U.S. Naval War College

U.S. Naval War College Digital Commons

CMSI Translations

China Maritime Studies Institute

5-21-2025

CMSI Translations #18: Combine Wisdom and Join Efforts, Training in a Sea of Mines, "Pioneers of Breaking Obstacles"

Li Muqiang Yang Fulong Qu Bin Zhai Dengqian

Follow this and additional works at: https://digital-commons.usnwc.edu/cmsi-translations



TRANSLATIONS

Combine Wisdom and Join Efforts, Training in a Sea of Mines, "Pioneers of Breaking Obstacles"



中国海事研究所 China Maritime Studies Institute





Combine Wisdom and Join Efforts, Training in a Sea of Mines, "Pioneers of Breaking Obstacles"¹

A Minesweeper Unit from the Northern Theater Command Navy Establishes a Joint Teaching and Training Mechanism with an Educational Institution

By Li Muqiang, Yang Fulong, Qu Bin, and Zhai Dengqian

The sky is high, the lake is vast, and ghosts are lurking.

One day in early winter, in the riverside city of Wuhan, a speedboat zooms across the Great Mulan Lake. Its stern engine propellers spin, stirring up white waves... A realistic comprehensive exercise is in full swing, employing mine countermeasures combat divers.

A mine countermeasures diver from a minesweeper unit (*dadui*) of the Northern Theater Command Navy, headquartered several thousand miles away, arrived at the training camp at the Naval University of Engineering (NUE). The divers collaborated closely with the university's mine countermeasures teaching and research section to conduct focused research on the disposal methods for new-type smart-mines (*xinxing zhineng shuilei*).

"Mine warfare presents a significant operational challenge for the world's navies. In recent years, advancements in artificial intelligence and other high-tech developments have rendered mines more intelligent and effective, allowing them to autonomously seek out targets and detonate on their own. This evolution further complicates and jeopardizes the mine-clearing efforts of combat divers." Zhang Zhiqiang from NUE's Mine Countermeasures Teaching and Research Section remarked that finding ways to enable mine countermeasures combat divers to swiftly and effectively identify and neutralize these intelligent mines is an urgent practical issue that requires immediate attention.

Utilizing drones alongside combat divers to search for and locate [sea mines], and employing UUVs for extensive area detection...We observed faculty members from NUE leverage their theoretical expertise and establish a practical research group for mine-sweeping and mine-laying in collaboration with the divers. This initiative aims to explore a new approach to diver-led mine countermeasures, helping the divers to effectively integrate their academic knowledge with real-

¹ 李木强 [Li Muqiang], 杨福龙 [Yang Fulong], 曲斌 [Qu Bin], and 翟登乾 [Zhai Dengqian],集智合力, 锤炼雷海 "破障先锋" 北部战区海军某扫雷舰大队与院校建立联教联训机制 ["Combine Wisdom and Join Efforts,

Training in a Sea of Mines, "'Pioneers of Breaking Obstacles'"], 当代海军 [Navy Today], no. 12 (December 2024), pp. 30-31.

Translator's note: Navy Today is an official magazine of the PLA Navy.

world applications, thereby deepening their theoretical understanding and enhancing their underwater operational skills.

"I am now informing you of the target location and directing your diver squadron to move forward quickly to verify..." During the exercise, to create a realistic battlefield scenario, the NUE instructors acted as both examiners and the "blue team," laying multiple simulated smart mines in the waters of Great Mulan Lake. The divers searched for underwater targets independently to determine the number of mines on their own, and select the appropriate time to clear the mines.

"The training ground closely simulates a real ocean battlespace. We have no information about the number of mines, their performance, or their distribution," said Song Zhitao, a member of the minesweeper unit's mine countermeasures combat diver squadron. He expressed that this realistic assessment serves as the most direct evaluation of the troops' mine countermeasures combat capabilities.



-p. 31 begins-----



After arriving at the mission waters, the divers worked in pairs, leaping into the water from the edge of the moving assault boat, and began an intensive search operation. Diver Li Chen held an underwater magnetic detector and moved slowly beneath the water. The sound waves emitted by the device spread invisibly in the water, creating a net, and any signal that might match the characteristics of smart mines could not escape detection. Diver Liu Peihao wielded a powerful flashlight to illuminate the surrounding area for his companion and alert him to potential threats. The two worked together seamlessly, managing the situation in an orderly fashion.

When the magnetic detector made a sound, Li Chen quickly approached the target and successfully uncovered a type of smart mine that was cleverly concealed in the mud through a deceptive appearance. This mine possesses a unique texture and color, and is ingeniously camouflaged in the surrounding environment. Without the assistance of high-tech detection equipment, it would be challenging to discover.

After identifying the target, Liu Peihao promptly managed the smart mine according to the training protocol, utilizing specialized jamming equipment to disrupt the signal connection between the mine and the outside world, thereby preventing any remote detonations during the disassembly process. Meanwhile, Li Chen, using his expertise, carefully opened the mine's shell and skillfully navigated the intricate internal circuits and fuse devices.

This is the last and most critical part of the mine countermeasures operation. The combat divers are focused and meticulous, and each step strictly adheres to the operating procedures for smart mine countermeasures. After several minutes of careful handling, the combat divers successfully dismantled the key components of the simulated smart mine, rendering it harmless, and then employed underwater salvage bags to slowly drag the mine to the surface, successfully completing the mission.

"Mines are fairly small, and the echoes generated by sonar detection are difficult to discern. Additionally, the complex underwater environment and other factors make searching and salvaging akin to finding a needle in a haystack for combat divers. The challenge is immense."

Pang Yandong, the NUE instructor in charge of on-site direction of the drills, expressed with emotion, "The grassroots front-line troops came to NUE for training, which not only bridged the gap between theory and practice but also established our next research direction and focus on the battlefield. This training fosters a reciprocal enhancement of theory and practice, with both the grassroots and the university collaborating to achieve victory."

At the review meeting, the NUE experts who monitored the training throughout the entire process summarized the on-site data and identified several issues related to combat divers' manned and unmanned coordinated mine countermeasures operations, the use and maintenance of new equipment, and the underwater close reconnaissance methods employed by divers. They also adjusted and refined the training plan to ensure that each training exercise is effective and that every time the divers enter the water, they are improving.

Combine Wisdom and Join Efforts, Training in a Sea of Mines, "Pioneers of Breaking Obstacles." Through this training, the issues that troubled the rank and file, such as ineffective training on new equipment and limited warfighting development, were effectively addressed. At the same time, the university's professional training facilities, numerous research outcomes, tactics, and training methods were tested in the exercises; this will serve to significantly enhance the combat effectiveness of the troops.