International Law Applicable to Naval Mines

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Introduction

In September 2012 nearly 30 states from six continents were involved in a joint mine clearing exercise off the coast of Bahrain. Although participating states remained adamant that the operation was not directed at Iran, the show of unity undoubtedly sent a signal to Tehran that an international coalition would be willing to take measures in response to any attempts to block the Strait of Hormuz.

The mine countermeasure exercise generated a series of discussions among leading legal experts and drew attention to the need for greater clarity as to the law governing the use of naval mines in times of both peace and war. On 26 and 27 February 2014 Chatham House, in collaboration with the Royal Navy and US Naval War College, organized a workshop on naval mines bringing together a group of international law scholars, operational lawyers and other legal experts in the field. The objective of the workshop was to clarify existing law and to identify areas of legal uncertainty to assist states to conduct their operations lawfully.

The following summary of the workshop does not represent the official views of any particular state as those who participated did so as legal experts in their individual capacity. Moreover, the summary does not necessarily reflect the unanimous view of all the participants. Links are provided to papers produced by some of the scholars who participated in the workshop.¹

History of naval mines

Naval mines have been long recognized as a relatively inexpensive weapon but one with significant tactical, operational and strategic value. Their origin dates back to the Ming dynasty (in the 16th century) when the first prototype mine was developed primarily to target pirates operating off the coast of China. Although naval mines were used during the American Civil War (1860–65), it was not until the Russo-Japanese War (1904–05) that they were employed extensively. The thousands of mines laid around eastern Russian ports resulted in considerable costs to the naval fleets of both belligerents. Tragically, civilians also paid a high price for the unrestricted use of mines and considerable damage was done to commercial shipping both during and after the war.

Following the conflict, the dominant naval powers began to express a desire to introduce a ban on mines, especially unanchored ones. This proposition was opposed by emerging naval powers that wanted to preserve their ability to deploy mines to hamper pursuit and to institute blockades. The resulting treaty – the Convention of 1907 Relative to the Laying of Automatic Submarine Mines ( Hague VIII) – thus reflects a compromise agreement founded on different competing claims: on the one hand, between humanitarian and military interests and, on the other, between commercial and naval priorities.² Comprising only five substantive provisions, Hague VIII aims to protect innocent shipping both during and after conflict by limiting the indiscriminate effects of naval mines. To date, it remains the only treaty governing naval mines.

In contrast to landmines, which constitute a prohibited weapon for the majority of states by virtue of treaty law,³ states regard naval mines as a lawful weapon per se with their use regulated by Hague VIII and customary international humanitarian law (IHL). There is no

¹ Summarized by L. Arimatsu. This workshop was supported by a grant from the British Academy.
³ Landmines are not a prohibited weapon per se since not all states are party to the 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, commonly referred to as the Ottawa Convention.
international law definition of what constitutes a naval mine. However, NATO defines naval mines as ‘an explosive device laid in the water, on the seabed or in the subsoil thereof, with the intention of damaging or sinking ships or of deterring shipping from entering an area’. In other words, naval mines are designed to destroy or damage ships although, more often, their use is intended to deny the enemy access to operationally significant sea areas.

Current technologies
Over the last century there have been considerable advances in mines technology. Naval mines can be broadly categorized into six different types:

- **Moored mines** are those tethered to the bottom of the sea bed by an anchor and hover beneath the surface of the sea. They usually detonate on contact with a vessel.⁴ Their design is such that they are typically limited to emplacement in waters shallower than 200 metres. Once their location is identified, they are relatively easy to sweep even with unsophisticated minesweepers, although such operations can be time-consuming.

- **Drifting or floating mines** can be deployed in any depth of water. Once deployed, the mine-laying state typically has no control over them as they move with currents or prevailing weather conditions. Accordingly, they present the most risk of damaging unintended targets (including, of course, the ships of the mine-laying state). Hague VIII mandates that they become harmless within one hour of being laid.

- **Bottom mines** are technologically advanced mines that rest on the sea bed and operate on the basis of magnetic, electric, acoustic or pressure signatures of passing vessels. They are normally only effective in waters shallower than 200 metres. Such mines are designed to be armed or disarmed remotely and can be programmed to self-destruct. In contrast to drifting or floating mines, they are hard to sweep, dismantle and remove.

- **Remotely controlled mines** are technologically advance mines that can be both deactivated and reactivated by coded acoustic signals. Technically, any of the mines described above could be made remote controlled but, in practice, the less sophisticated moored/floating mines rarely are.

- **Submarine launched mobile mines** are mines that operate in much the same manner as bottom mines but are placed on the sea bed by means of a torpedo launched from a submarine. They are designed to be laid in target areas that are difficult to reach including inner harbors, dockyards and up rivers.

- **Rising or rocket mines** are high-technology mines moored to the bottom of the sea bed. They may be employed to depths as great as 2,000 metres. They are usually designed for use against submarines and are programmed to release either a floating or fired payload, based on specific targeting criteria.

Peacetime constraints on laying mines
States seeking to lay naval mines in peacetime are limited in how and what they may do by both treaty and customary international law obligations. The 1982 United Nations Convention on the Law of the Sea (UNCLOS)⁵ does not expressly refer to mine-laying or, for that matter, the right of states to undertake mine countermeasure (MCM) operations. Nevertheless UNCLOS is the most relevant treaty for determining the circumstances under which a state may lawfully lay mines in peacetime.

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⁴ It was this type of mine that caused damage to both the *USS Tripoli* in 1991 and *USS Samuel B Roberts* in 1988. Mines had been laid off the coast of Kuwait by Iraq following its invasion of Kuwait in 1990 while both Iran and Iraq had deployed mines in the Persian Gulf in 1987 and 1988 during the Iran–Iraq war.

⁵ The 1971 Seabed Treaty applies in peacetime and armed conflict. The treaty prohibits states from laying any nuclear weapons, including nuclear mines, on the sea bed and ocean floor and in the subsoil thereof beyond their own 12 nautical miles of territorial sea. See also 1958 Geneva Convention on the Territorial Sea and Contiguous Zone.
Sovereign waters and international waters

- **Territorial seas, internal waters and the archipelagic waters of the mine-laying state**
  
  In peacetime, a state is permitted to lay mines in its own territorial seas,\(^7\) internal waters and archipelagic waters. However, since ships of all nations enjoy the right of innocent passage through the territorial sea\(^8\) and archipelagic waters, a state’s right to lay armed mines\(^9\) in these waters is tempered by its obligation not to hamper the appropriate passage of foreign ships. This rule is derived from both treaty\(^10\) and customary international law. A coastal state is entitled to suspend innocent passage to protect its national security and for weapons exercises but, in such circumstances, the suspension must be temporary and only in specified areas of its territorial sea.\(^11\) In other words, the right to do so is exceptional. If a coastal state lays armed mines in its territorial waters and fails to give any warning or notification to vessels of another state that have rights of access or passage, it will be in breach of its international legal obligations. These legal obligations are found in treaty\(^12\) and customary international law.\(^13\) Once the security threat terminates, armed mines must be removed or rendered harmless while floating mines must be removed or rendered harmless one hour after they are deployed in any circumstance (the origin of this rule is discussed below). It should be noted, however, that since the obligation is not to hamper innocent passage, the laying of controlled/deactivated mines – in other words those that do not affect innocent passage – probably does not trigger the notification requirements.

- **The territorial seas, internal waters and the archipelagic waters of another state**
  
  In peacetime, a state is prohibited from laying mines of any type in the territorial seas, internal waters or the archipelagic waters of another state. To do so would violate the territorial sovereignty of the latter and constitute a use of force\(^14\) unless the mine-laying is done with the consent of that state.\(^15\)

- **International waters, international straits and archipelagic sea lanes**
  
  Most states agree that, as a general rule, international law prohibits the laying of armed mines in international waters,\(^16\) international straits\(^17\) and archipelagic sea lanes during peacetime. The prohibition on laying armed mines in international waters derives from the principle of freedom of navigation as well as the duty on states to observe the peaceful uses of the high seas as recognized in UNCLOS.\(^18\) The prohibition on laying armed mines in international straits derives from the principle that all ships enjoy the right of unimpeded transit passage through international straits.\(^19\) This is reinforced by the obligation on coastal states not to ‘hamper transit passage’ and to give ‘appropriate publicity to any danger to
navigation ... within ... the strait of which they have knowledge'. 20 Moreover, unlike innocent passage, transit passage cannot be suspended. These obligations also apply to archipelagic sea lanes. 21

There is some disagreement as to whether an exception to the rule exists in regard to the laying of armed mines in international waters during peacetime. The US maintains that armed mines may be laid in international waters prior to the existence of an armed conflict on the basis of individual or collective self-defence. 22 According to the US, in such circumstances a state must maintain an on-scene presence in the area sufficient to ensure that appropriate warning is provided to ships approaching the danger area, and all armed mines must be expeditiously removed or rendered harmless when the imminent danger has passed.23

The law is unsettled as to whether controlled mines may be laid in international waters in peacetime since a state’s obligation is to have ‘due regard’ to the rights of other states. 24 For example, the US has taken the position that controlled mines may be emplaced in international waters subject to the requirement that they do not unreasonably interfere with other lawful uses of the seas. Moreover, controlled mines, it is claimed, do not constitute a hazard to navigation and therefore notification is not required.25 Not all states share this view as some maintain that, in peacetime, neither armed nor controlled mines may be laid in international waters. Likewise, whether controlled mines may be laid in international straits in peacetime also remains unsettled.

These differences aside, if harm results to innocent shipping as a consequence of unlawful mine-laying by a state, that state is responsible in international law for that internationally wrongful act.26 This might form a basis for subsequent liability in legal proceedings, or entitle the injured state to take countermeasures or act under the doctrine of necessity. Depending on the scale and effect of the resulting harm, the mine-laying state may even be deemed to have perpetrated an ‘armed attack’ that would give rise to the right to use force in self-defence by the state/s directly injured by the attack.27

Legal constraints on the use of naval mines in armed conflict

As noted above, the use of naval mines in armed conflict is governed by the Hague Convention and maritime IHL rules.28 This does not mean that the peacetime rules cease to apply. Neutral states will continue to be governed by peacetime rules subject to any specific rules that apply to neutral states, while peacetime obligations on the belligerents vis-à-vis neutral states also subsist subject to the lex specialis of IHL and neutrality law.

Although the Hague Convention has acquired the status of customary international law, thus making it binding on all states, the treaty only concerns the use of automatic contact mines (and torpedoes).29 But since such mines continue to be used widely by states the treaty remains relevant to current naval operations. More technologically advanced naval mines are

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20 Article 44, UNCLOS.
21 Articles 52 and 54, UNCLOS.
23 These practical measures appear to be an expression of the ‘due regard’ standard found in Article 87(2) UNCLOS.
24 Articles 56, 58 and 87, UNCLOS. Other states also have a duty not to interfere with a coastal state’s specific rights in the EEZ including the establishment and use of artificial islands, installations and structures; marine scientific research; and the protection and preservation of the maritime environment.
25 NWP 1-14M, 9.2.2. It should be noted that this position does not apply to international straits.
26 See generally International Law Commission’s Articles on State Responsibility.
28 In this regard, the San Remo Manual offers guidance as to the relevant customary international humanitarian rules applicable to naval warfare.
29 Haines, ‘1907 Hague Convention VIII’, Section IV.
not governed by the treaty, but their use is regulated by the rules and principles of customary international humanitarian law.\(^{30}\)

The Convention distinguishes between anchored and unanchored mines and stipulates that the latter may not be laid, ‘except when they are so constructed as to become harmless one hour at most after the person who laid them ceases to control them’.\(^{31}\) The one-hour time limit serves two purposes. First, it accords warships adequate opportunity to escape from the pursuing enemy; but second, it is intended to minimize harm to innocent shipping by ensuring that the mine becomes inactive after an hour. The same humanitarian ambition underpins the rule on anchored mines in that they must ‘become harmless as soon as they have broken loose from their moorings’.\(^{32}\) These rules codify the IHL principle of distinction, which requires that the warring parties distinguish between legitimate military objectives, which may be the subject of attack, and civilians and civilian objects, which may not be attacked.\(^{33}\) The safety of innocent shipping finds further expression in the Convention, which requires the belligerents to take ‘every possible precaution ... for the security of peaceful shipping’ and ‘to do their utmost to render these mines harmless within a limited time, and, should they cease to be under surveillance, to notify the danger zones as soon as military exigencies permit, by a notice addressed to ship owners, which must also be communicated to the Governments through the diplomatic channel’.\(^{34}\) Mines capable of discrimination should only be programmed to target legitimate objectives, so it is unnecessary for them to become inactive if they break free from their moorings. Maritime IHL prohibits the indiscriminate use of mines and therefore mine-laying operations that are not or cannot be directed against a military objective are unlawful.

**Geographical constraints on mine-laying**

International law prohibits the belligerents to an international armed conflict (IAC) from laying mines in the territorial seas, internal waters, archipelagic waters and international straits overlapping the territorial seas of states not parties to the conflict. However, because the law does not prohibit mine-laying in the national waters of the belligerents, nor indeed in international waters,\(^{35}\) there can often be disagreement over the appropriate balance to be struck between the interests of the belligerents and the passage right of neutral states.\(^{36}\) The rules that have evolved seek to establish a reasonable compromise between sometimes competing interests.

The existence of an IAC in which hostilities are conducted at sea necessarily impacts on the freedom of navigation of neutrals. However the assumption that mining of the territorial waters of the belligerents and of the high seas is lawful does not mean that the right to lay mines by the parties to the conflict is unlimited, not least because mines may only be laid for lawful military purposes. Belligerents may not lay mines for the *sole* purpose of intercepting commercial shipping.\(^{37}\)

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\(^{31}\) Article 1(a), Hague VIII.

\(^{32}\) Article 1, Hague VIII also requires torpedoes to automatically deactivate if they miss their target.

\(^{33}\) This principle is codified in Articles 48 and 51 of Additional Protocol I to the 1949 Geneva Conventions. See also San Remo Manual, Articles 1 and 2.

\(^{34}\) Article 3, Hague VIII.

\(^{35}\) Mines may only be laid within the ‘general area of naval operations’; this includes the territory of the parties to the conflict accessible to naval forces; inland waters, archipelagic waters, and territorial sea of the parties to the conflict; the high seas including EEZ; and the airspace over these land and sea areas (with the exception of demilitarized zones).

\(^{36}\) The San Remo Manual recognizes that hostile actions by naval forces may be conducted in, on or over the territorial sea, internal waters, and archipelagic waters of belligerent states, the high seas and the EEZ and continental shelf of neutral states; Section IV, para. 10.

If a belligerent decides to lay mines or arm pre-laid mines in international waters, it must have ‘due regard’ for the legitimate interests of neutral states; for example, this may entail the provision of safe alternative routes. Belligerents may, if deemed necessary, lay mines in the exclusive economic zone (EEZ) and continental shelf areas of neutral states. But in doing so due regard for the coastal state’s rights concerning the exploration and exploitation of the natural resources must be taken. Moreover, the mine-laying state is under a further obligation to notify the coastal state of its mine-laying operations. Mine-laying states are required to notify neutral states as to the dangers that exist to innocent shipping unless the mines laid are controlled mines that are used only to target military objectives. Since the obligation to notify must be made as soon as military exigencies permit, the failure to notify immediately will not automatically constitute a violation of international law.

The right to lay mines during an IAC is not a right exclusive to the belligerents. Neutral states may lay mines in their internal waters and territorial seas as a defensive measure and to preserve their neutrality. However, to protect innocent shipping, the neutral state must also comply with the same precautionary measures that apply to the belligerents.

Although in peacetime a coastal state may not suspend transit passage rights in international straits, opinions differ on whether during an IAC, national security interests might entitle a coastal state to temporarily suspend passage rights by laying mines. The law remains unsettled as to whether the coastal state may only do so if safe alternative routes of similar convenience can be provided.

**Mine countermeasure (MCM) operations**

MCM operations can be divided into two broad categories of tasks: mine-hunting and minesweeping. Mine-hunting is effective against nearly all types of mines and comprises five steps: detection, classification, localization, identification and neutralization. The process can be time-consuming, with an MCM ship typically taking several hours to complete the detection (usually using sonar) to neutralization process. Mine-sweeping involves trawling defined areas of water using either ‘mechanical’ or ‘influence’ systems to expose or destroy any mines. Mechanical sweeping consists of cutting the tethers of moored mines or physically damaging them to cut the control wires. The mines are then destroyed or rendered safe. Influence minesweeping consists of simulating the magnetic, electric, acoustic, seismic or pressure signatures of a ship to force the mine fire.

The most effective MCM operation is to prevent a state from laying mines by destroying stockpiles or attacking minelaying vessels. These options are clearly available to the belligerents in an armed conflict since such operations constitute a lawful use of force. Whether states may resort to forceful MCM operations in peacetime is discussed below.

MCM operations in peacetime are governed exclusively by the legal regime applicable in peacetime; in times of armed conflict MCM operations by neutral states are necessarily tempered by the rights of the belligerents and the relevant IHL rules.

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38 Article 87, UNCLOS.
39 Articles 55–59, UNCLOS.
40 Article 2, Hague VIII.
41 Article 4, Hague VIII.
42 The US position is that mines may be used to ‘channelize’ neutral shipping, but not in a manner to deny transit passage of international straits or archipelagic sea lanes passage by neutral shipping.
43 See, for example, German Commander’s Handbook, para. 378; Heintschel von Heinegg, ‘The Law of Armed Conflict at Sea’, at 511–12.
MCM operations in peacetime: collective interests versus sovereignty?

During peacetime, international law permits any state to remove mines laid on the high seas if they are a hazard to navigation. In fact there is a positive duty on states that have laid mines on the high seas during an armed conflict to remove or render them harmless after the cessation of hostilities. This obligation, which may involve removal or deactivation, extends to those mines laid by the former belligerents within their own territorial waters. The obligation presupposes that the mine-laying states are also obliged to record the location of minefields – which, in any event, they would have had to do to comply with their notification responsibilities vis-à-vis neutral states during the conflict. The mine-laying state may only remove mines laid in their former adversary’s territorial waters with that state’s consent, since to do otherwise would be a violation of its territorial sovereignty.45

As with the removal of mines laid on the high seas, international law permits any state to sweep for and remove armed mines from archipelagic sea lanes and international straits. Such MCM operations can be justified on the basis that the presence of active mines would impede the transit passage rights of innocent shipping in violation of treaty and customary international law.46 However, the law is unsettled as to whether such operations can be conducted in international straits that overlap with the territorial waters of the mine-laying state; this is so because of a 1949 ruling by the International Court of Justice (ICJ) in the Corfu Channel case. The facts of the case are as follows. In November 1946 the UK removed 22 mines in the Corfu Channel after two British warships were damaged as a consequence of striking mines when passing through the channel during the previous month. The ICJ held Albania responsible for damage caused to the warships, which were entitled to innocent passage. But the Court also ruled the mine-sweeping/clearance operations by the UK to be illegal because they had taken place in Albania’s territorial sea without its consent. It is arguable that the latter part of the ruling is unlikely to carry much weight today since, with the adoption of UNCLOS in 1982, a regime governing transit passage was introduced. As noted above, under UNCLOS, states may not suspend transit passage through international straits if there are no safe alternative routes of similar convenience.47 In such a situation there is a strong case to be made that a state would be entitled to conduct MCM operations in international straits overlapping the territory of the mine-laying state to enforce the former’s right of transit passage. However, if alternative safe routes of similar convenience were available, the mine-laying of the international strait would not be in violation of international law subject to that state meeting its obligations to warn innocent shipping of the dangers presented by the existence of an active minefield. Under such circumstances, it is difficult to see how an MCM operation by a neutral state would be permissible.

As noted, a state may, under certain conditions, lay armed mines in its territorial seas and archipelagic waters. If a state does so in full compliance with its international obligations, any MCM operations in the territorial seas of that state without its consent would constitute a violation of its sovereignty. However, non-compliance with the relevant conditions by a mine-laying state would give rise to a violation of that state’s international obligations in respect of innocent shipping. This raises the question as to what lawful actions may be taken against a state that is laying mines, albeit in its own territorial waters, in violation of international law.

If harm to innocent shipping is caused as a consequence of unlawful mining by a state, it may be held responsible for its wrongful act under international law; moreover, the victim state would generally be entitled to full reparation for the injury caused.48 But other than bringing legal proceedings against that state, does international law permit an injured state to take any measures that would otherwise be contrary to the international obligations it owes the

45 Article 5, Hague VIII.
46 Whether operations involving the removal of controlled mines could be justified on the same grounds is uncertain.
47 Article 38, UNCLOS.
48 Article 31 and Chapter II, Articles on State Responsibility.
state that is engaged in unlawful mine-laying? In this regard, the law pertaining to countermeasures is relevant.\textsuperscript{49} As the commentary to the Articles on State Responsibility notes, ‘countermeasures are a feature of a decentralized system by which injured states may seek to vindicate their rights and to restore the legal relationship with the responsible state which has been ruptured by the internationally wrongful act’.\textsuperscript{50} Countermeasures may only be taken against the state which is responsible for an internationally wrongful act (unlawful mining) and only to induce that state to comply with its obligations.\textsuperscript{51} However, a state resorting to countermeasures may neither threaten nor use force to compel law compliance.\textsuperscript{52}

**MCM operations in armed conflict: reconciling two legal regimes**

During an IAC, the right of neutral states to conduct MCM operations must be weighed against the rights of the belligerents to the armed conflict. The applicable rules therefore represent a balance between the interests of the belligerents and those of neutral states. Neutral status gives rise to rights and obligations in the relationship between neutral states and parties to the armed conflict. The right of neutral states not to be adversely affected by the conflict is linked to their duties not to participate in the conflict and to remain impartial.

Since IHL permits belligerents to lay mines in international waters, MCM operations on the high seas by neutral states would represent a failure to comply with a duty to act impartially. However, if the mine-laying operation is unlawful, state practice suggests that MCM operations undertaken by a neutral state to protect innocent shipping on the high seas would not be regarded as constituting an unacceptable limitation of the freedom of the parties to the conflict to conduct hostilities at sea. Examples of mines laid in violation of IHL would include mines laid for no legitimate military purpose; the use of contact mines which do not become inactive one hour after placement; and/or mines that remain active after they have broken loose from their moorings. Neutral states have typically relied on one of two legal justifications for their MCM operations when confronted with illegal mining by belligerents: to enforce the freedom of navigation against illegal interference by the mine-laying state; and/or the right to self-defence. Because the adversary to the mine-laying state is likely to benefit from the MCM operations by neutral states, the operation must be undertaken solely to protect innocent shipping.

While neutral states may not conduct MCM operations in the national waters of the belligerents, whether they may conduct such operations in international straits overlapping the territorial waters of a belligerent is, as discussed above, more complex and the law remains unsettled.

**Concluding comment**

Apart from the 1907 Hague VIII Convention, there is no treaty that expressly governs naval mines in international law. However, the adoption of numerous peace- and wartime treaty regimes coupled with the developments in customary international law means that international rules applicable to naval mines have expanded significantly over the last century. That said, the law remains unsettled in respect of a handful of issues that would benefit from greater clarity.

\textsuperscript{49} Chapter II, Countermeasures, Articles on State Responsibility.
\textsuperscript{50} Ibid.
\textsuperscript{51} Article 49, Articles on State Responsibility.
\textsuperscript{52} Article 50, Articles on State Responsibility. In his Separate Opinion in the Oil Platforms case, Judge Simma (relying on the Nicaragua Judgment) queried whether in circumstances in which a state has resorted to force short of an ‘armed attack’, the victim state might be entitled to resort to forceful countermeasures. Even if such a right existed, only the victim state would be entitled to resort to forceful countermeasures and only to induce law compliance.