



Center for Strategic and Budgetary Assessments

## IN THE NEWS

# Navy Upgrades Attack Submarine Weapons Controls, Sensors

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By: Chris Osborn

Related Expert: Bryan Clark

Senior Navy officials have explained that the innovations brought to fruition with these recent efforts do, at least in part, help address an issue raised by a report more than a year ago by the Center for Strategic and Budgetary Assessments.

The report, titled “The Emerging Era in Undersea Warfare,” says the technological margin of difference separating the U.S from potential rivals is expected to get much smaller. This is requiring the U.S. to re-think the role of manned submarines and prioritize innovation in the realm of undersea warfare, the study says.

“America’s superiority in undersea warfare results from decades of research and development, operations, and training. It is, however, far from assured. U.S. submarines are the world’s quietest, but new detection techniques are emerging that don’t rely on the noise a submarine makes, and may make traditional manned submarine operations far more risky in the future. America’s competitors are likely pursuing these technologies even while expanding their own undersea forces,” writes the report’s author Bryan Clark.

In the report, Clark details some increasingly available technologies expected to change the equation regarding U.S. undersea technological supremacy. They include increased use of lower frequency active sonar and non-acoustic methods of detecting submarine wakes at short ranges. In particular, Clark cites a technique of bouncing laser light or light-emitting-diodes off of a submarine hull to detect its presence.

"The physics behind most of these alternative techniques has been known for decades, but was not exploited because computer processors were too slow to run the detailed models needed to see small changes in the environment caused by a quiet submarine. Today, 'big data'" processing enables advanced navies to run sophisticated oceanographic models in real time to exploit these detection techniques," Clark writes.