

Expert Report: “Security of Submarine Cables and Pipelines under Public International Law: Use of Force and the Law of the Sea”

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Presented to CAHDI on 17 March 2025

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1. Introduction

1. In September 2022, explosions damaged NordStream 1 and NordStream 2 pipelines in the Baltic Sea, in the exclusive economic zone (‘EEZ’) of Denmark and Sweden. These are major transboundary infrastructures transporting gas from Russia to Germany. They cross the territorial sea of three States (Russia, Denmark and Germany) and the EEZ of five States (Russia, Finland, Sweden, Denmark and Germany). They are owned and operated by companies that are incorporated in Switzerland.
2. The 2022 NordStream explosions as well as the recent attacks on electricity and telecommunication cables in the Baltic Sea brilliantly contextualize the security concerns that States have about critical submarine infrastructure, such as pipelines and cables, as well as the challenges that are posed and opportunities presented by the characteristics of this infrastructure and by hybrid warfare.
3. Since 2019, the International Law Association (‘ILA’) Committee on Submarine Cables and Pipelines under international law has produced three reports. The Committee’s Third Report, which was adopted in 2024, deals with the potential lawfulness of measures for monitoring and preventing threats against submarine cables and pipelines, as well as with the exercise of criminal jurisdiction.
4. In June 2024, further to the Chair’s proposal, the ILA Committee decided to prepare a set of guidelines applicable to the monitoring and prevention of attacks against submarine cables and pipelines and to the exercise of criminal jurisdiction over the perpetrators (with accompanying commentary). We aim to adopt this set of guidelines in the ILA Meeting of 2026.

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5. Here, I discuss two issues that appear partly in the Third Report, and partly rely on my own published research. All views expressed in this expert report are my own.
6. *First*, I argue that no State has a right of self-defence in response to attacks against commercial cables and pipelines crossing maritime zones beyond the territorial sea.
7. *Second*, I examine whether States may lawfully take enforcement measures against foreign vessels suspected of attacking cables or pipelines. I have chosen to focus on

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these because they are the most controversial, given that they interfere with freedom of navigation.

2. Self-defence

8. In the aftermath of the NordStream explosions, NATO issued the following statement:

[w]e, as Allies, have committed to prepare for, deter and *defend against* the coercive use of energy and other hybrid tactics by state and non-state actors. Any deliberate *attack* against Allies' critical infrastructure would be met with a united and determined response.'

9. The language used here is perhaps an instance of 'constructive ambiguity'. It implies that forcible reactions in self-defence are permissible in scenarios such as that of NordStream.

10. In my view, caution and nuance are called for.

11. The customary right to self-defence is an exception to the prohibition of use of force, if an armed attack occurs '*against a [State]*'.

12. The main challenge in situations, such as the explosions of a pipeline or a cable, is not so much whether the explosions would meet the required threshold of an 'armed attack' (albeit this will be a relevant assessment). Instead, the two main challenges are the following.

13. *First*, attacks against pipelines and cables are often covert or quasi-covert, in the sense that no State acknowledges the attribution of the conduct to itself. Hence, *factually* States may be unable to determine against *which State* they may use force in self-defence.

14. But, the *second* challenge is more complex and crucial: namely, no State is the victim of an armed attack and thus entitled to self-defence. I analyse this issue here.

15. Unlike vessels that have a flag, pipelines and cables do not have a flag. They are usually owned by private companies that operate them; these companies have multiple shareholders; and the pipelines and cables also serve multiple exporter and importer States. Finally, pipelines and cables are subject to a special regime under the law of the sea.

16. In light of these features, four categories of potential victim States arise.
17. The first category includes the coastal State.
18. If the attack occurs in the internal waters or territorial sea ("TS") of a coastal State, it would be against that coastal State's territorial integrity. The coastal State would be entitled to self-defence.
19. However, attacks against a commercial pipeline or cable located on the EEZ or the continental shelf ("CS") are more complex. In these zones, coastal States enjoy sovereign rights and jurisdiction exclusively on the grounds provided by international law. Pipelines or cables, which are not connected to 'artificial islands, installations and platforms' in the EEZ/CS, are not subject to the jurisdiction of the coastal State. For this reason, an attack against *such* a cable or pipeline is not 'armed attack' against the coastal State.
20. The second category are States where the company that owns or operates the pipeline is incorporated. For instance, in the case of NordStream, this is Switzerland. Yet, until today, Switzerland has not asserted that it is the victim of an armed attack in the context of NordStream. I am also not aware of any other State practice to support an argument that States of incorporation of a pipeline/cable company would be the victim of an armed attack.
21. The third category is that of the State(s) of nationality of shareholders of the pipeline company. This option is highly debatable. There is no State practice to support this proposition. Additionally, it would be unsound, because it would create insecurity in security relations, because shares in principle are scattered and frequently change hands.
22. The fourth category is that of the importing or exporting States. The explosions of pipelines or cables have an unprecedented impact on the energy security of supply of the importing State and the security of demand of the exporting State. Further, interruptions of energy supply by may even curtail the capacity of importing States to comply with their human rights obligations towards individuals in their territory. For instance, importing States rely on energy access in order to ensure that populations in their territories enjoy the right to health.¹ Regarding telecommunications cables, it could even be argued that intentional damage to such cables threatens the functioning of the State, because governments today rely heavily on digital infrastructure in order to function and the financial/banking systems rely on telecommunications.

¹ See analysis in D. Azaria, *Treaties on Transit of Energy via Pipelines and Countermeasures* (OUP 2015), chapter 8.

23. However, as the law stands today, the determination of an ‘armed attack’ rests on *kinetic* effects. The effects on a State’s economy or access to resources or data is not an established criterion for determining that the level of gravity of an ‘armed attack’ has been reached.
24. Overall, no State is the victim of an armed attack in the case of an attack against a cable or pipeline unconnected to the sovereign rights of the coastal State beyond the TS.

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3. Enforcement Measures at Sea to Prevent ‘attacks’ against Cables and Pipelines

25. This brings me to the second part of my analysis about whether States may lawfully take enforcement measures at sea to prevent attacks against cables and pipelines.
26. I will not discuss monitoring measures or the exercise of criminal jurisdiction. Hopefully, we can discuss these in the Q&A.
27. As a starting point, whether enforcement measures are lawful depends on (1) whether the applicable international law – for instance, the Law of the Sea Convention (LOSC) or custom – permits them; and (2) if it does permit them, their lawfulness depends on whether the measures are reasonable, proportionate and necessary.
28. I will focus on the permissibility of measures. I will structure my analysis on three categories of maritime zones, since each is subject to a different legal regime: (1) in the TS under the sovereignty of the coastal State; (2) in maritime zones outside the jurisdiction of any State (namely, the High Seas and the Area); and (3) in maritime zones beyond the territorial sea but within national jurisdiction, namely the EEZ and the CS.

3.1 Territorial Sea

29. In the TS, the coastal State may take all necessary steps to prevent non-innocent passage, such as a vessel suspected of attacking a cable/pipeline in that zone. Other States can only do so with the prior consent of the coastal State.

3.2 High Seas

30. **The flag State** can lawfully take enforcement measures against the vessels carrying their flag on the high seas (‘HS’). However, flag States may be unable or unwilling to do so.
31. **This brings me to other States.** I will discuss here four potential grounds for preventive measures, and the limitations of each.

32. The first ground may be found in Article X of the 1884 Convention for the Protection of Submarine Telegraphic Cables. It provides that warships may board foreign vessels suspected of having caused intentionally the breaking of a cable.
33. However, *first*, the article does not provide for prevention measures, but only measures after such damage has occurred.
34. *Second*, while some States (e.g. USA) consider that this provision reflects customary international law, the ILA Committee has not, to date, found evidence to support that this is the case.
35. *Third*, even if this provision reflected existing custom today, the material scope of this rule is exclusively telegraphic cables. It excludes pipelines, as well as electricity and other telecommunication cables. Instead, what would be needed to address modern challenges is a customary rule that is wider in scope than the one allegedly reflected in Article X of the 1884 Convention. Yet, there is no evidence that such a rule exists under custom.
36. The second ground might be piracy giving rise to the right to visit.
37. The reasoning here would rest on Article 101(a)(ii) of the Law of the Sea Convention, which reads:

‘Piracy consists of any of the following acts:
(a) any illegal acts of violence [...], committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed: [...]

(ii) against [...] *property in a place outside the jurisdiction of any State*; [...]
38. The ordinary meaning of the term ‘property in a place outside the jurisdiction of any State’ covers cables or pipelines on the High Seas. The preparatory works do not confirm this interpretation: they show that this provision was concerned with property in *terra nullius*. However, the terms “a place outside the jurisdiction of any State” are generic and thus subject to evolutive interpretation. On the basis of this reasoning, it is arguable that this provision covers attacks against cables/pipelines on the HS.
39. Further, a reasonable suspicion that a ship is ‘cruising with pirate intent’ makes it one that is ‘engaged in piracy’ and triggers the right of visit.
40. However, there are several limitations in relation to this option.
41. *First*, the term ‘private ends’ raise the continued and unclear distinction between public/private or private/political ends. Even if these distinctions became clear in law, it is not clear that all ‘attacks’ against submarine cables and pipelines would be done for ‘private ends’. Those that are not would not constitute piracy and thus this rule and the right to visit would not apply.

42. *Second*, the main limitation is that there is no State practice that supports the proposition that the aforementioned interpretation of Article 101(a)(ii) is custom today.
43. The third ground could be the freedom to lay submarine cables and pipelines and an associated freedom to operate cables and pipelines.
44. A three-steps reasoning may allow for prevention measures based on this ground.
- The first step is the following: the very purpose of freedom to lay cables and pipelines is the undisturbed operation of submarine cables and pipelines. The latter is a freedom of the high seas.
 - Then, the second step is to argue that States that are the holders of the freedom to lay and thus to operate a cable/pipeline are entitled to take enforcement measures to prevent interference with their freedom. This reasoning relies by analogy on the reasoning of the Tribunal in *Arctic Sunrise*. In that case, the Tribunal reasoned that, under LOSC, the coastal State is entitled to take enforcement measures against a foreign vessel so as to prevent the interference with the coastal State's sovereign rights in the EEZ and the CS.
 - Finally, the third step is the relationship with the freedom of navigation. On the HS, there is no pre-established hierarchy between various freedoms. Instead, some "reasonable interference" of the one over the other freedom may be permissible.
45. However, this line of reasoning faces two challenges.
46. *First*, who would be the State entitled to take such measures? These would not be all States, but only the States that are the holders of the freedom to operate the particular pipeline or cable. However, it is unclear whether all the following States are the holders of the freedom: the importing/exporting States, the States of nationality of the cable/pipeline owner or even of the shareholders of the owner company?
47. *Second*, to date, there is no consistent and widespread State practice or evidence of *opinio juris* that would support that this entitlement is grounded in custom. Even among parties to the LOSC there is no evidence of subsequent practice in the application of the Convention that establishes the agreement of all parties about this interpretation.
48. The fourth ground may be the protection and preservation of the marine environment.
49. Articles 192 and 194(1) of the LOSC and customary international law reflected therein require all States to protect and preserve the marine environment and to take *all necessary measures* to prevent and control pollution from any source. 'Necessary measures' may include enforcement measures.
50. However, the limitations here are the following.
51. *First*, lawful action will depend on the infrastructure and the type of activity used in order to damage the infrastructure. For instance, detonating a pipeline necessarily

produces pollution to the marine environment. However, cutting a cable, rather than exploding it, may not have an effect on the marine environment, and may not thus fall within the scope of the allegedly permissible measures under Articles 192 and 194(1) of Convention.

52. *Second*, there is no State practice sufficient to establish that there is such an entitlement under custom. There is also no subsequent practice in the application of the LOSC that would establish the agreement of all Convention parties as to the Convention's interpretation.

3.3 EEZ and CS

53. This brings me to the last category of maritime zones, namely those outside the TS, where a coastal State enjoys sovereign rights: the EEZ and the CS.

54. Starting with the coastal State, since the coastal State has jurisdiction over the protection of the marine environment in its EEZ, it may lawfully take enforcement measures in the EEZ on this ground. It is unclear however whether such measures can cover instances of cutting cables, as opposed to explosions of pipelines or cables. Further, in relation to pipelines, it can take enforcement measures as reasonable measures for the prevention of pollution from pipelines on its CS (Article 79(2) LOSC).

55. The coastal State may also argue that since it is itself also a holder of the freedom to lay and operate cables in its EEZ, even when these are not connected to its sovereign rights, it may take enforcement measures against foreign vessels to prevent interference with its freedom to operate cables in its EEZ.

56. States other than the coastal State and other than the flag State may be entitled to conduct enforcement measures to prevent attacks on submarine cables and pipelines on the basis of the two following grounds.

57. *First*, on the basis of piracy. Here, the question will be whether a cable/pipeline unconnected with installations in the EEZ or the CS of a State is property *in a place outside the jurisdiction of any State*. The argument would go as follows. Since coastal States do not have general jurisdiction over cables/pipelines, in their EEZ/CS, when these cables/pipelines are unconnected to the coastal State's sovereign rights, they are outside the jurisdiction of any State. Attacks against them constitute piracy within the meaning of the rule set forth in Article 101(a)(ii) of LOSC.

58. *Second*, the freedom to lay and operate cables and pipelines in the EEZ of another State (Article 58(1) LOSC) allows the freedom holders to take measures to prevent interference with their freedom in the EEZ of another State. Here, the right holder would have to give due regard to the rights of the coastal State and to the freedom of navigation of other States.

59. However, to date, there is no evidence that either of these two grounds are custom; and there is no subsequent practice of parties of the LOSC to support that these grounds rest on the agreed interpretation of the Convention.

4. Conclusions

60. The response of governments to the challenges of attacks against submarine critical infrastructure should *not* be to endeavour to expand the right to self-defence.

61. Instead, non-forcible countermeasures remain available. It is also advisable to explore whether there may be *lawful* options for monitoring, prevention and exercise of criminal jurisdiction.

62. Focusing on prevention, I have shared some ‘creative’ arguments that may be made for enforcement on the HS and the EEZ. However, to date, there is no sufficient State practice and evidence of *opinio juris* to support that these are customary rules. Action today, on the basis of the aforementioned grounds, may be a violation of the freedom of navigation and the exclusive jurisdiction of the flag State.

63. State of necessity, under the customary law on State responsibility, may preclude the wrongfulness of enforcement at sea, in those instances where the strict and cumulative conditions of necessity are met. In practical terms, this means that very exceptional scenarios would allow for the application of state of necessity. For instance, when there is almost complete dependence of one’s energy supply or communications from the particular cable or pipeline either owing to a State’s location or owing to the reality of its infrastructure connection.

64. In light of this legal framework, some States may see a need to consider new interpretations of existing law or the change of the law so as to permit enforcement action. And I expect that some States may be willing to encourage new developments in this field.

65. However, any decision to do so, should take into account a word of caution. Those interested in changing the law in order to protect their cables/pipelines may find their vessels subject to enforcement in other parts of the world on the ground of suspicion of damaging such critical infrastructure elsewhere.