



Center for Strategic and Budgetary Assessments

STUDIES

The Emerging Era in Undersea Warfare

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Resources: Future Warfare & Concepts

This report describes how undersea competitions evolved over the last century, the disruptive trends that may lead to a new era in undersea warfare, and the elements that will comprise an effective approach to the next chapter in undersea competition.

Over the next year, the Center for Strategic and Budgetary Assessments (CSBA) will explore trends in undersea warfare technology and operations as part of a new research initiative. The goal of this effort is to identify new approaches that exploit the undersea domain in order to maintain U.S. military advantage while preserving the ability to deny use of the undersea to adversaries.

U.S. defense strategy depends in large part on America's advantage in undersea warfare. Quiet submarines are one of the U.S. military's most viable means of gathering intelligence and projecting power in the face of mounting anti-access/area-denial (A2/AD) threats being fielded by a growing number of countries. As a result, undersea warfare is an important, if not essential, element of current and future U.S. operational plans. America's rivals worry in particular about the access submarines provide for U.S. power-projection operations, which can help offset an enemy's numerical or geographic advantages.

Broadly speaking, undersea warfare is the employment of submarines and other undersea systems in military operations within and from the underwater domain. These missions may be both offensive and defensive and include surveillance, insertion of Special Forces, and destroying or neutralizing enemy military forces and undersea infrastructure.

America's superiority in undersea warfare is the product of decades of research and development (R&D), a sophisticated defense industrial base, operational experience, and high-fidelity training. This superiority, however, is far from assured. U.S. submarines are the world's quietest, but new detection techniques are emerging that do not rely on the noise a submarine makes, and that may render traditional manned submarine operations far riskier in the future.

America's competitors are likely pursuing these technologies while also expanding their own undersea forces. To sustain its undersea advantage well into this century, the U.S. Navy must accelerate innovation in undersea warfare by reconsidering the role of manned submarines and exploiting emerging technologies to field a new "family of undersea systems."