Submarine Infrastructures and the International Legal Framework

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The purpose of this paper is to identify weaknesses in the international framework for the protection of submarine cables beyond the sovereign waters of coastal States. To illustrate this, the paper uses a hypothetical case study of what a possible attack on a submarine cable may look like. First, it provides an overview over the applicable framework, with a particular focus on international peacekeeping law (*ius contra bellum)*, the law of the sea, protection against piracy, and criminal prosecution under national criminal law. Various international conventions play a key role in relation to submarine cables. Particularly relevant are the Convention on Submarine Telegraph Cables of 1884, the United Nations Convention on the Law of the Sea of 1982, as well as the peacekeeping regulations of the United Nations Charter of 1949. After outlining the legal framework using the classical methods of treaty interpretation, as well as taking the scholarly literature on this subject into account, the example is subsumed under the various means of protection under international law. The peacekeeping law of the United Nations turns out to be ineffective because, on the one hand, an attack as described in the reference scenario does not necessarily constitute an armed attack in the sense of the UN Charter and therefore cannot be met with military countermeasures. On the other hand, an authorisation by the Security Council cannot be given quickly enough to counter the attack militarily. In addition to that, measures taken in the framework of the Law of the Sea Convention are ineffective due to the exclusive flag State jurisdiction which precludes other States from acting in this matter. An exception to this principle, namely universal jurisdiction to combat piracy, is unlikely to be applied in the context of an attack against a submarine cable. Finally, as result of the exclusive jurisdiction of the flag State and the poor implementation of the international obligations under the Law of the Sea Convention, national criminal law is also inadequate as a repressive means of protection.

KEY WORDS

~ Public international law
~ International maritime law
~ Law of the sea
~ Submarine infrastructures
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1. INTRODUCTION

The importance of submarine cables for the modern way of life is rightly claimed to be crucial, as these cables form the backbone of global telecommunications. It is estimated that fibre-optic cables account for up to 95% of global data traffic (German Council on Foreign Relations, 2023), thereby enabling the rapid and seamless exchange of vast amounts of data that is essential for various aspects of societies' well-being. From international business transactions and financial operations to internet connectivity, entertainment streaming, and even critical communications for emergency services, submarine cables play an indispensable role in connecting people and empowering the interconnected digital world we rely on today (Raha, 2021). In total, there are 574 active and planned submarine cables, amounting to around 1.4 million kilometres of cables worldwide passing through the ocean floor (TeleGeography, 2024, see Figure 1). Consequently, without proper protection, the submarine cables are left rather exposed to malicious acts. With the attacks on the Nord Stream pipelines in 2022, these kinds of infrastructure are targeted more and more frequently in a way that does not amount to an actual armed attack on a State's sovereignty, although being disruptive for the economy or security of that State (Gehringer, 2023).

This raises the question of how these submarine infrastructures can be protected from a legal standpoint. As will be shown in this paper, the current legal framework poses challenges for the effective protection of said infrastructures in multiple dimensions, both on the international and national levels, especially in areas where no or only limited State sovereignty exists, namely the high seas, the Area, the Continental Shelf and the Exclusive Economic Zone (EEZ), where questions of jurisdiction and competence arise. These are far from clear and derive from different sources of law. Two international conventions are focal when it comes to the framework for submarine infrastructures: first, the Convention on Submarine Telegraph Cables from 1884, which is still in force as of today and second, the United Nations Convention for the Law of the Sea (UNCLOS) from 1982, which has incorporated numerous rules and regulations of the first convention. To address and highlight legal problems with regard to submarine infrastructures, the International Law Association (ILA) has established a Committee on Submarine Cables and Pipelines in 2018. It plans to set out existing law, highlight gaps, and give specific recommendations on how the legal framework should be improved (ILA, 2018). In its second Interim Report, the ILA mainly dealt with questions on marine scientific research, as well as the obligation of archipelagic States to respect submarine cables passing through their waters under Article 51(2) UNCLOS (ILA, 2022), which were some of the focal points the ILA identified in its first Interim Report. Part of the ongoing research are, among others, questions on State practice and jurisdiction over submarine cables and pipelines. This goes to show that, despite the attention and recognition this topic receives on an international level, the questions and challenges are far from solved.

The present paper analyses the different legal mechanisms applicable to the protection of submarine cables and the enforcement of jurisdiction against the perpetrators of sabotage acts. The aim is to provide an overview over the problems arising in the context of the protection of submarine cables from hybrid attacks. This is done on the basis of a realistic scenario which the following parts will refer to in order to illustrate the challenges in detail. This analysis is based on a scenario, which will be used in the following sections in order to illustrate the challenges in detail. The scenario is as follows: a State with malicious intent mandates a private individual to conduct an act of sabotage against a submarine cable of another State in a zone beyond the territorial sea, i.e. the Exclusive Economic Zone or the high seas. The act is carried out with a non-military ship, e.g. by cutting a submarine cable, so as to weaken the target's integrity. This may be done, for example, with the help of an anchor tearing apart the cable on the ocean floor. The mandate by which the offenders act is not made public by the flag State, i.e. the State which ordered the attack. With this scenario in mind, the following sections outline possible measures of a preventive and repressive nature, which can be undertaken in due time after the attack has occurred or before an attack has happened. This excludes, for example, a resolution by the Security Council under Chapter VI or VII of the UN Charter (UNCh), as such a resolution would take a

considerable amount of time to come into effect. As this scenario touches upon various areas of law, different legal mechanisms are conceivable and will be detailed thereafter.

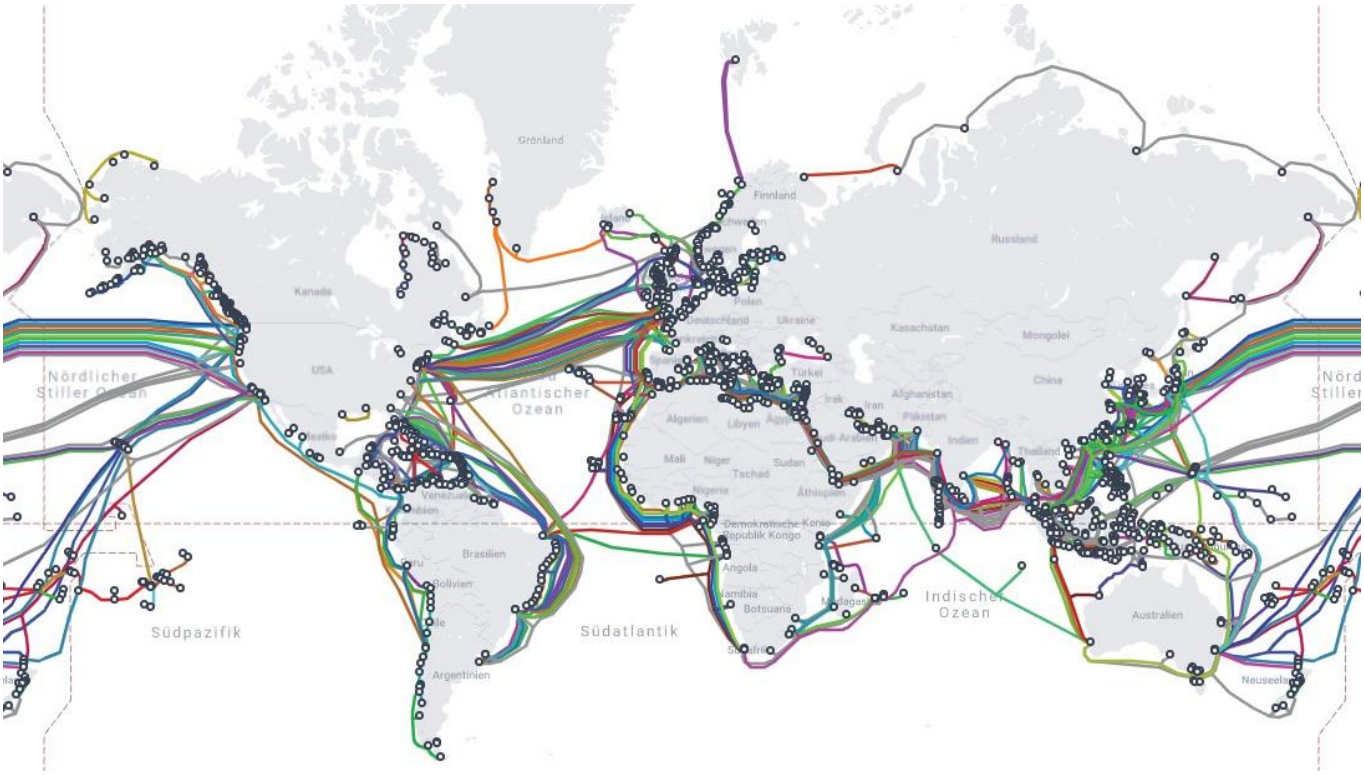

Figure 1. Submarine Cable Map of the World (Source: TeleGeography, https://www.submarinecablemap.com/).

2. IUS CONTRA BELLUM

The legal options available to States to defend themselves against attacks, in a way that complies with the law, depend on the nature and legal classification of the attacks. Rules of international law, specifically the '*ius contra bellum*', and the constitutional law of the State in question, determine the circumstances in which intentional damage to infrastructures can be prevented, including through the use of force or military means. Following the scenario of the introduction, it is assumed that the attacker is an individual or a group acting on behalf of a hostile State. If such an attack is discovered and emergency forces are present and available, the question arises as to whether these forces are authorised to use armed force against the attacker. Whether the affected State is entitled to resort to military countermeasures is dependent upon the qualification as 'use of force' or 'armed attack' in the sense of the UN Charter.

The Use of Force, Art. 2(4) UNCh

Under international law, the permissibility of State self-defence is measured against Art. 2(4) UNCh, which prohibits the use of force, and Art. 51 UNCh, which grants the right to individual and collective self-defence. International law prohibits armed violence between States, which is codified as the prohibition of the use of force in Art. 2(4) UNCh. The principle of prohibiting the use of force applies to international relations, especially those between States (Wiefelspütz, 2007). It is debatable whether an attack outside the territorial sea falls within the scope of Art. 2(4) UNCh, as the attack is located beyond State territories (Tomuschat, 2004). An attack must meet certain criteria to be considered a violation of Art. 2(4) UNCh. More specifically, it must originate from a State, affect international relations, and either target the territorial integrity or political

independence of another State or be incompatible with the purposes of the United Nations. While private aggressors are generally not subject to Art. 2(4) UNCh (Bruha, 2002), in this case, we assume that the attacker is commissioned by a State. Damaging or destroying vital supply infrastructure has the potential to severely impair international relations. Such an attack could also impact the political independence of an affected State. An attack on international infrastructure violates the United Nations' goals of international peace and security. Thus, the attacker in the scenario in question could potentially violate the prohibition of the use of force in Art. 2(4) UNCh.

To violate the prohibition of the use of force, an attack on an undersea cable would needs to be interpreted as a 'threat' or a 'use of force' in the sense of Art. 2(4) UNCh. The term 'force' is not defined in the convention, but it is generally understood in legal literature to be limited to 'armed force' or 'military force'. This interpretation of the term is based on the wording of the preamble to the UN Charter and Art. 44 UNCh (Randelzhofer/Dörr, 2012). According to this interpretation, armed or military force involves the use of weapons of war. Therefore a damage to or destruction of underwater infrastructure, such as submarine cables, cannot generally be categorised as a violation of the prohibition of the use of force under Art. 2(4) UNCh. Attacks can be carried out using non-military physical force as mentioned in the introductory scenario which is below the violence threshold of Art. 2(4) UNCh in terms of their intensity. According to the prevailing opinion, if an attack is carried out using this method, it would not fall under the international prohibition on the use of force (Wiefelspütz, 2007). Thereby an attack on infrastructure beyond the territorial sea is only considered a violation of Art. 2(4) UNCh if military force is used to carry out the attack. However, an attack against submarine cables could nevertheless constitute a violation of the prohibition of intervention, as recognised by customary international law, enshrined in Art. 2(1) UNCh. This provision prohibits States from subjecting other States to coercion below the threshold of armed force (Randelzhofer/Dörr, 2012).

An Armed Attack, Art. 51 UNCh

In addition to the question of whether an attack on data cables constitutes a violation of the prohibition of the use of force, the question also arises as to whether affected States may effectively defend themselves against such an attack, i.e. by means of armed force as well. According to the UN Charter, the only exceptions to the prohibition of the use of force are measures taken by the Security Council under Art. 39 et seq. and the exercise of the right of self-defence under Art. 51. The right to self-defence under Art. 51 UNCh only applies in case of an 'armed attack' (Blumenwitz, 1994). The term 'armed attack' is understood as the high intensity use of a State's armed forces against another State's sovereignty or its armed forces, generally with the purpose of invading its territory (cf. definition of aggression in Art. 3 of the UN General Assembly (UNGA) Resolution 3314 (XXIX), in conjunction with Para. 195 of ICJ, 1986). Based on the findings of the International Court of Justice (ICJ) in the Nicaragua case, an 'armed attack' thus has a significantly higher threshold than the use of force in Art. 2(4) UNCh implies (ICJ, 1986). It is important to note that damage to a submarine cable using non-military means does not generally amount to use of force within the meaning of Art. 2(4) UNCh. In turn, even if military means have been used, the intensity of a submarine cable's sabotage does not necessarily constitute an armed attack. Therefore any violent defensive measures against this attack would not be justified under Article 51 UNCh. It would even amount to a violation of the use of force under Art. 2(4) UNCh. The high threshold of Art. 51 UNCh for the invocation of self-defence is also intended to guarantee the effectiveness of the prohibition of the use of force. In the context of peacekeeping law, the use of force is deliberately limited and should only be used as a last resort. This is supported by the UNGA's definition of 'aggression': According to Art. 5, Para. 1 of the resolution, no justification can be made for aggression, including the use of armed force for any reason, whether political, economic, military, or otherwise (UNGA, 1974). Therefore defensive measures against hostile acts that do not meet the threshold of the prohibition of the use of force must also be limited to the same level. In turn, a State may still be entitled to take non-military measures to protect its interests without the necessity to resort to the concept of self-defence. As a result, the underlying scenario cannot be adequately addressed by military intervention on the basis of international law provisions.

Domestic Constitutional Law

In addition to the international law provisions discussed above, national regulations may also hinder a military response to the attacks in question. To illustrate this further level of regulation, the requirements of German constitutional law for the deployment of the German armed forces will be outlined in the following paragraphs. Other nations may also have legal requirements for deploying their strike forces, although the specifics of these requirements may differ from those in Germany. The German Basic Law (GG) establishes a constitutional reservation for the deployment of German armed forces in Art. 87a para. 2 GG, conclusively regulating the permissible scenarios for such deployment. Activities of the armed forces that do not serve the exercise of sovereign power and therefore cannot be interpreted as deployment are not subject to this reservation (Heun, 2018). The defence against an attack outside the territorial sea is considered a deployment of the armed forces and falls under the relevant constitutional norms, namely Art. 87a para. 2 GG and Art. 24 para. 2 GG. Article 87a para. 2 GG allows for the deployment of the German armed forces solely for defensive purposes. Any other purposes must be explicitly authorised by the constitution. The term 'defence' is generally interpreted to include scenarios such as an armed attack on German territory, as well as the military assistance of a NATO State that has been attacked, as defined in Art. 5 of the NATO Treaty (Epping, 2023). An attack on data cables outside any territorial sea alone does not meet the requirement of Art. 87a para. 2 GG. This leaves the possible application of Art. 24 para. 2 GG, which allows Germany to participate in a system of mutual collective security and to deploy the German armed forces in the exercise of that system. It is generally accepted that Germany, as a member state of the UN, NATO, and the EU, participates in three systems of collective security. Consequently, a deployment of German armed forces to defend against the attacks in question would only be conceivable within the framework of these security systems (Heun, 2018).

The present part focuses on potential solutions offered by military measures under *ius contra bellum* and German constitutional law. However, many pre-emptive or reactive mechanisms against the sabotage of submarine cables can be found in civil law enforcement, outside of military considerations. Conventions, such as UNCLOS, contain a number of provisions which may entitle warships to act in the framework of law enforcement. Such measures will be the focus of the following parts.

3. LAW OF THE SEA

This section will look into the regime provided by the law of the sea concerning the protection of submarine cables beyond the territorial sea. This will be done by examining the international level, as well as the national level, taking German criminal law as an example.

3.1. Fundamentals of the Law of the Sea

The international law of the sea was established following a so-called zonal approach, according to which different maritime zones are linked to different sets of rights and obligations for its users. This regime will be sketched out broadly, before going into the specifics of the status of submarine cables.

3.1.1. Overview of the Legal Regimes applicable to Maritime Zones

The United Nations Convention for the Law of the Sea, which was adopted in 1982 and ratified in 1994, represents what may be called a 'Constitution of the Oceans' (Rothwell and Stephens, 2016), for this framework convention deals with numerous maritime matters of a fundamental nature. Critical maritime infrastructures, navigational rights, the exploration and exploitation of marine resources, marine scientific research, and the protection of the marine environment are some examples of the various issues regulated by UNCLOS. Additionally – and maybe most importantly – UNCLOS established the spatial division of the oceans in distinct maritime zones as they are known today. As illustrated by *Figure 2*, a coastal State enjoys more rights over the adjacent maritime zones closer to the shores and the baselines drawn alongside it. Accordingly, the further from

these same baselines, the more freedom is granted to other users of the seas. The following considerations shall give more details into the legal regime of each of these zones.

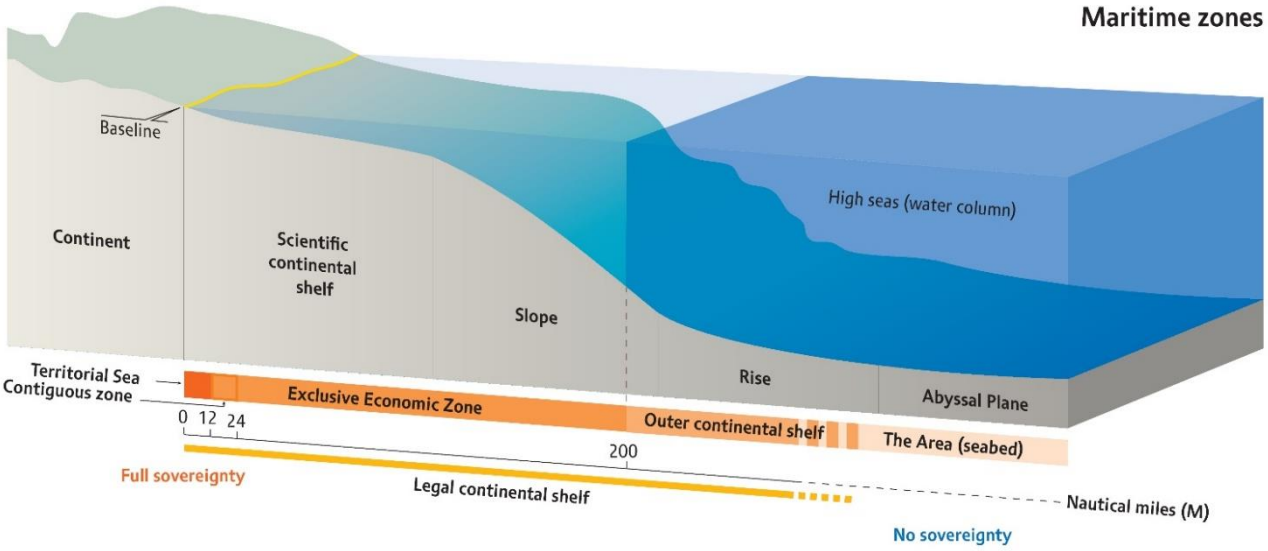

Figure 2. Maritime zones in the Law of the Sea (Source: Riccardo Pravettoni, https://grida.no/resources/7923, 2010).

In the territorial sea, which extends up to twelve (12) nautical miles (nm) from the coastal baseline, the coastal State enjoys full sovereignty, as this zone represents an extension of the State's territory into the ocean (Art. 2, 3 UNCLOS). Still, in that zone, the coastal State has to guarantee the right of innocent passage to every ship which does not pose a threat to its peace, good order, and security (Art. 19(1) UNCLOS). In the Exclusive Economic Zone (EEZ), extending beyond the territorial sea up to 200 nm, the coastal States enjoy specific jurisdictional and sovereign rights, so as to safeguard its economic interests. This is, for instance, the case for the exploration and exploitation of maritime resources or the establishment of artificial islands, installations and structures (Art. 56(1)(a), (b) UNCLOS). Such rights have to be balanced with the freedom of other users in that zone, such as the right of every State to lay submarine cables (Art. 58(1) UNCLOS). Also, extending up to 200 nm, there is a maritime zone of the seabed called the continental shelf. Given specific geological characteristics, it can also be prolongated up to 350 nm, thus extending into the high seas. In this zone, too, the coastal State enjoys rights of exploration and exploitation of natural resources (Art. 77(1) UNCLOS) and here, too, every other State has a right to lay submarine cables (Art. 79(1) UNCLOS). The provisions on submarine cables laying in the EEZ and the continental shelf are a manifestation of the same right (Proelß, 2017). The high seas correspond to every part of the oceans beyond the EEZ. This zone is ruled by the 'freedom of the high seas', among which the freedom to lay submarine cables is to be found (Art. 87(1)(c), Art. 112(1) UNCLOS). No State can claim any form of sovereignty in the high seas (Art. 89 UNCLOS) and the flag State jurisdiction is the principle by which violations of applicable rules are sanctioned (Art. 94 UNCLOS). Beyond the continental shelf, the Area encompasses the rest of the seabed beyond national jurisdiction (Art. 1(1) in conjunction with Part XI UNCLOS).

3.1.2. The Legal Regime of Submarine Cables in the Different Maritime Zones

Pre-UNCLOS regulatory frameworks

The laying of submarine cables predates the adoption of UNCLOS and so do regulatory frameworks applicable to such cables. The first of its kind is the Convention for the Protection of Submarine Telegraph Cables, signed in 1884 and still in force as of the time of this paper's redaction. The Convention is applicable

'outside territorial waters' (Art. I Telegraph Cables Convention) and makes it a *'punishable offence to break or injure a submarine cable, wilfully or by culpable negligence'* (Art. II 1884 Telegraph Cables Convention). Moreover, the Convention entails obligations for State parties to institute prosecutions for damaging a submarine cable (Art. IX Telegraph Cables Convention). However, this Convention could hardly be applied as it is today, in order to compensate the shortcomings of the current legal regime detailed hereafter. The 1884 Telegraph Cables Convention, creating obligations for only thirty-seven (37) States does not reflect the current situation in which almost every region of the globe is connected to submarine cables (Takei, 2012). Moreover, it is questionable whether the very scope of the Convention, i.e. telegraph cables, can be interpreted as far as applying to data cables as they exist today (Mudrić, 2010), even if it is understood by many that no difference should be made between data cables and other communication cables (Vitzthum *et al.*, 2006). Finally, in the case of an offence, Art. VIII postulates the jurisdiction of the flag State, i.e. the State where the ship on which the offence was committed is registered. If this provision is not applicable, any State party can exercise its jurisdiction, but only onto its own citizens. This regime and its shortcomings regarding sabotage acts are still to be found in today's regime which shall be presently detailed.

Following the 1884 Telegraph Cables Convention and before the adoption of UNCLOS, other attempts have been made to regulate the broader scope of the law of the sea. The International Law Commission (ILC) draughted so-called 'Articles Concerning the Law of the Sea' in 1956 (ILC, 1956a). In 1958 Conventions on the High Seas and on the Continental Shelf were adopted, taking over parts of the 1884 Telegraph Cable Convention (Raha & Raju, 2021). These different regulatory frameworks established rules on submarine cables and were used as an inspiration for the provisions contained in UNCLOS today. The next part will be dedicated to the legal regime under UNCLOS applicable in different maritime zones, to submarine cables specifically.

UNCLOS' attribution of jurisdiction regarding the sabotage of submarine cables

The question of attribution of jurisdiction applicable to submarine cables is a complex one for UNCLOS lacks clear rules on the matter. As a result, a variety of States could claim to enjoy jurisdiction based on territoriality, such as the State from which the cable departs, where it lands, or the States through which the cable passes. Other States could enjoy jurisdiction based on the nationality of the entity which laid the cable or its owner. The issue is rendered even more complicated if such cables are wilfully sabotaged. The Committee on Submarine Cables and Pipelines, created by the International Law Association, indicated the following on the matter: *'Accordingly, issues concerning State jurisdiction over submarine cables and pipelines—especially given the multifaceted involvement of non-State actors in activities concerning submarine cables and pipelines explained above—remain ambiguous and complex, because, inter alia, it is difficult to establish which State enjoys legislative and enforcement jurisdiction over cables and pipelines in all maritime zones'.* (Committee on Submarine Cables and Pipelines, 2020).

The scenario detailed in the introduction chose to take the EEZ and the high seas as settings for the sabotage act, i.e. zones beyond the territorial sea. In these zone indeed, the protection of submarine cables does not represent particular difficulties. Any ship trying to damage a cable in the territorial sea can be considered as not engaged in innocent passage, which shall in turn trigger criminal law enforcement mechanisms by the coastal State, such as arresting the vessel and trying the crew on board (Art. 21(1)(c) in conjunction with Art. 27(1) UNCLOS). However, even in the territorial sea, any concurring jurisdiction claim cannot be ruled out. The flag State of the vessel which has damaged the cable could also try and claim jurisdiction in this instance.

Effective protection gaps become clearer once the sabotage happens in the EEZ, i.e. on the continental shelf. Indeed, neither legal regime extends jurisdictional rights of the coastal State over said submarine cables. According to Art. 79(4) UNCLOS, the only jurisdiction a coastal State can enjoy over submarine cables is if they are laid in direct connection with the exploration of the continental shelf or the exploitation of its resources. Moreover, the same paragraph indicates that the coastal State can establish some conditions over submarine

cables entering its territorial sea. This prerogative, however, falls short of actual jurisdictional powers (Englender, 2017). Following these considerations, only the flag State will have jurisdiction regarding sabotage acts inflicted upon submarine cables in the EEZ, i.e. on the continental shelf. Potential concurring jurisdictions could also be claimed by other States, such as that of the cable's owner. This question will be briefly touched upon in the following segment, dealing with the high seas regime.

The issues just depicted are to a large extent similar to the ones encountered in the high seas. Indeed, Art. 58(2) UNCLOS, which regulates the rights and duties of other States in the EEZ, indicates that a number of rules found in the part pertaining to the high seas also apply in the EEZ. This is specifically the case for a number of provisions about the submarine cables' regime of the high seas. Hence the issues depicted here are also to be kept in mind when considering the EEZ regime. An important difference between both regimes is, of course, the impossibility to consider the coastal State as a potential jurisdiction holder in the high seas, for this is by definition an area beyond national jurisdiction. As stated earlier, the high seas regime recognises the freedom for all States to lay submarine cables on the bed of the high seas, beyond the continental shelf (Art. 87(1)(c), Art. 112(1) UNCLOS). Beyond this, however, the Convention does not set clear and effective rules when it comes to sabotage. The only provision dealing with the wilful breaking or injury of a submarine cable is Art. 113, which makes it a duty for States to recognise such sabotage acts as a 'punishable offence' through national legislation and regulation. States can only enforce these laws based on their flag State jurisdictional powers or the nationality of the offenders. Another relevant provision is Art. 97, according to which only the flag State is responsible to institute penal proceedings in cases of 'incidents of navigation', among other things. So as to which elements are to be understood under this definition, the ILC – in its 'Commentary on the Articles Concerning the Law of the Sea' – considered that *'damage to a submarine telegraph, telephone or high-voltage power cable or to a pipeline may be regarded as an "incident of navigation"'* (ILC, 1956b). It seems that the ILC's interpretation of this definition aims at encompassing the many different types of submarine cables existing in 1956, as the commentary was draughted. This interpretation is also found in literature on the topic (Vitzthum *et al*., 2006). Hence it is safe to assume that current data cable can also be subject to 'incidents of navigation' if damaged by a ship. However, relying on the flag State jurisdiction principle to address sabotage acts against submarine cables is an unsatisfactory solution. Indeed, current threats against submarine cables in the broader framework of hybrid warfare blur the line between State-sanctioned attacks from those carried out by non-State entities (Bueger *et al.,* 2022). In a scenario where a State ordered the sabotage under the guise of a crew acting alone to destabilise a region, it is unrealistic to expect the same State to try the culprits if they are its nationals or if they acted on board a ship registered in that State. Furthermore, many ships fly a flag of convenience, i.e. are registered in countries which fail to uphold their duties as flag States. In such instances, no effective and diligent prosecution by the flag State can be guaranteed.

Because the freedom to lay submarine cables can only be guaranteed when coupled with the freedom to operate them (ILA, 2020) or, as argued by some authors, to protect them against potential attacks (Vitzthum *et al*., 2006), the cable owner's State could also claim to be a jurisdiction holder. Besides the fact that UNCLOS does not recognise owner States as potential jurisdiction holders, most cables are owned by consortia encompassing a multitude of nationalities, rendering the attribution to one State's jurisdiction extremely complex (Davenport, 2018). Moreover, those cables do not have a registration like ships, allowing the identification of one responsible State (ILA, 2020). If such a registration regime were to be introduced, the issue of concurring jurisdiction attribution would be rendered easier.

3.2. Notable Exceptions

The previous segment of this article has established that for any sabotage acts committed against a submarine cable beyond the territorial sea, only the flag State jurisdiction can be derived from UNCLOS. The coastal State's jurisdiction could only come into consideration if the offense took place in territorial sea. Both the flag and coastal State regime can only help to identify the jurisdiction of a single State. However, UNCLOS

contains a well-known exception to this idea, i.e. a form of universal jurisdiction in cases of piracy. According to Art. 105 UNCLOS, *'[…] every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of the State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property […]*'. Art. 101 UNCLOS defines piracy as:

> *'(a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:*
>
> *(i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;*
>
> *(ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State'.*

The question that can be raised here is whether acts of sabotage against submarine cables in areas beyond national jurisdiction could amount to piracy, according to the definition given by UNCLOS. One element to identify is the object of piracy attacks itself. In this regard, Art. 101 establishes a list of potential targets of such acts. The only element under which the sabotage of submarine cables could fall is the mention of *'property in a place outside the jurisdiction of any State.'* The wording of this article is to be traced back to the 'Articles on the Law of the Sea' that the ILC issued in 1956 (ILC, 1956a). The ILC also published a commentary to these articles, in which it explains that *'property in a place outside the jurisdiction of any State'* is meant to address ships on the shores of unoccupied territories, thereby not covering submarine cables on the high seas (ILC, 1956b). Following this historical interpretation of Art. 101 UNCLOS, it appears that submarine cables cannot be the target of piracy acts.

Another element of the definition of piracy is the necessity for the act to be carried out for private ends. Opposed to that are, for example, acts committed for political motives and State-sponsored acts (Guilfoyle, 2017c). When it comes to damaging submarine cables, it seems difficult to argue that any individual could directly take advantage from such sabotage, except in cases where the cables' material is sought after so as to be sold (20Minuten, 2007). In the scenario this article chose to look into, a politically motivated sabotage act can hardly be understood as fulfilling private ends, for States are behind the attacks, not the individuals themselves. Therefore here again the definition of piracy cannot apply to the intentional damages inflicted upon submarine cables.

3.3. National Implementation through Criminal law

As a result of the general exclusivity of the jurisdiction of the flag State, the responsibility to regulate and also punish behaviour rests in principle with the flag State. Enforcing rules in areas outside the territorial jurisdiction of a specific State can present certain difficulties since the criminal prosecution of unlawful behaviour is predominantly a national matter (ICRC 2021). Typically, in criminal law, there are two central connecting factors to establish jurisdiction: territorial jurisdiction over a State's territory and personal jurisdiction over nationals of that State. In the context of the law of the sea, territorial jurisdiction extends to the territorial sea of a State. Beyond the territorial sea, the coastal State has only limited jurisdiction, which generally does not include criminal jurisdiction: Art. 56 UNCLOS exhaustively lists the jurisdictional and sovereign rights of a coastal State over the exclusive economic zone and does not include the general right for criminal prosecution. The same can be derived from the freedom of the high seas and the exclusiveness of the flag State jurisdiction under Art. 92(1) UNCLOS, with the exception of enforcement jurisdiction over its own nationals (Guilfoyle, 2017a). Therefore the flag State jurisdiction exercised by a State over a ship – and the persons on board that ship – is exclusive, meaning that other States are not legally entitled to exercise their jurisdiction over the ship (Tanaka 2019). Consequently, in general, only the flag State of the ship has the power to enforce criminal proceedings in respect of acts causing damages to submarine infrastructure. The only other possibility to establish jurisdiction is for the State of which the offender is a national. The challenge with this constellation lies

in the fact that the States that are competent to exercise their jurisdiction are not the same States that have an actual interest in exercising it.

This problem can be illustrated by the aforementioned example. As has been outlined earlier, a ship that was actively sent out by the flag State to damage a submarine cable outside the territorial sea of the coastal State with its own nationals as crew is only subject to the jurisdiction of that flag State. In this case, however, the flag State has no incentive to actively pursue criminal proceedings against the perpetrators since the flag State itself is the originator leading to the damage (Taikei, 2012). The interest in protecting submarine cables usually lies with the coastal State or the State of which the owners of the cables are nationals. However, other States are not competent on the international level to prosecute the perpetrator because they are lacking criminal jurisdiction, which is a crucial part to exercise criminal proceedings. This creates a situation in which there is no legal possibility to initiate criminal proceedings against offenders, if the State to which jurisdictional powers fall to is unwilling or unable to prosecute the perpetrators of damages against submarine cables. Although the flag State is obliged to adopt laws and regulations necessary to provide that the breaking or injury by a ship flying its flag is a punishable offense under Art. 113 UNCLOS.Wwhen failing to do so, the unwilling State cannot be forced to prosecute perpetrators by virtue of the concept of sovereign equality of the States, Art. 2(1) UNCh. The State may simply be subject to State responsibility for failing to fulfill its international obligation under UNCLOS or customary international law, Art. 28 *et seq*. of the Draught Articles on Responsibility of States for Internationally Wrongful Acts.

Another problem is caused by the fact that there must be a punishable offense within the jurisdiction seeking to bring an individual to justice for a committed crime. Depending on the States' legal traditions, international obligations do not always find a direct application on national legal orders. In such cases, an incorporation of these obligations into national law needs to take place. Nevertheless, there is a recurrent argument that the implementation of Art. 113 UNCLOS remains unsatisfactory in the majority of States (Davenport, 2015; Beckmann, 2010). In Germany, for instance, the scope of criminal liability beyond the borders of the Federal Republic is considerably restricted. Typically, criminal prosecution under the German Penal Code (StGB) is confined to actions occurring within the territorial boundaries of the Federal Republic, with only a handful of exceptions. One such exception is found in § 6 No. 9 StGB, stipulating that German criminal law is applicable to actions prosecutable under an international treaty binding the Federal Republic of Germany, even if the offenses were committed abroad. Art. 113 UNCLOS could serve as the basis for such an international agreement. Another possibility is through § 3 StGB, in conjunction with § 9 StGB, covering criminal offenses whose consequences unfold within the territory, despite the actual act occurring beyond its borders. However, Germany lacks a specific offense dedicated to the protection of submarine cables, necessitating recourse to broader provisions in the Criminal Code that entail stringent criteria. These general provisions include § 316b StGB (disturbance of public affairs), § 317 StGB (interference with telecommunications systems), § 88 StGB (anti-constitutional sabotage), and the more broadly defined § 303 StGB (damage to property). Some nations have indeed enacted legislation to implement Art. 113 UNCLOS or the aforementioned Convention for the Protection of Submarine Telegraphic Cables of 1884, for example Austria with the Law of 30 March 1888, laying down penal provisions concerning the securing of submarine cables (StF: RGBl. No. 41/1888). However, in numerous instances, these legal frameworks are over a century old and outdated (Taikei, 2012). These instances underscore the prevalent issue that national legislation often lags behind in keeping up with the evolving landscape, particularly in safeguarding these critical infrastructures.

To summarise the challenges that arise with the protection of submarine cables through domestic criminal law, similar to questions relating to the law of the sea, only the flag State is competent to institute criminal proceedings against the crew on the offender ship. Since the flag State in the underlying scenario is actually the initiating party behind the attack, it is unlikely that the flag State has an interest in prosecuting the crew that it has mandated itself. Therefore, it is highly unlikely that the perpetrators will be prosecuted through an appropriate criminal procedure. The only option under UNCLOS for States affected by the attack is to call upon

the flag State to investigate the matter and take any action necessary to remedy the situation according to Art. 94(6) UNCLOS. This regulation, however, is considered to constitute a relatively weak system of oversight due to the lack of powers of arrest or corrective detention (Guilfoyle, 2017b). A failure to comply with the obligation to take necessary actions under UNCLOS might simply be brought before an international court as violation of the Convention itself.

4. FUTURE PROSPECTS

Demonstrated by the foregoing sections, the protection of submarine infrastructure in adherence to the principles of international law of the sea is a matter of considerable importance. Subsequently, the ensuing section of the paper delves into discerning potential advancements within the relevant legal domains to propel the discourse forward.

Ius Contra Bellum

The challenges set forth by the UN Charter are quite complicated to solve since the prohibition of the threat or use of force under Art. 2(4) UNCh is one of the cornerstones of public international law in general. It is not without reason that the international prohibition of the use of force is a peremptory norm of *Ius Cogens* (Corten & Koutroulis, 2021). Generally speaking, exceptions that permit the use of force have been intentionally very narrowly defined. Yet, as stated in Art. 2(4) UNCh, *'all members shall refrain in their international relations from the threat or use of force (…) in any other manner inconsistent with the Purposes of the United Nations'*. Therefore one could argue that the use of force, when it is carried out in a way that is consistent with the purposes of the UN, could fall outside of the general prohibition of the use of force. An approach worth discussing would be that the defence of submarine cables against hybrid attacks could be seen as consistent with the purposes of the UN. Thus using military force to safeguard such purposes might fall outside the scope of the prohibition of force. Naturally, this approach has far-reaching consequences as an entirely new exception to the prohibition of force would be generated. It could also imply that any action inconsistent with the purposes of the UN may give way to the legitimisation of the use of force. However, keeping in mind the paramount importance of submarine data cables, as well as the unprecedented threats through hybrid attacks, there might be a necessity for the international community to adapt to this new situation.

Extensive forms of jurisdiction

Even if the definition of piracy cannot apply to the sabotage of submarine cables, the possibility to resort to universal jurisdiction remains an interesting idea to look into for such attacks. Indeed, the purpose of submitting piracy to universal jurisdiction is to suppress crimes which have a negative impact on the international community as a whole (Fink, 2018). Severing data cables which provide internet connection to every part of the globe can be interpreted as an act with such negative consequences. Universal jurisdiction could thus be seen as an adequate means to fight such sabotage acts, even outside the scope of piracy. A corollary of qualifying an attack as a piracy act is the so-called right of visit, established by Art. 110 UNCLOS. Under this provision, a warship suspecting another vessel to be engaged in piracy, slave trade, unauthorised broadcasting, flying none or the wrong flag, may intervene to ensure that vessel's compliance with applicable rules (Art. 110(2) UNCLOS). Such prerogatives may even lead to the boarding of the vessel. This right of visit could also be an option to consider for the wilful damages inflicted upon submarine cables. The 1884 Convention on the Protection of Telegraphic Cables mentioned earlier also established a similar right in its Art. X. However, it is only enforceable by the parties to the treaty, thereby considerably limiting its scope. In general, proposing an extension of universal jurisdiction to encompass the protection of submarine infrastructure could contribute towards mitigating the inherent strictness of the current flag State system. Consequently, this expansion opens up the potential for a State to initiate its own criminal proceedings against an offending ship, beyond the confines of the flag State jurisdiction.

An expansion of the criminal jurisdiction in favour of the affected State could also potentially be based on the so-called 'protective principle' in international law. According to this controversial principle, States are allowed to prosecute crimes committed outside their territories if the crimes pose a threat to their national security. Some States even argue that the protective principle would legitimate enforcement operations outside their own territory. This principle, however, remains extremely debated, also due to the many adverse consequences it implies, such as an *'unpredictable expansion of States' interests'* or the infringement on individual rights granted by other States (Gallant, 2022). In the scenario depicted earlier, the protective principle would imply that a State dependent on a cable which has been wilfully severed could exercise its jurisdictional powers over the offender ship, wherever it may be. This, in a way, resembles the prerogatives offered by universal jurisdiction, which is however only applicable in a determined set of cases, ensuring a guarantee of stability and predictability. The protective principle is meant to be applied indistinctly of the alleged offence to the national security of a State, thereby encouraging arbitrariness.

International Cooperation

This right of visit does not, however, impair other forms of control by foreign vessels, for instance by virtue of a treaty between States (Guilfoyle, 2017d). Bilateral or multilateral conventions could also be a way for every new submarine cable to clearly attribute jurisdiction to either the coastal States or the State in which the cable departs or arrives, without contradicting the provisions contained in UNCLOS. Such treaties already exist between Germany, Denmark, and the Netherlands for instance, and confirm the jurisdiction of the relevant coastal State in matters of environment and security on the continental shelf, with regard to pipelines (Vitzthum *et al*., 2006). Other possibilities of cooperation between States are also present throughout UNCLOS and could represent opportunities to counter sabotage acts against submarine cables. For instance, Art. 94 UNCLOS, dealing with the duties of the flag State, establishes in its sixth paragraph that any State may notify the flag State of any of its ships onboard which proper jurisdiction and control are not exercised. The flag State may in turn *'investigate the matter'* and *'take any action necessary to remedy the situation'*. In this scenario, the flag State could remain the decision maker, but still delegate the actual enforcement of its decision to the State which observed the offence. Another option, touching upon earlier ones, would be to consider a registration regime for submarine cables, similar to the way ships are registered in a flag State. This would secure the attribution of jurisdiction in cases of damages done to submarine cable and the subsequent trial. Such a solution would compensate the shortcomings of the current state of play, in which consortia of multiple nationalities own the cables (Takei, 2012). Indeed, when a consortium comprising multiple nationalities owns a cable, the attribution of jurisdiction to one State only is rendered much more complicated (ILA, 2020).

5. CONCLUSION

To summarise the findings, this paper has tried to highlight some of the challenges of international law with regard to the protection of submarine infrastructures. This has been shown by using a hypothetical case study of a realistic scenario in which an offender ship purposefully destroys a submarine cable. It can be said that the main problem is caused by a lack of legal certainty when it comes to questions of competences and jurisdiction. The armed forces of the States are not competent to effectively counteract the offender ship because there is usually no case of use of force in the sense of Art. 2(4) UN-Charter, let alone an armed attack triggering no right to individual or collective self-defence in the sense of Art. 51 UN-Charter. On top of that, domestic challenges may arise when it comes to national competences of the armed forces. The German Constitution serves as an example of an unclear situation in areas of the high seas and exclusive economic zone, which leads to the problem that there is no clear allocation of competences for the individual authorities. With regard to the law of the sea, it is apparent that none of the applicable regimes is entirely fit to effectively protect submarine infrastructure. Especially the exclusiveness of the flag State system in UNCLOS leads to the outcome that the distribution of sovereignty and competences does not necessarily reflect the interest of the States in maintaining security and order on the oceans. Since the few and narrow exceptions granted by

universal jurisdiction do not apply in the case at hand, the primary responsibility for preventing acts of sabotage and punishing the perpetrators lies with the flag State of the ship. Some possibilities to move forward have been suggested in this paper. A possible proposition for change involves easing the rigid jurisdictional constraints of the flag State system, such as incorporating the protection of submarine infrastructure within the scope of universal jurisdiction. Consequently, the significance of protecting submarine infrastructure would be elevated to a level commensurate with the importance of the infrastructure itself.

CONFLICT OF INTEREST

The authors declare that they have no known financial or non-financial conflicting interests in any material discussed in this paper.

NOTICE

The present paper has been selected to be published as an extended version of the authors' previous work on this subject. It is an extension of the conference paper 'Legal Considerations on the Protection of Submarine Cables in the International and National Legal Framework' presented at the 3rd European Workshop on Maritime Systems, Resilience and Security 2023 (MARESEC 2023), Bremerhaven, Germany (doi: https://doi.org/10.5281/zenodo.8405962). The overall structure of the original paper has been modified to meet the requirements of this journal. The content of this paper is based on the previously published version, but it has been revised and supplemented with several new aspects.

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