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Submarine Cables: Problems in Law and Practice

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By Tara DAVENPORT*

I. INTRODUCTION

The importance of the internet in today's world cannot be overstated – our dependence on the internet for communication, commerce and finance is an undeniable reality. A little known fact is that 95 % of the world's international communications¹ are provided by submarine fibre optic telecommunications cables² which are laid on the seabed and transport vast amounts of data across oceans.³ However, surprisingly minimal attention has been given to the legal regime that enables the operation of submarine cables.⁴ This Article aims to address this deficit by examining the international law relating to submarine cables and explore the problems that are faced by the submarine cable industry and States alike. The primary challenge for the legal regime governing submarine cables is how to accommodate competing uses of the ocean and competing interests of coastal States and other user States. This Article hopes to demonstrate that in view of the critical nature of submarine cables to all States, the common interest lies in finding a balance in the rights and interests of coastal States, other States and the submarine cable industry.

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¹ See L. CARTER, D. BURNETT, S. DREW, G. MARLE, L. HAGADORN, D. BARTLETT-MCNEILL and N. IRVINE, *Submarine Cables and the Oceans: Connecting the World* (UNEP-WCMC Biodiversity Series No. 31. ICPC/UNEP/UNEP—WCMC, 2009) available online at http://www.unep-wcmc.org/pdfs/ICPC-UNEP_Cables.pdf, at 8 (“UNEP/ICPC Report”). The other 5 % are provided by satellites which are most appropriate for providing coverage to remote areas not serviced by submarine cable, disaster-prone regions and for providing alternative coverage during repairs of submarine cables: See Presentation by Lionel CARTER, Marine Environmental Advisor, ICPC, “The Global Cable Network: The Need to Protect Critical Infrastructure” given at the CIL Workshop on Submarine Cables and Law of the Sea, 14 – 15 December 2009 available at <http://cil.nus.edu.sg/programmes-and-activities/past-events/workshop-on-submarine-cables-and-the-law-of-the-sea-on-14-15-december-2009/>.

² Submarine fibre optic telecommunications cables use pulses of light to transport information and their width ranges from 17 mm to 50 mm depending on the addition of protective wire armouring: See UNEP/ICPC Report, *supra* note 1 at 8. Apart from submarine fibre optic telecommunications, there are also submarine power cables which are used to transport electrical energy. The focus of this Article is on submarine fibre optic telecommunications cables.

³ See UNEP/ICPC Report, *supra* note 1 at 8.

⁴ It has been described as a “critically important but neglected area of the law of the sea.” This neglect has been attributed to the lack of lead agencies dealing with submarine cables on an international and national level as well as failure by the cable industry in not engaging with States. See Robert BECKMAN, “Submarine Cables Submarine Cables – A Critically Important but Neglected Area of the Law of the Sea,” presented at the 7th International Conference of the International Society of International Law on Legal Regimes of Sea, Air, Space and Antarctica, 15 – 17 January 2009, New Delhi available at <http://cil.nus.edu.sg/wp/wp-content/uploads/2010/01/Beckman-PDF-ISIL-Submarine-Cables-rev-8-Jan-10.pdf> at 16.

Part II gives a brief overview of the international law relating to submarine cables. Part III, IV and V examines the laying and repair of submarine cables, the surveying of cable routes and the protection of submarine cables respectively. Each of these Parts first discusses the applicable law. The applicable law is determined by location of the activity, namely whether it occurs in areas under territorial sovereignty, areas outside of territorial sovereignty but within national jurisdiction (in the exclusive economic zone and continental shelf of coastal States) or in areas beyond national jurisdiction (high seas and the Area). This is followed by a discussion on the various problems faced in the law and practice of States and where applicable, possible solutions for the problems are suggested.⁵

I. OVERVIEW OF INTERNATIONAL LAW ON SUBMARINE CABLES

The international law on submarine cables can be found in the 1884 Convention for the Protection of Submarine Cables⁶ (“1884 Convention”) and the 1982 United Nations Convention on the Law of the Sea (“UNCLOS”).⁷

A. 1884 Convention

The 1884 Convention was the first international treaty governing submarine cables,⁸ and addresses the protection of submarine cables on the high seas.⁹ Three of the articles in the 1884 Convention were incorporated into the 1958 Geneva Convention on the High Seas

⁵ These solutions are primarily based on the CIL Workshop Report on Submarine Cables and Law of the Sea, 29 January 2009. The CIL Workshop was held in Singapore from the 14th to the 15th of December 2010 and brought together government officials, academic experts and representatives from the cable industry to discuss the various problems related to the legal regime on submarine cables. The Workshop Report adopts a series of recommendations related to the laying and repair of submarine cables, the surveying of cable routes and the protection of submarine cables based on discussions during the Workshop sessions. The CIL Workshop Report is available at http://cil.nus.edu.sg/wp/wp-content/uploads/2009/10/Workshop_Report_on_Submarine_Cables.pdf (“CIL Workshop Report”).

⁶ *Convention for the Protection of Submarine Telegraph Cables*, 14 March 1884, TS 380 (entered into force 1 May 1888) [“1884 Convention”]. The 1884 Convention on the Protection of Submarine Telegraph Cables was adopted in Paris in March 1884 after a two year conference. Submarine telegraph cables were the predecessor to submarine fibre optic telecommunications cables.

⁷ *United Nations Convention on the Law of the Sea*, 10 December 1982, 1833 UNTS 3 (entered into force 16 November 1994) [“UNCLOS”].

⁸ In 1864, France, Brazil, the Republic of Haiti, Italy and Portugal signed a convention for the establishment of an international telegraph line between Europe and America which contained provisions on the protection of the relevant international telegraph cable but it never came into effect. In 1869, the US also put forward a draft convention dealing with the protection of submarine cables but it was never the subject of an international conference, due to the outbreak of the Franco-German war: See Louis RENAULT, “The Protection of Submarine Telegraphs and the Paris Conference (October – November 1882)” in BRUSSELS and LEIPZIG, *International Law Review* (Flanders: Merzbach & Falk) available at the ICPC Members Database at 2 – 3.

⁹ It was prompted by the need to protect submarine cables on the high seas particularly from fishing activities. For example, in 1881, several telegraphic cables had been damaged in the North Sea by the negligence of fishermen, an act which received attention due to the complaints of the English cable companies involved to the English government: See Renault, *ibid.*, at 4.

and subsequently UNCLOS.¹⁰ These articles were perceived as essential principles on the law of the sea and were consequently necessary to include in any codification efforts.¹¹

There is a difference of opinion on whether the provisions of the 1884 Convention *not* incorporated in UNCLOS have nevertheless become customary international law and are hence binding on non-parties.¹² For a rule of treaty law to become customary international law,¹³ it must first, be of a “fundamentally norm creating character such as could be regarded as forming the basis of a general rule of law.”¹⁴ Second, there must be a widespread and representative participation in the convention including States whose interests are specifically affected.¹⁵ Third, there must be constant and uniform practice relating to the treaty provision.¹⁶

In light of the above, articles of the 1884 Convention not incorporated into UNCLOS are unlikely to be considered customary international law. First, such articles cannot be said to be of “a fundamentally norm creating character such as could be regarded as forming the basis of a general rule of law.” Articles 113 to 115 of UNCLOS were adopted because these articles were perceived to contain essential principles relating to the law of

¹⁰ Articles II, IV and VII of the 1884 Convention are now Articles 113, 114 and 115 of UNCLOS.

¹¹ The International Law Commission (“ILC”), which was entrusted with the codification of the law of the sea, considered the regime of the high seas at its second (1950), third (1951), fifth (1953), seventh (1955) and eighth (1956) sessions. The 1956 ILC Draft Articles on the Law of the Sea formed the basis of the 1958 High Seas Convention and UNCLOS. There was considerable debate during the ILC sessions on whether or not to include the provisions of the 1884 Convention in any codification attempts on the law of the sea. This was part of a larger debate on whether the ILC should attempt to codify all aspects of maritime law particularly when the subject was regulated by a convention: See *Yearbook of the International Law Commission, Volume I*, UN Doc.A/CN.4/Ser.A/1951 (1951), at 363. Despite initial misgivings that the provisions on the protection of submarine cables proposed for adoption were too detailed and that the ILC should only state general principles, the ILC ultimately adopted three provisions from the 1884 Convention based on the rationale that the articles chosen contained essential principles: See *Yearbook of the International Law Commission, Volume I*, UN Doc. A/CN.4/Ser.A/1955 (1955) at 20 – 21). However, during the discussions during the second Law of the Sea Conference which resulted in the adoption of the 1958 Convention on the High Seas, the US proposed that the three articles adopted from the 1884 Convention be deleted as:

[the articles] referred only to some of the detailed provisions of the 1884 Convention, rather than the underlying basic principles and that the adoption of these without reference to the remaining articles of that Convention which in its entirety represents the whole of the existing international law on the protection of submarine cables.

The US eventually withdrew its objections to these articles on the assurance that their adoption would not prejudice the effectiveness of the 1884 Convention,¹¹ a principle which was reflected in Article 30 of the 1958 Convention on the High Seas¹¹ and in Article 311 (2) of UNCLOS: See Myres MCDUGAL and William T. BURKE, *The Public Order of the Oceans: A Contemporary International Law of the Sea* (New Haven and London: Yale University Press, 1962) at 846 – 847.

¹² See Eric WAGNER, “Submarine Cables and Protections Provided by the Law of the Sea” (1995) 19 (2) *Marine Policy* 127 at 134 and Beckman, *supra* note 4 at 1 -2.

¹³ See generally the discussion in the *North Sea Continental Shelf Cases* 1969 ICJ Rep 18. Also see Martin DIXON, *Textbook on International Law*, 6th ed. (New York: Oxford University Press, 2007) at 31 – 37.

¹⁴ See *North Sea Continental Shelf Cases*, *ibid.*

¹⁵ *Ibid.*

¹⁶ *Ibid.*

the sea.¹⁷ This implies that the other articles did not embody general principles capable of forming customary international law.

Second, the 1884 Convention does not represent widespread and representative practice. There are only 41 parties to the Convention and only two of them are from the Asia-Pacific region, namely Australia and Japan.¹⁸ Third, there is no persuasive evidence of constant and uniform State practice relating to the provisions of the 1884 Convention. Non-parties do not appear to have adopted the provisions of the 1884 Convention in their national legislations. Even State Parties which have implemented the 1884 Convention in their domestic legislation have not incorporated all provisions of the 1884 Convention.¹⁹

B. UNCLOS

UNCLOS was the result of a fifty-year process to codify international law relating to the sea.²⁰ It purports to establish a “legal order for the seas and oceans”²¹ by demarcating zones of juridical competence: the territorial sea, the contiguous zone, archipelagic waters, continental shelf, exclusive economic zone and high seas where different rights and obligations were extended to coastal States and other users of the sea. UNCLOS presently has 160 parties²² and most of its provisions (including its provisions on submarine cables) can be said to bind non-parties as its provisions are best evidence of customary international law. UNCLOS addresses both the laying of submarine cables and the protection of submarine cables.

¹⁷ See discussion, *supra* note 11.

¹⁸ See Beckman, *supra* note 4.

¹⁹ Australia's *Submarine Cables and Pipelines Protection Act 1963* does not incorporate Article X of the 1884 Convention which deals with a warship's right to demand a vessel that is suspected of breaking a submarine to furnish evidence of its nationality and make a report to its flag State thereafter. In addition, neither Australia's *Submarine Cables and Pipelines Protection Act 1963* nor New Zealand's *Submarine Cables and Pipelines Protection Act 1996* incorporates Articles V and VI of the 1884 Convention dealing with minimum distances that vessels should keep from repair vessels during repair operations and buoys which show the position of cables when being laid or repaired.

²⁰ This process started with the 1930 Hague Codification Conference which failed because there was no agreement on the breadth of the territorial sea: See *Yearbook of the International Law Commission, Volume IIA*, UN Doc. A/CN.4/79 (1954) at 152. However, its work formed the basis of attempts of the ILC to codify the law of the sea. The ILC produced a series of draft articles on the territorial seas, high seas and continental shelf, the 1956 version of which, was the main document considered at the 1958 Geneva Conference (UNCLOS I). The 1958 Geneva Conference resulted in the adoption of four Conventions, the most important ones, for present purposes, being the 1958 Convention on the High Seas and the 1958 Convention on the Continental Shelf. The 1960 Law of the Sea Conference (UNCLOS II) did not produce any conventions and this resulted in the last conference on the law of the sea to be convened from 1973 to 1982 (UNCLOS III), which ultimately led to the adoption of UNCLOS. See Law of the Seas: High Seas Regime, ILC Website available at http://untreaty.un.org/ilc/summaries/8_1.htm.

²¹ Preamble, UNCLOS.

²² See UN Treaty Collection available online at http://treaties.un.org/pages/ViewDetailsIII.aspx?&src=TREATY&mtdsg_no=XXI~6&chapter=21&Temp=mtdsg3&lang=en#1

III. THE RIGHT TO LAY, REPAIR AND MAINTAIN SUBMARINE CABLES

Cable companies²³ have an interest in ensuring that cable laying, repair and maintenance operations, particularly repair operations, are done as expeditiously as possible. Damage to submarine cables can potentially affect the telecommunications of several States.²⁴ Coastal States seek to regulate the laying, repair and maintenance of submarine cables because these operations involve foreign vessels in areas in which they have legitimate security interests and because they may potentially interfere with competing activities under their jurisdiction and control.

A. *Areas under Territorial Sovereignty*

1. *The Law*

(a) *Territorial Seas:*

Under UNCLOS, a coastal State has sovereignty over a 12 nm²⁵ belt of sea known as its territorial seas, including the air space above and the seabed and subsoil below.²⁶ Accordingly, coastal States have the right to regulate all activities within its territorial sea. This would include ships engaged in the laying, repair and maintenance of submarine cables.²⁷

There are limits, however, on a coastal State's sovereignty over its territorial sea. First, it must be exercised "subject to this Convention and to other rules of international law."²⁸ Second, a coastal State must allow ships of all States the right of innocent passage through its territorial sea.²⁹ Under Article 21 of UNCLOS, the coastal State may adopt laws and regulations relating to innocent passage through the territorial sea with regard to

²³ This term is used to describe cable owners and operators who are usually national telecommunications authorities, cable suppliers who manufacture submarine cables, cable installers who are responsible for installation, repair and maintenance of submarine cables and surveyors who survey cable routes. This is because all of them face more or less the same problems.

²⁴ For example, when the cable known as SEA-ME-WE 4 was damaged in Egyptian waters in 2008 by a vessel dragging its anchor along the seabed, it affected internet connection in India, Egypt, Dubai, the UAE, Kuwait and Saudi Arabia: See "Work Begins To Repair Severed Net" BBC News, 5 February 2008 available at <http://news.bbc.co.uk/2/hi/technology/7228315.stm>.

²⁵ Article 3, UNCLOS.

²⁶ Article 2, UNCLOS.

²⁷ Coastal States usually regulate the laying, repairing and maintaining of submarine cables within territorial waters. Such regulations take the form of permits and licenses (see, for example, the *Maritime and Port Authority of Singapore [Port] Regulations*, Regulation 54 (1) which provides that "no person shall lay, lift, repair or inspect any submarine cable without the prior permission of the Port Master who may impose such conditions as he thinks fit") or requirements that the cables be buried (see, for example, Indonesian legislation, *KM No. 94 Tahun 1999*, Article 5 which requires cables to be buried to a certain depth depending on where the cable is located: See ICPC Members Database.

²⁸ Article 2 (3), UNCLOS.

²⁹ Article 17, UNCLOS. Innocent passage is passage which is not "prejudicial to the peace, good order or security of the coastal State." (Article 19 (1), UNCLOS). Article 19 (2) sets out a list of activities which renders passage non-innocent.

certain specified subjects, including the protection of submarine cables,³⁰ provided that such laws and regulations are not discriminatory and are in conformity with the provisions of UNCLOS and other rules of international law.³¹

(b) Archipelagic Waters

Under UNCLOS, an archipelagic State³² has sovereignty over the waters enclosed by its archipelagic baselines known as archipelagic waters.³³ Such sovereignty is exercised subject to Part IV of UNCLOS which stipulates that foreign vessels have the same right of innocent passage through archipelagic waters of archipelagic States that they have through territorial seas.³⁴ Archipelagic States have the right to regulate ships exercising innocent passage in order to protect submarine cables.³⁵

They also have the right to regulate submarine cables in their archipelagic waters as part of its sovereignty over archipelagic waters. However, there is one limit on an archipelagic State's right to regulate submarine cables. Article 51 (2) provides:

An archipelagic State shall respect existing submarine cables laid by other States and passing through its waters without making a landfall. An archipelagic State shall permit the maintenance and replacement of such cables upon receiving due notice of their location and the intention to repair or replace them.³⁶

2. *Problems in the Law and Practice Relating to Submarine Cables in Areas under Territorial Sovereignty*

(a) Inadequate Regulation of Competing Uses to Minimize Interference with the Laying and Repair of Submarine Cables

Fishing, shipping and resource exploration activities within territorial waters can greatly interfere in the laying and repair operations of a cable ship.³⁷ In particular, the urgency of

³⁰ Article 21 (1) (c).

³¹ Articles 21 (1) and 24 (1) (b), UNCLOS.

³² As defined in Article 46, UNCLOS.

³³ Article 49, UNCLOS.

³⁴ Article 52, UNCLOS.

³⁵ See Article 21 (1) (c), UNCLOS.

³⁶ This provision was first introduced at the negotiations of UNCLOS III to take into consideration the concerns of States that the introduction of the concept of an archipelagic State would unduly hinder access to existing submarine cables in waters previously not under the sovereignty of States: See Myron NORDQUIST, Satya NANDAN and Shabtai ROSENNE, eds., *The United Nations Convention on the Law of the Sea 1982: A Commentary*, (Netherlands: Martinus Nijhoff Publishers, 1993) at 449.

³⁷ Indeed, Article V of the 1884 Convention on minimum distances that a fishing vessel is to keep from a cable repair vessel was inserted because of interference by fishermen during the repair of a submarine cable on the North Sea. See Renault, *supra* note 8 at 12. There have also been specific instances of groups of fishermen deliberately interfering with cable repair operations that take place in fishing areas in order to receive some sort of financial compensation. There was a recent case in France, where ninety-four cable consortium owners succeeded in an action for damages against eleven fishermen who had deliberately attempted to obstruct cable repair operations in order to obtain financial compensation in French territorial

cable repair operations, more than laying operations, means that it has the potential to come into conflict with other uses of the sea.³⁸

The problem is with both international and domestic law. First, the right in UNCLOS of coastal States to regulate innocent passage for the protection of submarine cables,³⁹ which would also include the protection of cable ships engaged in laying and repairing operations, is not an obligation. Second, coastal States often do not have regulations in place that prevent or minimize interference with laying and repair operations.⁴⁰

There are rules relating to the safety of navigation which are applicable. These include the Convention on the International Regulations for Preventing Collisions at Sea 1972 (“COLREGS”). Under the COLREGS, a vessel engaged in laying, servicing or picking up a submarine cable (“a cable ship”) is considered a “vessel restricted in their ability to manoeuvre.”⁴¹ The COLREGS contain provisions on the signals and sounds to be exhibited by a cable ship so that other vessels are aware of what it is doing.⁴² Similarly, the COLREGS contain provisions which require both power-driven vessels, and vessels engaged in fishing to keep out of the way of such vessels.⁴³ Unfortunately, fishing vessels in particular often ignore these rules especially if the operations are taking place in a fishing area.⁴⁴

Possible Solutions: Coastal States can adopt laws and regulations that include making interference with laying and repair operations an offence, requiring that vessels keep minimum distances away from such operations and informing other users to avoid the area in which the operations are taking place.

Cable companies can also help by selecting cable routes which will have minimal impact on other activities. They should also pursue private remedies against the *deliberate* interference with cable-laying and repair operations. This was done in France where a cable consortium succeeded in an action for damages against fishermen who had deliberately attempted to obstruct cable repair operations in French territorial waters.

waters: See Tribunal De Grande Instance De Boulogne Sur Mer (1st Chamber) 28 August 2009, File No, 06/00229 DG/LM available at ICPC Members Database.

³⁸ The need to complete a repair as soon as possible so as not to disrupt telecommunications, coupled with the impossibility of predicting when the need for repairs will arise, means that other users will have little advance notice as to when repairs will be done.

³⁹ Article 21 (1) (c), UNCLOS.

⁴⁰ Indeed, while a coastal State may often have provisions which make it an offence to damage a submarine cable within its territorial waters, it does not usually have legislation which sanctions the interference with laying and repair operations. See Part V for discussion on the legislation which makes it an offence to damage submarine cables.

⁴¹ Rule 3 (g) (i), COLREGS.

⁴² Rule 27, COLREGS.

⁴³ Rule 18, COLREGS.

⁴⁴ See discussion, *supra* note 37 on the recent case in France where cable owners succeeded in an action for damages against eleven fishermen who had deliberately attempted to obstruct cable repair operations in order to obtain financial compensation in French territorial waters.

They had done so in order to obtain financial compensation from those cable companies because of the restrictions in fishing during the repair operations.⁴⁵

(b) Excessive Regulation of the Laying, Repair and Maintenance of Submarine Cables

Coastal States usually require cable companies to obtain permits or licenses before such operations can take place in territorial waters which is perfectly within their rights. However, it is a common complaint of the cable industry that “permitting requirements are in some cases unknown, unpredictable and lead to undue delay as well as increased costs in the whole cable installation process.”⁴⁶

First, it is difficult to ascertain what the relevant procedures are for the application of permits for laying and repair of cables.⁴⁷ Second, the procedures in some States themselves are often lengthy and involve many different agencies.⁴⁸ The lack of a lead agency⁴⁹ that is overall in charge of the co-ordination of application procedures adds further complication⁵⁰.

The lengthy permitting process in some States has serious consequences particularly for the urgent repair of submarine cables and may cause undue disruptions to telecommunications of other States.

Cable companies have argued that a cable ship engaged in the repair and maintenance of submarine cables within territorial seas be considered innocent passage under

⁴⁵ Tribunal De Grande Instance De Boulogne Sur Mer (1st Chamber) 28 August 2009, File No, 06/00229 DG/LM available at the ICPC Members Database.

⁴⁶ CIL Workshop Report, *supra* note 5 at 16.

⁴⁷ See for example, Legislative Council Panel on Information Technology and Broadcasting “Landing of Submarine Cables in Hong Kong” 8 March 2010, LC Paper No. CB (1) 1289/09-10 (04) which observed in relation to the transparency of the application process for submarine cables that “the industry may find it difficult to get hold of necessary information in respect of the application procedures and statutory approvals for landing a new submarine cable in Hong Kong” and “there was a need to increase the transparency of the application process.” Indeed, in the course of researching this paper, it was difficult to find the procedures for application to lay and repair cables online for many countries. Singapore and Australia were the few exceptions where detailed information on procedures can be found at the website of the Singapore InfoComm Development Authority (IDA): See Guidelines for the Deployment of Submarine Cables into Singapore, IDA Website available at <http://www.ida.gov.sg/Policies%20and%20Regulation/20100827100559.aspx> and the Australian Communications and Media Authority (“ACMA”) available at http://www.acma.gov.au/WEB/STANDARD..PC/pc=PC_100870.

⁴⁸ This is a natural consequence of the fact that the laying and repair of submarine cables relates to competences of many different agencies. Cable route surveys and cable laying and repair operations are usually under the purview of the relevant maritime departments. After a cable is laid on the seabed, it crosses a beach before entering a “beach manhole” where the cable type changes – from there it runs on a route on land until it reaches the shore terminal building known as a cable landing station. This part of the cable is usually regulated by departments in charge of land use and telecommunications.

⁴⁹ China, is one exception, in that all matters related to submarine cables is dealt with by the State Oceanic Administration (“SOA”). Australia is another example of a country which has designated a lead agency i.e. ACMA.

⁵⁰ CIL Workshop Report, *supra* note 5 at 16.

UNCLOS.⁵¹ This would enable such cable ships to only be subject to the requirements relating to innocent passage imposed by a coastal State, as circumscribed by Article 21 of UNCLOS and would speed up the approval process for repairs. However, this argument is not legally tenable.⁵² The passage of a cable repair ship will not be “continuous and expeditious”⁵³ as required under UNCLOS and it will be engaging in an “activity not having a direct bearing on passage,”⁵⁴ which under UNCLOS, renders passage non-innocent.

Possible Solutions: While coastal States have a legitimate interest in requiring permits for the laying and repair of submarine cables, they should recognize the urgent nature of laying and repair operations and that such operations do not pose threats to their security. Accordingly, coastal States should designate a lead agency to act as a focal point in the approval process for the laying and repair of cables and should streamline procedures for such activities. Coastal States should also consider pre-clearing cable ships designated for such repairs⁵⁵ in view of the fact that cable ships and their base ports are known and cable repair ships remain in the same location during the repair.⁵⁶

(c) The Regulation of the Laying and Repair of Submarine Cables to Protect the Marine Environment

Within its territorial waters, a coastal State can adopt whatever measures it feels necessary to protect the marine environment. In relation to submarine cables, many States require an environmental impact assessment (“EIA”) to be carried out as part of the permit requirements for laying and repairing cables.⁵⁷ The type of EIAs required ranges from “provision of relevant technical information and a statement of compliance with environmental accreditation, to a brief environmental review, to a comprehensive

⁵¹ Article 4 of the International Cable Protection Committee (“ICPC”) Draft Convention for the Protection and Repair of Submarine Cables states that: “[a] cable ship engaged in repair and maintenance of a submarine cable, even if stopped or anchored, enjoys the right of innocent passage.” The ICPC is a non-governmental organization consisting of national telecommunications authorities and other representatives from the cable industry and deals with issues relating to the protection of cables. The ICPC Draft Convention is a result of long-term efforts by the ICPC to address both the speedy repair of submarine cables and the protection of submarine cables from damage. See Commentary to the Convention for the Protection and Repair of Submarine Cables available on ICPC Members Database at 2 – 3.

⁵² See Beckman *supra* note 4 at 3.

⁵³ Article 18 (2), UNCLOS. Stopping and anchoring is only allowed to the extent that it is necessary for ordinary navigation or incidents of force majeure.

⁵⁴ Article 19 (2) (I), UNCLOS.

⁵⁵ In order to facilitate speedy repairs, cable owners have concluded maintenance agreements with cable installers whereby cable repair ships are stationed on 24 hours standby at strategic locations throughout the world: See Wagner, *supra* note 12 at 132.

⁵⁶ See Recommendations 14 – 17 of the CIL Workshop Report, *supra* note 5. This has also been recommended by the IDA of Singapore in their Guidelines on Submarine Cable Repair into Singapore: See IDA Website available at <http://www.ida.gov.sg/Policies%20and%20Regulation/20100827100559.aspx>

⁵⁷ See for example, Paragraph 4.3 of the IDA Guidelines for Submarine Cable Deployment into Singapore available at <http://www.ida.gov.sg/Policies%20and%20Regulation/20100827100559.aspx> and Article 9 of *Measures of the State Oceanic Administration for the Implementation of the Administrative Provisions Governing the Laying of Submarine Cables and Pipelines* (Order No. 3 of the State Oceanic Administration on 26 August 1992).

analysis that includes formal public and/or governmental consultation.”⁵⁸ Depending on the type of information required, an EIA has the potential to delay a cable laying operation significantly.

Article 206 of UNCLOS arguably places an obligation on States to carry out EIAs before they permit the laying of submarine cables in their territorial waters:

When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause *substantial pollution* of or *significant and harmful changes to the marine environment*, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205 (emphasis added).

The question is whether the laying and repair of submarine cables causes “substantial pollution” or “harmful changes to the marine environment.” Submarine cables do not cause pollution⁵⁹ and “harmful changes to the marine environment.” The latter is evidenced by a recent report produced jointly by the United Nations Environment Programme (UNEP) and the International Cable Protection Committee⁶⁰ (“ICPC”) which has concluded that the “small physical size of a telecommunications cable implies that its environmental footprint is likely to be small and local ...and that this has been borne out by several studies”⁶¹ and that laying and repair activities also cause minimal disturbance to the seabed, even when the cables are buried.⁶²

⁵⁸ UNEP/ICPC Report *supra* note 1 at 29.

⁵⁹ “Pollution to the Marine Environment” is defined under Article 1 of UNCLOS as the:

Introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

It is generally accepted that submarine telecommunications cable do not cause pollution.

⁶⁰ The ICPC is a non-governmental organization consisting of national telecommunications authorities and other representatives from the cable industry and deals with issues relating to the protection of cables.

⁶¹ These studies used a:

[C]ombination of sediment samples and direct observations made with a remotely operated vehicle...[the study] concluded that a telecommunications cable off Monterey Bay, California, had minimal to no impact on the fauna living in or on the surrounding seabed, with the exception that the cable locally provided a firm substance for some organisms that otherwise would not have grown on the mainly soft seafloor sediments.

This was in contrast to previous studies which had documented a significant impact on marine life, particularly the entanglement of whales with old telegraph cables but with improved design of submarine cables, no further entanglements with marine mammals have been recorded: See UNEP/ICPC Report, *supra* note 1 at 9.

⁶² The UNPE/ICPC Report found that “disturbances and impacts caused by cable-laying and repairs must be viewed in the context of the frequency and extent of these activities” and “unless a cable fault develops, the seabed may not be disturbed again within the system’s design life.” See UNEP/ICPC Report, *supra* note 1 at 34. Also see the discussion in the UNEP/ICPC Report on studies relating to the time it takes for the seabed to recover at 34 – 37.

In view of the UNEP/ICPC Report, States may wish to consider avoiding extensive EIA requirements so as to avoid undue delay in the laying and repair of cables.

B. In Areas Outside of Territorial Sovereignty but Within National Jurisdiction

1. The Law

Since the laying of the first telegraph cable in 1950,⁶³ the freedom to lay submarine cables in the high seas has been unchallenged⁶⁴ and subsequently recognized in the 1958 Convention on the High Seas⁶⁵ and UNCLOS.⁶⁶ However, in order to accommodate the interests of both coastal States and maritime States, traditional high seas freedoms were modified in light of the continental shelf⁶⁷ and exclusive economic zone (“EEZ”) regimes⁶⁸ established under UNCLOS. Accordingly, before examining the freedom to lay and repair cables, it is necessary to first examine the nature of the rights that a coastal State has over its EEZ and continental shelf.

(a) Coastal State Rights Over its Continental Shelf and EEZ

⁶³ This was across the English Channel between Dover and Calais: See Wagner, *supra* note 12 at 128.

⁶⁴ Indeed the 1884 Cable Convention deals solely with the *protection* of submarine cables and did not address the freedom to lay cables because “it was evident that freedom of use was conceded by all and that the real concern was to adopt measures for protecting cables from other, sometimes physically incompatible, uses of the ocean.” See McDougal et al. *supra* note 11 at 781.

⁶⁵ In 1950, the ILC first recognized the principle that all States were entitled to lay submarine cables on the high seas: See *Report of the International Law Commission on its Second Session*, Official Records of the General Assembly, Fifth Session, Supplement No. 12 (A/1316), UN Doc. No A/CN.4/34 (1950) at 384. When it was first discussed in the ILC at its second session, it was even commented that as the right to lay submarine cables had never been questioned, there was no need to explicitly mention it in any convention on the topic. However, the rest of the Commission agreed that while the principle of freedom to lay submarine cables had never been challenged, it was important to include it in any convention on the issue: See Comments of Judge Hudson and Mr Spiropolous, *Yearbook of the International Law Commission, Volume I*, UN Doc. A/CN.4/Ser.A/1950 (1950) at 199.

⁶⁶ See Article 87 (1) (c) of UNCLOS although the unqualified nature of the freedom to lay submarine cables was now subject to the provisions in Part VI on the continental shelf.

⁶⁷ The first clear assertion that the natural resources of the subsoil and seabed of the continental shelf belonged to the coastal State was made by US President Truman in 1945 which has come to be known as the Truman Proclamation: See *1945 US Presidential Proclamation No. 2667, Policy of the United States with Respect to the Natural Resources of the Subsoil and Seabed of the Continental Shelf*, 28 September 1945, 10 FR 12303 (1945). The Truman Proclamation was followed by similar claims by many other states, particularly the Latin American States whose claim not only covered the seabed but also the superjacent waters. By the time of the 1958 Geneva Conference, the idea that the coastal State should enjoy certain rights over the continental shelf was in principle accepted. R.R CHURCHILL and A.V LOWE, *The Law of the Sea*, 3rd ed. (United Kingdom: Manchester University Press, 1999) at 144.

⁶⁸ The concept of the EEZ was put forward for the first time by Kenya to the Asian-African Legal Consultative Committee in January 1971 and to the UN Sea Bed Committee in the following year. It received strong support from many developing Asian and African States who saw the EEZ as a means “to gain greater control over the economic resources off their coasts, particularly fish stocks, which in many cases were largely exploited by distant water fleets of developed states.” See Churchill and Lowe, *ibid.*, at 160 – 161.

The EEZ refers to an area 200 nautical miles⁶⁹ from the territorial sea which is:

[S]ubject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention⁷⁰.

Under Article 56, a coastal State has the following rights over its EEZ:⁷¹

1. Sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds⁷²;
2. Jurisdiction as provided for in the relevant provisions of this Convention with regard to⁷³:
 - (i) the establishment and use of artificial islands, installations and structures;
 - (ii) marine scientific research;
 - (iii) the protection and preservation of the marine environment;

The continental shelf is defined as “the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin.”⁷⁴ A coastal State is allowed to claim a continental shelf up to a distance of 200 nm or if the outer edge of its continental margin extends beyond 200 nm,⁷⁵ it can claim what is known as an extended continental shelf.⁷⁶

A coastal State exercises over the continental shelf “sovereign rights for the purpose of exploring it and exploiting its natural resources,”⁷⁷ which includes “mineral and other non-living resources of the seabed and subsoil.”⁷⁸

⁶⁹ Article 57, UNCLOS.

⁷⁰ Article 55, UNCLOS.

⁷¹ During the earlier stages of UNCLOS, there was significant debate as to the exact legal nature of the EEZ, namely whether it was to be treated like the high seas or like the territorial seas. While this debate has not been conclusively determined, it can at least be said that the EEZ “must be regarded as a separate functional zone of a *sui generis* legal character, situated between the territorial sea and the high seas.” See Churchill and Lowe, *supra* note 67 at 166.

⁷² Article 56 (1) (a), UNCLOS.

⁷³ Article 56 (1) (b), UNCLOS.

⁷⁴ Article 76 (1), UNCLOS.

⁷⁵ The outer limit of the continental margin is to be determined in accordance with the formula set out in Article 76 (4), UNCLOS.

⁷⁶ Under Article 76 (5) of UNCLOS, a coastal State can claim an extended continental shelf up to 350 nautical miles from the baseline from which the territorial sea is measured or 100 nm from the 2,500 metre isobaths.

⁷⁷ Article 77 (1), UNCLOS. The nature of a coastal State’s rights over the continental shelf was greatly debated during the ILC sessions and UNCLOS II. Article 2 of the 1951 ILC Draft Articles referred to the continental shelf as “subject to the exercise by the coastal State of *control and jurisdiction* for the purpose of exploring it and exploiting its natural resources.” following the nomenclature used in the Truman Proclamation: See *Report of the International Law Commission on its Third Session*, 16 May to 27 July 1951, Official Records of the General Assembly, Sixth Session, Supplement No. 9 (A/1858) at 142. In order to reconcile the desire of some countries for ‘sovereignty’ over the continental shelf with the fear of other countries that sovereignty over the continental shelf would soon expand into sovereignty over the waters above, the 1956 ILC Draft Articles on the Law of the Sea adopted a formula of “*sovereign rights* for the purpose of exploring and exploiting its natural resources”. The ILC commentary stated:

From the above, there are now two distinct legal bases for coastal States rights in relation to the seabed outside of territorial sovereignty. First, the EEZ gave the coastal State sovereign rights for the purpose of exploring and exploiting the *non-living natural resources of the seabed and its subsoil*.⁷⁹ Second, the continental shelf regime gave the coastal State sovereign rights over its continental shelf for the purpose of *exploring it and exploiting its natural resources*.⁸⁰ The EEZ regime and continental shelf regime will usually apply concurrently to the same geographical area⁸¹. In recognition of this, Article 56 (3) provides that the rights set out in the EEZ with respect to the seabed and subsoil shall be exercised in accordance with Part VI on the continental shelf. When a State has an extended continental shelf beyond 200 nm, the water column above is considered high seas.⁸²

There are also certain limits on the coastal State's rights over its EEZ and continental shelf. In the EEZ, a coastal State must have due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of UNCLOS.⁸³ On the continental shelf, the coastal State must not exercise its rights in a manner which will infringe or result in "any unjustifiable interference" with navigation and other rights and freedoms of other States as provided for in UNCLOS.⁸⁴

The Commission desired to avoid language lending itself to interpretations alien to an object which the Commission considers to be of decisive importance, namely the safeguarding of the principle of the full freedom of the superjacent sea and the airspace above it. Hence, it was unwilling to accept the sovereignty of the coastal State over the seabed and subsoil of the continental shelf. On the other hand, the text now adopted leaves no doubt that the rights conferred upon the coastal State cover all rights necessary for and connected with the exploration and exploitation of the natural resources of the continental shelf. Such rights include jurisdiction in connection with the prevention and punishment of violations of the law.

See 1956 ILC Draft Articles concerning the Law of the Sea with Commentaries, *Yearbook of the International Law Commission, Volume II*, UN Doc. A/3159 (1956) at 297. Article 2 of the 1958 Convention on the Continental Shelf adopted the same formula as the 1956 Draft Articles with a slight amendment: "sovereign rights for the purpose of exploring *it* and exploiting its natural resources". This was followed in Article 77 (1) of UNCLOS.

⁷⁸ Article 77 (4) also defines natural resources as including "living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil."

⁷⁹ Article 56 (1) (a), UNCLOS.

⁸⁰ Article 77 (1), UNCLOS.

⁸¹ The EEZ has a breadth of 200 nautical miles (Article 57, UNCLOS) and the minimum breadth of the continental shelf is 200 nautical miles. It is said "[h]ad it not been for a strong desire on the part of many coastal States, now reflected in the provisions of [UNCLOS], to include within the legal continental shelf those parts of the continental margin extending beyond 200 miles, the legal regime of the continental shelf could have been subsumed within the EEZ (emphasis added)." See Churchill and Lowe, *supra* note 67 at 166.

⁸² See Article 78 (1) of UNCLOS which provides that "the rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters."

⁸³ Article 56 (2), UNCLOS.

⁸⁴ Article 78 (2), UNCLOS.

(b) The Freedom to Lay, Repair and Maintain Submarine Cables in the EEZ and on the Continental Shelf

With regard to the EEZ, as part of the compromise which allowed coastal States exclusive rights to the natural resources, Article 58 makes it clear that other States enjoy the specific freedoms of the high seas referred to in Article 87 on high seas freedoms, including the right to lay submarine cables:

Article 58 Rights and Duties of Other States in the Exclusive Economic Zone

1. In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention (emphasis added).

Article 87 provides that freedom of the high seas includes “freedom to lay submarine cables and pipelines, subject to Part VI.”⁸⁵ The repair and maintenance of submarine cables would be considered “other internationally lawful uses of the sea related to these freedoms” as they are associated with the operation of submarine cables.⁸⁶

With regard to the continental shelf, Article 79 (1) provides that “All States are entitled to lay submarine cables and pipelines on the continental shelf in accordance with the provisions of this article.” Although Article 79 (1) does not refer to the repair and maintenance of submarine cables, the rest of the provisions of Article 79 appear to assume that the right to lay submarine cables includes the right to maintain and repair them.⁸⁷

(c) Limits on the Freedom to Lay, Repair and Maintain Submarine Cables

There are limits on the freedom to lay, repair and maintain submarine cables in the EEZ and on the continental shelf. First, States who wish to lay, repair or maintain submarine cables on the seabed of the EEZ, must have:

...due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part.⁸⁸

⁸⁵ Article 87 (1) (c), UNCLOS. It has been observed that the freedoms exercised in the EEZ by other States are the same as those incorporated from Article 87, provided that they are compatible with the other provisions of the Convention. The difference is that these freedoms are subject to measures relating to the sovereign rights of the coastal State in the EEZ and they are not subject to such measures or those rights beyond that zone. See Nordquist et al., *supra* note 37 at 565.

⁸⁶ See Beckman, *supra* note 4 at 5.

⁸⁷ Article 79 (2) refers to the “laying or maintenance” of submarine cables and Article 79 (5) refers to “repairing” existing cables. See Beckman, *supra* note 4 at 6.

⁸⁸ Article 58 (3), UNCLOS.

This would apply to the continental shelf to the extent it overlaps with the EEZ. On the extended continental shelf beyond the EEZ, the regime of the high seas would apply to the water column above and this includes an obligation on States to exercise their high seas freedoms such as the laying of submarine cables with due regard for the interests of other States exercising their high sea freedoms.⁸⁹

Second, Article 79 (2) of UNCLOS provides that:

Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines.

This suggests that a coastal State may subject the laying, repair and maintenance of submarine cables to its right to take reasonable measures for (1) the exploration of the continental shelf and (2) the exploitation of its natural resources. There is considerable ambiguity on what are the “reasonable measures” a coastal State can take in relation to the laying, maintenance or repair of submarine cables.⁹⁰ That said, Article 79 does give some guidance as to what will *not* be considered “a reasonable measure.”

First, Article 79 (2) makes clear that coastal State measures for the prevention, reduction and control of pollution which impede the right of States to lay, maintain and repair submarine cables will not be considered “reasonable.” This is because Article 79 (2) draws a distinction between submarine cables and *pipelines*. For pipelines, a coastal State may not impede the laying or maintenance of pipelines subject to its right to take reasonable measures for (1) the exploration of the continental shelf and (2) the exploitation of its natural resources *and* (3) *the prevention, reduction and control of pollution from pipelines*.⁹¹ The omission of submarine cables from this last measure suggests that a coastal State cannot subject the laying, maintenance and repair of submarine cables to such measures.⁹²

Second, Article 79 (3) also makes clear that a State may not impose conditions on the cable route to be followed. It provides that “the delineation of the course for the laying of such *pipelines* on the continental shelf is subject to the consent of the coastal State”. The

⁸⁹ Article 87 (2), UNCLOS.

⁹⁰ Admittedly, however, “no more definite criterion than that of reasonableness could be established for the measures which coastal states may take, for the reason that it was impossible to foresee all situations that might arise in the application of this article.” Statement by US Representative during the Eighth Session of the ILC: See Marjorie WHITEMAN, “Conference on the Law of the Sea: Convention on the Continental Shelf” (1958) 52 *American Journal of International Law* 629 at 642.

⁹¹ The provision for prevention, reduction and control of pollution from pipelines was not included in the equivalent article of the 1958 Convention, and was added in during the negotiations of UNCLOS III. See Nordquist et al., *supra* note 37 at 912.

⁹² This is in recognition of the fact that submarine cables do not cause pollution: See discussion in 2 (c) of Part III (A) and *supra* note 59.

implication is that the delineation of the course for *submarine cables* is not subject to the consent of the coastal State.⁹³

The third limitation on the freedom to lay, repair and maintain submarine cables on the continental shelf is provided for in Article 79 (5) which states that States must have due regard to cables or pipelines already in position and possibilities of repairing existing cables or pipelines shall not be prejudiced.

Another paragraph of Article 79 should also be considered although it is not a limitation on the freedom to lay cables but rather a savings clause. Article 79 (4) provides that nothing in Part VI (on the continental shelf) affects the right of the coastal State to establish conditions for cables or pipelines entering its territorial sea. This relates to the coastal State's sovereignty over its territory and territorial sea.⁹⁴ It has been said that the purpose of this provision is to ensure that:

The restrictions in article 79 on the right of a coastal State to regulate cables on the continental shelf (where it has sovereign rights but not sovereignty) does not affect the more extensive rights of the coastal State to impose additional conditions on cables which enter its territory or territorial sea (where it has sovereignty).⁹⁵

If coastal States impose additional conditions on the laying or repair of a submarine cable which falls both on its continental shelf and on the seabed of its territorial sea, then the conditions would only apply to the part of the cable located in the territorial sea.⁹⁶

⁹³ See Nordquist et al., *supra* note 36 at 915. Interestingly, it was previously intended that the coastal State *should* have the right to control the route to be followed. In the commentary to the equivalent article, Article 70 of the 1956 ILC Draft Articles, it is stated:

The coastal State is required to permit the laying of submarine cables on the seabed of its continental shelf but in order to avoid unjustified interference with the exploitation of the natural resources of the seabed and subsoil, it may impose conditions concerning the route to be followed.

See Articles concerning the Law of the Sea with commentaries, in *Yearbook of the International Law Commission, Volume II*, UN Doc. A/3159 (1956) at 299. However, Article 79 (3) now makes it clear that the coastal State does not have jurisdiction over the route to be followed. This is also supported by discussions during UNCLOS II and UNCLOS III. During UNCLOS II, a Venezuelan amendment for Article 70 of the 1956 ILC Draft Articles would have expressly provided for the coastal State the right to regulate with respect to the routes to be followed but this was rejected on the basis that it failed to provide any standards for the regulations to be made. See Whiteman, *supra* note 90 at 643. At UNCLOS III, China had also proposed that the delineation of the course for laying submarine cables on the continental shelf by a foreign State be subject to the consent of the coastal State was also eventually rejected: See Nordquist et al., *supra* note 36 at 911.

⁹⁴ See Nordquist et al., *supra* note 36 at 915.

⁹⁵ See Beckman, *supra* note 4 at 7.

⁹⁶ There has been some argument that Article 79 (4) allows the coastal State to impose additional conditions on cables on its continental shelf if such cables enter its territorial sea: See CIL Workshop Report, *supra* note 5 at 15. However, such an interpretation would defeat the purpose of allowing the coastal State to only subject the laying and repair of submarine cables on the continental shelf to "reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources" as provided for in Article 79 (4): See Beckman, *supra* note 4 at 7.

2. Problems in the Law and Practice in Areas Outside of Territorial Sovereignty but Within National Jurisdiction

(a) *Inadequacy of Safety of Navigation Rules*

As mentioned above, safety of navigation rules can minimize interference with laying and repair operations. The COLREGS require vessels including fishing vessels to keep out of the way of cable ships but do not specify a minimum distance. In contrast, Article V and VI of the 1884 Convention require that masters keep their vessels, fishing gear and nets *one nm* away from vessels engaged in repair operations and *one-quarter nm* from buoys which show that cables are being laid or repaired. However, this would only apply to State Parties to the 1884 Convention.⁹⁷

Possible Solution: Member States of the International Maritime Organization (“IMO”) should review the COLREGS to determine whether they are adequate to protect ships engaged in laying and repair operations and whether it is necessary to implement the minimum distance rule reflected in the 1884 Convention.

(b) *Problems of Balancing Competing Uses*

The EEZ and the continental shelf face intense use from competing sources, especially from coastal State activities such as fishing and resource exploitation. The first problem is to what extent a coastal State may, as part of its sovereign rights to explore the continental shelf and exploit its natural resources, regulate the laying and repair of submarine cables. While UNCLOS lays some limits (the measures must be reasonable,⁹⁸ they must have due regard to the rights and duties of other States,⁹⁹ they must not infringe or result in unjustifiable interference with other rights and freedoms of other States,¹⁰⁰) the law is far from clear.

In practice, some coastal States have imposed regulations on the laying and repair of submarine cables on their continental shelves which are not related to its sovereign rights to explore and exploit natural resources. One example is the imposition by coastal States of taxes on cables laid on continental shelves outside of territorial waters¹⁰¹ which is clearly contrary to UNCLOS.

⁹⁷ Some State Parties which have implemented the 1884 Convention have not even implemented this particular provision: See for example, the *New Zealand Submarine Cables And Protection Act 1996* and the *Australian Submarine Cables and Pipelines Act 1963*, neither of which implement Article VI of the 1884 Convention.

⁹⁸ Article 79 (2), UNCLOS.

⁹⁹ Article 56 (3), UNCLOS.

¹⁰⁰ Article 78 (2), UNCLOS.

¹⁰¹ Malta taxes international cables that do not land in its territorial seas but transit its continental shelf: See CIL Workshop Report, *supra* note 5 at 16; Also see the recent Spanish Court decision whereby it was held that there was no basis for the Ministry of the Environment to access a benefit tax on a telecommunication cable outside of Spain's territorial sea: *Telefónica de España S.A. v. Ministry of the Environment Supreme Court* (Contentious-Administrative Division, 5th Chamber) Ruling of 16 June 2008 JUR 2008/211246 available at the ICPC Member's Database.

Another example of laws which are contrary to UNCLOS are those which require coastal State's consent for the delineation of cable routes.¹⁰² However, in practical terms, coastal State rights over fishing and resource related activities may inevitably mean that the coastal State will have to have a say on the delineation of the cable route. It would not be feasible for cables to be laid in areas where there are intense fishing activities or which are areas designated for exploration and exploitation of offshore gas.¹⁰³

Another example of arguably excessive regulations is the requirement imposed by countries such as China¹⁰⁴ and India¹⁰⁵ that cable companies apply for permits before they can lay or repair submarine cables on their respective continental shelves.

¹⁰² Both India and China subject the delineation of submarine cable routes to their approval. Russia is also claiming the right to delineate the course of submarine cables on its continental shelf in the Arctic as far as the North Pole: See Douglas Burnett, "The Importance of UNCLOS to the Cable Industry" available at http://www.oceanlaw.org/downloads/burnett_cable.pdf.

¹⁰³ See, for example, Article 15 of China's *Provisions Governing the Laying of Submarine Cables and Pipelines* Adopted by the 32nd Executive Meeting of the State Council on 20 January 1989, promulgated by Decree No. 27 of the State Council of the People's Republic of China on 11 February 1989 and effective as of 1 March 1989 ("*Provisions Governing the Laying of Submarine Cables and Pipelines*") which provides that the plan for determining the routes for laying submarine cables and pipelines beyond the petroleum exploitation zones shall be submitted to authorities *prior* to the examination and approval of the overall plan for the exploitation of oil and gas fields. Further, with regards to the laying of submarine cables within marine petroleum development zones between the drilling platforms, the owners of cables are required to submit a detailed report on the location of the route etc before they survey of routes for the laying of submarine cables.

¹⁰⁴ China's national legislation on the laying and repair of submarine cables include the following requirements:

- Foreign companies who wish to lay cables and survey cable routes on the continental shelf of China, must notify the SOA and the routes selected must have the consent of the SOA (Article 4, *Provisions Governing the Laying of Submarine Cables and Pipelines*);
- Foreign submarine cables passing sea areas and continental shelves under the jurisdiction of China and international submarine cables and pipelines to be laid from China to any other country or region are subject to the examination and approval of the SOA (Article 4, *Measures of the State Oceanic Administration for the Implementation of the Administrative Provisions Governing the Laying of Submarine Cables and Pipelines*, Order No. 3 of the State Oceanic Administration on 26 August 1992) ("*SOA Measures on Submarine Cables*");
- The owner of submarine cables shall, no later than thirty days prior to the maintenance, renovation or removal of submarine cables, submit to the competent authority a written report about the operation, the causes, time, sea area, operation vessel (Article 6, *SOA Measures on Submarine Cables*);
- A foreign vessel carrying out any laying and repair activities on the continental shelf of China shall report its location to the competent authority at 0200 GMT every day (Article 18, *SOA Measures on Submarine Cables*);
- It is an offence punishable by fines for an operator at sea not to hold a license issued by the competent authorities, for a foreign vessel not to report its location as in violation of these measures (Article 20, *SOA Measures on Submarine Cables*).

¹⁰⁵ Research efforts of the writer could not ascertain the exact permit requirements of India. However, Article 7 (8) of the *Indian Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976* provides that:

[S]ubject to any measures that may be necessary for protecting the interests of India, the Central Government may not impede the laying or maintenance of submarine cables pipelines on the continental shelf by foreign states *provided that the consent of the Central Government shall be*

A further problem complicating the issue is that these permitting processes lack transparency and are complicated, thus causing delay to laying operations and more importantly, to repair of cables. While China at least allows the repair vessel to start its journey to the repair site while repair permits are being obtained from the State Oceanic Administration (“SOA”),¹⁰⁶ Indian permits for repair can reportedly take up to thirty-two days and involve getting licenses from seven different sources.¹⁰⁷

Arguably, requirements for permits for laying and repairing on the continental shelf are related to the security concerns of the coastal State and not its sovereign exploration and exploitation rights. However, coastal States will argue that these permit requirements are related to the sovereign exploration/exploitation rights because they are necessary to (a) ascertain that foreign cable ships are not engaging in exploration/exploitation activities and (b) regulate competing uses under their jurisdiction so as to prevent interference with laying and repair activities.

The latter argument highlights the other major problem related to competing uses – minimizing interference with laying and repair operations from competing uses. While coastal States can regulate competing uses under its jurisdiction to prevent interference with the laying and repair of cables, they can only do so if they are aware of such operations. The question is how can coastal States obtain information on these operations in order to ensure minimum interference *by* competing uses and in the process, avoid imposing excessive regulations on laying and repair operations contrary to UNCLOS.

Possible solutions: There is an undeniable ambiguity in UNCLOS provisions on the extent to which a coastal State may regulate the laying and repair of submarine cables on its continental shelf. Coastal States and cable companies should avoid insisting on a strict interpretation of their respective legal rights and obligations under the law and focus on a solution which takes into account both their interests. This is mandated by their mutual obligations under UNCLOS to take “due regard” into consideration when exercising their respective rights.

The principles underlying such a solution are mutual co-operation and consultation. In practical terms, it may mean that cable companies must consult with coastal States on route selection and must notify (but not be required to seek consent from) coastal States

necessary for the delineation of the course for the laying of such cables or pipelines (emphasis added).

The phrase “protecting the interests of India” is sufficiently wide to warrant any type of law or regulation to impede the laying or maintenance of submarine cables.

¹⁰⁶ Article 10, *Provisions Governing the Laying of Submarine Cables and Pipelines* and Article 13, *SOA Measures on Submarine Cables*, *supra* note 104.

¹⁰⁷ See Presentation given by ICPC, “Submarine Cable Network Security” given at the Submarine Cable Protection Information Sharing Workshop, Singapore on 13 April 2009 available at http://www.iscpc.org/information/Openly%20Published%20Members%20Area%20Items/Submarine_Cable_Network_Security.ppt

on their laying and repair activities¹⁰⁸ and coastal States must similarly keep cable companies informed on other activities that may impact cable operations. Part of co-operation and consultation would be confidence-building measures such as having a national observer on board during repair operations. They can also enter into provisional agreements whereby the parties would establish an Expedited Prior Approval Procedure for the repair of specified cable systems by pre-approved cable ships on a trial basis.¹⁰⁹

(c) Marine Environment and the Laying and Repair of Submarine Cables

The EEZ regime gives a coastal State jurisdiction over the protection and preservation of the marine environment in its EEZ.¹¹⁰ The question is to what extent a coastal State can restrict the laying and repair of cables to protect the marine environment.

The rights and obligations in Part XII on the protection of the marine environment relate to coastal State jurisdiction to prevent *pollution*¹¹¹ from land-based sources, seabed activities, dumping, vessels and through the atmosphere and are not applicable to submarine cables. Strictly speaking, Article 79 (2) does not allow a coastal State to regulate the right to lay and repair submarine cables based on pollution prevention, reduction and control measures.

That said, an issue faced by cable companies is the growing tendency for coastal States to declare marine protected areas (“MPAs”)¹¹² in waters outside of territorial sovereignty something which is arguably allowed under Article 194 (5)¹¹³ of UNCLOS. MPA’s may place restrictions on cable laying activities.¹¹⁴ There may be no practical

¹⁰⁸ Recommendation 8 and 20 of the CIL Workshop Report elaborates on this by stating that “Cable ships which are engaged in cable laying or repair operations “should officially notify the relevant government agency of the details of the ship, its location, its schedule and its planned activity and if requested by the State, provide a report at the end of its activities.” See CIL Workshop Report, *supra* note 5 at 38 and 40.

¹⁰⁹ See Recommendation 70 of the CIL Workshop Report, *supra* note 5 at 49.

¹¹⁰ Article 56 (1) (b) (iii), UNCLOS.

¹¹¹ “Pollution to the Marine Environment” is defined under Article 1 of UNCLOS as the:

Introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

¹¹² A marine protected area is defined as “any area of intertidal or subtidal terrain together with their overlying waters and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect all or part of the enclosed environment”: See the World Conservation Union, *Resolution 17.38 of the 17th General Assembly of the IUCN*, (1988).

¹¹³ Article 194 (5) of UNCLOS provides that “the measures taken in accordance with [Part XII on the protection of the marine environment] shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.”

¹¹⁴ See UNEP/ICPC Report, *supra* note 1 at 53. Also see Comments of the ICPC on the *Discussion Paper for the UK Offshore Marine Conservation (Natural Habitats) Regulation 2003* on the proposed establishment of protected habitats beyond UK’s territorial sea up to 200 nm available at ICPC Members Database.

basis to do so, in view of the UNEP/ICPC Report that submarine cables have minimum impact on the seabed¹¹⁵ and accordingly, there is no reason why cables and marine protected areas are mutually exclusive.¹¹⁶

(d) Lack of Mechanism for Cable Companies to Challenge Excessive Regulations

Cable companies are in effect exercising the rights of States but when confronted with potentially excessive coastal State regulations, as private entities, they are not entitled to use UNCLOS dispute settlement provisions available only to States.¹¹⁷ Under UNCLOS, disputes concerning the interpretation or application of UNCLOS with regard to the exercise by a coastal State of its sovereign rights and jurisdiction shall be subject to section 2 compulsory binding dispute settlement procedures. This applies when there is a dispute relating to the laying of submarine cables or in regard to other internationally lawful uses of the sea.¹¹⁸

Possible Solutions: A possible solution for cable companies is for the flag State of the cable laying or repair vessel to challenge, for example, regulations requiring permits for laying or repairs outside of territorial sovereignty.¹¹⁹ This would require cable ship owners to register their vessels in States which would be willing to challenge excessive regulations on their behalf.¹²⁰

(e) Overlapping Boundaries and Undefined Areas

A further problem in the laying and repair of submarine cables is when there are overlapping maritime boundaries in the EEZ or continental shelf¹²¹ and a cable fault

¹¹⁵ See discussion on environmental impacts of cables, cable laying and repair operations, *supra* at note 62.

¹¹⁶ See UNEP/ICPC Report at 53. Indeed, “the ultimate goal of any marine protected area is marine conservation – that, the protection of critical ecological processes that maintain the ecosystem and allow for the production of goods and services beneficial to humankind, while allowing for utilization of ocean space and resources that is sustainable in an ecological sense”: See TS AGARDY, *Marine Protected Areas and Ocean Conservation* (Austin: RG Landes Company, 1997) at 244.

¹¹⁷ This was recognized by the CIL Workshop Report, *supra* note 5 at 16.

¹¹⁸ Article 297 (1) (a), UNCLOS.

¹¹⁹ See Beckman, *supra* note 4 at 12.

¹²⁰ See Robert BECKMAN, “1982 UNCLOS: A Legal Framework for Cooperation between Cable Companies and Coastal States,” Presentation given at the ICPC Plenary Meeting, Mauritius, 1 – 3 June 2010 available at <http://cil.nus.edu.sg/wp/wp-content/uploads/2009/09/Beckman-ICPC-June-2010-Mauritius.pdf>. However, it should be borne in mind that flag states especially the open registries may lack the political will to do so. Requiring *cables* to be registered under the nationality of the owners like vessels may not be feasible because cables are usually owned by a consortium of national telecommunications carriers (due to the capital intensive nature of the industry) and it would be difficult to determine which should be the country of registry.

¹²¹ Article 74 and 83 of UNCLOS address the delimitation of maritime boundaries and provides that delimitation of overlapping exclusive economic zones and continental shelves shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.

occurs in the undefined area which is purportedly governed by submarine cables regulations of two States (the disputed area).¹²²

Possible Solutions: A possible solution is for coastal States with overlapping EEZ and continental shelf claims to enter into “provisional arrangements of a practical nature” pending final agreement on their maritime boundaries as mandated by UNCLOS.¹²³ This would require such coastal States to co-ordinate and co-operate with each other on the reasonable measures¹²⁴ to be adopted in areas where their EEZ and continental shelf claims overlap so as to ensure minimum interference with laying and repair operations as well as exploration/exploitation activities. Such co-operation and co-ordination can be done on “without prejudice basis” to their respective claims relating to sovereignty and maritime boundaries.¹²⁵

¹²² This is illustrated by problems faced by the cable industry after the Hengchun earthquake which caused breaks in nine submarine cables in the Strait of Luzon between China and the Philippines: See ICPC Press Release of 21 March 2007 available at http://www.iscpc.org/information/ICPC_Press_Release_Hengchun_Earthquake.pdf. Cable repair permits were required in an area where there were conflicting maritime boundary claims and getting the necessary permits from both States claiming the disputed area significantly delayed cable repair operations. See ICPC, “Submarine Cable Network Security,” given at the Submarine Cable Protection Information Sharing Workshop, Singapore on 13 April 2009 available at http://www.iscpc.org/information/Openly%20Published%20Members%20Area%20Items/Submarine_Cable_Network_Security.ppt

¹²² See Articles 74 (3) and 83 (3), UNCLOS.

¹²³ See Articles 74 (3) and 83 (3), UNCLOS.

¹²⁴ Under Article 79 (2), coastal States may impose “reasonable measures for the exploration of the continental shelf and exploitation of its natural resources” on the right to lay and repair submarine cables.

¹²⁵ See Recommendations 32 and 33, CIL Workshop Report, *supra* note 5 at 43.

C. *In Areas Beyond National Jurisdiction*

1. *The Law*

Areas beyond national jurisdiction refer to the high seas and the deep-sea bed area. The latter is termed “the Area” under UNCLOS and is defined as “the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction”¹²⁶. UNCLOS has created a complicated regime in Part XI to govern the exploration and exploitation of the mineral resources of the Area,¹²⁷ which includes the establishment of the International Seabed Authority (“ISBA”) to regulate exploration and exploitation activities.¹²⁸

The water column over the Area is considered high seas. Accordingly, Article 87 freedoms would apply, including the right to lay submarine cables.¹²⁹ Article 112 (1) of UNCLOS recognizes that States are entitled to lay submarine cables *on the bed of the high seas beyond the continental shelf* which refers to the Area.¹³⁰

However, there are limits on the freedom to lay submarine cables: first, Article 112 (2) requires States to have due regard to cables already in position and not to prejudice the possibility of repairing existing cables or pipelines. Second, Article 87 (2) requires that the freedom to lay submarine cables be exercised with due regard for the interests of other States in their exercise of high sea freedoms and also with due regard for the rights under this Convention with respect to activities in the Area.

2. *Problems in the Law and Practice In Areas Beyond National Jurisdiction*

There is a potential for conflict between the laying and repair of cables and ocean mineral extraction and future methane hydrate exploitation in the Area.¹³¹ Under UNCLOS, the right to lay and repair cables has to be exercised with respect to activities in the Area.¹³² While the ISBA does not have authority to regulate submarine cables as it is unconnected with the exploitation of seabed resources,¹³³ both the ISBA and ICPC have recognized the need for co-operation in the use of the Area. They recently signed a Memorandum of Understanding to enhance co-operation on the use of the Area which includes exchanging

¹²⁶ Article 1 (1), UNCLOS. The deep sea bed area would begin where a coastal State’s continental shelf ends.

¹²⁷ Article 1 (3) and Article 134. Resources are defined as “all solid, liquid or gaseous mineral resources *in situ* in the Area at or beneath the seabed, including polymetallic nodules” in Article 133 of UNCLOS.

¹²⁸ Article 137, UNCLOS

¹²⁹ Although Article 87 (1) (c) states that the freedom to lay submarine cables is subject to Part VI on the continental shelf, Part VI would not be applicable to the laying of cables in the Area, which is beyond national jurisdiction.

¹³⁰ The phrase “beyond the continental shelf” is equivalent to beyond the limits of national jurisdiction and in effect, refers to the Area: Nordquist et al., *supra* note 37 at 264.

¹³¹ Scott COFFEN-SMOUT and Glen J. HERBERT, “Submarine Cables: A Challenge for Ocean Management” (2000) 24 Marine Policy 441 at 444.

¹³² Article 87 (2), UNCLOS.

¹³³ Churchill and Lowe, *supra* 68 at 240.

information on cable routings and prospecting and exploration areas¹³⁴ and ICPC has also requested for observer status at the ISBA.¹³⁵

¹³⁴ Memorandum of Understanding between the International Cable Protection Committee and the International Seabed Authority Signed on 15 December 2009, Annex to Note by the Secretariat at the 16th Session, 26 April to 7 May 2010 available at <http://www.isa.org.jm/files/documents/EN/16Sess/Assembly/ISBA-16A-INF1.pdf>

¹³⁵ *Ibid.*

IV. THE SURVEYING OF CABLE ROUTES

The laying of cables would not be able to occur without conducting cable route surveys.¹³⁶ The cable ship surveys “water depth and seabed topography, sediment type and thickness, marine faunal/floral communities, and potential natural or human-made hazards” and “[w]here appropriate, measurements of currents, tides and waves may be needed to evaluate the stability of the seabed, movement of sediment and ocean conditions that may affect cable-laying and maintenance operations”.¹³⁷ Ultimately, the cable route survey is a type of hydrographic survey.¹³⁸ Hydrographic surveys are regulated under UNCLOS depending on where they occur.

A. Areas within Territorial Sovereignty

1. The Law

There is no definition of “survey activities” or “hydrographic surveys” in UNCLOS but they appear to be used interchangeably.¹³⁹ In areas within territorial sovereignty, the coastal or archipelagic State has the authority to regulate hydrographic surveys. In territorial seas and archipelagic waters, ships carrying out hydrographic surveys would not be carrying out innocent passage.¹⁴⁰ Both coastal States and archipelagic States are allowed to adopt regulations on innocent passage relating to hydrographic surveys within their territorial seas or archipelagic waters.¹⁴¹ Similarly, in straits used for international navigation, foreign ships including hydrographic survey ships may not carry out any research or survey activities without the prior authorization of States bordering straits. A similar prohibition applies in archipelagic waters.¹⁴²

¹³⁶ The first stage in a cable route survey is for marine geologists to conduct a desktop survey in order to design an optimum route to be surveyed. The marine geologist will “assemble all available hydrographic and geologic information about the pertinent region, commission fisheries and permitting reports if appropriate, consider the location and history of existing nearby cables and other obstructions and then design an optimal route to be surveyed”. After the desktop survey, a route survey will be undertaken by a cable survey ship in order to “fully characterize that route and to avoid hazards and/or environmentally significant zones that may have not been identified from existing information.” See UNEP/ICPC Report, *supra* note 1 at 21.

¹³⁷ *Ibid.*

¹³⁸ A hydrographic survey has been defined as “a survey having for its principal purpose the determination of data relating to bodies of water. A hydrographic survey may consist of: the determination of one or several of the following classes of data: depth of water, configuration and nature of bottom; directions and force of currents; heights and times of tides and water stages; and location of topographic features and fixed objects for survey and navigation purposes.” See Definition by the International Hydrographic Bureau of “hydrographic survey” available at http://www.iho-wms.net:8080/hydrodic/en/index.php/hydrographic_survey

¹³⁹ Article 19 (2) (j) refers to survey activities, Article 21 (1) (g) refers to hydrographic surveys, Article 40 states that hydrographic survey ships may not carry out survey activities without the prior authorization of the States bordering the straits.

¹⁴⁰ Article 19 (2) (j) and Article 52 (2), UNCLOS.

¹⁴¹ Article 21 (1) (g) and Article 52 (2), UNCLOS.

¹⁴² Article 40 and Article 54, UNCLOS.

2. Problems in the Law and Practice in Areas Within Territorial Sovereignty

The surveying of cable routes within territorial waters faces similar problems as the laying and repair of submarine cables: the lack of national legislation and regulations to minimize interference with cable survey ships; excessive permitting requirements¹⁴³ which can unduly delay cable survey operations; and no lead agency coordinating overall cable operations.

A further problem is that some coastal States require that their local hydrographic departments conduct the route survey within territorial waters as part of the permit requirement for surveys. While this is allowed under UNCLOS, local hydrographical departments may not be able to deliver a cable route survey report of the same quality and in the same timely manner as cable companies who have the requisite experience.¹⁴⁴

Possible Solutions: Possible solutions include designating a lead agency to act as a focal point in the approval process for the survey of cable routes and streamlining procedures for such activities.¹⁴⁵

B. In Areas Outside of Territorial Sovereignty but Within National Jurisdiction

1. The Law

Hydrographic surveys are not mentioned in UNCLOS provisions on the EEZ or continental shelf. As mentioned above, Article 58 (1) of UNCLOS provides that other States will have the freedoms referred to in Article 87 of laying of submarine cables and “other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships and submarine cables.” Cable route surveys can accordingly be considered as an internationally lawful use of the sea related to the operation of submarine cables.¹⁴⁶

Part VI on the continental shelf contains limits on the freedom to lay cables and consequently the freedom to survey cable routes.¹⁴⁷

¹⁴³ Arguably, a coastal State has more of a legitimate interest in regulating surveys within their territorial waters as this is directly related to national security concerns, a fact which is recognized by UNCLOS in providing that survey activities are contrary to innocent passage and hence “prejudicial to the peace, good order and security of the coastal State.” See Article 19 (1), UNCLOS.

¹⁴⁴ See CIL Workshop Report, *supra* note 5 at 16 – 17.

¹⁴⁵ Recommendation 9, CIL Workshop Report, *supra* note 5 at 39.

¹⁴⁶ See Beckman, *supra* note 4 at 8; UNEP Report, *supra* note 1 at 26. Similarly, hydrographic surveys for the purpose of navigation are regarded as an internationally lawful use of the sea associated with the operation of ships: Alfred SOONS, *Marine Scientific Research and the Law of the Sea* (The Hague: Kluwer, 1982) at 125.

¹⁴⁷ This is due to the fact that Article 56 (3) states that the rights of the coastal State over the seabed and subsoil in its EEZ shall be exercised in accordance with Part VI and Article 58 (1) incorporates Article 87 (1) (c) which provides that the freedom to lay cables is subject to Part VI.

There is a slight distinction between the sovereign rights of the coastal State in its EEZ and on its continental shelf. In its EEZ, a coastal State has sovereign rights “for the purpose of exploring and exploiting...the natural resources, whether living or non-living...of the seabed and its subsoil¹⁴⁸.” On its continental shelf, a coastal State “exercises over the continental shelf sovereign rights for the purpose of exploring *it* and exploiting its natural resources.” In addition, Article 79 (2) provides that subject to its right to take reasonable measures *for the exploration of the continental shelf*, the coastal State may not impede the laying of submarine cables. The argument is that:

[t]hat a coastal State has the right to impose reasonable measures for the exploration of the continental shelf and that such measures might include adopting laws and regulations on cable route surveys...to ensure that a cable route survey ship is not engaged in the exploration of the natural resources of the continental shelf.¹⁴⁹

Lastly, the question on whether cable route surveys are a form of marine scientific research and thus subject to the consent regime set out in Article 56 (1) (b) (ii) and Article 246 of UNCLOS needs to be examined. Although there is no definition of marine scientific research in UNCLOS, surveys and marine scientific research are consistently distinguished as separate activities in UNCLOS:

- Article 19 (2) (j) refers to “research or survey activities”;
- Article 21 (1) (g) refers to “marine scientific research and hydrographic surveys”;
- Article 40 refers to “marine scientific research ships and hydrographic survey ships” and “research or survey activities.”

The separate treatment given by UNCLOS to these two activities suggests that hydrographic surveys should not be subject to the marine scientific research regime.¹⁵⁰ Further, cable route surveys which have a specific purpose of collecting data to ensure the optimum selection of a cable route should not be considered marine scientific research.

2. Problems in the Law and Practice in Areas Outside of Territorial Sovereignty but Within National Jurisdiction

As with laying and repair operations, some countries such as China require permits before cable companies can conduct a cable route survey on its continental shelf.¹⁵¹ This is consistent with the general view held particularly by Asian States that hydrographic surveys are a form of marine scientific research and are subject to

¹⁴⁸ Article 56 (1), UNCLOS.

¹⁴⁹ See Beckman, *supra* note 4 at 9. This is on the basis that the survey of a continental shelf in principle involves *exploration* of the continental shelf (as compared to laying or repair of cable).

¹⁵⁰ See Soons, *supra* note 146 at 125.

¹⁵¹ See, for example, Article 5 of *SOA Measures on Submarine Cables* which requires a foreign cable company who wishes to survey the continental shelf of China to submit an application for investigation and survey of route to SOA sixty days before it carries out the survey and requires SOA’s approval for its decided route of investigation and survey.

coastal State consent.¹⁵² The maritime States on the other hand view hydrographic surveys as a part of the high seas freedoms given to other States in the EEZ and hence not subject to coastal State consent.¹⁵³

Possible Solutions: As with the laying and repair of submarine cables, coastal States and cable companies should avoid insisting on a strict interpretation of legal rights and should instead co-operate and consult with each other to find a mutually beneficial solution. A cable survey ship can allow a national observer aboard and notify the relevant government agency of the details of the ship, its location, its schedule and its planned activity and if requested by the State, provide a report at the end of its activities.¹⁵⁴ The cable company may also wish to make the cable route survey data upon completion of the survey available to the relevant coastal State authorities.¹⁵⁵

C. In Areas Beyond National Jurisdiction

1. The Law

Although hydrographic surveying is not specifically listed as one of the freedoms of the high seas, Article 87 does not provide an exhaustive list of high seas freedoms¹⁵⁶ and hydrographic surveys have traditionally been considered part of the traditional freedoms of navigation.¹⁵⁷ Similarly, cable route surveys should also be considered part of the freedom to lay submarine cables.

2. Problems in the Law and Practice

As with the laying and repair of submarine cables, the issue is one of reconciling mineral exploitation in the Area and the surveying of cable routes and is one that can be solved with greater co-operation between the ISBA and the cable industry represented by the ICPC as already discussed.

¹⁵² See ZHANG Haiwen, “Is it Safeguarding the Freedom of Navigation or Maritime Hegemony of the United States? Comments on Raul (Pete) Pedrozo’s Article on Military Activities in the EEZ,” (2010) 9 Chinese Journal of International Law 31 at 43. Also see EEZ Group 21, *Guidelines for Navigation and Overflight in the Exclusive Economic Zone* (Ocean Policy Research Foundation, 2005), which is a set of “non-binding voluntary principles which provide the basis for a common understanding and approach to issues arising from the implementation of the EEZ regime, particularly in the Asia-Pacific Region,” Article IX of which provides that hydrographic surveying should only be conducted in the EEZ of another States with the consent of the coastal State with the exception of the collection of navigational data by a ship required for safe navigation.

¹⁵³ See, for example, Raul Pete Pedrozo, “Preserving Navigational Rights and Freedoms: The Right to Conduct Military Activities in China’s Exclusive Economic Zone,” (2010) 9 Chinese Journal of International Law 9 at 23. The general view of the US and other maritime powers is that the regime governing marine data collection will depend on the means, methods, locations and purposes for the collection of that information: See J.A. ROACH, “Defining Scientific Research: Marine Data Collection” (2007) 30 Centre for Ocean Law and Policy 541 – 542.

¹⁵⁴ See Recommendation 8 and 20, CIL Workshop Report, *supra* note 5 at 39 and 40.

¹⁵⁵ See Recommendation 13, CIL Workshop Report, *supra* note 5 at 39.

¹⁵⁶ See Nordquist et al., *supra* note 36 at 73.

¹⁵⁷ See Roach, *supra* note 153 at 548.

V. THE PROTECTION OF SUBMARINE CABLES

A. *In Areas within Territorial Sovereignty*

1. *The Law*

Coastal States¹⁵⁸ and archipelagic States¹⁵⁹ have a right to adopt laws and regulations relating to innocent passage through their territorial sea and archipelagic waters in respect of the protection of cables and have a general competence to enact laws to protect submarine cables within territorial waters.

Coastal States and archipelagic States cannot impose regulations for the protection of submarine cables on foreign vessels exercising the right of transit passage in straits used for international navigation¹⁶⁰ and the right of archipelagic sea lanes passage¹⁶¹ in archipelagic waters. However, such vessels will have to comply with rules and regulations for safety at sea issued by the IMO and this could conceivably include rules relating to the protection of submarine cables.¹⁶²

2. *Problems in the Law and Practice in Areas Within Territorial Sovereignty*

(a) *Inadequate National legislation to Protect Submarine Cables from Competing Uses*

The majority of cable faults are caused by “external human aggression” namely fishing causing 44.4 % of faults and anchoring, causing 14.6 %.¹⁶³ Most faults occur near land in water depths of less than 100 metres¹⁶⁴ and this includes the seabed of territorial waters. Anchoring in particular occurs much more within port limits in the internal waters of a coastal State.

There is no obligation on coastal States to adopt laws and regulations to protect submarine cables under UNCLOS.¹⁶⁵ Many States do not have sufficient laws and regulations to protect submarine cables from damage from competing uses within

¹⁵⁸ Article 21 (1) (c), UNCLOS.

¹⁵⁹ Article 52, UNCLOS.

¹⁶⁰ Article 42 of UNCLOS sets out specific issues on which a coastal State may adopt regulations relating to transit passage and it is much narrower compared to Article 21 on innocent passage.

¹⁶¹ Article 54, UNCLOS.

¹⁶² See Article 39 (2).

¹⁶³ See UNPEP/ICPC Report, *supra* note 1 at 45.

¹⁶⁴ *Ibid.*, at 44.

¹⁶⁵ The assumption is that coastal States would have sufficient legislation to protect cables that either land in their territory or transit their territorial waters: See Beckman, *supra* note 4 at 12. Indeed, the 1884 Convention only applied “outside territorial waters to all legally established submarine cables landed on the territories, colonies or possessions of one or more of the High Contracting Parties” (Article I) because of the assumption that Parties to the Convention would have sufficient measures in place for the protection of submarine cables within territorial waters as “one “cannot imagine a legislator taking measures in relation to the open sea but not for the territory and territorial waters”: See Renault, *supra* note 8 at 6.

territorial waters.¹⁶⁶ Deficiencies range from failure to criminalize damage to submarine cables within territorial waters (whether intentional or negligent)¹⁶⁷ and if there are penalties, they are often too low to compensate the owners for the cost of repairs.¹⁶⁸

Possible Solutions: Apart from making it an offence to damage submarine cables, States can also explore establishing cable protection areas such as ‘submarine cable corridors’,¹⁶⁹ or ‘cable protection zones’,¹⁷⁰ which have varying types of protection from competing activities.¹⁷¹

Submarine cable corridors are designated around submarine cables routes and are of varying lengths¹⁷² although they generally appear to be much narrower than cable protection zones.¹⁷³ Different types of measures are used to protect submarine cables within submarine cable corridors and include the prohibition or restriction of certain activities such as fishing, anchoring, dredging etc.¹⁷⁴

¹⁶⁶ The 1884 Convention only applies outside of territorial waters and States Parties which have implemented the 1884 Convention only apply it to cables outside of territorial waters. See for example, Section 32 of the US *Submarine Cables Act* of 1888, 47 USC Sec 21 which states the “provisions of this chapter shall be held to apply only to cables to which the convention for the time being applies”; Section 5 of the Australian *Submarine Cables and Pipelines Protection Act 1963* which states that the Act only applies beneath the high seas or within the EEZ.

¹⁶⁷ This would be an incentive for masters of vessels to ensure that they take every measure to avoid damaging submarine cables, particularly if Protection and Indemnity Clubs put pressure on owners to ensure that their masters take necessary precautions.

¹⁶⁸ This was a specific complaint of US cable owners as the US Submarine Cable Act imposed a maximum penalty of only \$5000 for willful injury to submarine cables. This “insignificant maximum criminal penalty provides little incentive for enforcement authorities to assign full time legal and investigative personnel to prosecute vessel owners caught damaging a submarine” and would not even begin to cover the cost of repairs: See Coffen-Smout and Herbert, *supra* note 131 at 444.

¹⁶⁹ Examples of countries which establish submarine cable corridors are Singapore, Indonesia and Japan. China also has legislation for the protection of submarine cables which allow the establishment of ‘cable protection zones’ ranging from 50 to 500 metres and is thus more akin to a submarine cable corridor: See *Provisions on the Protection of Submarine Cables and Pipelines*, *supra* note 104.

¹⁷⁰ Examples of countries which establish cable protection zones are Australia and New Zealand.

¹⁷¹ The ICPC has endorsed Cable Protection Areas: See ICPC Recommendation No. 6 on Recommended Actions for Effective Cable Protection (Post Installation) available at ICPC’s Members’ Database.

¹⁷² Singapore’s legislation does not specify the length of a submarine cable corridor and states that a submarine cable corridor refers to the “area designated by the Port Master as such:” See Section 46 (8) of the *Maritime and Port Authority Act of Singapore* available at <http://statutes.agc.gov.sg/>. Indonesian legislation provides for the establishment of a submarine cable corridor of 3500 metres: See Article 1 of *KM No. 94 Tahun 1999*, available on ICPC Members Only Database. Japanese legislation provides for the designation of an area not exceeding 1000 metres: See Article 141 (1) of the *Telecommunications Business Law [Law No. 86 of 25 December 1984]* available on the ICPC Members Only Database). China’s legislation allows protection zones of 50 to 500 metres: See Article 7, *Provisions on the Protection of Submarine Cables and Pipelines*.

¹⁷³ This may be the reason why cable companies are generally opposed to submarine cable corridors as they are too narrow to accommodate the industry requirement of a minimum separation between cables of 500 metres or more to avoid damage during cable repairs: See Coffen-Smout and Herbert, *supra* note 131 at 447.

¹⁷⁴ See Article 1 of Indonesia’s *KM No. 94 Tahun 1999*, available on ICPC Members Only Database and Article 141 (4) of Japan’s *Telecommunications Business Law [Law No. 86 of 25 December 1984]* available on the ICPC Members Only Database. However, Japan’s legislation also requires the cable owner to compensate any loss to any persons holding a fishery right which has been revoked as a result of the

Legislation establishing cable protection zones has been adopted in both Australia and New Zealand.¹⁷⁵ Australian legislation allows the Australian Communications Media Authority (“ACMA”) to establish a protection zone¹⁷⁶ in relation to submarine cables installed in Australian waters.¹⁷⁷ Before establishing a cable protection zone, the proposal must be the subject of public consultation with potentially affected groups.¹⁷⁸ A range of activities can be prohibited in the protection zone¹⁷⁹ and other activities may be significantly restricted.¹⁸⁰ The legislation provides for significant criminal penalties for both intentional¹⁸¹ and negligent damage.¹⁸² It also provides for civil liability for a person who suffers directly or indirectly loss or damage as a result of conduct by another person in a protection zone.¹⁸³

New Zealand’s legislation allows for the establishment of cable protection zones within the internal waters, territorial sea and EEZ of New Zealand.¹⁸⁴ It provides for specific offences in relation to the protected areas along with hefty fines¹⁸⁵ and specific enforcement powers in relation to offences within protected zones.¹⁸⁶

designation of a submarine cable corridor: See Article 142, Japan’s *Telecommunications Business Law* [Law No. 86 of 25 December 1984] available on the ICPC Members Only Database. Interestingly, Singapore legislation does not prohibit anchoring in submarine cable corridors but requires that the owner or a master deposit a sum of money as may be required by the public telecommunication licensee in order to meet the costs of making good the damage to the submarine cable before the vessel is granted port clearance: See Section 46 (8) of the *Maritime and Port Authority of Singapore Act* available at <http://statutes.agc.gov.sg/>

¹⁷⁵ Both Australian and New Zealand legislation has been described as examples of model cable protection legislation: See Michael Schwartz “Legal Protection of Submarine Cables in South America” 12 August 2009, *Developing Telecoms* available at <http://www.developingtelecoms.com/legal-protection-of-submarine-cables-in-latin-america.html>.

¹⁷⁶ Part 2, Schedule 3A of the *Telecommunications Act 1997* available at http://www.austlii.edu.au/au/legis/cth/consol_act/ta1997214/sch3a.html

¹⁷⁷ Australian waters is defined as the waters of the territorial sea, EEZ of Australia and the sea above the part of the continental shelf of Australia that is beyond the limits of its EEZ. See *ibid.*, Clause 2, Schedule 3A of the *Telecommunications Act 1997*. The legality of establishing cable protection zones outside of territorial waters will be examined in Section B.

¹⁷⁸ See Stuart KAYE, “The Protection of Platforms, Pipelines and Submarine Cables under Australian and New Zealand Law” in Natalie KLEIN, Joanna MOSSOP and Donald ROTHWELL, eds., *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand* (New York: Routledge, 2010), 186 at 199

¹⁷⁹ This includes the use of certain fishing gear, certain fishing activities and any activity that involves a serious risk that an object will connect with the seabed if that will result in damage to the submarine cable: See Clause 10, Schedule 3 A of the *Telecommunications Act*, *supra* note 177.

¹⁸⁰ See Clause 11, Schedule 3 A of the *Telecommunications Act*, *ibid.*

¹⁸¹ 600 penalty units and ten year imprisonment: See Clause 36, Schedule 3 A of the *Telecommunications Act*, *ibid.*

¹⁸² 180 penalty units and up to three years imprisonment: See Clause 37, Schedule 3A of the *Telecommunications Act*, *ibid.*

¹⁸³ See Clause 45, Schedule 3A of the *Telecommunications Act*, *ibid.*

¹⁸⁴ See Section 12 and 15, *Submarine Cables and Pipelines Protection Act 1996*, New Zealand

¹⁸⁵ See Section 13, *Submarine Cables and Pipelines Protection Act 1996*, New Zealand

¹⁸⁶ See Sections 16 – 23, *Submarine Cables and Pipelines Protection Act 1996*, New Zealand

The cable industry can also pursue civil remedies against ships which damage submarine cables. This would serve as a deterrent particularly when damages recoverable can exceed one million dollars.¹⁸⁷ Cable companies can also reduce the risk of damage¹⁸⁸ by ensuring that the routing of the cable is in an optimum location where it will come into minimum contact with other seabed users,¹⁸⁹ armoring cables, the burial of cables in suitable areas,¹⁹⁰ clear identification of cable routes on marine charts¹⁹¹ and closer collaboration and dialogue with other competing users.¹⁹²

(b) Protection of Submarine Cables from Competing Uses in Undefined Areas

In 2009, several instances of submarine cables being damaged by the anchoring of vessels in the buffer zone of the Traffic Separation Scheme (TSS) in the Singapore Strait were reported.¹⁹³ This is prohibited under the COLREGS.¹⁹⁴ However, the ships were anchored in an area where the maritime boundary between Malaysia, Indonesia and Singapore is still under negotiation and it was hence unclear which State had the jurisdiction to penalize vessels anchoring there.¹⁹⁵ The three littoral States co-operated to

¹⁸⁷ In this regard, there are means by which cable companies can ascertain the identity of the offending vessel through radar, Vessel Monitoring Systems and Automatic Identification Systems but they may need the cooperation of the relevant maritime authorities: ICPC Recommendation No. 6 on Recommended Actions for Effective Cable Protection (Post Installation) available at ICPC's Members' Database at 8 – 9.

¹⁸⁸ See UNEP/ICPC Report, *supra* note 1 at 10.

¹⁸⁹ This highlights the importance of cable route surveys.

¹⁹⁰ Cables that extend across the continental shelf to a depth range of 100 – 1500 m deep are commonly buried below the seabed to protect them from damage by other seabed users. However, burial is sometimes not suitable on particularly rocky seabeds and makes it more difficult to recover: See UNEP/ICPC Report, *supra* note 1 at 23.

¹⁹¹ ICPC has recognized the importance of ensuring that cable companies communicate the cable route to the appropriate national Hydrographic office so that cables will be shown on government produced and commercially available nautical charts. In addition, ICPC also endorses cable companies communicating route information to sea bed users who need it through Cable Awareness Charts and encourages cable companies to update their Cable Awareness Charts and disseminate to the fishing industry: See ICPC Recommendation No. 5 on Standardization of Cable Awareness Charts at 4 and ICPC Recommendation No. 6 on Recommended Actions for Effective Cable Protection (Post Installation) available on ICPC Members' Database. China has legislation which imposes a 10,000 Yuan fine for owners of cables “who fail to put on record the route chart, position chart of submarine cables:” See Article 17 of *Provisions on the Protection of Submarine Cables and Pipelines*, *supra* note 104. However, a question arises as to whose obligation it is to update hydrographic authorities if cable positions have changed although logically, it should be the cable company: See Recommendation 47, CIL Workshop Report, *supra* note 5 at 46.

¹⁹² Cable companies and fishing groups have in some areas developed guidelines for fishing more safely in submarine cable areas and ICPC has also attempted to educate the fishing industry through the dissemination of the ICPC Fishing Booklet: See ICPC Recommendation No. 6 on Recommended Actions for Effective Cable Protection (Post Installation) available on ICPC Members' Database.

¹⁹³ The economic downturn meant there were many vessels opting to anchor outside port limits so as to avoid paying port dues, with some of them anchoring in the TSS, “Dangerous Anchoring in the Singapore Area,” GARD Loss Prevention Circular No. 11-09, August 2009 available at <http://www.gard.no/ikbViewer/Content/8284/No%2011-09%20Dangerous%20anchoring%20in%20the%20Singapore%20area.pdf> .

¹⁹⁴ See Rule 10 (g) of the COLREGS.

¹⁹⁵ Singapore issued notices to mariners reminding them not to anchor in non-designated areas in the TSS and informing them that they would be closely co-operating with cable owners to facilitate legal proceedings to recover compensation from the owners and masters responsible for the damage: See “Strait

make a request that the IMO issue a Safety Circular prohibiting anchoring in the TSS. The IMO Circular provided that Malaysia, Singapore and Indonesia would take appropriate action against vessels anchoring in the TSS including reporting to the flag State of errant vessels and sharing the identity of such vessels with cable companies so as to facilitate legal proceedings.¹⁹⁶

(c) Damage to Submarine Cables Caused by Vessels Dragging While Underway

The majority of cable faults caused by anchors are due to the failure to secure anchors more diligently before a vessel gets underway.¹⁹⁷ Current international regulations governing the securing of anchors are limited to ensuring the crew has minimum knowledge on keeping a proper anchor watch and what to do when anchors drag.¹⁹⁸ Member States of the IMO should request that IMO review its regulations and consider whether new regulations are needed to ensure that existing regulations are adequate to protect submarine cables.

B. In Areas Outside of Territorial Sovereignty

1. The Law

Articles 113 to 115 of UNCLOS addresses the protection of submarine cables on the high seas and are based on three articles in the 1884 Convention.¹⁹⁹ They are also applicable in the exclusive economic zone under Article 58 (2) as well as on the continental shelf.²⁰⁰

of Singapore – Damage caused by Ships anchoring at Non-Designated Anchorage Areas” Notice To Mariners 57/2009 available at http://www.mpa.gov.sg/sites/circulars_and_notices/pdfs/notices_to_mariners/notmarijun09.pdf.

¹⁹⁶ See IMO Circular on Information Concerning Anchoring in the Traffic Separation Scheme in Straits of Malacca and Singapore available at <http://cil.nus.edu.sg/wp/wp-content/uploads/2009/10/SN-1-Circ-282-INFORMATION-CONCERNING-ANCHORING-IN-THE-TSS-IN-THE-SOMS.pdf>.

¹⁹⁷ See ICPC Loss Prevention Bulletin, “Damage to Submarine Cables Caused by Anchors,” 18 March 2009. Indeed, a cable known as SEA-ME-WE 4 cable was damaged in Egyptian waters in 2008 by a vessel dragging its anchor along the seabed which affected internet connection in India, Egypt, Dubai, the UAE, Kuwait and Saudi Arabia: See “Work Begins To Repair Severed Net” BBC News, 5 February 2008 available at <http://news.bbc.co.uk/2/hi/technology/7228315.stm>.

¹⁹⁸ The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (STCW) has provisions requiring that masters and chief mates have the minimum knowledge required to ensure they know what to do when an anchor drags. In 2010, amendments were adopted to the STCW Code which sets out principles to be observed in keeping a navigational watch which include requirements that the designated watch keeper in charge of anchor watch notifies the master and undertakes all necessary measures if the ship drags anchor: See IMO Resolution 2, *The Manila Amendments to the Seafarer’s Training, Certification and Watchkeeping (STCW) Code*, IMO Doc. STCW/ONF.2/34.

¹⁹⁹ The 1956 Draft Articles (which formed the basis of the 1958 Convention on the High Seas and UNCLOS) contained an additional provision on submarine cables, Article 64, which provided that “Every State shall regulate trawling so as to ensure that all the fishing gear used shall be so constructed and maintained as to reduce to the minimum any danger of fouling submarine cables or pipelines.” This was based on Resolution I of the London Conference of 1913 convened by the British Government to adopt further measures for the protection of submarine cables prompted by increasing incidents of cable damage by fishermen: See Rene-Jean DUPUY and Daniel VIGNES, *A Handbook on the New Law of the Sea*, Volume 2 (Leiden, Boston: Martinus Nijhoff Publishers, 1992) at Chapter 18. However, the US objected to this article on the basis that it would be undesirable to impose such an obligation without providing for

(a) *Criminalization of Damage to Submarine Cables*

Article 113 requires States to adopt laws and regulations that provide the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence, is a punishable offence.²⁰¹ Such laws and regulations must also apply to conduct calculated or likely to result in such breaking or injury.²⁰² However, it shall not apply to any break or injury caused by persons who acted to save lives or their ships, after having taken all necessary precautions to avoid such an occurrence.

Article 113 essentially extends a State's criminal jurisdiction (usually limited to territory) over acts of breaking or injury to submarine cables done "willfully or through culpable negligence" only to ships flying its flag on the high seas or EEZ or to their nationals who commit such acts.²⁰³ The meaning of "culpable negligence"²⁰⁴ and "willfully"²⁰⁵ will be determined by national courts but it is said that it will not be

uniformity in the regulation to be adopted and that this could be best achieved through an international conference: See McDougal et al., *supra* note 11 at 846.

²⁰⁰ See Nordquist et al., *supra* note 36 at 270, 273 and 278.

²⁰¹ Article 113 is also different from Article II of the 1884 Convention in that the latter stated that such criminal sanctions were "without prejudice to any civil action for damages". Article 113 would not be a bar to a civil action based on general rules of tort law but it is arguable whether Article 113 would provide the basis for an implied civil remedy in all jurisdictions. In the United States Federal Court, it was found that the Article II of the 1884 Convention which had been implemented in domestic legislation through the Submarine Cable Act (1888) did not give an implied private civil remedy for submarine cables owners against parties who allegedly damage such cables: See *American Tel & Tel Co v. M/V Cape Fear* 763 F Supp. 97 (DNJ 1991).

²⁰² Article 113 is also different from Article II of the 1884 Convention in that the former added the sentence "this provision shall apply also to conduct calculated or likely to result in such breaking or injury". This sentence first appeared during discussions at UNCLOS III prompted by concerns that fishing vessels were anchoring to pipelines in the North Sea and that there was exploration by researchers around cables. It "widens the scope of the provision and makes the intent or attempt to break or injure a submarine cable or pipeline a punishable offence": See Nordquist et al., *supra* note 36 at 268. It has been observed that this is an improvement over the 1884 Convention where "the cable owner must wait until the damage is done before sanctions are triggered: See Douglas Burnett, "The Importance of UNCLOS to the Cable Industry" available at http://www.oceanlaw.org/downloads/burnett_cable.pdf at 3.

²⁰³ Article 113 is different from Article II of the Cable Convention in that it added the words "by a ship flying its flag or by a person subject to its jurisdiction." These words were not in Article II of the 1884 Convention, and first made its appearance in Article 27 of the 1958 Convention on the High Seas. This was to ensure that it was clear that the legislative measures referred to are applicable only to those subject to such legislation under general international law, i.e. a State could not take legislative measures against nationals of another State, only against its own ships or nationals: See McDougal et al., *supra* note 11 at 847; Nordquist et al., *supra* note 36 at 268.

²⁰⁴ Culpable negligence is said to "involve a failure to use ordinary nautical skill that would have been used by a prudent seaman facing the situation that caused the cable fault: See UNEP/ICPC Report, *supra* note 1 at 26 relying on two early English cases, *Submarine Cable Company v. Dixon* (5 March 1864) *The Law Times Reports*, Vol X, N.S at 32 and *The Clara Kilian*, Vol.III L.R Adm. And Eccl at 161.

²⁰⁵ An injury or breaking of a submarine cable will not be considered willful if "occasioned accidentally or necessarily in repairing a cable, when all precautions have been taken to avoid such breaking or damages."

considered culpable negligence, if the presence of the cable or pipeline has not been adequately marked.²⁰⁶

(b) Indemnification

Article 114, which is based on Article IV of the 1884 Convention²⁰⁷, requires every State to adopt laws and regulations concerning the liability of owners of cables for the cost of repairs to existing cables which are damaged in the course of the laying or repair operations.²⁰⁸ The laws and regulations would only apply to persons subject to that State's jurisdiction i.e. owners who are nationals of the State.

Article 115, which is based on Article VII of the 1884 Convention²⁰⁹, provides that every State should adopt laws and regulations to provide for an indemnity to be paid by cable owners to ship owners whose master sacrifices an anchor, a net or any other fishing gear in order to avoid injuring a submarine cable, provided that the ship owner has taken all reasonable precautionary measures beforehand.²¹⁰ Such laws and regulations will only apply to nationals and ships flying their flag.²¹¹ While the measures to be taken are not specified, it would have to be balanced against the obligation of fishing vessels to avoid submarine cables in the first place.²¹²

See 1886 Declaration on the Protection of Submarine Cables and Pipelines, 1 December 1888, 25 Stat. 1424; TS No. 380-02; 1 B Evans 112

²⁰⁶ See Commentary to Article 62 of the 1956 Draft Articles on the Law of the Sea, *Yearbook of the International Law Commission, Volume II*, UN Doc. A/3159 (1956).

²⁰⁷ The only change from the 1956 ILC Draft Article and UNCLOS was that the persons causing the damage to a cable or pipeline were to bear the cost of repairs: See Nordquist et al., *supra* note 36 at 272.

²⁰⁸ Article 114 limits the liability of the owner to the cost of the repairs. This "excludes any notion of liability for replacing a damaged cable or pipeline or of obligating the responsible person (s) for any financial losses incurred by the owner of the cable or pipeline as a result of the damage:" Nordquist et al., *supra* note 36 at 273.

²⁰⁹ Article VII of the 1884 Convention was followed in Article 65 of the 1956 ILC Draft Articles and subsequently adopted in Article 29 of the 1958 Convention on the High Seas. However, Article VII provided for a procedure on how an indemnity may be claimed:

In order to be entitled to establish a claim to such compensation, a statement, supported by the evidence of the crew, should, whenever possible, be drawn up immediately after the occurrence; and the master must, within twenty-four hours after his return to or next putting into port, make a declaration to the proper authorities. The latter shall communicate the information to the consular authorities of the country to which the owner of the cable belongs.

The reason for the omission of this procedure in the 1956 Draft Articles, the 1958 Convention on the High Seas and UNCLOS is that "[i]t is anticipated that more detailed guidelines will be included in the laws and regulations adopted by each State under Article 115." See Nordquist et al., *supra* note 36 at 278.

²¹⁰ This is to ensure that it is made clear that compensation cannot be claimed if there has been any negligence on the part of the ship: See Commentary on Article 65 of the ILC Draft Articles Concerning the Law of the Sea with commentaries in *Yearbook of the International Law Commission, Volume II*. UN Doc. A 3159 (1956) at 294.

²¹¹ See Nordquist et al., *supra* note 36 at 278.

²¹² See Nordquist et al., *supra* note 36 at 277.

2. Problems with the Law and Practice in Areas Outside of Territorial Sovereignty

(a) *Lack of Protection of Submarine Cables From Competing Uses*

The main problem is that many States have not adopted legislation implementing their obligations under Article 113 of UNCLOS extending its criminal jurisdiction over acts committed on the high seas or EEZ.²¹³ States which do have such national legislation are usually parties to the 1884 Convention.²¹⁴ This legislation has not been updated and the penalties are so low that they neither provide an incentive for authorities to prosecute nor for vessels to take minimum precautions to avoid damage to submarine cables.²¹⁵

Possible Solutions: Apart from implementing Article 113, cable protection zones are arguably another solution. Both New Zealand and Australian legislation on cable protection zones allow the relevant authorities to establish cable protection zones in areas outside of territorial waters.²¹⁶ However, the legal basis in UNCLOS for establishing such zones is questionable. Interestingly, establishing protective zones around submarine cables was mooted by the ILC in 1956 but was rejected as inconsistent with the freedom of navigation.²¹⁷ However, it has been observed that:

A protection zone for a submarine cable outside the territorial sea could be validly asserted by a state, provided the basis of jurisdiction was tied to one that could be claimed under the regime for the EEZ or continental shelf. That is to say, protection over a cable could be achieved by restricting activities that could be validly regulated in the EEZ or continental shelf.²¹⁸

To the extent cable protection zones prohibit or restrict activities such as fishing, resource exploration and marine scientific research, they are arguably consistent with a coastal State's rights in its EEZ and continental shelf.²¹⁹ However, the situation is more unclear

²¹³ See Coffen-Smout and Herbert, *supra* note 131 at 444.

²¹⁴ See for example, the Section 21 and 22 *US Submarine Cables Act* of 1888, providing for separate offences for willful injury and negligent injury to submarine cables; Section 7 of *Submarine Cables and Pipelines Protection Act* 1963; Section 11 of the *Submarine Cables and Pipelines Protection Act* 1996; Section 3 of the *UK Submarine Telegraph Act* 1885.

²¹⁵ The penalty in the US is S\$5000 for willfully breaking a submarine cable and for negligently breaking one is S\$500: See Sections 20 and 21 of *US Submarine Cables Act* of 1888. In Australia, the fine is set at \$2000 for intentional breaking and S\$1000 for negligent breaking: Section 7 of *Submarine Cables and Pipelines Protection Act* 1963. In New Zealand, the fine is substantially higher at up to S\$250,000 but arguably not sufficient to cover the cost of repairs.

²¹⁶ ACMA has established three protection zones over the Southern Cross, Australia Japan Cable, which are within protection zones up to 15.7 km wide and extending up to 75 km from shore (See ACMA Website available at http://www.acma.gov.au/webwr/_assets/main/lib310064/sydney_submarine_cable_pz.pdf) and the SEA-ME-WE3 cable which is 3.7 km wide and extends up to 94.5 km from shore (See ACMA Website available at http://www.acma.gov.au/webwr/_assets/main/lib100668/perth_submarine_pz%20.pdf)

²¹⁷ See *Yearbook of the International Law Commission, Volume II*, UN Doc A/CN.4/97 (1956) at 12.

²¹⁸ See Kaye, *supra* note 178 at 192.

²¹⁹ Interestingly, the 1996 New Zealand Act provides that the consent of the Attorney-General is required for proceedings in relation to an offence that has been committed outside the territorial sea of New Zealand, on board a non-New Zealand registered ship or against a person who is not a New Zealand citizen (Section

when it comes to prohibiting or restricting anchoring of vessels in cable protection zones.²²⁰ Anchoring is part of the freedom of navigation allowed to other States in the EEZ and is not covered under the competences given to coastal States in its EEZ. Any designation of a no-anchorage area in cable protection zones would have to be done under the auspices of the IMO.²²¹

Cable companies should also pursue legal action against vessels which cause damage to submarine cables and continue their efforts to update local hydrographic offices and produce cable awareness charts to update mariners on the location of cables.²²²

(b) Gap in the Current Law on the Protection of Submarine Cables from Intentional Damage

A further weakness in the law is that Article 113 as presently drafted is inadequate to deal with intentional acts of damage against submarine cables, namely terrorist acts and the theft of submarine cables. Submarine cables are critical infrastructure, the damage of which could affect many States and are consequently a potential target for terrorists.²²³ The theft of submarine cables has also been a problem with Vietnamese fishermen stealing 100 km of submarine cables off the seabed which resulted in severe disruptions to the internet in Vietnam.²²⁴

While Article 113 could in principle cover both terrorist acts (on the basis that Article 113 deals with the breaking or injury of a submarine cable done “willfully”) and theft of submarine cables (on the basis that the theft of submarine cables would involve willful “breaking or injury” of a submarine cable), Article 113 has other limitations making it inadequate to deal with both these threats.

27, *Submarine Cables and Pipelines Protection Act 1996*, New Zealand) to ensure that the Act does not create difficulties with other States: See Kaye, *supra* note 178 at 200.

²²⁰ All Cable Protection Zones established by ACMA restrict anchoring.

²²¹ The IMO is recognized as the only international body for developing guidelines, criteria and regulations on an international level for ships' routing systems, which include the designation of no anchorage areas. See IMO Website at http://www.imo.org/safety/mainframe.asp?topic_id=770 and Amendments to the General Provisions on Ships Routing (Resolution A.572 914) available at <http://cil.nus.edu.sg/wp/wp-content/uploads/2009/09/Amendments-to-the-General-Provisions-on-Ships-Routeing.pdf>.

²²² See Recommendation 47, CIL Workshop Report, *supra* note 5 at 46. This is especially so in light of the ILC Commentary that a mariner will not be found to be culpably negligent in breaking a cable if the cable was not adequately marked.

²²³ See Stuart KAYE, “International Measures to Protect Oil Platforms, Pipelines and Submarine Cables from Attack” (2006 – 2007) 31 *Tulane Maritime Law Journal* 377 at 418

²²⁴ See “Vietnam makes more arrests over submarine cable theft,” *Brunei Press*, 25 June 2007 available at <http://www.brusearch.com/news/11336>. The fishermen stole the cables thinking that the scrap copper in them would be valuable. As they also took the optical amplifiers which are necessary for the operation of cables which had to be manufactured in France, the cables took seventy-nine days to repair: See Beckman, *supra* note 4 at 15.

First, as mentioned above, many States have not implemented their obligations under Article 113 mitigating its effectiveness.²²⁵ Second, under Article 113, a State's criminal legislation would only apply if the perpetrators were nationals of the State or were on board a vessel flying the flag of the State. A coastal State would have no jurisdiction over perpetrators who damaged a cable on their continental shelf²²⁶ (even if they had implemented Article 113). They only have jurisdiction over matters which affect their sovereign rights to natural resources or their jurisdictional rights over artificial islands, installation and structures, marine scientific research and the protection and preservation of the marine environment²²⁷. Another State, whose cable was damaged or who suffered a telecommunications disruption because of a terrorist act or theft, would also not have jurisdiction.²²⁸

Third, Article 113 only addresses legislative jurisdiction over perpetrators of such acts and not enforcement jurisdiction. While Article X of the 1884 Convention allows warships to require the master of a vessel suspected of having broken a cable to provide documentation that would prove the ship's nationality and thereafter, make a report to the flag State, as discussed above, Article X is not binding on non-parties and there is little evidence of even States Parties exercising their rights under this provision.²²⁹ The right to board another vessel in areas outside of territorial sovereignty is limited to certain circumstances under UNCLOS²³⁰ and generally, States have often opposed the right to board in any other context even for the suppression of serious crimes.²³¹

Similarly, the right to arrest vessels in areas outside of territorial sovereignty is limited to piracy under UNCLOS.²³² There is an argument that the *theft* of submarine cables could be considered piracy under UNCLOS.²³³ Article 101 of UNCLOS provides:

²²⁵ As pointed out by Robert Beckman, the practical effect of this is that when a submarine cable beneath the high seas or EEZ is broken or damaged by intentional conduct, there has been no crime under any State's laws: See Beckman, *supra* note 4 at 14.

²²⁶ See Kaye, *supra* note 223 at 419.

²²⁷ Article 56 (1), UNCLOS.

²²⁸ See Kaye, *supra* note 223 at 419.

²²⁹ Indeed, there is only one reported case of States Parties relying on Article X to demand from a master of a vessel suspected of breaking submarine cables evidence of the vessel's nationality. This was the boarding and inspection of log books of the Soviet trawler NOVOROSSIISK by officers of the US naval vessel ROY O HALE in 1959 after the US naval vessel had grounds to suspect that the trawler was responsible for cable breaks in the area: See "US and USSR Exchange Notes on Damage to Submarine Cables", Department of State Bulletin, 27 April 1959 available at the ICPC Members Database.

²³⁰ See Article 110, UNCLOS.

²³¹ See, for example, objections to the boarding provisions in the 2005 Protocol to the Suppression of Unlawful Acts against the Safety of Maritime Navigation: Robert BECKMAN, "International Responses to Maritime Terrorism" in Victor RAMRAJ, Michael HOR and Kent ROACH, eds., *Global Anti-Terrorism Law and Policy* (United Kingdom: Cambridge University Press, 2005), 248 at 268.

²³² Article 105, UNCLOS.

²³³ Interestingly, in 1869, the US drafted a convention on the protection of submarine cables which was to be the basis of discussions at an international conference and which allowed acts of destruction committed on the open sea to be suppressed by classing them as acts of piracy. Consideration of the draft convention was halted by the outbreak of the Franco-German War and this proposal was not discussed at the 1882 Paris Conference leading to the adoption of the 1884 Convention: See Renault, *supra* note 8 at 3.

Piracy consists of any of the following acts:

- (a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
 - (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
 - (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State.

In principle, theft of a submarine cable beneath the high seas or in the EEZ could be considered an “act of depredation, committed for private ends...by the crew...of a private ship...and directed...against property in a place outside the jurisdiction of any State.”²³⁴ However, it is unlikely that States will apply UNCLOS provisions on piracy to the theft of submarine cables given their general reluctance to exercise this power even in relation to acts of piracy.

Possible Solutions: Given that a terrorist attack on submarine cables could have wide ranging ramifications on international telecommunications, there is a compelling argument that it should be dealt with in the same manner as other terrorist acts against critical infrastructure such as vessels and airplanes, namely by adopting an international convention based on the UN Counter-Terrorism conventions.²³⁵ The UN has adopted eleven counter-terrorism conventions which oblige States Parties to make specific acts criminal offences under their national law, establish jurisdiction over the offence on the basis of some jurisdictional nexus to the offence (nationality, flag state, territory etc) or by presence of the offender in their territory (which has been described as quasi-universal jurisdiction).²³⁶ If the perpetrator is present in the territory of a State Party, it is required to take the perpetrator into custody and either extradite him to another State Party with jurisdiction or prosecute.²³⁷ While the merits of such a course of action are undeniable, issues still remain as to whether States have the political will or sufficient interest to

²³⁴ See Beckman, *supra* note 4 at 12. However, it should be noted that the ILC Commentary on the intent behind the meaning of the words “in a place outside the jurisdiction of any State” provides that “the Commission had chiefly in mind acts committed by a ship or aircraft on an island constituting *terra nullius* or on the shores of unoccupied territory.” See *Yearbook of the International Law Commission, Volume II*, UN Doc A/CN.4/97 (1956) at 28. This would imply that “outside the jurisdiction of any State” cannot be interpreted to mean outside areas of territorial sovereignty.

²³⁵ See Beckman, *supra* note 4 at 14.

²³⁶ This is because it allows a State to establish jurisdiction without requiring any nexus to the prosecuting State except the presence of the offender: See Dr Douglas Guilfoyle, “Treaty Jurisdiction over Pirates: A Compilation of Legal Texts with Introductory Notes,” prepared for the 3rd Meeting of Working Group 2 on Legal Issues of the Contact Group off the Coast of Somalia, Copenhagen, 26 – 27 August 2009 at 4 available at <http://ucl.academia.edu/DouglasGuilfoyle/Papers/116803/Treaty-Jurisdiction-over-Pirates--A-Compilation-of-Legal-Texts-with-Introductory-Notes>

²³⁷ If all States are Parties to one of the conventions, a person who commits an offence under that convention will have no place of refuge and theoretically should be effectively prosecuted and punished.

adopt a convention on damage to submarine cables by terrorists²³⁸ and what is the best mechanism to make such acts an international crime.²³⁹

With regards to enforcement jurisdiction over acts of theft or terrorist damage to submarine cables, States are unlikely to extend rights to board and rights to arrest under UNCLOS to vessels engaging in damage to submarine cables. The solution may be for regional States to co-operate in the protection of submarine cables outside of territorial sovereignty by joint or coordinated patrols in areas where submarine cables have been laid so as to prevent any attacks.²⁴⁰

(c) Lack of an International Governmental Organization to address the Protection of Submarine Cables

Submarine cables have been described as “the orphan child” of the UN system²⁴¹ in that there is no international agency responsible for submarine cables.²⁴² While the IMO would be involved in the shipping related aspects of submarine cables, they would not be suitable as an overall international agency responsible for submarine cables. Although the International Telecommunications Union (ITU) is purportedly the leading UN agency for information and communication technology,²⁴³ it is primarily concerned with standardization in the industry, and has minimal awareness of law of the sea issues. Nonetheless, it may still be the most appropriate international agency and efforts should be made by UN Member States to encourage the ITU to take a more active role.

²³⁸ See CIL Workshop Report, *supra* note 5 at 28 – 31.

²³⁹ For example, through the convening of an international conference or through amendments or protocols to existing instruments such as the 2005 SUA Protocol.

²⁴⁰ See Beckman, *supra* note 4 at 14. Article 10 of the ICPC Draft Convention also provides that “all States cooperate in the exchange of information, participation in exercises, and mutual support of actions to deter, prevent or punish individuals or groups of individuals who engage in or threaten to engage in hostile actions against submarine cables and cable ships.”

²⁴¹ See CIL Workshop Report, *supra* note 5 at 30.

²⁴² The ICPC consists of national telecommunications authorities and other members of the cable industry.

²⁴³ See ITU Website available at <http://www.itu.int/net/about/index.aspx>

VI. CONCLUSION

The historic function of the law of the sea has long since been recognized as that of protecting and balancing the common interests, inclusive and exclusive of all peoples in the use and enjoyment of the oceans, while rejecting all egocentric assertions of special interests in contravention of general community interest.²⁴⁴

It is clear that the right to lay, repair and maintain submarine cables and survey cable routes, traditionally recognized as freedoms of the sea, has been subject to creeping coastal jurisdiction, a trend that can be seen in almost all high seas freedoms. With regard to the protection of submarine cables, the contrary is happening in that there is not enough regulation - States do not have the necessary measures in place to protect submarine cables from damage from competing uses under their jurisdiction as well as from intentional damage.

While coastal States need to recognize the importance of submarine cables and associated rights and obligations, cable companies also need to be aware of the legitimate concerns of coastal States at minimizing interference with competing uses and security concerns in allowing foreign cable ships in areas under their jurisdiction. The solutions proposed by the CIL Workshop and endorsed by this Article are, for the most part, not legal solutions.²⁴⁵ The framework as set out in UNCLOS does not need to be changed (although it may need to be supplemented in some areas) but interpretation of the framework needs to recognize that it is in the mutual interest of all States to protect and preserve the integrity of international telecommunications systems and as such, competing interests of coastal States and cable companies must find a middle ground.

²⁴⁴ See McDougal et al, *supra* note 11 at 1.

²⁴⁵ With the exception of a possible new convention dealing with intentional damage to submarine cables.