



The answers to a successful MIW revival depend on honest analysis and the translation of strategy into operations and tactics.  
U.S. NAVY (CHRISTINA BREWER)

## Mine Warfare Revival

*2021 Naval Mine Warfare Essay Contest—3rd Prize*

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It is easy to get enamored and distracted by the prospect of technology, automation, autonomy, and artificial intelligence. For some, the possibility of a mine warfare (MIW) revival is defined by autonomous and unmanned vehicles. Instead, MIW practitioners and tacticians should propose executable solutions for approval to reinvigorate the Navy mission area. Executable solutions do not have to be elaborate technical capabilities that require funding. However, specific questions need to be answered before the Navy can deliver the means to meet the 21st-century MIW demands: Where are we? Where should we go? How do we get

there? Are we getting there?<sup>1</sup> The answers to a successful MIW revival depend on honest analysis and the translation of strategy into operations and tactics.

## Strategy: Where Are We?

Released in December 2020, the *Tri-Service Maritime Strategy, Advantage at Sea*, did not provide explicit insight on the future of MIW. In total, MIW is only mentioned twice in the new strategy. The only indication of the future of MIW is encompassed in the Naval Services Investments Annex under the Undersea Warfare subsection with the promise of expanding mine warfare capabilities. Nevertheless, *Advantage at Sea* implies that MIW is a mission area inherent to sea control and power projection.

*Advantage at Sea* provides holistic clarity and direction. The strategy designated the People's Republic of China (PRC) as the most pressing and long-term strategic threat.<sup>2</sup> In turn, MIW practitioners must consider and ask: Where are they? In 2009, *the PRC's inventory was estimated* to be between 50,000 to 100,000 mines. The PRC's mine inventory also contained "over 30 varieties of contact, magnetic, acoustic, water pressure and mixed reaction sea mines, remote control sea mines, rocket-rising, and mobile mines." A decade later, one can assume the PRC's mine inventory has grown, and delivery methods have advanced. In addition, the People's Liberation Army Navy's (PLAN) preponderance of civilian vessels and asymmetric MIW threats further complicate matters.

*Advantage at Sea* provides strategic guidance as to where the naval services should prioritize and unify their efforts. Particularly the preponderance of Navy forces in the Indo-Pacific region and the modernization of the Marine Corps. Although not fully actualized, the Marine Corps is pivoting toward an increased role in sea control and sea denial. This inclusion further reinforced the relevance of the expeditionary combat power and combined arms doctrine within *Advantage at Sea*. The naval services *are in search of new methods* of producing dilemmas for adversaries, and at a crossroads between danger and opportunity with the chance to create a new MIW identity.<sup>3</sup>

## Operational: Where Should We Go?

*Advantage at Sea* implies that the naval service concepts of distributed maritime operations, littoral operations in a contested environment (LOCE), and expeditionary advanced base operations (EABO) will serve as foundational guidance at the operational level. Combined, these concepts provide new opportunities to revive MIW within an integrated all-domain naval force. However,



ideas are not the all-inclusive solution to full-spectrum MIW revival. At the operational level, the future of MIW requires personalization, appropriately defined as an ongoing conversation between creator and consumer.<sup>4</sup>

Combatant commanders (CoComs) are the consumer of military force capabilities and are authorized to employ forces as necessary to carry out missions assigned to the command. In addition, they also are empowered to submit recommendations through the Chairman of the Joint Chiefs of Staff to the Secretary of Defense concerning the content of guidance affecting the strategy and/or fielding of joint forces.<sup>5</sup> Multiple avenues to personalize MIW are available to CoComs to meet mission demands. Force planners are the brokers between the CoComs and the capability creators or force providers. Further, force planners are the gatekeepers between the status quo and MIW innovation.

Thus, naval force planners must adopt [the Army's force-tailoring methodology](#) to accelerate the MIW revival. Force planners will have to creatively aggregate existing military capabilities and balance resource constraints by translating CoComs' requirements into deployable and employable force packages. Creating a better demand signal for MIW resources is a significant step toward changing the conversation. In the near term, force tailoring creates a sustainable pathway for emerging MIW technology to be deployed and integrated.

*The 38th Commandant's Planning Guidance (CPG)* has changed the realm of possibilities for force planners. Under Commandant General David H. Berger's direction, the Fleet Marine Force (FMF) is rapidly emerging as a dynamic resource creator. With Stand-in Forces, the FMF will equip CoComs with an array of low-signature, technically disruptive options, affordable and risk-worthy platforms, and payloads. If aligned with MIW, these delivery options provide agile and expeditionary solutions in close and confined seas.

General Berger has offered more direction on where naval forces should go and suggested the Marine Corps absorb more expeditionary functions, forces, and capabilities and unify under a single naval expeditionary force. As eloquently stated by Steven Johnson in *Where Good Ideas Come From*, "The trick to having good ideas is not to sit around in glorious isolation and try to think big thoughts. The trick is to get more parts on the table."<sup>6</sup> At the end of the day, it does not matter where the parts come from; what matters is that the mission is being accomplished, understood, and led. Nevertheless, naval warfare and MIW are headed toward reinterpretation in the 21st century.

## Tactical: How Do We Get There?

At the tactical level, MIW is conceptually constrained by what the warfare area cannot achieve and the possibility of what the future holds. The naval force requires affordable mining and mine countermeasures (MCM) solutions and replacements for the aging *Avenger*-class MCM ships. Autonomous and unmanned vehicles are part of the affordable solutions, but those systems will require additional time to mature. Capabilities are the means to an end, but the technology will not lead itself.

The naval force must rearrange and reuse existing pieces to achieve desired effects at the tactical level.<sup>7</sup> Command and control (C2) and leadership are among the existing pieces in MIW's future equation. In the words of Army General Omar Bradley, "Leadership is an intangible. No weapon, no impersonal piece of machinery ever designed can take its place."<sup>8</sup> Regardless of capabilities, someone has to cultivate the ecosystem of MIW unity at the tactical level.

The naval force must alter the composite warfare (CW) doctrine and revitalize the MIW commander's (MIWC) role for the 21st century.<sup>9</sup> Decades of naval operations in permissive MIW environments have relegated the MIWC to the functional group commanders. This relegation also signals that tactical level leaders are overlooking MIW risks and have developed a false sense of consensus.<sup>10</sup> The MIWC deserves a larger role within CW and is the optimal method to implement clear C2 overall tactical forces assigned. Captain G. Bruce McEwen, the commander of the MIW effort during the Gulf War, likely would argue the same.<sup>11</sup> C2 will become exponentially crucial with emerging robotics and unmanned system. The next question that arises is who should be the force MIWC?

As an existing pillar, CW provides the officer in tactical command with flexibility to delegate CW roles to support Navy mission areas. History indicates that the delegation of the MIWC can be executed better. During the Gulf War, Captain McEwen was tasked with serving as the MIWC without the requisite technical and operational experience to accomplish the duties. As described in *The General's War*, "McEwen's only experience in mine warfare had been in dropping them from his A-7 during the Vietnam War."<sup>12</sup> The MIWC needs to be adequately resourced and complemented by technical knowledge.

MIW has become expeditionary because of the limitations of the *Avenger* class. Therefore, the resource providers of MIW capabilities today are more inclined to be naval expeditionary forces. Navy and Marine Corps capabilities are designed to be



combined and complementary. This concept is already defined in doctrine in *NWP 3-32 Maritime Operations at the Operational Level of War* and can be feasibly translated at the tactical level. Thus, the MIWC should be a practitioner of expeditionary warfare. Marines and Navy ordnance disposal officers are the most logical choices to serve as MIWC and more likely to require MIW direct support. Moreover, General Berger has already made Marine Corps CW integration a prerequisite to the execution of amphibious operations. General Berger's guidance to the Marine Corps is an opportunity to accelerate the MIW revival. In addition, this is an opportunity to inject new leadership and direction into an overlooked warfare area.

MIWC must be experimentally deployed as part of expeditionary forces on vessels of opportunity. The naval services can achieve a deliverable solution by deploying amphibious and littoral combat ships (LCSs) together. Combined, these platforms and EABO create the flexibility to execute expanded MIW missions. This requires planners and decision-makers to expand their consideration of LCSs outside of the limitations of their mission package. The MIWC can conceal MIW assets in the well decks of amphibious ships and maximize force flexibility.

Expeditionary vessels and the prospect of MIW expeditionary advanced bases create new tactical dilemmas for adversaries. Offensive mining expeditionary advanced bases can be utilized as flexible deterrent options for the CoComs in support of sea control and sea denial. These expeditionary options remove the constraints of operating within a carrier strike group (CSG) construct as airpower and strike operations are often prioritized over other mission areas.

## **End Game: Are We Getting There?**

MIW is not "getting there" fast enough. MIW practitioners ought to shape the environment instead of waiting for the environment to change. The naval force needs to aggressively employ expeditionary MIW assets in named areas of interest. Initially, the expanded execution of MIW will not be perfect or overwhelmingly popular. Military leaders are more inclined to be impressed by kinetic operations and visual effects. However, intelligence preparation of the operations environment and deterrence are equally valuable: "Wars can be won through battles never fought, as much as through the 'battles of annihilation' taught in the military textbooks."<sup>13</sup> Going forward, every deployment presents an opportunity to maximize time and space with MIW forces.

Increased MIW operations are the only path to accurately inform the science and technology community of accurate modernization requirements. In addition, the

MIWC can validate concepts of operations and provide the out-of-the-box MIW analysis desperately needed in today's Navy.<sup>14</sup> General Berger has made the exploration of the adjacent possible a reality by opening a door with EABO.<sup>15</sup> Now, it is time for force planners to remove the surrounding walls and create a demand signal for MIW resources. Experimentation and trial by error with expeditionary force tailoring will generate operational intelligence. No one should expect this to be the ultimate unilateral solution. MIW's revival is contingent on doing more, letting nature take its course.<sup>16</sup>

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