

Underwater gliders may change how scientists track fish

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A scientist takes an underwater photo of one of the underwater gliders. UAF researchers recently successfully tested the use of the autonomous underwater vehicles for tracking tagged fish. Credit: Photo courtesy of Hank Statscewich

Tracking fish across Alaska's vast continental shelves can present a challenge to any scientist studying Alaska's seas. Researchers at the University of Alaska Fairbanks have successfully tested a possible solution in the form of underwater gliders.

Last month, Peter Winsor, associate professor of physical [oceanography](#), and Andrew Seitz, assistant professor of fisheries, tested the use of autonomous underwater vehicles, called gliders, for tracking tagged fish. Winsor and Seitz suspended acoustic tags, usually implanted in fish, at

different depths along a buoy line near Juneau. They then deployed two gliders fitted with an acoustic listening device to "hear" the signals from the tags.

Winsor and Seitz say these are the first gliders to be deployed in Alaska with an acoustic monitoring device to track tagged fish.

Each [glider](#) is about five feet long and flies like an airplane through the water in an up-and-down motion. They are propelled using an internal bladder that works much like a fish's swim bladder. When the bladder expands, the glider moves toward the surface. When it contracts, it moves toward the seafloor.

"They convert changes in water depth into forward movement," said Seitz.

The gliders move at a speed of nearly one mile per hour and can operate for up to three months. According to Winsor, the gliders can cover thousands of miles of ocean. At the surface, the glider transmits data, including its location and oceanographic readings, directly to scientists.

"With the gliders, we not only learn about where the fish go, but we can also measure the physical, chemical and biological environment of the ocean at the same time," said Winsor.

Traditional methods of tracking tagged fish include using a ship equipped with an acoustic listening device, or by using what scientists call a "listening line," which is a series of hydrophones attached to the [seafloor](#).

"The problem with using hydrophones is that they stay in one place and the tagged fish have to move near enough to the hydrophones to be detected," said Seitz. "This can create big geographic gaps in your data,

especially in the vast oceans surrounding Alaska."

Seitz and Winsor say that the gliders can be programmed to follow tagged fish. The technology is ideal for Alaska waters because the gliders can cover large distances and are much less expensive than using a ship or sets of hydrophones. Scientists are planning to use the gliders to gather oceanographic information in the Chukchi Sea.

Provided by University of Alaska Fairbanks

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