UNCHARTED WATERS: HOW FAIR DIVISION CAN RESOLVE THE AEGEAN DISPUTE AND OTHER MARITIME BOUNDARY DISPUTES

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INTRODUCTION

The "law of the sea is as old as nations,"[1] but the modern law of the sea began in 1945 with the *Truman Proclamation*.[2] After World War II, President Truman issued Proclamation No. 2667, expanding the United States' "jurisdiction over the natural resources of the subsoil and sea bed of the continental shelf."[3] Prior

[1] LOUIS HENKIN, HOW NATIONS BEHAVE: LAW AND FOREIGN POLICY 212 (2d ed. 1979).

[2] *See generally* Proclamation No. 2667, 10 Fed. Reg. 12,303 (Oct. 2, 1945). *But see* Clive Schofield, *Parting the Waves: Claims to Maritime Jurisdiction and the Division of Ocean Space*, 1 PENN ST. J.L. & INT'L AFFS. 40, 42 (2012) ("The *Truman Proclamation* was not, however, the first move to advance claims to maritime areas beyond the territorial sea. Notable developments in this regard include the division and subsequent annexation of the seabed of the Gulf of Paria between the United Kingdom (on behalf of Trinidad and Tobago) and Venezuela in 1942, and Argentina's continental shelf Decree of 1944. Nonetheless, the *Truman Proclamation* was especially influential given that it was the United States taking this bold step.") (footnotes omitted).

[3] Proclamation No. 2667, 10 Fed. Reg. at 12,303; *see also* Tullio Treves, *Historical Development of the Law of the Sea*, *in* THE OXFORD HANDBOOK OF THE LAW OF THE SEA

to Truman claiming rights over the continental shelf, a coastal state's territorial claim seaward reached only to "a narrow band of sea adjacent to the coast."[4] Fittingly, this maritime zone was, and still is, referred to as the territorial sea, but all other waters beyond the territorial sea were identified as the high seas—a zone not subject to any one country but based on the principle of free navigation for all.[5] Despite its novelty, when President Truman issued the continental shelf proclamation, he was not met with any resistance; on the contrary, a majority of countries broke from longstanding tradition and quickly imitated the United States.[6] The expansive maritime domain quickly became customary, as every country with a shoreline and a continental shelf made similar claims.

The maritime domain continued to grow after 1945, definitively ending the era of *mare liberum* (freedom of the seas) and ushering in an era of *mare clausum* (closed seas). This new era of the law of the sea brought massive profits, as coastal states employed new technologies to exploit the valuable resources under the sea. However, the expanded maritime domain also, unfortunately, effectuated the rapid increase in maritime boundary disputes around the world. One such dispute, the Aegean Dispute, between Greece and Turkey, has been ongoing for almost fifty years but has attracted international attention quite recently.[7]

In August of 2020, a Turkish frigate escorting the *Oruc Reis*, a research vessel in search of hydrocarbons in the seabed of the

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1, 10 (Donald R. Rothwell et al. eds., 2015) ("The two Proclamations adopted by United States President Truman on 28 September 1945 (Truman Proclamations) marked a turning point towards the acceptance of coastal States' claims to exclusive rights beyond the limit of the territorial sea.").

[4] Treves, *supra* note 3, at 7.

[5] Jay M. Zitter, *United Nations Convention on the Law of the Sea, 1833 U.N.T.S. 3—Global Cases*, 30 A.L.R. Fed. 3d Art. 7, pt. I, § 2 (2018) ("The traditional 'freedom of-the-seas' doctrine limited national rights and jurisdiction over the oceans to a narrow belt of sea surrounding a nation's coastline, and the remainder of the seas was proclaimed to be free to all and belonging to none. However, by the mid-20th century there was an impetus to extend national claims over offshore resources.").

[6] *See* NUGZAR DUNDUA, DELIMITATION OF MARITIME BOUNDARIES BETWEEN ADJACENT STATES 1-2 (2007) ("The majority of States in a short period of time, made the similar declarations and the CS soon became accepted as customary international law."); *see also* Treves, *supra* note 3, at 13 ("The claim set out in the Truman Proclamation on the continental shelf was to have a very quick impact on the evolution of the law.").

[7] *See infra* Section VI.A.

Eastern Mediterranean, collided with a Greek naval vessel sent to protect Greece's claimed territory.[8] In the aftermath of the collision, tensions between both states escalated as their respective leaders responded with colored threats and warnings.[9] Western powers, calling for de-escalation and peaceful negotiations, quickly intervened to prevent either country from responding with force.[10] The intervention worked, and the two countries have since agreed to enter bilateral negotiations.[11] For those familiar with this long, contentious dispute, however, there is little faith that the countries will be able to reach a resolution. And while both Greece and Turkey are responsible for this ongoing dispute, the lack of developed delimitation methodologies has also contributed to the impasse between Greece and Turkey. Even with major achievements, like the 1982 *United Nations Convention on the Law of the Sea*, the codification of the law has done little to practically advise states on how they should resolve maritime disputes. In this void, some states have turned to international courts, while others have attempted to resolve their dispute through bilateral negotiations. But for states like Greece and Turkey, these methods have not worked.

In mathematics, there is a research area called Fair Division dedicated to the study of how to divide items between disputing parties fairly.[12] Fair Division involves the creation of certain algorithms or procedures that can then be employed to resolve real disputes. A fairly new procedure created by Steven J. Brams and Alan D. Taylor called Adjusted Winner has several real-world applications, including the ability to fairly divide disputed territories.[13] In this Comment, I propose that states should use

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[8] *A Row Between Turkey and Greece Over Gas Is Raising Tension in the Eastern Mediterranean*, ECONOMIST (Aug. 20, 2020), https://www.economist.com/international/2020/08/20/a-row-between-turkey-and-greece-over-gas-is-raising-tension-in-the-eastern-mediterranean [https://perma.cc/YKW3-B7J3].

[9] *Id.*

[10] *Id.*

[11] Helena Smith, *Greece and Turkey Resume Talks to Try to Avert Military Escalation*, GUARDIAN (Jan. 25, 2021, 11:14 AM), https://www.theguardian.com/world/2021/jan/25/greece-and-turkey-in-talks-to-try-to-avert-military-escalation [https://perma.cc/EL5U-TDG2].

[12] *See infra* Part IV.

[13] *See infra* Part V.

Adjusted Winner to facilitate their bilateral negotiations, and focusing on the Aegean Dispute between Greece and Turkey, I illustrate how Adjusted Winner could be used to resolve their maritime boundary dispute.

In Part I of this legal Comment, I explain the history of how the maritime domain has expanded and introduce the multilateral treaties that are both responding to and responsible for this maritime expansion. In Part II, I explain certain Articles in the *United Nations Convention on the Law of the Sea* ("UNCLOS"), which are necessary in understanding the maritime domain in its current form. In Part III, I explore the problem of how the expanded maritime domain has led to an increase in maritime boundary disputes and demonstrate how the international courts have responded to these unintended consequences. In Part IV and Part V, I introduce Fair Division and the Adjusted Winner procedure, respectively, and in Part VI, I apply the Adjusted Winner procedure to the Aegean Dispute. In Part VII, I discuss possible criticisms of applying Adjusted Winner in the maritime boundary context before concluding.

I. HISTORY OF THE LAW OF THE SEA

A. First United Nations Conference on the Law of the Sea

In 1950, the International Law Commission ("ICL"), a body of experts "entrusted with the task" of implementing Article 13(1)(a) of the United Nations Charter,[14] began drafting a report that became the basis for the First United Nations Conference on the Law of the Sea (the "First Conference").[15] The conference assembled eighty-six countries in Geneva and stretched from February to April in the year of 1958.[16] The mission of the First Conference was to establish a comprehensive treaty for the seas, addressing everything from fishing rights to innocent passage to the limits on

[14] U.N. Charter art. 13, para. 1 ("The General Assembly shall initiate studies and make recommendations for the purpose of . . . promoting international cooperation in the political field and encouraging the progressive development of international law and its codification . . . .").

[15] Treves, *supra* note 3, at 13.

[16] *Id.*

coastal states' maritime claims.[17] Achieving the two-thirds majority required for adoption, however, proved to be impossible in a single instrument, so in an attempt to save certain parts of the treaty, the original instrument was separated into four separate treaties: the *Convention on the Territorial Sea and the Contiguous Zone*, the *Convention on the High Seas*, the *Convention on the Continental Shelf*, and the *Convention on Fishing and Conservation of the Living Resources of the High Seas*.[18] Although several issues were unsettled, the First Conference was, by no means, a failure: the conference not only codified important aspects of the law of the sea, but it also laid the groundwork for future conventions on the law of the sea, where the ICL's objective of a single comprehensive instrument promulgating the laws of the sea would come to fruition. This objective, however, would not materialize in the Second United Nations Conference on the Law of the Sea (the "Second Conference").[19]

B. Second United Nations Conference on the Law of the Sea

In 1960, the international community reconvened in Geneva with the hopes of settling unresolved disputes from the First Conference.[20] The breadth of the territorial sea was of particular importance in the Second Conference. As mentioned in Donald Rothwell's comprehensive treatise, *The Oxford Handbook of the Law of the Sea*, there were "various proposals, ranging from 3 to 200 [nautical mile] maximum limits," and while a 6 nautical mile territorial sea and 6 nautical mile contiguous zone were agreed to in committee, the plenary was unsuccessful in reaching the required two-thirds majority for adoption.[21]

The inability to come to an agreement during the Second Conference on several issues regarding the extent of a coastal state's maritime claims led to the Third United Nations Conference

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[17] *Id.* at 14-16.

[18] *Id.* at 14 & n.29 ("UNCLOS I did not succeed in keeping the provisions on the law of the sea in one instrument. . . . On 29 April 1958, as recorded in the Final Act, UNCLOS I opened for signature four conventions and an optional protocol.") (footnote omitted).

[19] *Id.* at 14.

[20] *Id.*

[21] *Id.*

on the Law of the Sea (the "Third Conference").[22] Under the auspices of the U.N. General Assembly, 160 states gathered in New York in 1973[23] with the goal of creating a single treaty that would settle "all issues relating to the law of the sea."[24] The Third Conference was organized into eleven sessions, beginning on December 3, 1973 and concluding on September 24, 1982.[25] The decade-long negotiations resulted in a "constitution for the world's oceans"[26] consisting of "320 articles, arranged into 17 parts and supplemented by nine annexes."[27] In 1994, the ICL's objective was finally realized when the Third Conference reached the ratification requirement, superseding the prior conventions and becoming the preeminent authority for the law of the sea.[28]

C. The 1982 Convention on the Law of the Sea

UNCLOS addresses a "wide variety of issues concerning the high seas and territorial and coastal areas, including ownership, resource exploitation, and passage rights."[29] A substantial part of UNCLOS, however, specifically deals with a littoral state's sovereignty and jurisdiction over the adjacent waters and seabed. Attempting to resolve the old tensions between a coastal state's desire to expand seaward with the maritime state's desire for free navigation, UNCLOS delineates a littoral state's rights to the adjacent waters and seabed into several zones: the territorial sea,

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[22] *Id.* at 16.

[23] *Third United Nations Conference on the Law of the Sea (1973-1982)*, CODIFICATION DIV. PUBL'NS: DIPLOMATIC CONFS. [hereinafter *Third United Nations Conference*], https://legal.un.org/diplomaticconferences/1973_los/ [https://perma.cc/RB37-MQEV].

[24] Robin R. Churchill, *The 1982 United Nations Convention on the Law of the Sea*, *in* THE OXFORD HANDBOOK OF THE LAW OF THE SEA 24, 27 (Donald R. Rothwell et al. eds., 2015) (citing United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, 397-98 [hereinafter UNCLOS]) ("*Prompted* by the desire to settle, in a spirit of mutual understanding and cooperation, all issues relating to the law of the sea and aware of the historic significance of this Convention as an important contribution to the maintenance of peace, justice and progress for all peoples of the world. . . . *Have agreed* as follows: . . . .").

[25] *Third United Nations Conference*, *supra* note 23.

[26] James Kraska, *The Law of the Sea Convention: A National Security Success—Global Strategic Mobility Through the Rule of Law*, 39 GEO. WASH. INT'L L. REV. 543, 543 (2007).

[27] Churchill, *supra* note 24, at 27.

[28] *Third United Nations Conference*, *supra* note 23.

[29] Zitter, *supra* note 5, intro.

the contiguous zone, the exclusive economic zone, and the continental shelf.[30]

II. UNCLOS ARTICLES THAT EXPLAIN THE MARITIME DOMAIN

A. Baselines

These maritime zones are measured by the drawing of baselines.[31] Based on the assertion from the seminal *North Sea Continental Shelf Cases* that the "land dominates the sea,"[32] the coastline became "[t]he juridical link between the State's territorial sovereignty and its rights to certain adjacent maritime expanses."[33] Thus, under UNCLOS, baselines are "the 'zero mark' for measuring" all maritime zones.[34] The default rules for drawing baselines are articulated in Article 5 of UNCLOS, requiring baselines to trace the low-water line of the coastal state.[35] However, Article 7 of UNCLOS provides an alternative method for drawing baselines in special circumstances,[36] permitting the coastal state to draw artificial baselines that do not match the sinuosities of the coast.[37] But even with clearly defined rules in UNCLOS, baselines remain a source of tension between states. Because each state is responsible for drawing their own baselines, states have often

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[30] SIGMAR ARNARSSON ET AL., ARCTIC CTR., STRATEGIC ASSESSMENT OF DEVELOPMENT OF THE ARCTIC 47 fig.4.9 (Adam Stepien et al. eds., 2014).

[31] *See* UNCLOS, *supra* note 24, art. 5.

[32] North Sea Continental Shelf Cases (Fed. Republic of Ger./Den.; Fed. Republic of Ger./Neth.), Judgment, 1969 I.C.J. 3, para. 96 (Feb. 20).

[33] Case Concerning the Continental Shelf (Libyan Arab Jamahiriya/Malta), Judgment, 1985 I.C.J. 13, para. 49 (June 3).

[34] Coalter G. Lathrop, *Baselines*, *in* THE OXFORD HANDBOOK OF THE LAW OF THE SEA 69, 70 (Donald R. Rothwell et al. eds., 2015).

[35] UNCLOS, *supra* note 24, 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 as marked on large-scale charts officially recognized by the coastal State.").

[36] *See id.* art. 7. Concave coastlines, coastlines with a fringe of islands, mouths of rivers, and bays, as defined in Article 10(2) of UNCLOS, are examples of special circumstances that permit the use of straight baselines. *See id.* art. 7, art. 9, art. 10, para. 2.

[37] *See id.* art. 7, para. 1 ("In localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baselines joining appropriate points may be employed in drawing the baseline from which the breadth of the territorial sea is measured.").

interpreted these rules liberally, drawing baselines that extend their maritime zones as far seaward as possible.[38]

B. Territorial Sea & Contiguous Zone

According to Article 3 of UNCLOS, every coastal state has the right to "establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles."[39] Because the territorial sea is viewed as an extension of the state's territory, the territorial sea is subject to the exclusive territorial jurisdiction of the coastal state, qualified only by another state's right of innocent passage through the territorial waters.[40] This exclusive sovereignty makes the territorial sea different from the other maritime zones and more similar to a state's internal waters, which means that the territorial waters are governed by the rules and regulations of the coastal state. Furthermore, Article 33 permits coastal states to establish a contiguous zone that is adjacent to the territorial sea and not exceeding beyond 24 nautical miles from the low-tide line.[41] A coastal state does not have exclusive jurisdiction over the contiguous zone, but according to Article 33, states can still enforce their law in the contiguous zone in special circumstances, usually the enforcement of the state's custom or immigration laws or sanitation regulations.[42] In *The "Other" Law of the Sea*, Commander Andrew J. Norris of the U.S. Coast Guard explains that "UNCLOS empowers a coastal state in its contiguous zone to 'exercise the control necessary' to prevent or, in the case of a vessel

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[38] Lathrop, *supra* note 34, at 72 ("Spatially excessive maritime claims begin with the baseline: in all circumstances, the result of moving the legal coastline seaward 'is to increase the total area of water over which the coastal state possesses the most comprehensive authority and to decrease the total area within which coastal and noncoastal states share authority and use.'") (footnote omitted).

[39] UNCLOS, *supra* note 24, art. 3.

[40] *See id.* art. 2.

[41] *Id.* art. 33.

[42] David Cluxton, *The Chicago Convention 1944 in an UNCLOS 1982 World: Maritime Zones, Continental Shelves, Artificial Islands, and Some Other Issues*, 41 U. LA VERNE L. REV. 137, 168-69 (2020) ("The contiguous zone refers to a band of sea adjacent to a State's territorial sea over which the coastal State specifically claims certain rights but not sovereignty. . . . The costal [sic] State has the power to police and control the contiguous zone (up to twelve NM from the baseline) pertaining to customs, fiscal, immigration, or sanitary laws.").

departing its territorial waters, punish violations of its fiscal, immigration, sanitary, or customs (known as FISC) laws."[43]

C. Exclusive Economic Zone & Continental Shelf

Beyond and adjacent to the territorial sea, UNCLOS creates an Exclusive Economic Zone ("EEZ") that cannot extend beyond 200 nautical miles from the drawn baselines.[44] According to Article 56, the coastal state has sovereign rights to explore, exploit, conserve, and manage the natural resources of the water column, seabed, and subsoil in this zone.[45] It is important to note that Article 56 refers to "sovereign rights" for specific purposes but not to exclusive "sovereignty" over the zone.[46] This distinction between a state's exclusive sovereignty in the territorial sea and the limited sovereign rights in the EEZ demonstrates that as the zones extend seaward, coastal states are given less control. And since the "sovereign rights" are tied to the marine resources in the zone, a state's law enforcement capacity is limited to protecting its special rights to the marine resources.[47]

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[43] Andrew J. Norris, *The "Other" Law of the Sea*, NAVAL WAR COLL. REV., Summer 2011, at 78, 82.

[44] UNCLOS, *supra* note 24, art. 57.

[45] *Id.* art. 56.

[46] Cluxton, *supra* note 42, at 173 ("It is of course noteworthy that Article 56(1)(a) speaks of 'sovereign rights' and not 'sovereignty,' thus confirming that the coastal State's claim over the EEZ does not amount to territorial sovereignty. However, what is the basis for the exercise of those sovereign rights if not territoriality? This is not apparent but what is clear is that, insofar as the exploration and exploitation, conservation, and management of the natural resources (living or non-living) of the waters, seabed, and subsoil of the EEZ are concerned, the coastal State has sovereign rights. As such, it can be presumed that the coastal State has exclusive and absolute authority. In other words, it has the supreme right to exercise jurisdiction and control. However, the extent of this right is limited to the specific resources and activities referred to. The coastal State is not granted a general right of jurisdiction and control over everything and everyone within the EEZ; it only has jurisdiction and control for special purposes. It certainly has no grounds upon which to assert territorial sovereignty over the EEZ or any part thereof. Furthermore, the rights granted to the coastal State are subject to certain limitations imposed by the UNCLOS regime itself.") (footnote omitted).

[47] *Id.* at 176 ("As such, the coastal State could only interfere with freedom of navigation and overflight where legitimate to vindicate its special economic rights in the EEZ. Such interference would have to pay due regard to the interests of other States as well as comply with UNCLOS and international law generally. The scope for such interference is thus very narrow."); *see also* UNCLOS, *supra* note 24, art. 73.

Unlike the other maritime zones, the EEZ was a new creation in UNCLOS. In the article, *United Nations Convention on the Law of the Sea, 1833 U.N.T.S. 3—Global Cases*, Jay Zitter describes the EEZ as "one of the most revolutionary features of the Convention."[48] Zitter explains that the EEZ "recognizes the right of coastal States to jurisdiction over the resources of some 38 million square nautical miles."[49]

In Article 76, UNCLOS defines the Continental Shelf ("CS") as "the natural prolongation of [a coastal state's] land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines."[50] This natural prolongation, gradually sloping downward away from the coast, forms the CS. While it is true that the EEZ and CS "share similar properties," they are also different in many respects.[51] First, the EEZ gives the coastal state rights over the seabed and the superjacent water column, while the traditional CS doctrine only recognized a right to the seabed

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[48] Zitter, *supra* note 5, pt. I, § 2 ("The exclusive economic zone (EEZ) is one of the most revolutionary features of the Convention, and one which already has had a profound impact on the management and conservation of the resources of the oceans. It recognizes the right of coastal States to jurisdiction over the resources of some 38 million square nautical miles of ocean space. To the coastal state falls the right to exploit, develop, manage, and conserve all resources—fish or oil, gas or gravel, nodules or sulfur—to be found in the waters, on the ocean floor, and in the subsoil of an area extending 200 miles from its shore. The EEZs include most of the known and estimated hydrocarbon reserves and mineral resources under the sea, and the most lucrative fishing grounds too are predominantly the coastal waters.").

[49] *Id.*

[50] UNCLOS, *supra* note 24, art. 76; *see also* Cluxton, *supra* note 42, at 178 ("Geologically speaking, the continental shelf is 'a gently sloping and relatively flat extension of a continent that is covered by the oceans. Seaward, the shelf ends abruptly at the shelf break, the boundary that separates the shelf from the continental slope.' The breadth of the continental shelf from the coast of a given State differs substantially. Some States, such as Ireland, have a wide continental shelf, whereas others, such as Chile, have a very narrow continental shelf. The continental shelf is rich in natural resources, including oil and gas. Thus, when deep offshore drilling became a reality, the exploitation of the resources of the seabed and the subsoil of the high seas (i.e. beyond territorial waters) became of great interest to States.") (footnote omitted).

[51] Kent W. Patterson, Comment, *The Crescent and the Cross: Defining the Maritime Boundaries of Turkey and Greece in the Aegean Sea*, 17 LOY. MAR. L.J. 139, 145 (2018) ("The continental shelf and the EEZ share similar properties in that they are both maritime zones; however, the EEZ only extends two hundred nautical miles from the baselines from which the breadth of the territorial water is measured, while the continental shelf can extend beyond that. In addition, the continental shelf only encompasses the seabed and subsoil while the EEZ includes the water column, or superjacent waters, above the seabed and subsoil.") (footnote omitted).

because the natural prolongation of the land territory was viewed as "geologically part of the continental crust" and thus subject to its control.[52] Second, the EEZ allows coastal states to claim sovereign rights regardless of the geological realities of their coast while under traditional CS doctrine, a coastal state needed an actual CS in order to lay claim to the seabed.[53] Finally, unlike the EEZ, the CS can extend beyond the 200 nautical mile limit of the EEZ.[54] According to Article 76, states can submit their claims of an outer CS to the Commission on the Limits of the Continental Shelf ("CLCS").[55] The CLCS will review the submission by the state and examine the evidence presented, either awarding or denying the state's claim of an extended outer CS.[56] Therefore, while the EEZ and CS are superjacent and provide overlapping rights to the resources of the seabed and subsoil, there are some important distinctions between the two.

D. Islands

During the negotiations of UNCLOS, there was fervent debate about whether islands should be granted the same rights to maritime zones as other land territories, especially the right to the more expansive EEZ zone and extended CS.[57] After extensive debate, the members agreed to Article 121 in UNCLOS entitled the "Regime of Islands."[58] The Article is broken into three short paragraphs. Paragraph 121(1) defines an island as a "naturally formed area of land, surrounded by water, which is above water at

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[52] Monjur Hasan et al., *Protracted Maritime Boundary Disputes and Maritime Laws*, 2 J. INT'L MAR. SAFETY, ENV'T AFFS., & SHIPPING 89, 92 (2018).

[53] *See id.*; *see also* DONALD R. ROTHWELL & TIM STEPHENS, THE INTERNATIONAL LAW OF THE SEA 427 (2d ed. 2016) ("One of the most important impacts upon the law of maritime boundary delimitation during this time has been the changing nature of the juridical continental shelf. The Geneva emphasis upon 'natural prolongation,' reflected in submissions made in cases such as the *Anglo-French Arbitration*, has now been replaced by an acceptance that geomorphology has less significance under the Article 76 regime . . . .").

[54] ROTHWELL & STEPHENS, *supra* note 53, at 427.

[55] UNCLOS, *supra* note 24, art. 76 , para. 8.

[56] *See id.*

[57] *See* Erik Franckx, The Enigma of Article 121, Paragraph 3: The Way Forward? 11 (Nov. 14, 2016) (unpublished manuscript) (on file with the Mississippi Law Journal).

[58] *See id.* at 12; UNCLOS, *supra* note 24, art. 121.

high tide."[59] Paragraph 121(2) grants islands the same rights to maritime zones as other land territories.[60] Paragraph 121(3) distinguishes between islands and "[r]ocks which cannot sustain human habitation or economic life."[61] Because of this limitation, rocks are not accorded the rights to an EEZ or CS.[62] Islands, however, are treated the same as any other continental state with a coastline.

This compromise has proved troublesome in practice because of the common occurrence of a foreign state's islands lining another state's coast. In Teoman Uykur's article, *Settlement of Maritime Delimitation Disputes Within Complex Geographical Settings*, Uykur notes that Article 121 has created problems in maritime delimitation.[63] Specifically, he acknowledges the "cut-off" effect that is so prominent when islands receive full rights to maritime zones.[64] The "cut-off" occurs when a fringe of islands lines the coast of a foreign state, distorting the delimitation line that marks the boundary in favor of the state with the islands.[65] While it makes sense that "island states," such as Cuba, Japan, or Madagascar, would be given the right to maritime zones, it seems strange that all islands, including islands under the sovereignty of a continental state, would receive the same rights.

E. Enclosed and Semi-Enclosed Waterways

Part IX of UNCLOS also specifically refers to enclosed or semi-enclosed waterways—waterways where the need for delimitation is often greater because of the overlapping maritime zones of littoral states.[66] However, Articles 122 and 123 in Part IX do not address the issue of delimitation or create special rules for maritime zones. Instead, the Articles emphasize that "[s]tates bordering an enclosed or semi-enclosed sea should co-operate with each other in the

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[59] UNCLOS, *supra* note 24, art. 121.

[60] *Id.*

[61] *Id.*

[62] *Id.*

[63] Teoman Uykur, *Settlement of Maritime Delimitation Disputes Within Complex Geographical Settings*, 20 ILSA J. INT'L & COMPAR. L. 357, 364-65 (2014).

[64] *Id.*

[65] *Id.*

[66] *See* UNCLOS, *supra* note 24, art. 122.

exercise of their rights and in the performance of their duties under this Convention."[67]

III. MARITIME DELIMITATION

A. Unintended Consequences of an Expanded Maritime Domain

With the creation of the EEZ and extended CS in UNCLOS, littoral states have drastically expanded their jurisdiction over the world's waters.[68] The littoral state's maritime jurisdiction, extending 200 nautical miles seaward with a potentially greater CS claim, has departed from the "cannon shot" era where a littoral state's rights extended only to a 3 nautical mile limit.[69] And while states are now receiving the benefits of resource management and exploitation of these waters, this rapid expansion has created a proliferation in maritime disputes around the world. In Andreas Østhagen's article, *Maritime Boundary Disputes: What Are They and Why Do They Matter?*, Østhagen cites the research of one expert estimating that 61% of maritime disputes remain unresolved and another expert estimating "that there are approximately 640

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[67] *Id.* art. 123.

[68] ROTHWELL & STEPHENS, *supra* note 53, at 86 ("[T]he EEZ concept and regime established by the LOSC nonetheless represents a revolutionary development in the law of the sea, bringing around one-third of ocean space within coastal state jurisdiction."); *see also* Andreas Østhagen, *Maritime Boundary Disputes: What Are They and Why Do They Matter?*, 120 MARINE POL'Y, Oct. 2020, at 3, Science Direct, Article No. 104118 ("In consequence, states had in the span of a few decades gone from having control over a relatively limited (often just 3 n.m.) maritime domain, to having an international agreement on expanding the length of the territorial sea where states have full sovereignty to a maximum of 12 n.m., while also adding an EEZ where states have certain sovereign rights for an additional 188 n.m. Moreover, with UNCLOS it was concluded that states have sovereign rights on the continental shelf up to 200 n.m., and, when relevant, beyond 200 n.m. where the shelf is a prolongation from the land mass of the coastal state by submitting this information on the limits to the Commission on the Limits of the Continental Shelf (CLCS). The limit of such claims was determined to be up to 350 n.m. from a country's baseline, or not exceeding 100 n.m. beyond the point where the seabed is at 2500-m depth (2500-m isobath).").

[69] *See* Wyndham L. Walker, *Territorial Waters: The Cannon Shot Rule*, 22 BRIT. Y.B. INT'L L. 210, 210 (1945) (discussing the origin of the cannon shot rule); *see also* Østhagen, *supra* note 68, at 3 ("Already in the 18th century, the territorial waters of states were defined as being a 'cannon shot' from land, an idea developed by van Bynkershoek in 1703, and later defined as three nautical miles (n.m.) by Galiami.").

maritime boundary disputes, with around half resolved."[70] UNCLOS includes provisions for delimitating the CS and EEZ in Articles 74 and 83, but the provisions are more akin to general principles to follow, instructing countries to solve their disputes "by agreement on the basis of international law . . . in order to achieve an equitable solution."[71] UNCLOS introduces the principle of equity and fairness into the delimitation process and asserts that the preferable method of delimitation is through bilateral negotiation. However, if countries are unable to come to an agreement, UNCLOS propounds that states should submit their maritime disputes to international courts, either the International Court of Justice ("ICJ") or the International Tribunal for the Law of the Sea ("ITLOS").[72] Nevertheless, as stated previously, Articles 74 and 83 of UNCLOS provide no guidance to the courts on what method of delimitation should be applied to achieve the equitable solution described, placing the onus on the states and the courts to determine how to equitability delimitate disputed maritime territory.

B. The International Court of Justice & International Tribunal for the Law of the Sea

The International Court of Justice has "consider[ed] a significant number of maritime boundary delimitation cases," and "has made a major contribution to the development of the law" since its genesis.[73] The ICJ's jurisprudence in maritime delimitation cases can be separated into two distinct eras—cases heard between 1969 and 1992 and cases heard after 1992.[74] In the early era of cases, the International Court of Justice was circumspect of adopting a methodology for delimitating maritime boundaries.[75] The court, instead, looked to UNCLOS and its predecessors, the *Convention on the Territorial Sea and Contiguous Zone* and *The*

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[70] Østhagen, *supra* note 68, at 6.

[71] UNCLOS, *supra* note 24, art. 74, 83. *But see id.* art. 15 (titled "Delimitation of the Territorial Sea Between States with Opposite or Adjacent Coasts" and specifying that when agreement cannot be made through negotiation, the proper method for delimitation is equidistance).

[72] UNCLOS, *supra* note 24, art. 287.

[73] ROTHWELL & STEPHENS, *supra* note 53, at 422-23.

[74] *Id.* at 423.

[75] *Id.*

Convention on the Continental Shelf, for guidance on how to delimitate disputed territories.[76] All of these treaties had common delimitation provisions focusing on the use of equitable principles to delimitate a boundary. Therefore, in the early cases of maritime delimitation, the courts rarely held to a particular methodology and instead considered the special circumstances of each case, including the geography of the area being delimitated and the length of each country's coastline.[77] This loose approach to maritime delimitation would change, however, after the ratification of UNCLOS. In the Post-UNCLOS era, the courts have used several methods for delimitation, but in the most recent decisions by the ICJ and ITLOS,[78] maritime disputes "have been decided unanimously . . . , which suggests a growing unified understanding in the application of delimitation methodology."[79] In these decisions, the courts have consistently adopted a three-step methodology:

> 1) Establishing a provisional equidistance line;
>
> 2) Evaluating the presence and effects of relevant circumstances, and whether any adjustment is needed on the provisional equidistance line; . . . and
>
> 3) Applying a disproportionality test to the (modified) equidistance line.[80]

In most circumstances, the three-step equidistance method has proved itself workable, but there are questions on whether the method can produce an equitable result in a case with complex geography. Courts have acknowledged that in situations with concave or convex coastlines, islands with their own maritime zones, and disputes in enclosed and semi-enclosed waterways, specialized modifications to the equidistance method might be necessary to produce an equitable result.[81] Aware of the method's limitations, the courts have sometimes refused to accept the country's basepoints, instead marking their own basepoints to

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[76] *Id.*

[77] *See, e.g.*, North Sea Continental Shelf Cases, *supra* note 32, para. 13.

[78] *See* Uykur, *supra* note 63, at 360-62 (outlining these recent decisions).

[79] *Id.* at 362.

[80] *Id.* at 359.

[81] *See* ROTHWELL & STEPHENS, *supra* note 53, at 435-36.

establish more control over where the provisional median line is drawn.[82] The court's willingness to adjust, however, has not eased the reservations some countries have with submitting their disputes to the courts. This hesitancy by some countries could stem from the recent move to a more concrete methodology, rather than reviewing each case holistically and trying to reach an equitable solution. With the rise in maritime disputes and the skepticism of the equidistance methodology adopted by the international courts, states are in need of a new negotiation scheme that encourages and facilitates their negotiations.

IV. INTRODUCTION TO FAIR DIVISION

Disputes over what belongs to whom and who deserves what are unfortunately a common occurrence in the history of mankind. In response to this inherent vice in our nature, we have developed practices and traditions to resolve these disputes. These practices are numerous and vary depending on the culture and age from which they originate, but all of them, regardless of where and when they were formed, attempt to provide a structure for resolving disputes fairly. Examples of such *fair procedures* for resolving disputes range from Abraham's utilization of "I Cut, You Choose"[83] in the Hebrew Bible,[84] to a strict code of conduct adhered to by pirates in dividing the treasures from a voyage,[85] to the rigid rules

[82] Tafsir Malick Ndiaye, *The Judge, Maritime Delimitation and the Grey Areas*, 55 INDIAN J. INT'L L. 493, 499 (2016).

[83] Also known as the "Divide-and-Choose" Procedure. *See* STEVEN J. BRAMS & ALAN D. TAYLOR, FAIR DIVISION: FROM CAKE-CUTTING TO DISPUTE RESOLUTION 8-12 (1996) (explaining and providing examples of the Divide-and-Choose procedure).

[84] In Genesis 13:5-13, Abraham utilized a procedure now identified as "I Cut, You Choose" to prevent further arguments between his shepherds and the shepherds of his nephew, Lot. Abraham divided the land into two parcels and allowed Lot to choose whatever parcel he preferred. The procedure works because the divider, in this case Abraham, has an incentive to divide the land into two halves that he believes are of equal value, knowing that the chooser, in this case Lot, will have the first choice. *See* STEVEN J. BRAMS & ALAN D. TAYLOR, THE WIN-WIN SOLUTION: GUARANTEEING FAIR SHARES TO EVERYBODY 53 (1999).

[85] *Id.* at 5-6 ("Before pirates set out on a voyage, they would draw up a code of conduct that everyone was bound to observe, based on the principle 'no prey, no pay.' Once a ship was plundered, the captain received an agreed-upon amount for the ship plus a proportion of the cargo, which was measured by shares. But before shares were allocated, salaries were paid to the surgeon (200 to 250 pieces of eight) and the carpenter or shipwright, who mended and rigged the ship (100 to 150 pieces of eight). Next, money

applied by African bushmen in dividing the parts of an animal after a successful hunt.[86] While the procedures used in resolving these disputes are different, all of them emerge from their respective cultures' notions of fairness.

In the middle of the twentieth century, a group of Polish mathematicians began researching whether mathematics could provide a universal algorithm (or procedure) that would "transcend personal views of fairness and construct standards acceptable to all."[87] The seminal work of these Polish mathematicians, Hugo Steinhaus, Bronislaw Knaster, and Stefan Banach, created the modern Fair Division Problem, which has blossomed into a fertile area of research in mathematics, spurred on by those "intrigued by the difficulty of dividing goods . . . as well as the imbedded difficulty of defining the concept of 'fairness.'"[88] Several algorithms have developed since the genesis of modern Fair Division research, such as the "Divide-and-Choose" Procedure, the "Last-Diminisher" Procedure, and the "Moving-Knife" Procedure.[89] All of these procedures, if used, guarantee a fair division of the goods or issues

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was given for recompense of injuries: 600 pieces of eight for loss of the right arm; 500 pieces of eight for loss of the left arm or right leg; 400 pieces of eight for loss of the left leg; and 100 pieces of eight for loss of an eye or a finger. After the disbursement of this medical insurance, the remaining loot was divided into shares, with the captain receiving five or six shares, the master's mate two shares, and the rest of the crew one share each. Any boys in the crew received half a share. It was a strict rule that no person should receive more than his proper due. Indeed, everyone had to take a solemn oath that they would not conceal and steal for themselves anything in a captured ship. There were several penalties for disobedience.").

[86] *Id.* at 3-4 (quoting ELIZABETH MARSHALL THOMAS, THE HARMLESS PEOPLE 50 (1959)) ("In the 1950s, Thomas made several visits to study the Bushmen of southwestern Africa, the last significant population that still lived by hunting and gathering. While providing few details, Thomas notes that the animals that were killed were 'divided at once by a rigid system of rules.' Continuing she says, 'It seems very unequal when you watch Bushmen divide a kill, yet it is their system, and in the end no person eats more than any other.' Although some tribesmen who take part in the kill *receive* more meat than others, they voluntarily share it with the others. In the end, Thomas points out, 'It is not the amount eaten by any person but the formal ownership of every part that matters to Bushmen.'").

[87] Robert J. Condlin, *"Every Day and in Every Way We Are All Becoming* Meta *and* Meta*," or How Communitarian Bargaining Theory Conquered the World (of Bargaining Theory)*, 23 OHIO ST. J. ON DISP. RESOL. 231, 264 (2008).

[88] *Id.* at 263-65.

[89] *See generally* BRAMS & TAYLOR, *supra* note 83 (explaining all the different Fair Division procedures).

in dispute.[90] Nonetheless, not all of the procedures are equal in fairness or practicality, for some procedures satisfy more *criteria of fairness* than others, while other procedures are more often applicable to real world disputes because of their comparative simplicity.

A. Fairness Criteria

In modern Fair Division, the fairness of the procedure is measured by whether it meets certain criteria. These criteria are proportionality, envy-freeness, equitability, and efficiency/pareto optimality.[91]

Proportionality: The criterion of proportionality goes to the very core of our understanding of fairness. A proportional division means that the parties involved in the dispute will receive a proportional share of the disputed items/issues. In a division between two parties, a proportional share is defined as both parties receiving at least one-half of the total value, while a proportional share amongst three parties, would require all the parties to receive at least one-third of the total value, and so on.[92] Proportionality, however, is not determined objectively; instead, proportionality is determined by a party's subjective value given to the items they receive in light of the items they do not. For example, let's say Tommy and Rachel are splitting a cake. Only 25% of the cake is covered in chocolate icing, the rest is covered in vanilla icing with sprinkles. Tommy loves chocolate icing but cannot stand vanilla icing with sprinkles. If the division results in Tommy receiving only the quarter of the cake with chocolate icing, he is not receiving at least half (50%) of the cake (he is receiving 25% of the cake). However, because of his love for chocolate icing and disdain for vanilla icing with sprinkles, Tommy is receiving a proportional share of the cake. This is so because Tommy considers the smaller slice of chocolate cake to be at least as valuable as the larger piece of cake with vanilla icing and sprinkles.[93]

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[90] For a thorough exploration of the mathematics behind the procedures discussed in this Comment, see generally *id.*

[91] BRAMS & TAYLOR, *supra* note 84, at 13-15.

[92] *Id.* at 13.

[93] *Id.* ("[P]roportionality can be traced back to the Greek philosopher Aristotle, who argued in his book *Ethics* that goods should be divided in proportion to each claimant's

Envy-Freeness: For a procedure to satisfy the envy-freeness criterion, the procedure must result in a division of the items in which each party believes they received the most valuable share. This explanation can be alternatively stated as "no party is willing to give up the portion it receives in exchange for the portion someone else receives. Hence, no party envies any other party."[94] Similar to proportionality, envy-freeness is determined by the subjective value the parties assign to their shares. The two criteria, although linked, are not synonymous: proportionality implies each party believing they received at least one-half of the value of the disputed items, while envy-freeness can only be satisfied if all parties to a dispute believe they received the "largest or most valuable portion."[95] Since the introduction of Envy-Freeness in 1958 by George Gamow and Marvin Stern, envy-freeness has become the dominant fairness criterion but also the hardest criterion to satisfy.[96]

Equitability: To meet the equitability criterion, the procedure must equalize the subjective values that each party assigns to his or her share.[97] In other words, if one party in a division believes they received 60% of the total value, an equitable division requires that the other party also believe they received 60% of the total value. When trying to understand equitability, it is better to think about the party's respective happiness in response to their allotted share, rather than the subjective value they have assigned to that share. For example, imagine a division of items where Tommy and Rachel both split the disputed items 50/50. Even though the total value of the items has been split equally, one party, let's say Rachel, is happier with her allotted share than Tommy. Even so, Tommy got what he wanted out of the division, and he *thinks* that he received around 60% of the total value of the disputed items. However, Rachel didn't really value the half that Tommy

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contribution. . . . If there are two parties, *proportionality* will mean that each party thinks that it is getting at least one-half of the total value.").

[94] *Id.*

[95] BRAMS & TAYLOR, *supra* note 83, at 2-4.

[96] Jørgen Veisdal, *The Envy-Free Cake-Cutting Procedure: How to Ensure Fairness as a Mechanistic Outcome*, CANTOR'S PARADISE (Nov. 24, 2019), https://medium.com/cantors-paradise/envy-free-cake-cutting-procedures-de3cf13c5d3d [https://perma.cc/8PGP-QYF4].

[97] BRAMS & TAYLOR, *supra* note 84, at 14.

received, so she *thinks* her share equals around 80% of the total value of the items. From Tommy's perspective, he does not envy Rachel's share because he believes he received the more valuable share (the division is envy-free), regardless of what Rachel believes she got. Nonetheless, "he might well envy her greater happiness for having received much more of the total value in her view than he received of the total value in his view."[98] A Fair Division procedure that is equitable would resolve this problem by balancing the parties' happiness.

Efficiency/Pareto Optimality: The criterion of efficiency is satisfied if there is no other division that could increase one party's allotment without also decreasing another party's allotment.[99] In other words, the efficient procedure has fully divided all the value in dispute. For example, if Tommy and Rachel are splitting six cookies, a division that allotted three cookies to Tommy and three cookies to Rachel would be efficient because there is no other way to increase the value given to one party except by decreasing the value given to another party (taking a cookie from Tommy and giving it to Rachel or vice versa). However, it should be noted that allotting all six cookies to Rachel and allotting none to Tommy would also be efficient. Therefore, a procedure that solely satisfies the efficiency criterion without also satisfying another fairness criterion will not guarantee a fair division.

There are very few Fair Division procedures that satisfy all four fairness criteria. However, one such procedure called "Adjusted Winner" not only satisfies all four Fair Division criteria, but also has many practical applications in facilitating real-world disputes.

V. ADJUSTED WINNER PROCEDURE

In an effort to ensure fairness in real-life dispute resolution scenarios, Steven J. Brams & Alan D. Taylor created the Adjusted Winner ("AW") procedure. The AW procedure provides a process by which two parties can divide a single divisible issue/item or multiple issues/items fairly,[100] reducing the risk of inequitable divisions that are often part and parcel of traditional negotiation

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[98] *Id.*

[99] *Id.* at 15.

[100] See *supra* Section IV.A for a definition of "fairness."

schemes. The procedure does this through "a point allocation scheme that allows parties to assign values to individual negotiation issues, representing their preference to win that issue."[101] Unlike traditional negotiation schemes, where the fairness of the negotiations relies upon the position and behavior of both parties, the formalistic nature of AW ensures both parties an envy-free, equitable, and efficient division regardless of what the other party does. Brams and Taylor claim that the AW procedure could facilitate all types of negotiations, including divorces, mergers, and even international negotiations.[102] "[L]ittle has been written analyzing the procedure from a legal perspective,"[103] but Jeremy Matz examines the utility of the procedure in dividing property in divorce settlements.[104] In his Note, Matz concludes that, although AW would not be conducive to every divorce settlement, AW does "successfully reduce the risk of an unfair property division by preventing power imbalances caused by strategic behavior, legal entitlements, and emotional decision making."[105]

A. Illustration of Adjusted Winner in the Divorce Settlement Context

Later in this Comment, I will demonstrate how AW works in the maritime boundary context, but to introduce the concept of AW for the first time, I will use a less complicated scenario, i.e., a divorce settlement.

In this hypothetical scenario, Tommy and Rachel are divorcing, and they must divide their marital property. There are five items in dispute: a car, jewelry, a boat, ski equipment, and a chalet in Colorado. Tommy, an avid skier and sportsman, strongly desires the ski equipment and the chalet. He prefers the boat to the car, and he could not care less about the jewelry. Rachel, on the other hand, definitely wants the expensive jewelry and the car, but

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[101] Jeremy A. Matz, Note, *We're All Winners: Game Theory, the Adjusted Winner Procedure and Property Division at Divorce*, 66 BROOK. L. REV. 1339, 1368 (2001) (citing BRAMS & TAYLOR, *supra* note 84, at 70).

[102] *See generally* BRAMS & TAYLOR, *supra* note 84.

[103] Matz, *supra* note 101, at 1342.

[104] *See generally id.*

[105] *Id.* at 1391.

she also wants the boat because she believes it will be nice to have during the summer months.

There are three phases to the AW procedure: the Point Allocation Phase, the Initial Winner Phase, and the Adjusted Winner Phase.

In the Point Allocation Phase, Tommy and Rachel are allocated an arbitrary[106] number of points before assigning them to the items to be divided.[107] Assigning points to the disputed items is how the parties demonstrate their preferences of receiving one item over others. In this hypothetical, Tommy and Rachel are both given 100 points to disperse amongst the 6 items. See the table below for Tommy and Rachel's point allocation.

Items	Tommy (PA)	Rachel (PA)
Car	12	27
Jewelry	1	30
Boat	20	20
Ski Equipment	33	10
Chalet	34	13

After both Tommy and Rachel have assigned all their points, the point allocation phase ends.[108]

In the Initial Winner Phase, each party initially receives the item(s) to which they assigned more points than the other party.[109] For example, Tommy receives the ski equipment and chalet, while Rachel receives the car and jewelry. The tied item (boat) will be allotted after Tommy and Rachel total their points. Tommy then sums the points he assigned to items he won—the ski equipment and chalet, totaling 67 points (33 + 34), and Rachel does the same,

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[106] For a complete discussion on the arbitrary number of points allotted for the AW procedure, see *id.* at 1368-73.

[107] *Id.* at 1370.

[108] Notice that, even though Tommy didn't value the jewelry, he assigned it 1 point. During the point allocation phase, all parties must assign at least 1 point to all items. This requirement is in place because, during the Adjusted Winner phase, items or parts of items will be transferred back to the party with fewer points in an order based upon which item has the smallest ratio. The ratio cannot be determined if a party allocates 0 points to an item. For example, if Rachel assigned 30 points to the jewelry and Tommy assigned 0, then the ratio cannot be determined (30 ÷ 0 is undefined).

[109] BRAMS & TAYLOR, *supra* note 84, at 72.

which equals 57 points (27 + 30). The total represents the individual's subjective valuation of the items they received from all the items they bid on. After adding up both Tommy and Rachel's points, Tommy (67) has more points than Rachel (57). The tied item, then, will initially be given to Rachel because she has fewer points.[110] The addition of the boat brings Rachel's point total to 77 points (57 + 20). After all items have been designated, the last phase of AW begins.

Finally, in the Adjusted Winner Phase, items, or parts of items, will be transferred from the party with more points, Rachel (77), to the party with fewer points, Tommy (67), until their point totals equal.[111] "What is important here is the order in which items are transferred."[112] The item with the *smallest ratio* will be transferred first. The ratio is found by dividing the number of points the initial winner (Rachel) allotted to a particular item by the number of points the initial loser (Tommy) allotted to the same item.[113] For example, Rachel assigned 27 points to the car, while Tommy only assigned 12 points. The ratio is found by dividing 27 by 12 (27 ÷ 12 = 2.25), resulting in a 2.25 ratio. However, this is not the smallest ratio in the hypothetical. Tommy and Rachel tied by both placing 20 points on the boat, and Rachel received the boat in the Initial Winner phase because she had fewer points at the time. Therefore, the boat must be the first item transferred since the ratio of this item is 1 (20 ÷ 20 = 1). Unfortunately, transferring the whole boat does not satisfy the equitability criterion. Instead, it increases Tommy's point total to 87 (67 + 20 = 87) and decreases Rachel's point total to 57 (77 – 20 = 57). This means that the boat must be split. The percentage of the item that must be transferred by Rachel to Tommy can usually be found through trial and error, but it can be readily determined by a simple algebra problem: $67 + 20x = 77 - 20x$.[114] In solving for x, x equals 1/4 or 25%. Therefore, 25% of the

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[110] To see what happens when there are multiple tied items, see Matz, *supra* note 101, at 1371 & n.182.

[111] BRAMS & TAYLOR, *supra* note 84, at 72.

[112] *Id.*

[113] *Id.* at 72-73.

[114] Here, x represents the fraction/percentage of the item that needs to be transferred from the initial winner (Rachel) to the initial loser (Tommy). In order to make the final distribution equal after the transfer is complete, Tommy's total points must be $67 + 20x$, and Rachel's total points must be $77 - 20x$. *See id.* at 74.

boat must be transferred from Rachel to Tommy for there to be an equitable division of the items.

The boat, however, only has value in its natural state (a boat that has been physically split will not float). Therefore, prior to using the AW procedure to divide the items, the parties would have to come to an agreement on what would happen during a split of an indivisible item. A common solution is liquidating the item and splitting the profits. If this solution were chosen, Rachel would receive 75% of the profits, and Tommy would receive 25%. Another solution, allowing the party who won the boat to keep it, would be to appraise the indivisible item and have the initial winner pay the initial loser money to reach the equitability requirement. If the parties prefer this solution, Rachel can pay Tommy 25% of the boat's fair market value and keep the boat.

B. Application of Adjusted Winner to Other Types of Disputes

There are several other real-world disputes where AW is applicable, including disputes similar to those found in the divorce context, like the division of personal property in an estate but also very different disputes, such as resolving the "social issues" of a merger[115] or settling international disputes between states.[116] A possible application for the AW procedure, and one argued by Denoon and Brams in their article *Fair Division: A New Approach to the Spratly Islands Controversy*, is delimitating maritime boundaries between states.[117] In their article, Denoon and Brams illustrate how AW could resolve the overlapping territorial claims to the Spratly Islands. The Spratly Island dispute involves six different countries in the South China Sea—China, Taiwan, Vietnam, the Philippines, Malaysia, and Brunei—all claiming ownership over the resource rich and strategically located Spratly Islands.[118] Because of the numerous parties in this territorial dispute, Denoon and Brams grouped the member-countries of the

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[115] Steven J. Brams & Maxim S. Kulikov, *Resolving Mergers' Social Issues: A Fair-Division Approach*, 17 ALTERNATIVES 85, 85, 96-98 (1999).

[116] *See* BRAMS & TAYLOR, *supra* note 84, at 89-98 (demonstrating AW's application to the Egyptian-Israeli dispute).

[117] *See generally* David B.H. Denoon & Steven J. Brams, *Fair Division: A New Approach to the Spratly Islands Controversy*, 2 INT'L NEGOT. 303 (1997).

[118] *Id.* at 304.

Association of Southeast Asian Nations ("ASEAN")—Vietnam, the Philippines, Malaysia, and Brunei—and then grouped the two countries of China and Taiwan together to form the two parties necessary for Adjusted Winner to work.[119] Grouping countries based on perceived similar goals and preferences, however, is not optimal. Even if countries have "similar" preferences, grouping ignores the subtle differences in opinion that could create an impasse amongst the countries during the Point Allocation Phase. Even if the Spratly Islands isn't the best example for illustrating AW, Denoon and Brams are correct in asserting that AW can assist states with maritime boundary disputes, principally disputes between two countries. There is certainly not a lack of maritime boundary disputes in need of resolution involving two countries. As mentioned previously in this Comment, coastal states' maritime domains have expanded since the international recognition of the EEZ and CS, sparking more conflicts between littoral states with adjacent or opposite coastlines.[120]

VI. APPLYING ADJUSTED WINNER TO THE AEGEAN DISPUTE

A. Introduction to the Aegean Dispute

Greece and Turkey, two rival states in the Mediterranean, have been disputing each other's territorial sea, exclusive economic zone, and continental shelf claims in the Aegean Sea for over fifty years, which has become one issue in a set of interrelated controversies between the two states.[121] It should be noted that the Aegean Dispute[122] cannot be fully understood by focusing on these issues alone. Several other esoteric issues exist outside the scope of this Comment.[123] It is beneficial, however, to briefly introduce the

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[119] *Id.* at 318.

[120] *See* Østhagen, *supra* note 68, at 3-6.

[121] *See generally* Michael N. Schmitt, *Aegean Angst: A Historical and Legal Analysis of the Greek-Turkish Dispute*, 2 ROGER WILLIAMS U. L. REV. 15 (1996).

[122] This group of issues has been become known as the Aegean Dispute.

[123] *See* Schmitt, *supra* note 121, at 16-17 ("In actuality, the rift is more complex, and of longer lineage, than suggested by the recent focus on the territoriality component of the LOS Convention. Equally contentious disagreements exist over delimitation of the continental shelf (which contains significant oil deposits), the breadth of Greek airspace over the Aegean, Greek control of a flight information region (FIR) in the area, and militarization of numerous Greek islands.").

history behind the maritime boundary dispute between Greece and Turkey and each state's current arguments before illustrating how Adjusted Winner could be applied to this dispute.

Since the discovery of hydrocarbons in the seabed floor of the Aegean in 1974, both countries have disputed the delimitation of the Aegean.[124] The principal issue arises from the unique geography of Greece, a country contrived of several thousand islands dispersed throughout the Aegean, some of which lie "within five miles of the Turkish coast."[125] From the beginning of the dispute, Greece has consistently viewed the dispute as a legal issue that should be strictly settled by international law.[126] Under both UNCLOS and customary international law, Greece has argued that Article 121 of UNCLOS entitles their islands to maritime zones, including the more expansive EEZ and CS zones; therefore, during a delimitation of the maritime boundary, Greece believes the delimitation line should be the median line between the eastern most Greek islands and Turkey's coast.[127] From Turkey's position, this delimitation would grant Turkey only a small sliver of the Aegean and is thus unacceptable to Turkey.[128] Turkey argues that these islands are not entitled to any maritime zone except a six nautical mile territorial sea and that the boundary delineation should be drawn using Greece's and Turkey's mainland as basepoints instead.[129] The two countries have also feuded on the appropriate forum in which to resolve the dispute. Because Greece's argument is grounded in international law, Greece, understandably, wants to refer the dispute to the ICJ, believing that the court will use the equidistance method to draw a

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[124] HARALAMBOS ATHANASOPULOS, GREECE, TURKEY AND THE AEGEAN SEA: A CASE STUDY IN INTERNATIONAL LAW 46 (2001).

[125] *See* Schmitt, *supra* note 121, at 17.

[126] Patterson, *supra* note 51, at 156 ("Greece contends that Turkey's argument for unilateral delimitation simply cannot work because Turkey's position is in blatant violation of international law.").

[127] *Id.*

[128] *Id.* at 157-58.

[129] *Id.* at 158-59 ("Turkey's solution concentrates on the preclusion of many of the eastern Greek islands from possessing a continental shelf and EEZ under international law as the best way to divide the Aegean continental shelf. Although this method is in direct contravention to the precedent set by the ICJ and UNCLOS, Turkey considers the Aegean Sea to be a special case that should be resolved by bilateral agreement and looser interpretation of international law.").

delimitation line between Greece's islands and Turkey's coast.[130] On the other hand, Turkey sees the dispute as political in nature and would rather resolve the dispute through bilateral negotiations.[131] For a visual representation of the disputed territory in the Aegean, see **Map 1** below.

Map 1

Just as divisive, and potentially carrying heavier implications, is whether Greece will expand its territorial sea in the Aegean to twelve nautical miles. "Since 1936, Greece has claimed a six [nautical mile] territorial sea. Turkey's claim in the Aegean is identical . . . ."[132] However, after the ratification of UNCLOS and

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[130] ATHANASOPULOS, *supra* note 124, at 50 ("In view of the international law that governs the concept of continental shelf, Greece has clearly stated with respect to the Aegean Continental Shelf dispute that the dispute is of a legal nature. Greece has repeatedly called upon Turkey to begin negotiations with Greece to reach an agreement on the required *compromis* and thus to refer their dispute to the International Court of Justice at the Hague for its legal resolution.").

[131] *Id.* at 51 ("In 1987, Turkey emphasized its position that the seabed problem in the Aegean was a political matter requiring a political settlement through Greek-Turkish negotiations.").

[132] Schmitt, *supra* note 121, at 24.

the expansion of a coastal state's right to a territorial sea up to twelve nautical miles, the two countries have argued over whether Greece has the right to expand its territorial sea in the Aegean. Turkey argues that "[g]iven the geographical placement of Greek islands in the Aegean, and the fact that islands are generally deemed to have a territorial sea of their own, extension of the territorial sea limit would effectively turn the Aegean into [a] 'Greek lake.'"[133] Of particular concern for Turkey is that if Greece were to expand its territorial sea to twelve nautical miles, "a wide band of Greek territorial sea would stretch from the Greek mainland to the outer limit of Turkish territorial waters," eliminating any route for Turkish ships approaching or departing the Bosphorus or Dardenelles straits that does not cross into Greek territorial waters.[134] Although Greece has not extended its territorial sea in the Aegean as of yet, Greece believes that UNCLOS and customary international law entitle them to such rights.[135]

B. The Steps in Applying Adjusted Winner to the Aegean Dispute

In applying the Adjusted Winner procedure to the Aegean Dispute, I utilized the following steps:

1) Divide the Disputed Territory into Smaller Segments;
2) Decide on a Point System;
3) Point Allocation Phase;
4) Initial Winner Phase;
5) Adjusted Winner Phase; and
6) Draw the Demarcation Line.

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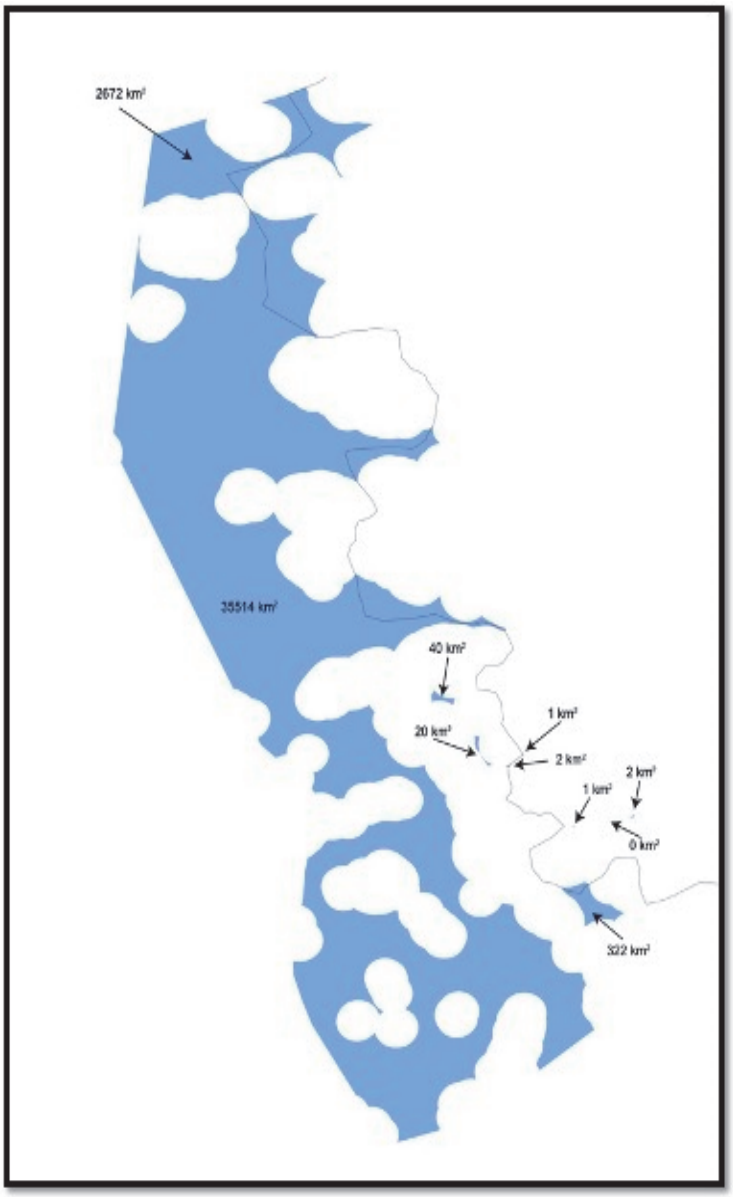
[133] *Id.* at 24-25.
[134] *Id.* at 25-26.
[135] *See id.* at 31.

1. Step 1: Dividing the Disputed Territory into Segments



Map 2

Unlike the simpler application of AW in dividing personal property, the maritime boundary context is more complex, mainly due to the lack of "items" to which the parties can assign points. Instead, the parties have disputing claims over an undivided, pelagic territory. Thus, to apply AW, the disputed territory will have to be divided into segments. To see the territory that must be divided, see **Map 2** above. There are two major segments that need to be divided: the northernmost segment of the disputed territory, which is approximately 2,672 square kilometers, and the larger segment measuring at approximately 35,514 square kilometers.[136] By conjoining these two segments, the disputed territory equals 38,186 square kilometers. As displayed in **Map 2**, there are several smaller segments that are disputed between Greece and Turkey, but these smaller segments will not be included in the creation of the segments.[137] To draw these segments, I have developed and employed three rules that must be followed for the AW procedure to be successful at delimitating the maritime boundary:

1) All segments must be contiguous with both the western and eastern perimeter of the disputed territory;

2) No segment can infringe on the territorial sea of either Greece or Turkey, nor can a segment halve a Greek or Turkish island, or a disputed island; and

3) Every segment must have an equal area.

In this illustration, I divide the disputed territory into eight segments that are all approximately 4,773.25 square kilometers. **Map 3** and **Map 4** below are illustrations of segments that adhere to the rules set forth above.

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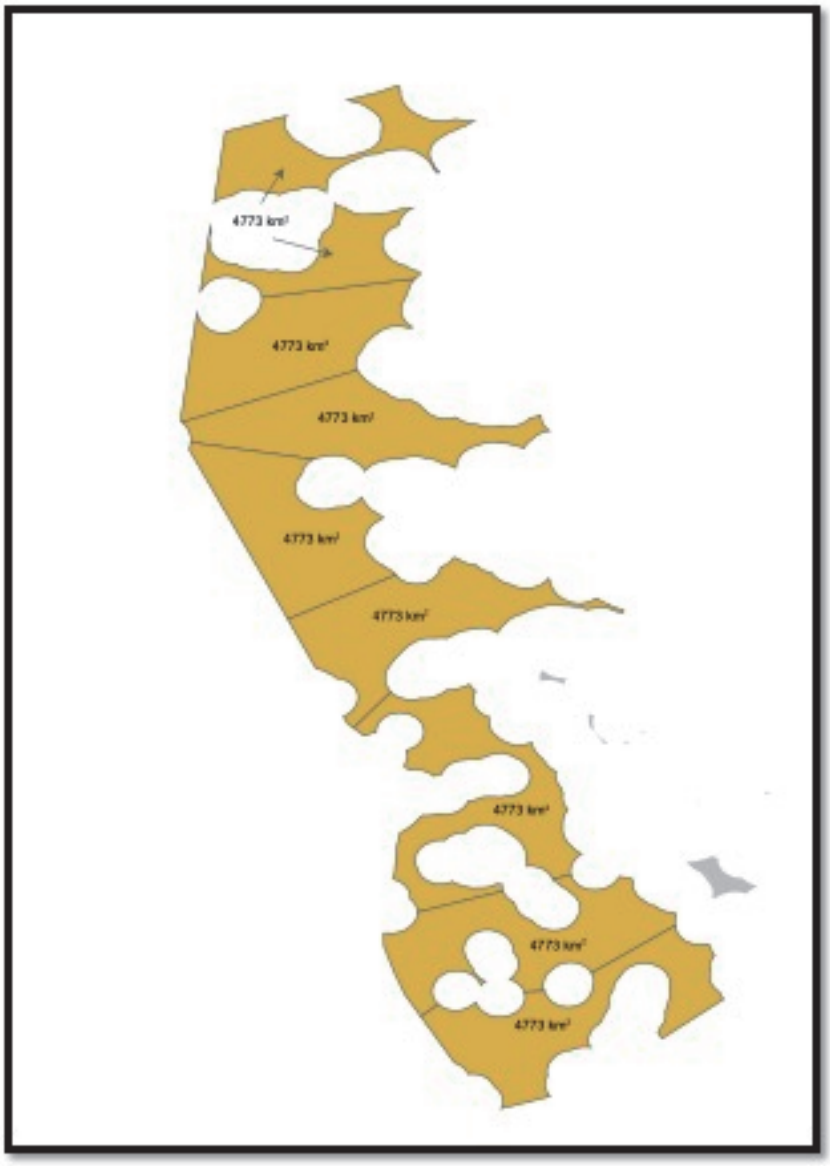
[136] The approximate square kilometer areas for the two major segments were calculated by Mats Wedin, the cartographer and hydrographer who created the maps for this Comment, using GIS technology.

[137] Some of these areas are one square kilometer or smaller in size. For our purposes of demonstrating Adjusted Winner, there is no need to include them. However, if Greece and Turkey actually implemented AW, these smaller areas could be included.


4773 km²
4773 km²
4773 km²
4773 km²
4773 km²
4773 km²
4773 km²
4773 km²

Map 3

Map 4

Rule One: For there to be a single delimitation line[138] after the application of Adjusted Winner, the segments must be drawn in accordance with the first rule. This is because drawing *hanging* segments (segments that are only contiguous with either the eastern or western perimeter of the disputed territory) or drawing *floating* segments (segments that are neither contiguous with the eastern or western perimeter but are instead fully subsumed within the disputed territory) permits the contradictory scenario whereby Greece could end up receiving a segment in closer proximity to Turkey, completely disconnected from undisputed Greek waters, or vice versa. To clarify, by not adhering to this rule and allowing hanging or floating segments, the procedure could very well result in an absurd division where both countries would have sovereign rights over the resources not coterminous with waters currently under their control or in proximity to their coastline, defeating the purpose of applying Adjusted Winner.

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[138] A vertical line that splits the Aegean Sea, demarcating Greece's EEZ and CS from Turkey's EEZ and CS.

Rule Two: Currently in the Aegean Sea, Greece and Turkey's mainland have a six nautical mile territorial sea extending from the low water line of their respective coasts, and their islands that meet the qualifications under Article 121 also have a six nautical mile territorial sea (despite Greece's threats to extend their territorial sea to twelve nautical miles).[139] Rule Two precludes the drawing of a segment that infringes on the territorial sea of either country's mainland or islands, and it also prohibits the drawing of a segment that halves any island claimed or disputed by the countries. The rule's necessity is rather obvious—allowing segments to infringe on undisputed territories is antithetical to the desired result of a delimited Aegean.

Rule Three: The third and final rule requires that all of the segments be equal in size. The size requirement is desirable because it attempts to *objectively* balance the value of all the segments. Objective balancing is important becomes it enhances the likelihood that Greece and Turkey will see value in multiple segments, thereby discouraging allocation of all their points to one or two "value-heavy" segments.[140]

How Many Segments Should We Draw?: While my illustration includes eight equally-sized segments, there is no requirement to how many segments must exist. However, deciding to increase the number of segments, by implication, means that these segments would be reduced in size, which is acceptable only if the reduction in size does not lead to a *hanging* or *floating* segment in violation of Rule One.

Who Should Draw the Segments?: The segments drawn in **Map 3** and **Map 4** are for illustration only. If Greece and Turkey were actually applying the Adjusted Winner procedure, the

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[139] *See supra* notes 132-135 and accompanying text.

[140] Of course, I am making the assumption that equal size means equal value, but my decision to balance the segments by size was purely made out of convenience, not because I believe it would be the best method. It is, if possible, probably preferrable to *objectively* balance the segments by means which more closely reflect the actual value the segments will have to the countries bidding on them. Because the value of the segments in the Aegean Dispute are tied to the resources they possess, a potential option is drawing the segments of equal monetary value based on the monetary value of each segment's resources. However, this assumes that there is enough knowledge about the resources in the disputed territory of the Aegean for an accurate estimation, and it also requires the countries to agree on the monetary value assigned to each segment.

segments would be drawn with the geopolitics of the countries and region in consideration. This, however, begs the question: how can you get two rival countries, already amidst a dispute, to agree on who draws the segments? In the spirit of Adjusted Winner's commitment to party involvement, a potential solution would be each country selecting an equal number of experts to sit on a panel tasked with drawing the segments. If the parties preferred, however, an agreed-upon, neutral mediator could draw the segments for the countries as well.

2. Step 2: Deciding on a Point System

The number of points given to Greece and Turkey is arbitrary in the sense that assigned points are simply emblematic of the countries' subjective valuation of the segments; however, increasing the number of points given to each country reduces the chances of ties during the Initial Winner Phase. In my example, each country was given one hundred points to allocate amongst the segments, but Greece and Turkey could instead agree to one thousand points apiece (or more), decreasing the likelihood a tie will occur. Although ties are not inimical to the division and AW guarantees a fair division of the segments regardless of their presence, an increase in tied items will likely decrease each party's overall happiness with their allotted share.[141] Therefore, increasing the points may be beneficial for contentious disputes like the Aegean Dispute.

3. Step 3: Point Allocation Phase[142]

After the disputed territory is divided into segments, Greece and Turkey receive their points to allocate among the segments (in this illustration, they are given 100 points each). Remember, these value points are how the countries indicate their preferences to certain segments over others. For example, if Greece allocates more value points to Segment A over Segment B, it means that Greece believes Segment A is more valuable than Segment B. In this

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[141] *See infra* Section VII.A.

[142] Because Steps 3 through 5 have been explained thoroughly earlier in the Comment, I do not cover each Step in great detail, rather I try to highlight the most important points of the Steps as applied to the Aegean Dispute.

hypothetical scenario, Greece and Turkey allocate their points as follows:

Segments	Greece (PA)	Turkey (PA)
A	10	16
B	12	12
C	20	14
D	14	10
E	10	14
F	4	2
G	10	8
H	20	24

4. Step 4: Initial Winner Phase

In the Initial Winner Phase, each country is initially given the segments to which they allotted more points. Therefore, based on the hypothetical point allocation above, Greece receives segments C, D, F, and G, to which they allotted a total of 48 points. On the other hand, Turkey receives segments A, E, and H, to which they allotted a total of 54 points. Because Turkey has more points after initial allocations (the higher point total for Turkey means that Turkey *perceives* they received more of the total value of the segments than Greece *perceives* they received of the total value of the segments), tied Segment B is initially given to Greece, raising Greece's point total to 60.

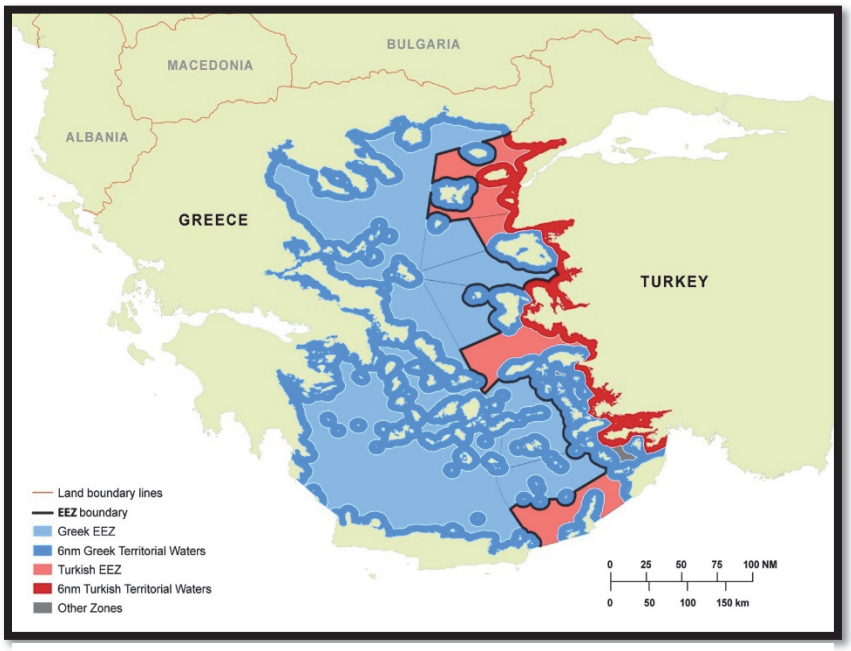
5. Step 5: Adjusted Winner Phase

In the Adjusted Winner phase, segments—or slices/fractions of segments—will be transferred from Greece, the country with the higher point total, to Turkey, the country with fewer points, until their point totals are equal. During this process, the order in which segments are transferred is important. The segment with the smallest ratio must be transferred first. In this case, Segment B has the smallest ratio ($12 \div 12 = 1$). Therefore, Segment B is the first segment transferred to Turkey. However, if Segment B is completely transferred to Turkey, it would increase Turkey's points to 66 and leave Greece with only 48 points, defeating the purpose

of the Adjusted Winner phase. Therefore, the parties will have to split Segment B. The formation of a simple algebra problem finds the exact percentage of Segment B that must be transferred from Greece to Turkey in order for the value totals to equal between the countries ($60 - 12x = 54 + 12x$). Solving for x yields 1/4 or 25%. Therefore, 25% of Segment B needs to be transferred from Greece to Turkey to satisfy the equitability criterion. When transferring 25% of Segment B from Greece to Turkey, neither country should have much influence on what portion of Segment B is transferred. The part of Segment B in closer proximity to Turkey must be the 25% transferred to avoid a final division incompatible with the drawing of a vertical delimitation line.

6. Step 6: Draw the Final Delimitation Line

Map 5 below provides an illustration of the delimitation line.



Map 5

VII. CRITICISMS OF ADJUSTED WINNER

A. Undesirable Point Allocations

In the illustration of AW provided above, Greece and Turkey's point allocation was relatively uncomplicated, devoid of multiple ties or point accumulation on value-heavy segments. What would happen if two countries, like Greece and Turkey, used Adjusted Winner to settle their maritime boundary dispute, and there were multiple ties or the countries believed only a few segments had value? While neither of these scenarios are ideal, Adjusted Winner will fortunately still work without sacrificing any of the fairness criteria.

To illustrate AW's adaptability, let's say that Greece and Turkey assign their 100 allotted points amongst the eight segments as follows:

Segments	Greece (PA)	Turkey (PA)
A	10	10
B	12	12
C	20	14
D	15	15
E	10	14
F	8	8
G	17	17
H	8	10

Based on the point allocation in the table above, Greece receives only Segment C, to which they assigned 20 points. Turkey bid more points on Segment E and Segment H; their allotted point total equals 24. In this hypothetical point allocation, Greece and Turkey tied on five segments: A, B, D, F, and G. Tied segments are initially awarded to the party with the lower point total at the time the tied segment is awarded. The only other rule is that the tied segments must be allotted in an order starting with the tied segment that was allotted the most points and ending with the segment allotted the fewest points.

For example, both Greece and Turkey allotted 17 points to Segment G, making it the tied segment with the most points.

Therefore, it will be the first segment awarded, and it will be awarded to Greece because Greece has fewer points than Turkey at the time Segment G is being awarded. After awarding Segment G, Greece's point total increases to 37. Next, Segment D, which both countries assigned 15 points to, will be awarded to Turkey because Turkey (24) has fewer points than Greece (37) at the time Segment D is being awarded, increasing Turkey's point total to 39.

This process is repeated, with Segment B awarded to Greece and, subsequently, Segment A awarded to Turkey, increasing both of their totals to 49 points. Because both countries have 49 points, the last tied segment—Segment F—is split evenly, raising both Greece and Turkey's point total to 53 points. Normally, after initially awarding the segments, the next phase would be the Adjusted Winner phase (where segments or parts of segments are transferred from one country to the next to equalize their respective point totals); however, Greece and Turkey's point totals are already equal, removing the need for the adjustment phase.

Another undesirable point allocation is a scenario involving value-heavy segments. However, value-heavy segments are not always undesirable. In fact, they are preferred if the parties disagree on what segments are considerably higher in value, but in situations where the parties believe the same segments are higher in value, both parties will unavoidably receive less perceived value. An illustration will help explain this more thoroughly. Greece and Turkey allocate their points as follows:

Segments	Greece (PA)	Turkey (PA)
A	2	3
B	1	1
C	42	35
D	2	6
E	3	1
F	29	30
G	1	1
H	20	23

In the Initial Winner Phase, Greece is awarded Segments C and E, totaling 45 points, while Turkey is awarded Segments A, D, F, and H, totaling 62 points. The tied segments—Segments B and

G—are awarded to Greece during the Initial Winner phase, but they only increase Greece's point total to 47. During the Adjustment Phase, the segment with the smallest ratio is transferred first, and in this hypothetical, Segment F has the smallest ratio. However, Segment F cannot be completely transferred from Turkey to Greece, so the segment must be split. The exact percentage of Segment F that must be transferred is 15/59 or approximately 25%, determined by solving for x in the following equation: $47 + 29x = 62 - 30x$. Therefore, approximately 25% of Segment F needs to be transferred to balance the point totals.

In both of these examples with undesirable point allocations, notice that the point totals of the parties are lower than some of the other illustrations provided above. What does this mean? When explaining equitability earlier in this Comment, I said it is best to think of each party's point total as a happiness indicator—the higher the point total, the happier the party and vice versa.[143] Consequently, when there are multiple ties or value-heavy segments, as in the hypotheticals above, the point totals (or overall happiness of each party) will drop because the uniformity of the parties' bids requires more splits of tied and value-heavy segments. Therefore, drawing the segments in such a way as to avoid value-heavy segments and increasing the number of points allotted to each party will resort in a more agreeable division for both parties.

B. Strategic Bid-Predicting Revisited

The most significant criticism of Adjusted Winner is its inability to force parties to be truthful about their valuations. Although dishonest valuations by a party to gain an advantage or slight an enemy preempts any possibility of a true envy-free, equitable, and efficient division, strategic bid predicting is detrimental to the fairness of Adjusted Winner only when one party has intimate knowledge of the other party's preferences.[144] In contrast, when both parties share similar knowledge of each other's preferences, the detrimental effect is minimized because both parties have the ability to use external information in making their bids. Even so, "the strategy which results in the Nash equilibrium

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[143] *See supra* text accompanying notes 97-98.

[144] Matz, *supra* note 101, at 1388.

is truthfulness," meaning that even if one party attempts to predict bids, the other party is still incentivized to be honest.[145] In the maritime boundary context, it is very likely that both parties will have some knowledge of the other country's preferences, but this knowledge will probably be incomplete and consequently not inimical to Adjusted Winner. To explain, if a party attempts to strategically predict bids with only partial information, the insincere party is at risk of receiving a share of the division that doesn't accurately represent their valuations; therefore, even if the countries have knowledge of each other's preferences, Adjusted Winner induces each participant to be honest in their valuation, lest they lose the benefits of participating in the procedure.

C. Adjusted Winner's Limitation to Two Parties

The second disadvantage of AW is its inability to guarantee a proportional, envy-free, efficient, and equitable division when there are more than two parties. Brams and Taylor illustrate why this is so in their book, *Fair Division: From Cake-Cutting to Dispute Resolution*, and explain that it is possible, however, "to find an allocation that satisfies two [fairness criteria]."[146]

D. Enclaves, Innocent Passage Rights, and Fishing Rights

Another prevalent criticism results from the potential for the enclaving of islands as a result of applying Adjusted Winner to maritime boundary disputes. The criticism is that enclaving islands creates new difficulties, such as innocent passage rights to and from the island and fishing rights for the islanders. However, given the distorting effect islands have on delimitation lines, an enclave of islands has been successfully implemented in the past by other countries in negotiating maritime boundaries and by tribunals tasked with drawing a delimitation line.[147] For example, in the 1978 *Torres Strait Treaty* between Australia and Papua New Guinea, Australian islands abutting Papua New Guinea's coast were granted a territorial sea but enclaved within Papua New Guinea's

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[145] *Id.* at 1388-89 (footnote omitted).

[146] BRAMS & TAYLOR, *supra* note 83, at 82.

[147] ROTHWELL & STEPHENS, *supra* note 53, at 437-38.

continental shelf, and channel islands off the coast of France were partially enclaved in the *Anglo-French Arbitration*.[148]

As for the corollary issue of innocent passage, Articles 17, 58, and 78 of UNCLOS provide that all states are entitled to innocent passage through the territorial sea, EEZ, and CS of another state, respectively.[149] Therefore, if both countries can agree to follow preexisting international law, innocent passage rights will not be an issue. Fishing rights, however, may become a significant problem if the enclaved island's economy is heavily reliant on fishing. Although the populace would be able to freely fish in the island's territorial sea, the resources of the water column beyond the territorial sea would belong to another country if enclaved. A possible solution for this scenario is to negotiate a fishing zone that extends beyond the territorial sea, allowing island fishermen to fish in the other country's EEZ without violating international law.

CONCLUSION

With the rise in expansive maritime claims by littoral states and the legitimization of these claims under international law, there has been a concomitant rise in unresolved maritime boundary disputes, thereby raising tensions between countries with potentially overlapping claims to adjacent waters. In response to this rapid increase in maritime disputes, the ICJ and ITLOS have heard several maritime boundary cases and recently developed a rather concrete methodology for resolving these disputes, but most countries are reluctant to hand over their disputes to the courts, instead preferring to be more involved through negotiations. Because negotiations are difficult and often lead to an impasse, countries should utilize the Adjusted Winner procedure to resolve maritime disputes, such as the Aegean Dispute.

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[148] *Id.*

[149] UNCLOS, *supra* note 24, art. 17, art. 58, art. 78.