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MINE WARFARE: LESSONS LEARNED AND FORGOTTEN

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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23 April 2008

TABLE OF CONTENTS

INTRODUCTION	1
MINE WARFARE – A BRIEF HISTORY	2
THE BATTLE OF MOBILE BAY	4
THE KOREAN WAR – INCHON & WONSAN	7
THE PERSIAN GULF WAR	11
LESSONS LEARNED	15
CONCLUSION	17
BIBLIOGRAPHY	19

ABSTRACT

As the focus of maritime operations shifts from the open ocean to the littoral environment, the increasing importance of mine warfare (MIW) must be recognized and accounted for. The Joint Task Force Commander must have a thorough understanding of and appreciation for the important role MIW can play at the operational level of war. This analysis focuses on four battles/operations that involved mine countermeasures: The Battle of Mobile Bay, the amphibious landings at Inchon and Wonsan, and the planned amphibious landing into Kuwait.

If the U.S. Navy is to be adequately prepared to face the growing mine warfare challenge, it must change its disinterested mind-set towards MIW. Planners must appreciate how mine countermeasures can be used to shape the battlefield and facilitate operational maneuvers. Furthermore, planners must understand mine warfare's limitations and the impact it can have on factor-time. Finally, operational commanders must understand the important role intelligence can play in support of mine warfare operations.

Where the big ships fight their battles, the little mine craft have already been to do their dull and deadly duty, in which there is no glory. Where the fighting fleets sail to victory, there are the seas of glory. But where the little ships go, there is the most dangerous sea.¹

LCDR Arnold S. Lott, USN

INTRODUCTION

“Sea mines and MCM [mine countermeasures] have played a significant role in every major armed conflict involving the United States since the Revolutionary War.”² As the focus of maritime operations shifts from the open ocean to the littoral environment, the increasing importance of mine warfare (MIW) must be recognized and accounted for. The Joint Task Force Commander must have a thorough understanding of the important role MIW can play at the operational level of war, particularly with respect to the factor of time. Furthermore, planners must consider the capabilities and limitations inherent to MCM forces early on in the planning process, in order to best utilize this capability in achieving the operational objective.

As stated above, mine warfare has been employed throughout the United State’s long history of armed conflicts. From the American Revolution and the Civil War to more modern conflicts such as the Korean War and the Persian Gulf War, mining and mine countermeasures have been employed with varying degrees of success. These historical events provide a valuable source of lessons learned that should be studied, evaluated and understood, in order to fully appreciate how they can best be applied to future operations.

¹ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 3.

² Chairman, U.S. Joint Chiefs of Staff, *Barriers, Obstacles, and Mine Warfare for Joint Operations*, Joint Publication (JP) 3-15 (Washington, DC: CJCS, 26 April 2007), IV-1.

This analysis focuses on four battles/operations that involved mine countermeasures: The Battle of Mobile Bay during the American Civil War, the amphibious landings at Inchon and Wonsan during the Korean War, and the planned amphibious landing into Kuwait during Operation DESERT STORM. On the tactical level, the outcomes of these examples could not have been more different. They range from undeniable success to, arguably, complete failure. However, when viewed in a broader context, they clearly illustrate the American military's fundamental lack of understanding of mine warfare, particularly at the higher levels of war. Furthermore, they also demonstrate a propensity to forget or misapply past lessons learned. This institutional shortcoming must be overcome before the U.S. Navy can truly establish maritime dominance in the littorals.

MINE WARFARE – A BRIEF HISTORY

The United States' first experience with mine warfare dates back to the American Revolution, when inventor David Bushnell fashioned a weapon he termed a "torpedo", which consisted of "a mine case carrying 120 pounds of powder, [that] had positive buoyancy to hold it against a ship's bottom and a clockwork device to set it off at a predetermined time."³ American attempts to employ Bushnell's invention against the powerful British fleet met with little success.

In 1797, inventor Robert Fulton proposed a similar weapon to the French and British navies. Both countries rejected his idea, with the Royal Navy deeming mine warfare as "a mode of war which they who commanded the sea did not want, and which,

³ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 6-7.

if successful, would deprive them of it.”⁴ The truth of this remarkably insightful statement would go on to be proven again and again throughout history.

The Confederacy made extensive use of mine warfare during the American Civil War. They used mines to defend their ports and rivers from the numerically superior Union forces. “Since most naval actions took place in confined waters which could be defended by cheap mines just as well as by expensive ironclads, the Confederate Navy made good use of them.”⁵ The parallels between these Civil War naval battles and today’s environment of littoral warfare are striking. Replace the term “ironclads” with any modern warship and the statement is just as applicable today as it was in the 1860’s.

Upon entering World War I, the U.S. Navy was virtually in the same position with respect to its MIW capabilities as it was at the end of the Civil War.⁶ The U.S. mine forces worked closely with their British allies to rapidly improve their proficiency, engaging in both offensive mining to combat the German U-boat threat and in MCM operations. By the end of the war, despite having paid little attention to mine warfare over the past half century, the U.S. Navy believed that it had been able to quickly regain its mine warfare skills and had adequately adapted to the new technologies that had developed.⁷ This optimistic attitude led to another period of stagnation in mine warfare until the outbreak of World War II.

⁴ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 8.

⁵ *Ibid.*, 9.

⁶ Gregory K. Hartmann with Scott C. Truver, *Weapons That Wait: Mine Warfare in the U.S. Navy* (Annapolis, MD: Naval Institute Press, 1991), 36.

⁷ Tamara Moser Melia, “*Damn the Torpedoes*”: *A Short History of U.S. Naval Mine Countermeasures, 1777-1991* (Washington, DC: Naval Historical Center, 1991), 28-40.

Predictably, upon entering World War II “the United States was more or less where it had been twenty years before with respect to mine warfare.”⁸ In contrast, Germany had made significant strides, specifically in the area of mine actuation. In response to this new threat, the U.S. Navy again partnered with the Royal Navy in an effort to quickly regain its mine warfare proficiency.⁹

This pattern of neglecting mine warfare until a threat emerges and then trying to quickly recoup those skills represents a lesson the U.S. Navy has learned and forgotten numerous times throughout history. Ironically, it does not seem to matter whether this lesson is arrived at via a success or a failure, the end result is always the same: when the next mine threat emerges, the U.S. Navy will undoubtedly be unprepared to respond.

THE BATTLE OF MOBILE BAY

“Damn the torpedoes, full speed ahead!” is the well know order attributed to Rear Admiral David Glasgow Farragut as he led Union naval forces into Mobile Bay on 5 August 1864. The narrow entrance to Mobile Bay was well protected by Fort Morgan to the east and Fort Gaines to the west. Additionally, the “Confederates had narrowed the deep-water channel approach to the bay with underwater pilings and three staggered rows of approximately 180 moored mines about seventy-five feet apart, leaving a clear passage only under the guns of Fort Morgan”.¹⁰

Popular naval history recounts that Admiral Farragut voiced his famous battle cry in order to rally his forces after *USS Tecumseh* struck a mine and subsequently sank.

⁸ Gregory K. Hartmann with Scott C. Truver, *Weapons That Wait: Mine Warfare in the U.S. Navy* (Annapolis, MD: Naval Institute Press, 1991), 60.

⁹ Tamara Moser Melia, “*Damn the Torpedoes*”: *A Short History of U.S. Naval Mine Countermeasures, 1777-1991* (Washington, DC: Naval Historical Center, 1991), 46-60.

¹⁰ *Ibid.*, 1.

Taking the lead in his flagship, *USS Hartford*, Admiral Farragut boldly led the Union naval forces through the minefield and, ultimately, to victory over the Confederates.

What often goes overlooked (and underappreciated) were the mine countermeasures operations that took place in preparation for the events of 5 August. Admiral Farragut had tasked “Lieutenant John Crittenden Watson, [his] flag lieutenant and personal friend”¹¹ with clearing a channel further to the west, which was safely out of the range of cannon fire from the shore. Ship’s deck logs indicate that Lieutenant Watson “took picket boats out on the nights of 30 June, 25 July, and 27 July...each night Watson and his boat crew methodically worked down the three lines of mines.”¹²

During these expeditions, Lieutenant Watson gathered valuable intelligence, including the exact type of mines that were present and their locations. “More than two-thirds of these mines were cone-shaped tin Fretwell-Singer [contact] mines...A few other mines...[were] keg-type wooden ones with ultra-sensitive primers...[and] on the bay’s floor lay several huge electrically fired powder tanks that were controlled from shore.”¹³ Furthermore, he “found that many of the Fretwell-Singers, which were anchored or suspended from buoys about ten feet below the water, had deactivated during the long immersion.”¹⁴ This would prove to be a key piece of intelligence that would greatly affect Admiral Farragut’s decision making as his forces entered Mobile Bay. Intelligence gathering efforts continued leading up to the day of the battle. “Farragut observed

¹¹ Tamara Moser Melia, “*Damn the Torpedoes*”: A Short History of U.S. Naval Mine Countermeasures, 1777-1991 (Washington, DC: Naval Historical Center, 1991), 2.

¹² Ibid., 2.

¹³ Ibid., 1.

¹⁴ Ibid., 2.

Confederate crews laying another ninety mines, probably of the keg variety, on 3-4 August and noted their placement carefully.”¹⁵

In addition to collecting intelligence on the mine field, Lieutenant Watson and his men also attempted some rudimentary mine neutralization on the abundant Fretwell-Singer mines. “Watson’s crew drilled holes in the buoys to sink them, removed them, or simply cut them adrift.”¹⁶ Because of Lieutenant Watson’s efforts, Admiral Farragut could be confident that his forces would have a clearly marked safe passage through the Confederate minefield.

Admiral Farragut’s battle orders conveyed this message to his forces. “It being understood that there are torpedoes and other obstructions between the buoys, the vessels will take care to pass eastward of the eastern most buoy.”¹⁷ *USS Tecumseh*’s sinking was due to her failure to remain within the boundaries of the cleared channel. Proper navigation would likely have prevented her loss.

The purpose of this analysis is not to discount the magnitude of Admiral Farragut’s bold actions. *USS Tecumseh*’s sinking clearly caused the other Union ships to take pause. This hesitation could have been disastrous. Additional mine strikes would have likely resulted if the remaining Union ships had attempted to come about in the narrow channel. Admiral Farragut’s daring order rallied his forces and preserved the mission. However, these actions must be framed in the proper context.

“Lieutenant F. S. Barrett, the Confederate mining officer at Mobile Bay, observed Farragut’s approach on 5 August and later stated he believed that ‘it is evident they were

¹⁵ Tamara Moser Melia, “*Damn the Torpedoes*”: A Short History of U.S. Naval Mine Countermeasures, 1777-1991 (Washington, DC: Naval Historical Center, 1991), 2.

¹⁶ Ibid., 2.

¹⁷ Ibid., 6.

well informed as to the location of the torpedoes we had planted’.”¹⁸ Admiral Farragut’s actions, though tactically significant, likely would not have been possible if it were not for the efforts of Lieutenant Watson and his men. By clearing a safe channel and gathering intelligence on the enemy’s mine arsenal, Lieutenant Watson effectively shaped the battlefield in preparation for the fleet action that took place on 5 August 1864.

Unfortunately, the significance of his contributions often go overlooked, along with the important role intelligence plays in mine countermeasures. “Farragut did not, as many assert, merely “damn” the mines at Mobile Bay but, rather, assiduously hunted, examined, and disabled them before steaming into the bay. His meticulous approach to the mine threat is a crucial lesson...most contemporary observers [have] missed.”¹⁹ By focusing on Admiral Farragut’s tactical actions instead of the concerted intelligence gathering and mine clearing efforts that enabled those actions to occur, the U.S. Navy failed to recognize the true lesson to be learned from this example.

THE KOREAN WAR – INCHON & WONSAN

“At the end of World War II, the Navy’s Pacific mincraft fleet alone numbered more than 500 ships, some 3,000 officers, and about 30,000 men. When the Korean War began, the entire Navy had only two divisions of destroyer minesweepers, two divisions of fleet minesweepers, and 21 smaller sweepers.”²⁰ This dramatic reduction in mine warfare assets, which amazingly took place in only five years from 1945 to 1950, was directly attributed to “demobilization, budgetary cuts and a lack of naval interest and

¹⁸ Tamara Moser Melia, “*Damn the Torpedoes*”: A Short History of U.S. Naval Mine Countermeasures, 1777-1991 (Washington, DC: Naval Historical Center, 1991), 3.

¹⁹ Ibid., 4.

²⁰ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 269.

emphasis on mine warfare.”²¹ Of these three factors, the navy’s inadequate concern for mine warfare was the most significant. The effect of budgetary restrictions on the mine force could have been minimized, or at least reduced, if the naval leadership had possessed the proper appreciation for the importance of mine warfare. This lack of understanding of mine warfare would prove to be a costly error, specifically off the coast of Wonsan, North Korea in October of 1950.

“As allied forces carried out operations in preparation for the large-scale amphibious assault at Inchon, they discovered enemy minelaying activity. On September 4, U.S. destroyer *McKean* spotted mines in the water near Chinnampo.”²² Fortunately, in the days leading up to the landing, U.S. and South Korean naval forces were able to eliminate the mine threat by destroying enemy minelayers before they were able to deploy their weapons or by clearing mine fields by using surface fire. Luckily for the U.S. forces, “the North Koreans had begun their minelaying operation too late to stop General MacArthur’s masterful amphibious landing at Inchon.”²³

These events highlight the importance of countering a mine threat as quickly as possible, preferably before mines have been put in the water. The task of mine countermeasures becomes infinitely more difficult once a mine field has been deployed. This statement may appear inherently obvious, but, none-the-less, it often goes ignored or completely forgotten during the planning process. Furthermore, offensive MCM may not be a politically feasible option.

²¹ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 269.

²² Edward J. Marolda, “Mine Warfare” Naval Historical Center, <http://www.history.navy.mil/wars/korea/minewar.htm> (accessed 15 March 2008)

²³ Ibid.

When the landing at Inchon is studied today, the emphasis is usually placed on the extreme tidal changes involved or the difficult navigational challenges faced by the landing force. Little mention is ever made of the successful mine countermeasures that took place prior to the landing. This is because mine warfare is generally only considered from a tactical point of view. Planners must understand that mine warfare and mine countermeasures can have a significant impact in shaping the battlefield, and therefore, must be considered at the operational level of war.

When the U.S. MCM forces, under the command of Captain Richard Spofford, “reached Wonsan at dawn on October 10, their mine intelligence, as compared to World War II intelligence, was nonexistent...No one had the slightest idea of how many mines guarded Wonsan, where they were, or what kind they were.”²⁴ Never-the-less, the plan “allotted only ten days for the clearance sweep of channels to the beach.”²⁵

These two quotes clearly demonstrate a lack of understanding and appreciation for the operational impact mine warfare can have. Having intelligence on the mine threat would have provided Captain Spofford’s MCM forces with an advantage that they desperately needed. Considering that the war had been going on for over five months, this information should have been available. In light of the short time frame allotted for the clearing operations, coupled with the lack of adequate intelligence support, operational planners should have recognized that a high likelihood of failure existed.

Secondly, the deadline of ten days for the completion of mine clearing operations was driven by other operational factors and without proper consideration for the mine countermeasures challenge. The landing was to be part of a “two-pronged invasion of

²⁴ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 274.

²⁵ Tamara Moser Melia, “*Damn the Torpedoes*”: *A Short History of U.S. Naval Mine Countermeasures, 1777-1991* (Washington, DC: Naval Historical Center, 1991), 74.

North Korea, with the main U.N. forces advancing overland from Seoul to the North Korean capital of Pyongyang.”²⁶ Even under ideal conditions, mine clearing operations are slow and time consuming. In the absence of adequate intelligence, they become even more so. The operational planner must balance the amount of time allotted for mine clearing and the amount of risk the landing force is exposed to. This consideration was not properly accounted for during the planning process for the Wonsan landing.

In light of these deficiencies in the planning process, it is not surprising that the landing did not occur on the prescribed D-Day of 20 October. “By the 18th, two days before the planned landing, the minesweeping force had almost cleared all moored contact mines from the approach lane to the beach. That day, however, magnetic influence mines destroyed ROKN YMS 516 and half her crew. Discovery of these new weapons stalled the operation.”²⁷ MCM forces spent the next seven days clearing the approach channel of the influence mines. During that time 250 ships, carrying 50,000 American troops, loitered helplessly off the coast.²⁸ Fortunately, the ground offensive had gone so well that those troops were not needed. When the landing force finally arrived ashore on 25 October, Wonsan was already in the hands of friendly South Korean forces.

The lessons from Wonsan rang loud and clear to highest reaches of the chain of command. Rear Admiral Allan E. Smith, the Advance Force Commander, reported to Washington, “We have lost control of the seas to a nation without a Navy, using pre-World War I weapons, laid by vessels that were utilized at the time of the birth of

²⁶ Tamara Moser Melia, “*Damn the Torpedoes*”: A Short History of U.S. Naval Mine Countermeasures, 1777-1991 (Washington, DC: Naval Historical Center, 1991), 73.

²⁷ Edward J. Marolda, “Mine Warfare” Naval Historical Center, <http://www.history.navy.mil/wars/korea/minewar.htm> (accessed 15 March 2008)

²⁸ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 276-277.

Christ.”²⁹ Vice Admiral C. Turner Joy, Commander Naval Forces, Far East, concluded, “The main lesson of the Wonsan operation is that no so-called subsidiary branch of the naval service, such as mine warfare, should ever be neglected or relegated to a minor role in the future. Wonsan also taught us that we can be denied freedom of movement to an enemy objective through the intelligent use of mines by an alert foe.”³⁰

As difficult as these lessons were to accept, there was no denying their validity. Why then did the U.S. Navy find itself in the exact same position four decades later in the Persian Gulf? Lessons learned serve little value if they are subsequently forgotten instead of being utilized for improvement. The U.S. Navy has repeatedly failed to do this in the field of mine warfare.

THE PERSIAN GULF WAR

In the months leading up to Operation DESERT STORM, Iraq possessed a formidable inventory of maritime mines that it could utilize to protect the Kuwaiti coast. “The bulk of Iraq’s mine inventory consisted of Iraqi reproductions of pre-World War I designed Russian contact mines. However, it also included high-technology magnetic and acoustic influence mines purchased from the Soviet Union and Italy.”³¹ Post-war findings revealed that Iraq had laid over one thousand mines in the waters off Kuwait.

U.S. mine countermeasures forces in the Persian Gulf consisted of the newly commissioned *USS Avenger* (MCM-1), three 30-year-old MSO-class minesweepers, six MH-53E Sea Dragon helicopters, and twenty Explosive Ordnance Disposal (EOD)

²⁹ LCDR Arnold S. Lott, *Most Dangerous Sea* (Annapolis, MD: U.S. Naval Institute, 1959), 270.

³⁰ Malcolm W. Cagle and Frank A. Mason, *Wonsan: The Battle of the Mines* (Annapolis, MD: U.S. Naval Institute *Proceedings* 83, June 1957), 611.

³¹ U.S. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, April 1992), 252.

teams.³² *USS Tripoli* (LPH-10) was detached from the amphibious task force to act as an MCM support ship.³³ Augmenting this U.S. Mine Countermeasures Group (USMCMG) were five British minehunters, two Belgian minehunters, and four minesweepers from the Royal Saudi Navy.³⁴ The majority of these forces were in theater by October of 1990. However, mine clearing operations off the Kuwaiti coast did not begin until 16 February, despite evidence of Iraqi mining activity as early as December.³⁵

“Intelligence believed Iraq started laying mines in international waters – an act of war – in November 1990...Critics charge that the coalition should have stopped the Iraqis immediately, or at least observed where they laid the mines.”³⁶ Iraqi mining activity was confirmed in December when Royal Saudi Naval units discovered an Iraqi mine adrift in the central Persian Gulf. Despite these clear indications of Iraqi mining activity, coalition naval and air forces were restricted by USCINCENT from operating north of 27°-30’N latitude, in order to avoid direct contact with Iraqi units.³⁷ This restriction forced coalition forces to remain over 70 miles south of the Iraqi-Kuwaiti border and in no position to counter or observe the Iraqi mining activities.

General Norman Schwarzkopf implemented this restriction in order to avoid prematurely provoking the Iraqis. Coalition forces were still building up and he did not want hostilities to commence before all preparations had been completed.³⁸ However, by allowing the Iraqi forces to lay their minefields unchallenged and by not collecting

³² U.S. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, April 1992), 254.

³³ *Ibid.*, 255.

³⁴ *Ibid.*, 256.

³⁵ *Ibid.*, 253-257.

³⁶ Marvin Pokrant, *Desert Storm: What the Navy Really Did* (Westport, CT: Greenwood Press, 1999), 231.

³⁷ U.S. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, April 1992), 257.

³⁸ Marvin Pokrant, *Desert Storm: What the Navy Really Did* (Westport, CT: Greenwood Press, 1999), 232.

intelligence on the location of these minefields, General Schwarzkopf provided the enemy with a tremendous advantage.

Clearing operations began on 16 February 1991. The objective was “to clear an approach channel and a staging/fire support area of more than 200 nm² for an amphibious landing near Ash Shuaybah. Estimated clearance times ran as high as 40 days.”³⁹ Two days into the clearing operations, “*USS Tripoli* hit a moored contact mine in 30 meters of water. The explosion ripped a 16ft x 20ft hole below the water line.”⁴⁰ Less than three hours later, *USS Princeton* (CG-59) actuated a Manta mine, resulting in “a cracked superstructure, severe deck buckling, and a damaged propeller shaft and rudder.”⁴¹ Fortunately, heroic damage control efforts by both crews saved their ships from sinking. Subsequently, captured Iraqi charts revealed that the coalition mine clearing operations had commenced inside the initial line of mines.⁴² This critical error was caused by a lack of intelligence on Iraq’s mining activities over the previous months and incorrect assumptions regarding Iraqi mining tactics. In retrospect, the coalition was extremely fortunate that only two ships struck mines and neither of which were lost.

Ultimately, the objective of clearing a path for an amphibious landing into Kuwait was not achieved and the landing was cancelled. Critics have gone back and forth on this subject, describing it as either a failed MCM operation or a perfectly executed diversion that successfully occupied Iraqi forces on the Kuwaiti coast. General Schwarzkopf’s true intentions may never be known. However, due to the critical shortcomings noted above

³⁹ H. Dwight Lyons, Jr. et al., *The Mine Threat: Show Stoppers or Speed Bumps?* (Alexandria, VA: Center for Naval Analyses, 1993), 6.

⁴⁰ U.S. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, April 1992), 257.

⁴¹ *Ibid.*, 257.

⁴² H. Dwight Lyons, Jr. et al., *The Mine Threat: Show Stoppers or Speed Bumps?* (Alexandria, VA: Center for Naval Analyses, 1993), 6-7.

and the insufficient time allotted for mine clearing, it is clear that attempting the amphibious landing would have placed the landing force in an unacceptable level of risk.

General Schwarzkopf's focus in the months leading up to Operation DESERT STORM was two-fold. The first was assembling a coalition force to defend Saudi Arabia from further Iraqi aggression. The second was building a coalition force large enough to overwhelm the Iraqi forces and liberate Kuwait. In order "to avoid any possibility of provoking Iraqi military action before Coalition defensive and later offensive preparations were complete,"⁴³ coalition forces were prohibited from operating in the northern Persian Gulf.

This lack of a maritime presence off the coast of Kuwait proved to be a critical vulnerability that the Iraqis were easily able to exploit. Not only were they able to lay their mine fields completely unopposed, but equally as significant was the coalition's inability to collect intelligence on these activities.

The minimal importance placed on monitoring and countering the Iraqi mining activities demonstrated the coalition leadership's lack of understanding of the significant impact mine warfare could have at the operational level of war. "COMUSNAVCENT repeatedly asked USCINCENT for permission to have aircraft fly farther north, but permission was denied for reasons discussed previously. Vice Admiral Stan Arthur tried to get permission to use helicopters to patrol the northern area of the Persian Gulf to get firm evidence of minelaying; General Schwarzkopf also denied permission to do that.

⁴³ U.S. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, April 1992), 257.

COMUSNAVCENT requested national assets (especially satellites) to track the minelayers, but USCINCENT assigned a low priority to maritime requests.”⁴⁴

Preventing hostilities from starting prematurely and countering the Iraqi mining efforts should not have been two mutually exclusive objectives. Measures such as clearly delineated rules of engagement (ROE) or the use of satellites and other intelligence collecting resources could have been employed in order to avoid provoking Iraqi forces. This would have significantly reduced the time required for mine clearing and could have avoided the cancellation of the landing into Kuwait.

Even if the amphibious landing was only intended to be a diversion, clearing the channel would have provided the coalition leadership with the option of conducting the landing, if it were required. Fortunately, due to the overwhelming effectiveness of the ground assault, it was not. But what if the Iraqi army had stood its ground and reinforcements had been required? The marines aboard the amphibious task force would not have been able to provide relief because of the significant mine threat that remained. If the coalition leadership had adequately appreciated the operational importance of mine warfare and its potential impact on the overall operation, they likely would have been more willing to devote resources to it.

LESSONS LEARNED

Mine warfare must be considered at the operational level of planning.

History has demonstrated that MIW and MCM can play an important role in shaping the battlefield. This is particularly true in the littoral environment. Considering the significant effect mine clearing operations can have on factor-time, it must be accounted for during the earliest stages of the planning process and not as an afterthought, which

⁴⁴ Marvin Pokrant, *Desert Storm: What the Navy Really Did* (Westport, CT: Greenwood Press, 1999), 233.

has often been the case in the past. Planners must appreciate the capabilities and limitations inherent in mine warfare and the important role it can play in facilitating operational maneuvers.

Operational planners must understand the relationship between the time required for clearing operations and the amount of risk follow-on forces will face.

Past operational designs have generally designated the completion of MCM operations by a specific deadline, in order to support the overall scheme of maneuver. At Wonsan, the MCM forces were given ten days to complete their mission, in order to coordinate with the ground forces. This perspective is too tactical in nature. The time allotted for MCM operations and its effect on the amount of risk a landing force will face should be considered up front in the planning process and not pre-determined by other factors. This approach will allow the operational commander to weigh all the factors involved.

The importance of intelligence collection in support of mine countermeasures cannot be underestimated. Mines are most easily countered before they enter the water. Unfortunately, the deliberate targeting of an enemy's mining capabilities (offensive MCM) is generally not an option due to political considerations. The next best option then becomes knowing where enemy mines are being laid and what type of mines are being employed. Operational commanders must be willing to devote the appropriate intelligence assets to the collection of this information.

Ignoring mine warfare until a mine threat emerges is a recipe for disaster. The U.S. Navy has established a disturbing history of allowing its mine warfare proficiency to stagnate for decades at a time and then attempting to quickly "ramp up" those skills when they are required. The increased availability of mines on the world

market and advancements in mine technology have significantly enhanced the current mine threat. Moreover, unlike World Wars I and II, when the next mine threat emerges the U.S. Navy will not have years to play catch up. As demonstrated at Wonsan and in Operation DESERT STORM, mine warfare represents a critical vulnerability that can easily be exploited. The U.S. Navy must maintain its MIW skills as a core competency and not as a secondary mission area.

CONCLUSION

Mines represent an asymmetric threat that can provide a weaker nation with the ability to efficiently deny a more powerful naval force of its freedom of maneuver. As the maritime environment focus shifts to the littorals, the importance of mine warfare is significantly enhanced. Access to chokepoints and coastal waters are likely to be key requirements in any future maritime operation.

If the U.S. Navy is to be adequately prepared to face this impending challenge, it must change its disinterested mind-set towards mine warfare. This attitude shift can only occur after planners stop viewing MIW solely from a tactical point of view and realize that it can have significant implications at the operational level of war. Planners must appreciate how mine countermeasures can be used to shape the battlefield and facilitate operational maneuvers. Furthermore, planners must understand mine warfare's limitations and the impact it may have on factor-time. Finally, operational commanders must understand the important role intelligence plays in support of mine warfare, so that they may be more willing to devote assets to its collection.

Over the past two-plus centuries, the naval mine has evolved from a tactical weapon of limited effectiveness to a force multiplier capable of influencing the

operational battlespace. Sadly, the U.S. Navy's thinking towards the weapon has not kept pace. The Navy must break this vicious cycle of ignoring or forgetting past lessons learned and it must finally realize the operational importance of mine warfare.

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