

USINDOPACOM J06/SJA TACAID SERIES

TOPIC: Naval Mine Warfare

BLUF

- Naval mines are lawful weapons, but use is subject to specific rules that minimize risk to neutral shipping.ⁱ
- Naval mining must comply with customary international law and the law of armed conflict in order to minimize the risk of harm to neutral vessels.ⁱⁱ
- States engaged in naval mining have an obligation to take feasible precautions to protect neutral vessels—specifically, States must record the location of minefields, provide international notification as soon as military exigencies permit, actively monitor minefields to minimize harm to innocent shipping, and do their utmost to remove (or render harmless) naval mines post-conflict.ⁱⁱⁱ
- Naval mines provide a low-cost battlespace shaping and force protection capability, and are especially useful for area denial, coastal and harbor defense, anti-surface and antisubmarine warfare, and blockade.
- Modern naval mines vary in their design and capabilities. Specific deployment and employment rules depend on the characteristics of the mine (i.e. armed or controllable) and the location of the minefield (i.e. internal waters, territorial sea, archipelagic waters, or waters beyond the territorial sea of any coastal State) as well as whether the mining occurs in peacetime or during armed conflict.

WHY THIS MATTERS

- Naval mines are likely to remain relevant to modern joint operations because they represent a combination of military effectiveness with economical means to achieve maritime advantages.
- Significant technological advances have improved the precision of naval mines, but specific rules still apply to the use of mines to mitigate the risk posed to neutral vessels.
- Recent reports of the hazards of naval mines to merchant vessels in the Black Sea highlight the risks naval mines pose to neutral shipping and the importance of compliance with the specific rules for the use of naval mines.^{iv}
- Russia and the People's Republic of China (PRC) maintain significant stockpiles of legacy naval mines, and analysts contend that the PRC's People's Liberation Army could deploy such mines during conflict in the Taiwan Strait."^v
- Understanding naval mines and the rules associated with their use will enable military professionals to better plan and execute naval operations, and may assist States as they seek to prioritize investments in lawful weapons.

DETAILED DISCUSSION

1. History of Naval Mining

- Mines have been part of naval warfare for centuries, with the U.S. Navy first employing naval mines in the American Revolution.^{vi}
- Due to the risk automatic contact mines pose to neutral shipping (and motivated by the significant damage to innocent shipping during and after the Russo-Japanese War of 1904-1905), the international community developed specific rules for the use of naval mines.^{vii}
- These rules are contained in the Hague Convention of 1907 Relative to the Laying of Automatic Submarine Mines (Hague VIII), which remains the only document to codify rules specifically addressing the emplacement of conventional naval mines.^{viii} Hague VIII is focused on the use of naval mines during armed conflict.
 - **Hague VIII** sought to protect sea routes ("the common highway of all nations") by restricting and regulating employment of **automatic contact mines (ACMs)**.^{ix}

- Hague VIII forbids the laying of **unanchored** ACMs unless they “become harmless one hour at most after the person who laid them ceases to control them” (Art. 1).
- Hague VIII also forbids the laying of **anchored** ACMs unless they “become harmless as soon as they have broken loose from their moorings” (Art. 1).
- States may not lay ACMs “off the coast and ports of the enemy, with the sole object of intercepting commercial shipping” (Art. 2).
- States employing mines must take “**every possible precaution**” to protect neutral shipping, including warning ship owners and other States of the presence of mines as soon as military exigencies permit and doing “their utmost” to render mines harmless within a limited time (Art. 3).
- Typically, States provide notice to ship owners via a notice to mariners (NOTMAR) or other navigational warning issued pursuant to the International Maritime Organization/International Hydrographic Organization World-Wide Navigational Warning Service (WWNWS).^x
- Feasible precautions may also include surveilling the minefield to reduce the risk of harm to neutral shipping.
- The rules for laying ACMs also apply to neutral States mining off their own coasts (Art. 4).
- At the conclusion of a conflict, State parties to Hague VIII are obligated “to do their utmost to remove mines which they have laid” (Art. 5).
- The PRC and the United States are State parties to Hague VIII; Russia is not. Nevertheless, **Hague VIII is viewed as customary international law.**^{xi}



The U.S. Navy used naval mines extensively in World War II and throughout its history. Today, the U.S. Navy maintains two types of in-service mines, the Quickstrike mine (Marks 62, 63, and 65) and the Submarine Launched Mobile Mine (SLMM) (Mark 67), with several developmental programs active.

2. Modern Naval Mining

- Modern naval mine technology has progressed significantly since Hague VIII, with some modern mines being able to precisely target, including arming or detonating based on acoustic/magnetic signatures or changes in water pressure caused by passing vessels.^{xii}
 - While Hague VIII did not contemplate these technological advancements, “the general principles of law embodied in [Hague VIII] continue to serve as a guide to lawful employment of naval mines.”^{xiii}
- Today, the U.S. Navy categorizes mines as **armed** (“emplaced with all safety devices withdrawn or armed following emplacement, so as to detonate when preset parameters (if any) are satisfied”) or **controllable** (“no destructive capability until affirmatively activated by some form of arming order.”^{xiv}



U.S. forces conduct mine countermeasure training during a combined exercise with the Japan Maritime Self-Defense Force in July 2021. Image Source: INDOPACOM

3. Naval Mining During Peacetime & Armed Conflict

- **The rules for the use of armed or controllable naval mines vary depending on (1) whether States are in peacetime or armed conflict and (2) the location to be mined.**
 - Peacetime Naval Mining: Naval mines may be lawfully employed by States during peacetime subject to the following restrictions:
 - **State's Own Internal Waters.** A State (taking into account the safety of its own citizenry) "may emplace armed and controllable mines in its own internal waters with or without notification."^{xv}
 - **State's Own Territorial Sea (TTS) and/or Archipelagic Waters (AW).** A State "may mine its own [TTS and/or AW] when deemed necessary for national security purposes" under certain conditions:
 - Use of **armed mines** in a State's own TTS and/or AW requires international notification of the existence and location of naval mines, and armed mines must be removed/render harmless as soon as the security threat has terminated.
 - Use of **controllable mines** in a State's own TTS and/or AW is not subject to notification or removal requirements.^{xvi}
 - **International Straits or Archipelagic Sea Lanes.** States may not emplace armed mines in international straits or archipelagic sea lanes during peacetime.^{xvii}
 - **3rd Party State's Internal Waters, TTS, or AWs.** A State may not emplace naval mines (both armed or controllable) in another State's internal waters, TTS, or AW in peacetime without the 3rd party State's consent.^{xviii}
 - **Waters Beyond the Territorial Sea of Any Coastal State (International Waters).**
 - States may not emplace **armed mines** in international waters prior to armed conflict "except under the most demanding requirements of individual or collective self-defense." If emplaced under such circumstances, States must provide prior notification of their location and maintain an on-scene presence in the area to warn approaching ships. States must expeditiously remove or render harmless armed mines once the imminent threat that prompted their emplacement has passed.^{xix}
 - States may emplace **controllable mines** in international waters (i.e. beyond the TTS) if they do not unreasonably interfere with other lawful uses of the oceans. Analysis of what constitutes unreasonable interference is based on the purpose for mining (i.e., self-defense interests of emplacing State), the extent of area to be mined, hazards (if any) to other lawful ocean uses, and duration of emplacement. **Controllable mines do not constitute a hazard to navigation**, so there are no notification requirements associated with emplacement in international waters.^{xx}
 - Naval Mining During Armed Conflict: Naval mines may be lawfully employed by parties to an armed conflict subject to the following restrictions:
 - "International notification of the location of emplaced mines must be made as soon as military exigencies permit [Hague VIII, Art. 3].
 - Mines may not be emplaced by belligerents in neutral waters [neutral waters include the internal waters (ports), territorial sea, and archipelagic waters of any neutral State and do not include the contiguous zone, the exclusive economic zone, the continental shelf, or the high seas.]^{xxi}
 - Anchored mines must become harmless as soon as they break from moorings [Hague VIII, Art. 1].
 - Unanchored mines not otherwise be affixed or imbedded in the bottom (seabed) and must become harmless within one hour after loss of control over them [Hague VIII, Art. 1].
 - The location of minefields must be carefully recorded to ensure accurate notification and facilitate subsequent removal and/or deactivation [Hague VIII, Arts. 3 and 5].
 - Naval mines may be employed to channelize neutral shipping, but not in a manner to deny transit passage of international straits or archipelagic sea lanes passage by such shipping.

- Naval mines may not be emplaced off the coasts and ports of the enemy with the sole objective of intercepting commercial shipping. They may otherwise be employed in the strategic blockade of enemy ports, coasts, and waterways.
- It is prohibited to mine areas of indefinite extent in international waters. Reasonably limited barred areas may be established by naval mines provided neutral shipping retains an alternate route around or through such an area with reasonable assurance of safety.”^{xxii}

4. Naval Mining by the PRC

- Naval mining has taken on a prominent role in PLA doctrine and some analysts assess the PLA Navy “is already fully capable of blockading Taiwan and other crucial sea lines of communication in the western Pacific area.”^{xxiii}
 - The PRC maintains a substantial inventory of naval mines, with estimates of the PRC mine inventory ranging from 50,000 to 100,000 naval mines.^{xxiv}
 - The PRC’s mine “order of battle” reportedly includes drifting or free-floating mines (i.e. unanchored ACMs), use of which could violate Hague VIII and the law of armed conflict if they do not become harmless one hour after ceasing to be controlled and if they are incapable of being directed at a specific military objective.”^{xxv}
 - The PRC has reportedly ceased development of unanchored ACMs and the “most recent known equivalent to a [PRC] operations-law handbook notes that [Hague VIII] restricts sea-mine use;” however, the PRC handbook adds the caveat that States undermined Hague VIII by their extensive use of non-compliant mines in World War II and “Chinese analysts conclude that national interests inevitably trump legal norms.”^{xxvi}
 - Recognizing that the PRC “official defense budget continues to grow and is about 17 times larger than Taiwan’s defense budget, with much of it focused on developing the capability to unify Taiwan with the PRC by force,” Taiwan has sought to increase its defense acquisitions to bolster its forces against PRC pressure, including in the area of mining and minesweeping.”^{xxvii}



PROPOSED COUNTER-LAWFARE APPROACH

** This section offers suggested language for incorporation into communications strategies **

- ***Upholding international law and protecting a free and open ocean are interests for all nations.*** As fundamental pillars of the rules-based international order that benefits all nations, international law and free and open oceans are vital to global peace, security, and prosperity.
- ***Use of naval mines is a valid means and method of naval warfare,*** but must comply with the law of armed conflict, including the need to take feasible precautions for the protection of civilians during a conflict and the obligation to remove mines at the conclusion of the conflict. All States must respect customary international law as reflected in Hague Convention VIII.
- ***Naval mining represents a legitimate and effective military capability to defend against aggression.*** Whether used in competition, crisis or conflict, military commanders may lawfully employ naval mines to deter aggression or defeat an invading force.
- ***USINDOPACOM supports and defends international law.*** USINDOPACOM seeks to preserve peace and stability, uphold freedom of the seas in a manner consistent with international law, maintain the unimpeded flow of commerce, and oppose any attempt to use coercion or force to settle disputes. USINDOPACOM shares these deep and abiding interests with our many allies and partners who champion a free and open Indo-Pacific supported by the rules-based international order.

ⁱ Department of Defense Law of War Manual, June 2015 (updated July 2023), §13.11, available at <https://media.defense.gov/2023/Jul/31/2003271432/-1/-1/0/DOD-LAW-OF-WAR-MANUAL-JUNE-2015-UPDATED-JULY%202023.PDF> [hereinafter DoD LoW Manual]; NWP 1-14M/MCTP 11-01B/COMDTPUB P5800.7A, The Commander's Handbook on the Law of Naval Operations, March 2022, §9.2, available at https://usnwc.libguides.com/ld.php?content_id=66281931 [hereinafter NWP 1-14M]; Newport Manual on the Law of Naval Warfare, 2023, §7.2.3, available at <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=3047&context=ils> [hereinafter Newport Manual].

ⁱⁱ *Id.*

ⁱⁱⁱ Newport Manual, *supra* note 1, §7.2.3.

^{iv} See Raul (Pete) Pedrozo, "Dangerous Waters: Use of Naval Mines in the Russia-Ukraine Conflict," 15 June 2022, *Lawfire*, <https://sites.duke.edu/lawfire/2022/06/15/guest-post-prof-pete-pedrozo-on-dangerous-waters-use-of-naval-mines-in-the-russia-ukraine-conflict/>.

^v See e.g., Andrew S. Erickson, Lyle J. Goldstein, and William S. Murray, "Chinese Mine Warfare: A PLA Navy 'Assassin's Mace' Capability," *China Maritime Studies*, no. 3 (Newport, R.I.: China Maritime Studies Institute, U.S. Naval War College, 2009), 5, available at <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1002&context=cmsi-red-books> ("The moment conflict erupted in the Taiwan Strait, the [People's Liberation Army (PLA)] Navy could deploy mines.").

^{vi} "Naval Mine Warfare," Naval History and Heritage Command, <https://www.history.navy.mil/browse-by-topic/exploration-and-innovation/naval-mine-warfare.html>; "US Navy Mines," 8 October 2021, <https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2167942/us-navy-mines/>.

^{vii} NWP 1-14M, *supra* note 1, at §9.2.

^{viii} *Id.*

^{ix} Convention Relative to the Laying of Automatic Submarine Contact Mines (Hague VIII), 18 October 1907, available at <https://ihl-databases.icrc.org/en/ihl-treaties/hague-conv-viii-1907?activeTab=default>.

^x See Pedrozo, *supra* note iv.

^{xi} *Id.*

^{xii} NWP 1-14M, *supra* note 1, at §9.2.1.

^{xiii} *Id.* at §9.2.

^{xiv} *Id.* at §9.2.1; see also DoD LoW Manual, *supra* note 1, at §13.11.1.

^{xv} NWP 1-14M, *supra* note 1, at §9.2.2.

^{xvi} *Id.*

^{xvii} *Id.*

^{xviii} *Id.*

^{xix} *Id.*

^{xx} *Id.*

^{xxi} See DoD LoW Manual, *supra* note 1, at §15.7.1; Newport Manual, *supra* note 1, at §11.3.1.

^{xxii} *Id.* at §9.2.3.

^{xxiii} Erickson, Goldstein, and Murray, *supra* note v, at 2.

^{xxiv} *Id.* at 11.

^{xxv} *Id.*

^{xxvi} *Id.* at 19.

^{xxvii} Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2022" (Office of the Secretary of Defense), 131, available at <https://media.defense.gov/2022/Nov/29/2003122279/-1/-1/1/2022-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF>.