NRL Testing New Structural Acoustic Sonar for AUV Mine Hunter

NATIONAL HARBOR, Md. – The Navy is pushing out new autonomous underwater vehicles (AUVs) that utilize low-frequency wavelengths to identify objects deep underwater. The Office of Naval Research (ONR) and the Naval Research Laboratory (NRL) presented data at their Sea-Air-Space booth April 11 showing how this method makes it easier for ships to see mines below the sea bottom.

Zachary Walters, researcher at NRL, noted that every object has a unique acoustic fingerprint, and with the new method, structural acoustic (SA) sonar, AUVs can determine what each individual object is.

The low-frequency wavelengths used in SA also offer the chance to "punch into the deeper sediment" in the ocean, Walters said.

Of course, there are infinite number of objects potentially hidden in the sea, so NRL is focusing more on target recognition rather than identifying every bit of clutter.

"We do know what our targets that we are interested in look like, either through laboratory measurements, at-sea measurements or through forward numerical modeling," Walters explained. "And, so, we use those … to build up a library of objects that we are interested in, and we pass this on, along with the data we measure at sea, to our automated classifiers."

According to Waters, SA is currently being transitioned out to the field for testing with Knifefish, a mine-hunting AUV. As it gathers more research, NRL hopes to "extend to much larger

ranges and higher area of coverage," which will be transitioned to Knighfish in later updates.

The NRL's ultimate goal for SA is to create AUVs that run fully autonomous operations. Walters believes that effort will rely on the continued cooperation of ONR and NRL.