Unmanned surface vessels:
A legal analysis based on the use in the Russia-Ukraine armed conflict

Dr Sally Longworth and Julia Dalman

In the armed conflict at sea between Ukraine and Russia, Ukraine has developed unmanned surface vessels (USVs) remarkably quickly and used them to great effect against Russia's larger and more powerful naval forces to deny Russia sea control.[1] One of the most notable examples is the use of *Sea Baby* USVs to attack and destroy parts of the Crimean Bridge through swarm tactics in August 2023.[2] Another attack executed in May 2025 is claimed to be the first successful sea-to-air strike ever made by a USV.[3] The use of these USVs raises several legal questions.

Scholarly debates have given great attention to how USVs should be classified under international law of the sea, be that a ship, a warship, a vessel, equipment, or something else.[4] These designations have significant legal implications, not least in relation to belligerent and navigation rights.[5] How USVs are classified under international law also has consequences on what obligations are applicable to the parties to the conflict in relation to those shipwrecked or injured at sea resulting from an attack.

This memo analyses some of the legal issues that arise from the use of armed USVs in light of the Russian-Ukrainian armed conflict at sea. The memo will first analyse how the armed USVs used in the attacks against Russian military at sea by Ukraine should be classified under international law of the sea and international humanitarian law (IHL). Based on this analysis, the memo will also consider the legal obligations applicable to the use of naval weapons and whether they could apply to the use of armed USVs. The memo then goes on to analyse how the different obligations to rescue shipwrecked persons under international law of the sea and IHL are applicable to armed USVs used in attack. The details relating to the USVs and attacks analysed in this memo are based on open-source information. The analysis is based on the rules applicable to operations in the high seas in attacks against military objectives at sea, rather than in territorial waters, during an international armed conflict. Further, the analysis is based on the current state of technological development as described in open-source information.

Classifying USVs

USVs are generally described as a craft designed to travel water on the surface by means of controlled (i.e. not random) movement without any personnel on board.[6] They can be used for several purposes, such as intelligence gathering, surveillance and reconnaissance, electronic warfare, attacks, and search and rescue operations.[7] As such, USVs are not necessarily armed. Given the breadth of functions they serve in naval operations, it is unlikely that there will be one legal definition that fits all USVs.

IHL and international law of the sea are two key legal frameworks that regulate the conduct of naval operations during armed conflict.[8] Reference to both bodies of law is needed to determine when, where, and how armed USVs can be used in armed conflict at sea. International law of the sea regulates the rights, duties, and relations between States in their conduct relating to the ocean, natural resources and maritime activities.[9] In the event of an armed conflict between two States, IHL applies.[10] IHL regulates the conduct of hostilities, places limitations on the means and methods of warfare, and aims to limit the suffering of those not participating in the conduct of hostilities.[11] The application of IHL changes the scope of some of the obligations under international law of the sea,[12] but international law of the sea continues to apply. Likewise, international law of the sea affects how the rules under IHL apply in the maritime domain. For example, in order to determine where and how naval operations may be conducted, reference must be made to both IHL and international law of the sea.[13]

FOI Memo 9158
Project no: E12541
Approved by: Jessica Appelgren

2025 December

Determining how a USV is classified is essential to understand the application of rights and obligations under international law. Different rules apply to a USV depending on whether it qualifies as a warship, ship, weapon, or something else. How USVs are legally categorised depends on their technical characteristics and use. Such characteristics include size, appearance, ability to transport persons or goods, ability to manoeuvre on water and tasks performed and purpose of operation, including whether a USV undertakes the same tasks as ships, warships, etc. As such, different USVs are likely to be categorised in different ways under international law of the sea.[14]

Classification under international law of the sea

There has been considerable debate as to the extent different USVs may qualify as a ship or warship, and different interpretations have been put forward.[15] This debate follows from the fact that under international law of the sea, ships enjoy certain navigational rights, such as the right of innocent passage[16] and the right of transit passage.[17] Likewise, certain requirements follow from the classification as a "ship". For example, ships must comply with the laws and regulations of their flag State[18], render assistance when required,[19] and respect the legal regime of maritime zones.[20]

There is no universal definition of "ship" under international law, however. The UN Convention on the Law of the Sea (UNCLOS) uses both the terms "ships" and "vessels", but does not include a definition for either. This is not problematic in itself, as the purpose of UNCLOS is to establish a legal order for the seas and oceans that sets out the rights and duties of States.[21] Under Article 94(2) of UNCLOS, States parties must "maintain a register of ships containing the names and particulars of ships flying its flag".[22] There is an exception to this requirement, namely that "those [ships] which are excluded from generally accepted international regulations on account of their small size". The register of ships is thereby an important part of the structure established by UNCLOS, and regulating the relations between States in their use of the maritime environment. It is therefore essential that State parties implement the duty in good faith in line with the purpose of UNCLOS. Other international law of the sea treaties includes specific definitions of "ship" to which they apply.[23] Having a person on board, however, is not an essential characteristic of what constitutes a ship.[24]

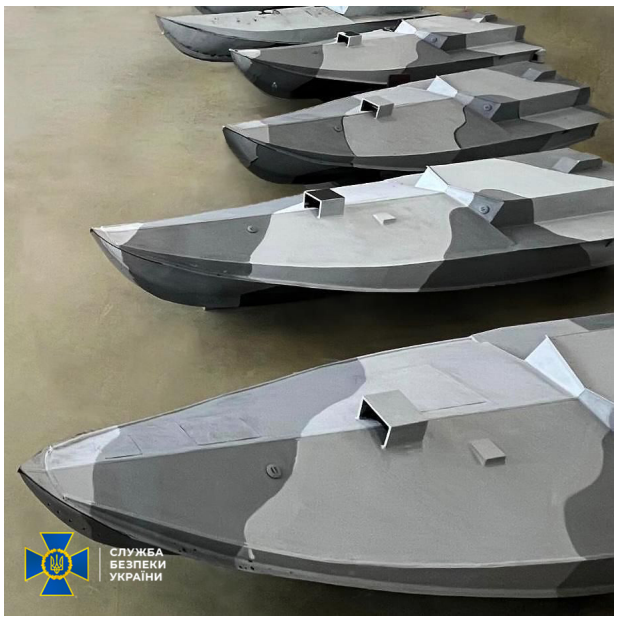

Figure 1. Ukrainan USV.s.
Source: Ssu.gov.ua, CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons.

Like the term "ship", there is no uniform definition of "vessel" under the international law of the sea. "Vessel" is often used slightly more broadly than "ship" and can include other smaller crafts that are not registered as ships. For example, under Article 1(b) of the International Convention on Salvage 1989, "vessel" is defined as "any ship or craft, or any structure capable of navigation".[25] This interpretation is also consistent with the International Convention on Maritime Search and Rescue 1979, which sets out requirements for State parties to delimit regions, establish, equip and maintain search and rescue services, and coordinate search and rescue facilities round their coasts. No definition of either "vessel" or "ship" is included in the treaty, but the term "vessel" is again used in a broad manner so as to encompass "ship".[26]

State parties to UNCLOS are obliged to establish the necessary measures to ensure that the regulations applicable to ships and vessels are implemented and upheld by ships flying their flag. This includes establishing legislative and other measures to define ships under their jurisdiction.[27] In addition, the flag State must take such measures as are necessary to ensure safety at sea.[28] These requirements are applicable to both unmanned and manned ships.[29]

A number of States have registered certain USVs as ships. For example, the Netherlands has registered a seven metre long USV to be used for supporting dredging, and offshore wind and maritime infrastructure projects.[30] Based on currently available information, Ukraine has not registered any model of the *Sea Baby* or *Magura* as a ship, however.

A warship is a type of ship by definition. There is a distinct definition of a warship under international law that is the same under both IHL and international law

of the sea, and specific rights and obligations apply to warships under both international law of the sea and IHL.[31] The definition is derived from the Convention (VII) relating to the Conversion of Merchant Ships to Warship 1907 (Hague Regulations VIII 1907) and the High Seas Convention 1958,[32] and codified today in Article 29 UNCLOS as:

> "…a ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned by the government of the State and whose name appears in the appropriate service list or its equivalent and manned by a crew which is under regular armed forces discipline."[33]

The requirements set out in Article 29 UNCLOS are cumulative and all must be fulfilled for the ship to be classified as a warship. The ship does not have to be armed to constitute a warship, nor is there a particular size or tonnage that must be fulfilled to classify as a warship.

Under international law of the sea, the classification as a warship affects the right of hot pursuit,[34] the right of visitation,[35] and the exercise of powers of enforcement,[36] amongst others.[37] Only warships are entitled to exercise belligerent rights during armed conflicts.[38] Of particular importance for the purpose of this memo is that belligerent rights include the right to commit acts of violence against the enemy.[39] As such, only warships are entitled to carry out attacks at sea during armed conflicts.

There is a growing acceptance in academic writing that a USV that is crewed remotely and commanded by an officer not on board, would meet the requirements that a warship must be "manned by a crew which is under regular armed forces discipline".[40] As USVs are an emerging technology, there is limited State practice and therefore insufficient evidence to determine whether this interpretation is in line with the views of the majority of States. However, there is some limited State practice supporting the notion that USVs could be classified as warships. For example, the French Transport Code defines "warship" as any vessel, including autonomous ships in trial or service, belonging to the French Navy or a foreign naval force.[41] The United States maintains a similar position.[42] This highlights the development in recent years, as USVs were classified as "other naval craft" in 2007 and as "sovereign immune craft" in 2017.[43] The interpretation that USVs can be classified as a ship or warship is also consistent with developments outside the military field, where the International Maritime Organization's Guidelines (IMO) on Maritime Autonomous Surface Ships (MASS) Trials anticipates the possibility of remote operators.[44]

In addition, USVs could also be classified as an extension of a warship or ship,[45] or a system or device,[46] and as such facilitating or engaging in activities that are carried out by a warship or ship.[47] As noted, how the specific USV is classified will depend on a variety of factors, including whether and how it is registered, how it is used, its technical capabilities (including ability to transport persons or goods,

Figure 2. Three USVs during Rim of the Pacific Exercise 2022, USV Nomad, USV Ranger, and Sea Hunter.
Source: Mass Communication Specialist 1st Class Tyler R. Fraser, Public domain, via Wikimedia Commons.

manoeuvre, navigate, etc.) and size, to name a few. This again emphasises the point that there is no "one-size-fits-all" classification of USVs under international law, and each specific model must be assessed.

Analysis of the USVs used by Ukraine

Two of the armed USVs employed by Ukraine, the *Sea Baby* and the *Magura,* appear to be primarily launched and remotely piloted from land using cameras, electro-optical sensors, global navigation satellite system (GNSS) and secure communication, including satellite communication.[48] Both are considerably smaller than relatively small warships in use today, such as patrol craft. The *Sea Baby* is six metres long, with a 1000 kilometres range and capability of 850 kilograms payload.[49] It can carry different types of weaponry, including machine guns, mines, rockets and first-person view unmanned aerial vehicles (FPV-drones).[50] The *Magura* is 5.5–7 metres long (depending on the model), with an 800 kilometres range and capability of 320 kilograms payload.[51] The *Magura* has been claimed to be smaller, faster and more manoeuvrable than similar USVs.[52] Both are considerably smaller than the USVs registered by the US as warships. Both appear to be remotely piloted, but it is unclear what level of autonomous function and capabilities the *Sea Baby*, *Magura-V5* or *Magura-V7* has beyond navigation. As noted, to date Ukraine has not registered any model of the *Magura* or *Sea Baby* as a ship or a warship to date. Some of the technical characteristics of *Sea Baby*, *Magura-V5* and *Magura-V7* are summarised in table 1. These facts considered together suggest that the current models of the *Sea Baby* or *Magura* should not be classified as a ship or a warship. As they seem to be launched and remotely piloted from land, rather than from another warship, they would not be considered an extension of a warship either.

However, both the *Sea Baby* and *Magura* have been used to carry out attacks. This may suggest that they should be classified as a warship, as only warships have belligerent rights to carry out attacks. The *Magura* and *Sea Baby* have successfully engaged targets in the air, such as fighter jets and helicopters, as well as at sea, including corvettes, landing ships, patrol boats and tugboats.[53] Whereas the *Sea Baby* has generally been used to carry out attacks by colliding into targets, causing the weapons on board to explode, the *Magura* has been used to launch explosive weapons against targets in attacks.

The *Sea Baby* is reportedly operated by the Security Service of Ukraine (SBU)[54] and the *Magura* by the Main Directorate of Intelligence of Ukraine (HUR). The *Sea Baby* is described as a multipurpose USV,[55] whereas the *Magura* is described as being designed for combat missions and specifically designed to seek out and destroy military objectives at sea. Both the SBU and HUR fall within the definition of "armed forces" of Ukraine further to Article 43 of Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts 1977 (API).[56] Both USVs would therefore fulfil the requirements that they belong to the armed forces of a State and are manned by a crew which is under regular armed forces discipline under Article 29 UNCLOS. It can also be assumed that they are operated under the command of an officer duly commissioned by the government of the State.

In videos released by Ukraine on the use of these armed USVs, no flag is clearly visible on or being flown from the vessels, and there does not appear to be any other external markings included distinguishing its nationality. This is in contrast to other USVs operated by militaries that do prominently display the flag of the flag State.[57] Warships must bear the external marks distinguishing ships of the flag State's nationality under Article 29 UNCLOS. In addition to their small size, how they have been used in attack and that they are not listed as a ship or warship; this would again suggest they should not be classified as a warship. As they seem to be launched and remotely piloted from land, rather than from another warship, they would not be considered an extension of a warship either. As a craft capable of navigation on the surface of the water, they would likely constitute a vessel under international law of the sea, however.[58]

Classification under international humanitarian law

As both the *Sea Baby* and *Magura* are primarily used in attack, from an IHL perspective these USVs clearly constitute a means of warfare. Means of warfare can be described as objects used for the purposes of delivering force in hostilities, such as weapons, weapon launchers, or weapon platforms.[59] IHL applies to the use of all weapons in connection with the armed conflict, as well as the weapons' launchers, platforms and systems, and all weapons must be used in a manner consistent with IHL.[60] There is, however, no definition of the broader concept of "weapon" under any IHL treaty. The term typically refers to devices and equipment designed or used to cause death, injury, or damage to individuals or objects in the armed conflict.[61] Restrictions and prohibitions are placed on defined specific weapons,[62] including weapons and methods used in naval warfare.[63] It is generally recognised that armed USVs could be classified as a means of warfare under IHL, and their use would thus be governed by IHL.[64]

Table 1. Technical description Sea Baby, Magura-V5 and Magura-V7.

	Sea baby	Magura-V5	Magura-V7
Length	6 m[1]	5.5 m[2]	8 m[3]
Range	1000 km[4]	800 km[5]	1500 km[6]
Max load	850 kg[7]	320 kg[8]	650 kg[9]
Tasks or purpose	Multipurpose, including combat attack missions[10] through one way attacks. Can carry different types of weaponry, including machine guns, mines, rockets and FPV-drones.[11]	Primarily combat attack missions.[12] Can also be used as a safety boat, and for intelligence and surveillance operations.[13] Known to carry air-to-air (R-73) missiles.[14]	Multipurpose, including combat attack missions. Can be equipped with a warhead and additional armaments, including a turret-mounted machine gun or a twin launcher for two surface-to-air missiles.[15]
Navigation methods	Not able to verify	Automatic GNSS, inertial, visual[16]	Not able to verify

Reference: Se Endnotes Table 1.

There have been discussions as to whether these USVs could qualify as already defined weapons of naval warfare, such as sea mines or torpedoes.[65] However, while USVs share similarities with mines and torpedoes,[66] there are clear differences between them. Torpedoes are partly self-propelled and can have autonomous guidance, but travel under the surface of the water, and are generally launched from another warship.[67] Sea mines can be described as explosive devices laid in the water, on the seabed or in the subsoil thereof, used to damage or sink ships or deter shipping from entering an area.[68] There are similarities between remotely controlled sea mines, mobile mines (that is, mines propelled in a way similar to torpedoes to a position) and mines equipped with sensors. Sea mines are positioned in a target area and detonate when the sensors detect the presence of the target. However, they are not recoverable in the way that the *Magura-V5* and *V7* can be. The *Sea Baby* and *Magura-V5* are also navigated and positioned in relation to the target using sensors and satellite communication, but in contrast to mines, the USVs either launches the weapons on board, or is propelled into the target to cause detonation of the explosive weapons on board.

In addition to the established rules of IHL, it is possible that any potential future instrument applicable to lethal autonomous weapons systems (LAWS) would apply to armed USVs. Discussions are ongoing under the auspices of the Convention of Conventional Weapons about regulating LAWS. The topic is also on the agenda of the UN General Assembly Sixth Committee.[69] The characterisation under consideration in the CCW process is based on autonomy in critical combat functions. This includes in essence identification, selection and engagement of a target without human involvement in these tasks.[70]

It is unclear based on open-source information if the armed USVs operated by Ukraine can select and engage targets without human intervention. If they are able to do so, are developed in such a way, or are used in combination with other systems resulting in such capabilities, this would bring them within the definition of LAWS if such an instrument is adopted.

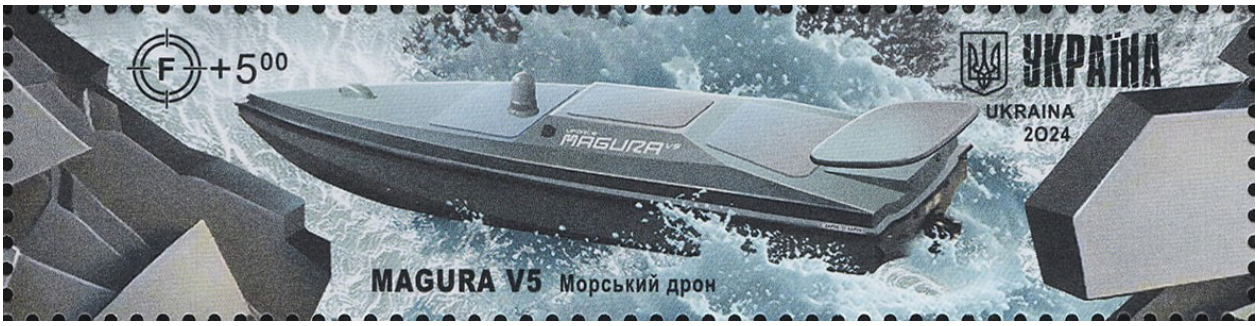

Figure 3. Magura-V5 featured on Ukrainian stamp.
Source: Roysma, Public domain, via Wikimedia Commons.

Requirements on the use of weapons of naval warfare under IHL

It is without question that the legal framework governing the conduct of hostilities applicable to armed conflict at sea applies to the use of armed USVs in naval military operations during armed conflict, as IHL applies to all means and methods of warfare.[71] There are a number of IHL treaties that specifically apply to armed conflicts at sea.[72] In addition, treaties relating to protected persons and objects are also applicable.[73] There are differences, however, in the application of certain treaty norms to naval operations relating to targeting at sea. These differences reflect the very different nature of the naval domain.

Under Article 49(3) API, the provisions in Section II of Part IV API only apply to attacks from the sea or from the air against objectives on land. Further, the section only applies to sea warfare, which may affect the civilian population, individual civilians or civilian objects on land. This section contains many rules applicable to targeting. As such, these treaty rules do not apply to all attacks from sea if they are anticipated to not have such affects. For example, the section does not apply to attacks from sea against military objectives at sea, such as the examples of Ukrainian USVs being used to attack Russian military vessels at sea.[74] USVs have also been used in attacks that affected the civilian population and civilian objects on land.[75] In such circumstances, the provisions in Section II of Part IV API would apply.

Today, many of the rules contained in Section II of Part IV API are now reflective of customary international law, and applicable to all aspects of naval warfare. The law of naval warfare is not codified in treaties to the same extent as the law applicable to land warfare and the major developments in this area are found within customary international law.[76] For example, the rules on distinction, precautions in attack and proportionality are equally applicable to sea-to-sea naval warfare.[77] These customary international law rules would also apply to the use of armed USVs in armed conflicts at sea.

Notwithstanding the difficulties presented in this somewhat opaque legal situation, there are a number of rules that can be deduced as either directly applicable (*lex lata*) or whose application could be considered to be extended to the use of armed USVs (*mutatis mutandis*).[78]

Areas of operation

As a means of warfare, it is necessary to consider where armed USVs can be legally used. In international armed conflicts, IHL applies to the whole territory of the parties to the conflict,[79] which includes the land territories, internal waters, territorial sea, the airspace above and the archipelagic waters of belligerent States (where applicable). In addition, it applies to the activity of the parties to the conflict on the high seas (including the exclusive economic zone and continental shelf of the belligerent States) and the airspace above, these spaces not being subjected to the jurisdiction of any one State.[80] Reference must therefore be made to the different areas defined under international law of the sea to determine where operations are permitted.[81] The area of armed conflict at sea includes the exclusive economic zone and the continental shelf of non-belligerent States (i.e. States that are not a party to the conflict), but due regard must be given to the rights and duties of the coastal State if hostile actions are conducted there.[82]

Hostile action is not permitted in the territory of non-belligerent States.[83] As such, attacks by these armed USVs would not be permitted against enemy targets in non-belligerent State waters. However, transit passage and innocent passage of warships through non-belligerent territorial waters is permitted, unless restricted by the non-belligerent State.[84] However, as noted above, the USVs used by Ukraine are not classified as warships. In addition, due regard should be given to the rights and duties of other States in the use of armed USVs in the high seas.[85]

Distinction, precautions and proportionality

The use of armed USVs needs to comply with the requirements of distinction, precautions in attack and proportionality, as applicable to naval warfare. This entails that the armed USV must be, and must be able to be directed only against military objectives.[86] In addition, the effects of the use of armed USVs must be limited.[87] Measures must be taken to ensure that anything other than the military objective targeted is spared in the use of weapons in naval warfare.[88] The belligerent party must also take precautionary measures to avoid losses of civilian lives and damage to civilian objects further to the rule of precautions in attack.[89] Any attack that may be expected to or does result in incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, that is excessive in relation to the concrete and direct military advantage to be gained is unlawful.[90]

Of key importance in the law of naval warfare is ensuring the principle of the freedom of the high seas for all States that are not party to the armed conflict.[91] The belligerent party needs to take precautionary measures to ensure the security of peaceful shipping.[92] This is further to the principle of effective surveillance deduced from HC VIII Articles 3 and 5. What is required in those circumstances depends on the dangers the armed USV constitute

to peaceful shipping.[93] Less will be required where the threat to peaceful surface shipping is lower. Measures could include issuing warnings and designating safe passages.[94] In mining, one such measure involves including a remote-control device and ensuring the control system is sufficiently reliable.[95]

Obligations relating to control of weapons of naval warfare

Based on legal rules applicable to other weapons of naval warfare, it can be deduced that a level of control must be maintained over armed USVs.[96] In situations where USVs miss their target or control over them is lost, they must become harmless,[97] and further measures to ensure the safety of peaceful shipping and other protected persons and objects must be taken. Free-floating sea mines must be constructed so as to become harmless one hour at most after the person who laid them ceases to control them and to become harmless as soon as they have broken loose from their moorings.[98] Torpedoes must similarly sink or become harmless if they miss their target.[99] If an armed USV misses its target, but control over it is maintained so it can be navigated to another target or returned so as not to harm peaceful shipping and other protected objects and persons, there would be no need to for the USV to sink to not pose a threat to peaceful shipping and civilians.[100] However, it would be reasonable to deduce that an armed USV must become harmless if control is lost.

Developments in other weaponry used in naval warfare have reached a level of sophistication, where the technology is sufficiently reliable to ensure that they will only explode upon meeting a military objective. It is therefore unnecessary to include deactivation devices or other measures rendering the weapons harmless if control is lost. Hetineschel von Heinegg gives the example of bottom mines that are programmed to explode if there is sufficient data that the object is a specific type of ship. Such technology is based on magnetic, acoustic signatures or changes in water pressure.[101] He argues that the rule that automatic contact mines must become harmless within one hour of control being lost over them does not apply to bottom mines today due to the accuracy and reliability of that technology.

Armed USVs face an increased risk of collision and error compared to mines, simply because they operate on the surface where there is more civilian and other protected presence and traffic. If nothing else, the more unpredictable nature of naval warfare conducted on the surface makes it not possible to account for every eventuality, such as the presence of civilians or other protected persons and objects in the vicinity of a planned attack, or the impact of weather or ocean conditions on the armed USV if control has been lost. If there is a risk to peaceful shipping and other protected persons and objects in the area, it would therefore seem reasonable to assume that it must be possible to render the armed USV harmless if control is lost based on the current state of the law.[102] In such circumstances, belligerent parties must at least ensure that the armed USV would not be a danger to peaceful shipping and other protected persons and objects. As noted, where control cannot be maintained or is lost, the belligerent party must take further measures to address the risk to peaceful shipping and other protected persons and objects. This would include issuing a warning with sufficient information included to address the risk posed.[103]

A further relevant consideration is the impact of the use of armed USVs on the sea environment. The customary international law rule that means and methods of warfare must be employed with due regard to the protection and preservation of the natural environment is applicable to naval operations. This means that all feasible precautions must be taken to avoid, and in any event to minimise, incidental damage to the environment in the conduct of operations.[104] There are further requirements on recovering and removing weapons of naval warfare used by the belligerent parties in their naval operations. For example, under Article 5 HC VIII 1907, the belligerent parties are obliged to recover and remove mines they have laid. The Protocol on Explosive Remnants of War (Protocol V to the CCW) 2003 is also applicable to naval operations.[105]

These rules identified are based on the application of treaty norms that reflect customary international law requirements. Whilst the treaty norms related to specific weapons, an analysis of these requirements reveals rules that can be deduced to be more broadly applicable to weapons of naval warfare. Further State practice and *opinio juris* is needed to more specifically define the parameters of these requirements in relation to the use of armed USVs, such as the examples seen in the armed conflict at sea between Ukraine and Russia. For example, what level of control would be required, and what would be required by the standard "harmless" in relation to an armed USV, which will likely vary depending on how many and what types of weapons the USV has on board. In any case, the application *mutatis mutandis* of these norms to armed USVs would be further to the principles of distinction and humanity, and the obligation to take all reasonable precautions to avoid losses of civilian lives and damage to civilian objects in the conduct of military operations at sea.

Rescue at sea in armed conflict – What obligations apply following the use of armed USVs?

The use of armed USVs can result in persons being shipwrecked, injured and killed, as has been demonstrated in the examples from the armed conflict at sea between Ukraine and Russia, and may indeed intend to cause this effect.[106] Whether persons within the vicinity of the USV are shipwrecked as a result of its use or otherwise, this raises questions regarding if and how the obligations to render assistance to persons in distress on the high seas applies following the use of an armed USV.[107] In the context of armed conflicts, IHL is complementary to international law of the sea in this area, and it is therefore necessary to consider the obligations arising from both areas of international law.

The duty to render assistance at sea

The duty to render assistance at sea is set out under Article 98 UNCLOS and is firmly established in customary international law.[108] This duty continues to apply in armed conflict, and is applicable to warships and other military vessels.[109] In the context of the duty to render assistance at sea, the terms "ship" and "vessel" are used interchangeably in different treaties. As such, the fact that a USV is not registered as a ship or a warship would not exempt it from the duty.[110]

Article 98(1) UNCLOS obliges States to require the master of the ship flying its flag "in so far as he can do so without serious danger to the ship, the crew or the passengers" to render assistance to any person found at sea in danger of being lost, to persons in distress upon being informed of their need for assistance, and to the ship, crew and passengers of the other ship after a collision. On military vessels, the master is not necessarily the highest-ranking commander on the ship.

Other treaties setting out the duty to render assistance are similarly addressed to the master to implement. For example, Regulation 33 in Chapter 5 of the Annex to the Convention for the Safety of Life at Sea 1974 (SOLAS Convention) is directly addressed to the master of the ship.[111] Article 10(1) of the International Convention on Salvage 1989 is also addressed to the master of the "vessel".[112]

The obligations under both the SOLAS Convention and the 1989 Salvage Convention are unlikely to apply to State-owned USVs, as they do not apply to warships, naval auxiliaries or other non-commercial vessels owned or operated by a State and entitled to sovereign immunity at the time, unless that State decides otherwise.[113] That said, Article 98 UNCLOS and the customary international law obligation would apply to vessels exempted from the 1989 Salvage Convention and SOLAS Convention.

A master of a USV?

How the above rules apply to USVs is unclear, both legally and in practice, as USVs do not generally have a master or other crew on board. There is a growing acceptance that a master could be appointed remotely.

If a USV is registered as a ship, a master must be appointed.[114] Under Article 94(3) UNCLOS, the flag State is required to take measures necessary to ensure safety at sea. This includes "that each ship is in the charge of a master and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering…",[115] and "that the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of communications by radio".[116] Further treaties set out obligations and requirements that must be carried out by the master, as well as qualifications the master must carry out in order to be able to hold the position and employment conditions, amongst others.[117] There is no exception for military vessels to the rule that a master must be appointed, but the master is not necessarily the highest-ranking commander on the vessel.[118]

The limited practice in this area support that a master must be appointed to USVs registered as a ship. For example, the French Transport Code provides that maritime autonomous surface ships must remain under the control of a master.[119] In the IMO's considerations of a new Code for maritime autonomous surface ships, the Maritime Safety Committee has approved, in principle, that a human master should be appointed as responsible for a maritime autonomous surface ship, regardless of the mode of operation or degree or level of autonomy and that it is not necessary for the master to be on board.[120]

It is not possible to discern the command structure relevant to the use of the *Sea Baby* and *Magura* based on open sources, nor whether a master is appointed remotely to their use. Importantly for the application of the requirement to render assistance, neither USV is currently able to transport people.

Exceptions to the duty to render assistance

Under Article 98 UNCLOS, the duty to render assistance applies only so far as the master "can do so without serious danger to the ship, the crew or the passengers".[121] The need to safeguard the rescuing vessel is a recognised exception to the rule that would apply equally to USVs as it would to vessels with a crew on board. It has also been

argued that after a warship has conducted an attack, the danger of it being targeted or sunk may also entail that the obligation to render assistance is not applicable.[122] In relation to USVs currently in use, this exception is relevant, in part due to the limitations in being able to use them to rescue persons in distress or in danger of being lost at sea. Moreover, remaining in the area of attack may put the USV at the risk of being attacked, sabotaged or seized.

The term "render assistance" is broader than "rescue". Data from the sensors and other technology on board the USV could enable other vessels in the area, or coastguards and rescue centres, to monitor the position of survivors and the environment, thus allowing the USV to assist in the search and rescue of persons in distress.[123] This is similar to how UAVs are used today in surveillance of migration at sea.[124] It seems highly likely that in the future military USVs will be developed so as to transport goods and other resources, potentially including transporting combatants and even protected persons in various circumstances. The application of the duty to render assistance to such vessels will likely be different to the current armed USVs in use by Ukraine.[125] Again, this demonstrates how a "one-size-fits-all" classification is not appropriate for the military use of USVs.

Establishing an obligation on the master of a USV, to rescue persons in distress, which is not possible to carry out, may do more damage than good to the duty. It may even lead to situations where exceptions will be argued in such a way so as to undermine the purpose of the duty, and raise questions of good faith in the implementation of international legal obligations. That said, the extreme vulnerability of individuals in distress at sea,[126] the lack of jurisdiction of any one State in the area of the high seas to address the situation, and not least the principle of humanity,[127] are at the core of this ancient duty and must be borne in mind when interpreting the rule in relation to armed USVs.[128] Whatever measures are possible to be taken in the circumstances that could assist persons in distress should therefore be taken. What is possible in the circumstances will be determined by a range of factors. The technical capabilities of the USV will be key.

Outside the military context, questions remain regarding the application of the duty to Maritime Autonomous Surface Ships (MASS), but the limitations of these vessels have been recognised to some extent. One example is the details included in the UK Industry Code of Conduct for MASS on the application of this duty. The Code of Conduct is not legislation and its weight as evidence of State practice is limited. However, the Code is interesting, as other States that have introduced legislation authorising and regulating the use of MASS within their territorial waters have not included the application of the duty.[129] The UK Code of Conduct provides that MASS are not exempted from the regulations applicable to the duty to assist at sea,[130] but the duty only applies when the MASS is itself a "ship" and an individual operator can be regarded as its "master" at the time of becoming aware of an incident.[131] The Code explicitly sets out that the duty does not lie with the ship, but only potentially to the person operating it.[132] What is required by the duty is what is reasonable to be expected given the limitations and characteristics of the relevant MASS and does not require, nor is it limited to, taking persons on board.[133] The technical capabilities of the MASS define the nature and requirements of the duty, similar to the application of the legal rule in other situations.[134]

Based on the above, it can be deduced that when the master or equivalent of a military USV becomes aware of persons in distress, whatever measures are possible in the circumstances would be required to be taken to discharge the duty to render assistance. That is, unless exceptions to the application of the duty apply. Examples of such measures include informing the appropriate search and rescue authorities,[135] bringing or keeping the USV in proximity to act as a visual aid and communication point for search and rescue authorities.

The complexities arising in the application of this essential duty to armed USVs make the obligation under Article 18(1) Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea 1949 (GCII) to search and collect for casualties after each engagement of attack even more important. It also highlights the complimentary nature of IHL to international law of the sea in this area.

The obligation to search for and collect casualties under IHL

Under Article 18(1) GCII, after each engagement, the parties to the armed conflict must without delay take all possible measures to search for and collect the shipwrecked, wounded and sick, to protect them against pillage and ill-treatment, to ensure their adequate care, and to search for the dead and prevent their being despoiled. Reviewing and updating the implementation of Article 18 GCII where USVs are used in naval warfare is therefore an imperative.

In naval warfare, the obligation to search and collect wounded, sick and shipwrecked persons only arise after each engagement.[136] Under Article 8(b) API, "shipwrecked" means persons, whether military or civilian, who are in peril

at sea or in other waters as a result of misfortune affecting them or the vessel or aircraft carrying them and who refrain from any act of hostility. As such, IHL makes no distinction of whether the person is shipwrecked as a result of the armed conflict or otherwise, but the obligation to search for shipwrecked persons and others under Article 18 GCII only arise after an engagement between the parties. In other circumstances resulting in persons becoming shipwrecked, the duty to render assistance under international law of the sea still applies.

Article 18 GCII is broadly addressed to the "parties to the conflict", but at the operational level is addressed to the commander on the spot or nearby.[137] As such, the fact that no commander is physically present does not render this obligation inapplicable, but rather requires the parties to the conflict to take other measures to fulfil the obligation.

The duty must be undertaken "without undue delay". It is an obligation of means, so the scope and extent of the obligation is determined by the capabilities of the parties and the practicalities of the situation at hand.[138] As such, the commander of the attacking vessel may not be obliged to rescue wounded and shipwrecked persons from the enemy's vessels following an engagement where other vessels in the immediate vicinity are capable of doing so.[139] Heintschel von Heinegg gives the example that a submarine may not be obliged to engage in rescue operations because of its vulnerability when surfaced, but this does not relieve others within the party to the conflict from the obligation.[140] The same would be true for armed USVs.

The attacking party must not hinder search and collection efforts, or otherwise arbitrarily impede rescue actions.[141] They are under a duty to do all they can to create the conditions to allow relief action. If an armed USVs remains in the area following an attack, it must therefore be able to distinguish military vessels used for the purpose of rescuing others (e.g. temporary medical transport), hospital ships and any other humanitarian or civilian vessel rescuing wounded or shipwrecked persons after an engagement.[142] In addition, they must be able to navigate and operate, or to be navigated and operated, so as not to interfere, hinder or impede the rescue efforts. In situations where a party to the armed conflict cannot provide the required care to the wounded and shipwrecked, that party must not hinder, obstruct, interfere with, or otherwise impede the rescue operations whether the rescue is being conducted by the other party to the conflict, humanitarian or other civilians.[143]

It is not clear if and how search and rescue operations have been carried out following attacks with Ukrainian USVs. As noted, the *Sea Baby* and *Magura* are currently designed in a way that they cannot be used to transport persons or goods, such as medical aid needed in emergencies at sea. In addition, without other persons able to provide care, it is questionable how the obligation to protect and care for wounded and shipwrecked persons could be upheld even if protected persons could be taken on board. Further research on the scope of this obligation in similar situations would therefore be merited.

Questions of compliance with IHL have been raised in examples from naval warfare where warships have attacked other warships, resulting in significant numbers of shipwrecked persons, but not rescued any following the engagement. The fact that the attacking vessel was able to rescue individuals was not of relevance in this critique.[144] In the planning of such attacks, the attacking party must anticipate the likelihood of shipwrecked persons as part of the legal assessment of the effective contribution of the military objective targeted and direct military advantage gained in the attack.[145] The attacking party would thereby be on notice to ensure that sufficient preparations are made so as to be able to rescue them and provide the care required under IHL. Contextual factors, such as temperature of the water, may also affect planning, especially where those in need would require immediate care.[146] Failing to do so following an attack raises at least a violation of the obligation to ensure respect for IHL under Common Article 1 of the Geneva Conventions of 1949, if not a violation of the obligation to respect, including Article 18 GCII.[147] In attacks using USVs, the attacking party is similarly on notice that their actions will result in wounded, shipwrecked and dead persons, raising the relevant obligations under IHL. The fact that the USV itself is unable to render such assistance and care is immaterial.

The obligation to search for and collect the wounded and shipwrecked is applicable to all parties of the conflict. As such, where the defending party know that it will not be possible to search and collect the wounded, shipwrecked and dead following engagements involving armed USVs, they may need to dedicate further resources to implementing these obligations. Under Article 18(2) GCII, the parties to the conflict are obliged to conclude local arrangements for the passage of medical and religious personnel and equipment on their way to besieged or encircled areas whenever circumstances permit. This obligation could similarly be extended to areas where armed USVs are used in attack so as to ensure that the protection obligations for shipwrecked and wounded persons at sea are maintained.

Figure 4. A sailor from the HMS Glowworm being rescued by a German sailor during World War II.

Source: Unknown. Possibly a sailor from the Admiral Hipper, Public domain, via Wikimedia Commons.

Conclusion

The use of armed USVs by Ukraine has been acclaimed as an innovation in naval warfare, but in many ways the legal questions that arise are not new. The development of torpedoes, over-the-horizon missiles and similar technology have also raised questions about what the law requires and how to implement protection obligations. But as seen with technological developments of the past, each new iteration raises its own unique issues. Determining whether a USV should be classified as a ship, warship, extension of warship, means of warfare or something else under international law of the sea and IHL is essential to understand what obligations apply to their use. However, as demonstrated in the analysis of the *Sea Baby* and the *Magura*, that determination must be conducted on a case-by-case basis. It is not possible to make generalisations on classification regarding the applicable legal framework.

The capabilities and functions of a USV impacts how it is classified under both international law of the sea and IHL. Emerging practice supports that USVs can be registered as ships and warships, and would then be required to be used in accordance with the relevant requirements under international law of the sea. If USVs are ever used to transport the shipwrecked or wounded, they may fall within the definition of a temporary medical transport. If an unarmed USV is used for military intelligence rather than in attack, it would still fall within the definition of a military objective, but not necessarily as a means of warfare. If the USV is armed, it will classify as a means of warfare under IHL. If a USV is used in an armed attack, the relevant rules under treaty and customary IHL would apply, including, distinction, precautions and proportionality in attack. If a USV is classified as a means of warfare, there are specific requirements relating to the control of weapons in naval warfare that must be taken into consideration, which are different from the requirements applicable in land or aerial warfare. Further research in this area is needed to determine the level of control required and the meaning of "harmless" in this context.

The total absence of a crew on board USVs fundamentally changes the way the obligations to search for, collect, protect and provide care for shipwrecked and wounded persons at sea are implemented. However, it does not change that the obligations still apply. Parties to the armed conflict must plan for and take sufficient measures to ensure that their obligations relating to shipwrecked, the wounded, and dead are upheld in circumstances where armed USVs are used. These technological advances could themselves be part of the answer, as USVs and other unmanned vehicles could be used to assist in the search for shipwrecked persons. This again demonstrates that there is never likely to be a "one-size-fits-all" classification of USVs. Further research into how to implement the obligations under IHL to protect and care for the shipwrecked, wounded and dead resulting from attacks by armed USVs would be merited, as well as the obligations pertaining to navigation and safety under international law of the sea.

Dr Sally Longworth, Researcher at the Swedish Defence Research Agency, and ***Julia Dalman,*** Analyst at the Swedish Defence Research Agency

Endnotes: Table 1

1 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 30 March 2025, http://www.hisutton.com/Ukraine-Sea-Baby-USV.html ('H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025').

2 H. I. Sutton, 'Evolution of Ukraine's Maritime Drone', 28 July 2023, http://www.hisutton.com/Ukraine-Maritime-Drones-Evolution.html ('H. I. Sutton, 'Evolution of Ukraine's Maritime Drone', 2023').

3 H. I. Sutton, 'First Image Of Ukraine's Sidewinder-Armed Magura V7 Surface Drone', Naval News, 4 May 2025, *https://www.navalnews.com/naval-news/2025/05/first-image-of-ukraines-sidewinder-armed-magura-v7-surface-drone/* ('H. I. Sutton, 'First Image Of Ukraine's Sidewinder-Armed Magura V7 Surface Drone', 2025').

4 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025.

5 H. I. Sutton, 'Evolution of Ukraine's Maritime Drone', 2023.

6 Volodymyr B., 'Magura V7 Naval Drones Equipped With Latest Missile Version', Militarnyi, 11 June 2025, *https://militarnyi.com/en/news/magura-v7-naval-drones-equipped-with-latest-missile-version/* ('Volodymyr B., 'Magura V7 Naval Drones Equipped With Latest Missile Version', 2025').

7 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025.

8 H. I. Sutton, 'Evolution of Ukraine's Maritime Drone', 2023.

9 Volodymyr B., 'Magura V7 Naval Drones Equipped With Latest Missile Version', 2025.

10 'Updated Sea Baby 2024 Naval Drone: One Ton of Explosives with a Range of Over 1000 km', Defence Express, 6 March 2024, *https://en.defence-ua.com/weapon_and_tech/updated_sea_baby_2024_naval_drone_one_ton_of_explosives_with_a_range_of_over_1000_km-9748.html*.

11 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025.

12 Roman Romaniuk, 'Target and eliminate: How Ukraine's Magura drones devastate Russian ships', Ukrainska Pravda 25, 4 March 2024, *https://www.pravda.com.ua/eng/articles/2024/03/4/7444793/*.

13 Tayfun Ozberk, 'Ukraine's Magura V5 USV on the stage at DSEI 2023', Naval News, 27 September 2023, *https://www.navalnews.com/event-news/dsei-2023/2023/09/ukraines-magura-v5-usv-on-the-stage-at-dsei-2023/*

14 H. I. Sutton, 'Ukrainian Magura USV armed With R-73/AA-11 ARCHER FrankenSAM', 5 May 2024, *http://www.hisutton.com/Ukraine-USV-FrankenSAM.html*; and H. I. Sutton, 'First Image Of Ukraine's Sidewinder-Armed Magura V7 Surface Drone', 2025.

15 Volodymyr B., 'Magura V7 Naval Drones Equipped With Latest Missile Version', 2025.

16 Volodymyr B., 'Magura V7 Naval Drones Equipped With Latest Missile Version', 2025.

Endnotes

1 H. I. Sutton, 'Uncrewed Platforms Have Been Critical to Ukraine's Success in the Black Sea', Rusi, 20 August 2024, *https://www.rusi.org/explore-our-research/publications/commentary/uncrewed-platforms-have-been-critical-ukraines-success-black-sea*. See also Aftonbladet, 'Dödliga drönare sabbar spelplan för krigsmaskin', 23 March 2024, *https://www.aftonbladet.se/nyheter/a/AP4n9q/dodliga-dronare-sabbar-spelplan-for-krigsmaskin*. See further Niklas Granholm, 'Sjökriget i Svarta havet. Analys av förlopp, utfall och konsekvenser', FOI Memo 8483, 26 March 2024.

2 Nick Paton Walsh, Victoria Butenko and Florence Davey-Attlee, 'The moment Ukraine used an experimental drone to attack a Russian bridge', CNN, 15 August 2023, *https://edition.cnn.com/2023/08/15/europe/ukraine-crimea-bridge-drone-strike-video-intl/index.html*.

3 Boldizsar Gyori, 'Ukraine downed 2 Russian helicopters in sea drone attack, HUR says', Kyiv Independent, 2 January 2025, *https://kyivindependent.com/ukraine-downs-2-russian-helicopters-in-sea-drone-attack/*; and David Axe, 'One Of Ukraine's Drone Boats Just Shot Down A Russian Helicopter', Forbes, 31 December 2024, *https://www.forbes.com/sites/davidaxe/2024/12/31/one-of-ukraines-drone-boats-just-shot-down-a-russian-helicopter/* (Axe, 'One Of Ukraine's Drone Boats Just Shot Down A Russian Helicopter', 2024').

4 See, for example, Robert Veal, Michael Tsimplis and Andrew Serdy, 'The Legal Status and Operation of Unmanned Maritime Vehicles', Ocean Development & International Law, 2019, Vol. 50, Issue 1, 23-48; Malgorzata Materna, 'Adjusting the Aperture: The International Law Case for Qualifying Unmanned Vessels as Warships', International Law Studies, 2023, Vol. 100, 452-482; and Commander Yusue Saito, 'Reviewing Law of Armed Conflict at Sea and Warfare in New Domains and New Measures: Submarine Cables, Merchant Missile Ships, and Unmanned Marine Systems', Tulmane Maritime Law Journal, Vol. 44, No. 107 (2019-2020).

5 See further Hitoshi Nasu and David Letts, 'The Legal Characterization of Lethal Autonomous Maritime Systems: Warships, Torpedo, or Naval Mine?', International Law Studies, 2020, Vol. 96, 79-97.

6 See for example Veal et al., 'The Legal Status and Operation of Unmanned Maritime Vehicles', 2019, 25-26.

7 Raul (Pete) Pedrozo, 'Russia-Ukraine Conflict: The War at Sea', International Law Studies, 2023, Vol. 100, 1-61, 48; and Wolff Heintschel von Heinegg, James Kraska, David Letts and Raul "Pete" Pedrozo, 'Newport Manual on the Law of Naval Warfare: Second Edition', International Law Studies, 2025, Vol. 105, 46.

8 Other areas of international law apply and regulate the conduct of naval operations at sea, such as international human rights law, international environment law, and international criminal law to name a few, but are not considered further in this memo.

9 See further Malcolm Shaw, International Law (9th ed., Cambridge University Press, 2021), 473-554; and Malcolm D Evans and Reece Lewis, 'The law of the sea', in Malcolm Evans, International Law (6th ed., Oxford University Press, 2024), 628-666.

10 See Common Article 2 to the Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field 1949, 75 UNTS 31 (GCI), Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea 1949, 75 UNTS 85 (GCII), Convention relative to the Treatment of Prisoners of War 1949, 75 UNTS 135 (GCIII), and Convention Relative to the Protection of Civilian Persons in Time of War 1949, 75 UNTS 287 (GCIV); Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts 1977, 1125 UNTS 3 (API), Article 1.

11 Shaw, International Law, 2021, 1030-1069; David Turns, 'The Law of Armed Conflict (International Humanitarian Law)' in Evans, International Law, 2024, 888-920.

12 See, for example, United Nations Convention on the Law of the Sea 1982, 1833 UNTS 397 (UNCLOS), Article 88.

13 Wolff Heintschel von Heinegg, 'The Law of Military Operations at Sea', in Terry D Gill (ed.) and Dieter Fleck (ed.), The Handbook of International Law of Military Operations (2nd ed., Oxford University Press, 2015), 375-421, 376, 396. See further Vienna Convention on the Law of Treaties 1969, 1155 UNTS 331 (VCLT), Article 31(3)(c).

14 Veal et al., 'The Legal Status and Operation of Unmanned Maritime Vehicles', 2019, 25, 28 and 29.

15 See for example Wolff Heintschel von Heinegg 'Naval Technologies' in William H. Boothby (ed.) New Technologies and the Law in War and Peace (Cambridge University Press, 2019), 317-321; and Materna, 'Adjusting the Aperture: The International Law Case for Qualifying Unmanned Vessels as Warships', 2023, 455-456.

16 UNCLOS, Article 17 and 52.

17 UNCLOS, Article 38.

18 UNCLOS, Article 94.

19 UNCLOS, Article 98.

20 UNCLOS, Articles 17-19, 38 and 87-94.

21 UNCLOS, preamble para. 4.

22 UNCLOS, Article 94.

23 See further Robert Veal et al., 'The Legal Status and Operation of Unmanned Maritime Vehicles', 2019, 26; and David Letts and Raul (Pete) Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use' in Natalie Klein, Douglas Guilfoyle, Md Saiful Karim and Rob McLaughlin (eds.), Maritime Vehicles and International Law – Maritime Security Perspectives (Routledge, 2025), 113.

24 Letts and Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use', 2025, 113; Heintschel von Heinegg et al., 'Newport Manual', 2025, 47-49. The International Maritime Organization (IMO) is the UN specialised agency with responsibility for safety and security of shipping and the prevention of marine and atmospheric pollution by ships. The IMO also recognises that there is no universal definition of a ship under international law. Treaties under the auspices of the IMO also do not provide a universal definition of "ship", but rather define various types of ship. See further 'Safety regulations for different types of ships', IMO, *https://www.imo.org/en/ourwork/safety/pages/regulationsdefault.aspx*.

25 International Convention on Salvage 1989, 1953 UNTS, Article 1(b).

26 See, for example, International Convention on Maritime Search and Rescue 1979, 1405 UNTS, Chapter 1-6.

27 UNCLOS, Article 94(1) and (2)(b).

28 UNCLOS, Article 94(3).

29 See, for example, Veal et al., 'The Legal Status and Operation of Unmanned Maritime Vehicles', 2019, 25 and Wolff Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', in Dieter Fleck (ed.), The Handbook of International Humanitarian Law (4th ed., Oxford University Press, 2021), 516-601, 518.

30 Nadja Skopljak, 'With certificate of registry in place, 7-meter USV first uncrewed seagoing vessel to fly Dutch flag', 6 March 2025, Offshore Energy, *https://www.offshore-energy.biz/with-certificate-of-registry-in-place-7-meter-usv-first-uncrewed-seagoing-vessel-to-fly-dutch-flag/#:~:text=VO%3AX%20Barentsz%2C%20the%20fifth%20uncrewed%20survey%20vessel%20%28USV%29,uncrewed%20seagoing%20vessel%20to%20fly%20the%20Dutch%20flag*; and Ruth Arteaga 'Van Oord's VO:X Barentsz receives certification to sail under the Dutch flag' 9 March 2025, Inspenet, *https://inspenet.com/en/noticias/van-oords-vox-barentsz-receives-certification-to-sail-under-the-dutch-flag/*.

31 See Louise Doswald Beck (ed.), San Remo Manual on International Law Applicable to Armed Conflicts at Sea (Cambridge University Press, 1995) (SRM), Rule 13(g). The SRM was published with the aim of restating customary international law applicable to naval warfare. Sweden recognised in SOU 2010:72 Folkrätt i väpnad konflikt – svensk tolkning och tillämpning that its articles, with some few exceptions, reflect customary international law. See also Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 518-519; and Heintschel von Heinegg et al., 'Newport Manual', 2025, 42-43.

32 Convention (VII) relating to the Conversion of Merchant Ships to Warship, The Hague, 18 October 1907, (HC VII 1907), Articles 2-6; and High Seas Convention 1958, 450 UNTS 11, Article 8.

33 UNCLOS, Article 29.

34 UNCLOS, Article 111.

35 UNCLOS, Articles 107 and 110.

36 UNCLOS, Article 224.

37 See also UNCLOS, Article 95. The scope of this obligation varies with the concurrent application of IHL. There is a debate regarding the scope of the right of innocent passage and warships during armed conflict within international law. See further Letts and Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use', 2025, 114; Michael N. Schmitt and David S. Goddard, 'International law and the military use of unmanned maritime systems', International Review of the Red Cross, 2016, Vol. 98, No. 2, 567-592, 581; and Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 519-520 and 530-531.

38 Heintschel von Heinegg et al., 'Newport Manual', 2025, 41; Nasu and Letts, 'The Legal Characterization of Lethal Autonomous Maritime Systems: Warships, Torpedo, or Naval Mine?', 2020, 94-95.

39 Other belligerent rights include the control of neutral vessels in the immediate vicinity of naval operations, visit and search of merchant vessels outside neutral waters when the warship reasonably suspects they are subject to capture, and enforcement of blockades. See further Schmitt and Goddard, 'International law and the military use of unmanned maritime systems' 2016, 581.

40 Nathalie Klein, 'Maritime Autonomous Vehicles within the International Law Framework to Enhance Maritime Security', International Law Studies, Vol. 95, 2019, 244-271, 252; and Veal et al., 'The Legal Status and Operation of Unmanned Maritime Vehicles', 2019, 30-31.

41 French Transport Code, Article L5000-2, referenced in Camile Faure and Rudolph Stammingar (eds.), 'Manual of the Law of Military Operations', French Ministry for Armed Forces, 2022, *https://www.defense.gouv.fr/sites/default/files/sga/French%20Manual%20of%20the%20Law%20of%20Military%20Operations.pdf* section 1.1.2.1, 230.

42 See U.S. Navy, U.S. Marine Corps and U.S. Coast Guard, 'The Commander's Handbook on the Law of Naval Operations', NWP 1-14M (Edition March 2022), *https://usnwc.libguides.com/ld.php?content_id=66281931*, 2-5.

43 Cynthia J. Parmley and Raul (Pete) Pedrozo, 'New Edition of The Commander's Handbook on the Law of Naval Operations', Articles of War, 20 April 2022 *https://lieber.westpoint.edu/new-edition-commanders-handbook-law-of-naval-operations/*; and Schmitt and Goddard, 'International law and the military use of unmanned maritime systems', 2016, 578.

44 IMO, Interim Guidelines for Mass Trials, MSC.1/Circ.1604, 14 June 2019, Annex, 2.3-2.4. *https://www.register-iri.com/wp-content/uploads/MSC.1-Circ.1604.pdf*. See also IMO, Report of the Maritime Safety Committee on Its One Hundredth and Seventh Session, IMO Doc. MSC 107/20, 26 June 2023, para. 5.22; IMO, Report of the MSC-LEG-FAL Joint Working Group on Maritime Autonomous Surface Ships (MASS) on its First Session, IMO Doc. LEG 110/11, 23 December 2022.

45 Letts and Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use, 2025, 106; and Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021), 520. What, if any, impact autonomous functioning had on this classification is beyond the scope of this memo, however.

46 Letts and Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use, 2025, 112.

47 Schmitt and Goddard, 'International law and the military use of unmanned maritime systems', 2016, 582-583.

48 Tom Porter, 'Ukraine showed off an upgraded sea drone it says will be an even bigger nightmare for Russia's navy' Business Insider, 7 March 2024, *https://www.businessinsider.com/ukraine-unveils-new-sea-drone-model-used-to-devastate-russian-fleet-2024-3*; and Sofiia Syngaivska 'Ukrainian Magura V5 Drone Swarms Break Through, Overloading Russian Defenses with New Upgrades', Defence Express, 19 March 2025, *https://en.defence-ua.com/weapon_and_tech/ukrainian_magura_v5_drone_swarms_break_through_overloading_russian_defenses_with_new_upgrades-13890.html*.

49 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 30 March 2025, *http://www.hisutton.com/Ukraine-Sea-Baby-USV.html*.

50 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025.

51 H. I. Sutton, 'Evolution of Ukraine's Maritime Drone', 28 July 2023, *http://www.hisutton.com/Ukraine-Maritime-Drones-Evolution.html*; and Steve Brown, 'Analysis: The Magura-V5 Sea Drone – Scourge of Russia's Black Sea Operations', Kyiv Post, 6 March 2024, *https://www.kyivpost.com/analysis/29068* .

52 Brown, 'Analysis: The Magura-V5 Sea Drone', 2024.

53 Axe, 'One Of Ukraine's Drone Boats Just Shot Down A Russian Helicopter', 2024.

54 H. I. Sutton, 'Ukraine's Sea Baby Maritime Drone (USV)', 2025.

55 Brown, 'Analysis: The Magura-V5 Sea Drone', 2024.

56 API, Article 43. On the application of Articles 48-67 API, see discussion on requirements on the use of weapons of naval warfare under IHL below.

57 See, for example, Naval News, 'Danish Armed Forces to Begin Operational Testing of Saildrone USVs', 9 May 2025, *https://www.navalnews.com/naval-news/2025/05/danish-armed-forces-to-begin-operational-testing-of-saildrone-usvs/*; and Megan Eckstein, 'Sea Hunter Unmanned Ship Continues Autonomy Testing as NAVSEA Moves Forward with Draft RFP', USNI News, 29 April 2019, *https://news.usni.org/2019/04/29/sea-hunter-unmanned-ship-continues-autonomy-testing-as-navsea-moves-forward-with-draft-rfp*; and Gordon Arthur, 'Singapore USVs begin uncrewed patrols in busy waterways', Naval News, 7 February 2025, *https://www.navalnews.com/naval-news/2025/02/singapore-usvs-begin-uncrewed-patrols-in-busy-waterways/*.

58 See further International Convention on Salvage 1989, Article 11b; and Rainer Lagoni, 'Merchant Ships', January 2011 in Anne Peters and Rüdiger Wolfrum, (eds.), Max Planck Encyclopedias of International Law (online edition, Oxford University Press), para. 1.

59 See Program on Humanitarian Policy and Conflict Research, Harvard University, HCPR Manual on International Law Applicable to Air and Missile Warfare (Cambridge University Press, 2013), 4. See also Stuart Casey-Maslen, 'Weapons', in Ben Saul and Dapo Akande (eds.), The Oxford Guide to International Humanitarian Law (Oxford University Press, 2020), 261-276.

60 Note also the obligation under API, Article 36 that in the study, development, acquisition or adoption of new weapons, means or methods of warfare, State parties must determine whether the employment would, in some or all circumstances, be prohibited by international law.

61 See further Pontus Winther and Norea Normelli, 'Folkrättslig granskning av vapenprojekt - Tolkning av artikel 36 i tilläggsprotokoll I till 1949 års Genèvekonventioner', FOI-R--5554—SE, Swedish Defence Research Agency, 2024 (, 28-46; and Casey-Maslen, 'Weapons', 2020, 261-276.

62 See, for example, Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight, Saint Petersburg, 29 November (11 December) 1868; Declaration (IV,3) concerning Expanding Bullets, The Hague, 29 July 1899; Declaration (XIV) Prohibiting the Discharge of Projectiles and Explosives from Balloons, The Hague, 18 October 1907; Convention prohibiting Certain Conventional Weapons 1980, as amended 2001, 1342 UNTS 13; Protocol I to the Convention prohibiting Certain Conventional Weapons on Non-Detectable Weapons 1980, 1342 UNTS 137; Protocol II to the Convention prohibiting Certain Conventional Weapons on Mines, Booby-Traps and Other Devices 1980, 1342 UNTS 342 137; Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II), as amended on 3 May 1996, 2048 UNTS 93; Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapon 1980, 1342 UNTS 137; Convention prohibiting Chemical Weapons 1993 1974 UNTS 45, 1975 UNTS 3; Protocol on Blinding Laser Weapons (Protocol IV to the 1980 Convention) 1995, 1380 UNTS 370; Anti-Personnel Mine Ban Convention 1997, 2056 UNTS 211; Protocol on Explosive Remnants of War to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects (Protocol V), 2399 UNTS 1; Convention on Cluster Munitions 2008, 2688 UNTS 39; and Treaty on the Prohibition of Nuclear Weapons 2017. See also Geneva Protocol on Asphyxiating or Poisonous Gases, and Bacteriological Methods 1925, 94 UNTS 65; Resolution on Small-Calibre Weapon Systems 1979, Appendix E to the Final Act of the United Nations Conference on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, 19 ILM 1523, 1980; and Convention on the Prohibition of Biological Weapons 1972 1015 UNTS 163.

63 See, for example, Convention (VI) relating to the Status of Enemy Merchant Ships at the Outbreak of Hostilities, The Hague, 18 October 1907 (HC VI 1907); HC VII 1907; Convention (VIII) relative to the laying of automatic submarine contact mines, The Hague, 18 October 1907, (HC VIII 1907); Convention (IX) concerning Bombardment by Naval Forces in Time of War, The Hague, 18 October 1907 (HC IX 1907); and Convention (XI) relative to certain Restrictions with regard to the Exercise of the Right of Capture in Naval War, The Hague, 18 October 1907 (HC XI 1907).

64 API, Article 35; Schmitt and Goddard, 'International law and the military use of unmanned maritime systems', 2016, 581; Letts and Pedrozo, 'Maritime Drones at War – Legal Issues Affecting Characterisation and Use', 2025, 119.

65 See Nasu and Letts, 'The Legal Characterization of Lethal Autonomous Maritime Systems: Warships, Torpedo, or Naval Mine?', 2020.

66 Schmitt and Goddard, 'International law and the military use of unmanned maritime systems', 2016, 584.

67 Nasu and Letts, 'The Legal Characterization of Lethal Autonomous Maritime Systems: Warships, Torpedo, or Naval Mine?', 2020, 80-81 and 87-88.

68 NATO Terminology Database, NATOTerm record 18852, AAP-006, AAP-39. See further HC VIII 1907; Heintschel von Heinegg, 'The Law of Military Operations at Sea', 2015, 556-560; and Heintschel von Heinegg et al., 'Newport Manual', 2025, 105-106.

69 Anna Andersson, 'Utveckling av den folkrättsliga regleringen av autonoma vapensystem', FOI-R--5551—SE, Swedish Defence Research Agency, 2024.

70 Convention on Certain Conventional Weapons Group of Governmental Experts on Lethal Autonomous Weapons Systems, 'Rolling text, status date: 12 May 2025', available at: *https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-Group_of_Governmental_Experts_on_Lethal_Autonomous_Weapons_Systems_(2025)/CCW_GGE_LAWS_-_Revised_rolling_text_as_of_12_May_2025.pdf*.

71 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 571.

72 See, for example, HC VI 1907; HC VII 1907; HC VIII 1907; HC IX 1907; and HC XI 1907.

73 See, for example, GCII; GCIII; GCIV; API; Convention for the Protection of Cultural Property in the Event of Armed Conflict 1954, 249 UNTS 215; Protocol for the Protection of Cultural Property in the Event of Armed Conflict (Protocol I), 1954; and Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict 1999, 2253 UNTS 172.

74 Heintschel von Heinegg et al., 'Newport Manual', 2025, 7. See also Navy Lookout, 'Black Sea battle: how Ukraine's drones overpowered the Russian Navy', 22 July 2025, https://www.navylookout.com/black-sea-battle-how-ukraines-drones-overpowered-the-russian-navy/.

75 See, for example, Alison Orlova, 'Ukraine Hits Black Sea Fleet in Novorossiysk as Chaos Reported Across Russian Black Sea Regions', Kyiv Post, 24 September 2025, *www.kyivpost.com/post/60783*, and Tim Zadorozhny, 'Ukraine's sea drones 'paralyze' Russian Black Sea oil hubs, HUR source says', Kyiv Independent, 25 September 2025, *https://kyivindependent.com/ukraine-paralyzes-russias-key-black-sea-oil-terminals-with-drone-strikes-hur-source-claims/*.

76 See, for example, SRM, 5, and Heintschel von Heinegg et al. 'Newport Manual', 2025, 3-13.

77 SRM, Rules 38-46; Heintschel von Heinegg et al., 'Newport Manual', 2025, 92-104, 147 and 168-173; and Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 531-536.

78 The term mutatis mutandis is a common device of legal writing and reasoning to indicate that the rules apply with the necessary changes to the stated or similar cases. See, for example, UNCLOS, Article 111(2) and (6)(a).

79 International Criminal Tribunal for the former Yugoslavia, Prosecutor v. Tadić, IT-94-1-AR72, Appeals Chamber, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, 2 October 1995, para. 70.

80 SRM, Rule 10.

81 Heintschel von Heinegg, 'The Law of Military Operations at Sea', 2015, 376-380. See further VCLT, Article 31(3)(c).

82 There are notification requirements if mines are laid in these areas. See further Convention (XIII) concerning the Rights and Duties of Neutral Powers in Naval Warfare, 18 October 1907, (HC XIII 1907), Articles 1-2; and SRM, Rule 10(c), 34 and 35.

83 HC XIII 1907, Articles 1-2; and SRM, Rule 15-16.

84 HC XIII 1907, Article 10; and SRM, Rules 19, and 27-33.

85 See also HC XIII 1907, Articles 5 and 12-20. Further research would be merited on the law applicable to armed USVs passing through the territorial waters of a non-belligerent State and the rights and duties of non-belligerent States vis-à-vis armed USVs of the belligerent parties that are within its jurisdiction.

86 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 560 and 562. Note differences in application in naval warfare, e.g. attack of neutral vessels breaching blockade and rules relating to enemy merchant vessels. See SRM, Rules 59-64, 67, 70, and 98.

87 API, Articles 35 and 51(4)(c); and Jean-Marie Henckaerts and Louise Doswald-Beck (eds.), Customary International Humanitarian Law, Volume I: Rules (Cambridge University Press, 2005) (, Rule 70 (Weapons of a Nature to Cause Superfluous Injury or Unnecessary Suffering) and Rule 71 (Weapons That Are by Nature Indiscriminate).

88 API, Article 57(4).

89 Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rule 15 (Principle of Precautions in Attack); SRM, Rule 46; and API, Article 57(4) API

90 Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rules 14 (Proportionality in Attack), Rule 18 (Assessment of the Effects of Attack), and Rule 19 (Control During the Execution of Attacks). On the application of distinction, precautions and proportionality to armed conflict at sea, see further Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 531-536; Heintschel von Heinegg et al., 'Newport Manual', 2025, 84-96; and SRM Rules 38-46.

91 HC VIII 1907, preamble paras. 1 and 2. See also Article 2.

92 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 560-561 referencing HC VIII 1907, Articles 1 and 3.

93 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 561.

94 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 562.

95 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 561.

96 HC VIII 1907, Articles 1(1)-(3) and 3; and SRM, Rule 79.

97 HC VIII 1907, Article 1(3) and Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 571.

98 HC VIII 1907, Articles 1(1) and 1(2); and SRM, Rule 82(b)

99 HC VIII 1907, Article 1(3); SRM, Rule 79.

100 This would also be in line with environmental requirements applicable noted below.

101 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 561-562.

102 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 562.

103 HC VIII 1907, Article 3; and Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 562.

104 Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rule 44 (Due Regard for the Natural Environment in Military Operations).

105 See also International Law Commission, Draft Principles on Protection of the Environment in Relation to Armed Conflicts, Report of the International Law Commission, seventy-third session, 2022, UN Doc. A/77/10, para. 59, Principle 27, which sets out that States and relevant international organisations are required to cooperate to ensure that remnants of war at sea do not constitute a danger to the environment as a matter of customary international law. See further International Court of Justice, The Corfu Channel Case (United Kingdom of Great Britain and Northern Ireland v. Albania), Merits, Judgment of 9 April 1949, ICJ Reports 1949, p. 4.

106 See, for example, Kosta Gakk and Eve Brennan, 'Ukraine claims it destroyed Russian fighter jet using seaborne drone for the first time', CNN, 4 May 2025, *https://edition.cnn.com/2025/05/04/europe/ukraine-destroyed-russian-jet-seaborne-drone-first-intl*; David Axe, 'One Of Ukraine's Drone Boats Just Shot Down A Russian Helicopter', Forbes, 31 December 2024, *https://www.forbes.com/sites/davidaxe/2024/12/31/one-of-ukraines-drone-boats-just-shot-down-a-russian-helicopter/*; and Main Intelligence Directorate of the Ministry of Defence of Ukraine, 'Історичний удар — воїни ГУР вперше у світі знищили повітряну ціль за допомогою морського дрона Magura V5', Telegram, 31 December 2024, *https://t.me/DIUkraine/5127*; and NOELReports, '"482, I'M HIT, GOING DOWN!" — intercepted Russian radio chatter during the downing of a Mi-8 helicopter by Ukraine's Magura V5 naval drone', X, 31 December 2024, *https://x.com/NOELreports/status/1874039132130804037*

107 This memo only considers the legal framework applicable to the high seas. It does not consider the duties on coastal States in relation to vessels in distress off their coasts or in their ports. See further UNCLOS, Article 98(2) and the International Convention on Maritime Search and Rescue, 27 April 1979, 1405 UNTS 97.

108 See further Irini Papanicolophulu, 'The Historical Origins of the Duty to Save Life at Sea in International Law', Journal of the History of International Law, 2022, Vol. 24, 149-188.

109 Irini Papanicolophulu, 'The duty to rescue at sea, in peacetime and in war: A general overview, International Review of the Red Cross, 2016, Vol. 98(2), 491–514, 495.

110 See further section on classifying USVs above.

111 International Convention for the Safety of Life at Sea, 1974 (with annex and final act of the International Conference on Safety of Life at Sea, 1974), 1184 UNTS (SOLAS Convention 1974), Annex, Chapter 5, Regulation 33.

112 See also International Convention on Salvage 1989, Article 10(3).

113 SOLAS Convention 1974, Chapter 1, Regulation 3; and 1989 Salvage Convention, Article 4.

114 Note that it is not necessary for a craft to be registered as a ship for an individual to be legally liable for collisions as the person on board responsible for navigation. See Hugo Tiberg, 'Befälhavarskap på nöjesbåtar igen', Svensk Juristtidning, 1992, 409-413. See further Hugo Tiberg, 'Befälhavarskap på nöjesbåtar', Svensk Juristtidning, 1989, 377-389.

115 UNCLOS, Article 94(4)(b).

116 UNCLOS, Article 94(4)(c). Further requirements regarding safety at sea are set out in other treaties, such as Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREG 1972). These are applicable to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels (Rule 1(a)). They will therefore apply to USVs. Further research into how USVs could comply with these requirements is beyond the scope of this memo, but merits further research.

117 See further Felicity G. Attard, The Duty of the Shipmaster to Render Assistance at Sea Under International Law (Brill Nijhoff, 2020).

118 See, for example, U.S, 'The Commander's Handbook on the Law of Naval Operations', 2022, 3.2.1.1 and 3.2.1.2.

119 Article L.5000-2-1, French Transport Code, Article L5000-2, referenced in French Manual of the Law of Military Operations, 2022, section 1.1.2.1, 230. See further Morgane Roussel, 'French Regulations of MASS: Solved and Unsolved Issues', CMI Montreal, 14 June 2023, *https://comitemaritime.org/wp-content/uploads/2023/07/VF_MASS_Paper.pdf*, 4.

120 International Maritime Organization (IMO), Report of the Maritime Safety Committee on Its One Hundredth and Seventh Session, IMO Doc. MSC 107/20, 26 June 2023, para. 5.22, referenced in Heintschel von Heinegg et al., 'Newport Manual', 2025, 49.

121 Where applicable, the duty under the SOLAS Convention 1974 only arises where the master of the vessel is in a position to be able to provide assistance, i.e. able to do so.

122 Papanicolophulu, 'The duty to rescue at sea, in peacetime and in war, 2016, 509. See also Raul (Pete) Pedrozo, 'Duty to Render Assistance to Mariners in Distress During Armed Conflict at Sea: A U.S. Perspective', International Law Studies, 2018, Vol. 94, 102-126.

123 See, for example, Roly McKie, 'Maritime Autonomous Surface Ships (MASS) and SAR, International Maritime Rescue Federation, *https://www.international-maritime-rescue.org/news/maritime-autonomous-surface-ships-mass-and-sar*.

124 See, for example, Natalie Klein, 'Maritime autonomous vehicles and international laws on boat migration: Lessons from the use of drones in the Mediterranean', May 2021, Marine Policy, Volume 127; and Panagiotis Loukinas, 'Drones for Border Surveillance: Multipurpose Use, Uncertainty and Challenges at EU Borders', Geopolitics, Vol. 27(1), 89–112

125 Further questions are raised regarding the scope of the duty to provide care and medical assistance in this scenario, however. Further research on the application of this duty would be needed.

126 Steven Haines, 'Who is Shipwrecked?' in Andrew Clapham, Paola Gaeta and Marco Sassòli (eds.), The 1949 Geneva Conventions: A Commentary (Oxford University Press, 2015), 767-780, 769.

127 The principle of humanity permeates international human rights law, international refugee law, and international criminal law to name a few, as well as IHL.

128 VCLT, Article 31(1).

129 Rousel, 'French Regulations of MASS', 2023, 6.

130 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.2.1. The Code of Conduct was adopted by the UK Maritime Autonomous Systems Regulatory Working Group of Maritime UK, an umbrella body for the maritime sector established in the United Kingdom. See further and published by Maritime UK and the Society of Maritime Industries. See further *https://www.maritimeuk.org/media-centre/publications/maritime-autonomous-surface-ships-industry-conduct-principles-code-practice-v4/*.

131 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.3.2.

132 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.3.1.

133 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.4.2. See further 20.4.3.

134 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.4.4.

135 MASS UK Industry Conduct Principles and Code of Practice, Version 8, 2024, 20.4.5, applied mutandis mutandis.

136 Gilles Gaccia, 'The Obligations to Respect, Protect, Collect, and Care for the Wounded, Sick, and Shipwrecked', in Andrew Clapham, Paola Gaeta and Marco Sassòli (eds.), The 1949 Geneva Conventions: A Commentary (Oxford University Press, 2015), 781-806, 787.

137 Knut Dörmann, Liesbeth Lijnzaad, Marco Sassòli and Philip Spoerri (editorial committee), Commentary on the Second Geneva Convention: Convention (II) for the Amelioration of the Condition of Wounded, Sick, and Shipwrecked Members of Armed Forces at Sea (2nd ed., Cambridge University Press, 2017), Article 18 GCII, para. 1630-1631.

138 Gaccia, 'The Obligations to Respect, Protect, Collect, and Care for the Wounded, Sick, and Shipwrecked', 2015, 787-788.

139 Dörmann et al., 2017 Commentary to GCII, Article 18 GCII, paras. 1649-1650.

140 Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 536.

141 Gaccia, 'The Obligations to Respect, Protect, Collect, and Care for the Wounded, Sick, and Shipwrecked', 2015, 788.

142 See further Heintschel von Heinegg, 'The Law of Armed Conflict at Sea', 2021, 549-554. See also Dörmann et al., 2017 Commentary to GCII, Common Article 2, paras. 174. See further GCII, Articles 22-35, API, Articles 8(f)-(k), and 22-23, and Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rule 29 (Medical Transports).

143 Gaccia, 'The Obligations to Respect, Protect, Collect, and Care for the Wounded, Sick, and Shipwrecked', 2015, 788.

144 Haines, 'Who is Shipwrecked?', 2015, 775 gives the example of the British submarine Conqueror attack on the Argentine cruiser, the General Belgrano, sunk by torpedoes, in the Falkland/Maldives war 1982. Large numbers of Argentine naval personnel were shipwrecked as a result, but none were recovered by British naval forces.

145 Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rule 8 (Definition of Military Objectives), Rule 14 (Proportionality in Attack) and Rule 18 (Assessment of Effects of Attack). See also Rule 15 (Principle of Precautions in Attack) and Rule 16 (Target Verification).

146 Dörmann et al., 2017 Commentary to GCII, Article 18 GCII, para. 2017

147 Common Article 1 to GCI-IV and Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, 2005, Rule 139 (Respect for International Humanitarian Law).