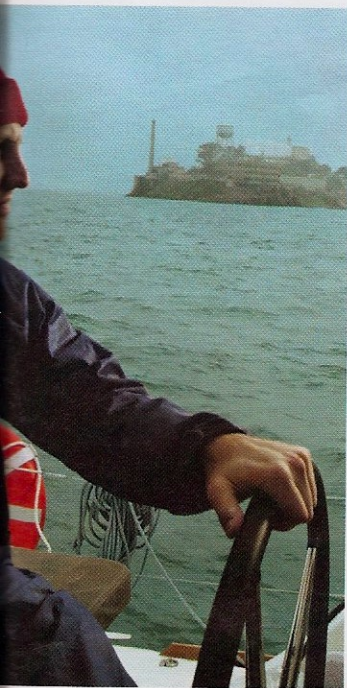


THE TALK

A new breed of subaquatic
adventurers is using
remote-controlled drones
to scavenge the bay. ➔





ABOVE: "Until now, if you weren't Jeff Bezos or James Cameron with your own private submarine, or backed by a big research institution, you couldn't have these kinds of adventures," OpenROV cofounder David Lang says.

Submarines for Everyone

ERIC STACKPOLE fell in love with remote-operated vehicles, or ROVs, long before the current drone mania took hold. For kicks as an undergrad at San Jose State, Stackpole built a tele-robot that could remotely attend classes for him. In 2010, when he met his current business partner, David Lang, Stackpole was tinkering in his Cupertino garage with a handmade submarine he hoped could maneuver into the Hall City Cave in Trinity County to search for the loot from a 19th-century mining heist.

"I've always loved the idea of being able to look at something you wouldn't normally be able to see by using technology," Stackpole, cofounder of the Berkeley-based underwater exploration startup OpenROV, said as we boarded a catamaran on a wet, windy November morning, heading for the southwest side of Alcatraz. "That's exactly what we're doing with Trident."

After four years of design and test piloting, Stackpole and Lang—a former sailing instructor and a recipient of the 2016 *National Geographic* Emerging Explorer award—were deploying Trident, their new drone, at the possible site of one of the bay's most famous shipwrecks.

Lang, 31, and Stackpole, 32, are ebullient believers in "citizen exploration" and hope to create an underwater par-

allel to the craze for aerial drones. With Trident, which they'll begin selling this summer, they're looking to tap into the scores of curious hobbyists, treasure hunters, marine scientists, and even search and rescue teams that might want to look beneath the surface.

As the team set out onto the bay, side-scan sonar imaging showed a large unidentified mass nearby—which they hoped was the hull of the S.S. *San Rafael*, a 205-foot-long passenger ferry that sank on a foggy winter night in 1901.

Stackpole dropped Trident and its neon-yellow tether off the stern side to cheers. The drone, which weighs seven and a half pounds, quickly descended 60 feet to the bay floor, beaming high-definition images from its camera to a laptop in the boat's cabin.

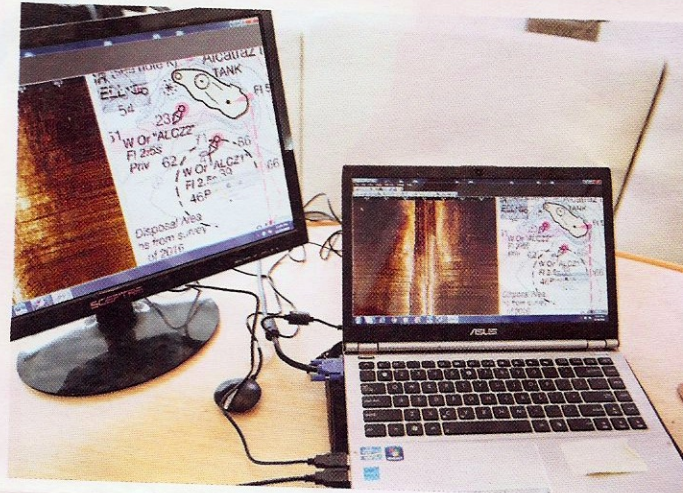
Ultimately, the treasure hunt would have no happy ending on this choppy, rainy day, as Trident showed only a bunch of crabs, schools of brown rockfish, an old tire, and a sunken radiator. But Stackpole and Lang were still smiling, undeterred. "This is a story of possibilities," Stackpole said. "Raw exploration is in the hunt. It's no longer about explorers going out and showing us what they've found. Soon we'll have more underwater eyes than ever before." ■



RIGHT: OpenROV's new aquatic drone can be maneuvered across the bay floor with any joystick console. Trident is able to survey depths of up to 100 meters and live-streams high-def video to a laptop—or even a tablet or smartphone—on the surface.



BELOW RIGHT: The OpenROV team used side-scan sonar readings off the southwest side of Alcatraz in an attempt to pinpoint the elusive location of the 116-year-old wreck of the S.S. *San Rafael*. Eric Stackpole, one of OpenROV's cofounders, says the possibilities for local amateur explorers are endless. "There are 200 shipwrecks in San Francisco Bay, and nothing like this—as affordable and easy to use—has ever existed at the consumer level before. It's like having the first metal detector in Gettysburg."



ABOVE: The Trident drone, outfitted with super-bright lights and an HD camera, will be available to the public this summer for \$1,499.

RIGHT: Stackpole adjusts the drone's navigation console before redeploying it off a catamaran near Alcatraz. "Trident is a serious exploration tool, but it's also a lot of fun," he says. "Whereas other drones allow people to get a new perspective on something they knew was there, what we're doing is fundamentally different because when you put a remotely operated vehicle [ROV] in the water, you have no idea what to expect. It's revealing parts of the planet we've never seen before."

