NAVAL STUDIES BOARD

DIVISION ON ENGINEERING AND PHYSICAL SCIENCES

ABOUT THE BOARD

The Naval Studies Board (NSB) was established in 1974 at the request of the then Chief of Naval Operations as an entity to which the U.S. Navy could turn "for independent and outside counsel of any area of its responsibilities involving the interplay of science and technical matters with other national issues." During its years of operation, the NSB has accepted tasks involving virtually all of the scientific and engineering disciplines supported by the Navy and has conducted studies, for example, in areas related to the design and operation of satellites; C4I systems; stealth technology; ship, submarine, and aircraft architecture; and education and training. Recent workshops have focused on innovation and multi-domain autonomy. Current topics include data warfare; resilient communications and intelligent-agile networking; and emerging technologies matched to naval areas.

SELECTED RECENT REPORTS

Defending Forward-Deployed U.S. Navy Platforms from Potential Enemy Missile and Rocket Attacks

This 2017 consensus study report, conducted at the request of the Chief of Naval Operations, explores ways to defend forward-deployed U.S. Navy platforms from potential enemy missile and rocket attacks over the next 15 years. The study's terms of reference were as follows: (1) Review current and projected missile and rocket threats to forward-deployed U.S. Navy platforms over the next 15 years; (2) Assess the Department of the Navy's (DoN's) capabilities and concepts aimed at defending forward-deployed U.S. platforms vis-à-vis the kinetic threats reviewed in (1), accounting for any kinetic and non-kinetic efforts also being pursued by the other Services and defense agencies; (3) Evaluate the DoN's current technology investment strategy in defending forward-deployed U.S. Navy platforms vis-à-vis the kinetic threats reviewed in (1), accounting for any kinetic and non-kinetic technology investments also being made by the other Services, defense agencies, and defense community at large (e.g., laboratories, industrial base, and academia); and (4) Recommend any novel kinetic and non-kinetic ways (e.g., future capabilities, concepts, and technologies) to defend forward-deployed U.S. Navy platforms from potential enemy missile and rocket attacks over the next 15 years. The DoN has determined that this consensus study report is classified in its entirety and therefore cannot be made available to the public.

Mainstreaming Unmanned Undersea Vehicles into Future U.S. Naval Operations

This 2016 consensus study report, conducted at the request of the former Chief of Naval Operations, assesses the potential of unmanned undersea vehicles (UUVs) in enhancing future U.S. naval operations. The study's terms of reference were as follows: (1) Identify the missions and environments in which UUVs might be called upon to operate, as well any issues or barriers (e.g., policy, operational, technical) that might inhibit mission success; (2) For each of the identified missions, assess desired UUV size, quantity, and level of coordination with other unmanned and manned counterparts; (3) Review the Department of the Navy's (DoN's) efforts for UUVs in comparison to (1) and (2); (4) Evaluate the DoN's technology activities for UUVs, including its vision documents and its science and technology roadmaps (e.g., in areas of autonomy, endurance, communications, sensor capabilities, weaponry, launch and recovery) against criteria selected by the committee, such as the relevance for conducting future missions, cost and time scale for deployment, scientific and technical quality, and related technology activities outside of the Navy; and (5) Recommend operational, technical, and acquisition approaches, excluding organizational changes, that would lead to mainstreaming UUVs into future U.S. naval operations at a faster deployment schedule—to the extent needed—than currently planned. The DoN has determined that this consensus study report is restricted in its entirety under exemption 3 of the Freedom of Information Act (5 USC § 552 (b) (3)), via 10 USC § 130 and therefore cannot be made available to the public.

A Review of the U.S. Navy Cyber Defense Capabilities

This 2015 consensus study report, conducted at the request of the former Chief of Naval Operations, reviews U.S. Navy cyber defense capabilities. In addition to reviewing cyber defense-related studies conducted within and outside the U.S. government, the study's terms of reference were as follows: (1) Review U.S. Navy information technology modernization plans and processes with respect to the evolving threat and robustness to cyber attack, and identify any shortcomings; (2) Recommend any immediate operational and technical mitigation strategies needed to address any shortcomings identified above, as well as recommend any future mitigation strategies, including any architectural and procedural changes that would lead to more resilient naval systems and more robust network and communications capabilities given the evolving threat; (3) Review and assess the adequacy of current Department of the Navy (DoN) policies, strategies, approaches, and investments in comparison to the findings and recommendations to both (1) and (2) above; and (4) Identify any other critical issue—not addressed in this study—that the U.S. Navy should consider addressing in subsequent studies. The DoN has determined that this consensus study report is classified in its entirety and therefore cannot be made available to the public.

BOARD HISTORY

1863 — One of the very first committees of the NAS, known as the "Compass Committee," was appointed to investigate magnetic deviations in ironships and means for better correction of their compasses, and had a direct bearing on the operations of the Navy during the Civil War.

1946 — The Committee on Undersea Warfare (CUSW) was appointed by the NAS to advise the Navy on technical matters relating to submarine design and systems technology.

1951 — The Mine Advisory Committee (MAC) was appointed in response to the Nation's experience with a minefield that blocked the Invasion of Wonson, Korea, in 1950.

1956 — The CUSW was tasked by then CNO Arleigh Burke to study the effect of advanced technology on submarine warfare. The resulting study, known as "Project Nobska," advocated an increased emphasis on deeper-diving, ultraquiet designs utilizing long-range sonar. It has been reported within the Navy that USS Tullibee incorporated three design changes based on the results of Project Nobska.

1946-1973 — The CUSW and MAC produced approximately 200 reports.

1973 — ADM Elmo Zumwalt, USN, then CNO, asked the President of the NAS to extend the charter of its naval advisory committees beyond the two existing warfare areas and form an advisory organization "to which [the] Navy could turn for advice on any area of its responsibility involving the interplay of science and technology with other national issues."

1974 — The Naval Studies Board was established and continues to operate today--having just celebrated its 40th anniversary in 2014. Since its establishment, the NSB has helped the Academies conduct over 130 studies and workshops at the request of the Office of the Chief of Naval Operations.

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