

# Acoustic Pingers for Submarines and AUVs



The economy appears to be in recovery, because sales of personal submarines and autonomous underwater vehicles (AUV) are on the rise. One company specialising in private submersibles is U-Boat Worx in The Netherlands. These underwater vehicles are popular with tourist destinations, scientific missions and a wide range of boating enthusiasts. Several models are available with depth ratings from 100 to 1,000 metres. Many subs have an acoustic pinger. This underwater signalling device transmits a sound wave that can travel more than a kilometre and be detected by a pinger receiver, thus allowing its movements to be tracked from the surface.

This capability is helpful when testing new models and designs. When deciding which acoustic device would be best for their operations, [U-Boat Worx](#) picked JW Fishers MFP-1

multifrequency pinger because, like the sub maker, Fishers has an established reputation for providing rugged, reliable underwater equipment at a reasonable price.

The autonomous or “unmanned” underwater vehicle has become commonplace in the oceanographic industry and scientific community. In addition to their lower cost, other reasons why the number of AUVs has grown so dramatically are their ability to stay submerged for extended periods of time and their capacity to carry cameras, sonar and a variety of sensors that gather all types of data on the subsea environment. An essential piece of equipment on the AUV is the acoustic pinger which allows the vehicle to be recovered should it fail to return to the surface.

One group making an AUV and using the pinger for a completely different application is the North Carolina State University Underwater Robotics Team. NCSU's Robotics club is a student run organisation that designs and builds autonomous submersible robots. Each year the team enters its vehicle into the [Robosub Competition](#) sponsored by the AUVSI Foundation and U.S. Office of Naval Research. Students from more than two dozen high schools, colleges, and universities from around the world compete in this annual event. The robots must accomplish a variety of tasks including manoeuvring through an obstacle course, retrieving and dropping payloads, and navigating to locations marked by an acoustic pinger. NCSU students are busy constructing a vehicle capable of performing the many complex operations required. To test their vehicle's ability to accomplish the task of navigating to an acoustic beacon, the team needed a pinger for trials. They choose JW Fishers SFP-1 single frequency pinger for its low cost and because its specifications met Robosub requirements. Club president Matt Wiggins reports his team is focused on winning and confident they will bring home one the cash prizes from this year's competition in San Diego.

A few of the other groups using Fishers pingers and receivers are Korea's Hydrographic and Oceanographic Administration (KHOA), US National Marine Fisheries Service, University of Delaware's College of Marine, Ocean, and Environment, US Navy's Underwater Warfare Center (NUWC), University of Texas at Austin, FUNDESPA at the University of Sao Paulo in Brazil, National University of Singapore, University of South Florida, Coastal Carolina University, and India's Underwater Robotics Society.

*Image: One of U-Boat Worx personal submarines, inset photo: NCSU Robotics club with their Seawolf AUV and club president Matt Wiggins centre holding JW Fishers pinger. Image courtesy: David Pearlman.*