

The International Legal Framework on Artificial Islands, Installations, and Structures: A Precautionary Tale

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The Author’s views are purely personal and academic and does not purport to represent any official views of the Philippine Government.

Cite as 67 ATENEO L.J. 515 (2022).

I. INTRODUCTION

The Boxer Codex¹ is a transcription of the 16th century exploration accounts of East and Southeast Asia, containing an interesting description of the Sultanate of Aceh —

At the bar of Aceh is a square stronghold with earthen walls and a few artillery pieces, about an arquebus shot from the river and half the distance of a *camelete* shot from the sea. Said fort, two fathoms wide, overlooks the beach, the bar, and part of the river and the surrounding area covered by its guns, and is about three leagues from the town of Aceh. The guns pose little threat to foists entering the bar near the beach because of the distance, the fort being a stone's throw away from the southern side. From the river next to the bar[,] they enter an estuary some distance inland and return to the river about a league from the [108v] town of Aceh.²

To provide context to the description, it was written from a European perspective on the offshore bar containing a fort built by the Sultanate of Aceh.³ It was written by a bishop appealing to the joint forces of “the Spanish and Portuguese armadas, based in Manila and Malacca, respectively”⁴ for a coordinated “invasion and subjugation of the sultanate, as well as other kingdoms of Siam, Cambodia, and even China.”⁵

It is evident how coastal fortifications have deterred an immediate invasion and inspired a well-planned attack. To some, “earthen walls and a few artillery pieces”⁶ were no match to 16th century European Artillery. As observed by the bishop, however, the coastal fortification bought the Sultanate more time — as a joint attack by two competing naval forces required more preparation in anticipation of coordinated attacks.⁷ These display the significance of man-made features to nearby maritime zones then, as it is now, and how it inspires fear, caution, or sometimes strategy. Nonetheless, time, although constant, is more valuable these days than ever before, leading the modern individual to rely less on fortifications and more on law.

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1. ISAAC DONOSO, *BOXER CODEX: A MODERN SPANISH TRANSCRIPTION AND ENGLISH TRANSLATION OF 16TH-CENTURY EXPLORATION ACCOUNTS OF EAST AND SOUTHEAST ASIA AND THE PACIFIC* (Ma. Luisa Garcia, et al. trans., 2016).
 2. *Id.* at 165.
 3. *Id.*
 4. *Id.* at 151.
 5. *Id.*
 6. *Id.*
 7. DONOSO, *supra* note 1.

II. A STATE'S DECLINING DOMINION OVER ARTIFICIAL ISLANDS, INSTALLATIONS, AND STRUCTURES UNDER THE UNCLOS

From an infrastructure and environmental standpoint, building physical barriers to delineate maritime boundaries is seemingly impractical, illogical, and impossible. Nevertheless, the international community developed invisible fortifications through the United Nations Convention on the Law of the Sea (UNCLOS).⁸ Since it entered into force in 1994,⁹ the UNCLOS has been the foundation of international law on bodies of water, with countries now able to codify rules of conduct on well-defined “maritime-zones.”¹⁰

Thus, based on these figurative barriers, the UNCLOS also provides for applicable rules on artificial islands, installations, and structures, which all have different legal implications from the baselines to the high seas.¹¹

A. Baselines

Generally, “permanent harbor works which form an integral part of the harbor system are regarded as forming part of the coast.”¹² However, “[o]ffshore installations and artificial islands shall not be considered as permanent harbor works[,]”¹³ thereby making coastal states unable to utilize artificial islands, installations, and structures because harbor works in the identification of baselines for purposes of maritime delimitation.¹⁴ Nonetheless, Professor Alex G. Oude Elferink is of the view that there exists a “limited exception to the rule”¹⁵ — particularly for lighthouses and lightships that are “permanently

8. United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 3 (entered into force Nov. 16, 1994) [hereinafter UNCLOS].

9. *Id.*

10. See *In the Matter of the South China Sea Arbitration* (Phil. v. China), PCA Case No. 2013-19, Award, ¶¶ 1041-42 (July 12, 2016) & *In the Matter of the Arctic Sunrise Arbitration* (Neth. v. Russ.), PCA Case No. 2014-02, Award, ¶¶ 215-20 (Aug. 14, 2015).

11. See generally UNCLOS, *supra* note 8.

12. UNCLOS, *supra* note 8, art. 11.

13. *Id.*

14. Yi-Hsuan Chen, *South China Sea Tension on Fire: China's Recent Moves on Building Artificial Islands in Troubled Waters and Their Implications on Maritime Law*, MAR. SAFETY & SEC. L.J., Issue No. 1, at 5 (2015).

15. Alex G. Oude Elferink, *Artificial Islands, Installations and Structures*, in MAX PLANCK ENCYCLOPEDIAS OF INTERNATIONAL LAW ¶ 10 (Rüdiger Wolfrum ed., 2013) (citing UNCLOS, *supra* note 8, art. 7).

above sea level and built on low-tide elevations.”¹⁶ He mentioned that “these installations can be used as basepoints for the drawing of straight baselines and archipelagic baselines.”¹⁷

B. Internal Waters and Territorial Sea

Paragraph 2 of Article 2 of the UNCLOS is clear in stating that the “sovereignty of a coastal [s]tate extends[] beyond its land territory and internal waters ... to ... the territorial sea,”¹⁸ the breadth of which is “up to a limit not exceeding 12 nautical miles, measured from the baselines.”¹⁹ Thus, a state has supreme power or authority over how artificial islands, installations, and structures are built in its internal waters and territorial sea.²⁰ This rule also extends to archipelagic states, whose belt of sea adjacent to its archipelagic waters are described as its “territorial sea.”²¹

The breadth of a state’s sovereignty extends to its corresponding airspace, bed, and subsoil.²² Indeed, “the state reserves the right to construct an artificial island in these areas.”²³ Nonetheless, the UNCLOS requires non-interference to the right of innocent passage through the territorial sea.²⁴ Such right requires that (1) the passage “is not prejudicial to the peace, good order[,] or security of the coastal [state;]”²⁵ and (2) the ship shall “comply with [] laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.”²⁶ The laws and regulations relating to innocent passage mentioned therein may be imposed by the coastal or archipelagic state provided it relates to —

- a. the safety of navigation and the regulation of maritime traffic;
- b. the protection of navigational aids and facilities and other facilities or installations;
- c. the protection of cables and pipelines;

16. *Id.*

17. *Id.*

18. UNCLOS, *supra* note 8, art. 2, ¶ 1.

19. *Id.* art. 3.

20. *Id.* art. 2, ¶ 2.

21. *Id.* art. 2, ¶ 1.

22. *Id.* art. 2, ¶ 2.

23. Chen, *supra* note 14, at 5.

24. UNCLOS, *supra* note 8, arts. 17 & 18.

25. *Id.* art. 19, ¶ 1.

26. *Id.* art. 21, ¶ 1.

- d. the conservation of the living resources of the sea;
- e. the prevention of infringement of the fisheries laws and regulations of the coastal [s]tate;
- f. the preservation of the environment of the coastal [s]tate and the prevention, reduction[,] and control of pollution thereof;
- g. marine scientific research and hydrographic surveys;
- h. the prevention of infringement of the customs, fiscal, immigration[,] or sanitary laws and regulations of the coastal [s]tate.²⁷

Relevant to artificial islands, installations, and structures are the provisions governing the creation of safety laws and regulations on navigation and certain structures²⁸ as they ensure that sea lanes and traffic separation schemes²⁹ enable ships to divert from the location of such structure.

The rules on the right of innocent passage extend to the archipelagic waters,³⁰ subject to the archipelagic state's right to designate archipelagic sea lanes,³¹ the absence of which would enable such right of archipelagic sea lanes passage to be "exercised through the routes normally used for international navigation."³² It, however, should be noted that such passage is "for the purpose of continuous, expeditious[,] and unobstructed transit between one part of the high seas or an exclusive economic zone and another part [thereof]."³³

With regard to creating laws and regulations on "the preservation of the environment of the coastal [s]tate[,] and the prevention, reduction[,] and control of pollution thereof,"³⁴ the state is required to adopt such legislation particularly for those affecting the seabed and "from artificial islands, installations[,] and structures under their jurisdiction."³⁵ Creating structures for marine scientific research in the territorial sea may be pursued "only with

27. *Id.*

28. *Id.*

29. *Id.* art. 22, ¶ 1.

30. UNCLOS, *supra* note 8, art. 52, ¶ 1.

31. *Id.* art. 53, ¶ 1.

32. *Id.* art. 53, ¶ 12.

33. *Id.* art. 53, ¶ 3.

34. *Id.* art. 21, ¶ 1 (f).

35. *Id.* art. 208, ¶ 1.

the express consent of and under the conditions set forth by the coastal [s]tate.”³⁶

C. Contiguous Zone, the EEZ, and the Continental Shelf

The contiguous zone³⁷ and the exclusive economic zone (EEZ)³⁸ are adjacent to the territorial sea.³⁹ Being beyond the territorial sea, the sovereignty of the coastal or archipelagic state does not extend thereto, but does have certain sovereign rights.⁴⁰ In the contiguous zone which “may not extend beyond 24 nautical miles from the baselines,”⁴¹ can prevent and punish the “infringement of its customs, fiscal, immigration[,] or sanitary laws and regulations.”⁴² For the stretch of sea beyond the contiguous zone but “not extend[ing] beyond 200 nautical miles from the baselines from which the breadth of territorial sea is measured,”⁴³ the coastal or archipelagic state has the following rights, as listed in Article 56 of the UNCLOS,

- (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 winds;
- (2) jurisdiction as provided for in the relevant provisions of this Convention with regard to:

36. UNCLOS, *supra* note 8, art. 245.

37. *Id.* art. 33, ¶ 1. “[A] zone contiguous to its territorial sea ... [that] may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.” *Id.*

38. *Id.* art. 55.

The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal [s]tate and the rights and freedoms of other States are governed by the relevant provisions of this Convention.

Id.

39. *Id.*

40. *See* UNCLOS, *supra* note 8, art. 3. The breadth of a state’s sovereignty extends only “up to a limit not exceeding 12 nautical miles, measured from the baselines.” *Id.*

41. *Id.* art. 33, ¶ 2.

42. *Id.* art. 33 (i) (a).

43. *Id.* art. 57.

- a. The establishment and use of artificial islands, installations[,] and structures;
- b. marine scientific research; [and]
- c. the protection and preservation of the marine environment; [and]

(3) other rights and duties provided for in this Convention.⁴⁴

As Donald R. Rothwell and Tim Stephens observed, the formulation of the aforementioned provision shows clearly that coastal or archipelagic states “are not accorded general or residual jurisdictional rights in the EEZ.”⁴⁵ However, this limited authority over the contiguous zone and EEZ requires mutual respect in the exercise of rights and performance of duties by and between the coastal or archipelagic state and other states.⁴⁶ Nonetheless, in the decision *In the Matter of the South China Sea Arbitration*,⁴⁷ such sovereign rights⁴⁸ over the EEZ are exercised exclusively by the coastal or archipelagic state, to the exclusion of other states.⁴⁹ This is evident from the PCA’s statement “that the original structures, which China declined to permit fishermen from the Philippines to use, also had the potential to interfere with the exercise by the Philippines of its rights in the exclusive economic zone.”⁵⁰ It should also be emphasized that apart from the enumerated rights in Article 58 of the UNCLOS, the coastal or archipelagic states may adopt rules and regulations applicable and enforceable on the EEZ, provided such rules and regulations are following the provisions of the UNCLOS and other rules of international law.⁵¹

On the other hand, the coastal or archipelagic state’s continental shelf refers to “the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the

44. *Id.* art. 56, ¶ 1.

45. DONALD ROTHWELL & TIM STEPHENS, *THE INTERNATIONAL LAW OF THE SEA* 94 (2d ed. 2016) (citing the position taken in the declarations of Germany, Italy, the Netherlands, and the United Kingdom on ratifying the LOSC). This view is also endorsed in *The Arctic Sunrise Case*. *The “Arctic Sunrise” Case* (Neth. v. Russ.), Case No. 22, Provisional Measures, Order, ITLOS Rep. 2013 ¶ 61. (Nov. 22, 2013).

46. UNCLOS, *supra* note 8, arts. 56 & 58.

47. *In the Matter of the South China Sea Arbitration*, PCA Case No. 2013-19.

48. *Id.* ¶¶ 1041-1042.

49. *Id.* ¶ 1032.

50. *Id.*

51. UNCLOS, *supra* note 8, art. 58, ¶ 3.

outer edge of the continental margin [not exceeding 350 nautical miles],”⁵² or in cases where the aforementioned continental margin does not reach such distance, up to 200 nautical miles from the baseline.⁵³ The coastal or archipelagic state’s rights over the continental shelf extend to the exploration and exploitation of the natural resources.⁵⁴

Hence, for the EEZ, and to the extent applicable to the contiguous zone, specific rules for artificial islands, installations, and structures in the EEZ and the continental shelf⁵⁵ are listed in Article 60 of the UNCLOS, which reads,

- (1) In the exclusive economic zone, the coastal [s]tate shall have the exclusive right to construct and to authorize and regulate the construction, operation[,] and use of:
 - (a) artificial islands;
 - (b) installations and structures for the purposes provided for in article 56 and other economic purposes; [and]
 - (c) installations and structures which may interfere with the exercise of the rights of the coastal State in the zone.
 - (2) The coastal State shall have exclusive jurisdiction over such artificial islands, installations[,] and structures, including jurisdiction with regard to customs, fiscal, health, safety[,] and immigration laws and regulations.
 - (3) Due notice must be given of the construction of such artificial islands, installations[,] or structures, and permanent means for giving warning of their presence must be maintained. Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment[,] and the rights and duties of other States. Appropriate publicity shall be given to the depth, position[,] and dimensions of any installations or structures not entirely removed.
- ...
- (8) Artificial islands, installations[,] and structures do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone[,] or the continental shelf.

52. *Id.* art. 76, ¶¶ 3, 5, & 6.

53. *Id.* art. 76, ¶ 1.

54. *Id.* art. 77, ¶ 1.

55. *Id.* art. 80.

As seen in the cited provision, within the coastal or archipelagic state's EEZ and continental shelf, said state has the "exclusive right to construct and to authorize[,] and regulate the construction, operation[,] and use of" artificial islands, installations, and structures.⁵⁶ This "aim[s] to ensure the comprehensive establishment of regulatory authority of coastal states."⁵⁷ As mentioned by Rothwell and Stephens, the permissible constructions on the EEZ are those which facilitate the means of taking advantage "of all economic resources in and on the seabed, and in and above the water column,"⁵⁸ as opposed to the zone falling only under the state's continental shelf, which "deals only with those facilities used to explore and exploit continental shelf resources."⁵⁹ In addition, although the coastal or archipelagic state does not have sovereignty⁶⁰ over artificial islands, installations, and structures built in the EEZ and contiguous zone — apart from regulatory authority — it also has exclusive jurisdiction⁶¹ therein, "including jurisdiction with regard to customs, fiscal, health, safety[,] and immigration laws and regulations."⁶² Similarly, "other than the due regard provisions, there are no limitations imposed upon the coastal state as to the size of these features."⁶³

The coastal or archipelagic state is also required to give "due notice"⁶⁴ on the presence of artificial islands, installations, and structures throughout its developmental lifetime.⁶⁵ This starts from the beginning of its construction, continuing to given warnings of its presence, up to its eventual disuse and abandonment.⁶⁶ Furthermore, the removal process requires the coastal or archipelagic state to give due regard to fishing and protection of the marine environment, and to respect the rights of other states.⁶⁷ Further, to maintain

56. *Id.* art. 60, ¶ 1.

57. Chen, *supra* note 14, at 6 (citing Erik Jaap Molenaar, *Airports at Sea: International Legal Implications*, 14 INT. J. MAR. COAST. LAW 371, 375, (1999)).

58. ROTHWELL & STEPHENS, *supra* note 45, at 94.

59. *Id.*

60. Sage Reference, *Sovereignty and Jurisdiction Definition*, available at <https://sk.sagepub.com/reference/law/n649.xml>. (last accessed Oct. 10, 2022) [<https://perma.cc/65WL-GYXJ>]. Sovereignty refers to the possession of ultimate legal authority within a defined territory. *Id.*

61. *Id.* Jurisdiction refers to the authority to exercise legal power. *Id.*

62. UNCLOS, *supra* note 8, art. 60, ¶ 2.

63. ROTHWELL & STEPHENS, *supra* note 45, at 95.

64. UNCLOS, *supra* note 8, art. 60, ¶ 3.

65. *Id.*

66. *Id.*

67. *Id.*

safety in maritime navigation, the resulting installations and structures from its abandonment should also be given appropriate publicity.⁶⁸

The status of artificial islands, installations, and structures was clarified in Articles 60 and 80, in that they “do not possess the status of islands.”⁶⁹ Thus, such man-made features “may [neither] possess maritime zones of their own, nor affect maritime boundary delimitation.”⁷⁰ In addition, the PCA decided in the *South China Sea Arbitration* that non-island maritime features cannot be “upgraded” into legitimate islands through occupation and construction activities,⁷¹ such is the case for Mischief Reef, which was declared as a low-tide elevation.⁷² The PCA declared that “it follows from this that it is incapable of appropriation, by occupation[,] or otherwise.”⁷³

D. High Seas and the Area

Beyond the EEZ lies the high seas.⁷⁴ In this zone, all states — whether coastal, archipelagic, or land-locked — enjoy the “freedom to construct artificial islands and other installations permitted under international law,”⁷⁵ subject to the rules applicable to the continental shelf.⁷⁶ This right includes allied activities concerning artificial islands, installations, and structures, such as laying submarine cables and pipelines, fishing, conduct of scientific research.⁷⁷ Conversely, the rights that might affect such man-made features are also guaranteed under the UNCLOS, in particular the freedom of navigation and overflight.⁷⁸ The aforementioned freedoms of the high seas may be exercised by any state, provided it is done so “with due regard for the interests of other [s]tates in their exercise of the freedom of the high seas,”⁷⁹ and “with due regard for the rights under this Convention with respect to activities in the

68. *Id.*

69. *Id.* art. 60, ¶ 8. See also UNCLOS, *supra* note 8, art. 80.

70. ROTHWELL & STEPHENS, *supra* note 45, at 95 (citing UNCLOS, *supra* note 8, art. 60, ¶ 8).

71. *In the Matter of the South China Sea Arbitration*, PCA Case No. 2013-19, ¶¶ 1039-42.

72. *Id.* ¶ 378.

73. *Id.* ¶ 1040.

74. UNCLOS, *supra* note 8, art. 86.

75. *Id.* art. 87, ¶ 1.

76. *Id.*

77. *Id.*

78. *Id.*

79. *Id.* art 87, ¶ 2.

Area”⁸⁰ or “the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction [or the Continental Shelf].”⁸¹

The activities in the Area are organized and controlled by the International Seabed Authority (ISA), in which all UNCLOS state parties are members thereof.⁸² The ISA’s authority over the Area addresses the need to administer the resources within the said zone.⁸³ Thus, any activity affecting the Area’s resources, including the building of artificial islands, installations, and structures within the said zone, should only proceed through ISA channels.⁸⁴

E. An Exception to the Rule: Creation of Safety Zones Under International Law

The farther an artificial island, installation, or structure is from the coastline, the lesser control a coastal or archipelagic state has over it. Conversely, the more international law becomes, the more germane the rule thereon. Indeed, generally, the state has declining dominion over artificial islands, installations, and structures under UNCLOS. Nonetheless, perhaps the most significant rule concerning artificial islands, installations, and structures in the EEZ and continental shelf, allows coastal or archipelagic states to create invisible barriers surrounding such man-made structures called “safety zones.”⁸⁵ As such, paragraphs 4 to 7 of Article 60 (and 80)⁸⁶ of the UNCLOS reads —

- (4) The coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations[,] and structures in which it may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations[,] and structures.
- (5) The breadth of the safety zones shall be determined by the coastal State, taking into account applicable international standards. Such zones shall be designed to ensure that they are reasonably related to the nature and function of the artificial islands, installations[,] or structures, and shall not exceed a distance of 500 [meters] around them, measured from each point of their outer edge, except as authorized by generally accepted international standards or as recommended by the competent

80. UNCLOS, *supra* note 8, art. 87, ¶ 2.

81. *Id.* art. 1, ¶ 1.1.

82. *Id.* arts. 156 & 157.

83. *Id.* art. 157.

84. *Id.*

85. *Id.* art. 260.

86. UNCLOS, *supra* note 8, arts. 60 & 80. “Art. 80. *Artificial Islands, Installations, and Structures on the Continental Shelf*. Article 60 applies *mutatis mutandis* to artificial islands, installations[,] and structures on the continental shelf.” *Id.* art. 80.

international organization. Due notice shall be given of the extent of safety zones.

- (6) All ships must respect these safety zones and shall comply with generally accepted international standards regarding navigation in the vicinity of artificial islands, installations, structures[,] and safety zones.
- (7) Artificial islands, installations[,] and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.⁸⁷

This provision allows the coastal or archipelagic state to establish safety zones around artificial islands, installations, and structures within its EEZ and continental shelf — taking into account that such zone “may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.”⁸⁸ Similarly, Rothwell and Stephens opined that despite the absence of the rule in the UNCLOS, “reasonable limitations on overflight would be permissible if directed to securing the safety of the features.”⁸⁹ Indeed, the purpose of the zones’ establishment is for the safety of navigation and of the said man-made features, with due regard to its “nature and function.”⁹⁰ Thus, a state is given some flexibility on the creation of such rules.

The PCA’s decision in the case entitled, “*In the Matter of the Arctic Sunrise Arbitration*,” however, provides that the creation of safety zones should be done in the form of laws and regulations,⁹¹ and not through a mere “[n]otice to [m]ariner.”⁹² As observed aptly by the Tribunal, the right to develop safety zones of the coastal or archipelagic state “go[es] beyond its rights in the EEZ at large.”⁹³ In deciding on whether Russia established a safety zone of three nautical miles around Prirazlomnaya, the Tribunal conducted a review of relevant laws and regulations, which includes —

- The Federal Law No. 187-F3 dated 20 November 1995 ‘On the continental shelf of the Russian Federation’ (‘1995 Federal Law’), Article 16 of which provides that:
 - safety zones shall be established around artificial islands, installations, and structures located on the continental

87. *Id.* art. 60, ¶¶ 4-7.

88. *Id.* art. 60, ¶ 7.

89. ROTHWELL & STEPHENS, *supra* note 45, at 95.

90. UNCLOS, *supra* note 8, art. 60, ¶ 5.

91. *In the Matter of the Arctic Sunrise Arbitration*, PCA Case No. 2014-02, ¶¶ 215-220.

92. *Id.* ¶¶ 213 & 220.

93. *Id.* ¶ 211.

shelf, which shall extend not more than 500 [meters] from each point of their outer edge;

- the limits of these safety zones shall be established by the federal executive agencies responsible in the sphere of transportation;
 - measures in safety zones for the safety of both navigation and the artificial islands, installations, or structures shall be established by the federal executive agencies identified by the President of the Russian Federation; and
 - information regarding safety zones shall be published in ‘Notices to Mariners’;
- The Decree of the President of the Russian Federation No. 23 dated 14 January 2013 ‘On federal executive agencies responsible for determining measures to assure navigation safety within safety zones established around artificial islands, installations[,] and structures located on the Russian Federation’s continental shelf, as well as measures to assure security of such artificial islands, installations[,] and structures’ (‘2013 Presidential Decree’), which identifies the Ministry of Transport as the agency in charge of measures for the safety of navigation, and the Ministry of Transport, the FSB, and the Ministry of Defen[s]e as the agencies in charge of measures for the safety of artificial islands, installations, and structures;
 - The Order of the Ministry of Transport No. 186 dated 16 June 2014 ‘On establishing a safety zone limit around MLSP Prirazlomnaya artificial installation’ (‘2014 Order of the Ministry of Transport’), ordering, in accordance with the 1995 Federal Law, that ‘a safety zone limit be established along the line created by the arch of circle with a 569.5-meter radius centered on the point with coordinates 69° 15’56.88” North, 57° 17’17.3” East around MLSP Prirazlomnaya artificial installation located on the Russian Federation’s continental shelf; and
 - The Federal Law No. 35-F3 dated 8 March 2015 ‘On amendments to the Russian Federation Code of Administrative Offenses’ (not yet in force), which introduces penalties for non-compliance with measures taken for the safety of navigation in safety zones established around artificial islands, installations, or structures on the Russian continental shelf.⁹⁴

94. *Id.* ¶ 218 (citing Russian Federation Continent Shelf Act, Federal Law No. 18-FZ, art. 16 (1995); President of the Russian Federation, On Federal Executive Bodies Responsible for Safe Marine Navigation, Presidential Decree No. 23, ¶ 1

The PCA, focusing on the 1995 Federal Law (using the prescribed distance in Article 60 of the UNCLOS), and the evidence that the Russian Navy contacted the Arctic Sunrise on 18 September 2013, and that Greenpeace's Rigid hull inflatable boat had "entered the 500-[meter] zone around the Prirazlomnaya, without mentioning the three-nautical mile zone,"⁹⁵ declared that "no safety zone of three nautical miles was established around the Prirazlomnaya."⁹⁶ Similarly, the Tribunal took note of the relevant procedures under the aforementioned law, the 2013 Presidential Decree, and the 2014 Order of the Ministry of Transport, which demonstrates the procedure for the establishment of safety zones.⁹⁷ The PCA found that the published "Notice to Mariners No. 51/2011 establish[ing] 'a [three]-mile zone deemed dangerous to navigation and a 500-meter zone declared prohibited for navigation'"⁹⁸ did not follow the required procedure under the aforementioned laws and regulations.⁹⁹

"Generally accepted international standards" are other important considerations in creating safety zones.¹⁰⁰ Such standards were created by the International Maritime Organization (IMO) on its Resolution A.671(16), adopted on 19 October 1989, entitled, "Safety Zones and Safety of Navigation around offshore installations and structures."¹⁰¹ The aforementioned IMO Resolution contains an annex — entitled, "Recommendation on Safety Zones and Safety of Navigation around Offshore Installations and Structures"¹⁰² — containing the basic standards for coastal or archipelagic states that "authorize [] and regulate[] the operation and use of offshore installations and structures under its jurisdiction."¹⁰³ Under the said document, the coastal or archipelagic

(Jan. 14, 2013); Ministry of Transport of the Russian Federation, On Establishing the Border of the Safety Zone Around the Artificial Installation "OIRFP Prirazlomnaya," Order No. 186 (July 16, 2014); & On Amendments to the Code of the Russian Federation on Administrative Offenses, Federal Law No. 35-FZ, art. 1 (2015)).

95. *In the Matter of the Arctic Sunrise Arbitration*, PCA Case No. 2014-02, ¶ 214.

96. *Id.* ¶ 216.

97. *Id.* ¶¶ 218–20.

98. *Id.* ¶ 214.

99. *Id.* ¶ 220.

100. UNCLOS, *supra* note 8, art. 60, ¶ 6.

101. International Maritime Organization, Safety Zones and Safety of Navigation Around Offshore Installations and Structures, International Maritime Organization Res. A.671(16) (Oct. 19, 1989).

102. *Id.* annex.

103. *Id.* annex, ¶ 1.

state seeking to create a safety zone around such installations and structures should —

1.1. Issue early Notices to Mariners by appropriate means to advise vessels of the location or intended location of offshore installations or structures, the breadth of any safety zones established and the rules which apply therein, and any fairways available;

1.2. Require operators of Mobile Offshore Drilling Units (MODUs) to provide advance notice of any change of their location to the appropriate authority of the coastal [s]tate so as to allow timely issue of relevant Notices to Mariners;

1.3. Require operators of offshore installations or structures, including MODUs which are on station, either moored or resting on the sea-bed, and not actively engaged in drilling operations either prior to commencing such operations or during temporary stoppages for whatever reasons, to take adequate measures to prevent infringement of safety zones around such offshore installations or structures. Such measures may include effective lights and sound signals, racons, permanent visual look-out and radar watch, listening for and warning vessels on VHF channel 16 or other appropriate radio frequencies and the establishment of vessel traffic services; and

1.4. Request operators of offshore installations or structures to report actions by vessels which jeopardize safety including infringement of safety zones.¹⁰⁴

Clearly, the foregoing “general”¹⁰⁵ provisions were developed to ensure that usual activity within offshore installations and structures would always foster these man-made features’ safety. This starts from the planning, development, and establishment of said installations and structures, which throughout such process requires the issuance of “early Notices to Mariners,” covering the location of the man-made feature, breadth of the safety zone established, and the applicable rules, by appropriate means, to relevant vessels.¹⁰⁶ Such responsibility extends to operators of equipment which could potentially affect the said feature’s structural integrity — such as MODUs.¹⁰⁷ It also extends to operators of the offshore installation or structure with a hand in monitoring safety zone breaches.¹⁰⁸ The manner of information

104. *Id.* annex, ¶¶ 1.1-1.4.

105. *Id.* annex, ¶ 1.

106. *Id.* annex, ¶ 1.1.

107. International Maritime Organization Res. A.671(16), *supra* note 101, annex, ¶ 1.3.

108. *Id.* ¶ 1.4.

dissemination¹⁰⁹ is also listed in the IMO Resolution A.671(16), including the presentation of man-made features in charts and nautical publications.¹¹⁰

109. *Id.* annex, ¶ 4.

4. Dissemination of information related to offshore installations and structures:
 - 4.1. The coastal State authorizing the search for, and any subsequent exploitation of, any natural resources on the continental shelf or in the exclusive economic zone should be responsible for the dissemination of information essential for the safety of navigation or any other legitimate activity within the area in which, in accordance with international law, it has sovereign rights and jurisdiction.
 - 4.2. This dissemination of information should take the form of radio-warnings and Notices to Mariners (temporary, preliminary[,] and permanent) to cover all stages of activity, initial search and investigation, trial drilling[,] and subsequent exploitation. The information so dealt with should take into account:
 - 4.2.1. The area, period[,] and nature of the initial search;
 - 4.2.2. The position of a subsequent drilling, any warning or navigational marking[,] and period of operation;
 - 4.2.3. The state in which the sea-bed is left, the nature of any obstructions remaining after test drilling and any navigational marking;
 - 4.2.4. The nature and duration of any works connected with the establishment of permanent production installations or structures, and any associated work such as laying of pipelines;
 - 4.2.5. Details of any safety zone around the installation or structure and any fairways and [routing] systems established in its vicinity including, where relevant, their marking.
 - 4.3. The coastal State responsible for authorizing the above activities should take all steps necessary, either directly or via the development and research agencies, to ensure that all information concerning the said activities is conveyed to the hydrographic authority concerned in complete detail at the earliest possible moment at all stages.

Id.

110. *Id.* annex, ¶ 5.

5. Charts and nautical publications

Under the applicable PCA discussions in the *Arctic Sunrise Arbitration*, it was declared that such “[n]otices” must bear a mandatory character, and not a mere recommendation,¹¹¹ to be an effective exercise of a coastal/archipelagic state’s jurisdiction “over a safety zone within the meaning of Article 60 of the Convention.”¹¹² The PCA found Russia’s Notices to Mariners Nos. 51/2011 and 21/2014, as a mere “encouragement to ships to communicate with the platform in an effort to reduce the risk of collision or any other accident.”¹¹³

Indeed, laws, regulations, and notices to mariners require that “all ships must respect these safety zones and shall comply with generally accepted international standards regarding navigation in the vicinity of [such man-made features], and safety zones.”¹¹⁴ Thus, IMO Resolution A.671(16) requires vessels navigating within the vicinity of installations or structures to —

- 2.1. Navigate with caution, giving due consideration to safe speed and safe passing distances taking into account the prevailing weather conditions and the presence of other vessels or dangers;
- 2.2. Where appropriate, take early and substantial avoiding action when approaching such installation or structure to facilitate the

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- 5.1. Any features of a sufficiently permanent nature such as permanent installations or structures, bottom obstructions, pipelines, navigational marks[,] and prohibited areas should be shown on all appropriate navigational charts. When such features exist in such density or are of a sufficiently mobile nature as to preclude accurate charting, then information on the areas concerned, together with any associated aids to navigation and fairways and appropriate warning notes should be promulgated and marked on the navigational charts.
 - 5.2. Associated publications, such as Sailing Directions and Notices to Mariners, should carry full details of any related regulations which affect navigation or other maritime activity.
 - 5.3. In cases where the authorizing coastal State has no facility, or inadequate facility for charting or disseminating information as described above, it should take all appropriate steps to convey, either directly or via the development and research agencies, all necessary information to the hydrographic authority/authorities which normally carry primary charting and associated responsibility for the area concerned.

Id.

111. *In the Matter of the Arctic Sunrise Arbitration*, PCA Case No. 2014-02, ¶ 212.

112. *Id.* ¶ 213.

113. *Id.*

114. UNCLOS, *supra* note 8, art. 60, ¶ 6.

installation's or structure's awareness of the vessel's closest point of approach and provide information on any possible safety concerns, particularly where the offshore installation or structure may be used as an aid to navigation;

- 2.3. Use any routing systems established in the area; and
- 2.4. Maintain a continuous listening watch on the navigating bridge on VHF channel 16 or other appropriate radio frequencies when navigating in the vicinity of offshore installations or structures to allow radio contact to be established between such installations or structures, vessel traffic services and other vessels so that any uncertainty as to a vessel maintaining an adequate passing distance from the installations or structures can be alleviated.¹¹⁵

The recommendatory guidelines for vessels' navigation within safety zones emphasize the necessary precautions needed to ensure the protection of such offshore installation and structure from accidents. This is seen in the guidelines' general to specific language, prompting vessels to navigate with caution, from taking "early and substantial avoiding action when approaching"¹¹⁶ such man-made feature, to requiring the use of "routing systems established in the area,"¹¹⁷ and continuous listening on VHR channel 16 and other appropriate radio frequencies.¹¹⁸

IMO's Resolution A.671(16) further enumerates the vessel's flag states' expected responsibility when it infringes on the safety zone. First, the coastal or archipelagic state notifies the flag state "of the infringement allegedly committed by a vessel flying its flag and provides available factual evidence to substantiate the allegation."¹¹⁹ The guidelines enumerate the required information to support such allegation.¹²⁰ After the flag state receives such

115. International Maritime Organization Res. A.671(16), *supra* note 101, annex, ¶¶ 2.1-2.4.

116. *Id.*

117. *Id.* ¶ 2.3.

118. *Id.* ¶ 2.4.

119. *Id.* ¶ 3.1.

120. *Id.* The following information are required to substantiate an allegation of infringement of the regulations regulating safety zones:

- 3.1.1. name, flag[,] and call sign of the vessel;
- 3.1.2. course and speed of vessel;
- 3.1.3. identification of the offshore installation or structure and its operators;

report of an infringement of the coastal/archipelagic state's regulations regulating safety zones, the former "should make inquiries, take action, where appropriate ... in accordance with its national legislation and inform ... the [sic] [s]tate concerned of the follow-up action it has taken."¹²¹

III. SYNTHESIS AND CONCLUSION

The UNCLOS has adequately covered artificial islands, installations, and structures throughout the different maritime zones. It also allowed coastal/archipelagic states to develop their laws and regulations covering the same (to a limited extent in some zones) and the creation of safety zones. The sole reliance on UNCLOS, however, would subject the coastal or archipelagic state to endure diminishing dominion over artificial islands, installations, and structures.

The invisible barriers afforded by the UNCLOS seem inadequate regarding artificial islands, installations, and structures. To afford these man-made structures with the strongest fortification under international law,

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- 3.1.4. description of the operational status of the offshore installation or structure (i.e.[,] its latitude and longitude, nature[,], and duration of activity on station, breadth of the safety zone, text and date of notice to mariners giving warning of the offshore activity and rules applicable to the safety zone);
 - 3.1.5. weather conditions at time of the alleged infringement;
 - 3.1.6. details of attempts by installation or structure personnel or personnel on service vessels to contact the approaching vessel[,], including radio frequencies used and the interval between attempts;
 - 3.1.7. description of any communication with the vessel;
 - 3.1.8. statement as to whether the installation or structure exhibited the proper lights and sounded appropriate signals;
 - 3.1.9. photographic evidence or a complete and detailed radar plot, or both, and indication of whether a radar beacon or warning device was in operation;
 - 3.1.10. details of any apparent contravention of any other regulation by the intruding vessel such as the International Regulations for Preventing Collisions at Sea, 1972 as amended, or the 1974 SOLAS Convention; and
 - 3.1.11. name of the Government official to contact regarding the complaint.

International Maritime Organization Res. A.671(16), *supra* note 101, annex, ¶ 3.1.

121. *Id.* ¶ 3.2.

implementing statutes and regulations is necessary. Such legislation should comply with international law, such as the UNCLOS; international standards, such as policies proposed by the IMO for such states seeking to regulate the waters around such man-made features; and international case law, such as the *Arctic Sunrise Case* and *South China Sea Arbitration*, all of which act as a wealthy resource for best practices in developing effective safety zones.

Certainly, it can be said that had the current international legal framework on artificial islands, installations, and structures been in existence during the 16th century, the bishop beholding the fort at the bar of Aceh would nonetheless apply a similar approach to the situation (and would have also made the same observation). Just like how a contemporary ship captain, trained in navigating international waters, would approach a man-made feature — with precaution.