Castles in the Sand: Engineering Insular Formations to Gain Legal Rights Over the Oceans

Joshua L. Root
Castles in the Sand:

Engineering Insular Formations to Gain Legal Rights Over the Oceans

by

Joshua L. Root

I. Introduction

Globally, there are perhaps a half million insular formations – the collective term for islands, rocks, low-tide elevations, drying reefs, artificial islands, and other formations surrounded by water. The South China Sea alone is home to some two hundred insular formations, “only about three dozen of which are permanently above water. Yet these specks of land, buffeted by typhoons, are valuable mainly because of the oil and natural gas that lie nearby in the intricate, folded layers of rocks beneath the sea.” The United Nations Convention on the Law of the Sea (UNCLOS); often called a constitution for the oceans, governs the regulations of sovereign claims over ocean space. UNCLOS confers onto some insular formations valuable maritime zones and de minimums zones – or none at all – to others. The

1 Joshua Root is a Lieutenant in the United States Navy JAG Corps. This paper was written in his own capacity. The views expressed here are his own and do not necessarily reflect those of the US Government. All information used in this paper is from publically available sources. The author would like to thank CDR Elysia Ng-Baumhackl for her mentorship and encouragement. Any errors in this article are the author’s alone. This article will be published in Volume 32 of the Chinese (Taiwan) Yearbook of International Law and Affairs in early 2016.


3 Robert D. Kaplan, Asia’s Cauldron: The South China Sea and the End of a Stable Pacific, at 10; 2nd edition (2015). Kaplan also notes that the Spratly Islands alone constitute some 150 features, “only forty-eight of which are above water all the time.” Id. at 170.

4 Tanaka, supra note 2, at 31.
provisions distinguishing the categories of insular formations under UNCLOS are ambiguous, and authoritative bodies have not interpreted the relevant provisions to a great extent. In order to confer onto minor insular formations greater maritime zones, States have attempted to engineer the formations to meet required elements. The legal impact of engineering these formations is unclear.

UNCLOS established the Exclusive Economic Zone (EEZ), a “resource-oriented zone” of primarily economic rights, over a swath of ocean up to 200 nautical miles (nm) seaward of a State’s baselines (usually the low-tide mark of the coast). The areas seaward of the EEZ and the juridical continental shelf (“the Area”) are res communis, and governed by the principle of the common heritage of mankind. Article 121(1) of UNCLOS provides “An island is a naturally formed area of land, surrounded by water, which is above water at high tide.” Pursuant to Article 121(2), islands generate the same maritime zones afforded the mainland, including the EEZ, territorial sea, contiguous zone, and continental shelf, and the standard baseline rules apply. Some insular formations that would otherwise have little intrinsic value are, consequently, “of interest to States because of their generative capacity in respect of maritime zones.” Not all islands, however, rate an EEZ. As Romania correctly noted in their pleadings in the Black Sea case before the International Court of Justice (ICJ) “[a]ll natural features permanently above the sea

6 See UNCLOS, supra note 5, at art. 1; See also, Tanaka, supra, note 2, at 150.
7 UNCLOS, supra note 5, at art. 121(1).
8 Id. at 121(2) (“Except as otherwise provided for in paragraph 3, the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf of an island are determined in accordance with the provisions of this Convention applicable to other land territory.”) See also, Clive Symmons, “Some Problems Relating to the Definition of 'Insular Formations' in International Law: Islands and Low-Tide Elevations”, 1995, at 5, noting that implicitly, islands also enjoy rights to internal waters, historic bays and archipelagic waters when appropriate conditions are met.
9 Symmons, supra note 8, at 1. See also, International Boundaries Research Unit, Maritime Briefing. Vol. 1, No. 5.
at high tide are islands, whether large or small, wet or dry, arid or fruitful. But some islands are rocks covered by Article 121(3), with the consequences there stated.”¹⁰ UNCLOS provides that “rocks” – a juridical not geological or geomorphological term – can generate a territorial sea and contiguous zone; however, “[r]ocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.”¹¹ In *Nicaragua v. Colombia*, the ICJ found “that the legal regime of islands set out in UNCLOS Article 121 forms an indivisible regime . . . of which . . . has the status of customary international law.”¹² Rocks are a subset of islands, and therefore, must meet the same elements as islands, including being “naturally formed.” All elements needed to constitute an island, and to distinguish islands proper from rocks are contained in Article 121.

Where an island has the potential to generate a 125,000 plus square nm EEZ, a rock will only generate a territorial sea of approximately 450 nm.¹³ States have an incentive, therefore, to have their insular formations classified as islands proper vice rocks. UNCLOS provides for two other insular formations: low-tide elevations and artificial islands. Low-tide elevations beyond the territorial sea generate no maritime zone and, as was iterated by the ICJ in *Nicaragua v. Colombia*, are not subject to sovereign claim.¹⁴ Article 60(8) provides that “Artificial islands,

---

¹⁰ Case Concerning Maritime Delimitation in the Black Sea (Romania v. Ukraine), ICJ 3, Reply, submitted by Romania, 22 December 2006, at 5.11 (The case is hereinafter referred to as *Black Sea*, and the document related to the case will follow the case name in parenthesis.

¹¹ UNCLOS, supra note 5, at Art. 121(3); on the contiguous zone, see Ian Brownlie, PRINCIPLES OF PUBLIC INTERNATIONAL LAW (Seventh ed.), at 192-196; new edition (Eight ed.).

¹² Territorial and Maritime Dispute (Nicaragua v. Colombia), Judgment, I.C.J. Reports 2012, p. 624, at para. 139. The ICJ also found that “paragraph 3 provides an essential link between the long-established principle that ‘islands, regardless of their size, enjoy the same status, and therefore generate the same maritime rights, as other land territory’ (ibid.) and the more extensive maritime entitlements recognize in UNCLOS . . .” Id.


¹⁴ See *Nicaragua v. Colombia*, supra note 12, at 25-38.
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."\textsuperscript{15} Under Articles 60(4) and (5) artificial islands may, where necessary, generate a “safety zone” with a radius of up to 500-meters.\textsuperscript{16} The safety zone does not confer on States economic rights or sovereign territory; rather, the provisions are a pragmatic approach to limiting hazards at sea.\textsuperscript{17} States may proclaim safety zones and once established, States must give them due publicity in order to make mariners aware of the obstruction and avoid collisions. Because States erecting artificial islands on the high seas and in the EEZs must exercise their rights with due regard to other States, the establishment of a safety zone is as much an obligation as it is a right.\textsuperscript{18}

The difference between naturally formed insular formations and artificial islands in terms of generating maritime zones over the sea is substantial. Yet there is no objective test laid out in UNCLOS for determining whether a formation is “naturally formed,” and one has not been articulated by the ICJ or the International Tribunal on the Law of the Sea (ITLOS). An insular formation that predates mankind would be naturally formed; an offshore oil derrick would be an artificial island. Where along this continuum a formation transitions between artificial and natural is unclear. UNCLOS does not explain how it should be applied to a “hybrid island.”\textsuperscript{19}

\textsuperscript{15} UNCLOS, supra note 5, at art. 60(8); Artificial islands are addressed in several UNCLOS provisions (articles 11, 56, 60, 79, 80, 87, and 147(2), 208, 214, and 246). \textsuperscript{16} See UNCLOS, supra note 5, at arts. 60(4) and (5). In the safety zone, a State “may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations and structures.” \textit{Id.} at art. 60(4); \textit{See also}, Malcolm N. Shaw, \textsc{International Law} (6th ed.), at 589-590 (discussing safety zones around artificial islands). \textsuperscript{17} See UNCLOS, supra note 5 at art. 60(4), 111(2). \textsuperscript{18} See \textit{Id.} at arts. 56, 60. \textsuperscript{19} See Symmons, supra note 8.
The disparate ability of insular formations to generate maritime zones hinges on elements subject to interpretation. Because of powerful attributes awarded to islands and lesser attributes awarded to minor insular formations, States have tested their ability to transform low-tide elevations into rocks and rocks into islands proper. They have done this through land reclamation, by pouring concrete on coral reef, and through more nuanced means, such as by facilitating the growth of coral and single-celled organisms that act like sand. Walls have been built around formations to keep out tides, creating the superficial appearance of a formation being above water at high-tide when it would otherwise be submerged. They have spent huge sums developing insular formations, often with military presence in order to gain territorial seas and EEZs as well as to control ocean space without necessarily asserting corresponding legal rights.

There is no specific rule in UNLCOS “freezing the classification” of rocks or other insular formations at a certain date, and the treaty clearly provides in some instances for morphing baselines (in the case of highly unstable coastlines, for example). In fact, UNCLOS explicitly confers onto formations, in some instances, maritime zones based on engineered change. For example, the outer bounds of harbor works appurtenant to a coast may be treated as part of the shore, pushing the baseline seaward, sometimes several nautical miles. Straight baselines may be

\[20\] See e.g., Churchill and Lowe, supra note 5, at 49-50 (noting that article 121 is “poorly drafted”). For example, the use of the word “rocks” in article 121(3) is confusing as the composition of a formation does not matter in determining whether it is a rock. Why is rocks written in the plural while the definition of island is in the singular? The use of “which” in the same provision could either be understood to mean that rocks are formations which cannot sustain human habitation, etc., or that the provision deals with those rocks which cannot sustain human habitation. In other words, it is unclear from the provision whether there are rocks that can sustain human habitation. These are merely the first two words in the provision; the rest of the language is equally ambiguous.

\[21\] See Part II, infra.

\[22\] Jonathan I. Charney, “Rocks that Cannot Sustain Human Habitation,” 93 AJIIL 863 (1999), at 868, fn 25; UNCLOS, supra note 5, at Art. 7(2).

\[23\] See UNCLOS, supra note 5, at art. 11 (stating "For the purpose of delimiting the territorial sea, the outermost permanent harbour works which form an integral part
drawn to low-tide elevations if “lighthouses or similar installations which are permanently above sea level have been built on them ….” A similar rule applies to archipelagic baselines. This article focuses on areas where it is less clear what legal impact, if any, engineering will have on maritime zones.

Part II discusses the legal effects of insular formation building through dredging in the South China Sea. UNCLOS Article 121(1) provides that islands and rocks are naturally formed, and Article 13 provides that low-tide elevations are naturally formed. Part III of this article explores what “naturally formed” means and whether States can create the conditions necessary to foster “natural” formation. Part IV explores the requirement that islands be above water at high-tide to avoid classification as a low-tide elevation and States’ ability to meet those elements through engineering. Distinction between rock and island turns on the ability to sustain human habitation and economic life. Part V considers the impact of engineering intended to facilitate a formation’s ability to sustain those requirements. A conclusion with a discussion of interpreting UNCLOS within the framework of the Vienna Convention on the Law of Treaties (VCLT) follows.

II. Land Reclamation in the South China Sea

Recently, island building in the South China Sea has generated much coverage and criticism. In the Spratly Islands and in Scarborough Shoal, the People’s Republic of China (PRC or China) has developed a number of reefs and shoals by covering them in sand and concrete and then turning them into military outposts. While China’s “unprecedented land reclamation” over disputed territory dwarfs what other States are doing, Taiwan, Malaysia, the Philippines, and Vietnam

of the harbour system are regarded as forming part of the coast. Off-shore installations and artificial islands shall not be considered as permanent harbor works.”)

24 UNCLOS, supra note 5, at Art 7(4).
25 See id., at art. 47(4).
27 See Kaplan, supra note 3, at 12 (noting that Johnson Reef, Mischief Reef, Itu Aba Island are among those being developed).
have also undertaken extensive construction efforts on formations in the South China Sea.\textsuperscript{28} In fact, as J. Ashley Roach has noted, China has (unconvincingly) invoked a \textit{tu quoque} defense, arguing that the PRC is merely catching up with other States’ land reclamation projects in the South China Sea.\textsuperscript{29} Satellite images show that the Chinese have transformed one previously low-tide elevation some 660 miles from the Chinese mainland into “a sprawling complex covering 75,000 square yards.”\textsuperscript{30} China “appears to be building a network of island fortresses to help enforce control of most of the South China Sea,” leading then U.S. Navy’s Pacific Fleet Commander, Admiral Harris Jr., to accuse China of building a “great wall of sand” in the sea.\textsuperscript{31}

In 2013, the Philippines initiated arbitration pursuant to UNCLOS Article 287 and Annex VII, against China.\textsuperscript{32} China has challenged the arbitration’s jurisdiction, but proceedings continue.\textsuperscript{33} The Philippines have sought to have certain formations occupied by the Chinese in Scarborough Shoal classified as low-tide elevations or rocks. Of the insular features being expanded by China three are among those the Philippines has asked a tribunal at the Permanent Court of Arbitration in The Hague to declare are low-tide elevations (Gaven Reef, Hughes Reef, Mischief Reef, and Subi

\textsuperscript{28} See Mira Rapp-Hooper, \textit{Is China Reclaiming the Law of the Sea?} Lawfare Blog, 23 February 2015; See also, Kaplan, supra note 3, at 12.

\textsuperscript{29} J. Ashley Roach, “China’s Shifting Sands in the Spratlys,” American Society of International Law Insights, Vol. 19, Issue 15, July 15, 2015. As Roach points out, however, other States’ reclamation programs are both qualitatively and quantitatively different than what the PRC is doing in the South China Sea.


\textsuperscript{31} \textit{Id.}; See also, Wall Street Journal, China’s ‘Great Wall of Sand’ Raises U.S. Concerns,” March 31, 2015.


Reef.) The Philippines have requested another three formations being expanded by China to be classified as rocks (Fiery Cross Reef, Johnson Reef, and Cuarteron Reef). Arbitration may proceed even when one State does not consent to jurisdiction, but the issue the arbitrators are competent to decide are limited by UNCLOS Part XV. Here, the arbitrators do not have the authority to determine sovereignty over formations. It seems likely, however, that the arbitrators will be able to determine the nature of the formations, thereby potentially reducing the extent of China’s sovereignty in the Spratly island area by determining that various formations are rocks or low-tide elevations. Further, as discussed above, low-tide elevations farther than 12 nm from the territorial sea are not subject to sovereignty. Therefore, a finding that some of the disputed formations are low-tide elevations could have the practical effect of becoming a judgment against China’s claims to these formations. Insufficient charts of the South China Sea formations compound the difficulty in determining what the formations’ proper classification were prior to engineering. Some commentators have suggested that by “engaging in massive land reclamation, Beijing is obscuring the ability to rule on whether the features in question were actually rocks or reefs in the first place. In effect, China may be ‘tampering with the evidence’ in the South China Sea.” Such actions, if true, could not be used for the benefit of the offending State; but China’s actions seem less to do with obscuring evidence for the purposes of Article 121 than

35 Id.
36 See UNCLOS, supra note 5, at arts. 279-299.
37 See Nicaragua v. Colombia, supra note 12.
38 But see, Roach, supra note 29, noting that the “2011 Digital Gazetteer of the Spratly Islands, which lists all Spratly features known to be occupied and/or above water at low tide . . . .”
supporting its political claim to the so-called nine-dashed line and controlling the sea space therein.\textsuperscript{40}

China claims (as does Taiwan) nearly the whole of the South China Sea in an area commonly referred to as the nine-dashed line, or colloquially as the “Cow’s Tongue.”\textsuperscript{41} On 6 May, 2009, Malaysia and Vietnam submitted a joint request to the CLCS to extend their continental shelves beyond 200 nm.\textsuperscript{42} The next day, China delivered to the United Nations a \textit{note verbal}, stating China has “indisputable sovereignty” – itself a disputed claim – “over the islands in the South China Sea and the adjacent waters, and enjoys sovereign rights and jurisdiction over the relevant waters as well as the seabed and subsoil thereof.”\textsuperscript{43} The \textit{note verbal} included a map showing loosely the plots of the nine-dash line, encompassing approximately 2,000,000 square kilometers of maritime space, nearly the whole of the South China Sea, but only about 13 square kilometers of land.\textsuperscript{44} The line reaches far south to come within 24 nm of Malaysian Borneo.\textsuperscript{45} Shrewdly, China has not articulated the nature of the nine dashed line, and it is unclear what China means here by “sovereignty.”\textsuperscript{46} The claim, however, appears unconnected to the classification of any insular formations in the area.

The EEZ must be claimed. It does not arise without promulgation.\textsuperscript{47} China has not claimed EEZs around the engineered insular formations in the South China Sea and has made no indication it considers these formations to be naturally

\textsuperscript{40} See Wall Street Journal, \textit{supra} note 30.


\textsuperscript{42} CLCS.33.209.LOS (Continental Shelf Notification), 6 May 2009.

\textsuperscript{43} People’s Republic of China to UN, CML/17/2009, 7 May 2009.

\textsuperscript{44} United States Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, Limits in the Seas, No. 143, “China: Maritime Claims in the South China Sea,” December 5, 2014, at 4; See also, Symmons, \textit{supra} note 8, at 6.

\textsuperscript{45} See Symmons, \textit{supra} note 8, at 7.

\textsuperscript{46} \textit{But see} \textit{The South China Sea Arbitration: A Chinese Perspective} (Talmon, Jia, Eds.), Hart, First ed., 2014.

\textsuperscript{47} Tanaka, \textit{supra} note 2, at 150.
formed.\textsuperscript{48} Doing so would be adverse to the nine-dashed line claim. As was pointed out in the U.S. State Department’s Limits in the Sea, even if, accepting arguendo, all insular formations in the South China Sea were Chinese, and if all the features, regardless of their status otherwise, were treated as islands with full 200 nm EEZs, the zones generated would cover substantially less area than that encompassed by the nine-dashed-line claim.\textsuperscript{49} If China asserted maritime zones around the formations, other States would likely object that concrete pours cannot turn low-tide elevations into islands, no matter how much is used. It seems that China’s basis for the nine-dash claim does not rest on the maritime zones generated by insular formations, but rather on political and strategic claims in the ocean, perhaps historic claims over the South China Sea – though history is no basis for maritime zones (other than historic bays and in the case of adjacent territorial seas) under UNCLOS.\textsuperscript{50}

States are generally free to engage in any activity they wish so long as it does not conflict with a positive rule of customary international law or treaty obligation.\textsuperscript{51} There is nothing unlawful in land reclamation and island building in and of itself. However, even without claiming the formations are islands, the PRC’s construction efforts in the South China Sea may run afoul of international law in several ways, particularly to the extent the insular formation building is directed at access to sea-space. Apart from the fact that only the coastal state may erect


\textsuperscript{49} Limits in the Seas, supra note 44, at 11-14.

\textsuperscript{50} Id. at 15-22 (evaluating history as a basis for maritime claims under UNCLOS); See also, Robert T. Kline, “The Pen and the Sword: The People’s Republic of China’s Effort to redefine the Exclusive Economic Zone through Maritime Lawfare and Military Enforcement,” 216 Military Law Review 122 (2013) (analyzing the PRC’s historic claims to the South China Sea.)

\textsuperscript{51} See S.S. Lotus (France v. Turkey), 1927 P.C.I.J. (ser. A) No. 10 (Sept. 7) (the case actually stands for the opposite principle that it is cited for in modern international law.)
artificial islands in the EEZ, under Article 60(7) artificial islands in any event may not be erected “where interference may be caused to the use of recognized sea lanes essential to international navigation.”52 Such dredging and island building, particularly when they are built upon coral reef, may offend States’ obligations concerning the protection and preservation of the marine environment.53 So far the environmental community’s response to large-scale island building in the South China Sea has been muted, but more vociferous response can be anticipated. Article 194 provides that “States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment . . . .”54 Because such obligations apply to States having jurisdiction or control, sovereignty over the formations need not be resolved in order to address obligations related to protecting and preserving the marine environment.55

States also have an obligation to exercise their rights under UNCLOS in good faith and with due regard to the rights of other States.56 China’s land reclamation program violates obligations to settle disputed maritime zones through peaceful means and through a cooperative process.57 As the arbitration decision noted in

52 Tanaka, supra note 2, at 129. “Essential” is admittedly a subjective term.
53 See ITLOS, Case Concerning Land Reclamation by Singapore in and around the Straight of Johor (Malaysia v. Singapore), provisional measures, (2003) Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion; Pulp Mills on the River Uruguay (Argentina v. Uruguay)); See also, e.g., UNCLOS, supra note 5, at art. 192 (“States have the obligation to protect and preserve the marine environment.”), 195, 204-206.
54 UNCLOS, supra note 5, at art. 194(2)
55 See id. at art. 206, (“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.”)
56 See generally, UNCLOS, supra note 5, at arts. 56(2), 56(3), 60(3).
57 Id. at arts. 74(3), 83(3).
Guyana v. Suriname, States cannot act unilaterally in setting disputes.\textsuperscript{58} Further, the land reclamation and island building in the South China Sea appears to be in contradiction to China’s promises in the 2002 joint ASEAN-PRC declaration on the Conduct of Parties in the South China Sea.\textsuperscript{59} Although the document is not a binding treaty, it is at least expectation forming and reflects a commitment to conform to certain principles. Those principles are being disregarded by the PRC. Several points from that declaration are relevant here:

3. The Parties reaffirm their respect for and commitment to the freedom of navigation in and overflight above the South China Sea . . . ;

4. The Parties concerned undertake to resolve their territorial and jurisdictional disputes by peaceful means, without resorting to the threat or use of force, through friendly consultations and negotiations by sovereign states directly concerned . . . ;

5. The Parties undertake to exercise self-restraint in the conduct of activities that would complicate or escalate disputes and affect peace and stability including, among others, refraining from action of inhabiting on the presently uninhabited islands, reefs, shoals, cays, and other features and to handle their differences in a constructive manner.\textsuperscript{60}

In the end, it may be that with sufficient time, States will begin to treat the formations as Chinese islands and that eventually, with or without persistent objection by other States, the Chinese will gain control over the area as if by adverse possession. In the meantime, UNCLOS and customary international law controls. The engineering of these formations in an industrial manner, does not itself make islands. A formation may be transformed into an island in the geomorphologic sense, without it transforming into an island in the juridical sense. Modern law of the sea is replete with instances of divorcing the legal and scientific meaning of words. For example, a State need not have a geological continental shelf in order to enjoy the legal benefits associated with the continental shelf; on the other hand, a


\textsuperscript{59} Association of South East Asian Nations- People’s Republic of China, Declaration on the Conduct of Parties in the South China Sea, Phnom Penh, 4 November, 2002.

\textsuperscript{60} Id.
State may have a bay in the geographic sense, but not in the legal sense. When States pour sand and concrete on rocks and low-tide elevations and then construct military outposts on them, they do not become greater insular formations, they are but castles in the sand.

III. Engineering the ‘Natural’ Growth of Insular Formations

In addition to the concrete pours in the South China Sea, States have taken more nuanced, creative, and experimental efforts to upgrade formations in a way designed to comply with UNCLOS. The most well known example of these insular formations is Okinotorishima (“Island of Birds”). Japan’s southern-most territorial claim, the formations of Okinotorishima comprise the last two visible formations of a larger archipelagic group resting on coral some 1,000 miles south of Tokyo. One formation has been described as “roughly the size of a twin bed” rising less than three inches above the water. The other formation is “as big as a small bedroom perhaps.” No one has ever lived on Okinotorishima, and there is no potable water. The formations would have no economic importance, but for UNCLOS. Yet since 1987, Japan has spent hundreds of millions of dollars, and considerable energy in shoring up its claims to the formations as islands, fortifying them with 83-foot-thick concrete, “walls of cement, steel blocks and titanium mesh.” Japan maintains that the two small formations are islands within the meaning of Article 121(2), therefore entitled to an EEZ. This purportedly confers on the two specks of rocky

---

62 Id.
64 Id.
65 Id.
land, some 160,000 square miles of ocean and seabed, an area of ocean larger than mainland Japan.68

At great cost in time, resources, even life, Japan has attempted to increase the size of the formations in order to bolster their status as islands.69 In Qatar v. Bahrain, the ICJ held that “islands, regardless of their size . . . generate the same maritime rights, as other land territory.”70 That size is not an element distinguishing islands and rocks was affirmed in Nicaragua v. Colombia.71 However, as will be discussed further in Part V, in order for islands to avoid rock status, they must be capable of sustaining human habitation and economic life.72 Size is relevant for determining the difference between rocks and islands, not because it is an element under Article 121, but because size is evidence of a formation’s ability to sustain human habitation and economic life. An island’s small size is, “at least, an indication of its unfitness for human habitation.”73 Logically, islands, which are too small to physically accommodate human presence, are ipso facto too small to sustain human habitation. State practice is consistent in treating extremely small formations categorically as rocks.74

68 See Diaz, et al, supra note 61, at 519, 521; See also, Symmons, supra note 8, at 3.
69 See New York Times, supra note 66 (noting that in March, 2014, seven workers building a new pier on the reef died when the concrete structure capsized.)
70 Maritime Delimitation and Territorial Questions (Qatar v. Bahrain), I.C.J. 112, 1994 (judgment), at para. 185 (Emphasis added); See also, Diaz, et al., supra note 61, at 534, 535 (nothing that the International Hydrographic Bureau defines small islets as 1 to 10 square kilometers in size; isles as 10 to 100, islands as 100 to 5 106 square kilometers; and a rock is an area less than 0.001 square miles.)
71 See, Nicaragua v. Columbia, supra note 12.
72 See UNCLOS, supra note 5, at Art. 121(3).
73 Black Sea (Memorial, Reply), supra note 10 at 10.5, 5.13; but see Qatar v. Bahrain, supra note 55, at para. 197 (describing the Persian Gulf feature of Qit‘at Jardah as “a very small island,” despite it being but 12 by 4 meters in area and just 40 centimeters above sea level.)
74 In other words, once a formation is large enough to be an island proper, then regardless of its size, it generates and EEZ, but first it must meet the threshold issue of whether the formation is large enough to avoid classification as a rock. See Alex G. Oude Elferink, “Clarifying Article 121(3) of the Law of the Sea Convention: The Limits Set by the Nature of International Legal Processes,” IBRU Boundary and Security Bulletin, Summer 1998, 58, at 58 (stating “it has to be assumed that islands
The Japanese have taken various approaches to increase the size of Okinotorishima "naturally." The mineral glauconite ("green sand") has been planted around the reefs to foster coral growth, which in turn facilitates sand deposits, increasing the formation’s size.\(^{75}\) As one news source reported, “[t]he move is aimed at complying with UN rules that say the land must be a natural feature in order to make a territorial claim on the surrounding waters.”\(^ {76} \) Star Sand (foraminifera), the shells of a single-celled organism found near coral reefs in southern Japan, has also been used in an attempt to grow the formations.\(^ {77} \) Scientists have learned how to grow Star Sand "artificially, and the government hopes thereby to strengthen Okinotorishima’s claim to island status.”\(^ {78} \)

The Japanese Fisheries Agency has applied a method of “sexual reproduction” developed over the past 20 years to breed coral.\(^ {79} \) Researchers from the Fisheries Infrastructure Development Center have removed coral from Okinotorishima and transported it to a facility in Okinawa some 680 miles away, to what is essentially a fertility clinic for coral.\(^ {80} \) There eggs from the corals are obtained by “captive spawning and fertilized by sexual exchange on the surface of above a certain size never qualify as rocks, even if they meet the other criteria mentioned in article 121(3).”\(^ {75} \) See also, id. at 60 citing Public Prosecutor v. Haraldsson et al., Judgment of 7 May 1996, (noting that in 1996, the Supreme Court of Norway examined article 121 as it related to Abel Island, an island 13.2 square kilometers. The court found on the one hand that the island was too large to be considered a rock under article 121(3), but that in any event conditions on the island were so harsh that it could not sustain human habitation or economic life of its own).

\(^ {75} \) See Diaz, et al., supra note 61, at 519.

\(^ {76} \) Financial Times, “Construction on the high seas adds to Asian Maritime Tension,” 31 March 2015.


\(^ {78} \) Id.


This results in larvae and juvenile coral, which are then cultured in a laboratory before being returned to repopulate in the reefs around Okinorishima. The Fisheries Agency has spent some 2.15 billion yen breeding approximately 100,000 coral plants using this method. It is difficult to create the conditions under which the coral larvae “attach themselves to the seaweed-like coralline algae with which coral polyps have a symbiotic relationship,” so only about 20 percent of these laboratory-raised coral plants survived after being returned to Okinotorishima, but the method has had successes. In 2012, researchers observed the “first generation of laboratory-bred corals reproducing on the reef.”

The question is whether such fantastical efforts can transform low-tide elevations into “naturally formed” islands or rocks into islands proper. Some academics, and a number of States, have concluded that Okinotorishima does not meet the elements of an island. Most notably, in 2009, the Chinese government objected to the EEZ claim around Okinotorishima, arguing that, despite the impressive engineering, it is “in fact a rock.” In their official complaint lodged with the Secretary General of the UN, the Chinese protested that “[a]vailable scientific data fully reveal that the rock of [Okinotorishima], on its natural conditions, obviously cannot sustain human habitation or economic life of its own, and therefore shall have no [EEZ].” Could China’s objection to excessive maritime claims around Okinotorishima estop them from asserting similar claims in the South China Sea? One might wonder if the Japanese were to give up their campaign of growing the island through such advanced means and simply start pouring dirt on

---

81 Id.
82 Id.
83 Id.
85 Id.
86 See e.g., Diaz, et. al, supra note 61, at 522, 537 (stating “In order to prop up their jurisdiction over the rocks,” the Japanese have “propped up the rocks themselves and ‘occupied’ them by creating an artificial environment around” them.)
87 People’s Republic of China to the UN, CML/2/2009, 6 February 2009; See also, Tanaka, supra note 2, at 65.
88 CML/2/2009, supra note 87.
the surrounding coral whether the PRC would drop her objections to the status of
the formation as an island.

In 2005, Taiwan also expressed official skepticism about the legal status of
Okinotorishima. In November 2008, Japan submitted a claim to a continental shelf
around Okinotorishima to the UN Commission on the Limits of the Continental Shelf
(CLCS), bringing additional scrutiny on the formations. China and the Republic of
Korea responded by objecting to the UN Secretary General. In June 2012, the CLCS
published its recommendations on part of Japan’s claim, but declined to make any
recommendations as to the areas surrounding Okinotorishima “until such time as
the matters referred to in the [submissions by China and South Korea] have been
resolved.”

In this matter, the position of the objectors seems correct. Article 300 of
UNCLOS demands that States Parties to the Convention fulfill in “good faith” their
obligations and to exercise their rights “in a manner which would not constitute an
abuse of right.” The principle of good faith is also contained in VCLT Article
31(1). In the Nuclear Tests case, the ICJ declared that,

One of the basic principles governing the creation and performance of legal
obligations, whatever their source, is the principle of good faith. Trust and
confidence are inherent in international cooperation, in particular in an age
when this cooperation in many fields is becoming increasingly essential.

---

89 Tanaka, supra note 2, at 65; See also, Yann-huei Song “Okinotorishima: A 'Rock' or
an 'Island'? Recent Maritime Boundary Controversy between Japan and
Taiwan/China” in Maritime Boundary Disputes, Settlement Processes, and the Law
of the Sea, ed. Seoung-Yong Hong and Jon M. Van Dyke (The Netherlands: Martinus
Nijhoff, 2009).
90 See UN Secretary General, Receipt of the submission made by Japan to the
Commission on the Limits of the Continental Shelf, CLCS.13.2008, 19 November
2008.
91 Tanaka, supra note 2, at 65 (citing Republic of Korea: www.un.org/Depts/los/clcs_new/submissions_files/jpn08/kor_27feb09.pdf);
92 CLCS/64
93 UNCLOS, supra note 5, at art. 300.
The above engineering efforts have ‘natural’ elements to them: the sexual reproduction of coral, the reproduction of Star Sand, the collection of sediment carried by the ocean’s currents. In each of these instances, however, engineering, not a natural process, is the proximate cause of the formations’ growth (i.e, but for the engineering, the process necessary for the formation’s growth would not occur).\footnote{See generally, Leon Castellanos-Jankiewicz, ACIL Research Paper No 2012-07 (SHARES Series) (discussing proximate cause in international law).} An interpretation of UNCLOS allowing for engineering to set in motion a process leading to the ‘natural’ development of an island is “inconsistent with the principle of good faith.”\footnote{Black Sea (Memorial), supra note 10, at 10.119.} The ICJ has been clear that the geologic composition of a formation (rock, sand, etc.) is irrelevant in determining its legal attributes.\footnote{See Territorial and Maritime Dispute (Nicaragua v. Colombia), Judgment of 19 November 2012, p. 645, § 37.} Even so the requirement that islands (and low-tide elevations) be naturally formed means, according to Tanaka, “that the composition of the island must be ‘natural’, not ‘artificial’; and that the island must be formed without human intervention in its formation process.”\footnote{Tanaka, supra note 2, at 64.} This comports with a dictionary definition of “naturally formed.” Interpreting a treaty must begin by applying the normal meaning to words in the text.\footnote{See VCLT, supra note 94, at Art. 32.} The Merriam-Webster dictionary, for example, explains that “naturally” is “used to describe something that happens or exists by itself without being controlled or changed by someone.”\footnote{Merriam-Webster online dictionary, at http://www.merriam-webster.com/dictionary/naturally (last accessed 4 May 2015).} At a minimum, human engineering raises a strong presumption that the formation is not naturally formed.

One consideration with applying a proximate cause test to island formation is that human interaction has an impact on nearly all ecosystems, ocean space, and therefore, coral formation and possibly island formation. In fact, many coral reefs supporting islands are eroding because of rising sea temperatures, which may at least in part, be caused by humans; in other words, humans are the proximate cause.
of some insular formation erosion.\textsuperscript{102} As Tanaka noted, “[o]wing to global warming, a substantial sea-level rise may affect coastal configurations. Where an island, rock or a low-tide elevation disappears entirely as a consequence of sea-level rise, it is possible that the extent of marine spaces measured from the marine feature decreases.”\textsuperscript{103} It seems evident that an island, which erodes to a rock, or a rock to a low-tide elevation, will lose its power to generate maritime zones, regardless of whether humans are the proximate cause. So if humans can cause erosion, with corresponding legal affect, why not island growth? The answer lies in the intent.\textsuperscript{104} Mankind does not raise global sea temperatures in order to erode insular formations or raise sea elevations, whereas engineering may be calculated to expand maritime zones.

\textbf{IV. Manipulating Insular Formations to Remain Above Water at High-Tide}

As noted above, under UNCLOS, not all insular formations surrounded by water on all sides are islands; islands must be above water at high-tide. A formation, which is above water at low-tide, but below water at high-tide is classified as a “low-tide elevation.”\textsuperscript{105} Like islands, low-tide elevations must be naturally formed.\textsuperscript{106} While the presence of fixtures on low-tide elevations may confer some rights as described in the introduction, they cannot transform low-tide elevations into islands (though they can be transformed into artificial islands).\textsuperscript{107} There is sound policy reason for conferring on those formations limited benefit.

\begin{thebibliography}{99}
\bibitem{102} See Japan Times, \textit{supra} note 64.
\bibitem{103} Tanaka, \textit{supra} note 2, at 52.
\bibitem{104} See discussion on Good Faith \textit{infra} and \textit{supra}.
\bibitem{105} See Tanaka, \textit{supra} note 2, at 69; \textit{See also}, UNCLOS, \textit{supra} note 5, at Art. 13(1) (providing that “A low-tide elevation is a naturally formed area of land which is surrounded by and above water at low tide but submerged at high tide”).
\bibitem{106} UNCLOS, \textit{supra} note 5, at Art. 13.
\bibitem{107} See Diaz, et al, \textit{supra} note 61, at 532, citing Report of the International Law Commission Covering the Work of its Eighth Session, U.N. GAOR 11\textsuperscript{th} Sess., Supp. No. 9, at 16-17, U.N. Doc./3159 (1956); 2 Y.B. INT’L L. COMM’N 253, 270 (1956) (noting that the International Law Commission stated in 1956: “Elevations which are above water at low tide only[, e]ven if an installation is built on such an elevation and is itself permanently above water- a lighthouse, for example, the elevation is not an ‘island’ . . . .”)
based on engineering. Such installations serve “to benefit navigators because low-tide elevations are, by nature, not visible at all times.” Conferring on low-tide elevations island status, however, serves no useful purpose for the international community. As the ICJ held in *Nicaragua v. Colombia*, low-tide elevations seaward of the territorial sea “cannot be appropriated,” meaning they are not subject to sovereignty. Low-tide elevations outside the territorial sea are, rather, part of the subsoil and continental shelf. The coastal State has the exclusive right to construct artificial islands in its EEZ. Construction of artificial islands beyond outrebounds of States’ continental shelves is recognized as an exercise of the freedom of the high seas and the deep seabed. No State, however, may acquire sovereignty over the high seas, and UNCLOS specifically prohibits “the establishment of any maritime zones around artificial islands on the high seas.” Artificial islands are, therefore, of significantly less value to States than other insular formations, though, as recent island building in the South China Sea has shown, they may still have substantial political and strategic value. The discussion here addresses whether low-tide elevations can be engineered to remain above water at high-tide in order to be categorized as an island.

When an island is expanded outward its maritime zones expand accordingly. Singapore has grown in size by 22% since independence in 1965. To the extent its zones are not zone locked, they would expand accordingly. As long as a

108 Tanaka, *supra* note 2, at 51. In practice, States have recognized low-tide elevations as acceptable base points regardless of whether structures have been placed upon them. See, e.g., Churchill, *supra* note 5, at 39-40 (discussing the enabling legislation of Saudi Arabia and Syria).

109 See, *Nicaragua v. Columbia*, *supra* note 12, at para. 26. The Court also noted that low-tide elevations within a State’s territorial sea can be subject to the coastal state’s sovereignty, and “may be taken into account for the purpose of measuring the breadth of the territorial sea . . . .” *Id.*

110 *Id.*

111 See UNCLoS, *supra* note 5, at art. 60.

112 UNCLoS, *supra* note 5, at arts. 80, 87, para 1; *See also*, Churchill and Lowe, *supra* note 5, at 51.

113 See UNCLoS, *supra* note 5, at art. 89; *See also*, Shaw, *supra* note 16, at 609.

114 See The Economist, *Such Quantities of Sand, supra* note 77.
formation is an island *ab initio*, nothing in UNCLOS prevents an island from being expanded, and having its maritime zones expand accordingly, so long as the action is in good faith. A low-tide elevation (or rock) remains such when expanded. The maritime zones afforded a rock will expand with the size of the rock, but an EEZ will not be triggered no matter how substantial the increase in size. (This is true for a snapshot in time, but if States treat the formation as an island over a sufficient period time, it might achieve island status eventually.)\(^{115}\) It is an uncomfortable, but accurate interpretation of UNCLOS to confer onto insular formations greater maritime zones when they are expanded outward, but not upward. Artificially increasing the height of a formation by reclamation or, say, pouring concrete over it, will not satisfy the requirement that an island be above water at high-tide. As Charney argued “artificially wrought changes in [a formation’s] elevation” – i.e. engineering the formation to be taller – “will not entitle a rock of a naturally lower elevation to serve as a base point to generate the various maritime zones . . .”\(^{116}\) This is the logical corollary of the requirement that an island be naturally formed.

What if instead, the tide itself is engineered to artificially remain below the natural formation? The intended result is the same – to transform a low-tide elevation into an island, but by manipulating different elements. States have done this by building steel and concrete caissons around insular formations that are higher than the formations, keeping out the rising tide – in a sense.\(^{117}\) Caissons in effect, create a low-lying lagoon surrounded by towering ocean. Whether they are above the tide in a legal manner (or even hydrographic sense) is dubious. Charney argued that “[a]s an island, an Article 121(3) rock must have an elevation above


\(^{116}\) Charney, *supra* note 22, at 867.

\(^{117}\) See Symmons, *supra* note 8, at 3 (noting that since 1988, the Japanese have literally tried to keep Okinotorishima above water at high tide, by “surrounding them with wave-absorbing steel blocks and concrete rising higher than the enclosed (natural) peaks themselves.”)
high tide in its natural state,” but a literal reading of article 121 might suggest otherwise.  \footnote{Charney, supra note 22, at 867}

In UNCLOS Article 121, the word “naturally” appears as an adjective (one could also read “naturally” as an adverb modifying the verb “formed,” but it is better to treat “naturally formed” as a compound adjective.) Clearly, the land must be naturally formed as discussed above, but how far down the sentence does “naturally” run? The “natural” adjective does not obviously attach to “above water at high tide.” That clause also begins with a verb: “is” (to be). One could argue that the adjective/adverb “naturally” should run to each verb/noun in the sentence, but normally they only attach to the immediately preceding verb/noun. It is not clear that the provision defines an island as “a naturally formed area of land, sounded by water, which \textit{naturally} is above water at high tide.” The notable scholar Lauterpacht actually proposed the words ‘in normal circumstances be inserted before ‘permanently above . . . ’ in the Convention on the Territorial Sea and the Contiguous Zone (an UNCLOS predecessor.)\footnote{See Dahalan, et al, supra note 13, at 229 (citing Yearbook of the International Law Commission, 1953, Vol. I, p 92.)} That was evidently intended to deal with the phenomenon of unusually high sea levels, but could have been used here to deal with artificially wrought changes to elevations. Such suggestion was not adopted for UNCLOS and a strict, literal reading of the provision, consequently, suggests an insular formation, which is artificially above water at high-tide, is an island so long as the land is naturally formed. This seems to be the position of States building such caissons. Notably, when the Chinese objected to the classification of Okinotorishima as an island, it was not on the basis of the formation being a low-tide elevation though an argument could have been made, but as a rock, suggesting the Chinese accepted the formation was not a low-tide elevation.\footnote{See CML/17/2009, supra note 43.}

The interpretation of above water at high-tide allowing for such engineering does not hold water. While it is true that Article 121 “does not specify that the conditions set out there must also exist naturally,” the terms of the provision must
be read in conformity with good faith, as previously noted.\textsuperscript{121} Interpreting Article 121 so as to permit manipulation of the tide in order to generate claims over the ocean is not a good faith interpretation. Given sufficient resources, any low-tide elevation, no matter how deeply submerged at high-tide or otherwise inconsequential could be turned into an island if large enough walls were placed in the ocean. The provisions on low-tide elevations are meant to limit the formations entitled to island status, not to serve as a technical challenge to be overcome. A better response might simply be to define “tide” (whether the highest astronomical tide or the mean high water) as the naturally occurring sea elevation.\textsuperscript{122}

Before turning to the next section, it is worth briefly considering whether an insular formation, which was previously above water at high-tide naturally, but is now falling below tide can be preserved with caissons in a way that satisfies UNCLOS. Symmons argued that while attempts to make a formerly wholly-underwater formation now appear above the tide will have no legal effect, “man-made attempts to preserve the natural above high-water aspect of an eroding formation may not disqualify its legal insularity . . . .”\textsuperscript{123} The drafters of UNCLOS were, however, not ignorant of the phenomenon of rising seas or of erosion. If they had wanted to maintain the legal powers of former islands, they could have included such a provision in the convention; they did not. As Tanaka suggested in a slightly different context, “it appears to be unreasonable to argue that rules of law of the sea are applicable to a distinct body of water at an altitude different from sea level.”\textsuperscript{124} It does not matter the cause, when a formation is below natural sea-level at high-tide, it is a low-tide elevation; engineering cannot change that.

\textsuperscript{121} Charney, supra note 22, at 867.
\textsuperscript{122} For definitions of tidal terms, see generally, National Oceanic and Atmospheric Administration, information on tidal datum, available at http://tidesandcurrents.noaa.gov/datum_options.html (last accessed 4 May 2015).
\textsuperscript{123} Symmons, supra note 8, at 3 (The clauses of this quote are reversed); Symmons also suggests that engineering used to prevent insular formations’ disappearance may satisfy the requirement a formation be above water at high tide, see id.
\textsuperscript{124} Tanaka, supra note 2, at 5.
IV. Engineering Rocks to be Capable of Sustaining Human Habitation or Economic Life (of their own)

Returning to the distinction between islands proper and rocks, pursuant to UNCLOS Article 121(3) rocks are defined as islands, which cannot sustain human habitation or economic life of their own. The inverse of this logically holds that islands proper must be capable of sustaining human habitation or economic life of their own. There is some uncertainty as to whether formations must be capable of sustaining human habitation and economic life of their own, or if one is sufficient. The conjunctive/disjunctive issue is not addressed here. It is worth noting, though, that the distinction probably does not matter in practice, as it is hard to envision a formation capable of sustaining human habitation but not economic life or vice-versa. There is also uncertainty as to whether the qualifier “of their own” applies only to economic activity, or to human habitation as well. The better interpretation, because it treats the elements of the article consistently, requires islands to be capable of sustaining human habitation “of their own” and economic activity “of their own,” but the issue is unresolved.

Islands in the South China Sea and elsewhere have been engineered to be more hospitable to human habitation for the purposes of UNCLOS. Okinotorishima now has millions of dollars wroth of infrastructure on it, even markers of human habitation like an official address plaque (1 Okinotori Island, Ogawawara Village, Tokyo), though no one lives there. In the Black Sea case, Ukraine had taken a number of steps to make Serpents’ Island more conducive to human habitation and economic life by building various infrastructures, “for an active population.” The formation was dependent on the “continual importation not only of water but of all

125 See UNCLOS, supra note 5, at art. 121(3).
126 See Black Sea (Counter-Memorial), supra note 10, at para. 7.40.
127 See Black Sea (Reply), supra note 10, at para. 5.17.
128 See Charney, supra note 22, at 870.
129 See Diaz, et al., supra note 61, at 525. Other infrastructure includes a $10 million unmanned lighthouse, radar, and heliport. See id.
130 Black Sea (Memorial), supra note 10, at para. 10.103; (Counter-Memorial), supra note 10, at para. 7.37.
other supplies.” Romania lamented the attempts to "artificially transform [the] barren rock into an island capable of sustaining some kind of human habitation and a limited economic life of its own,” because “as soon as Ukraine would relax its attempts, the rock will recover its usual natural state: that of a barren rock incapable of sustaining habitation and economic life of its own.” In other words, only if a formation is capable of sustaining habitation without outside assistance could it be an island, according to the Romanian interpretation. The ICJ did not resolve that aspect of the case, though it seems Serpents’ Island (the formation at issue) almost certainly was capable of sustaining human habitation, as it actually did sustain some habitation. In fact, a small group of people (a few dozen soldiers and customs officers) resided on the formation on a temporary basis.

There is arguably nothing problematic in States’ efforts to engineer structures to be more conducive to human habitation and economic life as a matter of the law of the sea. This element is conceptually different than the other provisions on insular formations in that it directly implicates socio-economic factors. Human habitation is *ipso facto* a human-oriented element, and facilitating habitability by, for example, building infrastructure, is not an admission the formation is a rock, as some have argued. In *Black Sea*, Ukraine argued that the term “cannot” must be understood as “the absolute *inability* to sustain those two” required activities. This describes no place on earth. As Romania correctly pointed out in response,

[a]t a time when human life can be supported in outer space for long periods it is in theory possible, assuming the expenditure of enough resources and

---

131 *Black Sea* (Memorial), at 10.82, 10.100; (Reply) at 5.65.
132 *Id.* (Memorial) at 10.110.
133 *Id.*
134 See Tanaka, *supra* note 2, at 64.
135 See, e.g., *Black Sea*, *supra* note 10, at 10.130 (arguing, “to the extent that its purpose consists in seeking to confer [on the insular formation] an unjustified entitlement to maritime area, could be qualified as an implicit recognition by conduct that without this attempt Serpents' Island is only a rock, not entitled to a continental shelf or an [EEZ].”)
136 See, *Black Sea* (Counter-Memorial), *supra* note 10, at 7.43.
money, to permit human survival on any area marginally above sea level. It therefore, cannot be that a formation falls outside the scope as long as a State is willing to devote sufficient resources to satisfy one human’s habitation on a formation.\textsuperscript{137}

The provision contemplates some amount of human engineering. The use of “cannot” before “sustain human habitation . . .” is profound. “Cannot” must be contrasted with “is not.” Actual human habitation is not required. The phrase cannot sustain suggests “the criterion concerns the capability or possibility” of sustaining human habitation or economic life, “not the factual situation of sustaining human habitation.”\textsuperscript{138} The element merely requires “proof that the rock actually has some capacity for human habitation or economic value for society.”\textsuperscript{139}

Further, the ability of a formation to sustain these characteristics is not static. The use of “cannot” implies consideration of potentialities. Since the possibility of sustaining human habitation can change over time as human capacity and technology change, determining what formations “cannot” sustain those activities is difficult.\textsuperscript{140}

The ability of changing technology to drive legal rights is nothing new. Under the Geneva Convention on the Continental Shelf, an “exploitability test” was used to determine the outer limit of the continental shelf.\textsuperscript{141} The application of the test changed according to technological development. By the 1960s, technology had advanced to the point of allowing for the exploitation of the seabed in excess of 1000-meter depths, and would presumably continue to advance until the entire seabed was nationalized. Consequently, the exploitability test was removed in UNCLOS in favor of an objective test.\textsuperscript{142} No objective test for human habitability and economic sustainability, however, were provided for in UNCLOS. Whether a formation is capable of sustaining human habitation, therefore, should be broadly

\textsuperscript{137} Black Sea (Counter-Memorial), supra note 10, at 10.79.
\textsuperscript{138} Tanaka, supra note 2, at 66.
\textsuperscript{139} Charney, supra note 22, at 868.
\textsuperscript{140} See, Tanaka, supra note 2, at 66.
\textsuperscript{141} United Nations, Convention on the Continental Shelf, 499 UNTS 311 (1958), at Art. 1.
\textsuperscript{142} See, Tanaka, supra note 2, at 134. Admittedly, calling the test objective is charitable.
applied, though not so broadly as to make every formation capable of sustaining the required abilities. The issue here is how much engineering is acceptable under Article 121.

There is a presumption in treaty interpretation that all provisions contained therein have some meaning, and whenever possible, treaties must be interpreted to give all words meaning.\textsuperscript{143} Charney noted “references to ‘habitability’ and ‘economic life’ must have meanings independent of the nature of the feature itself. They must narrow the scope of the provision to rocks that also are either uninhabitable or have no economic life of their own.”\textsuperscript{144} In his dissenting opinion in the ICJ’s South-West Africa advisory opinion, Judge de Visscher noted “It is an acknowledged rule of interpretation that treaty clauses must . . . be interpreted as to avoid as much as possible depriving one of them of practical effect for the benefit of others.\textsuperscript{145} The qualifier “cannot sustain” must mean something, so some amount of outside support or engineering will be excessive, otherwise the provision would contain dead letter. If “cannot” were interpreted too broadly, no island would be a rock. “Cannot” is not read alone, but in context. The final phrase “of its own” at the end of article 121(3) modifies the preceding qualifier.

The qualifier “of its own” narrows the scope of Article 121(3); how far is unclear. The narrowest reading suggests formations, however large, would be rocks if they required any outside assistance (water, fuel, food, etc.) or engineering at all in order to sustain human habitability or economic life, however insignificant. In 1923 the British articulated their understanding that an island must be capable “without artificial addition, of being used throughout all seasons for some definite commercial or defense purpose,” and capable of sustaining “without artificial addition, [a] permanent human habitation.”\textsuperscript{146} Although predating UNCLOS, the

\begin{footnotesize}
\begin{enumerate}
\item \textsuperscript{143} \textit{See VCLT, supra} note 94.
\item \textsuperscript{144} Charney, \textit{supra} note 22, at 870.
\item \textsuperscript{146} \textit{Resolution 4;} \textit{Resolution of the Imperial Conference (quoted in Diaz, et al, supra} note 61, at 536).
\end{enumerate}
\end{footnotesize}
historic understanding is illustrative. Interpreting Article 121, Bowett, has suggested the phrase “of their own” means that a State cannot transform a rock into an island proper by “injecting an artificial economic life, based on resources from its other land territory.” The example of Jan Mayen island (Denmark v. Norway), however, implies that the need for external supply does not necessarily deprive an insular formation of the legal status of an island. Nonetheless “it would be obvious abuse of the Convention for a state to attempt to upgrade the status of an Article 121(3) ‘rock’ by artificially introducing a population, supplied from outside, for the sole purpose of enhancing the state’s argument that the rock was entitled to command broad area of maritime space.”

The provision could also be read so broadly that only if a formation required near-complete sustainment from outside would a formation be a rock. The best interpretation is one based on reasonableness: a reasonable amount of engineering and outside assistance is acceptable to prove capability of sustaining the required showings (a desalination plant on a formation that does not have potable water or the importation of trees or food, perhaps). As Ukraine convincingly argued in Black Sea “although links with the mainland are permissible, nonetheless the economic life [of an island] must be real and not contrived, local and not merely imported.”

V. Conclusion

UNCLOS is subject to VCLT’s binding rules of treaty interpretation. VCLT provides in Article 31(1) that “[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their

147 D.W. Bowett, The Legal Regime of Islands in International Law, New York, Oceana, 1979, p. 34).
148 See Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway), I.C.J., 14 June 1993; See also, Tanaka, supra note 2, at 67.
150 Black Sea (Reply), supra note 10, at 5.16.
151 See Iron Rhine Arbitration (Belgium/Netherlands), Arbitration Decision of 24 May 2005, para. 45 (stating, “[i]t is now well established that the provisions on interpretation of treaties contained in Articles 31 and 32 of [VCLT] reflect pre-existing customary international law”); See also VCLT, supra note 94, at Art. 2 (defining treaty).
context and in the light of its object and purpose.”\textsuperscript{152} VCLT Article 31(2) explains that the object and purpose of a treaty are determined, \textit{inter alia}, by looking at the treaty’s preamble.\textsuperscript{153} UNCLOS’s preamble explains its purpose includes the promotion of “the equitable and efficient utilization of [the ocean’s] resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.”\textsuperscript{154} Extending national jurisdiction helps make that possible. The provisions on insular formations (naturally formed, above water at high-tide, etc.) must be interpreted in conformity with these purposes, suggesting a liberal, expansive interpretation. There is good policy reason to interpret the relevant provisions in a way that encourage States to protect and grow coral formations, to establish sovereignty over an ecologically fragile system, or to protect fish stocks. To the extent that States are asserting EEZs in order to protect the marine environment as an aspect of their ability to manage the resources within their maritime zones – assuming a State’s intent on this matter could be accurately determined – a liberal interpretation of UNCLOS is appealing. But this logic stretched so far as to permit artificial islands to be laboratory grown and for formations to artificially remain dry at high-tide, must fail.

China’s challenge of the submissions regarding Okinotorishima was notable because the Japanese claims did not directly impact any Chinese maritime claim. Okinotorishima is far from mainland and there were no overlapping maritime zones. The Chinese argued that the disagreement was “in essence . . . a dispute of whether relevant maritime space is under national jurisdiction or a common space of the international community.”\textsuperscript{155} The Chinese made a fundamental point: A State’s maritime claims will always be asserted at the expense of someone else, whether it be another State or, as the Chinese noted, the claims may “seriously

\textsuperscript{152} \textit{Id.} at art. 31(2) (emphasis added).
\textsuperscript{153} \textit{Id.}
\textsuperscript{154} UNCLOS, \textit{supra} note 5, at preamble.
\textsuperscript{155} CML/25/2012, dated 5 Aril 2012; CML, \textit{supra} note 38; \textit{See also}, Diaz, et all, \textit{supra} note 61 at 522; \textit{and also}, Black Sea (Memorial), \textit{supra} note 10, at 10.121 (Arguing that a State Party to UNCLOS “Cannot exercise its rights established by the said document so that it could affect the rights enjoyed by other States Parties.”)
encroach upon the Area as the common heritage of mankind."\(^{156}\) (The same might be said of the Chinese insular fortifications in the South China Sea.) UNCLOS reserves for the collective peoples of the world, as the Common Heritage of Mankind, the high seas and the deep seabed.\(^{157}\) These common spaces are diminished by conferring onto insignificant formations maritime claims that "would otherwise be beyond national jurisdiction."\(^{158}\) Other purposes of UNCLOS are to set forth a comprehensive, predictable, and stable legal regime for the oceans based on equity.\(^{159}\) The provisions of the convention, therefore, must be read in that context as well.

Given sufficient resources and initiative, any rock could be turned into an island, any low-tide elevation into one permanently above water – if UNCLOS was interpreted too loosely. Only the wealthy, most technologically advanced States have the ability to create Star Sand, erect caissons far out in the ocean, to reproduce coral in a laboratory. UNCLOS allows for a degree of engineering to make formations more capable of sustaining human habitation and economic life. To cast wide nets of sovereignty over the ocean, based on insignificant formations engineered in these ways to be bigger or higher, however, would undermine the objectives of UNCLOS’s provisions on insular formations, “to protect the commons from nationalization based on minor features with little significance . . . .”\(^{160}\) Doing so would, as the Chinese predicted, have an “adverse impact on the maintenance of an equal and reasonable order for oceans.”\(^{161}\)

If States could simply avoid Article 121(3) by making formations appear above water at high-tide using caissons, and could make low-tide elevations into

\(^{156}\) CML/17/2009, *supra* note 43.
\(^{157}\) UNCLOS, *supra* note 5, at art. 1.
\(^{158}\) Charney, *supra* note 21, at 876.
\(^{159}\) See Symmons, *supra* note 8, at 22; see also, Tanaka, *supra* note 2, at 64 (stating “It is clear that the objective of Article 121(3) is to prevent excessive claims over the EEZ and continental shelf by restricting the capacity of ‘rocks’ to generate these marine spaces.”)
\(^{160}\) Charney, *supra* note 22, at 876.
islands by developing their height through coral growth and Star Sand, large sections of UNCLOS, those on the Area, the High Seas, and the Common Heritage of Mankind would be rendered meaningless, or only meaningful to those States with the resources to undertake these engineering feats.¹⁶² The doctrine of effet-utile holds that when a treaty provision is subject to multiple interpretations, “the one that best serves the recognizable purposes of the treaty and its various provisions must be chosen.”¹⁶³ Here, the restrictive interpretation of natural formation, and the interpretation of above water at high tide without engineering are most in keeping with the purposes of UNCLOS.

Finally, it should be noted that even if a State is successful in upgrading a formations’ classification, the practical impact could be minimal. Brownlie explained that when insular formations impact the delimitation of the continental shelf or the EEZ “they may be given full effect or half-effect, or they may be snubbed and enslaved . . . In truth much will depend on the particular geographical relationships” of the competing land masses, rather than “classification as such.”¹⁶⁴ In practice, when an insular formation generates a zone which overlaps with another State’s maritime zones, “tribunals have ignored or heavily discounted small islands because of their size” even when categorized as islands proper.¹⁶⁵ This was articulated early in modern law of the sea development, when the ICJ stated in the North Sea Continental Shelf case that in delimitating maritime zones, parties should “ignore the presence of islets, rocks and minor coastal projections [that have a]

---

¹⁶² See Charney, supra note 22, at 865 (noting that the purpose of Article 121(3) “was to ensure that insignificant features, particularly those far from areas claimed by other states, could not generate broad zones of national jurisdiction in the middle of the ocean.”)


¹⁶⁴ Brownlie, supra note 11, at 221.

¹⁶⁵ Charney, supra note 22, at 875; Lots of citations, including Daniel Jang Heeyong, Diminishing Role of Islands in Maritime Boundary Delimitation: Case Studies of Dokdo/Takeshima Island and the Senkaku/Diaoyu Islands, 35 Hawaii L. Rev. 139, 2013.
disproportionally distorting effect.”

This equitable principle was affirmed in the Anglo-French Continental Shelf case, Tunisia v. Libya, Gulf of Maine, Qatar v. Bahrain, and in other cases. After all, as Judge Vukas pointed out in the Volga case, “the establishment of exclusive economic zones around rocks and other small islands serves no useful purpose . . .”

If authoritative bodies are prone to discount the maritime zones of islands when they would disproportionately affect other States’ maritime claims, they will likely a fortiori discount dubious formations, engineered to be islands. These cases dealt with delimitation of State’s overlapping maritime zones. It is unclear that such an outcome would be possible when the formation at issue does not touch another State’s maritime zones, but instead the “maritime area affected is the high seas.”

The challenging State’s sovereign interests in such a case is more abstract, but every State nonetheless has a legal interest in the outer limits of maritime zones affecting the common heritage of mankind.

---

167 See Charney, supra note 22 (nothing that judgments of the ICJ and by ad hoc tribunals in maritime boundary delimitation cases have “ignored or substantially discounted” insular formations regardless of their legal category, “if their use would have an inequitable distorting effect in light of their size and location.” See also, Symmons, supra note 8, at 16 (“In determining the position of maritime boundaries, States and international courts and tribunals typically accord very small islands far from a mainland coast like those in the South China Sea equal or less weight than opposing coastlines that are long and continuous.”); See also, V. Prescott and G. Triggs, “Islands and Rocks and their Role in Maritime Delimitation,” International Maritime Boundaries, 3245-3280 (ASIL, 2005)).
168 Russian Federation v. Australia (The Volga case) Application for Release Judgment, (Declaration of Vice-President Budislav Vukas), ITLOS.
169 Dahalan, et al., supra note 13, at 237.
170 Tanaka, supra note 2, at 141