

INTERNATIONAL HUMANITARIAN LAW AND NAVAL WARFARE: INTERSECTIONALITY OF GENDER, ENVIRONMENT, AND TECHNOLOGY

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Abstract

International humanitarian law (IHL), as the body of law governing conduct during armed conflict, applies equally to warfare at sea as it does on land. However, naval operations possess distinctive characteristics, such as mobility, blockades, contraband control, and the use of mines, that necessitate specialised legal consideration. Classical treaty law, notably the Hague and Geneva Conventions, together with the non-binding San Remo Manual (1994), provide a foundational framework for maritime hostilities. However, contemporary conflicts have exposed enduring lacunae in this framework, particularly when viewed through an intersectional lens. Contemporary naval conflicts increasingly intersect with broader humanitarian, technological, and ecological concerns. The integration of unmanned vessels, cyber tools, and precision technologies has complicated the application of the IHL principles of distinction, proportionality, and precaution. Simultaneously, the gendered dimensions of maritime conflict and the degradation of marine environments necessitate a more holistic and intersectional framework of analysis. Women in seafaring and coastal communities face heightened vulnerabilities, while oil spills, blockades, and deliberate environmental damage exacerbate humanitarian crises. These harms are increasingly recognised in related legal regimes, including the Women, Peace, and Security (WPS) agenda under UNSC Resolution 1325, the ENMOD (Environmental Modification) Convention and marine-pollution treaties such as MARPOL (International Convention for the Prevention of Pollution from Ships). At the outset, the paper examines the legal and practical dimensions of IHL as applied to naval warfare through the lenses of gender, environment, and technology. It contends that existing legal provisions, treaties, and conventions, while not entirely inadequate, remain under-theorised and under-applied in relation to naval warfare, and that doctrinal development is possible by reading IHL together with the law of the sea, environmental law, and WPS norms. It situates these issues within the evolving corpus of international law and argues that rigorous application of IHL at sea must integrate humanitarian, ecological, and technological considerations to address the complex realities of modern maritime conflicts.

I Introduction

INTERNATIONAL HUMANITARIAN Law (IHL), the law to protect human rights during armed conflict, among other things, applies to hostilities at sea just as it does on land. In theory, naval operations must respect the fundamental IHL principles of distinction, proportionality, and precautions, among others. Yet the specific features of naval warfare blockades, contrabands, naval mines, and the mobility of ships

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require tailored rules, as first codified in the early 20th Century through the Hague and Geneva Conventions¹ and modernized in the San Remo Manual² (1994). At the same time, warfare at sea intersects with broader concerns: the plight of women and men in maritime conflicts, the protection of marine environments, and the impact of new technologies (e.g., unmanned vessels and cyber tools) on naval combat. This work at hand examines these dimensions in a comprehensive analysis of IHL at sea, drawing on recent conflicts like the 2024 Red Sea crisis, when major carriers announced avoidance of the Suez route, adding one-to-two weeks' voyage time around Africa due to *Houthi* missile and drone attacks and other similar attacks in Black and South China Seas. At the same time, the U.N. Security Council responded by demanding that the Houthi forces immediately cease attacks on “merchant and commercial vessels.”³

At the same time, contemporary scholarship and practice emphasise that armed conflict generates overlapping forms of vulnerability shaped by gender, class, environmental dependency and technological exposure. Kimberlé Crenshaw's concept of “intersectionality” highlights how harms experienced by individuals cannot be understood along a single axis of discrimination but arise from multiple, mutually reinforcing structures.⁴ Applied to naval warfare, an intersectional lens reveals how women in coastal communities, migrant workers, indigenous fishers, and those dependent on fragile marine ecosystems may experience compounded harms from naval operations, environmental degradation and technological risks.

These developments highlight the need to apply IHL at sea rigorously and to consider its broader social and ecological context. Taking a few strides further, the present paper also compares IHL and the law of the sea to clarify overlapping obligations.

II IHL Framework for naval warfare

Historical and treaty sources

The law of naval warfare in principle originated in the early 20th Century through treaties (Hague Conventions of 1907, Geneva Conventions) and customary practice. The 1907 Hague Conventions (VIII–XIII) covered limited topics: *e.g.*, the laying of

1 Geneva Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Aug. 12, 1949.

2 San Remo Manual on International Law Applicable to Armed Conflicts at Sea, International Inst. of Humanitarian Law. (1994), *available at*: https://www.icrc.org/en/doc/assets/files/other/icrc_002_0703.pdf (last visited on June 24, 2025).

3 Security Council demands *Houthis* cease attacks in the Red Sea, *available at*: <https://news.un.org/en/story/2024/06/1151586> (last visited on June 24, 2025).

4 Kimberlé Crenshaw, “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics” 139 *University of Chicago Legal Forum* (1989).

mines (Convention VIII)⁵, bombardment (IX)⁶, protection of the sick and shipwrecked (X)⁷, status of merchant ships (VI–VII)⁸, capture (XI–XII)⁹, and neutrality (XIII)¹². Their gaps became evident in later conflicts (e.g., German U-boat campaigns in World War I). In 1949, the Geneva Convention II¹¹ (replacing the Hague Convention (X)) protected wounded and shipwrecked in naval combat. Additional Protocol I of 1977, further declared that civilian-protection rules “apply to naval operations, clarifying that general targeting rules- distinction, proportionality, and precautions, apply to attacks “at sea or in the air” that may affect civilians or civilian objects on land or at sea.¹² However, no comprehensive new treaty for maritime combat has been adopted since.

Environmental protection in armed conflict was reinforced through Additional Protocol I Article 35(3) and Article 55, which prohibit methods or means of warfare intended or expected to cause “widespread, long-term and severe damage to the natural environment” and require that the natural environment be protected against such damage, recognising its importance for civilian survival.¹³ The 1976 ENMOD Convention and later instruments on the protection of the environment in armed conflict, together with MARPOL and related treaties, provide complementary obligations relevant to naval warfare.

In response to this lacuna, the San Remo Manual was developed (1987–94) by experts, seeking to restate customary and treaty law applicable to armed conflicts at sea.

5 Hague Convention (VIII) Relative to the Laying of Automatic Submarine Contact Mines, Oct. 18, 1907, 36Stat. 2332, 205 Consol. T.S. 331.

6 Hague Convention (IX) Concerning Bombardment by Naval Forces in Time of War, Oct. 18, 1907, 36 Stat. 2351, 205 Consol. T.S. 345.

7 Hague Convention (X) for the Adaptation to Maritime War of the Principles of the Geneva Convention, Oct. 18, 1907, 36 Stat. 2371, 205 Consol. T.S. 362.

8 Hague Convention (VI) Respecting the Status of Enemy Merchant Ships at the Outbreak of Hostilities, Oct. 18, 1907, 36 Stat. 2313, 205 Consol. T.S. 301; Hague Convention (VII) Relating to the Conversion of Merchant Ships into War-Ships, Oct. 18, 1907, 36 Stat. 2321, 205 Consol. T.S. 307.

9 Hague Convention (XI) Relative to Certain Restrictions with Regard to the Exercise of the Right of Capture in Naval War, Oct. 18, 1907, 36 Stat. 2396, 205 Consol. T.S. 387; Hague Convention (XII) Relative to the Creation of an International Prize Court, Oct. 18, 1907, 36 Stat. 2408, 205 Consol. T.S. 405.

10 Hague Convention (XIII) Concerning the Rights and Duties of Neutral Powers in Naval War, Oct. 18, 1907, 36 Stat. 2415, 205 Consol. T.S. 409.

11 Geneva Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Aug. 12, 1949, 6 U.S.T. 3217, 75 U.N.T.S. 85.

12 Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), June 8, 1977, 1125 U.N.T.S. 3.

13 *Ibid.* arts. 35(3) and 55.

Though non-binding, it affirms that “the key principles of the law of war on land apply to war at sea.”¹⁴, explicitly restating the principles of distinction, precautions, and an adapted concept of “military objective” for maritime warfare. The Manual also details special rules (*e.g.*, on mines, torpedoes, blockades, contraband) reflecting on both IHL and developments in the law of the sea.

Notwithstanding these developments, no new comprehensive treaty on naval warfare has been concluded since 1977. This has led some commentators to describe a “crisis of the law of naval warfare, in which state practice is reshaped by technological innovation and geopolitical rivalry while formal law lags.”¹⁵

Fundamental principles and combatant status

All general IHL principles apply at sea; the attackers must distinguish combatants and military objects (*e.g.*, warships and military ports) from civilians. Attacks are unlawful if there is an expected collateral harm to civilians or their property, which would be excessive in relation to the military targets. The proportionality rule prohibits attacks expected to cause incidental loss of civilian life, injury to civilians or damage to civilian objects that would be excessive in relation to the concrete and direct military advantage anticipated. The obligation of precaution requires naval forces to verify targets and use feasible means to minimise civilian damage (for example, warning a merchant vessel before attack if it is not rapidly identifiable as a military target). IHL further prohibits weapons and tactics that cause superfluous injury or “widespread, long-term, and severe damage to the natural environment”. For instance, indiscriminate mining or shelling of ecologically sensitive areas (reefs, fisheries, shorelines) could be unlawful if it violates such prohibitions.¹⁶

The status of participants is crucial. IHL distinguishes combatants (legally permitted to attack) from civilians (not generally targetable unless and for such time as they directly participate in hostilities). International law grants combatant status to all lawful members of armed forces, including naval personnel, regardless of sex. Belligerent warships and submarines are lawful targets; civilian ships are protected, unless they are attached with military objectives (*e.g.*, loaded with contraband). Likewise, wounded, shipwrecked, or *hors de combat* (*e.g.*, captured crews) at sea must be treated humanely. Neutrality rules operate alongside IHL. Belligerents must respect the sovereignty and neutrality of states not party to an armed conflict, including refraining from hostilities in their territorial sea. Neutral merchant vessels, although subject to visit and search,

14 *Supra* note 2.

15 Martin Fink, “The ever-existing “crisis” of the law of naval warfare”, 104 *International Review of Red Cross* (2022).

16 Protocol Additional to the Geneva Conventions of Aug. 12, 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I) arts. 48, 51(5)(b), 52(2), 57, 35(3), and 55, June 8, 1977, 1125 U.N.T.S. 3.

enjoy protection against attack unless they engage in specific acts such as carrying contraband, breaching a blockade or otherwise directly participating in the conflict in ways recognised by IHL.¹⁷

Specific modalities: Blockades, contraband, mines, and neutrality

Naval blockades, contraband control and mine warfare constitute classic modalities of naval conflict and raise acute humanitarian and environmental concerns.

A naval blockade, isolation of an enemy port or coastline, is permitted if effective and declared. Belligerents must publish a list of contraband goods (e.g., weapons, fuel) and allow neutrals safe passage of essential supplies (food, medicine) as far as feasible. Any neutral vessel breaching a declared blockade may be seized; cargo found to be contraband may be confiscated. Importantly, neutral merchant ships are not automatically hostile- mere presence in a war zone is not ground for attack if they are not carrying contraband. Contraband control allows belligerents to visit and search merchant vessels suspected of carrying goods that may be used for military purposes. Traditional classifications distinguished absolute contraband (e.g. arms) from conditional contraband (e.g. food). Modern practice is more flexible but remains constrained by proportionality and by the duty to allow the free passage of essential humanitarian supplies. These rules echo the *Hague XI/XII* provisions (capture of enemy commerce), and modern practice relies on San Remo guidelines.

Naval mines present unique hazards. IHL prohibits indiscriminate mining: mines must be anchored or guarded, and mapped if laid. During war, unanchored “drifting” mines are forbidden. Mined areas should be effectively notified to mariners (swept area). The 1949 ITLOS *Saiga* (No. 2) case¹⁸ hinted at these principles, wherein Guinea’s use of force to enforce fishing laws on a vessel in its EEZ was held unlawful, emphasizing that military means cannot be used indiscriminately against civilians on high seas (a principle analogous to IHL’s precautionary principle even outside warfare). Neutrality remains relevant- belligerents cannot conduct hostilities in a neutral State’s territorial sea or contiguous zone. Belligerent warships in a neutral nation’s EEZ enjoy transit and innocent passage rights under UNCLOS, but may not use neutral facilities for combat purposes. Neutral merchant vessels generally retain their cargo and navigation rights unless participating in war efforts. As one commentator notes, warships “flying neutral flags” are not automatically immune; they may be captured if caught engaging in contraband transport.¹⁹ However, the general peaceful freedoms

17 Vaughan Lowe and Antonios Tzanakopoulos, “Ships, Visit and Search”, in Rüdiger Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law* (Oxford University Press, 2012).

18 *M/V Saiga* (No. 2) (*Saint Vincent and the Grenadines v. Guinea*) (Judgment) [1999] 38 *ILM* 1323.

19 *Supra* note 17.

of navigation (UNCLOS Arts. 87–89²⁰) are effectively suspended between belligerents by a valid blockade or by direct military engagement.

Compliance, practice, and gaps

In practice, modern naval conflicts reveal tensions between IHL principles and state practice. For instance, during the 1982 Falklands War, the British and Argentine forces both declared exclusion zones and used naval mines²¹, raising questions that San Remo later addressed. The 1987–1994 drafting of San Remo itself was spurred by experiences in Iran–Iraq (1980s), where neutral tankers were sunk, and the 1991 Gulf War, where land targets were hit from the sea. Today, states often rely on their national manuals and ROEs (Rules of Engagement), but Salerno scholar Wolff Heintschel von Heinegg and others warn of a persistent “crisis of the law of naval warfare” due to outdated treaties. The San Remo Manual, for all its authority, remains politically soft. Some states have codified portions in national law (e.g. UK’s Manual of Armed Conflict²²), but comprehensive multilateral updating of the law is still lacking. The absence of a comprehensive, binding instrument on naval warfare has significant implications. It encourages reliance on soft law (manuals, guidelines) and cross-fertilisation from related regimes, including the law of the sea, environmental law, and human rights law. An intersectional analysis can help identify the gaps that matter most from a humanitarian viewpoint, especially where gender, environment and technology intersect to produce compounded harms.

III Intersectional dimensions of naval conflict

Naval warfare carries human and environmental dimensions beyond classic military considerations. This section examines how gender roles, ecological effects, and technological change intersect with IHL at sea. These perspectives reveal previously underappreciated harms and suggest ways to bolster legal and operational compliance.

Intersectionality and IHL at sea

Intersectionality, as first articulated by Kimberlé Crenshaw, critiques legal frameworks that treat discrimination along a single axis (e.g. sex or race) and fail to capture how identities and structures of oppression intersect.²³ In armed conflict, intersectionality informs analysis of how gender, socio-economic status, indigeneity, age, and environmental dependency affect experiences of violence and vulnerability.

20 UNCLOS, art. 87-89, Dec. 10, 1982, 1833 U.N.T.S. 397.

21 Louise Doswald-Beck, “The Legal Validity of Military Attacks by British Forces During the 1982 Falklands War” 33 *International and Comparative Law Quarterly* 167 (1984).

22 U.K. Ministry of Defence, *The Manual of the Law of Armed Conflict* (Oxford University Press, 2004).

23 *Supra* note 4.

Recent scholarship by Catherine O'Rourke and Ana Martin has applied intersectionality to the nexus of gender, conflict and the environment, arguing for a "gender analysis of environmental harm" to enhance IHL's protection of both the natural environment and affected populations.²⁴ Intersectional thinking is also reflected, albeit indirectly, in the Women, Peace and Security agenda.²⁵ UNSC Resolution 1325 (2000) and subsequent WPS resolutions call for the participation of women in peace and security processes, protection from gender-based violence, and the integration of gender perspectives into all peace and security efforts.²⁶ Yet, these debates have rarely focused explicitly on naval or maritime contexts.

Applied to naval warfare, an intersectional approach asks: who is most exposed to the environmental, economic, and physical harms generated by naval operations? How do gendered divisions of labour in coastal communities, patterns of migration and employment in shipping, and dependence on marine ecosystems shape the impact of blockades, oil spills, and technological disruptions? How should IHL principles—particularly proportionality and precautions, be interpreted in light of these differentiated vulnerabilities?

Gender perspectives in naval warfare

Gender is often overlooked in maritime conflict, which historically assumed a male combatant and seafarer, yet it has practical and legal implications. Women now serve widely in navies and may be captured, wounded, or killed in naval engagements. IHL's core rules do not distinguish by sex: female combatants and civilians enjoy the same protections as males. Notably, Vanessa Murphy highlights that IHL contains 'provisions which govern the treatment and protection of female members of the armed forces at sea,' reflecting obligations to consider women's specific needs (maternity care, privacy, *etc.*) on ships.²⁷ Similarly, IHL's overall protection of civilians (e.g., prohibition of rape and violence) applies with full force to women sailors, passengers, and refugees at sea. WPS resolutions²⁸ further urge parties to armed conflict to prevent and respond to such harms. Nonetheless, as Catherine O'Rourke

24 Catherine O'Rourke and Ana Martin, "Gender, Conflict and the Environment: Surfacing Connections in International Humanitarian Law" 105 *International Review of the Red Cross* (2023).

25 Gender, Women, Peace and Security, *available at*: <https://dppa.un.org/en/women-peace-and-security> (last visited on June 29, 2025).

26 The resolution "reaffirmed the important role of women in the prevention and resolution of conflicts and in peace-building," and stressed "the importance of their equal participation and full involvement in all efforts for the maintenance and promotion of peace and security."

27 Vanessa Murphy, "Sexual Violence Against Women in Armed Conflict", in *Research Handbook on International Law and Gender* 399, 405–06 (Edward Elgar ed., Karen Engle *et al. eds.*, 2019).

28 *Supra* note 4.

and Ana Martin note, both gender and environmental harms have historically been “at the periphery” of IHL.²⁹

At sea, gender-specific impacts emerge. For example, women make up a growing share of mariners and naval crew; armed conflict can disrupt the livelihoods of coastal fishing communities, often affecting women disproportionately because they may rely more on subsistence fishing and local trade. The breakdown of civil order at ports can increase risks of trafficking or exploitation of women and girls. Moreover, naval blockades and embargoes affect household survival; a gendered analysis (as in UN Security Council resolutions on Women, Peace, and Security) demands attention to how blockades may lead to food shortages impacting women’s and children’s health. Yet there is little formal IHL guidance on the gendered effects of maritime conflict. The IRRC has called for a “typology of gendered environmental harm,” underscoring that women often bear the brunt of war’s indirect harms on health and resources.³⁰

A practical implication is the need for gender awareness in naval operations. Ships should accommodate female crew (separate quarters, sanitary supplies, maternity provisions) in compliance with non-discrimination obligations. Naval authorities should be vigilant against sexual violence or coercion by security personnel in conflict zones – such acts are clearly prohibited by IHL wherever they occur, including at sea. In humanitarian evacuations or rescues at sea, care must be taken to protect women and children (for example, by segregating crews, providing access to medical care). Theoretically, IHL offers no special rule for sea, but military manuals and humanitarian organisations now advocate training on the protection of women and girls during maritime operations.

Environmental impact of naval conflict

The marine environment is both a theatre of operations and a critical life-support system for coastal populations. IHL’s environmental protections, particularly Additional Protocol I Article 55, recognise that severe environmental damage can have devastating humanitarian consequences.³¹ The ENMOD Convention and peacetime environmental treaties such as UNCLOS Part XII and MARPOL reinforce duties to prevent marine pollution and protect fragile ecosystems.³² Oil spills, sunken ships, and detonated munitions can cause long-lasting ecological damage. IHL has explicit norms to protect the natural environment: the 2020 ICRC Guidelines state that any

29 *Supra* note 24 at 1600.

30 *Id.* at 1604.

31 Protocol I art 55.

32 The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, art. 1; UNCLOS (Part XII on the Protection and Preservation of the Marine Environment); and International Convention for the Prevention of Pollution from Ships, 1973/1978, annexes I–VI.

methods of warfare expected to cause “widespread, long-term and severe damage to the natural environment” are prohibited, and that belligerents must take “due regard” for the environment³³. In naval contexts, this covers, for example, an air strike on an oil tanker, the release of toxic cargo, or extensive use of mines in biologically sensitive reefs. Attacking fisheries or oil installations without military necessity could violate IHL’s environmental rules (inspired by Protocol I Article 55³⁴). Recent conflicts starkly illustrate the stakes. In the Red Sea in 2024, Houthi rebels deliberately targeted civilian oil tankers and bulk carriers. Several large vessels (*e.g.*, MV Rubymar, Chios Lion, Sounion) were attacked and sunk or set ablaze. These events triggered massive oil spills: Rubymar released ~200 tons of fuel oil, threatening Yemen’s Farasan and Eritrea’s Dahlak islands. When the Greek tanker Sounion was struck and later salvaged, authorities warned that had the hull been breached, its 150,000 tons of crude oil would have caused the fifth-largest oil spill in history.

The Houthis even weaponized the FSO Safer – a rusting supertanker moored in Yemeni waters – as a bargaining chip, risking the release of over 1.4 million barrels of oil.³⁵ Such intentional targeting of fuel carriers can be seen as “deliberate acts of marine pollution” and “environmental destruction” aimed at advancing political ends. These attacks risked catastrophic damage to coral reefs, fisheries and coastlines. Researchers note that oil slicks are cascading threats to coastal communities, aquatic wildlife, and highly sensitive ecosystems. The UN Special Envoy for Yemen warned of a “catastrophic” and “unprecedented” oil spill if the Sounion or FSO Safer were breached. The ICRC and environmental lawyers would stress that such foreseeable devastation – weaponising marine pollution – violates IHL’s prohibition on severe environmental harm. Climate change amplifies these risks. Coastal wars can undermine fisheries and hydrocarbon resources on which local populations depend. For example, 30 million people rely on Red Sea fisheries; a spill could destroy ecosystem services and livelihoods.

Moreover, heat-induced coral stress could be worsened by war-related pollution. The intersectional effect is acute: women and children in fishing communities often gather shellfish and process catch, so an oil slick can mean loss of income and food security that disproportionately affect them. Another dimension is noise and habitat

33 International Comm. of the Red Cross, *Guidelines on the Protection of the Natural Environment in Armed Conflict* 10 (2020), available at: <https://www.icrc.org/en/document/guidelines-protection-natural-environment-armed-conflict> (last visited on June 29, 2025).

34 *Supra* note 31.

35 UNSC Briefing on the Red Sea Maritime Threats, U.N. Doc. S/PV.9552 (Feb. 2024); International Maritime Organization, Red Sea Security Advisory Update (Mar. 2024); *Yemen’s FSO Safer Threat and Red Sea Spill Risk*, BBC NEWS (Mar. 12, 2024), <https://www.bbc.com/news/world-middle-east-68412457>; *Oil Tankers Under Fire: Houthis Escalate Maritime Threats*, REUTERS (Feb. 28, 2024), available at: <https://www.reuters.com/world/middle-east/houthis-target-red-sea-tankers-oil-spill-risk-2024-02-28> (last visited on June 29, 2025).

disturbance. Sonar from submarines and explosives from depth charges can harm marine mammals. These considerations are loosely echoed in IHL's "due regard" requirement (though not explicitly at sea). Some scholars argue IHL should more explicitly ban such harm, analogous to prohibitions on weapons that cause environmental suffering (*e.g.*, chemical defoliants). In sum, modern naval conflicts have shown how belligerents can inflict "second-round" harms on the environment, which in turn generate humanitarian crises (*e.g.*, displaced fisheries communities). IHL provides a foundation for environmental protection, but enforcement at sea is weak. One policy recommendation is for coastal states and the international community to establish joint naval disaster-response and environmental emergency teams (the PERSGA regional body) to prepare for incidents. An intersectional environmental analysis further asks: which communities rely most directly on affected ecosystems? In many coastal regions, women's work in small-scale fisheries, gleaning and processing is closely tied to near-shore environments. Oil spills or mine-related closures of fishing grounds may disproportionately affect women's income and food security, even if men are more visible as offshore fishers. The environmental-justice dimension thus reinforces the need to integrate gender-responsive environmental risk assessments into naval planning.

Technological and operational innovations

Technological change is rapidly transforming naval warfare, raising new legal questions. Maritime Unmanned Vehicles: The Ukraine conflict (2022–23) illustrated the potency of small, armed surface drones. Ukrainian "suicide boats" disabled parts of the Russian Black Sea Fleet, signalling a "new era in naval warfare".³⁶ These small vessels, often loitering on high seas, blur the line between warship and weapon. Under current law, a state must classify them as one or the other. As Mei Ching Liu observes, current international law lacks a category: maritime drones "do not meet current legal requirements to be classified as ships/warships or weapons," creating ambiguity.³⁷ This has a practical impact: for example, if a cruise missile is fired from a drone boat, is that an act of war by a state warship (justifying self-defence) or a piracy/terrorism incident? The answer is unclear. Until law catches up, commanders must apply IHL principles: if the target is military, an attack must still respect distinction and proportionality even if the attacker is a drone. Some scholars urge that fully autonomous armed vessels remain banned, as they do on land. Cyber and Electronic Warfare: Ship navigation and command increasingly depend on satellites, GPS, and

36 H.I. Sutton, *Exclusive: New Ukrainian Underwater Drone Project To Dominate The Black Sea*, NAVAL NEWS (Jan. 24, 2024), available at: <https://www.navalnews.com/naval-news/2024/01/exclusive-new-ukrainian-underwater-drone-project-to-dominate-the-black-sea/> (last visited on June 29, 2025).

37 Mei Ching Liu, "The Legal Status of Maritime Autonomous Surface Ships Under International Law", 50 *Ocean Development and International Law* 280, 287 (2019).

networks. In wartime, adversaries may jam navigation, hack commercial vessels, or blind sensors. Such cyber operations fall under IHL if they occur in armed conflict or create attacks (e.g., turning off a ship's controls, causing grounding). Current IHL applies (cyber means of warfare must also comply with distinction and not cause excessive harm), but practice is under development. Similarly, electronic warfare (jamming radar) is common; IHL does not forbid jamming military radars, but jamming civilian navigation aids near conflict zones could endanger civilian shipping, potentially violating precautionary obligations. The intersection of cyber law of war and LOS (like cybersecurity at sea, maritime domain awareness) is still developing. We recommend that naval forces include cyber-attack planning under IHL frameworks (e.g., avoid undue risk to civilian navigation). Aerial and Space Surveillance: Drones and satellites now provide real-time imagery of ships. While not a legal issue per se, this operational shift intensifies how maritime compliance is monitored. For example, NGOs and allies can document law-of-war breaches (e.g. attack on a fishing boat) via drones. This technological change strengthens transparency and enforcement of IHL at sea. Conversely, armed drones (UAVs) launched from ships or land to strike naval targets are clearly "means of warfare" subject to normal IHL (target approval, etc.), though no special sea-related rule applies. The common thread is that new methods (autonomy, cyber, surveillance) are extensions of existing means. As the *Lex Portus* analysis notes, autonomy in maritime systems primarily raises classic IHL issues – loss of human control risks error in distinguishing targets – prompting proposals for strict regulation or bans on lethal autonomous maritime systems.³⁸ Until an international consensus is reached, naval forces are advised to maintain clear accountability for any maritime UAV/USV use and to ensure human oversight of targeting to remain consistent with IHL.

Other intersectional considerations

Beyond gender, environment, and technology, other cross-cutting factors arise. For instance, indigenous peoples often rely on coasts; naval warfare can disrupt their fishing grounds and cultural sites (e.g., Aleut or Arctic communities if naval clashes expand). The principle of non-discrimination forbids targeting based on ethnicity or religion, which extends to sailors or passengers of any background. Conflict at sea can exacerbate refugee and migrant crises: a naval blockade may strand civilians who then risk dangerous boat crossings. Intersectional analysis would emphasise protecting vulnerable groups (pregnant women, children, maritime workers) in any evacuation or relief at sea. Additionally, the economic sanctions and financial controls that often accompany war can overlap with naval operations (e.g., intercepting sanctioned cargo). While not IHL matters *per se*, such state practice can influence how IHL is viewed

38 Daria Shapovalova, "Autonomous Warships and International Humanitarian Law: Challenges for Regulation", 20 *Lex Portus* 61, 70–73 (2021).

(for example, economic warfare under blockade can be seen as indirectly targeting a civilian population, raising proportionality questions).

IV Intersectionality in IHL and contemporary maritime conflicts

The contemporary maritime conflicts in the Red Sea, Black Sea, and South China Sea are illustrative case studies under the three cross-cutting themes, and each theme, through intersectional consideration of gender, environment, and technology, informs the analysis:

- i. A. Protection of neutral commerce and high-seas freedoms in the absence of armed conflict;
- ii. Constraints on the use of force at sea during armed conflict;
- iii. Obligations to protect the marine environment and civilians from states' own military actions.

Neutral commerce and high-seas freedoms

In peacetime, the law of the sea, especially UNCLOS, guarantees freedom of navigation on the high seas and rights of innocent passage and transit passage through straits.³⁹ Even where political tensions are high, interference with merchant shipping is tightly circumscribed and subject to strict conditions.

The South China Sea provides a salient example. Rival maritime claims and extensive militarisation have generated repeated confrontations between coast guards, fishing fleets, and naval vessels. Yet, as long as no armed conflict exists, interference with foreign vessels must conform to law-enforcement standards under UNCLOS, including necessity and proportionality, and must not endanger life or the marine environment.⁴⁰ The use of high-powered water cannons against small fishing boats, or ramming incidents, raises concerns in light of these standards and foreshadows potential violations of IHL should conflict erupt.⁴¹

Intersectionally, restrictions on fishing grounds and harassment of small-scale fishers, often from indigenous or marginalised communities, impact not only economic livelihoods but also cultural practices and food security. Women involved in processing and selling fish may be particularly affected when catches decline due to militarised exclusion or environmental degradation.⁴²

39 UNCLOS arts 17–19, 37–44, 87.

40 Award in the South China Sea Arbitration (*Philippines v. China*), PCA Case No 2013-19, 12 July 2016.

41 James Kraska, “Distinction, Proportionality, and Precautions in Attacks at Sea in the New Era of the Law of Naval Warfare” 26 *Chicago Journal of International Law* (2025).

42 *Supra* note 24 at 1600.

In the Black Sea, before the outbreak of large-scale hostilities, trade in grain and other commodities relied on established maritime routes. The subsequent declaration of exclusion zones and threats against neutral shipping illustrate how quickly high-seas freedoms can be curtailed when armed conflict arises. A key lesson is that robust peacetime respect for freedom of navigation, coupled with environmental stewardship, forms a baseline against which wartime restrictions must be measured.

Limits on the use of force at sea during armed conflict

Once an armed conflict exists, IHL becomes *lex specialis* with respect to the conduct of hostilities. However, the law of the sea continues to apply insofar as it is not inconsistent with IHL, and its protective logic may inform the interpretation of IHL rules.⁴³

In the Red Sea, attacks by non-state armed groups on foreign-flagged merchant vessels have been justified politically as solidarity actions but are legally problematic. Absent recognised belligerent rights, such attacks likely amount to unlawful uses of force under the UN Charter and violations of IHL protections for civilians and civilian objects.⁴⁴ Retaliatory strikes by states, in turn, must respect IHL principles, avoiding excessive collateral damage to coastal populations and the environment.

In the Black Sea conflict, Russia's declared blockade of Ukrainian ports and attacks on grain-export infrastructure raise difficult questions concerning the legality of blockades and the prohibition of the starvation of civilians as a method of warfare.⁴⁵ Under IHL, a blockade is unlawful if it has the purpose, or effects, of starving civilians or denying them objects indispensable to survival. When the blockade of a major grain exporter has global ramifications for food security, an intersectional analysis highlights the disproportionate impact on populations in food-importing countries, often in the Global South, where women and children are most vulnerable to malnutrition.

Use of force against neutral or humanitarian vessels, or excessive violence during visit and search operations, can violate both IHL and the law of the sea. The *Saiga* (No. 2) case, though a peacetime enforcement dispute, underscores that even in law-enforcement contexts, the use of force against merchant ships must be strictly necessary and proportionate.⁴⁶ This reasoning has obvious implications for IHL: belligerent

43 J.B.R.L. Langdon, "The Law of Naval Warfare: A Collection of Agreements and Documents with Commentaries (Book Review)" 14 *Marine Policy* 95 (1990).

44 Art. 3 to the Geneva Conventions; see also UNSC Res 2722 (10 Jan. 10, 2024) UN Doc S/RES/2722.

45 Protocol I art 54; see also, Tom Dannenbaum, "What You Need to Know: International Humanitarian Law and Russia's Termination of the Black Sea Grain Initiative" 2023 *Just Security* (July 28, 2023).

46 *M/V Saiga* (No. 2) (Saint Vincent and the Grenadines v. Guinea) (Judgment) [1999] 38 *ILM* 1323.

warships may not treat civilian vessels as quasi-military targets merely because they operate in conflict zones.

Technological means of warfare do not alter these constraints. Whether a warship uses missiles, naval aviation or unmanned drones, attacks remain subject to the same legal tests. Indeed, given the risks of misidentification and unintended escalation associated with autonomous and cyber capabilities, a strong case can be made for heightened precautionary standards in their deployment at sea.

Environmental and civilian protection from states' own naval actions

The theme underscores states' obligations to protect the environment and civilians from the effects of their own military operations at sea. IHL not only restrict attacks on enemy targets; it also requires parties to consider how their operations, including those against legitimate military objectives, may cause incidental harm.

In the Red Sea and Black Sea, attacks on oil tankers, ports and offshore infrastructure have raised fears of catastrophic spills. Under Additional Protocol I Article 55 and related customary norms, parties must refrain from methods of warfare expected to cause widespread, long-term and severe damage to the natural environment.⁴⁷ Where alternative targets or methods are available that would achieve comparable military advantage with less environmental risk, for instance, disabling a vessel's propulsion rather than igniting its cargo, precautions may require adopting the less harmful option.

Environmental harm at sea is not only an ecological issue; it is a vector of human suffering. Oil spills can devastate fisheries and tourism, leading to loss of livelihoods, displacement, and long-term health impacts. An intersectional approach emphasises that these impacts are not evenly distributed. Women in coastal communities often have limited access to formal compensation mechanisms and may work in informal sectors, such as small-scale fish processing or coastal agriculture, less visible in damage assessments and recovery programmes.

States also bear responsibilities for post-conflict environmental remediation, mine clearance and wreck removal under both IHL and the law of the sea. Cooperative frameworks - through regional seas organisations, the International Maritime Organization or *ad hoc* arrangements- can facilitate mine clearance and pollution response. Designing such mechanisms with the participation of affected communities, including women's groups, can help ensure that recovery efforts address intersecting vulnerabilities, rather than reproducing existing inequalities.

47 Protocol I art 55; see also, ICRC, *Guidelines on the Protection of the Natural Environment in Armed Conflict*, available at: https://www.icrc.org/sites/default/files/document_new/file_list/guidelines_on_the_protection_of_the_natural_environment_in_armed_conflict_advance-copy.pdf (last visited on June 30, 2025).

Beyond these examples, other regions show IHL at sea intersecting with broader issues. In the Eastern Mediterranean, the Gaza war (Oct 2023–) has indirectly involved naval dynamics: Israel declared maritime exclusion zones off Gaza, and the US has deployed a carrier strike group to the region. Lebanon's Hezbollah has reportedly targeted Israeli maritime assets (e.g., gas rigs).⁴⁸ While not open to large-scale naval warfare, these events raise questions of civilian versus military targets on or under water. Meanwhile, longstanding disputes like the Taiwan Strait (threats to shipping in tension with China/Taiwan) and piracy hotspots (Somalia) remind us that IHL must also address non-State violence affecting the seas. The global refugee and trafficking crises at sea – as in the Mediterranean and Andaman Sea – demand a gender- and human-rights-sensitive IHL approach to maritime rescue and detention of migrants.

V International case law and sea-water interface

Several international judicial decisions illustrate the interplay between IHL, the law of the sea, and environmental protection:

In the Corfu Channel (*U.K. v. Albania*, ICJ 1949), the court held Albania responsible for damage to British warships from mines in its territorial waters, underscoring that a state must not knowingly permit its waters to be mined without warning (the “due diligence” rule).⁴⁹ While this was a use-of-force/territorial infringement case, it set a precedent on naval danger. The decision also affirmed the principle of innocent passage: British ships were lawfully transiting international straits and entitled to warn and clear mines, not to be attacked for doing so.

In Nicaragua (*Nicar. v. U.S.*, ICJ 1986), primarily a land conflict case, Nicaragua also dealt with unauthorized mining of harbours by the U.S. While not at sea, it affirmed that support to rebels and indiscriminate force (mines) violated international law. It also clarified definitions of armed conflict, indirectly informing when IHL (including maritime rules) comes into play: US activities in Nicaraguan waters without blockades or captures still constituted an unlawful use of force. The court noted that the prohibition on intervention applies equally on land and sea, emphasising that mining another country's port is an act of war.⁵⁰

48 Patrick Kingsley and Ronen Bergman, *Israel Expands Naval Operations off Gaza as Tensions Rise*, N.Y. Times (Nov. 5, 2023), available at: <https://www.nytimes.com/2023/11/05/world/middleeast/israel-navy-gaza.html>; U.S. Department of Defence, *USS Gerald R. Ford Carrier Strike Group Deploys to Eastern Mediterranean to Deter Escalation*, Press Release (Oct. 8, 2023), <https://www.defense.gov/News/Releases/Release/Article/3542211/>; Ben Hubbard, *Hezbollah Targets Israeli Gas Platforms in Escalating Maritime Tensions*, Wall St. J. (Nov. 12, 2023), available at: <https://www.wsj.com/world/middle-east/hezbollah-israel-gas-rigs-naval-attacks> (last visited on June 30, 2025).

49 *Corfu Channel (U.K. v. Alb.)*, Judgment, [1949] I.C.J. Rep. 4 (Apr. 9).

50 *Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.)*, Judgment, 1986 I.C.J. Rep. 14, 190 (June 27).

In *Arctic Sunrise* (*Neth. v. Russia*, PCA 2015), the Permanent Court of Arbitration (UNCLOS tribunal) found Russia's seizure of the Greenpeace vessel *Arctic Sunrise* in the Barents Sea unlawful.⁵¹ Though a peacetime case, it stressed freedom of navigation on the high seas and that a coastal state may not use armed force against a vessel unless explicitly permitted by treaty (here, Russia exceeded its authority under UNCLOS Article 111⁵²). This case underscores that even outside declared war, law-of-sea protections for innocent passage exist. The Tribunal implicitly recognised that peaceful ships (even engaging in protest) may not be treated as military targets without cause.

The *M/V Siga No. 2* (*Saint Vincent & Grenadines v. Guinea*, ITLOS 1999)⁵³ case, wherein the ITLOS addressed Guinea's forceful seizure of an oil tanker in its EEZ for alleged illegal fishing. It concluded that Guinea violated UNCLOS by using military force (gunfire) to arrest the tanker, since only limited enforcement powers exist in the EEZ. Although an LOS case, the reasoning aligns with the IHL principle that excessive force against a civilian vessel is prohibited. Guinea's actions could analogously be seen as using a warship force against a merchant ship, a clear violation of IHL's distinction and precaution norms. The tribunal also reaffirmed strict conditions for hot pursuit, echoing that warships cannot simply target civilians at sea.

Lastly, in the *Saint Pierre and Miquelon Case* (*France v. Canada*, ICJ 1992)⁵⁴, the dispute over fishing rights, not an armed conflict case, but the ICJ reaffirmed that Canada's Coast Guard cannot use force on fishing vessels beyond what IHL would allow. This suggests that even law enforcement actions in maritime zones are constrained by necessity and humanity principles akin to IHL.

Other cases – such as *Kerb Strait Bridge*⁵⁵ (Frontex issues) or *Flotilla Incident* (IHL of targeted ships)⁵⁶ show that tribunals of arbitration often invoke IHL-like concepts (humanitarian exceptions, protection of persons on board). Moreover, the International Tribunal for the Law of the Sea (ITLOS) has begun to hear cases involving the arrest

51 The Arctic Sunrise Arbitration (*Neth. v. Russ.*), PCA Case No. 2014-02, Award on the Merits (Aug. 10, 2015)

52 UNCLOS, art. 110, Dec. 10, 1982, 1833 U.N.T.S. 397.

53 *M/V Saiga* (No. 2) (*Saint Vincent and the Grenadines v. Guinea*) (Judgment) [1999] 38 *ILM* 1323.

54 *Delimitation of the Maritime Areas Between Canada and the French Republic*, 31 *ILM* 1149 (Perm. Ct. Arb. 1992).

55 *Ukraine v. Russian Federation*, Case Concerning the Detention of Three Ukrainian Naval Vessels (Provisional Measures), ITLOS Case No. 26 (May 25, 2019), available at: <https://www.itlos.org/en/cases/list-of-cases/case-no-26/> (last visited on June 29, 2025).

56 U.N. Human Rights Council, *Report of the International Fact-Finding Mission to Investigate Violations of International Law Resulting from the Israeli Attacks on the Flotilla of Ships Carrying Humanitarian Assistance*, U.N. Doc. A/HRC/15/21 (Sept. 27, 2010).

of ships by states (often citing UNCLOS article 110 or article 292). These decisions, while framed in the law of the sea, often reflect IHL values (e.g. humane treatment of crews).

In summary, international jurisprudence confirms that: (i) neutral commerce and high seas freedoms have high status absent armed conflict; (ii) even in conflict, excessive force at sea is illegal; and (iii) states have obligations to protect the environment and civilians at sea from their own military actions. These cases provide legal benchmarks for IHL at sea, though none is a pure *armed conflict* case. A comprehensive IHL regimen would ideally address explicitly the relations between UNCLOS freedoms and wartime measures explicitly (as was hinted in San Remo and Helsinki).

VI IHL and the law of the sea: overlaps, tensions and synergies

IHL and the Law of the Sea (LOS) are two branches of international law that converge at sea. LOS (primarily UNCLOS, 1982) governs maritime zones and peacetime rights (innocent passage, EEZ rights, search, and rescue). In wartime, however, IHL becomes *lex specialis*. However, there are some overlaps: a naval blockade, for example, suspends normal LOS freedoms.

Under IHL, a naval blockade is considered lawful provided it is officially declared, effective, and does not obstruct the passage of humanitarian aid. This requires notifying parties about contraband restrictions and ensuring safe access for humanitarian relief. The Law of the Sea (LOS) does not have a direct provision for blockades during peacetime, as a blockade effectively suspends normal maritime freedoms. During wartime, the high seas freedoms outlined in the United Nations Convention on the Law of the Sea (UNCLOS) yield to the conflict, but the coastal state must still respect the rights of neutral parties, except in the case of a legal blockade.

Similarly, the IHL permits an attack on a neutral merchant ship if the vessel is involved in trading contraband or directly supporting an enemy's military operations. Such an attack must adhere to the principles of distinction, necessity, and proportionality. In contrast, during peacetime, UNCLOS safeguards the right of innocent passage and free commerce. In times of war, a neutral party's peacetime rights are generally suspended when facing a belligerent's blockading warship.⁵⁷

IHL grants a belligerent warship the right to visit a neutral merchant vessel and, if suspicions are confirmed, to capture or divert it for carrying contraband.⁵⁸ Enemy merchant ships can only be sunk after ensuring the safety of the crew. According to UNCLOS, warships are only permitted to board foreign ships in cases of piracy, slave trade, or unauthorized broadcasting; otherwise, consent is required. In a conflict,

57 United Nations Convention on the Law of the Sea, art. 17, Dec. 10, 1982, 1833 U.N.T.S. 397 (*hereinafter* UNCLOS).

58 UNCLOS, art. 110, Dec. 10, 1982, 1833 U.N.T.S. 397.

the *lex specialis* of war takes precedence. LOS provisions can inform IHL questions: e.g., UNCLOS Article 88 confirms freedom of navigation in the high seas⁵⁹, reinforcing that only IHL exceptions (blockade, hot pursuit) can override it. Also, IHL prohibits environmental damage, such as an oil spill, if it results in “widespread, long-term and severe damage” to the marine or coastal environment. Deliberately targeting the environment, like bombing oil rigs, is forbidden.⁶⁰ In peacetime, UNCLOS places a general duty on all states to protect the marine environment. Environmental destruction during wartime may also breach the UN Charter or specific treaties like the London Convention on dumping.⁶¹

Lastly, IHL’s targeting rules apply to all weapons, including unmanned systems like drones and Unmanned Surface Vehicles (USVs). Fully autonomous attack systems pose challenges to the principles of distinction and proportionality due to a “loss of human control,” leading IHL experts to recommend caution or prohibition on such strikes. UNCLOS does not specifically address unmanned warships. A surface drone might be classified as a warship if it is under state control, and under the Law of the Sea, it could potentially claim rights like innocent passage unless it is assisting in hostilities. The ambiguity in their classification creates complications.

A key tension is the distinction between peaceful and armed contexts. LOS envisions a largely open global ocean, while IHL permits drastic restrictions for military necessity. For instance, under IHL, a warship may close an area (exclusion zone) or seize enemy property; LOS generally forbids such closures except for safety zones around installations. Also, UNCLOS Article 87⁶² guarantees the high seas for all peaceful uses – but during war, a belligerent may intercept or capture neutral ships carrying military cargo, which would otherwise be lawful navigation. State practice reflects attempts to reconcile these fields. Warships at sea typically carry both an IHL and LOS manual. Peace-time hot pursuit rules (UNCLOS Art. 111⁶³) have a wartime analogue in the right to chase and attack enemy raiders, but even there, the rules of engagement must respect neutral rights. The Army Regulations in some states, or LOAC manuals, reference UNCLOS (e.g., limiting operations in other states’ EEZs absent armed conflict). The environmental dimension also shows overlap. LOS imposes duties to prevent pollution (MARPOL⁶⁴, London Convention⁶⁵, UNCLOS Ch. 17).

59 UNCLOS, art. 88, Dec. 10, 1982, 1833 U.N.T.S. 397.

60 UNCLOS, art. 192-194, Dec. 10, 1982, 1833 U.N.T.S. 397.

61 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Dec. 29, 1972, 26 U.S.T. 2403, 1046 U.N.T.S. 120 (hereinafter London Convention on Dumping).

62 UNCLOS, art. 87, Dec. 10, 1982, 1833 U.N.T.S. 397.

63 UNCLOS, art. 111, Dec. 10, 1982, 1833 U.N.T.S. 397.

64 International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, as modified by the Protocol of 1978, 1340 U.N.T.S. 61.

65 *Supra* note 46.

IHL adds specific wartime guilt for environmental devastation. Scholars recommend integrating these: e.g., a conflict reef blockade might violate both Protocol I Article 55⁶⁶ and the Convention on Biological Diversity commitments.⁶⁷

To summarise: in theory, IHL and LOS operate in parallel: LOS applies continuously, but when an armed conflict breaks out, IHL's priorities can restrict or suspend certain LOS freedoms (like freedom of navigation, exclusive economic rights). In practice, states navigate a grey zone. For instance, in peacetime incidents (like the detention of vessels by coast guards), states sometimes appeal to national security (implicitly war-like reasoning) even though IHL is not formally triggered. This underscores the need for clearer dialogue between the law of war and the law of peace at sea.

VII Conclusions and Recommendations

As argued in the preceding sections, law governing naval warfare must be re-imagined through an intersectional lens that integrates gender, environmental and technological dimensions, rather than treating them as marginal or siloed concerns. Our analysis leads to the following synthesised conclusions and policy recommendations:

- (i) Reaffirm IHL Principles at Sea – States and militaries must train explicitly on how core IHL rules apply afloat. San Remo and military manuals should be updated to reflect modern contexts (e.g. clarify blockades in EEZs, distinction in congested waterways, unmanned systems, and cyber operations). The U.N. or a specialized agency could convene experts to draft a new instrument or guidelines for “*Naval Combat in the 21st Century*”. This could integrate UNCLOS interpretations (e.g. high-seas freedoms) with IHL exceptions (blockades, exclusion zones), Additional Protocol I Articles 35(3) and 55, ENMOD, MARPOL and relevant WPS resolutions in one framework.
- (ii) Environmental Precautions and Accountability – Belligerents should adopt “environmental due diligence” plans for all maritime operations. For instance, launch no attack on fuel tanks or reefs unless absolutely necessary. International bodies should establish rapid response funds and teams (perhaps under IMO or UN Environment) to mitigate spills or mine damage in conflict zones. Any deliberate pollution (oil spills, chemical sinks) should be investigated as war crimes. The principle “polluter pays” should extend to wartime damage: occupying or controlling powers should finance the cleanup and restoration of their coastlines.
- (iii) Gender and Protection of Civilians at Sea – The naval military community should incorporate gender perspectives: e.g., adequate facilities for women in

66 Relating to the Protection of Victims of International Armed Conflicts (Protocol I), art. 55, June 8, 1977, 1125 U.N.T.S. 3.

67 Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79.

crews, gender-sensitivity training for sailors (including rules on sexual violence), and special plans for evacuating women and children. States could also promote research on the specific impacts of naval warfare on women's health and socio-economic status, feeding into UNSC Women, Peace, and Security initiatives. At the policy level, it explicitly mentions in armed forces manuals that IHL's prohibition on targeting civilians covers women and girls and requires particular care (e.g. escort ships for evacuation should consider the privacy and medical needs of female survivors).

- (iv) Regulate New Technologies under IHL – Autonomous naval systems should be regulated. At a minimum, states should agree that fully “loitering” drones engageable without human approval are inadmissible under IHL (mirroring discussions on LAWS). Clear rules of engagement (ROE) must be issued for maritime UAVs, with commander oversight of any lethal decision. Cyber operations affecting ships (e.g. GPS spoofing) should be reviewed through IHL filters, possibly by a new naval cyber-warfare subcommittee in international fora. Transparency measures – sharing IHL compliance reports on naval operations – could improve accountability (similar to ICRC's “faith-based reports” for land warfare).
- (v) Strengthen Judicial Mechanisms – Encourage domestic and international courts to clarify IHL at sea. For example, codifying principles like those in *Saiga (No.2)* into treaty text or guidelines. Support the option of an IHL advisory opinion on maritime matters (e.g., ICJ on piracy vs. armed conflict). Advocate for amendments to UNCLOS or new treaty protocols explicitly incorporating IHL norms (analogous to how UNCLOS Art. 73⁶⁸ mandates protection of children at sea, perhaps adding wartime measures).
- (vi) International Cooperation for Post-Conflict Recovery – Naval conflict often leaves ordnance and wreckage. Create joint mechanisms (under ICRC or IMO) for clearing mines, abandoned weapons, and wrecks after hostilities. Leverage intergovernmental bodies like the Arctic Council (worked on sunken warship pollution) as models. Emphasise that such efforts must be intersectional: restoring fisheries means involving local (often female) experts and communities in cleanup planning.

In conclusion, Naval warfare will remain a central feature of international security as sea lanes, undersea resources and maritime choke points grow in strategic importance. Yet the seas are also shared global commons and sources of livelihood for millions, including many whose vulnerabilities are shaped by gender, class, and environmental dependency. Intersectional analysis reveals that the costs of naval conflict are borne

68 UNCLOS, art. 73, Dec. 10, 1982, 1833 U.N.T.S. 397.

not only by armed forces and visible combatants but by coastal communities, migrant workers, indigenous fishers and marine ecosystems.

It is by reading IHL together with the law of the sea, environmental regimes and the WPS agenda that states, courts, and scholars can move towards a more integrated, intersectional law of naval warfare, one that remains faithful to IHL's foundational principles while responsive to the realities of modern maritime conflict. Such a framework is essential if the protection of civilians and the marine environment is to be more than a rhetorical commitment in the age of autonomous systems, cyber operations, and increasingly contested seas. Undoubtedly, as sea lanes become more contested, these intersectional perspectives will be key to protecting both human security and the marine commons.