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DRONE INTERDICTION: USE OF FORCE AS A COUNTERMEASURE AGAINST UNMANNED VEHICLES AT SEA

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*With all due respect . . . I will blow you out of the sky.*¹

I. Introduction: The Need for a Counter to Drones Operating Without Due Regard

Ever since the days of canvas sails and cannon fire, one of the primary missions of the U.S. Navy has been to maintain the freedom of the seas.² To enforce and defend that freedom, the U.S. Navy is sworn to “fly, sail and operate wherever international law allows.”³ But the rise of

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¹ *OUTBREAK* (Warner Bros. Pictures 1995) (Major General McClintock (Donald Sutherland) threatening Colonel Daniels (Dustin Hoffman)).

² U.S. NAVY, MISSION STATEMENT, <https://www.navy.com/about/mission.1.html> (last visited Mar. 21, 2019); *see also*, 10 U.S.C. § 5062 (2018).

³ *See, e.g.*, David Brunnstrom, *Carter Says U.S. Will Sail, Fly and Operate Wherever International Law Allows*, REUTERS, (Oct. 13, 2015, 3:52 PM),

drones⁴ and their lack of due regard for other vessels and aircraft⁵ is making this an increasingly dangerous mission for the U.S. Navy.

Imagine that you are on a U.S. Navy aircraft carrier in the Persian Gulf. Shortly after transiting the Strait of Hormuz,⁶ the carrier resumes normal peacetime flight operations. Suddenly, watchstanders spot an Iranian Shahed 129 drone⁷ off the port side of the carrier. Within the open water Exclusive Economic Zones (EEZ)⁸ of the Persian Gulf, the Iranian drone enjoys the same high seas freedoms, including overflight, that the aircraft carrier and its military aircraft do.⁹ As the crew watches, the drone moves within four nautical miles (NM) of the ship and begins to shadow its every move, presumably gathering intelligence on naval flight operations. Radio transmissions directing the drone to depart go

<https://www.reuters.com/article/us-usa-australia-southchinasea-carter/carter-says-u-s-will-sail-fly-and-operate-wherever-international-law-allows-idUSKCN0S72MG20151013> (quoting Hon. Ashton Carter, former Sec'y of Def.).

⁴ A “drone” is a remotely-controlled or semi-autonomous unmanned vehicle, generally used by a State government in a national or military context. *See Drone*, MERRIAM-WEBSTER DICTIONARY, <https://www.merriam-webster.com/dictionary/drone> (last visited Mar. 21, 2019); *Drone*, OXFORD DICTIONARY, <https://en.oxforddictionaries.com/definition/drone> (last visited Mar. 21, 2019); *Drone*, DICTIONARY.COM, <http://www.dictionary.com/browse/drone> (last visited Mar. 21, 2019). For the purposes of this article, “drone” and “unmanned vehicle” will be used interchangeably.

⁵ International law requires that all states and vessels act with due regard for the safety and navigational rights of other states and vessels. *See* discussion *infra* Section II.

⁶ The Strait of Hormuz is an international strait traversing the territorial seas of Iran and Oman, and providing the only link between the Persian Gulf and the open ocean. Due to the high volume of oil and other commercial shipments that transit the strait each year, the Strait of Hormuz is one of the most important international straits and geopolitical chokepoints in the world. *See* Alexandra Roman & Encyclopedia of Earth Administration, *Strait of Hormuz*, THE ENCYCLOPEDIA OF EARTH, https://editors.eol.org/eoearth/wiki/Strait_of_Hormuz (last visited Mar. 21, 2019).

⁷ The Shahed 129 is a large, Iranian-made, medium-altitude, long-range reconnaissance and light-attack unmanned aerial vehicle (UAV) that bears a similar design to the Israeli Hermes 450 and British Watchkeeper UAVs. *HESA Shahed 129 (Eye-Witness)*, MILITARY FACTORY, https://www.militaryfactory.com/aircraft/detail.asp?aircraft_id=1330 (last visited Mar. 21, 2019).

⁸ An “Exclusive Economic Zone” (EEZ) is an area beyond and adjacent to the territorial sea of a coastal State, extending out up to 200 nautical miles from the coast, in which the coastal State has sovereign rights over the exploring, exploiting, conserving, and managing of natural resources. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, arts. 55-58 [hereinafter UNCLOS]. In an EEZ all other high seas freedoms, such as navigation and overflight, are available to foreign States. *Id.*

⁹ U.S. DEP'T OF NAVY, NWP 1-14M, THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS para. 1.3.4. (Aug. 2017) [hereinafter COMMANDER'S HANDBOOK].

unanswered and generate no responding action. The drone neither takes any hostile actions nor exhibits any indicators of hostile intent,¹⁰ but its presence inside the “stack”¹¹ violates its obligation under international law to act with due regard for the safety and navigational rights of others. More importantly, not only is the drone impeding the carrier’s operations, it poses a significant danger to the lives of the Sailors and Airmen aboard the ship and its associated aircraft. In this gray area, the carrier commander must be able to avail him or herself of self-help countermeasures to protect the ship, including using force against the drone to “blow [it] out of the sky.”¹²

From the Strait of Hormuz to the South China Sea, U.S. warships face situations like the hypothetical above with increasing frequency and frustration, and will continue to do so. The advent of drones may be revolutionizing warfare, particularly the U.S. approach to warfare, but the United States no longer enjoys a monopoly on the use of unmanned systems.¹³ More than thirty nations possess, or are developing, armed drones, and dozens more, including some non-State actors, possess unarmed reconnaissance drones.¹⁴ Thus far, responsible nations like the United States operate their drones with due regard for the safety of navigation of other craft.¹⁵ Yet as drone proliferation continues, more

¹⁰ “Hostile intent” is the threat of the imminent attack or other use of force against the United States, U.S. forces, or other designated persons or property. JOINT CHIEFS OF STAFF, JOINT PUB. 1-02, DOD DICTIONARY OF MILITARY AND ASSOCIATED TERMS 106 (Feb. 2019) [hereinafter DO D DICTIONARY]. The imminence of a potential attack is based on an assessment of all facts known to U.S. forces at the time and may be made at any level. COMMANDER’S HANDBOOK, *supra* note 9, para. 4.4.3.5. Commanders always retain the inherent right and obligation to exercise unit self-defense in response to a hostile act or demonstrated hostile intent. *Id.* para. 4.4.3.2.

¹¹ A “stack” is an overhead holding pattern utilized during carrier flight operations. The stack extends up to five nautical miles (NM) from the port side of a carrier and extends upwards from 2,000 feet above surface level. The presence of any uncontrolled air traffic within the stack is inherently dangerous. U.S. DEP’T OF NAVY, CHIEF OF NAVAL AIR TRAINING, MANUAL P-816, FLIGHT TRAINING INSTRUCTION, CV PROCEDURES (UMFO), T-45C para. 204 (28 Jan. 2014).

¹² OUTBREAK, *supra* note 1.

¹³ Elisa Catalano Ewers et al., *Drone Proliferation: Policy Choices for the Trump Administration*, CTR. FOR NEW AM. SEC. 2 (2017), <http://drones.cnas.org/wp-content/uploads/2017/06/CNASReport-DroneProliferation-Final.pdf>.

¹⁴ *Id.* at 4.

¹⁵ See U.S. DEP’T OF DEF., INSTR. 4540.01, USE OF INTERNATIONAL AIRSPACE BY U.S. MILITARY AIRCRAFT AND FOR MISSILE AND PROJECTILE FIRINGS para. 3.d., glossary (2 June 2015) (C1, 22 May 2017) [hereinafter DoDI 4540.01]. By including unmanned aircraft in its definition of “military aircraft,” the U.S. Department of Defense (DoD)

and more U.S. naval commanders will find themselves in a gray area where action is needed to counter an adversary drone's failure to act with due regard for the navigation and safety of other vessels and aircraft. However, in that situation, traditional self-defense is not warranted under international law because there has been no armed attack or demonstrated hostile intent. Inaction or acquiescence is not the answer. If "the history of warfare [is] a struggle between measures and countermeasures,"¹⁶ then an appropriate countermeasure is needed.

In such situations, necessity and common sense dictate that the ship use an appropriate level of force to counter the safety threat posed by the drone. Yet for most of the last century, international law disfavored the use of forcible countermeasures¹⁷ against an offending State.¹⁸ How then can the naval commander justify taking an action to protect the aircraft carrier in the hypothetical example above? By examining the nature of unmanned vehicles, how international law applies to such vessels vis-à-vis the obligation of due regard, and the character of acceptable uses of force not rising to the level of an "armed attack," this article shows that international law must, and in fact already does, permit necessary and proportional forcible countermeasures. "The only thing necessary for the triumph of evil is for good men to do nothing."¹⁹ So long as the intended countermeasures pose no threat to human life or the sovereignty of a foreign State, then a U.S. commander is free to employ forcible countermeasures to safeguard U.S. ships from the danger posed by a drone that, while not engaged in a hostile act or exhibiting indicators of hostile intent, is nevertheless failing to act with due regard by interfering

requires that all DoD drones comply with the same international legal requirements as traditional, manned military aircraft, such as exercising due regard for other aircraft.

¹⁶ Hon. Ashton B. Carter & William J. Perry with David Aidekman, *Countering Asymmetric Threats*, in PREVENTATIVE DEFENSE PROJECT, KEEPING THE EDGE: MANAGING DEFENSE FOR THE FUTURE 121 (Hon. Ashton B. Carter & John P. White eds., 2000).

¹⁷ The United States considers countermeasures to be acts taken against a party outside of an armed conflict that would otherwise be unlawful in order to persuade that party to cease violating the law. See U.S. DEPT. OF DEF., DOD LAW OF WAR MANUAL paras. 18.18.1, 18.18.1.1. (May 2016) [hereinafter LAW OF WAR MANUAL].

¹⁸ Shane Darcy, *Retaliation and Reprisal*, in THE OXFORD HANDBOOK OF THE USE OF FORCE IN INTERNATIONAL LAW 891 (Marc Weller ed., 2015) (stating "the prohibition of . . . forcible countermeasures had 'acquired the status of a customary international law.'").

¹⁹ Dan Colman, "The Only Thing Necessary for the Triumph of Evil is for Good Men to Do Nothing."—Edmund Burke, OPEN CULTURE (Mar. 13, 2016), <http://www.openculture.com/2016/03/edmund-burkeon-in-action.html>.

with naval operations and posing a danger to safety, navigation, and the lives of U.S. Sailors and Airmen.

II. The Universal Obligation to Act with Due Regard

From a historic, common-sense standpoint, it is obvious that vessels in peacetime maritime encounters should act with due regard to each other's safety and navigation in order to avoid collisions and other mishaps. At a macro-level under international law, a State is to have due regard to the rights, duties, and freedoms of other states when it exercises its own rights, duties, and freedoms.²⁰ Yet "due regard" is an "elusive" phrase that is not clearly defined in international law.²¹ Nevertheless, "due regard" is a firm requirement under the Convention on the International Regulations for Preventing Collisions at Sea (COLREGS),²² the United Nations Convention on the Law of the Sea (UNCLOS),²³ and other sources of international law.²⁴

A. Due Regard Under the COLREGS

Under the COLREGS, which predates UNCLOS, "due regard" applies at the level of individual vessels. For instance, all vessels are required to exhibit due regard to the observance of "good seamanship"²⁵

²⁰ See, e.g., UNCLOS, *supra* note 8, arts. 2, 39, 56, 58, 87, 234.

²¹ M.H. Belsky et al., *Due Regard*, in DEFINITIONS FOR THE LAW OF THE SEA: TERMS NOT DEFINED BY THE 1982 CONVENTION 187 (George K. Walker ed., 2011).

²² See Convention on the International Regulations for Preventing Collisions at Sea, Oct. 20, 1972, 28 U.S.T. 3459, 1050 U.N.T.S. 16 [hereinafter COLREGS]. Unlike UNCLOS, the United States is a signatory of the COLREGS and implements its own domestic navigation policy in accordance with the COLREGS. See U.S. COAST GUARD, COMMANDANT INSTR. MANUAL 16672.2D, NAVIGATION RULES: INTERNATIONAL – INLAND (24 Dec. 1981).

²³ UNCLOS, *supra* note 8, arts. 2, 39, 56, 58, 87, 234. Although the United States has not signed or ratified UNCLOS, it complies with most provisions therein as binding customary international law (CIL). See *The Convention on the Law of the Sea*, U.S. NAVY JUDGE ADVOCATE GENERAL'S CORPS, http://www.jag.navy.mil/organization/code_10_law_of_the_sea.htm (last visited Mar. 21, 2019).

²⁴ See, e.g., Convention on International Civil Aviation, Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 [hereinafter Chicago Convention].

²⁵ Though not defined in the COLREGS, "seamanship" is defined as "the art or skill of handling, working, and navigating a ship." *Seamanship*, MERRIAM-WEBSTER

when taking action to avoid collisions between vessels.²⁶ In practice, this means that all vessels shall, in order to not impede the passage of another vessel, take early action to allow sufficient sea-room for the safe passage of the other vessel.²⁷ Of particular importance to the U.S. Navy, this includes a requirement for other vessels to keep out of the way of “a vessel restricted in her ability to manoeuvre (sic),”²⁸ such as vessels engaged in the launch or recovery of aircraft.²⁹ Vessels and their owners, masters, and crews are accountable for any neglect to comply with this basic requirement for due regard to all dangers of navigation and collision, or to any other ordinary practice of seamanship.³⁰

This obligation applies to U.S. naval vessels the same as any other vessels. Though there are situations where the COLREGS require a vessel not to impede the passage or safe passage of another vessel, e.g., “a vessel restricted in her ability to manoeuvre,”³¹ such provisions do not give an absolute right to navigation at the expense of other vessels. All vessels, to include warships and other military vessels, are required to affirmatively take action to avoid collision.³² Even if another vessel ignores its own obligations under the COLREGS, an affected vessel remains obligated, if the circumstances of the case permit, to comply with the rules and exercise due regard for the danger of collision.³³ This obligation is clear when applied to finite encounters between only two vessels, such as a U.S. warship altering course to avoid a commercial container ship. Yet at some point, when a vessel poses a continuing, or repeat, danger to navigation, such as the threat posed the unmanned aerial vehicle (UAV) in the above hypothetical, relying solely on the obligation of due regard under the COLREGS may not be appropriate, particularly when dealing with State vessels.

B. Due Regard Under UNCLOS

DICTIONARY, <https://www.merriam-webster.com/dictionary/seamanship> (last visited Mar. 21, 2019).

²⁶ COLREGS, *supra* note 22, r. 8(a).

²⁷ *Id.* r. 8(e).

²⁸ *Id.* r. 18.

²⁹ *Id.* r. 3.

³⁰ *Id.* r. 2.

³¹ *Id.* r. 18.

³² *Id.* r. 7.

³³ *See id.* r. 8.

For at-sea interactions and issues between States, UNCLOS expanded on the precept of due regard. As a basic tenet of relations between sovereign States, UNCLOS requires that each State should fulfill its obligations in good faith and exercise its rights and freedoms in such a manner that does not constitute an “abuse of right.”³⁴ In thirteen instances throughout the text of UNCLOS, this tenet translates to a requirement to act in due regard to the rights and/or interests of other States.³⁵ Such respect for the right of other States to make use of the seas is an outgrowth of the traditional freedom of the seas that governed the “law of the high seas” for centuries prior to the development of UNCLOS.³⁶ Just as “freedom of the sea” traditionally meant freedom of navigation,³⁷ the substantive uses of “due regard” by UNCLOS principally require due regard for safety and navigation, and for the rights and duties of other States.³⁸

Yet similar to the COLREGS, the drafters of UNCLOS declined to provide a clear definition of what it means to have “due regard.” Subsequent interpretations by international courts provide intentionally vague, situation-specific definitions that rest on the circumstances and the nature of the rights affected.³⁹ Due regard is, in effect, a balancing test of the concurrent respective rights between States.⁴⁰ It does not require due regard by one State while allowing the other to do as it wishes; “the extent of the regard required by the Convention will depend upon the nature [and importance] of the rights held . . . , the extent of the anticipated impairment, the nature and importance of the activities contemplated by the [other State], and the availability of alternative

³⁴ UNCLOS, *supra* note 8, art. 300.

³⁵ *Id.* arts. 27, 39, 56, 58, 60, 66, 79, 87, 142, 148, 234, 267.

³⁶ ARND BERNAERTS, BERNAERTS’ GUIDE TO THE 1982 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 117 (Trafford Pub. 2006) (1988) [hereinafter BERNAERTS’ GUIDE].

³⁷ *Id.*

³⁸ *See, e.g.*, UNCLOS, *supra* note 8, arts. 27, 39, 56, 58, 60, 87.

³⁹ *See* South China Sea (Phil. v. China), Case No. 2013-19, PCA Case Repository, Award, ¶ 741-43 (Perm. Ct. Arb. 2016), <https://www.pcacases.com/web/sendAttach/2086> (unanimously holding that China acted without due regard for the Philippines’ rights under UNCLOS, but without addressing certain key aspects of the controversy, i.e., ownership of specific features in the Spratly Islands); Chagos Marine Protected Area (Mauritius v. U.K.), Case No. 2011-03, PCA Case Repository, Award, ¶ 519 (Perm. Ct. Arb. 2015), <https://files.pca-cpa.org/pcadocs/MU-UK%2020150318%20Award.pdf> (holding that the ordinary meaning of ‘due regard’ calls for the [first state] to have such regard for the rights of [the second state] as is called for by the circumstances and by the nature of those rights,” but without formulating a universal rule of conduct).

⁴⁰ *See* Chagos Marine Protected Area, *supra* note 39, ¶ 518-19.

approaches.”⁴¹ This is illustrated by the reciprocal obligations of due regard between coastal and foreign States when a vessel conducts innocent or transit passage.⁴²

In addition, UNCLOS recognizes the inherent dangers of the sea by requiring due regard for safety and navigation outside of any implied balancing test between the competing rights and interests discussed above. In Article 21, UNCLOS requires ships conducting innocent passage through the territorial sea of another State to comply with “*all generally accepted international regulations relating to the prevention of collisions at sea.*”⁴³ Moreover, Article 39 specifically requires ships transiting an international strait to comply with generally accepted international regulations, procedures and practices for safety at sea, *including the International Regulations for Preventing Collisions at Sea.*⁴⁴

This emphasis on due regard and incorporation of the COLREGs highlights the universal nature of the international requirement, arising by treaty and as part of customary international law (CIL), to exercise due regard in ensuring the safe passage of vessels and in actively avoiding all dangers of navigation and collision. Lack of due regard is a threat, and failing to comply with this obligation, whether negligently, recklessly, or by design, constitutes an internationally wrongful act and a breach of international law.⁴⁵

III. The Rise of Drone Warfare

Warfare conducted by remotely-controlled devices or semi-autonomous robots was once the exclusive province of science fiction writers and conspiracy theorists. But, over the course of the last several decades that fiction became a reality, and drone warfare is now poised to be a cornerstone of 21st century combat operations. Concomitant with that new status is the need to define the legal parameters within which drones must operate. Drones, both UAVs and unmanned maritime systems (UMS), like any other vessel or craft at sea, must comply with

⁴¹ *Id.* ¶ 519.

⁴² See UNCLOS, *supra* note 8, arts. 56, 58.

⁴³ UNCLOS, *supra* note 8, art. 21 (emphasis added).

⁴⁴ UNCLOS, *supra* note 8, art. 39 (emphasis added).

⁴⁵ See U.N. OFF. OF LEGAL AFF., MATERIALS ON THE RESPONSIBILITY OF STATES FOR INTERNATIONALLY WRONGFUL ACTS, at 97-103, ST/LEG/SER.B/25 (2012).

the international obligation to act with due regard for the safety and navigation of other craft.⁴⁶

A. A Brief History of Unmanned Vehicles in Combat

Since the dawn of aerial warfare, mankind has sought increasingly innovative ways to expand the range, use, and lethality of remotely-operated munitions and devices.⁴⁷ Even before the advent of winged aircraft, one of the earliest examples of unmanned “vehicles” in combat is the mid-19th century use by the Austrian military of explosive-laden balloons that were controlled by timed fuses.⁴⁸ As far back as World War I various States began experimenting with small, radio-controlled aircraft that were essentially flying bombs,⁴⁹ or that were designed for target practice.⁵⁰ Reusable remotely-operated reconnaissance aircraft began to appear during the Cold War and on the battlefields of Vietnam.⁵¹ During the 1991 Gulf War, U.S. naval forces utilized remotely-piloted reconnaissance aircraft to help ensure accurate naval bombardment of entrenched Iraqi targets.⁵² This famously led to several Iraqi combatants surrendering to one of the drones launched from

⁴⁶ Under U.S. law and regulation, all naval ships, craft, and aircraft, to include unmanned maritime systems (UMS) and unmanned aerial vehicles (UAVs), must “diligently observe” the COLREGs. See COMMANDER’S HANDBOOK, *supra* note 9, para. 2.9.1; DODI 4540.01, *supra* note 15, para. 3.D; U.S. DEP’T OF NAVY, U.S. NAVY REGULATIONS, 1990, art. 1139 (14 Sept. 1990) [hereinafter NAVREGS].

⁴⁷ See Jack Miller, *Strategic Significance of Drone Operations for Warfare*, E-INTERNATIONAL RELATIONS STUDENTS (Aug. 19, 2013), <http://www.e-ir.info/2013/08/19/strategic-significance-of-drone-operations-for-warfare/>.

⁴⁸ *Id.*

⁴⁹ These early flying bombs included the U.S. Navy’s “aerial torpedoes” and the U.S. Army’s “Kettering Bug,” both of which were designed to fly a preset course and distance before falling/flying into the target. *Id.*; see also IWM Staff, *A Brief History of Drones*, IMPERIAL WAR MUSEUM (Jan. 30, 2018), <http://www.iwm.org.uk/history/a-brief-history-of-drones>.

⁵⁰ *A Brief History of Drones*, *supra* note 49. Of note, one alleged source for the origin of the term “drone” is the radio-controlled aircraft known as the DH.82B Queen Bee, which the United Kingdom developed in 1935 to be used as targets for training purposes. *Id.*

⁵¹ Miller, *supra* note 47; JOHN DAVID BLOM, U.S. ARMY COMBINED ARMS CENTER, OCCASIONAL PAPER 37, UNMANNED AERIAL SYSTEMS: A HISTORICAL PERSPECTIVE, 58-66 (Sept. 2010), <http://usacac.army.mil/cac2/cgsc/carl/download/csipubs/OP37.pdf>.

⁵² Tyler Rogoway, *Battleships Pulled Off the Biggest Ruse of Operation Desert Storm 25 Years Ago*, FOXTROT ALPHA (Jan. 20, 2016), <https://foxtrotalpha.jalopnik.com/battleships-pulled-off-the-biggest-ruse-of-operation-de-1754104974>.

the battleship USS Wisconsin (BB-64), a first in the history of warfare.⁵³ Yet, it is the massive expansion of offensive drone operations in the conflicts following the September 11, 2001, terrorist attacks that refined and established drone warfare as a fixture of future conflicts.⁵⁴ Instead of merely conducting reconnaissance of enemy positions, for the first time, drones were used in lieu of conventional military forces to conduct armed attacks against military targets.⁵⁵

B. Use and Status of Modern Drones

With the United States at the forefront of drone use and tactics,⁵⁶ unmanned vehicles completed the transition from remotely-piloted bombs to short-range, reusable surveillance aircraft, and finally to semi-autonomous unmanned vehicles used to target and strike enemy combatants from thousands of miles away. Modern drones are highly versatile; drones can be used for kinetic strikes, intelligence, surveillance, reconnaissance, targeting, search and rescue, and transportation of supplies.⁵⁷ Yet, like any other revolution in warfare and military technology, e.g., bomber aircraft, submarines, nuclear weapons, etc., international law has lagged behind the advent of drone warfare and has been slow to adapt to this advanced technology.⁵⁸

⁵³ Rogoway, *supra* note 52; Ted Shelsby, *Iraqi Soldiers Surrender to AAI Drones*, BALTIMORE SUN (Mar. 2, 1991), http://articles.baltimoresun.com/1991-03-02/business/1991061100_1_rpv-aa-i-drones.

⁵⁴ See Rick Stella, *From Cyberwarfare to Drones, the Future of Conflict is Electronic*, DIGITAL TRENDS (Aug. 29, 2016, 3:00 AM), <https://www.digitaltrends.com/features/dt10-from-cyberwarfare-to-drones-the-future-of-conflict-is-electronic/>; Miller, *supra* note 47.

⁵⁵ See, e.g., Fred Kaplan, *The First Drone Strike*, SLATE (Sept. 14, 2016, 7:45 AM), http://www.slate.com/articles/news_and_politics/the_next_20/2016/09/a_history_of_the_armed_drone.html (describing the history of U.S. drones and the first military drone strike conducted in November 2001 against senior Al-Qaeda commanders in Afghanistan).

⁵⁶ See Kelley Sayler et al., *Global Perspectives: A Drone Saturated Future*, CTR. FOR NEW AM. SEC. (2018), <http://drones.cnas.org/wp-content/uploads/2016/05/Global-Perspectives-Proliferated-Drones.pdf>.

⁵⁷ Vivek Sehrawat, *Legal Status of Drones Under LOAC and International Law*, 5 PENN. ST. J.L. & INT'L AFF. 164, 166 (2017).

⁵⁸ See, e.g., Ewers, *supra* note 13, at 14; Rosa Brooks, *Drones and the International Rule of Law*, 28 J. ETHICS & INT'L AFF. 83, 99 (2014); Nicholas Clayton, *How Russia and Georgia's "Little War" Started a Drone Arms Race*, GLOBALPOST (Oct. 23, 2012, 10:15 AM), <https://www.pri.org/stories/2012-10-23/how-russia-and-georgias-little-war-started-drone-arms-race>.

For UAVs, the lack of international regulations is largely immaterial. While there is no universal international legal definition of “aircraft,”⁵⁹ conventional domestic definitions of “aircraft” are generally broad enough to include all forms of UAVs.⁶⁰ Moreover, major military powers and drone operators such as the United States, United Kingdom, and Germany have specifically designated their UAVs as Military Aircraft,⁶¹ an international legal term of art denoting that subset of state-operated aircraft that are used for military purposes.⁶² Though they are neither universal nor binding, several recent international agreements, such as the Code for Unplanned Encounters (CUES) at Sea that was signed by the United States and twenty other nations, specifically define UAVs as military aircraft.⁶³ Consequently, there appears to be emerging CIL⁶⁴ treating UAVs operated by the military as Military Aircraft. With this designation, all manner of existing international legal regimes applying to State and Military Aircraft would apply to UAVs regardless of a UAV-specific treaty requiring such application.

In contradistinction, UMS⁶⁵ present unique challenges in understanding the application of existing law.⁶⁶ Not only do unmanned

⁵⁹ Neither the Chicago Convention, U.N. Charter, UNCLOS, nor any other binding international agreement contain a provision defining “aircraft.”

⁶⁰ See 14 C.F.R. § 1.1 (1962) (in which the U.S. Federal Aviation Administration defines “aircraft” as “a device that is used or intended to be used for flight in the air”).

⁶¹ See DODI 4540.01, *supra* note 15, glossary; GER. MINISTRY OF DEF., JOINT SERVICE REGULATION 15/2, LAW OF ARMED CONFLICT MANUAL sec. 1102 (1 May 2013); U.K. MINISTRY OF DEF., JOINT DOCTRINE PUB. 0-30.2, UNMANNED AIRCRAFT SYSTEMS para. 4.11 (12 Sept. 2017).

⁶² The Chicago Convention, the seminal international aviation agreement, refers to military, police, and customs aircraft as subsets of State Aircraft, all of which are excluded from application of the Convention aside from the requirement to “have due regard for the safety of navigation and civil aircraft.” Chicago Convention, *supra* note 24, art. 3.

⁶³ Western Pacific Naval Symposium, Code for Unplanned Encounters at Sea, Version 1.0, ¶ 1.3.5, Apr. 22, 2014, http://www.jag.navy.mil/distrib/instructions/CUES_2014.pdf.

⁶⁴ “Customary international law comes into being when there is ‘evidence of a general practice [between States] accepted as law’” YORAM DINSTEIN, WAR, AGGRESSION, AND SELF-DEFENCE 87 (3d ed. 2001) (quoting the Statute of the International Court of Justice, art. 38(1)(b), June 26, 1945, 3 Bevens 1179, 59 Stat. 1055, T.S. No. 993).

⁶⁵ U.S. DEP’T OF DEF., UNMANNED SYSTEMS INTEGRATED ROADMAP, FY 2013-2038 para. 1.3.3 (Dec. 2013) [hereinafter ROADMAP] (“Unmanned maritime systems (UMS) comprise unmanned maritime vehicles (UMVs), which include both unmanned surface vehicles (USVs) and unmanned undersea vehicles (UUVs), all necessary support components, and the fully integrated sensors and payload necessary to accomplish the required missions.”).

surface vehicles (USV) and unmanned underwater vehicles (UUV) execute the same wide variety of functions that their UAV cousins perform, but they must do so while facing “a unique challenge that other unmanned vehicles do not: the ocean.”⁶⁷ As a result, UMS generally “need to be [more] autonomous, [better] able to withstand the rigors of the marine environment, and be among the most power-efficient vehicles designed.”⁶⁸ Moreover, as seaborne devices and/or craft to which the law of the sea may apply, “the status of these systems is an important question, for it entails important rights and obligations.”⁶⁹ Yet, at present, there are no UMS-specific international laws or treaties governing the status, design, or use of USVs and UUVs. Additionally, unlike UAVs, there is no international consensus on whether or not military UMS should be considered warships (i.e., the functional maritime equivalent of Military Aircraft), which would impose certain rights and responsibilities that come with such designation.⁷⁰ This absence of applicable, UMS-specific law is glaring considering the significant use of UMS in future maritime security operations and naval warfare.⁷¹

However, that is not to say international law is wholly inapplicable to UMS; “despite the novelty of UMSs, states must apply the existing law to them in good faith.”⁷² There are basic requirements for all vessels that UMS must meet, such as the obligation to act with due regard.

⁶⁶ See Michael N. Schmitt & David S. Goddard, *International Law and the Military Use of Unmanned Maritime Systems*, 98 INT’L REV. RED CROSS 567, 567-69 (2016).

⁶⁷ Skyler Frink, *SPECIAL REPORT: UUVs Rise to the Surface*, MIL. AND AEROSPACE ELECTRONICS (July 1, 2012), <http://www.militaryaerospace.com/articles/print/volume-23/issue-07/special-report/uuvs-rise-to-the-surface.html>.

⁶⁸ *Id.*

⁶⁹ Schmitt, *supra* note 66, at 592.

⁷⁰ *Id.* at 575. The major impediments to designation as warship are the requirements under the Hague Convention and UNCLOS that a warship be commanded by a commissioned officer and manned by a crew under armed forces discipline. Though there is no consensus on whether it is permissible for a warship to be commanded and crewed remotely, U.S. policy appears to support such a possibility, even if no U.S. drone has been so designated. Regardless, whether UMS actually can or should meet the specific requirements to be considered a warship is outside the scope of this article. So long as UMS meet the lower, foundational requirements to be considered vessels, existing international law will still impose basic maritime rights and obligations. For more information on this topic, see Andrea M. Logan, *Human-Machine Teaming at Sea: A Model for Unmanned Maritime Systems and the Use of Force* (2016) (unpublished LL.M. research paper, Judge Advocate General’s Legal Center and School) (on file with U.S. Dep’t of the Navy Off. of Strategy and Innovation).

⁷¹ Schmitt, *supra* note 66, at 567.

⁷² *Id.* at 592.

C. Drones Must Act with Due Regard

The obligation to exercise due regard, and any resulting accountability for failure to comply, applies to drones the same as it does to any other vessel above, on, or below the surface of the ocean. Qualification as a vessel is an important distinction that provides certain navigational rights and obligations that are different than those provided to aircraft and non-vessels, e.g., torpedoes, navigational buoys, etc.⁷³ Yet UNCLOS, the seminal legal regime governing navigational rights and responsibilities of ships at sea, does not define the terms “ship” or “vessel,” which it uses interchangeably.⁷⁴ In interpreting such an undefined term, it is acceptable to leave such a definition up to previously established definitions arising from other international laws and regulations, such as the COLREGS.⁷⁵ The COLREGS broadly define “vessel” to include “every description of water craft, including non-displacement craft, [wing-in-ground] craft and seaplanes, used or capable of being used as a means of transportation on water.”⁷⁶

USVs and UUVs, regardless of how they are controlled or piloted, are water craft that fall within this broad definition of vessel under the COLREGS. The problem is that this is an emerging area of law and there is no international consensus on this point yet. There is obviously disagreement in the field, as at least one author questioned whether USVs and UUVs are vessels as they are not currently used as transportation in the traditional sense.⁷⁷ However, every UMS transports some form of weapons system, sensor array, or other equipment that is utilized to complete its mission. The more generally supported viewpoint is that UMS are “vessels” and that the legal regimes of UNCLOS and the COLREGs provide an adequate and existing legal framework for UMS during peacetime military operations.⁷⁸

⁷³ *Id.* at 575-76.

⁷⁴ *Id.* at 577.

⁷⁵ BERNAERTS' GUIDE, *supra* note 36, at 118.

⁷⁶ COLREGS, *supra* note 22, r. 3.

⁷⁷ See Commander Andrew H. Henderson, *Murky Waters: The Legal Status of Unmanned Undersea Vehicles*, 53 NAVAL L. REV. 55 (2006).

⁷⁸ See, e.g., Rob McLaughlin, *Unmanned Naval Vehicles at Sea: USVs, UUVs, and the Adequacy of the Law*, J. L. INFO. & SCI. 6 (2012) (arguing that the general principles of

Additionally, U.S. policy appears to agree with this viewpoint, as it defines USVs as “water craft” and UUVs as “underwater craft.”⁷⁹ Although these terms do not have independent legal significance under any treaty or CIL, the United States asserts that USVs and UUVs enjoy sovereign immunity and possess the same navigational rights of other exclusively state-owned and operated ships and submarines under the law of the sea.⁸⁰ Consequently, under the American view and the predominant international view, international navigational rights and obligations for vessels, to include the obligation of due regard arising from the COLREGS and UNCLOS, apply to UMS.

Similarly, UAVs are military aircraft⁸¹ that are considered to be “State Aircraft” within the meaning of the Convention on International Civil Aviation of 1944 (Chicago Convention).⁸² While the Chicago Convention does not specifically apply to State Aircraft,⁸³ it does establish that State and Military Aircraft must have due regard for the safety of navigation of other aircraft.⁸⁴ Moreover, as Military Aircraft, UAVs retain sovereign immunity and overflight rights under customary international law, as reflected in UNCLOS, for peacetime military operations.⁸⁵ Accordingly, they have similar rights and obligations under UNCLOS and the COLREGS as UMS do.

Therefore, the mandate of due regard from the COLREGS and UNCLOS applies to aerial and maritime drones exactly the same as it applies to any other vessel or aircraft. As a result, if these drones violate

UNCLOS are currently sufficient to provide the required level of governance over the use of unmanned vehicles in the context of maritime operations); Jane G. Dalton, *Future Navies—Present Issues*, NAVAL WAR C. REV. Winter 2006, at 17 (concluding that unmanned systems should be treated like their manned counterparts under UNCLOS and the COLREGS).

⁷⁹ COMMANDER’S HANDBOOK, *supra* note 9, paras. 2.3.4-2.3.5.

⁸⁰ *Id.* paras. 2.3.6, 2.5.2.5.

⁸¹ DoDI 4540.01, *supra* note 15, glossary; COMMANDER’S HANDBOOK, *supra* note 9, para. 2.4.4.

⁸² COMMANDER’S HANDBOOK, *supra* note 9, paras. 2.4.2-2.4.3.

⁸³ Chicago Convention, *supra* note 24, art. 3.

⁸⁴ Dep’t of State Airgram CA-8085, 13 Feb. 1964 (*quoting* U.S. Inter-Agency Group on International Aviation (IGIA) Doc. 88/1/1C, MS, Dep’t of State, file POL 31 U.S., *reprinted* in 9 DIG. INT’L L. 430-31 (Marjorie M. Whiteman ed. 1973)) (describing the U.S. position on the applicability of Article 3 of the Chicago Convention to military aircraft).

⁸⁵ COMMANDER’S HANDBOOK, *supra* note 9, para. 2.4.4; LAW OF WAR MANUAL, *supra* note 17, para. 14.3.3.1.

international law and endanger U.S. ships, the United States is entitled to take appropriate defensive countermeasures in response.

IV. Countermeasures and the Use of Force at Sea

In the not too distant past, war was viewed as an inherent right of the state, and states could resort to war for any reason at all, to include reprisal for perceived violations of international law,⁸⁶ the precursor to reprisal actions as they are known today.⁸⁷ This changed as a result of the horrors of two world wars during the first half of the twentieth century. By international agreement, the United Nations (U.N.) Charter foremost among them, and by the continuing evolution of CIL, there is now a general prohibition on the use of force between states.⁸⁸ This general prohibition does not distinguish between conflicts on land and those at sea. As the San Remo Manual⁸⁹ clearly states, “[t]he parties to an armed conflict at sea are bound by the principles and rules of

⁸⁶ DINSTEIN, *supra* note 64, at 71 (citing H.W. BRIGGS THE LAW OF NATIONS 976 (2d ed. 1952)).

⁸⁷ Today, reprisal actions have been broken up into countermeasures that may be taken in times of peace, and belligerent reprisals, which are forceful reprisals occurring in during an armed conflict. See INT’L LAW COMM’N, DRAFT ARTICLES ON RESPONSIBILITY OF STATES FOR INTERNATIONALLY WRONGFUL ACTS, WITH COMMENTARIES, arts. 49-52 (2012); Rep. of the Int’l Law Comm’n on the Work of Its Fifty-Third Session, U.N. Doc. A/56/10, at 75 (2001) [hereinafter Draft Articles on State Responsibility]; see also, COMMANDER’S HANDBOOK, *supra* note 9, para. 6.2.4 (“A belligerent reprisal is an enforcement measure under the law of armed conflict consisting of an act that would otherwise be unlawful but which is justified as a response to the previous unlawful acts of an enemy. The sole purpose of a reprisal is to induce the enemy to cease its illegal activity and to comply with the law of armed conflict in the future. Reprisals may be taken against enemy armed forces, enemy civilians other than those in occupied territory, and enemy property.”).

⁸⁸ DINSTEIN, *supra* note 64, at 78-105; U.N. Charter art. 2, ¶ 4.

⁸⁹ Authored by a panel of experts under the aegis of the International Institute of Humanitarian Law, the San Remo Manual on International Law Applicable to Armed Conflicts at Sea is a summary and restatement of the various international laws applicable to armed conflicts at sea. While it primarily addresses existing laws, it also includes some provisions addressing more recent developments. *San Remo Manual on International Law Applicable to Armed Conflicts at Sea, 12 June 1994*, INT’L COMM. RED CROSS, <https://ihl-databases.icrc.org/ihl/INTRO/560?OpenDocument> (last visited Mar. 26, 2019).

international humanitarian law from the moment armed force is used.”⁹⁰ Thus, the general prohibition against the use of force between and, more importantly, the exceptions to that general rule, apply at sea the same as they do on land and in the air.

A. Traditional Uses of Force—Belligerent Actions and Self-Defense

In keeping with the contemporary CIL prohibition against aggressive uses of force, the U.N. Charter and UNCLOS both require that states “refrain from any threat or use of force against the territorial integrity or political independence of any State, or in any manner inconsistent with the principles of international law embodied in the Charter of the United Nations.”⁹¹ The two clear exceptions to this prohibition on the use of force are belligerent uses of force authorized by the United Nations Security Council “to maintain or restore international peace and security,” and states exercising their inherent rights of self-defense.⁹² Both exceptions place the participants in a state of armed conflict, which is not addressed by UNCLOS, but is governed by CIL and various international agreements, such as Hague and Geneva Conventions.⁹³ Nevertheless, the contemporary principles of self-defense and other relevant law of armed conflict provisions continue to apply equally at sea despite the omission from UNCLOS.⁹⁴

Self-defense is, at its core, a high-level exercise in forcible self-help by a state.⁹⁵ This application of lawful force as a remedy when the state’s rights have been violated by unlawful force “is and always has been one of the hallmarks of international law.”⁹⁶ Thus, even outside of a U.N. Security Council (UNSC) Resolution authorizing an offensive use

⁹⁰ SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA, 12 JUNE 1994, INT’L COMM. RED CROSS ¶ 1 (1994), <https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/xsp/.ibmmodres/domino/OpenAttachment/applic/ihl/ihl.nsf/5B310CC97F166BE3C12563F6005E3E09/FULLTEXT/IHL-89-EN.pdf> [hereinafter SAN REMO MANUAL].

⁹¹ U.N. Charter art. 2, ¶ 4; UNCLOS, *supra* note 8, art. 301.

⁹² U.N. Charter arts. 42, 51. Self-defense is an “inherent” right in that it is inextricably linked with the sovereignty of a state, can arguably be traced back to principles of natural law, and is one of the oldest pre-existing rights under CIL. DINSTEIN, *supra* note 64, at 163-65.

⁹³ *See, e.g.*, Geneva Convention Relative to the Treatment of Prisoners of War art. 3, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135; Convention Respecting the Laws and Customs of War on Land, Oct. 18, 1907, *reprinted in* THE HAGUE CONVENTIONS AND DECLARATIONS OF 1899 AND 1907 100-28 (J.B. Scott ed., 1915).

⁹⁴ *See* SAN REMO MANUAL, *supra* note 90, ¶ 4.

⁹⁵ DINSTEIN, *supra* note 64, at 159.

⁹⁶ *Id.*

of force, it is undisputed that a state may use the necessary⁹⁷ and proportional⁹⁸ force required to repel any attack against it at sea and to restore its national security.⁹⁹ In fact, U.S. naval commanders are directly obligated to take necessary and proportional actions to safeguard their ship and crew.¹⁰⁰ The extent to which defensive action may be taken “depends upon the intensity and scale of the armed attack . . . and the gravity of the threat posed.”¹⁰¹ While the right to use force in self-defense is clear, these references to “intensity,” “scale,” and “gravity” illustrate that CIL recognizes there are inherent differences in the degree of force and danger from which a state may have to take action to defend itself at sea.¹⁰²

B. Other Permissible Uses of Force at Sea—Law Enforcement Activities

Additionally, there are other situations where a state may be permitted to use force against a foreign or state-less vessel, principally during law enforcement operations.¹⁰³ “Navies and coast guards around the world may use force . . . if necessary for law enforcement in waters

⁹⁷ Necessity “exists when a hostile act occurs or when a force demonstrates hostile intent. When such conditions exist, use of force in self-defense is authorized. . . .” CHAIRMAN, JOINT CHIEFS OF STAFF, INSTR. 3121.01B, STANDING RULES OF ENGAGEMENT/STANDING RULES FOR THE USE OF FORCE, encl. A, para. 4.a.(2) (13 June 2005) [hereinafter SROE/SRUF].

⁹⁸ Proportional force is that level of force “sufficient to respond decisively to hostile acts or demonstrations of hostile intent. Such use of force may exceed the means and intensity of the hostile act or hostile intent, but the nature, duration and scope of force used should not exceed what is required.” *Id.* at encl. A, para. 4.a.(3).

⁹⁹ SAN REMO MANUAL, *supra* note 90, ¶ 4.

¹⁰⁰ SROE/SRUF, *supra* note 97, para. 6.b.(1); NAVREGS, *supra* note 46, arts. 0807, 0820.

¹⁰¹ SAN REMO MANUAL, *supra* note 90, ¶ 5 (emphasis added).

¹⁰² See *Oil Platforms (Iran v. U.S.)*, Judgment, 2003 I.C.J. Rep. 4, 191-92 (Nov. 6) (implying that the actions of Iran were not sufficiently grave to constitute armed attacks for which the United States could invoke self-defense); S.C. Res. 1368 (Sept. 12, 2001) (recognizing the inherent rights of individual and collective self-defense, and calling on all States to take action to suppress the future threat of terrorist acts); Enzo Cannizzaro, *The Role of Proportionality in the Law of International Countermeasures*, 12 EUR. J. INT'L L. 889, 890-92 (2001) (noting that like self-defense, the doctrine of proportionality may limit a victim State's countermeasures based on the nature and severity of another State's wrongful actions).

¹⁰³ See George Bunn, *International Law and the Use of Force in Peacetime: Do U.S. Ships Have to Take the First Hit?*, 39 NAVAL WAR C. REV. 69 (May/June 1986), reprinted in *Use of Force Law*, 68 INT'L L. STUD. SER. U.S. NAVAL WAR C. 313, 332 (1995).

and for crimes over which they have enforcement jurisdiction.”¹⁰⁴ Within internal and territorial waters, the ability to enforce domestic law is well-defined.¹⁰⁵ Yet even outside of a state’s territorial seas, jurisdiction and authority may exist to use force to combat certain offenses by private entities and potentially even state actors, e.g., piracy and proliferation of weapons of mass destruction.¹⁰⁶ In this context, the use of force in a law enforcement action is separate and distinguishable from the “armed force” referred to in the U.N. Charter;¹⁰⁷ while it is to be avoided to the extent possible, it is permissible so long as it is “reasonable and necessary under the circumstances.”¹⁰⁸ Specific international rules concerning the permissible uses of force in law enforcement actions are broad,¹⁰⁹ but such uses of force include warning shots, disabling fire, stopping and boarding a ship, conducting searches, and arresting or seizing a ship and its crew.¹¹⁰ Although the legal basis for these actions stems from different authority, e.g., international laws against piracy,¹¹¹ it is clear that there are incidents where force can be used outside the contexts of self-defense or armed conflict. Provided a given use of force is necessary and reasonable, i.e., proportional, “the ability to use force when needed to enforce international rights and compel compliance with lawful orders of a state is essential” to maintaining freedom of the seas.¹¹²

C. Countermeasures—More Than “Mere Pacific Reprisals”

In the same vein, legitimate self-help by a state to another state’s violations of international law may include countermeasures taken in reprisal.¹¹³

¹⁰⁴ *Id.* at 337.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.* at 338-339; see also Craig H. Allen, *Limits on the Use of Force in Maritime Operations in Support of WMD Counter-Proliferation Initiatives*, 81 NAVAL WAR C. REV. 77 (2006).

¹⁰⁷ Allen, *supra* note 106, at 89; U.N. Charter arts. 2 ¶ 4, 41.

¹⁰⁸ *M/V Saiga* (No. 2) (St. Vincent v. Guinea), Case No. 2, Judgment of July 1, 1999, 2 ITLOS Rep. 4, 41.

¹⁰⁹ Rachel Canty, *Developing Use of Force Doctrine: A Legal Case Study of the Coast Guard's Airborne Use of Force*, 31 U. MIAMI INTER-AM. L. REV. 357, 371 (2000).

¹¹⁰ See Allen, *supra* note 106, at 96-108.

¹¹¹ UNCLOS, *supra* note 8, arts. 100-07, 110.

¹¹² Canty, *supra* note 109, at 371.

¹¹³ See DINSTEIN, *supra* note 64, at 160.

1. *The Traditional View of Peaceful Countermeasures*

Such self-help is a necessary component of international law because of the frequently criticized weakness of other international mechanisms for enforcement.¹¹⁴ For instance, repeatedly the UNSC has shown reluctance and incapability to take timely, definitive action in response to an act of aggression by one member state against another.¹¹⁵ In the absence or inability of international bodies to take action, individual states must be able to take action to compel compliance with international law.

Today, the terms “reprisal” and “belligerent reprisal” refer to actions taken in the course of an armed conflict, “countermeasures” are acts taken against a party outside of an armed conflict that would otherwise be unlawful in order to persuade that party to cease violating the law.¹¹⁶ In order to be justifiable, a countermeasure must meet certain conditions.¹¹⁷ In particular, such acts must rationally relate to the injury suffered, taking into account the gravity of the internationally wrongful act and the rights affected.¹¹⁸ “Judicial decisions, State practice and doctrine confirm the proposition that [non-forcible] countermeasures meeting certain substantive and procedural conditions may be legitimate.”¹¹⁹

2. *The Need for, and Permissibility of, Forcible Countermeasures*

But, can a state take forcible countermeasures in response to a use of force or other belligerent act that falls short of being a full, armed attack? If an “armed attack” means “a use of force causing human casualties or

¹¹⁴ See Lori Fisler Damrosch, *Enforcing International Law Through Non-Forcible Measures*, 269 RECUEIL DES COURS 9, 19 (1997); Josef Mrazek, *Prohibition of the Use and Threat of Force: Self-Defence and Self-Help in International Law*, 27 CAN. Y.B. INT'L L. 81, 99 (1990); see also MATERIALS ON THE RESPONSIBILITY OF STATES FOR INTERNATIONALLY WRONGFUL ACTS, *supra* note 45, at 304.

¹¹⁵ DINSTEIN, *supra* note 64, at 188.

¹¹⁶ LAW OF WAR MANUAL, *supra* note 17, paras. 18.18.1-18.18.1.1.

¹¹⁷ See *Military and Paramilitary Activities in and against Nicaragua (Nicar. v. U.S.)*, Judgment, 1986 I.C.J. Rep. 14, ¶ 249 (June 27); see also Draft Articles on State Responsibility, *supra* note 82, at 68.

¹¹⁸ Draft Articles on State Responsibility, *supra* note 87, art. 51.

¹¹⁹ MATERIALS ON THE RESPONSIBILITY OF STATES FOR INTERNATIONALLY WRONGFUL ACTS, *supra* note 45, at 150.

serious destruction of property,”¹²⁰ then recent history is replete with examples of belligerent actions and uses of force falling short of an armed attack that nevertheless violated international law and the rights of other States.¹²¹ Many commentators argue, “[A]s a separate, although exceptional, means of the use of armed force, [self-help] has no support in contemporary international law.”¹²² Others argue that forcible countermeasures remain a part of CIL as a proportionate response to violations of international law not rising to the level of an armed attack for which traditional self-defense would be warranted.¹²³ Even the International Court of Justice (ICJ), the judicial organ of the U.N., vaguely “hinted at the existence of a residual right of forcible reprisals outside the U.N. Charter” in its Corfu Channel case.¹²⁴ While most academics and a cursory reading of the U.N. Charter support the former position, there are important exceptions that support the latter contention in favor of forcible countermeasures.

Notably, the 1986 ruling in the Case Concerning Military and Paramilitary Activities In and Against Nicaragua, the ICJ confirmed that although international law prohibits the use or threat of force between states that is supported by both treaty law (i.e., the U.N. Charter) and CIL, the general rule allows certain exceptions.¹²⁵ In that case,

¹²⁰ DINSTEN, *supra* note 64, at 174.

¹²¹ See e.g., Matthew C. Waxman, *Cyber-Attacks and the Use of Force: Back to the Future of Article 2(4)*, 36 YALE J. INT’L L. 421, 423 (2011) (noting the difficulty in determining whether the Russian cyber-attack on Estonia and the Stuxnet virus used by the United States against Iran constitute uses of force under the U.N. Charter); Jane Perlez, *Beijing Exhibiting New Assertiveness in South China Sea*, N.Y. TIMES (May 31, 2012), <http://www.nytimes.com/2012/06/01/world/asia/beijing-projects-power-in-strategic-south-china-sea.html> (discussing China’s seizure of Scarborough Shoal from the Philippines); SHIRLEY A. KAN ET AL., CONG. RESEARCH SERV., RL30946, CHINA-U.S. AIRCRAFT COLLISION INCIDENT OF APRIL 2001: ASSESSMENTS AND POLICY IMPLICATIONS 1-6 (2001) (discussing China’s seizure of a U.S. EP-3 aircraft following a mid-air collision off the coast of Hainan Island).

¹²² See, e.g., Mrazek, *supra* note 114, at 99.

¹²³ See Nicholas Tsagourias, *Necessity and the Use of Force: A Special Regime*, 41 NETH. Y.B. INT’L L. 11 (2010); Michael A. Newton, *Reconsidering Reprisals*, 20 DUKE J. COMP. & INT’L L. 361 (2010); Philip Sutter, *The Continuing Role for Belligerent Reprisals*, J. CONFLICT & SEC. L., Spring 2008, at 93; Edward Kwakwa, *Belligerent Reprisals in the Law of Armed Conflict*, 27 STAN. J. INT’L L. 49 (1990).

¹²⁴ Tsagourias, *supra* note 123, at 25-26; see also, Corfu Channel (U.K. v. Alb.), Judgment, 1949 I.C.J. Rep. 4, 34-35 (Apr. 9) (holding that the United Kingdom’s clearance of naval mines in the Corfu Channel was an illegal violation of Albania’s sovereignty, but without commenting on the legality or illegality of forcible reprisals and countermeasures that do not violate territorial sovereignty).

¹²⁵ Nicar. v. U.S., 1986 I.C.J. at 94-102.

Nicaragua brought proceedings in the ICJ against the United States¹²⁶ for its support of and assistance to the military and paramilitary activities of the contra rebels in and against Nicaragua in the early 1980s, which included laying naval mines to block Nicaraguan harbors.¹²⁷ The United States justified these actions as collective self-defense in response to Nicaragua's prior comparable provision of arms and other logistical support to guerillas in El Salvador.¹²⁸ While the ICJ ultimately found that the United States violated international law and the sovereignty of Nicaragua in several respects,¹²⁹ the Court made two key observations throughout the course of its opinion regarding uses of force and countermeasures.

First, it distinguishes between different levels of force, separating “the most grave forms of the use of force (those constituting an armed attack) from other less grave forms” of force, aggression, and other acts for which self-defense under Article 51 of the U.N. Charter may not be appropriate.¹³⁰ The Court found that where sending regular military forces or irregular armed groups across an international border to carry out acts of armed force would constitute an “armed attack” justifying acts of self-defense, other activities like the provision of weapons, supplies, and logistical or other support would not constitute an armed attack, even if such acts were still considered to be a threat or use of force.¹³¹ Under this reasoning, the United States was not entitled to exercise collective self-defense of El Salvador because Nicaragua's support for the El Salvadorian guerillas did not constitute an “armed

¹²⁶ The United States objected to the ICJ's jurisdiction over the case, and refused to participate in the proceedings. *See id.* at 23-24; John Vinocur, *World Court Act to Overrule U.S. in Nicaragua Case*, N.Y. TIMES (Nov. 27, 1984), <https://www.nytimes.com/1984/11/27/world/world-court-acts-to-overrule-us-in-nicaragua-case.html>.

¹²⁷ *Nicar. v. U.S.*, 1986 I.C.J. at 16, 20-22.

¹²⁸ *Id.* at 21.

¹²⁹ *Id.* at 123-24. However, the United States rejected the judgment, maintaining its stance that the case should not have been heard by the ICJ, and that Nicaraguan government was a puppet for the Union of Soviet Socialist Republics. Martin Cleaver & Mark Tran, *US Dismisses World Court Ruling on Contras*, THE GUARDIAN (June 28, 1986, 6:34 AM), <https://www.theguardian.com/world/1986/jun/28/usa.marktran>.

¹³⁰ *Nicar. v. U.S.*, 1986 I.C.J. at 101.

¹³¹ *Id.* at 103-04. However, this holding was not unanimous. At least one judge dissented, determining that Nicaragua's actions constituted an armed attack and that El Salvador was entitled to use force in self-defense, which would enable the United States to use force in collective self-defense of El Salvador. *Id.* at 352-74 (separate opinion by Schwebel, J.).

attack” that would trigger the right to self-defense.¹³² Consequently, the United States’ corresponding support for the contras, though not rising to the level of an armed attack under the same reasoning, violated the principles of non-intervention and non-use of force in international relations.¹³³

Clearly, then, there exists a category of “less-grave” wrongful acts under international law that, despite violating international law, do not warrant acts of full, armed self-defense. This ludicrous discrepancy unacceptably leaves victim states in the vulnerable position of being unable to promptly respond to these wrongful acts, thereby encouraging further internationally wrongful acts by the offending state. If “violating the law of war, even in a manner it allows, is a repugnant act, yet an even more repugnant act is to allow an adversary to violate that same law with impunity.”¹³⁴

Second, the Court implies that that a state that suffers a use of force not rising to the level of an armed attack for self-defense purposes may take proportional countermeasures.¹³⁵ Specifically, the Court asked, and explicitly declined to definitively address, whether a state may “justify a use of force in reaction to measures which do not constitute an armed attack but may nevertheless involve a use of force.”¹³⁶ However, the ICJ pointedly suggested that there might be “some right analogous to the right of . . . self-defence, one which might be resorted to in a case of intervention short of armed attack,”¹³⁷ and “carefully refrained from ruling out the possibility that such counter-measures may involve the use of force by the victim State.”¹³⁸

Essentially, the ICJ implies in the Nicaragua Case the existence of a right to employ legitimate countermeasures analogous to, but less serious than, a use of force in self-defense in response to a threat or use of force not constituting an armed attack, i.e., a use of force causing human casualties and/or serious destruction of property.¹³⁹ In fact, the

¹³² *Id.* at 101-11.

¹³³ *Id.* at 109-12.

¹³⁴ Sutter, *supra* note 123, at 93.

¹³⁵ Tsagourias, *supra* note 123, at 26.

¹³⁶ *Nicar. v. U.S.*, 1986 I.C.J. at 110.

¹³⁷ *Id.*

¹³⁸ DINSTEIN, *supra* note 64, at 174-175.

¹³⁹ *Id.* at 174.

Nicaragua Case decision should be interpreted as “strongly suggest[ing] . . . that these counter-measures may include acts of force.”¹⁴⁰

This view is not an aberration. Despite academic treatises and non-binding international resolutions to the contrary,¹⁴¹ state practice reaffirms the existence of countermeasures as a part of CIL.¹⁴² Moreover, the concept appears in other ICJ cases. In the Oil Platforms Case,¹⁴³ the ICJ rejected Iranian claims that the United States breached a U.S.-Iran treaty by attacking an Iranian oil platform during the Tanker War¹⁴⁴ and allegedly disrupting commerce between the two countries.¹⁴⁵ However, the Court proceeded to unnecessarily analyze and determine that that U.S. attack did not constitute a valid exercise of self-defense.¹⁴⁶ Prior to the attack, Iranian forces located on the oil platforms at issue launched attacks against U.S. flagged vessels in the area.¹⁴⁷ Despite this provocation, the ICJ decided that the Iranian attacks did not constitute an “armed attack” justifying U.S. action in self-defense because the attacks were not of sufficient gravity to be an armed attack, and, allegedly, were not intentionally aimed at U.S. vessels.¹⁴⁸ This matter was so

¹⁴⁰ John L. Hargrove, *The Nicaragua Judgment and the Future of the Law of Force and Self-Defense*, 81 AM. J. INT’L L. 35, 138 (1987).

¹⁴¹ See, e.g., G.A. Res. 3314 (XXIX), Definition of Aggression (Dec. 14, 1974), G.A. Res. 2625 (XXV), Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations (Oct. 24, 1970).

¹⁴² Newton, *supra* note 123, at 362; Derek Bowett, *Reprisals Involving Recourse to Armed Force*, 66 AM. J. INT’L L. 1, 1 (1972) (arguing that the status of reprisals under the U.N. Charter may be de jure unlawful but de facto accepted practice by states).

¹⁴³ Iran v. U.S., 2003 I.C.J. at 161.

¹⁴⁴ The anti-shipping naval campaigns during the Iran-Iraq War (1980-1988) are known as the Tanker War. In response to Iraqi attacks on ships carrying Iranian military supplies and commercial exports, Iran began attacking commercial vessels belonging to countries that traded with Iraq. Due to these escalating attacks, Kuwait requested assistance from the United States, who reflagged Kuwaiti oil tankers, making them U.S. ships eligible for U.S. Navy escort, and provided general security for shipping to and from neutral Gulf countries. Subsequent missile and mine attacks on U.S. vessels prompted the United States to directly attack Iranian vessels, facilities, and oil platforms. Ronald O’Rourke, *The Tanker War*, U.S. NAVAL INST. (May 1988), <https://www.usni.org/magazines/proceedings/1988-05/tanker-war>. These retaliatory actions formed the basis of the Oil Platforms case. See Iran v. U.S., 2003 I.C.J. at 174-76.

¹⁴⁵ Iran v. U.S., 2003 I.C.J. at 218.

¹⁴⁶ See *id.* at 199; William H. Taft IV, *Self-Defense and the Oil Platforms Decision*, 29 YALE J. INT’L L. 295, 295 (2004).

¹⁴⁷ Iran v. U.S., 2003 I.C.J. at 174-76.

¹⁴⁸ *Id.* at 186-199.

contentious that five separate ICJ judges questioned the decision to address the issue,¹⁴⁹ while one judge, Judge Simma expressly disagreed with the Court's conclusion.¹⁵⁰

Referring to precedent from the Nicaragua Case, Judge Simma believed that the ICJ cannot have meant "proportionate countermeasures" to mean "mere pacific reprisals" by the victim.¹⁵¹ He hints at the preposterousness of a victim of illegal actions not having "the right to resort to – strictly proportionate – defensive measures equally of a military nature."¹⁵² Such a policy would further punish the victim of illegal actions, placing the onus on the victim state to accept current and potentially future instances of illegal actions by the offending state. Rather, Judge Simma "advocates a concept of defensive military action that falls short of 'full-scale self-defence.'"¹⁵³ He believes that CIL allows for a distinction for "hostile action, for instance against individual ships, below the level of Article 51, justifying proportionate defensive measures on the part of the victim, equally short of the quality and quantity of action in self-defence expressly reserved in the United Nations Charter."¹⁵⁴ Herein lies the crux of the argument for forcible countermeasures against, for instance, dangerous and unsafe activity by foreign or unknown drones.

V. Targeting Drones: Forcible Defensive Countermeasures

In the hypothetical scenario at the beginning of this article, an enemy drone interferes with aircraft carrier flight operations, impeding its mission and endangering the ship, its aircraft, and crew. Unfortunately, this is an all-too-real occurrence. On 8 August 2017, an Iranian Sadegh-1 UAV¹⁵⁵ had engaged in an "unsafe and unprofessional" interaction

¹⁴⁹ Taft, *supra* note 146, at 298 (citing the separate opinions of Judges Buergenthal, Higgins, Parra-Aranguren, Kooijmans, and Owada).

¹⁵⁰ Iran v. U.S., 2003 I.C.J. at 324-61 (separate opinion by Simma, J.). Dissenting opinions are an important feature of the ICJ, and have played a significant role in the subsequent development of international law. See R. P. Anand, *The Role of Individual and Dissenting Opinions in International Adjudication*, 14 INT'L & COMP. L. Q. 788, 792-94 (1965).

¹⁵¹ *Id.* at 332.

¹⁵² See *id.* at 331.

¹⁵³ Darcy, *supra* note 18, at 891.

¹⁵⁴ Iran v. U.S., 2003 I.C.J. at 332 (separate opinion by Simma, J.).

¹⁵⁵ Small enough to fit on a basketball court, the Sadegh-1 is an Iranian unmanned combat aerial vehicle that is estimated to be capable of flying at supersonic speed and

with a U.S. F/A-18E Super Hornet.¹⁵⁶ While the jet was preparing to land on the USS Nimitz, and despite repeated radio calls to stay clear of flight operations, the Iranian UAV passed within 100 feet of the F/A-18E, forcing the jet to take evasive maneuvers to avoid collision.¹⁵⁷ Less than a week later, another Iranian UAV closed to within 1,000 feet of the USS Nimitz while it was engaged in night-time flight operations, and did so without utilizing standard, internationally-mandated navigation lights, which created a dangerous situation with a significant chance of collision.¹⁵⁸ All told, in 2017, there were over fourteen dangerous incidents like this with Iranian drones.¹⁵⁹ In each instance, not only did the Iranian drone violate international law by failing to act with due regard for navigational rights of the U.S. vessel, they created dangerous collision hazards that put U.S. personnel and property at risk.¹⁶⁰ U.S. commanders must be able to respond, and forcible countermeasures may be an appropriate response.

A. A Lack of Due Regard that Endangers Human Life is Akin to a Use or Threat of Force Not Constituting an Armed Attack that Nevertheless Warrants Countermeasures

Intentionally or recklessly crossing the bow of a moving ship, failing to make way for larger ships and ships conducting flight operations, buzzing within 100 feet of other aircraft and ships, and similar maneuvers are hazardous actions that show a clear disregard to the danger of navigation and collision, and pose a danger to all craft and

altitudes of up to 25,000 feet. See Russ Curry, *Iran's Sadegh UCAV Armed with Air-to-Air Missiles*, UAS VISION.COM (Oct. 2, 2014),

<https://www.uasvision.com/2014/10/02/irans-sadegh-ucav-armed-with-air-to-air-missiles/>; *Sadeq-1*, DEAGEL.COM, http://www.deagel.com/Support-Aircraft/Sadeq-1_a003113001.aspx (last visited Mar. 26, 2019).

¹⁵⁶ Commander, U.S. Naval Forces Central Command Fifth Fleet Public Affairs, *Statement Regarding Iranian UAV Unsafe and Unprofessional Interaction with US Navy F/A-18E*, U.S. CENT. COMMAND (Aug. 8, 2017), <http://www.centcom.mil/MEDIA/NEWS-ARTICLES/News-Article-View/Article/1271878/statement-regarding-iranian-uav-unsafe-and-unprofessional-interaction-with-us-n/> [hereinafter Fifth Fleet Statement].

¹⁵⁷ *Id.*

¹⁵⁸ Melissa Quinn, *Iranian Drone Conducts 'Unsafe Approach' of US Aircraft Carrier for the Second Time in a Week*, WASH. EXAMINER (Aug. 14, 2017, 12:33 PM), <http://www.washingtonexaminer.com/iranian-drone-conducts-unsafe-approach-of-us-aircraft-carrier-for-the-second-time-in-a-week/article/2631448>.

¹⁵⁹ See Fifth Fleet Statement, *supra* note 156.

¹⁶⁰ See *id.*

individuals involved.¹⁶¹ It does not matter whether their acts are committed intentionally, recklessly, or as a matter of simple negligence.¹⁶² Aside from violating principles of basic seamanship,¹⁶³ such actions are also violations of international law. When state aircraft and vessels undertake dangerous maneuvers that fail to exercise due regard for the safety and navigational rights of other craft on, above, or below the water, it violates UNCLOS, the COLREGS, the Chicago Convention, and other international agreements.¹⁶⁴ As discussed above, these laws apply equally to UAVs and UMS due to their respective statuses as State/Military Aircraft and vessels. Consequently, if a drone conducts dangerous operations like the ones described in the hypothetical and real-world examples above, this lack of due regard constitutes a violation of international law.

In considering the wide array of unlawful acts that are possible for one state to take against another, less-“grave” violations of maritime customs and laws, like the obligation of due regard, are unlikely to clearly constitute an armed attack by the state operating the drone. Nevertheless, these violations are acts akin to uses or threats of force that may warrant response under CIL as described by Judge Simma’s opinion.¹⁶⁵ As noted above, the ICJ has held that otherwise non-violent provision of weapons, money, supplies, and logistical support to armed bands in another state, while not constituting an armed attack triggering the right of self-defense, may nevertheless be a “use of force of a lesser degree of gravity” that breaches the international prohibition against the use or threat of force between states.¹⁶⁶ This is because actions like

¹⁶¹ See e.g., COLREGS, *supra* note 22, r. 7-21.

¹⁶² Neither UNCLOS, the COLREGS, nor the Chicago Convention contain any provision that waives the requirement of due regard. See UNCLOS, *supra* note 8; COLREGS, *supra* note 22; Chicago Convention, *supra* note 24. Logically speaking, a vessel in distress that has no steering capability may be exempt from the requirement to operate with due regard for other vessels around it, but no provision is made for intentional, reckless, or negligent failures to do so. See generally UNCLOS, *supra* note 8; COLREGS, *supra* note 22; Chicago Convention, *supra* note 24.

¹⁶³ *Seamanship*, *supra* note 25.

¹⁶⁴ See UNCLOS, *supra* note 8, arts. 21, 39; COLREGS, *supra* note 22, r. 2; Chicago Convention, *supra* note 24, art. 3; Memorandum of Understanding Between the Department of Defense of the United States of America and the Ministry of National Defense of the People’s Republic of China Regarding the Rules of Behavior for Safety of Air and Maritime Encounters, U.S. DEP’T OF DEF. PUBLICATIONS (Nov. 10, 2014), http://archive.defense.gov/pubs/141112_MemorandumOfUnderstandingRegardingRules.pdf [hereinafter China-U.S. MOU].

¹⁶⁵ See *Iran v. U.S.*, 2003 I.C.J. at 332 (separate opinion by Simma, J.).

¹⁶⁶ *Nicar. v. U.S.*, 1986 I.C.J. at 127.

these, while not rising to a level that can be equated with an armed attack, still violate the general principle against the use of force, and are an unlawful intervention in the affairs of another state.¹⁶⁷ Unsafe and unprofessional drone operations should be viewed in the same context; while not grave enough to be an “armed attack,” common sense and the evolving standards of warfare support the contention that such activity is akin to a use or threat of force because it interferes with the victim state’s affairs (i.e., serves as an impediment to the ship’s mission), jeopardizes its sovereign immune property, and endangers the lives of its personnel.

Consider the result of a pebble dropping into a pool of still water. The pebble does not merely break the surface and sink to the bottom without disturbing anything around it; the pebble creates a ripple on the surface of the water that spreads outward from the point of impact. Similarly, in real life, a drone does not pose a general danger that exists in a vacuum; it creates its own ripple effect on those vessels around it. When a drone fails to act with due regard for the safety and navigation of other vessels, its unsafe actions will force the victim vessels to take action to escape the threat. In the hypothetical, the presence of a foreign drone in the stack poses a danger to flight operations and the pilots involved, which may force the aircraft to cease operations or change course to steer away from the unsafe UAV.¹⁶⁸ In the real-world interaction between the Iranian QOM-1 and the U.S. F/A-18E, the “unsafe and unprofessional” lack of due regard exhibited by the Iranian drone forced the U.S. F/A-18E to take evasive action in order to avoid collision.¹⁶⁹ Most importantly, the dangerous drone activity is not a threat in and of itself, or simply because it threatens potentially extensive damage to other vessels and craft; it also poses a very real threat to the lives of the sailors and aviators involved. Accordingly, the dangerous lack of due regard by a drone that violates international law, impedes operations, and poses a danger to human life is analogous to a traditional use or threat of force.

¹⁶⁷ See *id.* at 126-27.

¹⁶⁸ See discussion *supra* sec. I.

¹⁶⁹ See Fifth Fleet Statement, *supra* note 156.

B. Use of Force Against an Unmanned Drone is a Proportionate Countermeasure

Since dangerous drone activity in violation of international law is analogous to a use or threat of force short of an armed attack, the victim state must be able to employ proportionate, forcible countermeasures to safeguard its personnel and to deter future violations. To outright prohibit forcible countermeasures in all situations, as some in the international community seek to do, is an unnecessary restriction that controverts CIL¹⁷⁰ and “seriously thwarts” the “right of [a] victimized state to secure respect for its legal rights and interests. . . .”¹⁷¹ Thus, prohibition creates an absurd catch-22,¹⁷² limiting the use of forcible countermeasures places the onus on the victim state to either accept repeated violations of its rights and international law, thereby encouraging further violations and allowing the danger to its property and personnel to continue, or to commit its own violation of international law as it seeks to take defensive action.

Recall that countermeasures are acts taken against a party outside of an armed conflict that would otherwise be unlawful in order to persuade that party to cease violating the law.¹⁷³ The hypothetical and real-world examples above both involve an unmanned vehicle, outside of an armed conflict, acting in a manner that violates international law and poses a danger to personnel. Moreover, these violations of state rights and international law are a frequent occurrence by certain states.¹⁷⁴ In such a situation, the United States should be entitled to employ proportionate forcible countermeasures short of full self-defense to defend its property and personnel, and to dissuade the offending state from repeating such actions in the future. As forcible countermeasures are “analogous to the right of . . . self-defence,”¹⁷⁵ then the proposed countermeasures must comply with the same requirements of necessity and proportionality for

¹⁷⁰ U.S. DEP’T OF ST., DRAFT ARTICLES ON STATE RESPONSIBILITY: COMMENTS OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA March 1, 2001, at 6 (2001), <https://www.state.gov/documents/organization/28993.pdf>.

¹⁷¹ Cannizzaro, *supra* note 102, at 908.

¹⁷² Derived from the 1961 novel, *Catch-22*, by Joseph Heller, a “catch-22” is “a problematic situation for which the only solution is denied by a circumstance inherent in the problem or by a rule.” *Catch-22*, MERRIAM-WEBSTER DICTIONARY, <https://www.merriam-webster.com/dictionary/catch-22> (last visited Mar. 26, 2019).

¹⁷³ See DINSTEIN, *supra* note 64, at 160.

¹⁷⁴ See Fifth Fleet Statement, *supra* note 156.

¹⁷⁵ *Nicar. v. U.S.*, 1986 I.C.J. at 110.

self-defense actions.¹⁷⁶ If a forcible countermeasure complies with these requirements, then a victim state would be acting within the ambit of traditional state practice, CIL, and ICJ judgments.

Necessity for forcible countermeasures is established in two ways. First, the victim state has an interest in taking action to counter the offending state's violations of international law and to deter future violations.¹⁷⁷ In an era of warfare that will increasingly rely on drones,¹⁷⁸ the knowledge that violations of international law by drones will be met with appropriate, forcible countermeasures will discourage such actions. Second, the victim state obviously has a significant interest in taking on-the-spot action to end the threat to its property and personnel, which, as noted by Judge Simma, may consist of defensive measures of a military nature.¹⁷⁹

Proportionality is a higher bar to meet. The justification for forcible countermeasures "analogous to but short of self-defence" is another state's prior use or threat of force "less grave than an armed attack," i.e., "a use of force causing human casualties and/or serious destruction of property."¹⁸⁰ Just like traditional self-defense, proportionality does not limit the countermeasure to the exact manner and level of force used in the initial unlawful action by the offending state. Rather, proportionality permits the level of force needed to respond to, and effectively deal with, the threat or danger, which can be greater than the initial threat so long as the result is still roughly proportionate.¹⁸¹ Hence, in response to a use or threat of force below the level of an armed attack, it would be grossly disproportionate to employ a forcible countermeasure so severe that it constitutes an armed attack itself. For instance, the hypothetical would likely fail the test of proportionality to launch a missile strike against the enemy drone's operators, home base, or mother ship, since the countermeasure would be a far more severe and direct use of force.

Targeting the drone itself, however, would be a proportional countermeasure. Use of force against the drone is directly related and

¹⁷⁶ DINSTEIN, *supra* note 64, at 197.

¹⁷⁷ See Cannizzaro, *supra* note 102, at 894-95 (noting that the idea of countermeasures and their multi-functional character relates to the State's need to protect its legal rights and interests).

¹⁷⁸ See discussion *supra* sec. II.B.

¹⁷⁹ Iran v. U.S., 2003 I.C.J. at 331.

¹⁸⁰ DINSTEIN, *supra* note 64, at 174.

¹⁸¹ *Id.* at 209.

responsive to the drone's unlawful actions. The result achieved, elimination of the drone and the threat it poses, is a relatively symmetric and balanced result compared to the dangerous, unlawful actions of the drone. Assuming the incident does not occur while exercising innocent passage through the territorial seas of the state operating the drone, then there is no violation of the territorial sovereignty or political independence of the offending state, further precluding any violation of the U.N. prohibition on the use of force.¹⁸² Most importantly, by destroying a single, unmanned vehicle, the countermeasure avoids any civilian casualties or more significant destruction of property.¹⁸³ Consequently, the countermeasure is not "grave" enough to constitute an armed attack, and is arguably a lesser use of force compared to the threat to human life posed by a drone acting without due regard for safety and navigation rights. In this manner, the same unmanned nature of drones that makes states more likely to utilize them also weighs in favor of them being the lawful target for forcible countermeasures.

Additionally, if destruction of the enemy drone is a proportionate response, then lesser, non-kinetic countermeasures such as electronic warfare (EW) measures to disable or drive off the drone would also be permissible since they achieve the same desired result—elimination of the threat posed by the drone. This is in keeping with principles of effects-based targeting, where all possible means drawing from any available forces weapons and platforms are considered to achieve specific, desired effects.¹⁸⁴ If lesser, non-kinetic countermeasures would achieve the same result, i.e., end the dangerous actions of a drone, and time and circumstances permit, then such measures should be considered in keeping with traditional notions on escalation of force.¹⁸⁵ Similarly, if time and circumstances permit, commanders may attempt to de-escalate an encounter with an unprofessional and unsafe drone without use of

¹⁸² U.N. Charter art. 2 ¶ 4.

¹⁸³ As compared to manned aircraft, warships, tanks, and other military weapons/vehicles, drones are a comparatively cheap weapons system, making it an attractive, easy-to-use option for militaries around the world. See Wayne McLean, *Drones are Cheap, Soldiers are Not: A Cost-Benefit Analysis of War*, THE CONVERSATION (Jun. 25, 2014, 11:26 PM), <http://theconversation.com/drones-are-cheap-soldiers-are-not-a-cost-benefit-analysis-of-war-27924>.

¹⁸⁴ JOINT CHIEFS OF STAFF, JOINT PUB. 3-60, JOINT DOCTRINE FOR TARGETING I-4 (17 Jan. 2002).

¹⁸⁵ INT'L & OPERATIONAL LAW DEP'T, THE JUDGE ADVOCATE GEN.'S LEGAL CTR. & SCH., U.S. ARMY, OPERATIONAL LAW HANDBOOK 89 (2015) [hereinafter OPERATIONAL LAW HANDBOOK].

countermeasures,¹⁸⁶ e.g., by changing course. This may especially be the case depending on the legal status of the seas the action takes place in.¹⁸⁷ However, this will be highly dependent on the specific circumstances, and commanders are *not* required to de-escalate a situation or attempt to use non-destructive measures as a precursor to use of more powerful measures.¹⁸⁸

Additionally, EW measures may not be as quick or decisive in eliminating a drone threat as a traditional kinetic countermeasure that destroys the target drone. Also, EW measures may not eliminate the threat if such measures, even if disrupting its communications link with its controllers, leave the drone in an area where its mere presence poses a continuing danger to navigation, e.g., the stack in the hypothetical. Accordingly, where circumstances permit, a commander should consider non-kinetic measures against an illegal drone, but the commander is not required to exhaust such measures before resorting to a kinetic strike.

Thus, forcible, destructive action against an enemy drone that violates international law by failing to act with due regard for other aircraft and vessels, thereby endangering those other craft and their human crews, is a proportionate forcible countermeasure.

C. A Framework for Forcible Countermeasures

As unreasonable as it would be to completely prohibit forcible countermeasures falling short of actions taken in self-defense, as shown above, it would be inappropriate and intellectually dishonest to argue that forcible countermeasures, even if proportionate and necessary, are appropriate in all circumstances. Like any use of force, the specific facts of each situation and many other factors must be considered prior to authorizing the action.¹⁸⁹ In order to be feasible and defensible in real-world drone encounters, a framework is needed to delineate relative levels of forcible countermeasures that may be employed depending on the nature of threat, the area of the seas where the encounter occurs, and the degree of damage that the countermeasure will cause.

¹⁸⁶ *Id.* at 84.

¹⁸⁷ See discussion, *infra* sec. V.C.

¹⁸⁸ OPERATIONAL LAW HANDBOOK, *supra* note 185, at 84, 89.

¹⁸⁹ See SROE/SRUF, *supra* note 97, encl. J, para. 2.b.(1)(c) (directing consideration of a number of potential tactical and strategic limitations on the use of force, such as U.S. policy, higher headquarters limitations, etc.).

1. *Dangerous Violation of International Law*

As discussed above, forcible countermeasures will not be permissible in all circumstances.¹⁹⁰ By their very nature, countermeasures, just like belligerent reprisals, are acts that would be unlawful but for their use in response to another state's prior violation of international law, and that are taken for the purpose of deterring future violations of international law.¹⁹¹ Consequently, any use of countermeasures must be in response to a violation of international law.

Moreover, to specifically warrant a forcible countermeasure, regardless of the level of force to be used, that violation of international law must pose a life-threatening hazard to the safety of U.S. vessels or aircraft, and the lives of embarked Sailors and Airmen.¹⁹² Mission impediment, e.g., obstructing intelligence collection or interfering with a freedom of navigation operation, is not enough. It is the grave danger to U.S. forces that is analogous to a use or threat of force short of an armed attack, which is what triggers a potential forcible countermeasure as a response short of self-defense.¹⁹³

Therefore, to justify use of a forcible countermeasure, an offending state must commit a violation of international law that poses a life-threatening danger to U.S. forces.

2. *Different Maritime Regimes Under the Law of the Sea*

A foundational premise of the law of the sea is that the sovereignty of coastal states extends, under different legal classifications, beyond its land territory and internal waters.¹⁹⁴ Even if U.S. commanders encounter a life-threatening breach of international law that potentially warrants a forcible countermeasure, the location where the breach occurs will have a significant impact on whether forcible countermeasures may be used and the level of force involved. This is because the seas are nominally reserved for peaceful purposes, and states are obligated to avoid threats or uses of force against the sovereignty, territorial integrity, or political

¹⁹⁰ See discussion *supra* sections IV.C. and V.A.

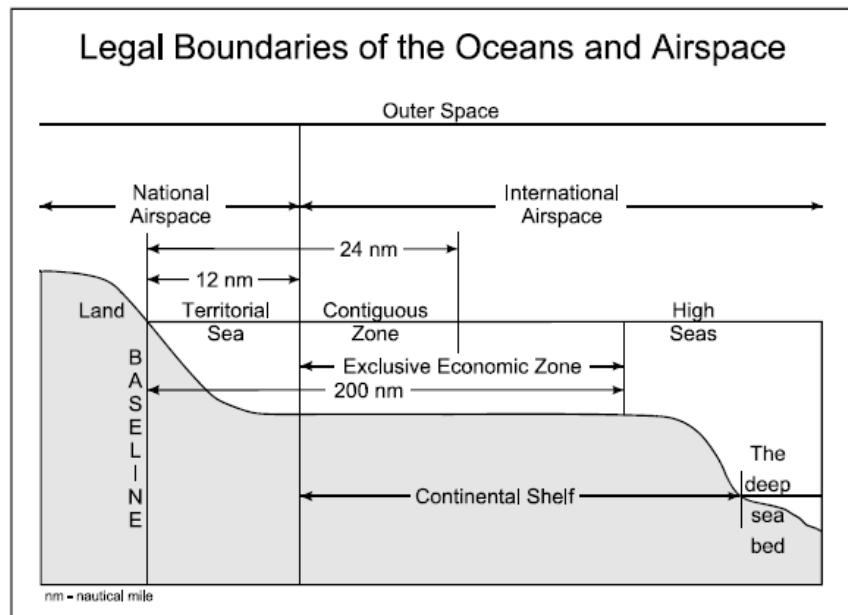
¹⁹¹ See LAW OF WAR MANUAL, *supra* note 17, paras. 18.18.1, 18.18.1.1; OPERATIONAL LAW HANDBOOK, *supra* note 185, at 30.

¹⁹² See discussion *supra* section V.A.

¹⁹³ *Id.*

¹⁹⁴ UNCLOS, *supra* note 8, arts. 2, 33, 55, 77.

independence of other states.¹⁹⁵ And as shown in the following chart, the closer a foreign state's vessel is to a coastal state, the greater the degree of control that the coastal state can generally exert over the surrounding area and the conduct of foreign craft therein,¹⁹⁶ and the greater the limitations on the foreign state vessel while transiting the coastal state's waters.¹⁹⁷



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a. The High Seas and EEZs – Full Freedom of Navigation

Throughout the high seas,¹⁹⁹ commonly referred to as international waters, and any coastal states' EEZs,²⁰⁰ the full panoply of navigational

¹⁹⁵ *Id.* arts. 19, 39, 88, 301.

¹⁹⁶ *See id.* arts. 2, 33, 55.

¹⁹⁷ For instance, while foreign ships may exercise full freedom of navigation in a coastal State's EEZ, those ships are specifically prohibited from launching and recovering aircraft while exercising innocent passage through the coastal State's territorial sea. *Id.* arts. 19, 58.

¹⁹⁸ COMMANDER'S HANDBOOK, *supra* note 9, para. 1.3.1, Figure 1-1.

¹⁹⁹ The high seas are "all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State." UNCLOS, *supra* note 8, art. 86. All states may use the high

rights are available to ships of all nationalities. This is known as the freedom of the high seas,²⁰¹ and it is part of what makes the world's oceans and the resources contained therein the "common heritage of mankind."²⁰² Even within an EEZ, although the cognizant coastal state retains sovereign rights of the resources within the EEZ, all other high seas freedoms, such as navigation and overflight, are available to foreign states. Although the high seas and EEZs are nominally "reserved for peaceful purposes,"²⁰³ which some states conservatively interpret by making excessive maritime claims that purport to regulate military activity of foreign states within such areas,²⁰⁴ it is broadly agreed upon that all states may conduct military operations in EEZs and on the high seas,²⁰⁵ subject only to the requirement that they exercise due regard for the interests of other states.²⁰⁶ Accordingly, a coastal state has little to no control over foreign military naval activity occurring on the high seas or an EEZ.²⁰⁷

b. Territorial Seas – Innocent Passage

A coastal state may exert significant control over its territorial seas, which is an area of sovereign territory extending up to a maximum of 12 NM from the coast.²⁰⁸ Within a coastal state's territorial sea, foreign

seas without restriction, and may exercise the freedoms of navigation and overflight. *Id.* art. 87.

²⁰⁰ See UNCLOS, *supra* note 8.

²⁰¹ UNCLOS, *supra* note 8, art. 87.

²⁰² UNCLOS, *supra* note 8, arts. 136, 137. Access to, and use of, the oceans is vital to life on Earth. Roughly seventy percent of the Earth's surface is covered by water and more than one third the total human population lives within 100 kilometers of an ocean. *Living Ocean*, NAT'L AERONAUTICS & SPACE AGENCY (NASA), <https://science.nasa.gov/earth-science/oceanography/living-ocean> (last visited Mar. 26, 2019).

²⁰³ UNCLOS, *supra* note 8, preamble, art. 88.

²⁰⁴ Some coastal states, such as China, claim that activity by foreign militaries in China's EEZ is prohibited without notification to, and permission from, the coastal State. See *Military Claims Reference Manual*, U.S. NAVY JAG CORPS, www.jag.navy.mil/organization/code_10_mcrm.htm (last visited Mar. 26, 2019).

²⁰⁵ DINSTEIN, *supra* note 64, at 71; BERNAERTS' GUIDE, *supra* note 36, at 124.

²⁰⁶ UNCLOS, *supra* note 8, art. 87.

²⁰⁷ See BERNAERTS' GUIDE, *supra* note 36, at 124-125; see also, UNCLOS, *supra* note 8, art. 298 (exempting "disputes concerning military activities, including military activities by government vessels and aircraft engaged in non-commercial service, and disputes concerning law enforcement activities in regard to the exercise of sovereign rights or jurisdiction" from jurisdiction of any court or tribunal convened under UNCLOS).

²⁰⁸ UNCLOS, *supra* note 8, arts. 2-3.

vessels are subject to the coastal states laws, which gives the coastal state a vested interest in regulating the conduct of all ships therein.²⁰⁹ Nevertheless, international law requires that coastal states “shall not hamper” foreign ships’ passage through their territorial seas,²¹⁰ and particularly proscribes taking any action or impose any requirement that has the “practical effect of denying or impairing” the right of passage.²¹¹ Under this regime, foreign states may traverse a coastal state’s territorial sea by exercising the right of innocent passage,²¹² or the right of transit passage through international straits.²¹³

Both innocent passage and transit passage must be conducted continuously and expeditiously, and must refrain from “any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State.”²¹⁴ Innocent passage is particularly restrictive, and requires that foreign ships refrain a number of activities, including any exercise or practice with weapons of any kind, and the launching, landing, or taking on board of any aircraft or military device.²¹⁵ These restrictions are based on large part of the recognition that the territorial sea is the sovereign territory of the coastal state. A threat or use of force, or other provocative activity like those listed in Article 19,²¹⁶ may be deemed to be a threat to the territorial integrity and political independence of the coastal state itself.

*c. International Straits and Designated Archipelagic Sea Lanes—
Transit Passage*

The independent legal regime of transit passage is different, and it occupies a place in between freedom of navigation and innocent

²⁰⁹ See *id.* art. 73.

²¹⁰ *Id.* arts. 24, 44.

²¹¹ See UNCLOS, *supra* note 8, art. 24; see also UNCLOS, *supra* note 8, art. 44 (prohibiting suspension of transit passage).

²¹² Ships of any state may traverse a coastal state’s territorial seas, whether intending to stop at a port facility of the coastal state or not, provided that passage is continuous, expeditious, and is not prejudicial to the peace, good order or security of the coastal state. *Id.* arts. 18-19.

²¹³ The right of transit passage allows ships to traverse a coastal state’s territorial sea if crossing between one part of the high seas or an EEZ and another part of the high seas or an EEZ. *Id.* art. 38.

²¹⁴ *Id.* arts. 19, 39.

²¹⁵ *Id.* art. 19.

²¹⁶ *Id.*

passage.²¹⁷ Though it also involves traversing a coastal state's territorial seas in a continuous and expeditious manner,²¹⁸ the limitations on transit are not as restrictive. A foreign state's ship must still avoid "any threat or use of force against the sovereignty, territorial integrity or political independence of States bordering the strait," but ships exercising transit passage through international straits are allowed to engage in activities that are "incident to their normal modes of continuous and expeditious transit."²¹⁹ The United States interprets this provision as allowing submarines to remain submerged during transit, and for aircraft carriers to conduct normal flight operations during the same.²²⁰ In this fashion, although coastal states retain their normal sovereignty rights over the territorial seas comprising international straits,²²¹ international law acknowledges that there is a significant difference between transit through an international strait and mere innocent passage through a coastal state's territorial sea, and provides ships transiting international straits greater rights.²²²

3. *Levels of Force and Destructiveness*

Technologically advanced forces like the U.S. military have multiple responsive measures that may be used against an offending state's drone.²²³ Electronic warfare measures can jam a drone's communications link with its operator, making the drone inoperable, and potentially making it automatically return to its home base.²²⁴ It is even possible for EW measures to cause the destruction of a drone by accessing and disrupting internal processes.²²⁵ Finally, a ship can take direct action to target and destroy an offending state's drone using

²¹⁷ BERNAERTS' GUIDE, *supra* note 36, at 32.

²¹⁸ UNCLOS, *supra* note 8, art. 38.

²¹⁹ *Id.* art. 39.

²²⁰ COMMANDER'S HANDBOOK, *supra* note 9, para. 2.5.3.2.

²²¹ UNCLOS, *supra* note 8, art. 34.

²²² *See* BERNAERTS' GUIDE, *supra* note 36, at 32.

²²³ *See* Tung Yin, *Game of Drones: Defending Against Drone Terrorism*, 2 TEX. A&M L. REV. 635, 656 (2015); Mark Pomerleau, *How the Military is Defeating Drones*, C4ISRNET (Mar. 21, 2017), <https://www.c4isrnet.com/unmanned/uas/2017/03/21/how-the-military-is-defeating-drones>.

²²⁴ Pomerleau, *supra* note 223.

²²⁵ *See id.*

traditional kinetic weapons, or even directed energy weapons.²²⁶ The U.S. Navy and other military entities are continuously seeking out new and better measures to counter enemy drones.²²⁷ Yet the sophistication of a particular weapon or EW measure is not dispositive of its use as a countermeasure; the likely result of its utilization, i.e., how forceful or destructive it will be, is the measure that will impact its use. For instance, there may be situations where a forcible countermeasure is warranted, but where it would be a more appropriate level of force to employ EW measures to disrupt a drone's signal as opposed to obliterating the drone with a surface-to-air missile, thereby avoiding the destruction of another state's property and follow-on risk of escalation.

4. *Implementing a U.S. Countermeasure Framework*

By considering the nature of the threat posed by a dangerous drone encounter, balancing the rights and obligations of coastal states and foreign states based on the particular law of the sea regime, and contemplating the types of potential countermeasures and their relative levels of destructiveness, a naval commander can ascertain parameters for possible forcible countermeasures as detailed in the following chart and below text:

²²⁶ *Id.*; Off. Naval Res., *All Systems Go: Navy's Laser Weapon Ready for Summer Deployment*, U.S. NAVY (Apr. 7, 2014, 12:02 PM), https://www.navy.mil/submit/display.asp?story_id=80172.

²²⁷ See Yin, *supra* note 223, at 656-57. It is beyond the scope of this article to conduct an in-depth analysis of the various counter-drone methods and technologies.

	Legal Regime	Navigational Regime	Countermeasures (CM) Permitted
1	Internal Waters	Consent	None
2	Territorial Seas (≤ 12 NM)	Innocent Passage	None (Any use of forcible CM while exercising Innocent Passage could constitute a use of force against the sovereignty and territorial integrity of the Coastal State)
		Transit Passage	Electronic Warfare and other non-kinetic CM that disrupt or deter offending drones without physical damage
		Archipelagic Sea Lanes (ASL) Passage	(Reduced sovereign rights for int'l straits and ASLs; treated more like the high seas than the territorial sea)
3	Contiguous Zone (≤ 24 NM)	High Seas Freedoms	Full use of kinetic, directed energy, and other non-kinetic CM that result in destruction of offending drones
4	Exclusive Economic Zone (EEZ) (≤ 200 NM)		
5	High Seas (≥ 200 NM)		

a. No Countermeasures While Exercising Innocent Passage

Within the normal territorial sea of a coastal state, whether by invitation of the coastal state or through the exercise of innocent passage, forcible countermeasures against a drone or other vessel belonging to the coastal state are inadvisable as a matter of prudence. Although the obligation of due regard is a universal requirement that applies in all maritime areas,²²⁸ and a drone's failure to act with due regard is a

²²⁸ UNCLOS specifically imposes the obligation of due regard in its Preamble and sections on the territorial sea, transit passage through international strait, the EEZ, and high seas, which covers all areas of the sea addressed by UNCLOS. *See* UNCLOS, *supra* note 8, preamble, arts. 39, 56, 58, 87. Moreover, the COLREGS requirement of due regard applies to "all vessels" transiting "the high seas and in all waters connected therewith navigable by seagoing vessels." COLREGS, *supra* note 22, r. 1, 2.

violation of international law giving rise to the legal right to use forcible countermeasures, certain factors vitiate use of forcible countermeasures in the coastal state's territorial sea. First, a territorial sea is the sovereign territory of the coastal state;²²⁹ any forcible countermeasure employed in the coastal state's territorial sea could be viewed as a violation of the territorial integrity and political independence of the coastal state itself, which would be a violation of international law,²³⁰ and possibly an illegal armed attack triggering the coastal state's right of self-defense.²³¹ Second, the coastal state's rights to regulate conduct of ships at sea is greatest in this area, and the activities of foreign ships traversing the territorial sea by exercising innocent passage are heavily restricted.²³² This limited nature of operations that U.S. ships may conduct during innocent passage, e.g., no flight operations for an enemy drone to disrupt, make the need to use countermeasures less likely. Third, should forcible countermeasures be employed, this would violate our own obligation to refrain from any use of weapons or other acts "prejudicial to the peace, good order, and security of the coastal State."²³³ Consequently, our ships' passage would no longer be innocent, entitling the coastal state to eject the ship from the territorial sea.²³⁴

However, this restriction on use of countermeasures in the territorial sea should not apply to third party drones operating in the territorial sea. In such a situation, employment of a forcible countermeasure against a third-party state to whom the drone belongs, rather than the coastal state itself, would obviate the aforementioned concerns. Additionally, a restriction on the use of countermeasures in the territorial would also not preclude actions taken in self-defense if the coastal state commits a use or threat of force that constitutes a hostile act or demonstrated hostile intent.²³⁵

²²⁹ UNCLOS, *supra* note 8, art. 2.

²³⁰ *Id.* art. 19; U.N. Charter, art. 2.

²³¹ Absent legal justification, such as self-defense against an armed attack or countermeasures against acts falling short of an armed attack, a use of force in response to provocation by another state would be illegal. *See* *Nicar. v. U.S.*, 1986 I.C.J. at 123-24; *see also* discussion *supra* sec. IV.C.2.

²³² *See* discussion *supra* sec. V.C.2.

²³³ UNCLOS, *supra* note 8, art. 19.

²³⁴ *Id.* art. 25.

²³⁵ *See* U.N. Charter, art. 51; COMMANDER'S HANDBOOK, *supra* note 9, para. 4.4.

b. Non-Destructive Countermeasures in International Straits

Within international straits and archipelagic sea lanes, although the waters themselves are technically still part of the coastal state's territorial seas,²³⁶ these waterway are addressed by separate legal regimes that provide greater rights to foreign ships transiting the area.²³⁷ Moreover, coastal states are prohibited from suspending transit and must refrain from acts that have the practical impact of denying transit passage.²³⁸ In this manner, UNCLOS treats international straits and archipelagic sea lanes more like the high seas than as part of the territorial sea. Consequently, foreign ships exercising transit passage may be permitted a greater degree of flexibility in responding to a dangerous violation of international law by a coastal state's drone.

To a degree, the concerns weighing against use of countermeasures in the territorial sea still apply. However, non-destructive forcible countermeasures that eliminate the threat posed by the drone without destroying the drone itself, such as use of EW to disrupt a drone's communications signal, would be appropriate responses to dangerous drone encounters in international and archipelagic straits. More importantly, use of non-destructive countermeasures avoids any potential violation of the territorial integrity or political independence of the coastal state. Such measures appropriately balance the naval commander's need to counter the direct threat posed by the drone and deter future violations of international law, with the due regard required for the coastal state's continuing, albeit reduced, right under international law to regulate that portion of its sovereign territory. As noted above, this would neither preclude the ability to use stronger, more-destructive forcible countermeasures against a third-party drone operating without due regard in international straits, nor would it impact the right to use force in self-defense against a hostile act or demonstrated hostile intent by the coastal state.

c. Full Spectrum of Countermeasures on the High Seas

Finally, full forcible countermeasures up to, and including, destruction of a dangerous drone are permissible on the high seas and in

²³⁶ UNCLOS, *supra* note 8, art. 34.

²³⁷ Compare UNCLOS, *supra* note 8, art. 19, and UNCLOS, *supra* note 8, art. 39.

²³⁸ *Id.* art. 44.

EEZs. No state can regulate or impede the rights of navigation and overflight in these areas;²³⁹ any action by a state to do so through dangerous, harassing drone activity that violates international law can and should be met with full forcible countermeasures. There is also no requirement under the U.N. Charter, UNCLOS, or CIL requiring that lesser, non-destructive countermeasures be attempted first.²⁴⁰ Lesser measures may not be successful, and even if successful, may leave an uncontrolled drone in a position that still poses a danger to safety and navigation. Absent the need to consider the territorial integrity or political independence of a coastal state, full forcible countermeasures that result in destruction of the offending drone are permissible.

VI. Conclusion

Despite the general international law disapprobation for armed countermeasures and the use or threat of force between states, forcible countermeasures are an important and necessary right under CIL. States and their naval commanders should, and are legally entitled to, employ appropriate forcible countermeasures analogous to, but falling short, of use of force in self-defense against dangerous violations of international law not acts not rising to the level of an armed attack. This is particularly important in the modern operating environments, where unmanned vehicles frequently violate international law with impunity and pose an increasing threat to the safety and navigation of naval forces. The United States should adopt and implement a countermeasure framework as described above to combat these dangerous violations by drones by utilizing proportionate defensive countermeasures up to, and including, blowing the drone out of the sky or water.

²³⁹ *See id.* arts. 58, 87.

²⁴⁰ *See supra* notes 184-88 and accompanying text.