UNDERWATER FIBER OPTIC CABLES: A CUSTOMARY INTERNATIONAL LAW APPROACH TO SOLVING THE GAPS IN THE INTERNATIONAL LEGAL FRAMEWORK FOR THEIR PROTECTION

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Experts estimate 98 percent of international internet, data, and telephone traffic is transmitted by underwater fiber optic cables. This article gives a brief overview of the history of underwater fiber optic cables to lay the foundation for its analysis of the current international legal regime for their protection. This article also looks at the gaps in that regime. The article then proposes the United States should look at customary international law for solutions to the gaps in the international legal regime protecting underwater fiber optic cables, and presents a comprehensive strategy for the United States to do so.

I. INTRODUCTION

If someone asked you to explain how your email message got from the smart device in your hand to a recipient across the globe, would you know the answer? Chances are you may think it is the myriad satellites orbiting the earth responsible for your email communication from Point A to Point B. If you thought this was the case, then you are not alone. It is a common misperception the world's communications data is transmitted by those satellites. As one commentator noted, "[t]he idea that a person's cell phone link is sent to a nearby cell tower, but that the overseas messages themselves are then broken into bits of data, which then ply the ocean depths at the speed of light via unseen cables, is hard to imagine."[1] In reality, our data travels far below sea-level, along a series of underwater fiber optic cables on the seabed connecting the earth's continents. In March 2019, several prominent newspapers had front-page articles discussing the importance of this web of underwater fiber optic cables that brought greater recognition to their importance.[2]

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[1] Douglas R. Burnett & Lionel Carter, *International Submarine Cables and Biodiversity of Areas Beyond National Jurisdiction: The Cloud Beneath the Sea*, BRILL RES. PERSP., L. SEA 1.2, at 3 (2017), https://bit.ly/30n9dZS.

[2] *See* Jeremy Page, Kate O'Keefe & Rob Taylor, *America's Undersea Battle with China for Control of the Global Internet Grid*, WALL ST. J. (Mar. 13, 2019), https://on.wsj.com/3194qKI (discussing United States increasing awareness of vulnerabilities to underwater fiber optic cables); *see also* Adam Satariano, *How the Internet Travels Across Oceans*, N.Y. TIMES (Mar. 10, 2019), https://nyti.ms/2Xn46Xt (explaining how email is broken into bits and transferred to its recipient via underwater fiber optic cables).

Experts estimate 98% of international internet, data, and telephone traffic is transmitted by this series of underwater fiber optic cables.[3] In the past ten years, there has been increased awareness of the vulnerabilities of underwater fiber optic cables and, more relevant to proponents of international law, there has been increased dialogue regarding not just the international legal regime protecting them but the gaps in that regime as well. There have been no less than four prominent scholarly articles highlighting the gaps in the international legal framework protecting underwater fiber optic cables. The articles recommend various solutions that would use international law to secure the vital underbelly of the world's communications. These solutions vary from the creation of an international treaty to the United States ratification of the United Nations Convention on the Law of the Sea to the collective revision of various treaties that were ratified decades ago. These solutions, while certainly commendable, are not necessarily practical in the world that exists in 2020.

Instead, the United States should look at customary international law for solutions to the gaps in the international legal regime protecting underwater fiber optic cables. This article presents a comprehensive strategy for the United States to establish customary international law to protect the fiber optic cables beyond its territorial seas.

The first section of the article explores the history of underwater cables and briefly discusses the importance of these cables to the world. The second section presents the current international legal framework including its gaps and the various solutions offered by legal scholars. The third section turns to customary international law and how it has been developed over the last century. Lastly, this article offers a comprehensive plan for the United States to establish customary international law to cover some of the current gaps in the international legal regime, specifically protection of fiber optic cables that land in the United States beyond its territorial seas.

II. BACKGROUND

A. History

One has to understand the history of underwater cables to fully understand the international legal framework governing them and its current gaps. This article does not attempt to provide a comprehensive history of the subject. Rather, it will briefly highlight the almost 170-year history of telecommunications to provide context to the ensuing legal discussion.[4] The first telegraph link was laid between Dover, England and Calais, France in 1850.[5] It failed almost immediately because of an abrasion caused by the surrounding underwater environment.[6] A new telegraph link was laid between the two locations a year later, but this time was enmeshed with steel; it worked for over a decade.[7] The first transatlantic underwater cable was laid between Newfoundland and Ireland

[3] DOUGLAS R. BURNETT, DAVID FREESTONE & TARA DAVENPORT, SUBMARINE CABLES IN THE SARGASSO SEA: LEGAL AND ENVIRONMENTAL ISSUES IN AREAS BEYOND NATIONAL JURISDICTION 7 (2014), https://nus.edu/3k4Tgzi.
[4] *See* Stewart Ash, *The Development of Submarine Cables*, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, 19–39 (Douglas R. Burnett et al. eds., 2014) (providing a comprehensive review of the history of submarine cables).
[5] Lionel Carter & Douglas R. Burnett, *Subsea Telecommunications*, *in* ROUTLEDGE HANDBOOK OF OCEAN RESOURCES AND MANAGEMENT, 349, 350 (Hance D. Smith et al. eds., 2015), https://bit.ly/39R0J02.
[6] Ash, *supra* note 4, at 21.
[7] *Id.* at 21–22.

in June 1858 and transmitted over 400 messages before it broke after 26 days.[8] Six years later, in 1864, a new cable was successfully laid between Valentia, Ireland and Hearts Content, Newfoundland.[9] Cables were then laid successfully around the globe, including a cable connecting land masses along the seabed of the Pacific Ocean in 1902.[10]

As one historian noted, "advances in cable design and construction improved reliability and transmission speeds, which increased from twelve words per minute for the first cables to 200 words per minute by the 1920s."[11] The invention of the telephone created a new era in telecommunications in the 1950s. The underwater cables now carried signals by copper wire, allowing transcontinental voice communications between parties.[12] As scientific research continued to advance, these cables advanced in capabilities to allow a single cable to carry multiple voice channels. The first coaxial system, laid between Scotland and Newfoundland in 1956, called a TAT-1, allowed for 707 telephone calls on the first day between the United States and the United Kingdom.[13] Technological innovation allowed for increased capacity of voice channels over the decades. The last coaxial cable, the TAT-7, had the ability to carry up to 4,000 channels.[14]

The emergence of satellites, however, greatly reduced the need for underwater cables in the 1970s.[15] Satellites had more capacity and were more reliable, resulting in their dominance of the telecommunications sphere through the 1980s. Even though it was decades ago, the reliance on satellites during this timeframe explains in small part some of the misperceptions highlighted in this article.

The invention of fiber optic cables shifted the focus back on underwater cables in the late 1980s. Fiber optic cables had significantly more carrying capacity than either the coaxial cables of the past or satellites. The first transatlantic fiber optic cable was laid in 1986.[16] Technological advances have increased the capacity of fiber optic cables by a factor of 100,000 in 25 years.[17] Fiber optic cables are so much more efficient than satellites that one expert estimated in 2007 that, if the then-roughly 40 fiber optic cables connecting the United States to the rest of the world were cut simultaneously, "only 7% of the total United States traffic volume could be carried by satellite."[18] Thus, technological advancement brought underwater cables to an extremely prominent role not just nationally for the United States, but globally as well.

B. Wait—It's the Size of a Garden Hose?

An underwater fiber optic cable is roughly the size of a garden hose. Each fiber optic cable contains a set of 6 to 24 glass fibers at its core.[19] Each glass fiber is estimated to be the width of a human hair.[20] These glass fibers are

[8] *Id.* at 22; Carter & Burnett, *supra* note 5, at 350.
[9] Ash, *supra* note 4, at 22.
[10] *Id.*
[11] Carter & Burnett, *supra* note 5, at 351.
[12] STEPHEN C. DREW & ALAN G. HOPPER, INT'L CABLE PROT. COMM., FISHING AND SUBMARINE CABLES: WORKING TOGETHER 8 (2nd ed. 2009), https://bit.ly/3k7DMKy.
[13] Carter & Burnett, *supra* note 5, at 351.
[14] DREW & HOPPER, *supra* note 12, at 6.
[15] *Id.*
[16] Carter & Burnett, *supra* note 5, at 351.
[17] Burnett & Carter, *supra* note 1, at 3.
[18] *Id.* at 4 (quoting Douglas R. Burnett, Int'l Cable Prot. Comm. (ICPC), statement to Senate Foreign Relations Committee (Oct. 4, 2007)).
[19] DREW & HOPPER, *supra* note 12, at 9.
[20] *Id.*

encased in a steel tube filled with a thixotropic medium.[21] There is a layer of steel wire strands to provide strength, a "copper-based composite conductor" carrying electrical power and a "protective insulating sheath of polyethylene" on the outside.[22] These layers help protect the cables from the harsh environmental conditions of the seabed. Each underwater fiber optic cable has devices called repeaters at intervals along it to regenerate or strengthen signals sent at long distances.[23]

Communications are transmitted via these glass fibers. First, computers at one end of the communication convert sounds and data to "digital pulses," which are then transmitted by a series of "lasers [that] shoot these pulses of light through the glass fibers of a cable."[24] Computers at the opposite end reconstruct these digital pulses into sounds and data.[25] Cable systems are not inexpensive; rather, they represent significant multinational cooperation and investment. A Director of National Intelligence Report for the United States estimates a single cable often represents over $1 billion dollars of investment.[26]

C. Global Importance

As of 2017, it was estimated the global fiber optic cable landscape encompassed 241 active, separate, and decentralized international cables totaling roughly 1,046,138 kilometers of submarine cables across the globe's surface.[27] In December 2014, it was estimated at least 55 in-service submarine cables landed in the United States, with at least 12 more fiber optic cables planned for construction.[28] These cables do not land in disparate locations across the American coastline; rather, they are clustered along patches in California, Florida, New Jersey, New York and Oregon.[29] Indeed, the overwhelming majority of the transatlantic fiber optic cables have landing stations all within a 30-mile radius of New York City.[30] New fiber optic cables were simply layered on top of previous locations of past cables.

These fiber optic cables are largely unseen by the average person using the internet daily. The ubiquity of the internet is, in part, what makes it difficult for the average human being to understand the physical aspect of it. Indeed, the search for the physical infrastructure that supplied the internet led one writer on a search across the globe, culminating in the 2012 book *Tubes: A Journey to the Center of the Internet*.[31] Its author, Andrew Blum, noted "[o]ther than obscurity and a few feet of sand, [the underwater fiber optic cables] are just there" when describing a fiber optic cable landing on a beach.[32] Indeed, this author ventured

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[21] Carter & Burnett, *supra* note 5, at 350.
[22] *Id.*
[23] DREW & HOPPER, *supra* note 12, at 9.
[24] *Id.*
[25] *Id.*
[26] PUB.-PRIVATE ANALYTIC EXCH. PROGRAM, DEPT. OF HOMELAND SEC., THREATS TO UNDERSEA CABLE COMMUNICATION 11 (2017), https://bit.ly/3a1995f.
[27] Burnett & Carter, *supra* note 1, at 45 (citing to a WFN *Subtel Forum* database analysis reported to Douglas Burnett in an email dated Jan. 4, 2017).
[28] WORKING GROUP 8: SUBMARINE CABLE ROUTING AND LANDING, THE COMMC'NS SEC., RELIABILITY AND INTEROPERABILITY COUNCIL IV, FINAL REPORT - PROTECTION OF SUBMARINE CABLES THROUGH SPATIAL SEPARATION 1 (2014), https://bit.ly/30mw7jZ.
[29] Robert Martinage, *Under the Sea*, FOREIGN AFFAIRS, Jan./Feb. 2015, https://fam.ag/3fl6ofV.
[30] Michael Sechrist, *New Threats, Old Technology: Vulnerabilities in Undersea Communications Cable Network Management Systems (#2012-03*), *in* HARVARD KENNEDY SCHOOL: BELFER CENTER DISCUSSION PAPERS 9 (2012), https://bit.ly/2DpJfvJ.
[31] ANDREW BLUM, TUBES: A JOURNEY TO THE CENTER OF THE INTERNET (2013).
[32] Alexandra Chang, *Why Undersea Internet Cables are More Vulnerable Than You Think They Are*, WIRED (Apr. 2, 2013, 6:30 AM), https://bit.ly/2DfYhUO.

to a cable landing location in Lynn, Massachusetts to find a manhole clearly marking its existence in the middle of a rotary on a well-traveled street near the town beach. This particular fiber optic cable was hiding in plain sight of any knowing observer.[33] While landing stations are not the subject of this paper, it is relevant to note this description as it highlights many of the vulnerabilities of underwater fiber optic cables.

The amount of money the internet, and thus this web of underwater fiber optic cables, is responsible for each day is staggering. In a 2017 report, experts noted the Society for Worldwide Interbank Financial Telecommunications (SWIFT) transmitted 15 million messages over cables to 8,300 banking organizations, securities institutions, and corporations around the globe each day.[34] Similarly, that same report cited that the United States Clearing House Interbank Payment System (CHIPS) estimated one trillion American dollars is transmitted each day to over 22 countries.[35] Thus, if those cables are cut, the financial impact can be devastating. As the former Chief of Staff for the United States Federal Reserve Board once said, "[w]hen communications networks go down, the financial services sector does not grind to a halt, rather it snaps to a halt."[36]

There are several recent examples of this devastating impact. In January 2019, Tonga was without internet for more than 11 days when the cable connecting its 170 islands to the rest of the world was cut by what was believed to have been a ship's anchor.[37] International calls were unavailable, as were credit card payments.[38] A local satellite internet provider offered some connectivity, but "officials . . . blocked sites like Facebook and YouTube so that essential services [could] squeeze through."[39] In another example in Southeast Asia, it took 11 ships almost 50 days to complete repairs to undersea cables damaged from an underwater earthquake off the coast of Taiwan in 2006.[40] China, Japan, the Philippines, Singapore, Taiwan, and Vietnam experienced significant disruptions to their respective economies due to lost communication links.[41] In April 2018, Mauritania was without internet access for 48 hours when a cable from Europe to Africa, called the African Coast to Europe (ACE) submarine cable, was cut.[42] Nine additional countries were impacted by the severed cable, preventing internet access to millions of individuals.[43]

There has been significant concern in the past few years the Russian government will sever fiber optic cables as a precursor to a traditional kinetic

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[33] The fiber optic landing station in Lynn, Massachusetts is located at an obscure but secure facility bearing the name GTT. The cable lands at Nahant Beach, a quaint beach on the shore not two miles from the facility. There are markings on the sidewalk denoting where the fiber optic cable is located underneath, and the manhole is marked with the name of the first telecommunication company that laid the cable (360 Network) as well. *See* www.surfacing.in (providing interactive webpage to nearly all fiber optic cable landing stations globally, including photos and explanations of how the cable industry works).
[34] Burnett & Carter, *supra* note 1, at 4.
[35] *Id.*
[36] PUB.-PRIVATE ANALYTIC EXCH. PROGRAM, *supra* note 26, at 6 (quoting Stephen Malphrus).
[37] Daniel Victor, *Could You Last 11 Days Without the Internet? Tonga Finds Out the Hard Way*, N.Y. TIMES (Jan. 31, 2019), https://nyti.ms/2BVLerc.
[38] *Id.*
[39] *Id.*
[40] Martinage, *supra* note 29.
[41] *Id.*
[42] Chris Baynes, *Entire Country Taken Offline for Two Days After Undersea Internet Cable Cut*, INDEPENDENT (Apr. 10, 2018, 9:29 PM), https://bit.ly/2Bdus6u.
[43] *Id.*

military operation.[44] There is even Russian precedent for doing so. As the United Kingdom Member of Parliament (MP) Rishi Sunak noted in his Policy Exchange Report on Undersea Cables, "Russian special forces only had to secure one internet exchange point (at Simferopol) and cut cable connections to the rest of Ukraine" in its annexation of Crimea in 2014.[45] Russia "was able to control the flow of information" into Crimea, allowing it "to spread disinformation aimed at portraying its actions as legitimate."[46] In 2017, the United Kingdom's then-Defense Chief, Air Chief Marshal Sir Stuart Peach, warned risks to its underwater cables presented a "new risk to our way of life" and that a severed cable to the island would have "potentially catastrophic" impact on its economy.[47]

Further, it is not simply the Russians who can be seen as a threat to this critical underwater infrastructure. In 2013, the Egyptian military arrested three men in scuba gear that allegedly attempted to cut an underwater fiber optic cable off the coast of the Egyptian city of Alexandria.[48] This attempt is reported to have "caused a 60 percent drop in internet speeds."[49] While no further details on the arrest have been reported, MP Sunak noted the incident "demonstrates . . . the low degree of sophistication required for determined individuals to cause serious disruption to internet communications."[50] In addition, the United Kingdom reportedly foiled an attempt by Al-Qaeda to sever the United Kingdom's internet access in 2007.[51] While the planned attack was on the main server house of Telehouse Europe, and not underwater fiber optic cables, the report nevertheless highlights intentional damage to the physical infrastructure of the internet is a prime target of myriad nefarious actors. The next section analyzes the international legal framework protecting the underwater fiber optic cables.

III. THE INTERNATIONAL LEGAL REGIME

A. The 1884 Convention for the Protection of Submarine Telegraph Cables

Understanding the history of underwater cables assists in understanding why the cables carrying so much of the world's communications data in 2020 refer to a treaty established in the 19th century. The importance of underwater cables was recognized very early in their history. Cyrus Field, notable as the first transatlantic cable proponent, stated in 1866 the "telegraph in the air and under the water should be regarded as a sacred thing, protected by unanimous consent against all attack or damage."[52] The protection of underwater cables was on the agenda of seven international conventions between 1863 and 1913.[53] The first international treaty protecting underwater cables, the Convention for the

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[44] *See* David E. Sanger & Eric Schmitt, *Russian Ships Near Data Cables Are Too Close for U.S. Comfort*, N.Y. TIMES (Oct. 25, 2015), https://nyti.ms/2ZbL3zv (discussing American military concerns regarding Russian naval submarines patrolling close to the location of underwater fiber optic cables).
[45] RISHI SUNAK, UNDERSEA CABLES: INDISPENSABLE, INSECURE, POLICY EXCHANGE 32 (2017), https://bit.ly/33j0oSx.
[46] *Id.*
[47] Arj Singh, *Russia 'Could Cut UK's Undersea Internet Cables,' Defence Chief Warns*, INDEPENDENT (Dec. 14, 2017, 11:36 PM), https://bit.ly/3hYTers.
[48] Chang, *supra* note 32.
[49] *Id.*
[50] SUNAK, *supra* note 45, at 24.
[51] James Rivington, *UK Foils Terrorist Plot to Kill the Internet*, TECH RADAR (Mar. 12, 2007), https://bit.ly/2ZcuymP.
[52] Douglas Burnett, Tara Davenport & Robert Beckman, *Overview of the International Legal Regime Governing Submarine Cables*, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, *supra* note 4, at 65.
[53] *Id.*

Protection of Submarine Telegraph Cables ("1884 Cable Convention"), was signed in Paris in 1884.[54]

The 1884 Cable Convention "applies outside territorial waters to all legally established submarine cables landed" on the colonies or territory of the signing parties.[55] There are several provisions in the convention relevant today. First, it made damage, either intentional or through negligence, a punishable offense.[56] Second, it gave signatories the right to board vessels when they "have reason to believe that an infraction of the measures provided for in the present Convention has been committed by a vessel other than a vessel of war."[57] This is significant because, as the first article of the treaty notes, the 1884 Cable Convention applies outside of territorial waters. While it only addressed submarine cables outside of territorial waters, it has been reported "it was understood by the negotiators that coastal States would also have laws protecting submarine cables within their territorial waters."[58] At the time of enactment, however, the width of territorial seas was not nearly as expansive as the twelve nautical miles that it measures today.[59]

The over-arching purpose of the 1884 Cable Convention was to require signatory states to adopt domestic legislation to protect submarine cables. In Article XII, the signatories agreed to "take or to propose to their respective legislatures the necessary measures for insuring[sic] the execution of the present Convention, and especially for punishing, by fine or imprisonment, or both" those who violated the Convention's provisions.[60] This is implemented in the United States with penalties for willful injury to a cable including "imprisonment for a term not exceeding two years, or to a fine not exceeding $5,000, or to both fine and imprisonment."[61] This legislation, first implemented in the 19th century, has not been updated since. Notably, there has never been an arrest or prosecution under this section of the United States Code.[62]

B. 1958 Geneva Conference on the Law of the Sea

As the world transformed from telegraph to telephone, underwater cables were still vitally important. Thus, when the newly formed United Nations tasked the International Law Commission (ILC) to codify the law of the sea in 1950s, underwater cables were a topic on its agenda. The ILC struggled with whether to codify all aspects of maritime law, even if it was governed by another treaty such as the 1884 Cable Convention.[63] In the end, three provisions of the 1884 Cable Convention were incorporated in the ILC Draft Articles: Article II (making intentional or negligent damage to cables a punishable offense), Article IV (indemnification of the owner of a cable by the owner of another cable company who damaged the cable), and Article V (indemnification for cable owners who

[54] Convention for the Protection of Submarine Telegraph Cables art. 1, Mar. 14, 1884, 24 Stat. 989 [hereinafter 1884 Cable Convention].
[55] Id.
[56] *Id.* at art. 2.
[57] *Id.* at art. 10.
[58] *Submarine Cables - International Framework*, NOAA OFFICE OF THE GEN. COUNSEL, https://bit.ly/31rzqXM (last updated Mar. 1, 2019).
[59] *See* George Grafton Wilson, *The Law of Territorial Waters*, 23 AM. J. INT'L. L. 2, 241–380 (Apr. 1929) (detailing history and commentary of the law of territorial waters up until 1929, noting that most coastal states claimed three nautical miles but others varied).
[60] 1884 Cable Convention, *supra* note 54, at art. 12.
[61] Submarine Cable Act, 47 U.S.C. § 21 (2018).
[62] Eric Wagner, *Submarine Cables and Protections Provided by the Law of the Sea*, 19 MARINE POL'Y 2, 127, 135 (Mar. 1995).
[63] Burnett, Davenport & Beckman, *supra* note 52, at 70.

lost equipment in an attempt to avoid damage to a cable).[64] These provisions were considered "essential principles on the law of the sea" and thus necessary to include in the ILC Draft Articles.[65] Only Article II—making intentional or negligent damage to cables a punishable offense—related to the criminalization of damage of the cables. The inclusion of Article IV and Article V illuminate the concerns of the time that the majority of damage would be caused by other cable laying companies. The ILC Draft Articles also, for the first time, included the right of each nation to lay underwater cables.[66]

The first Conference on the Law of the Sea was held in 1958, at which the ILC Draft Articles were used as a negotiating text. The three provisions recommended by the ILC were adopted in the resulting 1958 Convention on the Continental Shelf and the 1958 Convention on the High Seas. Interestingly, the United States initially protested the adoption of just three provisions of the 1884 Cable Convention for fear it "would undermine its effectiveness."[67] President Dwight D. Eisenhower noted as much when he transmitted the documents to the Senate for its advice and consent prior to ratification. In the commentary submitted to the Senate, the administration noted it initially urged restraint from including submarine cables in the document "in view of the existing conventions on the subject . . . but withdrew its objection on the understanding that existing conventions or other international agreements already in force would not be affected."[68] Thus, in order for the United States to sign and ratify the 1958 treaties, it was agreed that no provisions in the 1958 treaties would impact the 1884 Cable Convention.[69]

C. 1982 United Nations Convention on the Law of the Sea

The United Nations held a third conference on the law of the sea in 1973, culminating nine years later in the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Three articles specific to the protection of underwater cables were included in the final draft. Article 113 requires states to adopt domestic legislation to prosecute individuals who intentionally or negligently damage submarine cables.[70] This article, however, makes clear prosecution is limited to "a ship flying its flag or by a person subject to its jurisdiction."[71] Article 114 requires states to adopt domestic legislation providing for the indemnification of a cable company that causes damage to another cable in the process of laying or repairing a cable.[72] Finally, Article 115 requires states to adopt domestic legislation providing for indemnification of ship owners that incur costs in the avoidance of damaging cables.[73]

These provisions were nearly exact duplicates of the ILC Draft Articles approved in the 1958 Conventions. Again, recognizing the history of underwater cables is important in light of the timing of UNCLOS. In the 1970s and 1980s,

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[64] *Id.* at 71.
[65] *Id.*
[66] *Id.*
[67] *Id.* at 72.
[68] Four Conventions & an Optional Protocol Formulated at the UN Conference on the Law of the Sea, Message from the President of the United States, Dwight D. Eisenhower to the 86th Congress, 1st Session, on Sept. 9, 1959, S. Exec. Doc. J–N, 86-1.
[69] Burnett, Davenport & Beckman, *supra* note 52 at 73. *See* Convention of the High Sea, Apr. 29 1958, 450 U.N.T.S. 11 ("The provisions of this Convention shall not affect conventions or other international agreements already in force, as between States Parties to them.").
[70] United Nations Convention on the Law of the Sea art. 113, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].
[71] *Id.*
[72] *Id.* at art. 114.
[73] *Id.* at art. 115.

satellites were the dominant provider of telecommunications data. While submarine cables were important enough to be included in UNCLOS, very little debate was had regarding the relevant provisions. The first fiber optic cable was not invented until after UNCLOS concluded and the first underwater fiber optic cable was not laid until 1986.[74] Thus, while UNCLOS is one of the foundational documents for the international legal regime governing underwater fiber optic cables, neither it, nor its predecessor documents in 1958 or 1884, could ever have anticipated the importance underwater fiber optic cables would have to the global economy.

One aspect of UNCLOS relevant for purposes of this discussion is that one of its most important aspects is its emphasis on flag state jurisdiction. As one commentator noted, "it was necessary to clarify that a State could not take legislative measures against nationals of another State, only against its own ships or nationals."[75] This article will explore the gaps in the international legal framework now that the foundation for the protection of underwater fiber optic cables has been laid.

D. Gaps in the International Legal Framework

There have been several law review articles, policy papers, and blog posts in the past ten years that have drawn attention to the gaps in the international legal framework regarding the protection of underwater fiber optic cables. Most, if not all, of these sources highlight the same four large holes in the current international law regime.

First, while coastal nations have the right under UNCLOS to adopt laws and regulations relating to innocent passage through their respective territorial seas to protect cables and pipelines, there is no obligation to do so.[76] Article 113 of UNCLOS also gives coastal states the authority to adopt national legislation to criminalize intentional or willful destruction of an underwater cable for a person under its jurisdiction. Yet, as one commentator noted, "these provisions do not oblige States to take such measures, and many States do not have sufficient laws and regulations to protect cables from international damage within territorial waters, including the most basic measure of ensuring damage to submarine cables is criminalized."[77]

One review of national legislation of Southeast Asian states found, for example, there were no implementing provisions by any state expressly criminalizing intentional or negligent damage to underwater cables.[78] Further, even if states adopted such measures under their respective domestic legislation, the legislation may not have been updated since the 1884 Cable Convention. Thus, criminal penalties, even if they do exist, are outdated and do not incentivize coastal nations to enforce and prosecute alleged offenders.

Second, the international legal regime currently limits jurisdiction to flag states. While this is not a problem unique to protection of underwater fiber optic cables, it nonetheless is a limitation for protection of these critical communication

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[74] *See supra* note 16 and text accompanying.
[75] Myron H. Nordquist, Satya N. Nandan & James Kraska, UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY, 268 (Center for Oceans Law and Policy, 2012).
[76] UNCLOS, *supra* note 70, at art. 21.
[77] Tara Davenport, *Submarine Cables, Cybersecurity and International Law: An Intersectional Analysis*, 24 CATH. U. J. L. & TECH. 1, 57, 83 (2015).
[78] Robert Beckman, *Protecting Submarine Cables from Intentional Damage*, in SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, *supra* note 4, at 287 n. 37.

lines. UNCLOS limits jurisdiction of a nation to ships flying its flag or to flag state nationals who commit such acts. There is allowance for a coastal nation to prosecute foreign offenders within its territorial waters for a limited subset of offenses that would include intentional damage to underwater fiber optic cables; however, this is not the case for those offenders outside of the coastal nation's territorial waters.[79] Thus, not only are there gaps regarding criminalization of the offense, there are significant gaps in jurisdiction of potential offenders.

Third, while the 1884 Cable Convention provided for a right to board suspected vessels of engaging in nefarious acts against underwater cables, the later treaties, to include UNCLOS, do not provide for the same provisions. Thus, it is unclear what right, if any, a nation has to board a suspected vessel outside of its territorial seas. Under UNCLOS, if a vessel is engaged in nefarious activities within the territorial seas, then presumably the passage would not be innocent and, under Article 25, the coastal nation "may take the necessary steps in its territorial sea to prevent passage which is not innocent."[80] The underwater fiber optic cables, though, are more susceptible to damage at great depths beyond a coastal nation's territorial seas.

Lastly, while not entirely relevant to the discussion of underwater cables discussed in this paper, none of the provisions discussed thus far in this article apply to the cable landing stations on land. The landing stations are, nonetheless, of strategic importance but as of yet lack any international law protections.

E. Recommendations For a Way Forward

Several commentators have recommended ways forward to address these gaps. Each recommendation will be briefly discussed in order to understand the thesis of this article. First, Tara Davenport has written several law review articles on the subject and is an editor of the foremost book on submarine cables, *Submarine Cables: The Handbook of Law and Policy*. Davenport recognizes "the existing legal framework is fragmented and is not capable of ensuring the security of this vital communications infrastructure."[81] Davenport recommends the international community come together to sign an international treaty specifically for the protection of the underwater fiber optic cables.[82]

In her proposal, any treaty on underwater fiber optic cables would (a) define the range of offenses against cables, to include intentional damage and the introduction of malware; (b) oblige the parties to enact domestic legislation criminalizing said offenses; (c) extend jurisdiction to those acts committed within a state's territory, committed by a national or from a ship flying its flag; (d) oblige states to extend jurisdiction to an offender within its territory even if the offense took place outside of its territory; (e) oblige states to take offenders within its territory into custody; and (f) include provisions regarding extradition of individuals alleged to have committed offenses.[83] Davenport's proposal would

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[79] *See* UNCLOS, *supra* note 70, at art. 27 ("The criminal jurisdiction of the coastal State should not be exercised on board a foreign ship passing through the territorial sea to arrest any person or to conduct any investigation in connection with any crime committed on board the ship during its passage, save only in the following cases: (a) if the consequences of the crime extend to the coastal State; (b) if the crime is of a kind to disturb the peace of the country or the good order of the territorial sea; (c) if the assistance of the local authorities has been requested by the master of the ship or by a diplomatic agent or consular officer of the flag State; or (d) if such measures are necessary for the suppression of illicit traffic in narcotic drugs or psychotropic substances.").
[80] *Id.* at art. 25.
[81] Davenport, *supra* note 77, at 82.
[82] *Id.* at 90.
[83] *Id.*

consolidate the myriad international laws in one document, and place obligations on signatories to enact domestic legislation. It would also ensure that if a nation will not prosecute offenders within its jurisdictional reach, then that nation must extradite the individual to a country that will do so.

Yoshinobu Takei, another prominent legal scholar in this area of the law, reviews the various jurisdictional arguments and argues customary international law supports states extending universal jurisdiction to offenders who intentionally damage underwater cables.[84] Takei further recommends three international treaties be revised to bring the international legal order up to date. The treaties he discusses are a) the 1884 Cable Convention; b) existing treaties of the International Maritime Organization; and c) the 1988 Suppression of Unlawful Acts ("SUA") at Sea Convention.[85] Similar to Davenport, his proposal calls for the international community to come together to form a consensus regarding underwater cables and enter into legally binding instruments to enhance their protection.

MP Sunak, noted *supra*, acknowledges "the present piecemeal legal regime is deficient in ensuring the security of cables and such vital infrastructure requires a more comprehensive approach."[86] He makes several international recommendations in addition to the United Kingdom-specific proposals in his Policy Exchange piece. First, he recommends coastal nations establish cable protection zones akin to New Zealand and Australia.[87] Second, he recommends, similar to Davenport, for the United Kingdom to push for an international treaty specific to the protection of underwater fiber optic cables.[88]

Lastly, Laurence Reza Wrathall makes several specific recommendations for the United States to take steps to protect the underwater fiber optic cables. First, Wrathall recommends the United States ratify UNCLOS.[89] Second, he recommends the United States adopt the 1988 SUA Protocol and Amendments and provide clarification as to whether intentional damage to underwater fiber optic cables constitutes piracy.[90] Third, he recommends the United States establish a central monitoring point of contact within the federal government and, similar to MP Sunak, implement safety zones around underwater fiber optic cables.[91] Finally, he recommends the United States issue declaratory statements regarding its views on protecting underwater fiber optic cables.[92]

These commentators have several commonalities among them. All recognize the existing gaps and all, in some way, are advocating for the international community to come together to achieve consensus on a way forward to protect these vital communication lines. Yet, all of these approaches are, in some sense, merely illusory. One only has to look to the international community's struggles with climate change as an example of how difficult achieving international consensus can be in modern day. It took six years for the

[84] Yoshinobu Takei, *Law and Policy for International Submarine Cables: An Asia-Pacific Perspective*, ASIAN J. INT'L. L. 2, 228 (2012).
[85] *Id.* at 228–29.
[86] Sunak, *supra* note 45, at 35–36.
[87] *Id.* at 35. *See* Carter & Burnett, *supra* note 5 (providing explanation of how cable protection zones work in practice).
[88] Sunak, *supra* note 45, at 36.
[89] Laurence Reza Wrathall, *The Vulnerability of Subsea Infrastructure to Underwater Attack: Legal Shortcomings and the Way Forward*, 12 SAN DIEGO INT'L. L.J. 1, 223, 248 (2010).
[90] *Id.* at 249–50.
[91] *Id.* at 250.
[92] *Id.*

international community to agree on the Paris Agreement in 2015, only to have the United States subsequently rescind its approval when a new administration took office in 2016. Furthermore, the international community initially began its discussions regarding climate change in 1989, almost 25 years prior to the international community finally coming together in Paris. The international community lacks the political will to come together on these issues in a timely manner and, while some of these commentators acknowledge that truth, do not provide alternative solutions to these gaps. If a nation wants to make significant change to the international legal regime, then what about a strategic plan to establish customary international law?

IV. CUSTOMARY INTERNATIONAL LAW

A. Elements of Customary International Law

The starting point for any discussion of customary international law is Article 38 of the Statute of the International Court of Justice. It describes the law applied at the International Court of Justice (ICJ), and, as such, is generally considered the most authoritative reference for sources of international law. Article 38 lays out four types of international law it can apply, one of which is relevant to this discussion. It applies "international custom, as evidence of a general practice accepted as law."[93] There are thus two elements to customary international law: (a) the general practice of states; and (b) *opinio juris*. *Opinio juris* is defined as "the acceptance by states that such practice is necessary by rule of law."[94]

This formula has often been considered to contain an objective element (general practice) and a subjective element (the attitude toward that practice). The American Law Institute (ALI) Restatement (Third) Foreign Relations Law of the United States (ALI Restatement) overstates this principle and seemingly adds a third element to customary international law. It states "customary international law results from a general and consistent practice of states followed by them *from a sense of* legal obligation."[95] The Restatement's use of the words "from a sense of" implies a causation element between the two other elements. For the purposes of this paper, however, customary international law will be looked at through the lens of the two elements found in Article 38.

1. General Practice of States

Brownlie's Principles of Public International Law includes a non-exhaustive list of what constitutes custom. The list includes the following:

> [D]iplomatic correspondence, policy statements, press releases, the opinions of government legal advisors, official manuals of legal questions (e.g., manuals of military law), executive decisions and practices, orders to military force (e.g., rules of

[93] Statute of the International Court of Justice, 2007 I.C.J. Acts & Docs. 75 ("The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply: (a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting States; (b) international custom, as evidence of a general practice accepted as law; (c) the general principles of law recognized by civilized nations; (d) subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.")

[94] LORI F. DAMROSCH & SEAN D. MURPHY, *INTERNATIONAL LAW: CASES AND MATERIALS* 61 (6th ed. 2014).

[95] RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 102 (AM. LAW INST. 1986) (emphasis added) [hereinafter RESTATEMENT (THIRD)].

> engagement), comments by governments on ILC drafts and accompanying commentary, legislation, international and national judicial decisions, recitals in treaties and other international instruments (especially when in 'all states' form), an extensive pattern of treaties in the same terms, the practice of international organs and resolutions relating to legal questions in UN organs, notably the General Assembly.[96]

Similarly, the ALI Restatement notes general practice "includes diplomatic acts and instructions as well as public measures and other government acts and official statements of policy, whether they are unilateral or undertaken in cooperation with other states."[97] Thus, custom can be found in a variety of forms.

Not every nation has to participate in the practice for it to be considered a general practice. *Brownlie's* reiterates "complete uniformity of practice is not required, but substantial uniformity is" to establish a general practice.[98] The ALI Restatement also notes "it should reflect wide acceptance among the states particularly involved in the relevant activity."[99] For example, if there is a specific custom that is uniquely relevant to coastal states, a custom could be considered general practice if those coastal states practice it even while landlocked states do not, as that custom would not be relevant to landlocked states.

Lastly, there is not a requirement the practice occur over a significant period of time. In *Federal Republic of Germany v. Denmark; Federal Republic of Germany v. Netherlands*, the International Court of Justice stated,

> [A]lthough the passage of only a short period of time is not necessarily, or of itself, a bar to the formation of a new rule of customary international law on the basis of what was originally a purely conventional rule, an indispensable requirement would be that within the period in question, short though it may be, State practice, including that of States whose interests are specifically affected, should have been both extensive and virtually uniform.[100]

The commentary to the ALI Restatement reiterates this point, noting "the practice necessary to create customary international law may be of comparatively short duration, but . . . it must be 'general and consistent.'"[101]

Indeed, in 1960, Judge Kotaro Tanaka of the International Court of Justice noted the time element to establish customary international law may be entirely different in the modern age. Judge Tanaka observed,

> [I]n former days, practice, repetition, and *opinio juris sive necessitatis*, which are the ingredients of customary international law might be combined together in a very long and slow process extended over centuries . . . in the contemporary

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[96] JAMES CRAWFORD, BROWNLIE'S PRINCIPLES OF PUBLIC INTERNATIONAL LAW 24 (8th ed. 2012).
[97] RESTATEMENT (THIRD), *supra* note 95, at § 102 cmt. b.
[98] CRAWFORD, *supra* note 96, at 24.
[99] *Id.*
[100] North Sea Continental Shelf Cases (Fed. Rep. of Ger. v. Den.; Fed. Rep. of Ger. v. Neth.), 1969 I.C.J. 3, 43 (Feb. 20).
[101] RESTATEMENT (THIRD), *supra* note 95, at § 102 cmt. b.

> age of highly developed techniques of communication and information . . . [it] is greatly facilitated and accelerated.[102]

He envisaged a nation being able to communicate directly with the rest of the world via an international organization such as the United Nations, and immediately knowing the respective countries' reactions to the principle. Thus, a new principle of customary international law could be established over a short period of time if the specially affected nations all adhered to it. This will be illuminated *infra* when the article analyzes the establishment of customary international law regarding the continental shelf.

2. *Opinio Juris*

The second element is often referred to as a subjective element and, as such, it is often difficult to ascertain the reasoning behind a nation's decisions. The International Court of Justice has a varied history with its methodology to determine if *opinio juris* exists in a given case. Generally speaking, the court "will often infer the existence of *opinio juris* from a general practice, from scholarly consensus or from its own or other tribunals' previous determinations."[103] The ALI Restatement notes "a practice that is generally followed but which states feel legally free to disregard does not contribute to customary law."[104]

Brownlie's suggests a usage such as ceremonial salutes at sea would be something generally practiced by nations, but "which does not reflect a legal obligation."[105] Nations may freely choose not to obey such practices as they are practiced out of "courtesy (or 'comity') and are neither articulated nor claimed as legal requirements."[106] *Opinio juris* exists when that practice is adhered to from a legal requirement. The ALI Restatement concedes the subjective element is not as straightforward, noting "it is often difficult to determine when that transformation into law has taken place."[107]

B. Does Customary International Law Still Exist?

The time element Judge Tanaka mentions in the 1960 International Court of Justice opinion discussed *supra* regarding customary international law highlights some of the most significant changes in its establishment over the past sixty years.[108] Michael Scharf contends the establishment of customary international law is, in reality, a faster and more efficient route to establishing international law than an international treaty. He advocates there are three primary reasons for its continued vitality in the international field. First, he argues customary international law has "more jurisprudential power than does treaty law."[109] Once customary international law is established, it is binding on all states. Treaties, on the other hand, are only binding on those States parties to it.

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[102] South West Africa Cases (Ethiopia v. S. Africa; Liberia v. S. Africa), 1966 I.C.J. 6, 289 (July 18) (Tanaka, J., dissenting).
[103] CRAWFORD, *supra* note 96, at 26.
[104] RESTATEMENT (THIRD), *supra* note 95, at § 102 cmt. c.
[105] CRAWFORD, *supra* note 96, at 23.
[106] *Id.* at 23–24.
[107] RESTATEMENT (THIRD), *supra* note 95, at § 102 cmt. c.
[108] *Supra* note 102.
[109] MICHAEL SCHARF, CUSTOMARY INTERNATIONAL LAW IN TIMES OF FUNDAMENTAL CHANGE: RECOGNIZING GROTIAN MOMENTS 30 (2013).

Second, Scharf notes in practice, customary international law is actually faster than treaties.[110] For example, it took nearly ten years for UNCLOS to be written by the international community; yet, as will be seen below, President Harry Truman established customary international law almost immediately with his proclamation regarding the continental shelf. Third, treaty law is not as precise with its language because it is a result of the various parties' compromises during negotiation.[111] Scharf argues customary international law "may provide greater precision since [it] evolve[s] in response to concrete situations and cases and are often articulated in written decisions of international courts."[112] Thus, there are distinct advantages for a nation to choose to establish customary international law as opposed to pushing the international community to establish a convention to draft a treaty. This next section will analyze the establishment of customary international law regarding the continental shelf in the 1940s.

C. The Truman Proclamation

One example of a nation establishing customary international law in a "radical departure" from what was previously thought of as international law was United States President Harry Truman's proclamation regarding the resources on the continental shelf.[113] On September 28, 1945, President Truman declared "the natural resources of the subsoil and sea bed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control."[114] The United States included a series of legal, economic, geological, conservation and national security arguments to justify its departure from international law in an accompanying memorandum. These justifications could be universal for all coastal states. For example, "self-protection compels the coastal state to keep close watch over activities off its shore which are of the nature and relative permanence necessary for utilization of resources of the subsoil and sea bed of the continental shelf."[115] Any coastal state would agree with this security assertion.

Similarly, the memorandum noted,

> [R]esources often form part of a pool or deposit extending seaward from within the state and their utilization may affect resources therein . . . [making it such that] the government of the country to whose shores the resources are contiguous is clearly the logical government to exercise jurisdiction and control over these resources.[116]

Thus, again, a coastal state seeing this justification could think to itself that a similar policy would be advantageous to its own security, economic and geological aims.

The speed with which this proclamation was adopted by coastal states around the globe had as much to do with the universal justifications as it did to the growth of international organizations through which the policy could be

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[110] *Id.* at 30–31.
[111] *Id.* at 31.
[112] *Id.*
[113] *Id.* at 107. *See* ANN L. HOLLICK, U.S. FOREIGN POLICY AND THE LAW OF THE SEA (1981). (discussing that this arguably should be called "The Roosevelt Proclamation" because of the work he had done on it prior to his untimely passing).
[114] Proclamation No. 2667, 10 Fed. Reg. 12,305 (Sept. 28, 1945).
[115] HOLLICK, *supra* note 113, at 60.
[116] *Id.* at 60.

distributed. The proclamation "unleashed a series of claims throughout Latin America, [including] claims that often went well beyond the original US proclamation."[117] The acceptance was so widespread that Professor Hersch Lauterpacht, a noted International Court of Justice jurist, remarked in 1950 that in considering "a radical change in pre-existing international law, the length of time within which the customary rule of international law comes to fruition is irrelevant."[118] There was a "degree of general acquiescence in what at first appears to be a startling innovation."[119]

Lauterpacht also noted that, when considering a creation of new international law by custom, "what matters is not so much the number of states participating in its creation and the length of the period within which that change takes place, as the relative importance, in any particular sphere, of [the] states inaugurating the change."[120] With regard to the continental shelf, the United States and Great Britain, the two great maritime powers at the time, were at the vanguard of the change. The stature of these two counties greatly enhanced the credibility of this innovative claim. This was the case despite the United Kingdom's initial reluctance to join in the Truman Proclamation, as will be discussed *infra*.[121]

Thirteen years after the Truman Proclamation, the world came together at the 1958 Geneva Conference on the Law of the Sea. The conference essentially codified the United States' viewpoint on the continental shelf as customary international law. As one commentator noted, the convention "amounted to a formal international affirmation of the Truman Proclamation."[122] This particular example is one of a paramount importance in any discussion of establishing innovative customary international law in the maritime domain. It provides a good framework for the United States to follow in terms of establishing customary international law to protect its underwater fiber optic cables. The next section of this article will lay out several steps for the United States to do so.

V. APPLICATION TO UNDERWATER FIBER OPTIC CABLES

A. Strategic Plan to Establish Customary International Law

The sections *supra* highlight there are several gaps in the international legal framework protecting underwater fiber optic cables. One is of paramount importance—the ability to protect cables from intentional damage as a result of nefarious actors beyond a coastal nation's territorial seas. One method of radical change would be to allow coastal states to prosecute alleged offenders for intentional damage and also to allow for its Coast Guard, and its Navy, for that matter, to be able to stop and board vessels suspected of planning or committing such offenses beyond the territorial seas. If the United States wanted to initiate such a radical change to the regime, then there are several steps it should take to do so.

First, Congress needs to enact updated domestic legislation criminalizing the intentional damage of underwater fiber optic cables. That legislation needs

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[117] *Id.* at 61.
[118] Hersch Lauterpacht, *Sovereignty over Submarine Areas*, 27 BRIT. Y.B. INT'L L. 376, 393 (1950).
[119] *Id.* at 393.
[120] *Id.* at 394.
[121] HOLLICK, *supra* note 113, at 59 (quoting *Letter From the Second Secretary of the British Embassy (Cecil) to Mr. William Bishop, Assistant to the Legal Advisor (Hackworth)*, August 31, 1945, FOREIGN RELATIONS 1945, II, 1527.)
[122] SCHARF, *supra* note 105 at 119.

modern-day penalties that will make it economically worthwhile for the Coast Guard, Navy, and Department of Justice to investigate, arrest, and prosecute offenders. In addition, the legislation needs explicit language stating it applies extra-territorially to offenses that may have, or have had, an impact on the United States. This would allow for prosecution of any nefarious activity against an underwater fiber optic cable with one end landing in the United States, regardless of the activity's location. If an underwater fiber optic cable with one end landing in the United States is cut in the middle of the Atlantic Ocean, then the impact in the United States, and the other country where the cable lands, for that matter, is the same as if the cable was cut in the territorial seas of the United States: access is shut off, or re-routed (and delayed), in both scenarios. The concept of protective jurisdiction will be expounded upon *infra*, but the key point is the domestic legislation needs to be both updated and explicit with regard to its reach.

Second, similar to the Truman Proclamation, the United States needs to issue a proclamation declaring its intentions. This proclamation should come from the President of the United States, and include transparent legal, security, and diplomatic reasoning behind its decision. This will be expounded upon *infra*, but the emphasis in this step is the announcement should come from the highest office of government. The United States needs to be explicit with its intentions and ensure the entire world is clearly put on notice.

This proclamation should not simply be done in a vacuum. Rather, the United States needs to engage other allies specially affected by underwater fiber optic cables. For example, Australia and New Zealand, already at the forefront of protecting its fiber optic cables with the establishment of cable protection zones, would be ideal countries to issue simultaneous intentions regarding protection of underwater cables beyond their respective territorial waters.[123] The United Kingdom would be another country specially affected and would have similar reasoning in wanting to protect its territory from the impact of intentional damage to the underwater fiber optic cables connecting it to the rest of the world. As MP Sunak noted in his Policy Exchange Report, the United Kingdom views an attack on its undersea cable infrastructure as "an existential threat."[124] Canada and Japan may be two other countries the United States would want to engage in issuing simultaneous declarations.

All of these countries have like-minded interests in protecting their respective country's access to the internet. The economic and national security concerns exist for each of these countries where fiber optic cables landing on the respective shores connect their respective society to the rest of the world. It could help if an international organization like the North Atlantic Treaty Organization (NATO) joined in the simultaneous proclamation. Whereas some of the countries in NATO may not have fiber optic cables directly landing from the oceans on their land-locked borders, these NATO countries' terrestrial cables are still reliant on the undersea fiber optic cables that carry global communications. Thus, the protection of the undersea fiber optic cables is paramount for these landlocked nations as well.

As Lauterpacht noted in 1950, the importance of the countries initiating the change is paramount.[125] Thus, having significant allies in America's corner, as well as an international organization like NATO, will mean the proclamation

[123] *See* SUNAK, *supra* note 45, at 18 (discussing cable protection zones in Australia and New Zealand.
[124] *Id.* at 34.
[125] Lauterpacht, *supra* note 118, at 394.

carries greater weight and would potentially be more strongly indicative of acceptance as customary international law.

Third, the United States should plan additional diplomatic statements at international events to expound on its reasoning. For example, the Ambassador to the United Nations could issue a diplomatic statement at the annual General Assembly meeting in September. Other Cabinet members, like the Secretaries of State, Homeland Security, and Defense, could provide similar speeches in both domestic and international fora. The Legal Advisor to the Department of State should give a speech laying out the legal justification for this new approach and create a formal memorandum to that effect.

Fourth, again similar to the Truman Proclamation, the United States needs to clearly articulate its legal justification for such a radical departure from previous international legal standards. While this is looped into both the second and third steps, it is carved out as a separate step to underscore the impact that transparent reasoning is contextually necessary to the establishment of customary international law. The justification would begin with the national security threat of the underwater fiber optic cables, and the impact that loss of connectivity would bring to the nation's economy and the broader global economy. This would include a comprehensive description of the significant connectivity the underwater fiber optic cables provide to the United States. Making it clear this only applies to underwater fiber optic cables physically landing on United States' territory provides greater strength to the legal justification. As this article has shown, the impact of a nefarious actor on a fiber optic cable will be most felt by the two nations on either end of the impacted fiber optic cable, regardless of the location of the nefarious act in the world's oceans. This applies to the nation on the other end of the cable landing in the United States, so the responsibility for protection of the respective underwater cable should be shared between them.

In light of the detrimental impact that interference with an underwater fiber optic cable would produce on American soil, the United States would be justified in exerting jurisdiction using the protective principle. The ALI Restatement notes "a state has jurisdiction to prescribe law with respect to . . . certain conduct outside its territory by persons not its nationals that is directed against the security of the state or against a limited class of other state interests."[126] This so-called "protective principle" has been assumed by "nearly all states . . . over aliens for acts done abroad which affect the internal or external security or other key interests of the state."[127] Therefore, there is precedent for exerting it in other similarly situated scenarios.

This principle, however, is not without limitation. Rather, a nation's exercise of protective jurisdiction must be reasonable.[128] The ALI Restatement lays out several factors to consider in determining reasonableness, including "the link of the activity to the territory of the regulating state, i.e., the extent to which the activity . . . has substantial, direct and foreseeable effect upon or in the territory."[129] Other factors include the following:

[126] RESTATEMENT (THIRD), *supra* note 95, at § 402 (1986).
[127] CRAWFORD, *supra* note 96, at 462.
[128] *See* RESTATEMENT (THIRD), *supra* note 95, at § 402 (1986) ("Even when one of the bases for jurisdiction under Section 402 is present, a state may not exercise jurisdiction to prescribe law with respect to a person or activity having connections with another state when the exercise of such jurisdiction is unreasonable.").
[129] *Id.*

> [T]he character of the activity to be regulated, the importance of regulation to the regulating state, the extent to which other states regulate such activities and the degree to which the desirability of such regulation is generally accepted; the importance of the regulation to the international political, legal or economic system; the extent to which the regulation is consistent with the traditions of the international system; the extent to which another state may have an interest in regulating the activity; and the likelihood of conflict with regulation by another state.[130]

The United States would have to clearly articulate its security interests in protecting these underwater fiber optic cables extra-territorially. This is especially important because of the likelihood this legislation will be in conflict with regulations of the flag state of either the vessel or the nationality of the individuals accused of intentionally damaging the underwater cables.[131] In the case of underwater fiber optic cables, simultaneous damage to the cables would cause catastrophic impact to America's economy and national security, wreaking potential havoc on nearly every aspect of American citizens' daily lives. Given the importance of the cables to the financial, political, diplomatic and national security interests of the United States and the ongoing issues with lax flag state enforcement, it is likely exercising protective jurisdiction in this regard would be widely accepted by other coastal nations specially affected by such nefarious activity. This reasoning would also apply to the nation on the other end of the undersea fiber optic cable.

Lastly, the United States should enter into bilateral agreements with the countries at the opposite ends of the underwater fiber optic cables that have landing stations on American soil. For example, transatlantic cables landing in Ireland, Portugal, the United Kingdom, France, and Spain would all necessitate bilateral agreements between the United States and the respective landing station country on the opposite end of the cable. These agreements should provide for protection of the cable beyond the countries' respective territorial seas, and be used to recognize and reinforce this as customary international law. They should require both countries' navies to patrol the world's oceans to protect their respective underwater cables. Further, they should provide for bilateral support in apprehension, evidence collection, and prosecution of alleged offenders. These agreements would seek to reinforce the establishment of customary international law.

In completing these steps, the United States would be establishing both state practice and the *opinio juris* necessary to establish customary international law. Numerous coastal states would be issuing similar proclamations and, once the justification is widely distributed across the globe, other nations will, similar to the Truman Proclamation, recognize their own security interests in protecting the underwater fiber optic cables that land on their respective territory. There is even the potential American adversaries could see the advantage to establishing customary international law in this area. Any interference with an underwater fiber optic cable has the potential to impact the respective countries' ability to utilize the vital communication lines. For example, if several underwater fiber optic cables are cut, then that traffic could be re-routed to other fiber optic cables, which may cause delay to more users, including the nefarious actor's traffic. As

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[130] *Id.*

[131] *See* Takei, *supra* note 84 (discussing application of universal jurisdiction to offenders of damage to underwater fiber optic cables akin to an act of piracy).

more countries agree to the common principle, there will be more of a collective will to come together to codify the principles in a treaty.

B. Difficulties with this Approach

There are several obstacles standing in the way of this approach. First, and most obvious, is it relies on other allies to share America's concerns with underwater fiber optic cables and agree to simultaneously issue similar proclamations. There is no assurance other nations—even our allies—will agree to a radical departure of this nature. Indeed, even with the Truman Proclamation, neither Canada nor the United Kingdom wanted any part in issuing similar proclamations. The United Kingdom announced "His Majesty's Government do[es] not wish to be associated with this Decision [regarding the Continental Shelf] and would prefer that, when it is announced, no reference should be made to prior consultation with His Majesty's Government."[132] Similarly, Hollick noted "it was clear that the Canadian government saw no reason to join with the United States in unilateral policy that was unnecessary and that moreover would have a negative impact on relations with other countries."[133] Thus, even with sound legal justification, it is not guaranteed other nations will initially agree to a radical change such as the one proposed here regarding protection of underwater cables, similar to what occurred over the continental shelf.

This goes to the whole premise that customary international law even provides a solution to the gaps in the international legal framework. If other countries or international organizations do not agree with the radical departure from the current regime, then there are not the requisite ingredients for the establishment of customary international law as there is no evidence of uniform state practice. If several states countered this proclamation, it is not clear whether customary international law would be established despite these persistent objectors. Thus, one could argue the commentators and scholars advocating for bringing the world together at a convention to negotiate differences and agree on an international treaty may be the most feasible way to achieve change in this realm.

Second, while the United States is not a party to UNCLOS, the unilateral change it would be advocating for regarding boarding vessels suspected of engaging in intentional damage to underwater cables runs directly counter to the boarding provisions in UNCLOS. UNCLOS provides justification for boarding a non-warship on the high seas if several factors are met, none of which is suspicion of intentional damage of a submarine cable. For example, if a ship is engaged in piracy, the slave trade, or is flying without nationality, then UNCLOS allows for a warship to board said vessel.[134] In addition, UNCLOS explicitly states "every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag."[135] Thus, advancing the position that the United States could not just board a vessel suspected of intentional damage to cables but also potentially *prosecute* said individuals in domestic courts would be in stark contrast to the terms of UNCLOS.

Lastly, there are difficulties with the reach of the jurisdictional claims of the United States. The underwater fiber optic cables are not, for the most part,

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[132] HOLLICK, *supra* note 113, at 59 (quoting *Letter From the Second Secretary of the British Embassy (Cecil) to Mr. William Bishop, Assistant to the Legal Advisor (Hackworth)*, August 31, 1945, FOREIGN RELATIONS 1945, II, 1527.)
[133] *Id.* at 60.
[134] UNCLOS, *supra* note 70, at art. 110.
[135] *Id.* at art. 94.

owned by governments. Whereas the continental shelf and the resources on it belong to the respective coastal states, the underwater cables are owned by private, multinational companies.[136] While the cables have been deemed "critical infrastructure" by the United States government, the underwater cables themselves are the property of these multinational companies.[137] These companies have agreements, called "Construction and Maintenance Agreements," that specify certain provisions, including responsibilities that include "monitoring shipping activities close to the cable[s]."[138] Thus, in order for this strategy to work, the United States would potentially need agreement from the multinational companies that own the fiber optic cables.

C. Reasons Why It May Still be the Most Effective Method

Despite the potential obstacles to this approach, the process of establishing customary international law may be the best possible avenue for the United States to make change in this area of international law. First, the justifications for protecting underwater fiber optic cables are universal. Every state would find commonality in their desire to maintain connectivity via underwater fiber optic cables. As this article has illustrated, the underwater fiber optic cables are vital to not just national economies, but the entire global economy as well. Therefore, similar to the Truman Proclamation, once the United States issues the declaration along with its justification it would not be surprising if other coastal nations express similar declarations regardless of whether these countries initially chose to issue simultaneous declarations.

Second, while UNCLOS does contain explicit provisions regarding boarding of a vessel, that same article begins with "except where acts of interference derive from powers conferred by treaty."[139] As noted *supra*, the 1884 Cable Convention is still considered valid international law. The United States can legitimately look to the provisions regarding boarding in Article X.[140] It can also argue there was pre-existing law for this principle. Indeed, Cyrus Field, noted *supra*, recognized the vital importance of underwater cables in the 19th century.[141] Thus, it is not necessarily the case that this position would be contrary to UNCLOS. Similarly, there was no limitation on nationality of the offender in the 1884 Cable Convention. UNCLOS, at Article 92, provides a similar exception for exclusive jurisdiction to flag state "save in exceptional cases expressly provided for in international treaties."[142] Thus, there is precedent in the 1884 Cable Convention for the United States to establish jurisdiction over foreign offenders beyond territorial waters. In addition, as one commentator noted, "Article 113 [of UNCLOS] only concerns the obligations of states that can establish national jurisdiction over an alleged offender, and does not make clear which other states may also exercise penal jurisdiction over the breaking or damage of submarine cables beyond the territorial seas."[143] Thus, international law is not clear on the criminalization of offenders beyond the territorial seas. The United States and its allies could clear up any confusion with its declarations.

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[136] *See* Mick Green, *The Submarine Industry: How Does it Work?*, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, *supra* note 4. (discussing how the cable industry works).
[137] Working Group 8 Submarine Cable Routing & Landing, *supra* note 28, at 11.
[138] Green, *supra* note 136, at 49.
[139] UNCLOS, *supra* note 70, at art. 110.
[140] 1884 Cable Convention, *supra* note 54, at art. 10.
[141] Douglas Burnett, Tara Davenport & Robert Beckman, *Overview of the International Legal Regime Governing Submarine Cables*, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, *supra* note 4, at 65.
[142] *Id.* at art. 92.
[143] Takei, *supra* note 84, at 217.

Lastly, while it is true the cables are owned and operated by private multinational companies, the United States would not be doing anything to the actual underwater fiber optic cables. The United States Coast Guard and United States Navy would simply be patrolling the areas where the underwater fiber optic cables are located, and would not be in any physical or other contact with the cables. There would be no intention by the United States government to engage the actual underwater fiber optic cable that would in any way cause damage to it. Rather, the intention of the United States government would be protection of those underwater fiber optic cables, which would, in turn, save those companies potentially billions of dollars in repair costs. Thus, while it would be prudent for the United States to engage these multinational companies so they understand the rationale behind the declaration, there would not be a need for a public-private partnership agreement. In fact, these companies would most likely prefer for governments to protect the underwater cables from intentional damage so they do not have to expend millions of dollars to repair them.

Therefore, the United States should strongly consider the advancement of this area of international law through the establishment of customary international law. In doing so, the United States would advance the area of the law more quickly than through treaty formation and, further, clearly establish the parameters of the international law protecting underwater fiber optic cables with explicit language rather than the language of ambiguous compromise that often comes with international treaties. This approach would be a radical departure from prior international law; however, the importance of these underwater fiber optic cables is unprecedented in our world's history. Never before has a set of extra-territorial infrastructure played such a critical role in United States (and global) affairs. Thus, an unprecedented scenario requires an unprecedented solution.

VI. CONCLUSION

The world today is connected by a series of underwater fiber optic cables traversing the globe's surface. While the underwater fiber optic cable in 2020 has transformed in capacity and effectiveness since the first underwater cable was laid in 1850, the international legal regime has not experienced a similar transformation. The international legal regime remains where it was during the mid-20th century, when telephone calls and telegraphs connected the world's continents. Needless to say, there are significant gaps in the international legal regime. This article looks at the gaps and reviews the proposed solutions international law scholars present in various fora. Those solutions all contemplate some form of international collaboration to form a specific treaty bringing together the various pieces of international law into one document and shoring up any gaps in existing law. While the recommendations are commendable, this article looks at customary international law and argues the United States should establish a strategic framework to establish customary international law to protect underwater fiber optic cables. Unilateral action, or action taken with a series of allies or international organizations, especially when done with universal justification, may shake the international community from its deadlock and establish customary international law. Clear precedent exists in the rapid adoption of the United States' unilateral proclamation of rights in its continental shelf in 1945, as it became good international law in less than a decade. In doing so, the United States may find itself on a more efficient path toward protecting itself from nefarious actors looking to wreak havoc on its territory by simultaneously damaging multiple underwater fiber optic cables.