Note

Stability of Maritime Boundary Agreements

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I. INTRODUCTION

Jabal al-Tair is an island lying halfway between Yemen and Eritrea, northwest of the Bab al-Mandeb passage at the mouth of the Red Sea. On December 17, 1999, an arbitral tribunal concluded that the island belonged to Yemen,[1] entitling the country to claim the surrounding maritime zones.[2] On that basis, the tribunal delimited the maritime boundary with Eritrea.[3] Eight years later, on September 30, 2007, the volcano that created Jabal al-Tair exploded after having lain dormant since the late nineteenth century and collapsed the western portion of the island.[4] What would have happened to the Yemeni-Eritrean boundary if the island had disappeared entirely?

Under the United Nations Convention on the Law of the Sea (UNCLOS or the Convention), a coastal state may claim a twelve-mile[5] territorial sea,[6] a twenty-four-mile contiguous zone,[7] a two hundred-mile exclusive economic zone,[8] and a two hundred-mile continental shelf.[9] These four zones are measured from "baselines"—lines generally following the contours of the coast.[10] However, coastlines are constantly changing: the explosion of Jabal al-Tair, although dramatic, is hardly a unique example of coastline shift.[11] In addition to the destruction or formation of islands, coastlines continually move through the processes of accretion,[12] avulsion,[13] erosion,[14] the melting of

1. W. Michael Reisman, *Eritrea-Yemen Arbitration (Award, Phase II: Maritime Delimitation)*, 94 AM. J. INT'L L. 721 (2000).

2. Under the United Nations Convention on the Law of the Sea, states may claim four adjacent maritime zones and the resources therein. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS]. *See infra* notes 42-52 and accompanying text.

3. Reisman, *supra* note 1, at 722-24.

4. *Volcano Erupts on Red Sea Island*, BBC NEWS (Oct. 1, 2007), http://news.bbc.co.uk/2/hi/middle_east/7021596.stm.

5. Unless indicated otherwise, the term "mile" refers to a nautical mile.

6. UNCLOS, *supra* note 2, art. 3 ("Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention.").

7. *Id*. art. 33(2).

8. *Id*. art. 57.

9. *Id*. art. 76(1). At a minimum, a coastal state may claim 200 miles. It may claim up to 350 nautical miles, should the continental margin extend to that length, *id*. art. 76(5), or more if it can establish claims to submarine elevations such as plateaus, rises and caps extending beyond 350 nautical miles, *id*. art. 76(6).

10. *Id*. art. 3 ("Every State has the right to establish the breadth of its territorial sea . . . measured from baselines determined in accordance with this Convention."); *id*. art. 57 ("The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured."); *see also id*. art. 5 ("Except where otherwise provided in this Convention, the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast . . . ."). Under UNCLOS, states may claim maritime zones adjacent both to the mainland coast and islands. *Id*. art. 121(2) ("[T]he 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.").

11. *See infra* Section II.A.

12. "The gradual and imperceptible accumulation of land by natural causes." 1 INTERNATIONAL MARITIME BOUNDARIES, at xix (Jonathan I. Charney & Lewis M. Alexander eds., 1996).

13. "The loss of lands bordering on the seashore by sudden or violent action of the elements which is perceptible while in progress." *Id*.

glaciers, seismic movements, and mining. The pace of those activities is likely to increase. Scientists predict that climate change and the associated rise in sea level may cause significant and unpredictable coastline shift.[15] Already over half of the Mississippi and Texas shorelines have eroded "at average rates of 3.1 to 2.6 [meters per year] since the 1970s, while 90% of the Louisiana shoreline [has] eroded at a rate of 12.0 [meters per year]."[16] A one-meter rise would flood seventeen percent of Bangladesh.[17] Even a thirty-centimeter rise could cause the coastline to retreat forty-five meters in some areas.[18]

Yet UNCLOS is silent on whether baselines, and therefore maritime zones, shift with the coastline—whether they are "ambulatory."[19] That gap creates potentially significant uncertainty in the law of the sea. Billions of dollars are at stake: maritime zones are sources of great wealth for coastal states, containing "[a]ll exploitable offshore hydrocarbons, all commercially usable minerals in unconsolidated sediments, . . . over 90 per cent of the commercially exploitable living resources of the sea, nearly all marine plants, and all known sites suitable to the production of energy . . . ."[20] Those zones also provide states with important navigational, scientific, and jurisdictional rights.[21]

To address this uncertainty, several scholars have proposed that baselines should be fixed to specific geographic coordinates[22] such that maritime limits

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14. "The gradual and imperceptible washing away of the land along the sea by natural causes." *Id*.

15. For a summary of the most vulnerable coastlines worldwide, see R.J. Nicholls et al., *Coastal Systems in Low-Lying Areas*, *in* CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY, CONTRIBUTION OF WORKING GROUP II TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 315, 337 tbl. 6.8 (M.L. Parry et al. eds., 2007) [hereinafter CLIMATE CHANGE 2007].

16. *Id.* at 324 (citations omitted).

17. *Those in Peril by the Sea*, ECONOMIST, Sept. 9, 2006, at 6, 8, *available at* http://www.economist.com/node/785884.

18. Golam Rabbani, A. Atiq Rahman & Nazria Islam, *Climate Change and Sea Level Rise: Issues and Challenges for Coastal Communities in the Indian Ocean Region*, *in* COASTAL ZONES AND CLIMATE CHANGE 17, 20 (David Michel & Amit Pandya eds., 2010).

19. The term "ambulatory baseline" appears to have been coined in a 2001 report. *See* MICHAEL W. REED, U.S. DEP'T OF COMMERCE, 3 SHORE AND SEA BOUNDARIES 185 (2000) ("The coast line, or baseline, is the mean low-water line. As that line moves landward or seaward with accretion and erosion, so does the baseline. As the baseline ambulates, so does each of the maritime zones measured from it.").

20. *See* W. MICHAEL REISMAN & GAYL S. WESTERMAN, STRAIGHT BASELINES IN INTERNATIONAL MARITIME BOUNDARY DELIMITATION 106 n.4 (1992).

21. *See* UNCLOS, *supra* note 2, art. 2 (granting coastal states sovereignty over their territorial sea, including the airspace overhead); *id*. art. 56 (granting a coastal state sovereign rights over the natural resources in its exclusive economic zone, as well as jurisdiction over the construction of artificial islands, marine scientific research and protection of the marine environment); *cf. id*. art. 87 (providing that on the high seas, all states have navigation and overflight rights, the right to lay submarine cables and pipelines, construct artificial islands, and conduct scientific research).

22. *See, e.g*., David D. Caron, *Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal To Avoid Conflict*, *in* MARITIME BOUNDARY DISPUTES, SETTLEMENT PROCESSES, AND THE LAW OF THE SEA 1 (Seoung-Yong Hong & Jon M. Van Dyke eds., 2009); Jonathan Lusthaus, *Shifting Sands: Sea Level Rise, Maritime Boundaries and Inter-state Conflict*, 30 POL. 113 (2010); A.H.A. Soons, *The Effects of Rising Sea Level on Maritime Limits and Boundaries*, 37 NETH. INT'L L. REV. 207 (1990); Rosemary Rayfuse, *International Law and Disappearing States: Utilising Maritime Entitlements To Overcome the Statehood Dilemma* (Univ. N.S.W. Faculty of Law Research Series, Paper 52, 2010); Jared Hestetune, The Invading Waters: Climate Change

and boundaries would be permanent, akin to most land boundaries. Two chief concerns motivate this proposal. One group of scholars has argued that, without fixed baselines, island states submerged by rising sea levels will lose their maritime entitlements. Fixing baselines would permit the stateless populations to permanently retain rights to their historic maritime zones.[23] This first issue is not the concern of this Note.[24] A second group of scholars has focused on a broader concern: stability. They argue that baselines should be permanently fixed, since constant flux in limits and boundaries will almost certainly give rise to resource conflicts.[25] This Note focuses on this second concern and questions whether it is overstated. Stability is indeed central to the international boundaries regime,[26] but the analysis underlying the proposal to fix baselines has not considered an independent source of stability: treaty law.

Although UNCLOS is a formidable attempt to provide a comprehensive regime for management of the oceans,[27] encompassing issues as diverse as maritime delimitation, pollution,[28] and piracy,[29] the Convention is not the sole relevant governing law for maritime entitlements. It interacts with the larger body of international law, including the Vienna Convention on the Law of Treaties (Vienna Convention).[30] Those arguing for permanently fixed baselines have conflated maritime limits and maritime boundaries in their analysis,[31] thus overlooking the relevance of the Vienna Convention and treaty law to boundaries. The fundamental differences between limits and boundaries must therefore be considered when assessing the stability, or instability, of maritime zones with ambulatory baselines.

Where a state's claimed territorial sea or exclusive economic zone does

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Dispossession, State Extinction, and International Law (Jan. 15, 2011) (unpublished manuscript), *available at* http://works.bepress.com/jared_hestetune/1.

23. *See, e.g.*, Rayfuse, *supra* note 22.

24. This is a critical and pressing issue, but Rayfuse proposes fixing only the baselines of those island states as a means to protect their entitlements, and does not articulate a broader argument that all baselines should be permanently fixed. *Id*. at 8-10. Her argument centers on the ethical, political, and legal consequences of statelessness. Rayfuse argues that sinking island states can maintain their statehood and therefore entitlements on the basis that a limited number of historical states existed without territory. *See id*. Whether the maritime entitlements of sinking island states should be protected regardless of whether all other baselines are ambulatory is beyond the scope of this Note.

25. Caron, *supra* note 22, at 14; Lusthaus, *supra* note 22, at 115.

26. International law concerning land boundaries heavily favors border stability. For example, in cases of state succession, new states are obligated to respect preexisting borders. *See* Vienna Convention on the Succession of States in Respect of Treaties art. 11, Aug. 23, 1978, 194 U.N.T.S. 7 (providing that a succession of states "does not as such affect a boundary established by a treaty or obligations and rights established by a treaty and relating to the regime of a boundary"); Frontier Dispute (Burk. Faso/Mali), 1986 I.C.J. 554, ¶ 24 (Dec. 22) ("There is no doubt that the obligation to respect pre-existing international frontiers in the event of a State succession derives from a general rule of international law, whether or not the rule is expressed in the formula *uti possidetis*.").

27. *See* G.A. Res. 3067 (XXVIII), pmbl., U.N. Doc. A/9030 (Nov. 16, 1973) (establishing a conference to adopt "articles for a comprehensive convention on the law of the sea" that would deal "with all matters relating to the law of the sea").

28. *See, e.g.*, UNCLOS, *supra* note 2, arts. 207-12 (concerning international rules and national legislation to control pollution).

29. *See, e.g.*, *id.* arts. 101-07 (concerning the regulation of piracy on the high seas).

30. Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331.

31. The current proposal for fixed maritime boundaries implies that if baselines are ambulatory, boundaries, like limits, will be destabilized. *See, e.g.*, Lusthaus, *supra* note 22, at 115.

not overlap with any other state's claim, the area may be unilaterally claimed, barring protest from other states. The outmost extent of such territorial sea and exclusive economic zones are called "limits"[32] or "outer limit lines,"[33] respectively. Where, however, two or more states have overlapping claims, the states must reach agreement on the delimitation of the contested area,[34] and establish "lines of delimitation."[35] For the sake of clarity, this Note will refer to such lines of delimitation as maritime boundaries.[36] Treaty law, in particular the Vienna Convention, plays an important role in the establishment, interpretation, and termination of these boundary agreements.

This Note argues that under the Vienna Convention, boundary agreements are highly stable despite coastline shift. The states parties to a maritime boundary treaty may not use geographic change as grounds for unilateral termination. Hence, regardless of whether baselines are ambulatory or fixed, the international maritime boundary regime is largely secure. However, in a limited number of scenarios, coastline shift may generate new rights for third states. Fixed baselines may substantially impinge on those rights, suggesting that the proposal does not satisfactorily resolve the problem of unstable maritime entitlements.

Part II begins by describing coastline shift and establishes that, although climate change may have an unprecedented impact on the scale of changes, the problem of unstable coastal geography is not novel. Despite this, UNCLOS contains no provisions indicating whether baselines are ambulatory. Further, state practice only tentatively suggests a general understanding of baselines as ambulatory. The Part concludes that the status of baselines remains an open question.

Part III reviews the underlying principles at stake when considering whether to fix baselines. Fixed baselines address two main concerns: instability and inefficiency. However, the proposal would undermine two underlying principles of UNCLOS. The first is the historic premise that the land dominates the sea: all maritime entitlements derive from the land. A state therefore may claim only maritime zones adjacent to its coastline. The second is equity: each claim on the ocean reduces the collective common heritage of the high seas and seabed resources. As coastlines retreat, if outer limits remain fixed, coastal states would control an increasingly large area of the oceans. Although the total area of the high seas would not shrink, the question remains as to who should

32. UNCLOS, *supra* note 2, art. 16.

33. *Id*. art. 75.

34. *Id*. art. 74.

35. *Id*. art. 16. These boundaries are set in one of two ways: by a negotiated treaty or by an international tribunal upon consent of the states. *Id*. art. 281(1) ("If the States Parties which are parties to a dispute concerning the interpretation or application of this Convention have agreed to seek settlement of the dispute by a peaceful means of their own choice, the procedures provided for in this Part apply only where no settlement has been reached by recourse to such means and the agreement between the parties does not exclude any further procedure.").

36. Note that many sources use the term "boundary" to refer to both limits and boundaries. *See, e.g*., Caron, *supra* note 22, at 9 (describing the consequences of coastline shift on a limit, and writing that "the ocean *boundary* that was generated from the previous baseline is now redrawn to the new baseline" (emphasis added)).

"benefit" from retreating coastlines: the coastal state or the global community?

The four concerns identified in Part III—instability, inefficiency, historical land tie, and equity—often conflict. The extent to which they are in opposition, however, depends on the geographic scenario. Part IV lays out five possible scenarios of coastal geographic change. The first two scenarios address limits, a detailed consideration of which is beyond the scope of this Note. Rather, this Note focuses on the third, fourth, and fifth scenarios, which address the impact of coastline shift on boundaries. Most maritime boundaries fall within scenario three. In such cases, coastline shift will only affect the areas of the delimited maritime zones, but not the type of zones between two states, and thus will not create new rights for third states. Those agreements are internally stable, as discussed in Part V. The fourth and fifth boundary scenarios address a subset of maritime boundaries: the rare cases in which shifting coastlines may generate new maritime zones, and therefore new rights for third states. Although Part V establishes that, as in scenario three, those agreements are internally stable, Part VI outlines how boundaries in the fourth and fifth scenarios may not be externally stable.

Part V addresses the internal stability of all maritime boundary agreements, as between states parties. Some authors have suggested that coastline shift from climate change may constitute a fundamental change in circumstances (*rebus sic stantibus* or "things standing thus"),[37] justifying unilateral termination under Article 62 of the Vienna Convention.[38] According to that argument, if baselines are ambulatory, countries can unilaterally terminate maritime boundary agreements.[39] The Part reviews the drafting history of the Vienna Convention to conclude that Article 62 does not permit unilateral termination under such circumstances. Further, even if a state could invoke Article 62 to terminate a boundary agreement, it should reasonably have anticipated changes in coastal geography. Thus, the state would be unable to demonstrate that unchanging coastal geography was an essential basis for its consent—necessary for invoking Article 62. Part V therefore concludes that regardless of whether baselines are ambulatory or fixed, coastline shift will not affect the internal stability of maritime boundary agreements as between the states parties.

Part VI turns to consider a small subset of maritime boundaries: cases potentially creating new rights for third states. While most boundary agreements will likely be unaffected by ambulatory baselines, for a small

37. The term derives from the phrase "*conventio omnis intellegitur clausula rebus sic stantibus*. Every contract is to be understood as being based on the assumption of things remaining as they were at the time of its conclusion." MARK E. VILLIGER, COMMENTARY ON THE 1969 VIENNA CONVENTION ON THE LAW OF TREATIES 766 (2009).

38. Vienna Convention on the Law of Treaties, *supra* note 30, art. 62.

39. *See infra* notes 194-196. Very few scholars have considered this question beyond passing commentary. *See, e.g.*, Katherine J. Houghton et al., *Maritime Boundaries in a Rising Sea*, 3 NATURE GEOSCI. 813, 813-14 (2010) (suggesting that rising sea levels will lead to "renegotiation of maritime boundary agreements based on the principle of equidistance to correspond with new geographic realities; re-evaluation of both equity and equidistance principles by international courts and tribunals in settling boundary disputes; or finally, reversion of highly disputed exclusive economic zone claims to the legal status of high seas").

category of highly important boundary agreements, the issue of whether baselines are ambulatory or fixed has significant effects on the rights of third states. Those agreements are internally stable, as discussed in Part V, but face external uncertainty under the doctrine of *pacta tertiis*.[40] The doctrine under Article 34 of the Vienna Convention provides that an agreement between states may not infringe upon the rights of third states without their consent.[41] As such, tribunal decisions have focused on third-state rights at the time an agreement is concluded, maintaining that states may not conclude agreements where third states have overlapping claims. But what happens if shifting coastlines *generate* rights for third states, such as widening an international strait beyond twenty-four miles? Part VI analyzes the potential for states to invoke such newly generated rights and concludes that, even in rare cases where such rights may be created, the existing boundary agreements will likely remain in effect.

In sum, while this Note recognizes that fixed baselines would provide increased stability in the case of maritime limits, it concludes that ambulatory baselines will have a less destabilizing impact than some scholars predict. Moreover, in some rare instances, fixed baselines might even significantly impinge on third-state rights.

II. GEOGRAPHIC CHANGE AND MARITIME ENTITLEMENTS UNDER UNCLOS

Under UNCLOS, coastal states are entitled to four maritime zones. First, a coastal state is sovereign over an adjacent belt of sea called the territorial sea.[42] That belt may not exceed twelve miles in breadth.[43] Although the coastal state is sovereign over this area, other states may traverse the sea[44] so long as their passage is "continuous and expeditious."[45] Second, the coastal state may claim a contiguous zone up to twenty-four miles in breadth.[46] In the contiguous zone, the state may exercise jurisdiction over customs, immigration, and pollution.[47] Third, the state may claim up to two hundred miles of exclusive economic zone.[48] In that zone, the state has exclusive rights to explore and exploit living and nonliving natural resources, establish artificial structures, conduct marine scientific research, and protect the marine environment.[49] Other states, however, retain freedom of navigation and overflight, and may lay submarine cables.[50] Fourth, the state possesses sovereign rights to its

40. *See infra* notes 230-236 and accompanying text.

41. Vienna Convention on the Law of Treaties, *supra* note 30, art. 34. For the purpose of this Note, in accordance with the Vienna Convention on the Law of Treaties, a third state is any state that is "not a party to the treaty" in question. *Id*. art. 2(1)(h).

42. UNCLOS, *supra* note 2, art. 2(1).

43. *Id*. art. 3.

44. *Id*. art. 17 ("[S]hips of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.").

45. *Id*. art. 18(2).

46. *Id*. art. 33(2).

47. *Id*. art. 33(1).

48. *Id*. art. 57.

49. *Id*. art. 56.

50. *Id*. art. 58. Foreign states have significantly more rights in coastal states' exclusive

continental shelf and the resources therein.[51] This zone may not exceed 350 miles.[52]

Each of the zones is measured from lines generally following the contours of the coast, called baselines. For example, under Article 5 of UNCLOS, the normal baseline for measuring the breadth of the territorial sea is the low-water line.[53] In localities where the coastline is deeply indented or fringed with islands, states may draw straight baselines between headlands, rocks, islands or other coastal features.[54] Due to natural and man-made processes, however, coastal geography constantly changes. This Part describes the frequent nature of such changes, disproportionate to their limited treatment by UNCLOS and by state practice.

A. *Geographic Change*

The Jabal al-Tair explosion in Bab al-Mandeb Strait is hardly a unique example of a dramatic change in coastal geography.[55] The youngest of the Sangihe Islands of Indonesia, Banua Wuhu, was formed by a submarine volcano in 1919; it disappeared in 1935.[56] An 1831 eruption of the Campi Flegrei del Mar di Sicilia produced an island immediately claimed by Britain, Spain, France, and Italy.[57] It subsequently sank.[58] In December, 1720, a large submarine volcano halfway between the Terceira and San Miguel islands in the Azores produced an island that reached 1.5 kilometers in length and 250 meters above sea level in height before it disappeared two years later.[59] Falcon Island, off the coast of Australia, was 145 meters tall in 1933; it had disappeared by 1949.[60] An eruption in 1984 produced Home Reef, an island in Central Tonga 0.5 by 1.5 kilometers wide, with thirty- to fifty-meter-high cliffs.[61] Kolbeinsey Island, the northernmost point of Iceland, lies 105 kilometers north of the main island. It was formed by an explosion in 1372,[62] and is expected to disappear by 2020.[63]

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economic zones than they have in coastal states' territorial seas. As Part VI discusses, this distinction is crucial in the case of international straits. *See infra* Section VI.B.

51. *Id*. art. 77.

52. *Id*. art. 76(6).

53. *Id*. art. 5.

54. *Id*. art. 7.

55. *See Volcano Erupts on Red Sea Island*, *supra* note 4.

56. *Banua Wuhu*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=0607-03= (last visited Oct. 26, 2011).

57. *Campi Flegrei Mar Sicilia*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=0101-07= (last visited Oct. 26, 2011).

58. *Id*.

59. *Don Joao de Castro Bank*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=1802-07= (last visited Oct. 26, 2011).

60. *Falcon Island*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=0403-05= (last visited Oct. 26, 2011).

61. *Home Reef*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=0403-08= (last visited Oct. 26, 2011).

62. *Kolbeinsey Ridge*, GLOBAL VOLCANISM PROGRAM, SMITHSONIAN INST., http://www.volcano.si.edu/world/volcano.cfm?vnum=1705-01= (last visited Oct. 26, 2011).

63. Kristján Sæmundsson & Árni Hjartarson, *Geology and Erosion of Kolbeinsey*, *in* PROCEEDINGS OF THE HORNAFJÖRLUR INTERNATIONAL COASTAL SYMPOSIUM 443-51 (Gísli Viggóson

Apart from the creation and disappearance of islands, the coastline regularly fluctuates with the tides and shifts due to accretion, avulsion, erosion, the melting of glaciers, mining activity, and the depletion of underground aquifers.[64] Climate change will likely increase the pace of those forces. The Intergovernmental Panel on Climate Change (IPCC) predicts a range of rising sea level scenarios, from 0.38 to 0.59 meters by the year 2100.[65] Such processes directly impact maritime entitlements. As the sea level rises, the low-water line and, consequently baselines, gradually retreat. Given the impetus for states to claim as large a maritime zone as possible, basepoints are usually low-lying elevations, fringing reefs, or islands, thus vulnerable to any rise in sea level. As a result, any change in sea level could have a substantial effect on maritime zones.[66] Similarly, the appearance or disappearance of ephemeral islands can have an immediate impact on entitlements. For example, negotiations over the delimitation of the disputed Bangladesh-India maritime boundary were complicated by the emergence of a new island, known as South Talpatti to Bangladesh and New Moore or Purbasha to India.[67] The five-square-kilometer island was formed as a result of volcanic activity.[68] Sovereignty over the island could have altered rights to oil-rich areas in the Bay of Bengal. The island, however, has since disappeared.[69]

Despite the frequency of those changes, and the implications for maritime zones, UNCLOS does not specify whether baselines are ambulatory. Perhaps the silence is due to lack of knowledge of climate change at the time the Convention was concluded.[70] In August of 1981, an article was published in *Science* modeling temperature changes since 1880. It predicted a dramatic sea level rise over the coming century.[71] UNCLOS, however, was only concluded in 1982, before an explosion of research and reports from scientists and U.S. government agencies broadened public awareness.[72] Yet even if participants in the Law of the Sea Conferences did not envision this unprecedented degree of sea level rise, they were certainly aware that the fringes of the land were changing. Climate change would cause sea level rise, but would also increase the pace of already occurring silt deposit and erosion along the coastline. In 1989, Bangladesh's President stated that his country "may be the worst victim

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ed., 1994), *available at* http://www-old.isor.is/~ah/kolbeinsey/kolb_ensk.html.

64. *See supra* notes 12-14 and accompanying text.

65. Timothy R. Carter et al., *New Assessment Methods and the Characterisation of Future Conditions*, *in* CLIMATE CHANGE 2007, *supra* note 15, at 133, 153.

66. For a compilation of areas in which a rise in sea level would substantially shift baselines, see Eric C.F. Bird & John R.V. Prescott, *Rising Global Sea Levels and National Maritime Claims*, 1 MAR. POL'Y REP. 177, 183-92 (1989).

67. VICTOR PRESCOTT & CLIVE SCHOFIELD, THE MARITIME POLITICAL BOUNDARIES OF THE WORLD 282-83 (22d ed. 2005).

68. *Id*.

69. *Disputed Bay of Bengal Island 'Vanishes' Say Scientists*, BBC NEWS, Mar. 24, 2010, http://news.bbc.co.uk/2/hi/8584665.stm.

70. *See* Samuel Pyeatt Menefee, *"Half Seas Over": The Impact of Sea Level Rise on International Law and Policy*, 9 UCLA J. ENVTL. L. & POL'Y 175, 182 (1990).

71. James Hansen et al., *Climate Impact of Increasing Atmospheric Carbon Dioxide*, 213 SCIENCE 957, 965 (1981).

72. Menefee, *supra* note 70, at 182-85.

of the greenhouse effect by way of increased flooding as well as sea-level rise."[73] The President's statement verifies what common sense suggests: the drafters must have been aware that the land from which entitlements would be measured could move.

B. *Provisions of UNCLOS on Shifting Coastlines*

The Convention has only two provisions that plausibly address dynamism in coastal geography. First, the outer limits of the continental shelf are described as "permanent" when established in accordance with recommendations by the Continental Shelf Commission.[74] Presumably, however, the word permanent was meant to indicate the end of the usually lengthy and politically contentious process of claiming a continental shelf, rather than to address concerns of geographic change.

The second plausible reference to coastline shift concerns straight baselines. UNCLOS allows coastal states to use straight baselines on coastlines that are "unstable." Article 7(2) of UNCLOS provides:

> Where because of the presence of a delta and other natural conditions the coastline is highly unstable, the appropriate points may be selected along the furthest seaward extent of the low-water line and, notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the coastal State in accordance with this Convention.[75]

Article 7(2) as adopted has two possible interpretations, turning on the meaning of "notwithstanding." First, the provision could imply that the state must redraw straight baselines given a substantial shift in the coastline. Straight baselines were not intended as a universal protection against any shifts in coastline location. Instead their purpose was to simplify the drawing of baselines on highly irregular coasts, and to provide a modicum of stability in cases of frequent but minor fluctuations. Second, the provision could also plausibly be interpreted to provide that straight baselines will not shift at all given a regression of the low-water line. This alternate interpretation would, however, imply that normal baselines, without such a protection in the face of regression, do shift with the coastline.[76]

Other than those two references, the Convention is silent about any changes in coastal geography; in particular, it does not address whether normal baselines are ambulatory. The implication of this omission is unclear. One possible interpretation is that the drafters sought stability. The straight baselines provision and the continental shelf provision were included as a result of those concerns. Therefore, had the potential of more pervasive coastline shift come to

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73. *Id.* at 193 (quoting Bangladesh's President).

74. UNCLOS, *supra* note 2, arts. 76(8)-(9).

75. *Id*. art. 7(2).

76. There is further nuance to that point: Islands distant from the mainland are analyzed differently from islands that form basepoints in a system of straight baselines along the mainland coast. *See* Menefee, *supra* note 70, at 209. In cases where former islands are submerged at high tide but visible at low tide, a state's prior system of straight baselines, if it has achieved international recognition, may not change. *See* UNCLOS, *supra* note 2, art. 47; *see also id*. art. 7(5) (stating that for straight baselines, long usage may be taken into account).

the drafters' attention, baselines would have been fixed. An alternative interpretation is that the drafters were aware of the likelihood of coastline shift, but concluded that permanence was only important for the continental shelf limits, and that a modicum of stability was only necessary for straight baselines. Therefore the default for all other limits and baselines is that they are ambulatory.[77]

C. *State Practice and Ambulatory Baselines*

State practice, though mixed, suggests that baselines are ambulatory. United States Courts, among others, have concluded that baselines, and therefore maritime limits, move with the coast. The U.S. Supreme Court, in the 1969 case *United States v. Louisiana*, considered whether baselines are ambulatory under the 1958 Convention on the Territorial Sea and the Contiguous Zone.[78] The case arose because of valuable offshore oil reserves near the Mississippi River Delta. Louisiana argued that the Court should fix the state-federal boundary, and consequently the baselines from which the boundary is measured, to end ongoing litigation. The Court dismissed Louisiana's argument and interpreted baselines to be ambulatory under the 1958 Convention.[79] The Court wrote that "[t]he term 'coast line' as used to determine the three-mile grant of submerged lands has been held to mean the modern, ambulatory coast line . . . ."[80] Congress appears to agree with this interpretation: new legislation was introduced in both the House and the Senate to authorize the federal government to enter into state-federal seabed boundary agreements for the purpose of resource exploration. Although neither bill was enacted,[81] both suggest that Congress considers baselines, and therefore state-federal maritime boundaries, to be ambulatory unless otherwise agreed. The amendments to the Submerged Lands Act of 1953 further illustrate that understanding.[82] The original Act adopted "definitions provided by Convention on Territorial Sea and Contiguous Zone."[83] It was amended in 1986, however, to clarify that "any boundary between a State and the United States under this Act which has been or is hereafter fixed by coordinates under a final decree of the United States Supreme Court shall remain immobilized at the coordinates provided under such decree and shall not be ambulatory."[84] That language was

77. David Caron, who argues that baselines should be fixed, concedes that the drafters appear to have implicitly viewed baselines as ambulatory. Caron, *supra* note 22, at 9.

78. United States v. Louisiana, 394 U.S. 11 (1969).

79. *Id*. at 32-34; *see also* United States v. Alaska, 521 U.S. 1, 31 (1997) ("In adopting the 1958 Convention to aid interpretation of the Submerged Lands Act, we recognized that the Convention treats a nation's coastline as its modern, ambulatory coastline. Shifts in a low-water line along the shore, we acknowledged, could lead to a shift in the baseline for measuring a maritime zone for international purposes. In turn, the State's entitlement to submerged lands beneath the territorial sea would change." (internal citations omitted)).

80. *Louisiana*, 394 U.S. at 22.

81. *See* S. 2068, 99th Cong. (1986); H.R. 4606, 99th Cong. (1986).

82. Submerged Lands Act, Pub. L. No. 83-31, 67 Stat. 29 (1953) (codified as amended at 43 U.S.C. § 1301 et seq. (2006)).

83. United States v. Alaska, 422 U.S. 184, 188 (1975).

84. Consolidated Omnibus Budget Reconciliation Act of 1985, Pub. L. No. 99-272, § 8005,

only necessary because the Court interpreted baselines in the 1958 Convention to be ambulatory. Therefore given a discrepancy between a published baseline and the effective baseline in a federal-state dispute, absent an agreement to the contrary, the United States Supreme Court,[85] and presumably Congress observe the real coastline, therefore treating baselines as ambulatory.

Other countries, however, have suggested that legal baselines are those reflected on officially published charts, regardless of the physical location of the coast, implying that baselines are fixed as published. According to this view, the chart determines the position of the baseline regardless of whether the coastal configuration has changed;[86] The legal baseline will only correlate to the coastline if the chart is updated regularly.[87] Haiti, Malaysia, and North Korea implicitly adopt this view by publishing the outer limits of their maritime zones without disclosing their baselines.[88] The British and Dutch governments more explicitly state that, given a discrepancy between the actual position of coastlines and baselines as marked on official charts, the countries' territorial seas are measured from baselines on official charts. Curiously, despite its official position, when the United Kingdom was negotiating a boundary with Belgium, the United Kingdom used Shipwash Sands, an insular feature of its coast, as a basepoint. During the negotiations, the feature eroded and became a submerged bank. The United Kingdom subsequently abandoned its use as a basepoint.[89]

The weight of authority disagrees with these latter countries, however, suggesting that states may challenge even minor deviations between baselines and the actual coast.[90] In her foundational work on dispute resolution under UNCLOS, Natalie Klein concludes that states may challenge baselines. She observes that the Convention grants coastal states a large degree of discretion when establishing straight baselines and that the First Conference on the Law of the Sea noted the potential for abuse.[91] Although there is no explicit text in UNCLOS granting the International Court of Justice (ICJ), or any other

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100 Stat. 82, 151 (1986) (codified at 43 U.S.C. § 1301(b) (2006)).

85. REED, *supra* note 19, at 192.

86. *See id*. at 182.

87. D.C. KAPOOR & ADAM J. KERR, A GUIDE TO MARITIME BOUNDARY DELIMITATION 31 (1986) ("[O]nce the normal baseline has been established and cartographically depicted on large scale charts, it remains in place until such time as it is redrafted, irrespective of whether or not the actual low-water line has physically moved."); *see* CHRIS CARLETON & CLIVE SCHOFIELD, DEVELOPMENTS IN THE TECHNICAL DETERMINATION OF MARITIME SPACE: CHARTS, DATUMS, BASELINES, AND MARITIME ZONES 24-25 (Shelagh Furness ed., 2001); Menefee, *supra* note 70, at 199-200 (stating that baselines are "arguably" those recognized in charts deposited with the Secretary General, and should baselines move, the legal status of the baselines will still be that depicted in the official charts).

88. Bird & Prescott, *supra* note 66, at 191. This practice is fully consistent with UNCLOS Article 16, which provides: "The baselines for measuring the breadth of the territorial sea . . . or the limits derived therefrom . . . shall be shown on charts . . . ." UNCLOS, *supra* note 2, art. 16; *cf*. *id*. art. 75 (permitting states to depict on charts either baselines or the limits of the exclusive economic zone).

89. D.H. Anderson, *Belgium-United Kingdom: Report Number 9-17*, *in* 2 INTERNATIONAL MARITIME BOUNDARIES 1903-04 (Jonathan I. Charney & Lewis M. Alexander eds., 1996).

90. REED, *supra* note 19, at 182.

91. NATALIE KLEIN, DISPUTE SETTLEMENT IN THE UN CONVENTION ON THE LAW OF THE SEA 267 (2005).

tribunal, the power to modify or annul published baselines,[92] the International Law Commission (ILC) suggested during the drafting of the 1958 Convention on the Territorial Sea and Contiguous Zone that if a published baseline departed appreciably from the actual coastline, it would be grounds for a legal challenge.[93] This commentary thus supports the view that states may challenge baselines when first established.

It is less clear, however, whether a state can first recognize another's baselines, but later protest if the physical geography of the coast changes—in other words, whether a state is later estopped from protest. In general, a state may be estopped from protesting a practice inconsistent with UNCLOS if it does not do so with a reasonable timeframe. In the *Anglo-Norwegian Fisheries* case the United Kingdom protested the Norwegian straight baseline system. The ICJ upheld the validity of the baselines, noting that the United Kingdom had not contested the system for more than sixty years.[94] However, this author is not aware of any instances in which a state contested a baseline established on the basis of a geographical feature that later changed. Despite this, state practice and UNCLOS generally appear to support state challenges to discrepancies between published baselines and the physical coast. Therefore, state practice and UNCLOS tentatively support the view that baselines are ambulatory.

III. COMPETING CONCERNS: STABILITY AND THE COMMON HERITAGE

Although Part II suggests that baselines are ambulatory, the question remains: *should* baselines be ambulatory? The answer requires a complex balancing of important concerns in tension with each other. One primary concern is the stability of maritime boundaries. Maritime zones have significant resource and geopolitical value, and thus can generate lengthy and contentious disputes between countries. Given the significant cost of resolving such disputes, and the importance of secure title for resource development, some scholars have proposed permanently fixing maritime limits and boundaries. Fixing the perimeters of maritime zones, however, undermines other important principles. First, the proposal deviates substantially from the initial legal foundation for maritime claims: the land dominates the sea and all maritime entitlements derive from land. According to that premise, as the land changes, maritime entitlements should change to reflect the new physical reality. Second, each area of the ocean conceded to a coastal state detracts from the high seas, the common heritage of mankind. When coastlines retract or islands disappear, either the coastal state or the international community may claim the new area. Addressing changing coastal geography demands a balancing of those competing interests.

92. *Id*.
93. REED, *supra* note 19, at 180.
94. Fisheries (U.K. v. Nor.), 1951 I.C.J. 116, 138-39 (Dec. 18).

A. *The Proposal To Fix Maritime Boundaries*

In 1990, A.H.A. Soons first proposed that baselines should be permanently fixed:

> [C]oastal states are entitled, in the case of landward shifting of the baseline as a result of sea level rise, to maintain the outer limits of the territorial sea and of the [exclusive economic zone] where they were located at a certain moment in accordance with the general rules in force at that time.[95]

According to Soons, ambulatory baselines will wreak havoc on the stability of the international maritime entitlements regime.[96] Numerous scholars have since defended his proposal. David Caron argues that ambulatory baselines would undermine international peace and stability if states could constantly challenge each other's maritime claims.[97] Maritime boundary and limit disputes are significant sources of international conflict and can often take decades to resolve.[98] If states could challenge settled limits and boundaries on the basis of any shift in coastlines, the potential for conflict would be immense.

Caron further argues that coastal states will expend socially inefficient sums to preserve their entitlements, pointing to the example of Japan's Okinotorishima rocks.[99] Japan has spent in excess of $125 million to protect from waves two small rocks that sit only inches above the surface of the ocean.[100] While the status of such rocks as islands, capable of generating maritime zones,[101] is questionable,[102] countries like Japan still resort to exorbitant expense to preserve access to rich fishing grounds or oil reserves.

Caron's final concern, also related to efficiency, is resource development. As numerous scholars have noted, private companies are unlikely to devote significant investment to develop seabed resources if their legal title is in question.[103] If baselines are ambulatory and an oil deposit straddles a boundary or limit, coastline shifts of just meters can affect millions of dollars in revenues.

Those pragmatic concerns are substantial, but fixed baselines

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95. Soons, *supra* note 22, at 225.

96. *Id.* at 224.

97. Caron, *supra* note 22, at 13.

98. For example, in September, 2010, Russia and Norway concluded an agreement delimiting the Bering Sea after nearly 40 years of negotiations. *Norway and Russia Sign Maritime Treaty*, NORWAY: THE OFFICIAL SITE IN THE UNITED STATES, http://www.norway.org/News_and_events/Policy/Norway-and-Russia-Sign-Maritime-Treaty/ (last updated Sept. 17, 2010).

99. Caron, *supra* note 22, at 13.

100. Leticia Diaz, Barry Hart Dubner & Jason Parent, *When is a "Rock" an "Island"? Another Unilateral Declaration Defies "Norms" of International Law*, 15 MICH. ST. J. INT'L L. 519, 519 (2007); *see Starry-eyed: "Soft Power" Built on Sand*, ECONOMIST, Oct. 17, 2009, at 55, *available at* http://www.economist.com/node/14664623.

101. UNCLOS, *supra* note 2, art. 121(2) ("[T]he 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.").

102. In order to generate exclusive economic zones, an elevation must be classified as an island, not a rock. *Id*. art. 121(3). Rocks are those elevations "which cannot sustain human habitation or economic life of their own." Controversy remains as to the meaning of human habitation or economic life under article 121.

103. *See, e.g*., Lea Brilmayer & Natalie Klein, *Land and Sea: Two Sovereignty Regimes in Search of a Common Denominator*, 33 N.Y.U. J. INT'L L. & POL. 703, 747 (2001).

significantly undermine the principled basis of UNCLOS and the reasons why such vast resources were granted to coastal states under customary law and UNCLOS. Moreover, as Parts V and VI will establish, the concern that ambulatory baselines will generate instability and inhibit resource development is substantially addressed by the fact that boundary agreements govern many areas of overlapping claims.

B. *Basis for Entitlement: Land Dominates the Sea*

Sovereignty over and entitlement to maritime zones are legal constructs, established in their modern form in 1982 under UNCLOS. Unlike in the case of sovereignty over land, a country need not demonstrate any prior use of the maritime zones: rights to a territorial sea and the continental shelf exist *ipso facto* and *ab initio* without any requirement for action on the part of the coastal state.[104] Claims to a portion of the world's oceans were established using only land as the basis. As Prosper Weil wrote:

> Coastal geography is the center point of any maritime boundary delimitation. From the moment States were recognized as having rights over areas of sea—that is to say, for as long as there has been such a thing as the territorial sea—these rights have been based on two principles which have acquired an almost idiomatic force . . . : the land dominates the sea and it dominates it by the intermediary of the coast front.[105]

The history of the development of maritime zones demonstrates that coastal geography is certainly the "center point" of entitlements.

Coastal state claims of sovereignty or jurisdiction over adjacent waters originated hundreds of years ago. From the beginning, states have used land as a basis for claims. One of the earliest measures for the extent of maritime jurisdiction was the "cannon shot rule": a state had sovereignty over seas within reach of cannon fire from the shore. The cannon shot measure was imprecise, but was sufficient to support the underlying purpose of securing the land. The cannon shot rule gradually evolved into a fixed breadth standard,[106] but it was only when ocean resources grew in importance that a more precise measure was sought: from where should this fixed breadth of claimed sea be measured?

The solution came in the concept of the baseline, which emerged in the 1839 Anglo-French Fisheries Convention[107] and was entrenched in the 1958 Convention on the Territorial Sea and the Contiguous Zone: "[t]he outer limit of the territorial sea is the line every point of which is at a distance from the

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104. *Id*. at 721-23. Whereas a state is "sovereign" over its territorial sea, *see* UNCLOS, *supra* note 2, art. 2(1), and continental shelf, *see id.* art. 77(1), a state must claim its exclusive economic zone. This claim, however, does not require the state to demonstrate any historical use or any other factors other than its baselines from which the zone will be measured. *See id.* art. 57.

105. PROSPER WEIL, THE LAW OF MARITIME DELIMITATION—REFLECTIONS 51 (Maureen MacGlashan trans., 1989).

106. It is often stated that Thomas Jefferson made the first fixed breadth claim in 1793. *See, e.g.*, Caron, *supra* note 22, at 3-4.

107. DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, OFFICE OF LEGAL AFFAIRS, UNITED NATIONS, THE LAW OF THE SEA: BASELINES: AN EXAMINATION OF THE RELEVANT PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA at viii (1989).

nearest point of the baseline equal to the breadth of the territorial sea."[108] The 1958 Convention further provided that "[t]he drawing of such baselines must not depart to any appreciable extent from the general direction of the coast, and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the regime of internal waters."[109] Today, UNCLOS echoes that language,[110] preserving the requirement of a close link between baselines and the coast.

The ICJ recognizes the centrality of land to any maritime claim. The Court has emphasized that the "juridical link between the State's territorial sovereignty and its rights to certain adjacent maritime expanses is established by means of its coast."[111] The baseline is the interface between the land-defined state and its maritime entitlements:

> The geographic correlation between coast and submerged areas off the coast is the basis of the coastal State's legal title . . . . [T]he coast of the territory of the State is the decisive factor for title to submarine areas adjacent to it . . . . The coast of each of the Parties . . . constitutes the starting line from which one has to set out in order to ascertain how far the . . . areas appertaining to each of them extend . . . in relation to neighboring States situated either in an adjacent or opposite position.[112]

In a dispute between Libya and Malta, the ICJ affirmed the coastline's importance: "it is by means of the maritime front of this landmass, in other words by its coastal opening, that this territorial sovereignty brings its continental shelf rights into effect."[113] Further, as the Court had previously made clear in a delimitation dispute between Denmark and Norway, "the attribution of maritime areas to the territory of a State, which, by its nature, is destined to be permanent, is a legal process based solely on the possession by the territory concerned of a coastline."[114] Thus, "maritime rights are not primary or autonomous rights. They have no independent existence but are an

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108. Convention on the Territorial Sea and the Contiguous Zone art. 6, Apr. 29, 1958, 15 U.S.T. 1606, 516 U.N.T.S. 205. Similarly, in continental shelf delimitations, both the "natural prolongation" criterion in initial decisions by international tribunals and the new "distance criterion" depend on the location of baselines. L.D.M. Nelson, *The Roles of Equity in the Delimitation of Maritime Boundaries*, 84 AM. J. INT'L L. 837, 846-49 (1990). UNCLOS Article 76 includes both criteria. UNCLOS, *supra* note 2, art. 76(1) ("The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the *natural prolongation* of its land territory to the outer edge of the continental margin, or *to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured* . . . ." (emphasis added)).

109. Convention on the Territorial Sea and the Contiguous Zone, *supra* note 108, art. 4(2).

110. *See supra* note 10 and accompanying text.

111. Prosper Weil, *Geographic Considerations in Maritime Delimitation*, *in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 115-16; *see, e.g.*, Aegean Sea Continental Shelf (Greece v. Turk.), Judgment, 1978 I.C.J. 36, ¶ 86 (Dec. 19) (noting that maritime rights exist "solely by virtue of the coastal State's sovereignty over land," as "both an emanation from and an automatic adjunct of the territorial sovereignty of the coastal State"); North Sea Continental Shelf (Ger./Den.; Ger./Neth.), 1967 I.C.J. 3, ¶ 96 (Feb. 20, 1969) ("The land is the legal source of the power which a State may exercise over territorial extensions to seaward.").

112. Continental Shelf (Tunis./Libya), 1982 I.C.J. 18, ¶¶ 73-74 (Feb. 24).

113. Continental Shelf (Libya/Malta), 1985 I.C.J. 13, ¶ 49 (June 3).

114. Maritime Delimitation in the Area Between Greenland and Jan Mayen (Den. v. Nor.), 1993 I.C.J. 38, ¶ 80 (June 14).

extension of the preexisting territorial sea."[115]

That tie between land and maritime zones is important both to minimize conflict and to ensure that states manage their maritime zones. First, territory forms a useful sorting mechanism for prioritizing claims, thus minimizing disputes. Absent such a criterion, maritime claims could have been dependent on more fraught factors such as historical use, as is the case for land boundaries established by tribunals.[116] Although maritime claims may still overlap, requiring a territorial tie limits the potential number of disputing parties. Furthermore, although resolving disputed maritime claims is a complex and difficult process, the land metric provides substantially more predictability than the alternatives. Finally, matching legal claims to the physical geography prevents the occurrence of entirely overlapping legitimate claims, should land masses shift or new land be created.

The territorial tie is also important given the management obligation of coastal states under UNCLOS. Coastal states have the right to enforce their own customs, pollution, and immigration laws to protect themselves in their contiguous zones and have the benefit of exclusive fishing rights in the exclusive economic zones. Nonetheless, they have a corollary responsibility to enforce laws to protect and manage ocean resources. Although perhaps not currently regarded as important obligations, numerous provisions in UNCLOS require coastal states to manage the ocean resources with which they have been entrusted.[117] Under Article 207(2), for example, coastal states must "take other measures as may be necessary to prevent, reduce and control . . . pollution."[118] Performing such a management function becomes more difficult as the state is more geographically removed from the ocean region. If, for example, a state's island became completely submerged three thousand miles away from the mainland, the state would have less incentive to ensure that pollution regulations or other such measures are observed. Although that is a less relevant concern for mainland coastline shifts of several miles, the underlying principle remains the same: given finite resources, a state is more willing and able to invest resources to manage regions closer to shore with greater potential impact on the state's population.

Therefore, decoupling land and maritime claims undermines the logic behind the initial territorial connection—a logic that continues to serve its purpose today. As land moves or disappears, maritime entitlements should in principle move or disappear as well. A coastal state cannot make contemporary claims to a maritime zone based on its coastline in 1982, but usually must rely on the contemporary location of the coastline.

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115. Weil, *supra* note 111, at 115.

116. Land boundaries are often established by treaty. However, if a land boundary dispute comes before an international court or tribunal, a party must establish "effective occupation" of a given territory or continuous physical power. As a result, many land boundary disputes require evidence of hundreds of years of occupation. *See* Brilmayer & Klein, *supra* note 103, at 714-16.

117. *See, e.g.*, UNCLOS, *supra* note 2, arts. 194, 204-06, 210, 211, 216.

118. *Id*. art. 207(2); *see id*. art. 212(2).

C. *Common Heritage of Mankind*

Fixed baselines undermine a second principle foundational to UNCLOS: equity. Under the Convention, coastal states can claim adjacent seas, and the remainder belongs to the international community as the common heritage of mankind.[119] When a coastline recedes or an island disappears, either the coastal state or the international community is entitled to the new expanse of ocean.

Caron argues that baselines should be fixed based on the key assumption that granting this additional ocean to the coastal state does not disrupt the bargain struck at UNCLOS III: "no state under a system of fixed boundaries would gain any more than it presently possesses."[120] As such, Caron concludes that there is no detrimental impact on the international community if baselines are fixed.[121] Yet coastal states would gain more ocean resources as their coastlines retreat. Under UNCLOS, states are entitled to the *adjacent* twelve miles of territorial sea, and not more. If a coastline recedes by one mile, given fixed baselines, the coastal state would claim an additional mile of ocean resources and accompanying migratory resources. If baselines are ambulatory, however, the state would still have a twelve-mile territorial sea and the high seas would increase by one mile. Thus shifting a coastal state's limits will in most cases have minimal effect on the state's entitlement.

The trade-off between coastal state claims and the common heritage of mankind was a bargain reached in UNCLOS. Additional claims made by a coastal state, therefore, directly detract from the common heritage. Although technically the international community would not *lose* any territory should the increased ocean area revert to coastal states, the question remains as to who should benefit from any coastline retraction. Estimates suggest that already eighty-seven percent of known and estimated hydrocarbon reserves, as well as ninety-nine percent of the world's fisheries, fall within the jurisdiction of a coastal state.[122] If coastal states were to claim the increased ocean area, they would be further advantaged in comparison to land-locked and geographically disadvantaged states.

Each of the principles discussed in this Part— instability, inefficiency, historical land tie, and equity—represents an important and competing concern that should affect an evaluation of the merits of ambulatory baselines. In the case of maritime limits, the principles appear to be in direct opposition. However, as the following Parts suggest, the tradeoffs are less stark in light of the stability provided by boundary agreements.

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119. UNCLOS, *supra* note 2, pmbl. (affirming a General Assembly resolution that declared that "the area of the sea-bed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind").

120. Caron, *supra* note 22, at 16.

121. *Id*. at 17.

122. *The United Nations Convention on the Law of the Sea (A Historical Perspective)*, DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, OFFICE OF LEGAL AFFAIRS, UNITED NATIONS, http://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm (last visited Nov. 27, 2011).

IV. POTENTIAL SCENARIOS IN SHIFTING COASTAL GEOGRAPHY

Although UNCLOS provides a uniform regime for the oceans, coastline shift will have substantially different impacts in different contexts. The distinction between maritime limits and maritime boundaries shapes whether ambulatory or fixed baselines will have any impact in a given scenario. Unlike unilaterally declared limits, boundaries established between two or more state parties are governed by treaty law. The proposal to fix baselines has overlooked that distinction. Indeed, the distinction may ultimately not figure in baseline jurisprudence: UNCLOS baseline provisions currently do not differentiate between baselines in limit and in boundary scenarios, and a distinction may not be introduced. Nonetheless, assessing the merits of fixed and ambulatory baselines requires an understanding of the implications in each. This Part first summarizes the differences between limits and boundaries, and then outlines five possible scenarios in which coastline shift will alter the rights of coastal and third states.

A. *Limits Versus Boundaries*

States may claim maritime entitlements in one of two ways. First, where there are no other overlapping claims, a state may unilaterally establish the outer limits of national jurisdiction. Second, where there are overlapping claims, states must reach a boundary agreement either through negotiations or through submission to third-party dispute resolution.[123]

1. *Limits*

States may establish limits in areas with no overlapping claims by unilaterally declaring the limits of their maritime zones. Coastal states are not

123. There is a third method of establishing a claim: a state wishing to claim a continental shelf over 200 miles from its baselines must submit its claims to the Commission on the Limits of the Continental Shelf. This Note does not address claims to the continental shelf for two reasons.

First, claims to the continental shelf are "permanent" under the Convention. The permanence of the continental shelf is uncontested. Article 76 of UNCLOS provides that coastal states shall submit claims to the Commission on the Limits of the Continental Shelf when establishing their limits beyond 200 miles. UNCLOS, *supra* note 2, art. 76(8). The limits recommended by the Commission "shall be final and binding." *Id*. The intent of this provision was arguably to provide a clear boundary between the coastal state and the area in trust of the Sea Bed Authority. *See* David Freestone & John Pethick, *Sea Level Rise and Maritime Boundaries*, *in* 5 WORLD BOUNDARIES: MARITIME BOUNDARIES 73, 77 (Gerald H. Blake ed., 1994). This approach has the corollary consequence of permanence more generally. Soons posits that this means that, in some circumstances, a coastal state will maintain sovereign rights over a seabed area even when the source of the entitlement (the land) disappears. Soons, *supra* note 22, at 230.

Second, even if such claims were not permanently established, the continental shelf is far less susceptible to geographical changes. For example, the erosion of an underwater ridge would likely take millennia. *See, e.g.*, Halldór Geirsson et al., *Current Plate Movements Across the Mid-Atlantic Ridge Determined from 5 Years of Continuous GPS Measurements in Iceland*, 111 J. GEOPHYSICAL RES. 1 (2006) (concluding that Iceland is moving at a rate of 1.89 centimeters per year on the Mid-Atlantic ridge); *cf., e.g.*, Keith Highet, *The Use of Geophysical Factors in the Delimitation of Maritime Boundaries*, *in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 163, 171-77 (tracing the "collapse of inquiry" into the appurtenance of the continental shelf). As such, the zones this Note primarily considers are the territorial sea and exclusive economic zones.

required to publish charts indicating their baselines; rather, a coastal state is required only to deposit with the Secretary-General of the United Nations charts that show straight baselines or the outer limits of the territorial sea, the exclusive economic zone, and the continental shelf derived therefrom.[124] Baselines may then be identified only through large-scale charts normally employed by the state.[125]

As a general rule, unilateral claims are not binding on other states.[126] Like baselines,[127] however, they must be established in accordance with international law and may be challenged. When states unilaterally establish a limit, the limit "cannot be dependent merely upon the will of the coastal State . . . the validity of the delimitation with regard to other States depends upon international law."[128] Any state with sufficient legal interest may institute proceedings against the noncompliant State, or may take appropriate countermeasures. Alternatively, if the noncompliant State practice is sufficiently grave to constitute a "material breach" of UNCLOS as defined under Article 60(3) of the Vienna Convention,[129] any other state party can take action under Article 60(2).[130] Such actions could include suspending the operation of UNCLOS in relation to the noncompliant state. Consequently, whether baselines are ambulatory will affect whether (a) an established limit complies with UNCLOS, and (b) whether other states may challenge the limit.

2. *Delimitation*

Where there are overlapping claims, states must establish a boundary.[131] Since the first modern boundary delimitation in 1942,[132] delimitation methodology and jurisprudence have evolved dramatically, culminating in UNCLOS in 1982. UNCLOS contains extensive procedural requirements on delimitation. Part XV governs the settlement of disputes: parties are obligated to settle any disputes by peaceful means[133] of their choosing.[134] If, however, the

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124. UNCLOS, *supra* note 2, arts. 16(2), 47(9), 75(2). Alternatively, states may submit the geographical coordinates of relevant points. *Id*.

125. *Compare id*. art. 16(1), *with id*. art. 5.

126. Perhaps the unique exception to this general principle is the doctrine of *uti possidetis*. Under the doctrine, the administrative line separating portions of the predecessor colonial state's territory may unilaterally become the delimitation between successor states. *See* Frontier Dispute (Burk. Faso v. Mali), Judgment, 1986 I.C.J. 554, ¶¶ 19-22 (Dec. 22).

127. *See supra* notes 90-93 and accompanying text.

128. Fisheries (U.K. v. Nor.), Judgment, 1951 I.C.J. 116, 132 (Dec. 18).

129. Vienna Convention on the Law of Treaties, *supra* note 30, art. 60(3).

130. *Id*. art. 60(2)(b) ("A material breach of a multilateral treaty by one of the parties entitles . . . a party specially affected by the breach to invoke it as a ground for suspending the operation of the treaty in whole or in part in the relations between itself and the defaulting State.").

131. *See* UNCLOS, *supra* note 2, art. 74(1) ("The delimitation of the exclusive economic zone between States with opposite or adjacent coasts *shall* be effected by agreement . . . ." (emphasis added)); *id*. art. 83(1) ("The delimitation of the continental shelf between States with opposite or adjacent coasts *shall* be effected by agreement . . . ." (emphasis added)). The ICJ has also stated that States have "the duty to negotiate . . . in good faith, with a genuine intention to achieve a positive result." Delimitation of Maritime Boundary in Gulf of Maine Area (Can./U.S.), Judgment, 1984 I.C.J. 246, ¶ 87 (Oct. 12, 1983).

132. Jonathan I. Charney, *Introduction* to 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at xxiii, xxvi.

133. UNCLOS, *supra* note 2, art. 279. States shall resort to an international court or tribunal

parties cannot reach a settlement by recourse to such means, one party can submit the request to a court or tribunal with jurisdiction,[135] including the International Tribunal on the Law of the Sea (ITLOS), the ICJ, or an arbitral tribunal.[136] Those bodies must apply UNCLOS and other rules of international law not contrary to UNCLOS to the dispute.[137]

Of UNCLOS's 320 articles and nine annexes, only three articles provide actual delimitation criteria: Articles 15, 74, and 83.[138] Article 15 governs overlapping territorial sea claims and provides that, as between two States with opposing or adjacent coasts, neither can extend its territorial sea beyond the median line, barring historic title or other special circumstances meriting variance.[139] Articles 74 and 83, governing the delimitation of exclusive economic zones and continental shelves, have almost identical texts, requiring only that that the delimitation "be effected by agreement . . . in order to achieve an equitable solution."[140] Those articles do not, however, address the impact, if any, of shifting coastal geography or any correspondent change in equities. Therefore, regardless of whether baselines are ambulatory or fixed under UNCLOS, states may agree by treaty to ignore the implications of shifting coastlines, subject to the rights of third states as discussed in Part VI.

B. *Potential Scenarios for Coastal Geographic Change*

Given the difference between limits and boundaries, the consequences of ambulatory baselines with shifting coastal geography differ substantially based on the context. While there are many ways that coastlines may change, this Section considers five: two involving limits and three involving boundaries.

1. *Limits: Coastline Retreat*

The first and simplest scenario of coastal geographic change is that of mainland coastline retreat with no overlapping maritime claims. In this scenario, the coastal state has unilaterally established its maritime limits:

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when a negotiated agreement cannot be reached within a reasonable period of time. *See id*. arts. 74(2), 83(2).

134. *Id*. art. 280. State Parties may be obligated to pursue a particular method of dispute resolution by the provisions of another agreement. *See id*. art. 282(1)(a)(i).

135. *Id*. art. 286. State Parties may, however, except boundary delimitations from such compulsory procedures. *See id*. art. 298(1)(a)(i).

136. *Id*. art. 287(1).

137. *Id*. art. 293(1).

138. *Id.* arts. 15, 74, 83. This limited guidance has resulted in a substantial body of jurisprudence on delimitation not found within UNCLOS itself. As the ICJ Chamber noted in the *Gulf of Maine* case:

> One preliminary remark is necessary before we come to the essence of the matter, since it seems . . . essential to stress the distinction to be drawn between what are principles and rules of international law governing the matter and what could be better described as the various equitable criteria and practical methods that may be used to ensure *in concreto* that a particular situation is dealt with in accordance with the principles and rules in question.

Delimitation of Maritime Boundary in Gulf of Maine Area (Can./U.S.), Judgment, 1984 I.C.J. at ¶ 80.

139. UNCLOS, *supra* note 2, art. 15.

140. *Id*. art 74; *cf. id*. art. 83.

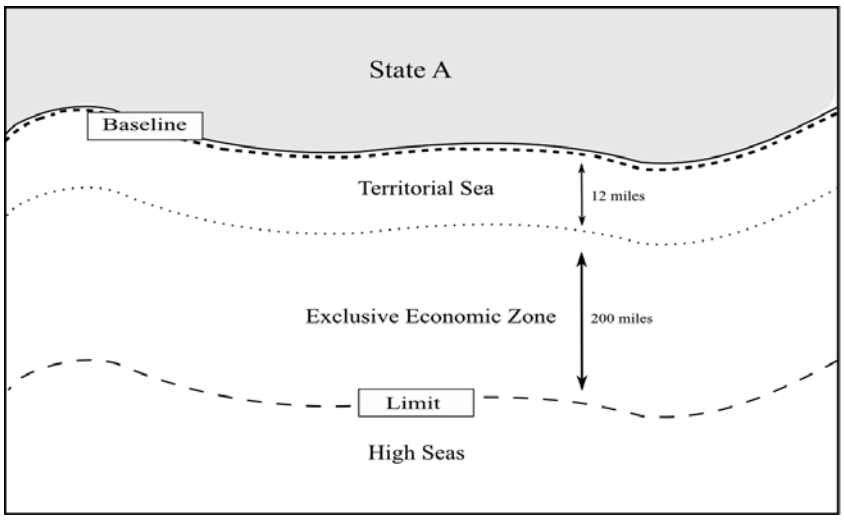

Figure 1. Maritime Limit

If baselines are ambulatory, as the coastline recedes, the shift is mirrored precisely by baselines, the limits of the territorial sea, and exclusive economic zone:

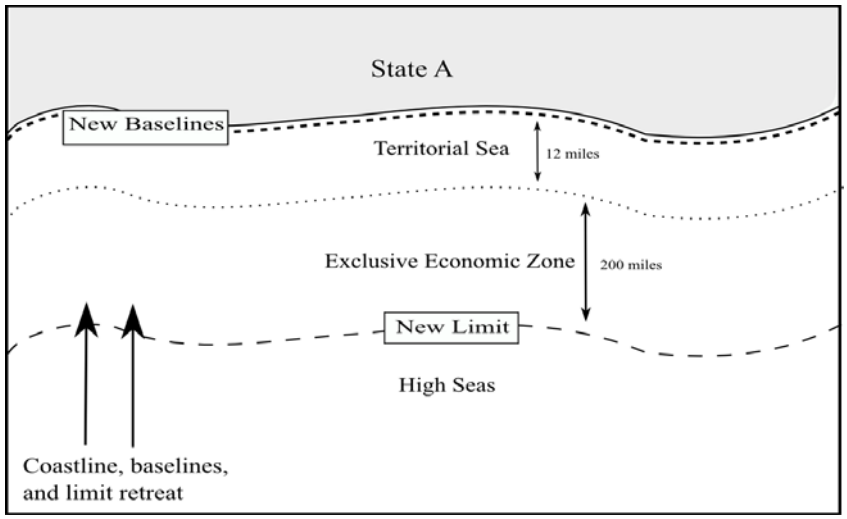

Figure 2. Limit After Coastline and Baselines Retreat

This is the scenario presumably envisioned by Soons and Caron.[141] For

141. *See* Caron, *supra* note 22, at 9 ("[T]he ocean boundary that was generated from the

example, on the coast of North Carolina, as the coast erodes, the limit of the United States' exclusive economic zone would correspondingly shift westward. Such limits surround a substantial percentage of the globe's coasts and are primarily governed by the provisions of UNCLOS.

2. *Limits: Submerging Island*

The second most commonly identified scenario associated with sea level rise is that of a submerging island:

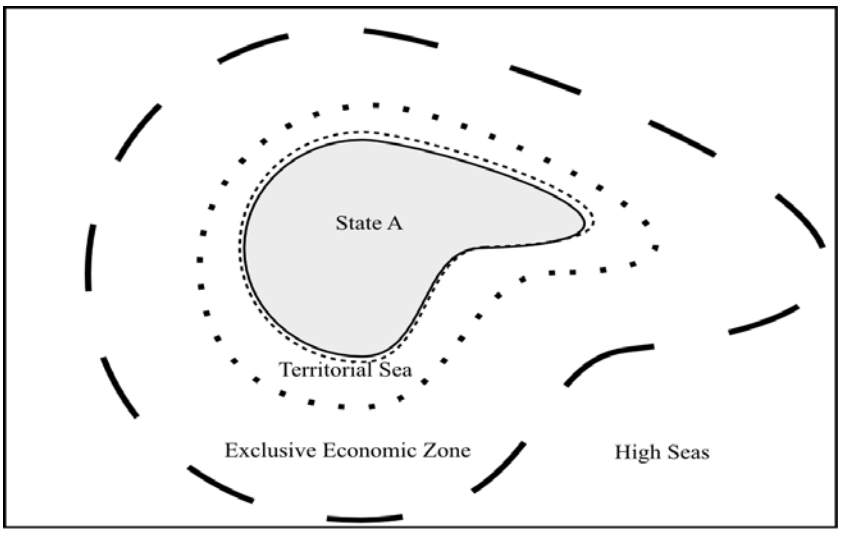

Figure 3. Island Prior to Submerging

As with the mainland coastline retreat in the first scenario, if sea levels rise, the limits of maritime zones will gradually retract with ambulatory baselines. If the entire island is submerged, presumably all maritime claims will be extinguished. Given the plight of sinking island states, that scenario has been the subject of increasing academic and media attention.[142] As in scenario one, an island with no overlapping claims has no maritime boundary agreements and therefore its limits are primarily governed by its obligations under UNCLOS.

3. *Boundary: No New Maritime Zones Are Created Between Opposing or Adjacent States*

This third scenario depicts the vast majority of maritime boundaries. In this scenario, two adjacent or opposing states share a maritime boundary

previous baseline is now redrawn to the new baseline."); Soons, *supra* note 22, at 216 ("Because of the landward shift of the baseline, the outer limits of the territorial sea and [exclusive economic zone] will also shift landward accordingly.").

142. *See, e.g.*, *The Law Report: Climate Change: The Pacific*, ABC NATIONAL (Nov. 22, 2011), http://www.abc.net.au/rn/lawreport/stories/2011/3371988.htm (describing the plight of the populations of the Carteret Islands and other inhabitants of low-lying islands in the face of sea level rise).

dividing their exclusive economic zones:

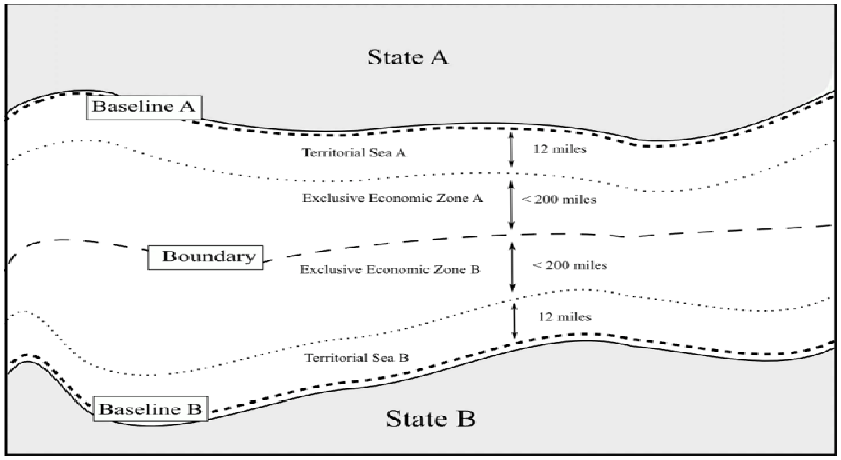

Figure 4. Two Opposing States With Boundary Dividing Exclusive Economic Zones

In most cases, coastline retreat will only increase the exclusive economic zones of the two states. As such, coastline shift will not affect the types of zones delimited, and as Part V will conclude, coastline shift will not affect the stability of the boundary agreement given the protections under treaty law.

4. *Boundary: New Area of High Seas Is Created*

The fourth and fifth scenarios address more complicated situations in which coastline shift introduces a new maritime zone between the two countries. In this fourth scenario, a new area of high seas is created when the area between the two states increases from less than four hundred miles wide (the maximum possible width of two exclusive economic zones) to more than four hundred miles wide. Compare Figure 4 to Figure 5:

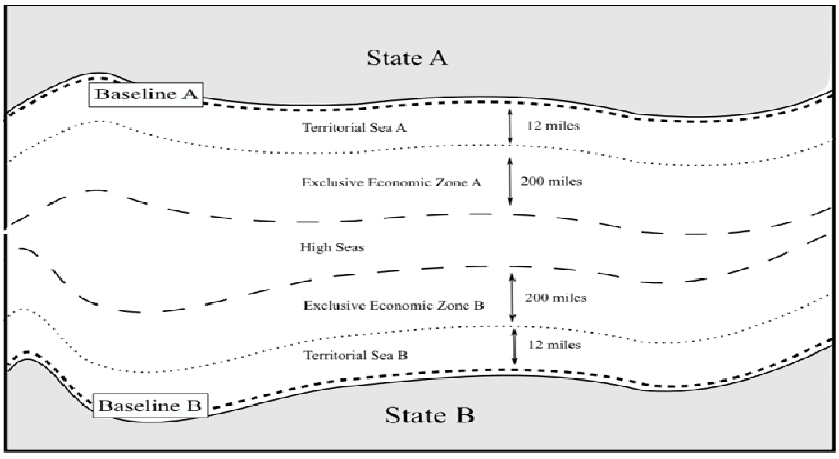

Figure 5. Coastlines Retreat, Creating New Area of High Seas

In this scenario, States A and B would no longer share a boundary. There are very few examples of such a scenario; however, should it arise, this situation potentially would create new fishing rights for all states in the new high seas area.[143]

5. *Boundary: New Area of Exclusive Economic Zone Is Created in an International Strait*

The fifth and final scenario concerns international straits. Boundary agreements delimiting solely territorial seas are found almost exclusively in the context of international straits.[144] If two states border an international strait less than twenty-four miles wide, a boundary in the middle of the strait delimits the territorial seas of the two states:

143. Fishing rights are the exclusive purview of a coastal state in its exclusive economic zone. *See supra* note 49 and accompanying text. On the high seas, all states have freedom of fishing. *See* UNCLOS *supra* note 2, art. 87(1)(e).

144. For an example of an agreement delimiting two territorial seas, see Agreement Stipulating the Territorial Sea Boundary Lines Between Indonesia and the Republic of Singapore in the Strait of Singapore, Indon.-Sing., May 25, 1973, *reprinted in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 1055, 1055.

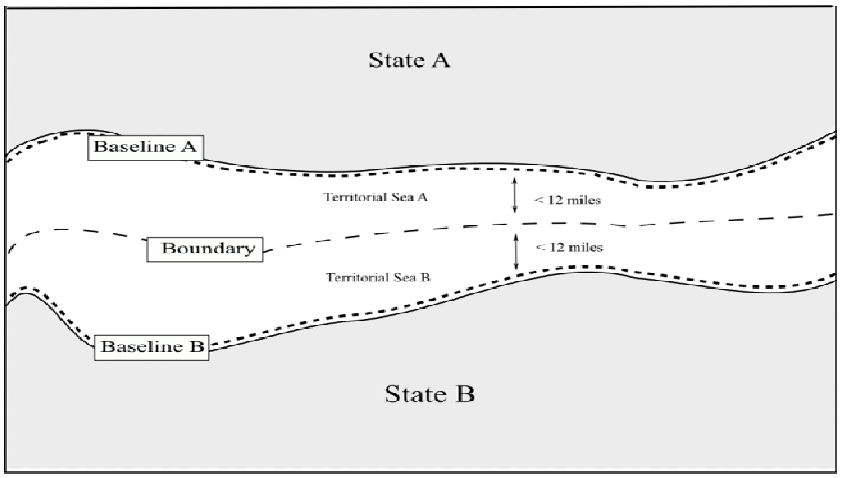

Figure 6. Two Opposing States Bordering International Strait with Boundary Dividing Territorial Seas

Third states may navigate the strait under international laws governing international straits.[145] If, however, the strait were to expand beyond twenty-four miles, a strip of exclusive economic zone would be created between the twelve-mile territorial seas of the opposing states:

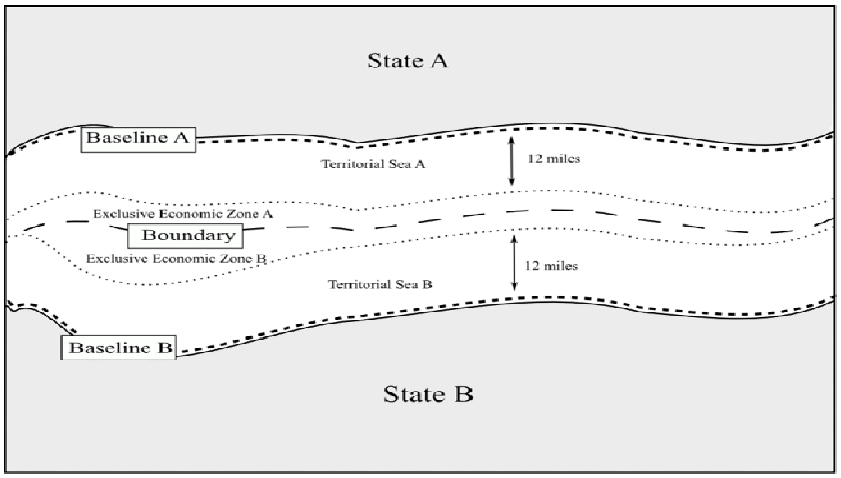

Figure 7: Coastline Retreat Generates New Exclusive Economic Zones

145. *See infra* notes 251-252 and accompanying text.

Although the probability of this scenario occurring is low, its implication for third states would be profound. For example, at its narrowest, the Bab al-Mandeb strait is only eighteen miles wide.[146] If the strait expanded beyond twenty-four miles wide, third states would potentially have new freedom of navigation rights.[147] While Part V concludes that these scenario five agreements would remain in effect for the two party states, Part VI argues that the possibility of third-state rights may raise a question as to the continued enforceability of these agreements against third states.

As those five scenarios demonstrate, analysis of the impact of coastline shift on maritime zones given ambulatory baselines requires distinction between the type of delimitation—limit or boundary—and the types of zones delimited. This Note sets aside the consequences of ambulatory baselines on limits, depicted in scenarios one and two. Instead, Parts V and VI consider how ambulatory baselines would impact the stability of maritime boundary agreements given the role of treaty law.

Part V addresses boundary agreements where coastal geographic change does not create rights for third states, as depicted in the third scenario. In that scenario, the main threat to the stability of the agreements as a result of coastline shift is unilateral termination under Article 62 of the Vienna Convention—if one party alleges that the geographic change constitutes a fundamental change in circumstances.

Part VI considers the stability of maritime boundary agreements in scenarios four and five, where coastline shift generates new rights for third-party states. As boundary agreements, these are subject to Article 62 of the Vienna Convention, but face further uncertainty under the doctrine of *pacta tertiis*.

V. STABILITY OF MARITIME BOUNDARY AGREEMENTS

Maritime boundary agreements provide a powerful and overlooked degree of stability to the law of the sea regime in the face of geographical change. In 1989, shortly after the conclusion of UNCLOS, Prosper Weil wrote that although "[t]he process of maritime delimitation is and remains an exercise sui generis[,] the dividing line to which it leads is undoubtedly very like a land boundary."[148] And as the ICJ stated in the *Temple of Preah Vihear* case, "when two countries establish a frontier between them, one of the primary objects is to achieve stability and finality."[149] Any analysis of the merits of ambulatory baselines, therefore, must account for the effect of treaties in cases in which there are overlapping claims.

This Part provides a detailed examination of the internal stability of

146. ENERGY INFO. ADMIN., DEP'T OF ENERGY, WORLD OIL TRANSIT CHOKEPOINTS (Feb. 2011), http://www.eia.doe.gov/countries/regions-topics.cfm?fips=WOTC.

147. *See infra* notes 251-248 and accompanying text.

148. WEIL, *supra* note 105, at 94.

149. Temple of Preah Vihear (Cambodia v. Thai.), Merits, 1962 I.C.J. 6, 34 (June 15).

maritime boundaries. Boundaries established by an ICJ judgment or by a decision of an arbitral body under UNCLOS are certainly binding, final, and not appealable.[150] Section A surveys states' understanding of the stability of negotiated maritime arrangements. It concludes that states consider maritime boundary agreements permanent, but that permanence does not preclude states from later challenging the agreement on the basis of coastline shift. Section B considers whether states can invoke such changes as grounds for termination of boundary agreements under Article 62 of the Vienna Convention, as some authors warn.[151] The drafting history of the Vienna Convention, however, indicates that countries are explicitly barred from invoking a fundamental change in circumstances as grounds for termination of a maritime boundary agreement. As a result, ambulatory baselines will not impact the stability of the existing system of maritime boundaries in most circumstances.

A. *State Expectations for Stability in Maritime Boundary Agreements*

State practice suggests that boundary agreements are inviolable. Nonetheless, it is unclear whether this is also true when confronted with shifting coastlines. As described in Part II, changes in ocean and coastline geography are pervasive. Yet, of the hundreds of maritime boundary agreements in existence, virtually none refers to or accounts for such changes.

The Division of Ocean Affairs's *Handbook on Maritime Delimitation*, written to facilitate state negotiations of boundaries, notes that maritime boundary delimitation agreements "have a vocation for permanence and stability."[152] States likewise seem to view maritime boundary agreements as permanent. Provisional settlements of boundary disputes are rare.[153] Furthermore, in a study of 137 maritime boundaries, not one contained a termination provision.[154] David Anderson, former judge of ITLOS, writes that "[i]t would require some unusual reason . . . to prompt the negotiators to

150. UNCLOS, *supra* note 2, art. 296(1) ("Any decision rendered by a court or tribunal having jurisdiction under this section shall be final and shall be complied with by all the parties to the dispute."). Further, a State Party to UNCLOS is obligated under the United Nations Charter to undertake to comply with any decision of the ICJ in a case to which it is a party. U.N. Charter art. 94, para. 1; Statute of the International Court of Justice, June 26, 1945, arts. 59-60, 59 Stat. 1055, T.S. No. 993. That is true regardless of whether the judgment demarcates the disputed boundary, or whether the judgment indicates the principles by which the parties themselves should negotiate the demarcation. *See, e.g.*, North Sea Continental Shelf (Ger./Den.; Ger./Neth.), Judgment, 1967 I.C.J. 3, ¶ 85 (Feb. 20, 1969) (establishing criteria according to which the disputing states should demarcate the contested boundary).

151. *See, e.g.*, Soons, *supra* note 22, at 225-26.

152. DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, OFFICE OF LEGAL AFFAIRS, UNITED NATIONS, HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES para. 322 (2000).

153. The 2002 Algeria-Tunisia agreement is the only known agreement referring to Articles 74 and 83 on provisional settlements. The Agreement was in effect for only six years. Agreement on Provisional Arrangements for the Delimitation of the Maritime Boundary, Tunis.-Alg., art. 9, Feb. 11, 2002, 2238 U.N.T.S. 208. Truce agreements historically are also sometimes accompanied by interim boundary settlements. *See, e.g.*, Reps. of Croatia and Yugoslavia to the U.N, Letter dated Dec. 10, 2002 from the Reps. of Croatia and Yugoslavia addressed to the President of the Security Council, U.N. Doc S/2002/1348 (Dec. 11, 2002) (containing the text of an interim boundary agreement between Yugoslavia and Croatia).

154. David Colson, *The Legal Regime of Maritime Boundary Agreements*, *in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 41, 41-42.

include in the terms of a boundary treaty a provision for its denunciation or termination."[155] Even references to dispute settlement in maritime boundary agreements are usually no more than pro forma, such as commitments to "resolve disputes through negotiation"[156]:

> [B]oundary negotiators probably place less emphasis on dispute settlement because they believe that they are resolving a problem, not creating the potential for future disagreements . . . . [W]here parties have set out detailed arrangements with the potential for future disagreements, they have provided for arbitration. Where they have simply drawn a line, they have seen less need for dispute settlement provisions because they see less likelihood for disputes to arise.[157]

Thus, once settled on a boundary, states seemingly view the outcome as permanent.

Yet although the initial positions of their coasts are likely central to the final delimitation, negotiating states appear to disregard the potential for future changes to that coastal geography. States presumably would weigh potential future geographical changes heavily when negotiating treaties. Such changes are important: should coastlines shift, migratory resources, such as fish, will likely move with the coast. However, very few guides exist for negotiating states to introduce that possibility.

Most negotiations resources focus on contemporary issues, barely referencing geographic change. The *Handbook on Maritime Delimitation* does not advise states to consider any future geographical or geological shifts and the corresponding impacts on resource distribution or equities.[158] The *Handbook* only contains a cautionary note warning that, because dynamic fisheries could potentially lead to one party demanding renegotiation of a treaty that encompasses both fishery matters and a boundary, matters of marine resources should be avoided in maritime boundary agreements.[159] Although the guide recognizes that fisheries may change over time, it ignores the consequences of geological changes.

A few guides do note the possibility of shifting coastlines, but only in passing. One such reference strongly recommends that negotiating states define the tracé of the boundary line using geodetic parameters, rather than more vague expressions such as "the median line."[160] Parties are cautioned that if they choose "the median line" as the boundary, it may shift over time due to shifting coastlines.[161] Similarly, another guide discusses the role of technical

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155. David Anderson, *Negotiating Maritime Boundary Agreements: A Personal View*, *in* MARITIME DELIMITATION 121, 132-33 (Rainer Lagoni & Daniel Vignes eds., 2006).

156. Cissé Yacouba & Donald McRae, *The Legal Regime of Maritime Boundary Agreements*, *in* 5 INTERNATIONAL MARITIME BOUNDARIES 3281, 3302 (David A. Colson & Robert W. Smiths eds., 2005).

157. *Id*. at 3303.

158. *See* HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES, *supra* note 152, ¶¶ 239-322 (describing factors that states should consider in boundary negotiations).

159. *Id*. ¶ 317.

160. Anderson, *supra* note 155, at 133.

161. *Id*.

input in maritime delimitation negotiations.[162] It does not suggest that parties analyze potential shifts in currents or climate; however, it notes that the low-water line changes yearly, and "by the time a chart is published, the [low-water] line depicted thereon is probably already different from that actually existing on the ground."[163]

Given the opacity of negotiations, it is unclear to what extent parties rely on any suggestions to contemplate realities such as volcanic seams, low-lying islands, or unstable coastlines during negotiations. What is clear, however, is that almost no boundary agreements account for such changes. This Author could only find two such agreements: a 1986 Burma-India boundary agreement provides that "[e]ach party has sovereignty over the existing islands and any islands that may emerge, falling on its side of the maritime boundary."[164] Similarly, the 1973 agreement between Argentina and Uruguay concerning the Rio de la Plata states, "[e]xisting islands or any island that may emerge in the river in the future shall belong to one of the two Parties depending on which side of the line indicated in Article 41 they are on . . . ."[165] It appears that there are no instances of provisions on geographic changes outside of those two treaties.

The absence of treaty provisions, or negotiations on future coastline changes, does not necessarily indicate that states did not consider the possibility. States may simply have placed greater import on permanence and dismissed potential future detriment from shifting coastlines as a necessary or distant cost. But some states may have overlooked the possibility of coastline shift, underestimated the extent of future changes, or anticipated the ability to unilaterally terminate a boundary agreement in the future should the change in equities be sufficiently disadvantageous. That prospect may have caused some scholars to caution that states might argue coastal geographic change justifies unilateral termination of maritime boundary agreements under Article 62 of the Vienna Convention.

B. *Internal Stability of Maritime Boundary Agreements:* Rebus Sic Stantibus

Under the Vienna Convention, a treaty may be terminated only with the consent of its parties, in conformity with its termination or withdrawal provisions, or by operation of law on a limited number of grounds.[166]

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162. Nuno S. Marques Antunes, *Some Thoughts on the Technical Input in Maritime Delimitation*, *in* 5 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 156, at 3377, 3386-87 (listing the issues likely to emerge in the delimitation process).

163. *Id*. at 3391.

164. Agreement on the Delimitation of the Maritime Boundary in the Andaman Sea, in the Coco Channel and in the Bay of Bengal, Burma-India, art. 5, Dec. 23, 1986, *reprinted in* 2 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 89, at 1338, 1339.

165. Agreement Relating to the Delimitation of the River Plate and the Maritime Boundary Between Argentina and Uruguay, Arg.-Uru., art. 44, Nov. 19, 1973, *reprinted in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 764, 767.

166. Vienna Convention on the Law of Treaties, *supra* note 30, art. 54; *see also* G.G. Fitzmaurice, Second Report on the Law of Treaties, [1957] 2 Y.B. Int'l L. Comm'n 16, 22, U.N. Doc. A/CN.4/107 (describing termination in accordance with the terms of the treaty, by special agreement, or

Generally, the absence of an express termination provision is prima facie evidence that the treaty is binding in perpetuity.[167] On rare occasions, however, a treaty may be terminated by operation of law when there is a material breach,[168] impossibility of performance,[169] a fundamental change in circumstances,[170] or the emergence of a new peremptory norm of international law.[171]

As noted above, maritime boundary agreements rarely include provisions for termination or withdrawal.[172] Thus, parties seeking to terminate a boundary agreement would likely resort to one of the prescribed grounds for unilateral termination under the Vienna Convention. Given the centrality of coastlines to maritime entitlements,[173] the most likely grounds for unilateral termination upon coastline shift is a fundamental change in circumstances.

Article 62(1) of the Vienna Convention provides:

> A fundamental change of circumstances which has occurred with regard to those existing at the time of the conclusion of a treaty, and which was not foreseen by the parties, may not be invoked as a ground for terminating or withdrawing from the treaty unless:
>
> (*a*) the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty; and
>
> (*b*) the effect of the change is radically to transform the extent of obligations still to be performed under the treaty.[174]

The article thus requires that: the facts, knowledge, or legal regime, the change of which is invoked as grounds for termination, existed at the time the treaty was concluded; the parties did not foresee a change in those circumstances;[175]

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by operation of law). State parties may also challenge the underlying validity of the treaty. Vienna Convention on the Law of Treaties, *supra* note 30, arts. 46-63. The Vienna Convention is binding on State Parties, with almost universal adherence. In addition, the rules governing interpretation have been held to be binding on all states as customary international law. The ICJ has stated that "some of the rules laid down in that Convention might be considered as a codification of existing customary law." These include "the provisions of the Vienna Convention concerning the termination and the suspension of the operation of treaties, set forth in Articles 60 to 62." Gabčíkovo-Nagymaros Project (Hung./Slovk.), 1997 I.C.J. 7, ¶ 46 (Sept. 25) (citations omitted); *see also* Fisheries Jurisdiction (U.K. v. Ice.), Jurisdiction of the Court, Judgment, 1973 I.C.J. 3, ¶ 36 (Feb. 2) ("Article 62 of the Vienna Convention on the Law of Treaties, . . . may in many respects be considered as a codification of existing customary law on the subject of the termination of a treaty relationship on account of change of circumstances.").

167. Fitzmaurice, *supra* note 166, at 22; *see also* Vienna Convention on the Law of Treaties, *supra* note 30, art. 56 ("A treaty which contains no provision regarding its termination and which does not provide for denunciation or withdrawal is not subject to denunciation or withdrawal unless: (a) it is established that the parties intended to admit the possibility of denunciation or withdrawal; or (b) a right of denunciation or withdrawal may be implied by the nature of the treaty."). Since it is common for treaties to include provisions on termination or withdrawal, in the absence of such a provision, it is usually difficult to establish that the parties intended to admit the possibility of termination.

168. Vienna Convention on the Law of Treaties, *supra* note 30, art. 60. Material breach is a highly circumscribed basis for termination, limited to "violation[s] of a provision essential to the accomplishment of the object or purpose of the treaty." *Id*. art. 60(3).

169. *Id*. art. 61.

170. *Id*. art. 62.

171. *Id*. art. 64.

172. *See supra* notes 154-155 and accompanying text.

173. *See supra* Section II.B.

174. Vienna Convention on the Law of Treaties, *supra* note 30, art. 62(1).

175. *But see* Oliver J. Lissitzyn, *Treaties and Changed Circumstances (*Rebus Sic Stantibus*)*,

and those circumstances were an essential basis for consent. The underlying principle is akin to that of contract law in domestic jurisdictions: a fundamental change of circumstances can render a contract voidable if the change undermines the basis for the agreement.[176] If conditions change such that a treaty no longer reflects the original intent of the parties and becomes imbalanced, it loses its object and purpose. Invoking *rebus sic stantibus* allows parties to terminate a treaty that no longer serves its purpose without resorting to breach.[177] Thus, Article 62 gives weight to the shared expectations of the parties, but circumscribes the doctrine's application, protecting the stability of treaties.

The doctrine of *rebus sic stantibus* might be applied to maritime boundary agreements as follows: states, when negotiating maritime boundary agreements, made concessions based on the existing coastal geography. The geography was fundamental to the final agreement and a basis for consent. States did not expect any shifts in geography due to volcanic activity, climate change, seismic activity, or any other major changes apart from erosion. When such changes dramatically alter the coastal geography that formed the basis of a state's consent, that state may invoke the fundamental change in circumstances principle to terminate the boundary agreement.

However, as this Section will describe, it is extremely unlikely that a state could successfully invoke Article 62 of the Vienna Convention as grounds to terminate a maritime boundary agreement. First, international tribunals almost never accept the doctrine of *rebus sic stantibus*. Second, Article 62 precludes invoking the doctrine in the context of boundary agreements. As the drafting history of the provision demonstrates, the word "boundaries" encompasses maritime boundaries as well as land boundaries. Third, even if, as a general matter, a state could invoke Article 62 to terminate a maritime boundary agreement unilaterally, the state would need to demonstrate both that the coastal geography at the time the agreement was concluded was a basis for its consent and that the state could not reasonably have anticipated changes in that coastal geography. As a result, regardless of whether baselines are ambulatory or fixed, most maritime boundaries will remain in effect as between the state parties.

1. *Limited Application of* Rebus Sic Stantibus *by International Courts*

States are unlikely to successfully invoke the principle of *rebus sic stantibus* as grounds for unilateral termination under any circumstances, given the reluctance of courts to apply it. Although codified in the Vienna

61 AM. J. INT'L L. 895, 912 (1967) ("A change in circumstances may be invoked even if it was not 'unforeseen' in the absolute sense. The parties may have been aware of the possibility of the change but for various reasons failed to provide for it expressly."); *id*. at 915 ("'Foreseeing' a future event may mean expecting it as inevitable, expecting it as probable, or thinking of it as possible but not likely.").

176. The principle also arises in English common law as the doctrine of frustration. *See* 9(1) HALSBURY'S LAWS OF ENGLAND ¶ 897 (4th ed. 1998).

177. JAMES BRIERLY, THE LAW OF NATIONS 335 (6th ed. 1963).

Convention, Lauterpacht dismisses *rebus sic stantibus* as "ow[ing] its fame and notoriety principally to writers who take it over from text-book to text-book by dint of vague but persistent references to the State's right of existence and self-preservation."[178] There are few examples of states invoking *rebus sic stantibus*. Even in those cases, the other state party, whose treaty rights the doctrine challenges, has never recognized the applicability of *rebus sic stantibus*.[179] Indeed, some states reject the doctrine's existence entirely.[180]

Almost without exception, tribunals have rejected arguments invoking the doctrine of changed circumstances.[181] Courts are generally reluctant to recognize such a right of unilateral termination given the importance of a stable treaty regime.[182] Article 62(1) stands in tension with the principle of *pacta sunt servanda*,[183] a principle "of prime importance for the stability of treaty relations."[184] The ICJ in particular has never accepted Article 62(1) as grounds for unilateral termination of a treaty. In the *Fisheries Jurisdiction* case, Iceland argued that 1961 fishery limits were no longer applicable because of changed circumstances concerning the nature of its fishing industry and that of Germany.[185] The Court refused to endorse the unilateral termination as it found no radical transformation to the extent of remaining obligations under the treaty. Moreover, the Court noted that the parties anticipated such a change in circumstances in their negotiations.[186]

The Court similarly rejected Hungary's argument in the *Gabčíkovo-Nagymaros Project* case.[187] Hungary argued that the political and economic

178. H. LAUTERPACHT, THE FUNCTION OF LAW IN THE INTERNATIONAL COMMUNITY 270 (photo. reprint 1999) (1933). He suggests that the main use for the doctrine is for treaties imposed by force. *Id*. at 271.

179. *Id*. at 270.

180. *See Argentina*, UNITED NATIONS TREATY COLLECTION (Dec. 20, 2011), http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=TREATY&mtdsg_no=XXIII~1&chapter=23&Temp=mtdsg3&lang=en#EndDec (Argentina reservation) ("The Argentine Republic does not accept the idea that a fundamental change of circumstances which has occurred with regard to those existing at the time of the conclusion of a treaty, and which was not foreseen by the parties, may be invoked as a ground for terminating or withdrawing from the treaty . . . ."); *Chile,* UNITED NATIONS TREATY COLLECTION (Dec. 20, 2011,), treaties.un.org/pages/ViewDetailsIII.aspx?&src=treaty&mtdsg_no=XXIII~1&chapter=23&Temp=mtdsg3&lang=en#EndDec (Chile reservation) ("The Republic of Chile declares its adherence to the general principle of the immutability of treaties . . . and . . . formulates a reservation relating to the provisions of article 62, paragraphs 1 and 3, of the Convention, which it considers inapplicable to Chile.").

181. 1 OPPENHEIM'S INTERNATIONAL LAW § 651 n.5, at 1306 (Robert Jennings & Arthur Watts eds., 9th ed. 1996). The doctrine has, however, been recognized by domestic courts interpreting international law. *See, e.g*., Hooper v. United States, 22 Ct. Cl. 408 (1887) (holding that the United States was justified in annulling in 1798 the 1778 treaties with France because France had committed certain infractions).

182. *See, e.g*., Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, ¶ 104 (Sept. 25) (rejecting Hungary's argument that the changing political and economic climate, as well as new environmental norms and environmental knowledge, constituted a change in circumstances as a basis for unilateral termination, citing the import of stability in treaty regimes).

183. *Compare* Vienna Convention on the Law of Treaties, *supra* note 30, art. 62(1) (permitting termination upon a fundamental change in certain circumstances), *with id*. art. 26 ("Every treaty in force is binding upon the parties to it and must be performed by them in good faith.").

184. ANTHONY AUST, MODERN TREATY LAW AND PRACTICE 179 (2d ed. 2007).

185. Fisheries Jurisdiction (U.K. v. Ice.), 1973 I.C.J. 3, ¶ 38 (Feb. 2).

186. *Id*. ¶ 41.

187. *Gabčíkovo-Nagymaros Project*, 1997 I.C.J. ¶ 104.

situation in Eastern Europe had changed fundamentally, as had environmental norms and knowledge. The Court found that the political conditions were "not so closely linked to the object and purpose of the treaty that they constituted an essential basis of the consent of the parties and, in changing, radically altered the extent of the obligations still to be performed."[188] Moreover, the Court noted, the treaty included provisions that accommodated such change.[189]

The European Court of Justice, on the other hand, found the political and economic changes in former Yugoslav republics sufficient to permit the invocation of a fundamental change in circumstances.[190] The Court upheld a decision of the Council of Ministers denouncing an agreement between the European Community and Yugoslavia on the basis of the changed political circumstances in the early 1990s.[191] The European Court decided that "the pursuit of hostilities and their consequences on economic and trade relations . . . constitute a radical change in the conditions under which the Cooperation Agreement" was concluded.[192] However, Article 62 and the merits of the underlying claim were not central to the analysis. Rather, the decision focused on judicial review.

Given its infrequent application and the strong critiques thereof, states are therefore unlikely ever to invoke Article 62(1) successfully. They are even less likely to do so with respect to maritime boundary agreements given the text of Article 62(2) of the Vienna Convention.

2. Rebus Sic Stantibus *and Maritime Boundary Agreements*

Article 62(2) of the Vienna Convention explicitly excludes boundary agreements: "[a] fundamental change of circumstances may not be invoked as a ground for terminating or withdrawing from a treaty . . . if the treaty establishes a boundary . . . ."[193] Although the text of the Article 62 exception does not specifically refer to *maritime* boundary delimitation agreements, in the *Aegean Sea* case, the ICJ implied that maritime boundaries fall within the Article 62(2) exception: "Whether it is a land frontier or a boundary line in the continental shelf that is in question, the process is essentially the same, and inevitably involves the same element of stability and permanence, and is subject to the rule excluding boundary agreements from fundamental change of circumstances."[194] Despite that dicta, scholars still dispute whether the Article 62(2) exception applies to maritime boundaries.

Caron writes that the question remains open: "[e]ven though states generally have a great interest in upholding the sanctity of such [boundary] agreements, it is entirely plausible that a state might argue that circumstances

188. *Id*.
189. *Id*.
190. Case C-162/96, A. Racke GmbH & Co. v. Hauptzollamt Mainz, [1998] E.C.R. I-3655, ¶ 55.
191. AUST, *supra* note 184, at 298-99 (citing A. Racke GmbH & Co., [1998] E.C.R. ¶¶ 53-59).
192. *A. Racke GmbH & Co*., [1998] E.C.R. ¶ 55.
193. Vienna Convention on the Law of Treaties, *supra* note 30, art. 62(2)(a).
194. Aegean Sea Continental Shelf (Greece v. Turk.), 1978 I.C.J. 3, ¶ 85 (Dec. 19).

had changed in that the parties had not foreseen such a rise in sea level."[195] Lusthaus observes that "[c]onflicts could occur as states directly and forcefully challenge other states' sovereignty over maritime territory, possibly even calling past delimitation agreements into question"[196] and posits that unilateral termination would only "probably" violate Article 62(2) of the Vienna Convention.[197]

Others have taken the opposite view, though they provide little justification. Clive Schofield implies that maritime boundary treaties are within the Article 62(2) exception when, in his discussion of the treatment of islands in delimitations, he notes that the "special protection accorded to boundary treaties in international law," citing Article 62(2).[198] Freestone and Pethick write that "[m]aritime boundaries, once made, belong to that class of treaty the validity of which is not affected by subsequent fundamental change of circumstances . . . ."[199] Even these authors, however, express discomfort with the idea of a wholesale exclusion of maritime boundary agreements, especially in the case of complete inundation of islands.[200]

To resolve this uncertainty, the following Subsections review the drafting history of Article 62 of the Vienna Convention and conclude that maritime boundary agreements do fall within the boundary agreement exception.

3. *Drafting History of Article 62(2)(a)*

The Vienna Convention's drafting history suggests that Article 62 excludes maritime boundary agreements. Rapporteur G.G. Fitzmaurice was the first to address the principle of *rebus sic stantibus* in his 1957 report.[201] However, it was Rapporteur Sir Humphrey Waldock who established unique protections for boundary agreements, as part of a broader project to confine the scope of the doctrine to protect the "general security of treaties."[202] Quoting Rapporteur Fitzmaurice's Second Report, he writes:

> It is all too easy to find grounds for alleging a change of circumstances, since in fact[,] in international life[,] circumstances are constantly changing. But these changes are not, generally speaking, of a kind that can or should affect the continued operation of treaties. As a rule, they do not render the execution of the treaty either impossible or materially [very] difficult, or its objects impossible of [further] realization, or destroy its value or *raison d'être.* What they may tend to influence is the willingness of one or other of the parties, on ideological or political grounds—often of an internal character—to continue to

195. Caron, *supra* note 22, at 13-14.

196. Lusthaus, *supra* note 22, at 115.

197. *Id*. at 118 n.3.

198. Clive Schofield, *The Trouble with Islands: The Definition and Role of Islands and Rocks in Maritime Boundary Delimitation*, *in* MARITIME BOUNDARY DISPUTES, SETTLEMENT PROCESSES, AND THE LAW OF THE SEA, *supra* note 22, at 19, 22 n.11.

199. Freestone & Pethick, *supra* note 123, at 77-78 (internal quotation marks omitted).

200. *See, e.g.*, *id*. at 79-80 (questioning whether an island state that is entirely inundated continues to exist as a state under international law).

201. Fitzmaurice, *supra* note 166, at 32-33.

202. Sir Humphrey Waldock, *Second Report on the Law of Treaties*, [1963] 2 Y.B. Int'l L. Comm'n 36, 80, U.N. Doc. A/CN.4/156.

> carry it out.[203]

This was, he noted, particularly true absent a regime of compulsory jurisdiction,[204] as is the case for maritime boundary agreements.[205]

The ILC adopted in large part the work of Rapporteur Waldock.[206] Although Article 62 was ultimately one of the most debated provisions of the Vienna Convention,[207] there was minimal treatment of this striking new addition to the draft articles.[208] Thus, there is little guidance in the early drafting of Article 62 as to the scope of the boundary exception.

When the state delegations later met for final negotiations, however, the discussions on Article 62(2) reveal that the term "boundary" refers to both land boundaries and maritime boundaries. First, the Ukrainian delegation stated that the existing draft text was sufficiently broad to cover island disputes.[209] Second, in its comments on Draft Article 59 on Fundamental Changes in Circumstances at the First Session of the United Nations Conference on the Law of Treaties, the United States delegation quoted Oppenheim's famous treatise on international law.[210] Oppenheim defined boundaries as "the imaginary lines on the surface of the earth which separate the territory of one state from that of another, or from unappropriated territory, or *from the open sea*."[211] By inference, the United States delegation also viewed boundaries as encompassing both land and maritime delimitations.

Third, in its same submission at the First Session, the United States delegation noted that the scope of the boundary exception would not cover a number of important treaties establishing territorial status or settling territorial disputes. In particular, the United States pointed to the example of the settlement of disputes over islands. If a party withdrew a sovereignty claim

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203. *Id*. (quoting Fitzmaurice, *supra* note 166, at 56-57) (modifications reflect the original text by Fitzmaurice).

204. *Id*.

205. *See supra* note 135. Many countries have reserved maritime boundary disputes from compulsory jurisdiction under UNCLOS. *See infra* note 276 and accompanying text.

206. Rep. of the Int'l Law Comm'n, 15th sess., May 6-July 12, 1963, U.N. Doc. A/CN.4/163; GAOR, 18th Sess., Supp. No. 9 (1963) [hereinafter Rep. of the Int'l Law Comm'n].

207. *See* United Nations Conference on the Law of Treaties, First Session, Vienna, Austria, Mar. 26-May 24, 1968, *Summary Records of the Plenary Meetings and of the Meetings of the Committee of the Whole,* U.N. Doc. A/CONF.39/11 (Jan. 1969) (detailing the agenda of the First Session of the Conference and the two days devoted to Article 62).

208. The Syrian delegation at a later Conference on the Law of Treaties commented: "But the practice of two or more States in such a context and with regard to such a delicate matter should not be cited as a reasonable justification for a *de lege ferenda* rule such as that in paragraph 2 (*a*)." United Nations Conference on the Law of Treaties, Second Session, Vienna, Austria, Mar. 26-May 24, 1968, *Twenty-Second Plenary Meeting*, ¶ 8, U.N. Doc. A/CONF.39/11/Add.l (May 13, 1969). In his article on the evolution of the doctrine of *rebus sic stantibus* following the Vienna Convention, Herbert Koeck attributes this silence to the nature of the conference: "[A]n international law conference . . . is not a law seminar, but an arena for competing political interests." Heribert Franz Koeck, *The "Changed Circumstances" Clause After the United Nations Conference on the Law of Treaties (1968-69)*, 4 GA. J. INT'L & COMP. L. 93, 102 (1974).

209. United Nations Conference on the Law of Treaties, First Session, Vienna, Austria, Mar. 26-May 24, 1968, *63rd Meeting of the Committee of the Whole*, at 368, U.N. Doc. A/CONF.39/C.1/SR.63 (May 10, 1968) [hereinafter UNCLT, First Session, *63rd Meeting*].

210. *Id*. at 367.

211. 1 OPPENHEIM'S INTERNATIONAL LAW, *supra* note 181, § 226, at 661 (emphasis added).

over an island, but did not formally establish a boundary, the United States feared that the status of the territorial settlement could be challenged later under the doctrine of *rebus sic stantibus*.[212] That comment suggests that if the parties had reached a boundary agreement, rather than a territorial settlement, the agreement would have fallen within the Article 62 exception, rendering the *rebus sic stantibus* principle inapplicable. As such, the comment affirms that the United States considered the exception to include maritime boundaries.

Although limited, those comments, and the absence of any contrary statements, suggest that the State Parties intended maritime boundaries to fall within the Article 62(2) boundary exception. Thus states cannot invoke coastline shift as grounds to terminate a maritime boundary.

4. *Climate Change: A Fundamental Change in Circumstances?*

Even if maritime boundaries did *not* fall within the Article 62(2) exception, it is still unlikely that coastline shift would constitute sufficient grounds for termination under the doctrine of *rebus sic stantibus*. First, commentary during the final drafting stages of the Vienna Convention suggests that such physical changes would affect only the interpretation of a boundary agreement, not its validity.[213] In its response to Rapporteur Waldock's draft articles, Canada commented that the ILC had not considered boundaries established by reference to a thalweg.[214] Canada thus proposed that the Article 62(2) exception be drafted to apply "[t]o a treaty fixing a boundary, *except if such a boundary is based directly on a thalweg or other natural phenomenon the physical location of which subsequently significantly altered as the result of a natural occurrence . . . .*"[215] The new language would allow countries to terminate a boundary unilaterally if there was significant change to the physical basis of such a boundary, analogous to a baseline. In his response, Rapporteur Waldock stated that he "appreciate[d] that an extraordinary flood, an earthquake or a landslide might conceivably alter the location of a thalweg, watershed or other feature used in a treaty delimitation of a boundary."[216] Nonetheless, he "doubt[ed]" whether such a change in geographical circumstances would constitute an essential change in circumstances sufficient to permit termination on the basis of a fundamental change in circumstances.[217] Rather, he suggested, such a change would "raise a problem as to the correct interpretation and application of the treaty in the light of the changed

212. UNCLT, First Session, *63rd Meeting*, *supra* note 209, at 367. The United States may have been mindful of the case of the contested boundaries of the Philippines following the Treaty of Paris of 1898.

213. *Law of Treaties: Comments by Governments on the Draft Articles on the Law of Treaties Drawn up by the Commission at its Fourteenth, Fifteenth and Sixteenth Session*, *reprinted in* [1966] 2 Y.B. INT'L L. COMM'N 279, U.N. Docs A/CN.4/182, Corr.1&2, Add.1, 2/Rev.1 & 3.

214. Sir Humphrey Waldock, Fifth Report on the Law of Treaties, [1966] 2 Y.B. Int'l L. Comm'n 1, 39, U.N. Doc. A/CN.4/183. A thalweg is the deepest continuous line in a valley, whether underwater or not.

215. *Id*. (emphasis added).

216. *Id*. at 44.

217. *Id*.

geographical facts."[218]

That exchange is important for two reasons. First, it establishes that state representatives at the Vienna Convention were cognizant that some boundary agreements were dependent on physical features that themselves might change, as suggested in Part II. Second, it shows that the general understanding was that these changes would not affect the stability of the agreement. By defining the delimitation line not by its geographical coordinates but rather by a shifting line, the parties to the Vienna Convention could reasonably be assumed to have "foreseen"[219] and "provided for"[220] the changing geographical realities of a proposed boundary. The purpose of such a shifting boundary was well understood. Thalwegs were often used to delineate boundaries in river valleys, accommodating shared navigation and water use rights, and to serve that purpose, the boundary needed to follow the water channel. The representatives to the Vienna Convention understood that shifts in geological features would affect only the agreement's interpretation, not its underlying validity.

The exchange between Canada and Rapporteur Waldock is also important in that it demonstrates a second reason why states will not successfully unilaterally terminate maritime boundary agreements: states were likely aware of changing coastal geography during the drafting of the Vienna Convention. In order to invoke Article 62 as grounds for termination, the changed circumstances must not have been "foreseen by the parties . . . ."[221] While the discussion here is in reference to thalwegs, the commentary, as well as that discussed in Part II concerning UNCLOS, suggests that states were aware, or should have been aware, that coastlines would shift. Concerning climate change, a state could argue that it had not foreseen sea level rise at the time it concluded a boundary agreement. This argument is weak for two reasons. First, climate change could simply be characterized as an exacerbated form of natural coastline shifts. As a result, the state should have foreseen the possibility of coastline retreat. Second, the argument lacks credibility when applied to agreements effected after the late 1980s, at which point climate change awareness was widespread and parties should have foreseen the risk of climate change.

The third reason states are unlikely to invoke climate change successfully as a fundamental change in circumstances is because it is difficult to prove that coastal geography constituted a fundamental basis of consent to the boundary agreement for either state party. Under Article 62(1)(a), a fundamental change

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218. *Id*.

219. Draft Article 44 adopted by the ILC includes the language that parties may not invoke as a fundamental change in circumstances those circumstances "which the parties have foreseen and for the consequences of which they have made provision in the treaty itself." Rep. of the Int'l Law Comm'n, *supra* note 206. The revised Draft Articles adopted prior to the Convention Conference also used the term "foreseen," *Revised Draft Articles*, *reprinted in* [1966] 2 Y.B. Int'l L. Comm'n 112, 121 U.N. Doc. A/CN.4/L.117 and Add.1, and the term appears in the final adopted treaty language. *See* Vienna Convention on the Law of Treaties, *supra* note 30, art. 62.

220. Rapporteur Fitzmaurice defined an essential change to exclude those changes that, "either expressly or by necessary implication, [are] provided for in the treaty." Fitzmaurice, *supra* note 166, at 33.

221. Vienna Convention on the Law of Treaties, *supra* note 30, art. 62(1).

in circumstances must concern "those circumstances [that] constituted an essential basis of the consent of the parties to be bound by the treaty."[222] Although coastal geography is central to delimitation, establishing that the *precise* coastline geography at the moment of delimitation was an essential basis of consent would likely be impossible. States are rarely explicit regarding the motivation or methodology used to reach agreement.[223] Some preambles include language such as "equitable principles" or the "median line," but the language is generally inconclusive as to the underlying basis of boundary agreement. For example, the recent Norway-Russia Barents Sea delimitation refers to "the need to avoid economic dislocation in coastal regions whose inhabitants have habitually fished in the area," and the "efficient and responsible management of their hydrocarbon resources."[224] Anderson notes that "[i]t is perfectly permissible to maintain total silence in the treaty as to the basis on which the line has been drawn. This is appropriate when political or extra-legal considerations directly affected the outcome of the negotiations . . . ."[225] Moreover, states almost always specify the geographic coordinates of the boundary. In a study of 137 maritime boundaries, only one does not[226]: a 1980 agreement between France and Tonga states that "[t]he line of delimitation between the economic zone of the French Republic off the shores of Wallis and Futuna and the exclusive economic zone of Tonga shall be the median line or the line of equidistance . . . [to] be composed of all the points equidistant from the baselines . . . ."[227] Furthermore, it is almost impossible to ascertain to what extent parties wished to favor the goal of a stable and permanent border over the other interests that influenced the final outcome. Given an absence of underlying reasoning, it would be nearly impossible to invoke *rebus sic stantibus* successfully.[228]

Finally, assuming that (a) maritime boundaries did not fall within the Article 62(2) exception, and (b) coastline shift was considered a fundamental change in circumstances, states are still highly unlikely to be able to successfully terminate a maritime boundary based on coastline shifts.

First, the *rebus sic stantibus* doctrine would most likely figure as a tool

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222. *Id*.

223. *But see* Lissitzyn, *supra* note 175, at 896 ("But methods are available for overcoming the difficulties inherent in the process of interpretation . . . . When evidence as to the parties' intentions and expectations specifically related to the new situation is lacking or conflicting, the task of the interpreter is to decide what would have been the reasonable expectations of the parties had they foreseen the new situation. This decision must be made in the light of the major purposes and objectives of the treaty; it must facilitate rather than obstruct the attainment of these objectives.").

224. Treaty Between the Kingdom of Norway and the Russian Federation Concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, Nor.-Russ., pmbl., Sept. 15, 2010, *available at* http://www.regjeringen.no/upload/SMK/vedlegg/2010/avtale_engelsk.pdf.

225. Anderson, *supra* note 155, at 135.

226. Colson, *supra* note 154, at 41-42.

227. Convention Between the Government of the French Republic and the Government of the Kingdom of Tonga on the Delimitation of Economic Zones, Fr.-Tonga, Jan. 11, 1980, *reprinted in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 1016, 1016-17.

228. Furthermore, even if coastal geography was an important part of the negotiations, Grotius would limit application of the doctrine to those cases in which the circumstance was the sole cause of consent. 2 GROTIUS, THE LAW OF WAR AND PEACE ch. XVI § XXV (Francis W. Kelsey et al. trans., 1925).

for political pressure, rather than as grounds for termination: termination of a maritime boundary, after failure to renegotiate the boundary, would throw into question all the invoking state's entitlements, likely an unacceptable risk. Second, should the dispute go to third-party dispute resolution, a court or tribunal might heavily weigh the existing boundary as evidence of a *modus vivendi*, a source of historical entitlements, or of state activities.[229] As such, the existing boundary may be upheld despite the challenge. Third, the application of *rebus sic stantibus* would largely be limited to treaties concluded prior to the late 1980s, before widespread awareness of climate change. As a result, only a small proportion of maritime boundary agreements could potentially be affected.

A state would therefore be unlikely to succeed in unilaterally terminating a maritime boundary treaty by invoking the principle of *rebus sic stantibus* under Article 62 of the Vienna Convention. Thus, regardless of whether baselines are fixed or ambulatory, most maritime boundaries will not be affected by changes in coastal geography, providing substantial stability to areas of overlapping and contested maritime claims. However, as Part VI will discuss, in a small subset of maritime boundary agreements, the distinction between fixed and ambulatory baselines is of great consequence to the rights of third states.

VI. EXTERNAL STABILITY OF MARITIME BOUNDARIES: PACTA TERTIIS

Maritime boundaries provide substantial stability to the international maritime regime, regardless of whether baselines are ambulatory or fixed. Nonetheless, in some rare cases, if baselines are ambulatory, geographic change may generate rights for third states. Bird and Prescott observe that although

> the loss of low tide elevations submerged by higher sea levels will not usually influence the maritime claims of countries very significantly, . . . [t]he most serious impact will be on claims to territorial waters in narrow seas, such as the Baltic and Aegean seas, and in narrow straits such as the Strait of Singapore and Bab el Mandeb.[230]

As in scenario three agreements, such maritime boundary agreements will likely remain in force for the States Parties to the agreement. However, unlike in scenario three agreements, scenario four and five agreements may create new maritime zones with attendant rights for third states. Therefore, ambulatory baselines would implicate the interests of the international community. Such new rights would call into question the continuing enforceability of this subset of boundary agreements.

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229. *See* Maritime Delimitation in the Black Sea (Rom. v. Ukr.), Judgment, 2009 I.C.J. 61, ¶¶ 197-98 (Feb. 3); Continental Shelf (Tunis./Libya), Judgment, 1982 I.C.J. 18, ¶ 95 (Feb. 24). Note, however, that many provisional arrangements specify that they will have no prejudicial effect on the final arrangement. Article 74(3) of UNCLOS provides that: "Pending [a final] agreement as provided for in paragraph 1, the States concerned . . . shall make every effort to enter into provisional arrangements of a practical nature . . . . Such arrangements shall be without prejudice to the final delimitation." UNCLOS, *supra* note 2, art. 74(3).

230. Bird & Prescott, *supra* note 66, at 186.

A. *Rights of Third States When Maritime Boundary Agreements Are Concluded*

Maritime boundary delimitations are generally perceived as geographically and temporally localized, involving only the rights of states with overlapping claims. Any dispute may be of great import to the states themselves due to the historical significance of the region or the presence of valuable resources. But the delimitations are often of little or no international consequence[231]: "[T]he conclusion of a bilateral treaty is an event of primarily local significance and even the conclusion of 10, 20 or 30 treaties fails to excite great attention."[232] A third state may intervene, however, if that state has a claim to the area in question.

In general, states may not impose rights or obligations on third states under the *pacta tertiis* rule. That principle extends back to Roman law[233] (*pacta tertiis nec nocent nec prosunt; res inter alios acta nec prodest nec nocet*).[234] Article 34 of the Vienna Convention provides that "[a] treaty does not create either obligations or rights for a third State without its consent."[235] By the same principle, a judgment by the ICJ does not have binding effect on states that are not parties to the case.[236] Accordingly, maritime boundary delimitations in principle bind only the State Parties.

Some scholars have argued that third states are bound by boundary agreements to which they are not party on the theory that boundary agreements have effect *erga omnes*: "Boundary agreements are somewhat unique. According to general opinion, they disturb the principle of privity. They have effect *erga omnes*. This is surprising, especially since they are most often bilateral agreements."[237] Evidence for such an exception to the general principle of *pacta tertiis* is weak, however.[238] Moreover, while some have

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231. Thomas A. Mensah, *Joint Development Zones as an Alternative Dispute Settlement Approach in Maritime Delimitation*, *in* MARITIME DELIMITATION, *supra* note 155, at 143, 145.

232. David Anderson, *Developments in Maritime Boundary Law and Practice*, *in* 5 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 156, at 3199, 3204. Interest in delimitations rises only in rare cases of geopolitical interest or when established by some third party procedure that, through influence on doctrine, may impact future state practice. *Id*.

233. VILLIGER, *supra* note 37, at 766.

234. BLACK'S LAW DICTIONARY 1310 (6th ed. 1990) ("Things done between strangers ought not to injure those who are not parties to them.").

235. Vienna Convention on the Law of Treaties, *supra* note 30, art. 34.

236. Statute of the International Court of Justice art. 59, June 26, 1945, 59 Stat. 1055, T.S. No. 993. Indeed, third states arguably do not even have an obligation to assist in the enforcement of ICJ decisions. *See, e.g.*, Mary Ellen O'Connell, *The Prospects for Enforcing Monetary Judgments of the International Court of Justice: A Study of Nicaragua's Judgment Against the United States*, 30 VA. J. INT'L L. 891, 936-37 (1990) ("Finding an *obligation* under international law to aid in enforcement would arguably require more evidence than establishing a mere right to assist."). *But see* W. MICHAEL REISMAN, NULLITY AND REVISION 781 (1971).

237. Geoffrey Marston, *The Stability of Land and Sea Boundary Delimitations in International Law*, *in* 5 WORLD BOUNDARIES: MARITIME BOUNDARIES, *supra* note 123, at 144, 149 (quoting CLAUDE BLUMANN, LA FRONTIÈRE 12 (1980)) (author trans.).

238. *Id*. at 151-52. There is only limited evidence that boundary treaties have effect *erga omnes*. In the Eritrea-Yemen arbitration, the tribunal addressed whether the 1923 Treaty of Lausanne had effect *erga omnes*, such that Yemen could not assert a claim over the Dodecanese Islands. Phase I: Territorial Sovereignty and Scope of Dispute (Eri. v. Yemen), 40 I.L.M. 900, ¶ 153 (2001) (Perm. Ct. Arb. 1996). The tribunal concluded that nonparties to the Treaty could not act contrary to the treaty vis-

argued that, as a corollary to the doctrine, all states should "respect treaties concluded among other states and 'should not interfere with [their] operation between the parties,'"[239] this remains an "open question," and certainly the Vienna Convention is silent on the matter.[240] At most, treaties may create "factual situations" that affect third parties indirectly.[241] Therefore, third states are not bound by maritime boundary agreements.

The rights of third states, however, are often considered extensively in delimitations. Nearly half of delimitations involve overlapping claims by more than two states.[242] In general, an international tribunal will not reach the merits of a case in which a decision would affect the rights of a third state not party to the case.[243] If the tribunal decides to proceed, it may acknowledge the need to accommodate the rights of a third state. For example, both the ICJ in the North Sea Continental Shelf cases[244] and an arbitral tribunal considering the delimitation between Guinea and Guinea-Bissau[245] examined the cutting-off effect of the delimitation on a third state.[246] In the delimitation between Libya and Malta, the Court stated: "The limits within which the Court, in order to preserve the rights of third States, will confine its decision in the present case, may thus be defined in terms of the claims of Italy . . . ."[247] Thus, for both

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a-vis the islands.

Anthony Aust, in his brief summary of the *pacta tertiis* rule, suggests that regimes that create rights in favor of third states are legitimate under international law. AUST, *supra* note 184, at 208-09. He then notes that several *erga omnes* treaty regimes, such as those for demilitarization of certain areas or the Antarctic Treaty, create obligations for non-consenting states. *Id*. at 209. The treaties to which Aust refers, however, may better be characterized as regional regimes, as described in a provision in Rapporteur Waldock's Third Report. Although the provision was later deleted, it described creating "general obligations and rights relating to a particular region, State, territory, locality, river, waterway, or to a particular area of sea, sea-bed, or air space." Sir Humphrey Waldock, *Third Report on the Law of Treaties*, [1964] 2 Y.B. Int'l L. Comm'n 5, 26**,** U.N. Doc. A/CN.4/167. According to Rapporteur Waldock, states could be considered to have accepted such regimes if they consented to the application, or at least did not manifest opposition. The ILC deleted the provision because it concluded that those regimes were based in customary international law, not treaty law. VILLIGER, *supra* note 37, at 472. Accordingly, boundary agreements likely do not create rights *erga omnes* unless accepted under customary international law.

239. VILLIGER, *supra* note 37, at 470 (quoting R.Y. Jennings, *Treaties as Legislation*, *in* JUS ET SOCIETAS, NOTES IN TRIBUTE TO W. FRIEDMANN 159, 160 (1979)).

240. *Id*.

241. Sir Humphrey Waldock, *Sixth Report on the Law of Treaties*, [1966] 2 Y.B. Int'l L. Comm'n 51, 67, U.N. Doc. A/CN.4/186 ("[Article 34] does not concern the general question of the effects of treaties on third States; it concerns only the effect of a treaty in creating obligations and rights for third States under the treaty.").

242. HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES, *supra* note 152, ¶ 202.

243. *Monetary Gold Removed from Rome in 1943* (It. v. Fr., U.K. & U.S.), Judgment, 1954 I.C.J. 19, 33 (June 15). *But see* Alex G. Oude Elferink, *Does Undisputed Title to a Maritime Zone Always Exclude its Delimitation: The Grey Area Issue*, 13 INT'L J. MARINE & COASTAL L. 143 (1998).

244. North Sea Continental Shelf (Ger./Den.; Ger./Neth.), Judgment, 1967 I.C.J. 3, ¶ 96 (Feb. 20, 1969).

245. Delimitation of the Maritime Boundary (Guinea v. Guinea-Bissau), 19 R.I.A.A. 147 (Perm. Ct. Arb. 1985).

246. The "cutting-off effect" occurs when three states lie along a concave coast. The use of the equidistance method of boundary delimitation would result in two boundaries curving inward with the concavity of the coast, creating triangular maritime zones for the inner state, cutting it off from its maritime entitlements beyond the junction. *See* North Sea Continental Shelf (Ger./Den.; Ger./Neth.), Judgment, 1967 I.C.J. 3, ¶ 8 (Feb. 20, 1969).

247. Continental Shelf (Libya/Malta), Judgment, 1985 I.C.J. 13, ¶¶ 22-23 (June 3).

submitted disputes and negotiated boundaries, the presence of third states usually entails ending a delimitation line before it reaches the zone of potential conflict with the claims of a third state, or at an equidistant point between the coasts of the states.[248] Therefore, although third states are not party to, nor bound by, a maritime boundary agreement, courts and tribunals protect third states' rights under treaty law.

B. *Impact of Shifting Geographical Circumstances on Third States' Rights*

Discussion of the rights of third states usually focuses on rights at the moment of delimitation,[249] but shifting coastlines have unique implications for future rights and obligations. Consider a scenario five agreement: a narrow international strait between two states, less than twenty-four miles wide. Two states have delimited the area between them; each claims half the width as its territorial sea. What happens if the coastlines recede between the countries, and the strait expands beyond twenty-four miles, creating a sliver of exclusive economic zone?[250]

The rights of foreign states are far more restricted in an international strait than in the exclusive economic zones of other states. Article 38 of UNCLOS provides that, in an international strait, all states have "freedom of navigation and overflight solely for the purpose of continuous and expeditious transit . . . ."[251] Under Article 39, ships exercising such right of passage are bound to proceed without delay, and to refrain from the threat or use of force.[252] Furthermore, under Article 40, foreign ships "may not carry out any research or survey activities" without the permission of the coastal state.[253] Such foreign ships are also bound to observe the regulations adopted by the coastal state, including: those governing safety of navigation; the prevention, reduction and control of pollution; and customs, fiscal, immigration and sanitation

248. HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES, *supra* note 152, para. 204; s*ee* Yacouba & McRae, *supra* note 156, at 3297-3300. *See generally* Coalter G. Lathrop, *Tripoint Issues in Maritime Delimitation*, *in* 5 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 156, at 3305 (discussing in detail how states and tribunals address the endpoints of bilateral boundaries in light of possible third-state interests).

249. *See, e.g.*, Colson, *supra* note 154, at 61; Bernard H. Oxman, *Political, Strategic, and Historical Considerations*, *in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 1, 17.

250. To simplify the analysis, this Part assumes that the boundary agreement remains in effect: some boundary agreements specify that they delimit the "territorial seas" of two states. There is a question as to the validity of such an agreement should coastline retraction increase the divided area beyond 24 miles, in effect converting the boundary to one dividing exclusive economic zones. A tribunal would likely hold the agreement valid; however, to avoid this complication, this Part assumes a hypothetical agreement that delimits the "maritime zones" of two states. This is not an unrealistic assumption: many agreements simply refer to the maritime zones or regions of states. *See, e.g.*, Maritime Boundary Agreement Between the United States of America and the Republic of Cuba, U.S.-Cuba, art. I, Dec. 16, 1977, *reprinted in* 1 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 12, at 423, 423 (defining the tracé of the "maritime boundary" between Cuba and the United States, without reference to specific maritime zones).

251. UNCLOS, *supra* note 2, art. 38.

252. *Id*. art. 39.

253. *Id*. art. 40.

regulations.[254]

If the strait widens beyond twenty-four nautical miles, third states would presumably enjoy the greater freedoms of the exclusive economic zone. While the narrow passage would still be within the contiguous zone of a coastal state, and therefore subject to "its customs, fiscal, immigration or sanitary laws and regulations,"[255] foreign ships would have rights similar to those enjoyed on the high seas: navigation, fishing and marine research rights, so long as those activities do not violate lawful regulations of the coastal state.[256]

Consider the Bab al-Mandeb strait. The strait is one of the world's most important, linking the Mediterranean Sea with the Horn of Africa, with a transit of an estimated 3.2 billion barrels of oil per day.[257] At its narrowest, the strait is just eighteen miles across.[258] An expansion of the strait beyond twenty-four miles along most of its width would have significant geopolitical implications.

Such implications were at the heart of the debate concerning the expansion of the territorial sea to twelve miles in the 1958 Convention on the Territorial Sea. Formerly, states generally had only claimed territorial seas of three miles.[259] When the expansion to twelve miles was proposed, U.S. Ambassador Elliot L. Richardson wrote that "[t]he result could seriously impair the flexibility not only of our conventional forces but of our fleet ballistic missile submarines, which depend on complete mobility in the oceans and unimpeded passage through international straits."[260] The United States has since refused to recognize the twelve-mile territorial sea of states bordering straits as opposable to the United States, and therefore retains use of the straits. Nevertheless, for signatories of UNCLOS, or those countries that have not maintained continuous objector status, the obligation to recognize a twelve-mile territorial sea excludes 116 straits worldwide from submerged passage or overflight,[261] including the Straits of Gibraltar, Malacca, Singapore, Hormuz, and the Bab al-Mandeb Strait. Widening those straits to 24.1 miles would consequently have significant security implications.

In addition to the expansion of existing straits, third states could gain rights in other scenarios. Consider scenario four. A maritime boundary that separates the exclusive economic zones of two states must delimit an area less than four hundred miles across. If the coasts of the two states retreated such

254. *Id*. art. 42.

255. *Id*. art. 33(1)(a).

256. *Id*. art. 58(1) ("In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.").

257. ENERGY INFO. ADMIN., *supra* note 146.

258. *Id*.

259. *See* Luke T. Lee, *The Law of the Sea Convention and Third States*, 77 AM. J. INT'L L. 541, 551 (1983) (reviewing a series of conflicting statements by American officials concerning transit rights should the United States not sign UNCLOS).

260. Elliot Richardson, *Power, Mobility and the Law of the Sea*, 58 FOREIGN AFF. 902, 905 (1980).

261. Lee, *supra* note 259, at 551.

that the relevant area was greater than four hundred miles wide, a new area of high seas would be created between the two states. Other scenarios are easy to envision. Thus, the potential for newly emerging rights is clear. It is unclear, however, whether states may actually invoke those rights, and whether those new rights will have any impact on the stability of the maritime boundary regime.

C. *New Third-State Challenges to Existing Maritime Boundary Agreements*

When a newly established boundary infringes on the rights of the third state, the third state may contest the boundary.[262] But is a state that initially respects a boundary estopped from later challenging the boundary on the basis of newly created rights?

The general principle of consent under international law suggests that a state may challenge an effort to restrict newly created rights. In the drafting of Article 34, the ILC was unanimous that, without consent, a treaty could not create obligations for third states,[263] but was divided as to whether a treaty could create rights for third states.[264] This division reflects a broader bias in favor of rights-creation. To create a binding obligation on a third state, the third state must consent in writing.[265] However, if the treaty parties simply wish to remove the obligation on the third state, consent of the third state would be a formality.[266] On the other hand, when a treaty creates a right in favor of a third state, such as freedom of navigation in international waterways, the negotiating states do not need to seek the consent of the third state.[267] Thus, international law in general favors upholding the rights of third states.[268] Tribunals would, therefore, presumably reject a state's attempt to prevent the international community from accessing a section of the ocean in the face of geographic

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262. For example, in 1997, Thailand and Vietnam delimited a maritime boundary in the Gulf of Thailand. Agreement on the Delimitation of the Maritime Boundary Between the Two Countries in the Gulf of Thailand, Thai.-Viet., Aug. 9, 1997, *reprinted in* 4 INTERNATIONAL MARITIME BOUNDARIES 2692 (Jonathan I. Charney & Robert W. Smith eds., 2002). On March 13, 1998, Cambodia contested the boundary through a declaration to the United Nations: "the said Agreement between Thailand and Vietnam signed on 9 August 1997 . . . which is based on the so-called maritime boundary between the Socialist Republic of Vietnam and the Kingdom of [Thailand], and which Cambodia has never agreed to, constitutes a violation of Cambodia's sovereignty and its rights over its exclusive economic zone as well as its continental shelf in this part of the Gulf of Thailand." Cissé & McRae, *supra* note 156, at 3297 n.73. The dispute was temporally resolved through a 2001 Memorandum on Understanding between Cambodia and Thailand. *See* Memorandum of Understanding Between the Royal Government of Cambodia and the Royal Thai Government Regarding the Area of Their Overlapping Maritime Claims to the Continental Shelf, Cambodia-Thai., June 18, 2001, *in* 5 INTERNATIONAL MARITIME BOUNDARIES, *supra* note 156, at 3743.

263. *Report of the International Law Commission on the work of its Sixteenth Session*, [1964] 2 Y.B. Int'l L. Comm'n 173, 180-81, U.N. Doc. A/CN.4/173.

264. *Id*.

265. Vienna Convention on the Law of Treaties, *supra* note 30, art. 35.

266. AUST, *supra* note 184, at 210.

267. Vienna Convention on the Law of Treaties, *supra* note 30, art. 36(1); *see also* AUST, *supra* note 184, at 208 (noting the absence of third state consent in the context of U.K. overseas territories).

268. *But see Certain German Interests in Polish Upper Silesia* (Ger. v. Pol.), Judgment, 1926 P.C.I.J. (ser. A) No. 7, at 29 (May 25) ("[A] treaty only creates law as between States which are parties to it; in case of doubt, no rights can be deduced from it in favour of third States.").

change.

The one scholar to consider that issue concludes that there is limited external stability to maritime boundaries, opposable only to successor states.[269] Marston observes that where a maritime delimitation is made by treaty, "external stability may be increased if all states with claims in a certain maritime area agree to a particular delimitation . . . ."[270] He points to the ICJ decision in the North Sea Continental Shelf cases in which the court held that a line established by treaty between Denmark and the Netherlands was not binding on Germany.[271] Marston concludes that such treaties are binding only on their parties and are still subject to the *pacta tertiis* rule.[272]

In the event of disputes over newly created rights, however, the third state may not be able to establish standing before an international tribunal to challenge the boundary between states bordering the strait in question. Klein writes that "[i]f the dispute over the use of straight baselines arises because of interference with the freedoms of navigation or overflight then an important role for third-party dispute resolution remains in protecting these inclusive interests, and should warrant the exercise of jurisdiction."[273] But states' claims might not succeed. Klein notes that, in some cases, one issue may be inextricably linked to others outside the scope of mandatory jurisdiction, leading the court or tribunal to find that it does not have jurisdiction over the dispute.[274] For example, states may exempt boundary disputes from mandatory dispute resolution under UNCLOS Article 298.[275] Although a State Party's navigation rights may be the primary subject of the claim, the tribunal may find that the issue also involves a boundary dispute and is therefore outside its jurisdiction. This jurisdictional issue is a formidable obstacle. As of April 17, 2011, twenty-nine countries have deposited declarations excluding maritime delimitations in whole or in part from compulsory dispute resolution.[276] Although that constitutes a small fraction of the 161 State Parties, the impact is disproportionate. Out of the 161 State Parties, twenty-five are landlocked.[277] Of the remaining 136 countries, a significant number of disputes would require the consent of a party to be submitted to binding third-party resolution. Consider, for example, the table of twenty-one island sovereignty disputes compiled in 2005 by Victor Prescott and Clive Schofield.[278] Given the declarations of those

269. *See* Marston, *supra* note 237, at 157.

270. *Id*.

271. *Id*. (citing North Sea Continental Shelf (Ger./Den.; Ger./Neth.), Judgment, 1967 I.C.J. 3, ¶¶ 35-36 (Feb. 20, 1969)).

272. Marston, *supra* note 237, at 149.

273. KLEIN, *supra* note 92, at 270.

274. *Id*. at 272.

275. UNCLOS, *supra* note 2, art. 298; *see supra* note 135.

276. This list includes Argentina, Australia, Canada, Chile, China, France, Italy, Russia, and Germany. *See Status of the United Nations Convention on the Law of the Sea*, UNITED NATIONS TREATY COLLECTION (Dec. 5, 2011), http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=TREATY&mtdsg_no=XXI~6&chapter=21&Temp=mtdsg3&lang=en.

277. Armenia, Austria, Belarus, Bolivia, Botswana, Burkina Faso, Chad, Czech Republic, Hungary, Laos, Lesotho, Luxembourg, Republic of Macedonia, Malawi, Mali, Moldova, Mongolia, Nepal, Paraguay, Serbia, Slovakia, Switzerland, Uganda, Zambia, and Zimbabwe.

278. PRESCOTT & SCHOFIELD, *supra* note 67, at 265-84 tbl.11.1.

twenty-nine states noted above, just three of the twenty-one disputes listed would still be subject to compulsory jurisdiction (disputes between Belize and Honduras; Mauritius and the United Kingdom; and Bangladesh and India).[279] Indeed, the trend is away from compulsory dispute resolution. Of the twenty-nine countries that have excluded maritime delimitations from compulsory jurisdiction, nearly half made their declaration after 2002, years after they ratified the Convention. In a particularly telling example, Trinidad and Tobago made a 2009 declaration revoking delimitations from compulsory jurisdiction after the 2006 arbitration delimitation by the Permanent Court of Arbitration that was initiated by Barbados.[280] Thus, although states may have a legitimate legal claim under the doctrine of *pacta tertiis*, jurisdictional problems may block any such dispute from proceeding before a court.

In addition to this jurisdictional problem, a *pacta tertiis* claim is unlikely to arise for two further reasons. First, the principle of *pacta tertiis* has rarely been invoked by states, and has never been accepted by an international tribunal as grounds for termination of a treaty, likely discouraging any state from bringing such a claim. Second, the required composition of entitlements and distances means those situations are possible in only a few locations worldwide.

As a result, the doctrine of *pacta tertiis* likely poses little threat to the stability of the maritime boundaries regime, regardless of whether baselines are fixed or ambulatory. However, as a theoretical matter, it is clear that fixing baselines may significantly undermine newly created rights of third states.

VII. CONCLUSION

The explosion of Jabal al-Tair is a reminder that land, the basis for all maritime entitlements, is not a constant. In recent years, climate change has increased the pace of coastline shift, calling attention to one of the many ambiguities in UNCLOS: whether baselines are ambulatory or fixed. There is tentative evidence to suggest that baselines are indeed ambulatory. But that conclusion is insufficient. As more states claim maritime zones and increase the scope of resource development in those zones, the importance of addressing any causes of instability increases. Whether maritime limits and boundaries should eventually mirror land boundaries in their permanence, at the cost of ignoring the shifting physical geography underlying entitlements, remains a critical concern, justifying reevaluating the response of baselines to coastline shift.

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279. The fourth possible dispute between Malaysia and Singapore concerning sovereignty over the island of Pedra Branca was resolved by the ICJ in 2008. Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge (Malay./Sing.), 2008 I.C.J. 12 (May 23).

280. *See* Trinidad & Tobago Reservation, *Status of the United Nations Convention on the Law of the Sea*, *supra* note 276. ("[The] Minister of Foreign Affairs of the Republic of Trinidad and Tobago, do hereby declare under paragraph 1 (a) of article 298 of [UNCLOS] . . . that the Republic of Trinidad and Tobago does not accept any of the procedures provided for in Part XV, section 2 of the Convention with respect to the categories of disputes concerning the interpretation or application of articles 15, 74 and 83 relating to sea boundary delimitations as well as those involving historic bays or titles.").

Ambassador Tommy Koh, President of UNCLOS III,[281] famously referred to UNCLOS as a "[c]onstitution for the oceans."[282] However, any proposal to resolve the baseline ambiguity must look beyond the Convention. As this Note demonstrates, treaty law provides needed stability in the face of geographic change. Maritime boundary agreements are resistant both to unilateral termination by a treaty party, and to challenges by third states, regardless of whether baselines are ambulatory or fixed. As dramatic volcanic activity did not alter the Yemeni-Eritrean boundary, rising sea levels and retreating coastlines will not affect the vast majority of maritime boundary agreements.

281. *Professor Tommy Koh (Singapore)*, UNITED NATIONS, http://www.un.org/Dialogue/koh.html (last visited Nov. 5, 2011).

282. Tommy T.B. Koh, President, Third United Nations Conference on the Law of the Sea, A Constitution for the Oceans (Dec. 6 & 11, 1982), *in* THE LAW OF THE SEA: OFFICIAL TEXT OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA WITH ANNEXES AND INDEX, at xxxiii, xxxiii (1983).