

FOCUS

GADGETS

Deep Dives

UNDERWATER DRONES THAT PROBE UNSTABLE OR DANGEROUS CONDITIONS GAIN TRACTION AMONG FILMMAKERS

BY KAREN IDELSON



With their tough exteriors and cutting-edge camera equipment, underwater drones look like something Q would build for James Bond. Though these little submersibles have been a mainstay in shipwreck exploration, search and recovery, and military operations for years, tech innovations made them the talk of CES in January. Nonfiction TV shows and procedurals are using them to plunge deep into underwater sinkholes and get shots that might be too hazardous or challenging for a human diver.

Here are three underwater drones worth considering for your next project.



» DEEP TREKKER'S DTX2 and DTG2

THE BASICS: As a company that's been involved for a decade with making underwater drones for military and search-and-rescue missions, Deep Trekker has now also established itself as a reliable choice for filming in extreme underwater conditions. The DTG2 can dive to depths of 150 meters (about 492 feet) and is equipped with an HD camera. The DTX2 is rated for 305 meters and packaged for use in deeper waters and tougher oceans. The DTX2 can rotate 180 degrees in order to move vertically, which means it can tackle the kind of confined spaces that would be difficult for a diver. It can also perform in stronger currents due to its patented pitching system and vectored thruster design.

IN PRACTICE: Both the DTG2 and the DTX2 were used on *Discovery Live: Into the Blue Hole* in 2018. The

Discovery Channel special featured Sir Richard Branson in a submersible exploring an enormous underwater sinkhole off the coast of Belize. The drones were able to film Branson as he went into the depths of the sinkhole and explored the environment there.

"We got just beautiful, beautiful footage," says TC Conway, a camera operator, director and producer who worked on the show. "But there is a little bit of wobble with drones, so sometimes you wouldn't get what you'd expect so you really have to plan your shot and you will probably need some processing on post."

THE TAKEAWAY: These two drones are workhorses. The DTX2, in particular, is designed for the most difficult shoots in unpredictable conditions, so productions that need to head into unstable waters will want to seek out this model.

» VIDEORAY PRO 4

THE BASICS: This underwater drone has been used in some of the most challenging exploration and research areas, so it comes with many of the internal features that make it easy to use and easy to avoid issues with the drone once you're in the field. They include a 3D tilt compensated compass, accelerometer, MEMS gyro, leak alarm, internal temperature gauge, real-time volt meter and depth sensor. It can also be equipped with some 1,000 feet of tether, making it possible to shoot at considerable depths. The drone comes with a standard definition camera, but VideoRay also offers the option to add a secondary HD or 4K camera to the configuration.

» TRIDENT by OpenROV

THE BASICS: Berkeley-based OpenROV comes into the field with the budget-minded Trident that starts at a price of \$1,699. This ROV was the brainchild of amateur diving enthusiasts who wanted to create something affordable and easy to use. The Trident also features an optimized camera system with algorithms to color-correct footage from underwater. HD video can be streamed direct from the drone to your smartphone. The camera is also designed to perform well in low-light conditions. The Trident can be controlled with either your smartphone using the company's app or their controller. It's depth rated to 100 meters (about 330 feet).

IN PRACTICE: OpenROV's primary focus was making something that everyone could use at the right price while catching the eye of filmmakers and engineers working with James Cameron, according to co-founder David Lang. The team helped make the connection between OpenROV and National Geographic,



and together they've established the Science Exploration Education Initiative, which puts Tridents in the hands of ocean scientists and researchers. Around 130 stories have been filmed using the Trident to date.

"It has been incredible to see people use the drone to show how the oceans are changing around them right now," says Lang.

THE TAKEAWAY: The robust drone's features make it a good choice for filmmakers on a budget who may not be able to spend on a diving team. While it may not be able to go as deep as other drones, ease of use and the price point make up for a lot.

"We were in a very controlled environment (a small tank built for *Bones*). In that situation, the drone was a better choice because a cameraman underwater would have made too many waves."

Dwight Little
Director

IN PRACTICE: Director Dwight Little used the drone in a small tank for an episode of *Bones*, as the show's character Jack Hodgins (T.J. Thyne) searches for clues underwater. "With the [VideoRay Pro 4], we were able to do all of Hodgins' points of views as he's holding his breath, finding the clue, grabbing it and so forth," says Little. "We were also able to turn around to get shots of his close-ups. We were in a very controlled environment with clean, shallow water. In that situation, the drone was a better choice because a cameraman underwater would have made too many waves and affected the tank too much."

THE TAKEAWAY: In addition to *Bones*, the VideoRay Pro 4, with a depth rating of 305 meters (about 1,000 feet), has been battle-tested on Animal Planet's *River Monsters*, while the manufacturer offers training sessions for those who want to become operators.

