SEABED SECURITY

SEABED SECURITY AND THE LAW OF THE SEA: ARE EXISTING LEGAL FRAMEWORKS FIT FOR PURPOSE?

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Defence iQ

As seabed activity intensifies and critical underwater infrastructure becomes increasingly central to global communications and energy systems, protecting these assets has emerged as a growing priority for governments, militaries, and industry stakeholders alike. Subsea data cables carry the vast majority of the world's digital communications, while offshore energy infrastructure forms a critical backbone of national economies.

Yet the legal frameworks governing the seabed were largely developed in a different strategic era. As threats evolve - from sabotage and grey zone activity to the growing use of autonomous underwater technologies - questions are emerging around whether existing maritime law can effectively address these challenges.

Ahead of Defence iQ's Seabed Security Conference, Professor James Kraska, Charles H. Stockton Chair of International Maritime Law at the U.S. Naval War College, shares his perspective on the adequacy of current international legal frameworks, the challenges of attribution and deterrence, and the role of national legislation in strengthening the protection of critical undersea infrastructure.

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James Kraska is Charles H. Stockton Chair of International Maritime Law and Department Chair of the Stockton Center for International Law at the U.S. Naval War College, where he previously served as Howard S. Levie Chair of the Law of Armed Conflict. He is also Visiting Professor of Law and John Harvey Gregory Lecturer on World Organization at Harvard Law School, where he teaches the law of the sea. He served on the faculty of the University of the Philippines College of Law, Gujarat National Law University, Duke University Marine Laboratory, and as an Office of the Chief of Naval Research Fellow at Woods Hole Oceanographic Institution. Professor Kraska is a retired U.S. Navy judge advocate, with multiple tours of duty in Japan and the Pentagon, including as Oceans Law & Policy Adviser and Director of International Negotiations on the Joint Staff. His most recent books are Incidents at Sea in U.S. Diplomacy and International Law (forthcoming with Pedrozo; Oxford); Marine Technology, Ocean Development, and the Law of the Sea (with Lagdami; Cambridge), Disruptive Technology and the Law of Naval Warfare (Oxford) and Emerging Technology and the Law of the Sea (Cambridge). He also leads publication of The Commander's Handbook on the Law of Naval Operations, the official international legal doctrine of the U.S. Navy, U.S. Coast Guard and U.S. Marine Corps. He is a Lifetime member of the Council on Foreign Relations."

As activity on the seabed increases, do you think the current framework under UNCLOS and international maritime law is enough to protect critical undersea infrastructure, or are there legal gaps that now need to be addressed?

I would suggest that the framework for the protection of submarine cables under the United Nations Convention on the Law of the Sea (UNCLOS), along with the Submarine Cables Convention, is sufficient as a matter of international law to address the threat.

However, there are gaps in national laws that implement those international obligations. In that respect, there is still work to be done.

We have been in a similar situation before. Around 2008 to 2009, there was a dramatic upsurge in maritime piracy that lasted for several years. During that period, a number of states had allowed their domestic laws against maritime piracy to lapse. As a result, some countries had to revisit and update their legislation, dusting off older rules or creating entirely new criminal codes targeted at maritime piracy.

I believe we are in a similar position today with submarine cables.

One of the main challenges in seabed security is attribution, especially in cases of suspected sabotage or interference. From a legal perspective, how does the difficulty of proving who is responsible affect deterrence and state accountability at sea?

States need to have the appropriate laws in place to allow authorities - particularly maritime law enforcement authorities - to take action when there is a reasonable suspicion that there has been a threat to, or damage to, submarine cables that is intentional.

If the damage is accidental, it is unlikely to be treated as a criminal matter. But if it is intentional, then it can fall within criminal jurisdiction.

Coastal states, in particular, need to be prepared. They must have both the legal tools and the operational assets necessary to investigate incidents involving submarine cables. Once an incident has been investigated, there must also be a criminal law framework that allows authorities to hold accountable the individuals on board the vessel involved - especially the master.

Beyond that, there should also be mechanisms for financial remedies and, ultimately, diplomatic measures to pursue the ship owners and potentially the flag state as well.

How does international law deal with "grey zone" operations at sea that stay below the level of armed conflict but may still threaten critical underwater infrastructure?

The only way to operate effectively in the grey zone is to recognise that while law has an important role, it is not sufficient on its own.

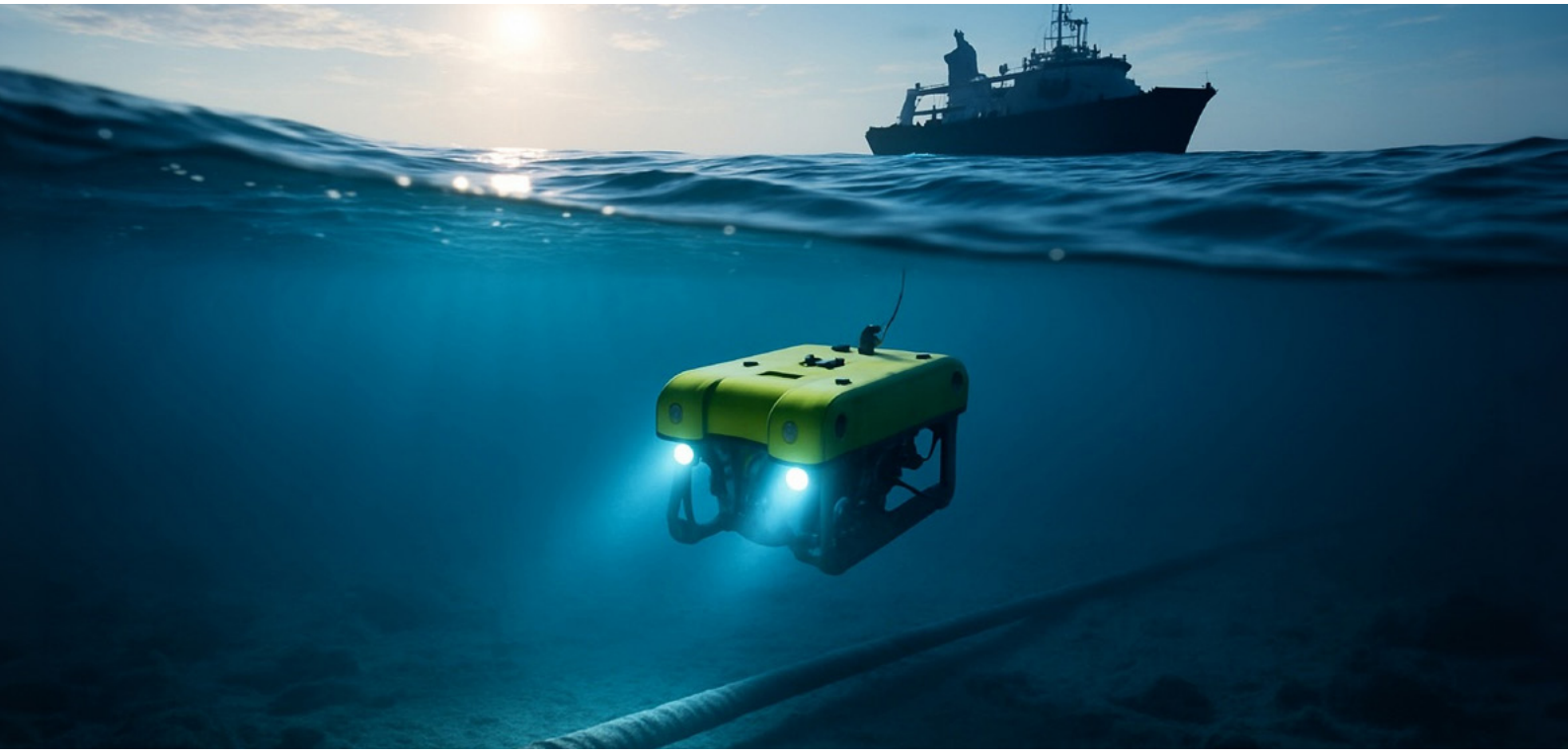
Capabilities and political will are equally important for deterrence. States need to be prepared to take action. In other words, there is no legal "silver bullet" that can replace the need for real operational capability.

Legal frameworks matter, but they must be backed up by the practical ability and willingness of states to respond.

Much critical seabed infrastructure - such as subsea data cables and energy pipelines - is owned by civilian companies but is strategically important. How should states balance protecting these assets with principles like freedom of navigation and non-interference?

The principles of freedom of navigation, freedom of the seas, and non-interference with lawful activities are actually quite easy to distinguish from criminal conduct.

Today, there are increasingly sophisticated tools available to help make that distinction. These include electronic maritime domain awareness systems, as well as surface and potentially undersea assets that can help attribute wrongdoing to specific actors.



Most operations at sea are lawful. The challenge is identifying the anomalies - the activities that fall outside normal behaviour. That process begins with effective maritime domain awareness.

From there, states need the operational capabilities to act on the information they receive, operate on the water, and respond quickly when suspicious activity is detected.

How are developments in technologies such as autonomous underwater vehicles, seabed sensors, and other emerging systems changing the legal framework around seabed operations?

Underwater sensors are essentially part of the continuing development of maritime domain awareness infrastructure.

This process began on the naval side after the Second World War, continued throughout the Cold War, and has evolved into the present day. Initially, these systems were focused primarily on naval and anti-submarine warfare applications.

Over time, however, they have expanded into broader grey zone and maritime law enforcement roles.

Advances in technology - particularly in miniaturisation and the development of distributed systems - are reducing the cost and barriers to entry for these capabilities. As these tools become more widely available to maritime law enforcement authorities, they should significantly improve attribution, enforcement, and ultimately the protection of submarine cables.

If interference with undersea infrastructure were considered an armed attack, what factors would determine whether a state could legally respond with force?

I would caution that, unless there are other external circumstances, simple damage to submarine cables or pipelines is unlikely to be considered an armed attack.

The threshold for invoking the right of self-defence under international law is quite high. Even if such an action could be characterised as a use of force under Article 2(4) of the UN Charter, the threshold required to justify self-defence - based on International Court of Justice jurisprudence - is significantly higher.

Therefore, unless there is a broader political or military context - such as an escalating conflict or other elements of an armed attack - it is unlikely that cutting a submarine cable alone would meet that threshold.

In many ways, that is probably a good thing. In general, we want to de-escalate crises rather than escalate them. Routine or occasional damage to submarine cables is unlikely to cross into the threshold of armed conflict.

It is also important to recognise that legal analysis alone does not necessarily drive decision-making in these situations. Ultimately, these incidents often become political and military issues that states manage through diplomacy rather than through purely legal mechanisms.

How important is legal alignment between allies when carrying out seabed security operations, and where do differences in national interpretations of maritime law create challenges?

Allies act as a force multiplier because each brings overlapping capabilities to the table.

Sometimes these arrangements are formal, such as within NATO or through the European Union's common foreign and defence policy. In other cases, they are more informal partnerships. Either way, these relationships are valuable because different countries possess different capabilities, allowing them to fill gaps that others may have.

From a legal perspective, alignment can be improved through the development and updating of national laws. Ideally, allies and partners should all have comprehensive criminal legal frameworks capable of addressing threats to submarine cables.

If every state has strong legal provisions in place, there are fewer weak points that can be exploited by bad actors.

We see a similar approach in port security. Regional port state memorandums of understanding establish a baseline level of security across ports in a region. This prevents bad actors from simply targeting ports with weaker security standards.

Looking ahead, do you expect new international rules or agreements to emerge specifically to protect critical undersea infrastructure, or will states mainly rely on existing legal frameworks?

I expect states will continue to rely primarily on existing international legal frameworks while strengthening their national authorities.

The reason for this is that international law is based on the consent of states. Some countries are associated with problematic behaviour at sea, including those operating under flags of convenience or open registries, as well as states that are politically aligned against NATO or the European Union.

Those countries are unlikely to support new international rules that would constrain their grey zone activities.

As a result, the international legal framework we have today - however imperfect - is likely to remain the one we operate under. The most effective area for improvement will therefore be at the national level, through stronger domestic laws and enforcement mechanisms.

SEABED SECURITY

Defence iQ

13 - 14 October 2026
Design Hotel, Tróia, Portugal

Get ready for Seabed Security 2026

These issues will be explored in greater depth at **Seabed Security 2026,** taking place **13–14 October 2026 in Troia, Portugal.**

Seabed Security 2026 is designed to address today's operational realities while preparing stakeholders for the future seabed operating environment. The agenda will examine the technologies, doctrine, and partnerships shaping modern seabed warfare, with a particular focus on integrating autonomous and uncrewed maritime systems, enhancing monitoring and surveillance, and protecting critical undersea infrastructure.

Register your interest today to join the conversation and connect with stakeholders across the undersea security community.

2026 Speakers Include

Vice Admiral Robert M. Gaucher
Submarine Direct Reporting Portfolio Manager (Submarine Czar)
US Navy

Rear Admiral Tanguy Botman
Chief of Navy
Belgian Navy

Rear Admiral Kelly C. Ward
Commander Task Force 66
US Navy

Rear Admiral Giulio Cappelletti
Director of the Operational Structure of the National Underwater Dimension Hub
Italian Navy

Captain Robert Watt
Director of Naval Strategy
Royal Canadian Navy

Captain (N) Mette Stab-Johansen
Chief of Operations and Planning
Royal Danish Navy

Captain Serdar Tombul
Concept Development and Experimentation Branch Head
NATO Maritime GEOMETOC Centre of Excellence

Commander Julien Le Roux
Commanding Submarine Officer, Director of Undersea Warfare
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