formed 401 Tech Bridge, Blout applied and won one of its Materials Innovation Challenge awards. She will be able to work in the materials labs of her alma mater, the University of Rhode Island, to help test the feasibility of her designs. The goal is development of an economic underwater vehicle that would have broad applications in industries.

Ten years from now, she sees her business well-positioned to take advantage of Rhode Island's growing composites and offshore industries.

"I think we're going to see a really interesting shift over the next 10 years, where the [Department of Defense] especially is going to be paying more attention to these underwater vehicles," she said. "You're not building a \$15 million submarine because you need to be able to send X number of sailors down into the ocean. Now you can send a handful of additional, more agile vehicles." ■

OWNER: Darya Blout

LOCATION: 97 Broadcommon Road, Bristol

TYPE OF BUSINESS: Composites and advanced materials manufacturer

EMPLOYEES: One (three contractors)

YEAR FOUNDED: 2018

ANNUAL SALES: WND