# INTERNATIONAL LAW ASSOCIATION

# SOFIA CONFERENCE (2012)

## BASELINES UNDER THE INTERNATIONAL LAW OF THE SEA


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### I. Introduction

The International Law Association Committee on Baselines under the International Law of the Sea was formed with the approval of the ILA Executive Council in November 2008, with Judge Dolliver Nelson appointed as Chair and Dr Alex Oude Elferink as Rapporteur.[1] In the autumn of 2009, Dr Oude Elferink relinquished his position, and Mr Coalter Lathrop was approved as Rapporteur of the Committee.[2] The four-year mandate of the Committee ends in 2012.

The Committee was established with a two-part mandate: first, to "identify the existing law on the normal baseline" and, second, to "assess if there is a need for further clarification or development of that law".[3] The need to identify, and possibly clarify or develop, the existing law concerning the normal baseline arises in response to possible sea level rise that has been predicted to accompany the phenomenon of climate change, and the effects this may have in particular upon low-lying, small island developing states.[4] The need also arises with respect to the artificial extension of existing coasts[5] (for example, through land reclamation projects). In addition to concerns raised by these phenomena, the importance of identifying the existing law on the normal baseline was highlighted in two recent maritime delimitation cases – *Nicaragua* v. *Honduras* (ICJ Judgment 2007)[6] and *Guyana* v. *Suriname* (Annex VII Arbitral Tribunal award 2007)[7] – in which the location of the

[1] *Minutes of Meeting of Executive Council*, Nov. 15, 2008, Charles Clore House, London.
[2] Many Committee members made significant contributions to this Report. Special acknowledgment is due to Committee member Michael Reed, whose research and drafting formed the basis for text related to the *travaux préparatiores* of Article 5, United States practice, and state practice more generally, and who contributed significant research and drafting to other parts of this Report.
[3] *Proposal for the establishment of a new committee on baselines*, para. 7 [hereinafter *Proposal*].
[4] *Id.* para. 4.
[5] *Id.* para. 5.
[6] Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras), 2007 ICJ 659 (Oct. 8).

normal baseline was in question.[8] Finally, the normal baseline is of fundamental importance for the construction of other types of baselines that do not follow the sinuosities of the coast, including straight baselines, archipelagic baselines, and bay and river closing lines.[9] These 'straight line' baselines are not considered in any detail in this report. The normal baseline along ice-covered coast is also not dealt with in this Report.[10] The Committee notes that straight baselines and baselines along ice-covered coasts could be the subjects of additional reports produced under a new or extended mandate.

In order to satisfy its mandate, the Committee drafted an internal discussion document for consideration at the August 2010 ILA biennial meeting in The Hague. The Committee considered the internal discussion document in a closed meeting and in an open working session held from 18-19 August 2010. A draft final report was produced on the basis of those discussions, and taking into account comments from Committee Members and non-members, and also responses of Committee Members to an *ad hoc* series of questions formulated by the Rapporteur focusing on issues of state practice concerning baselines. The draft final report was circulated to Committee Members on 18 January 2012 and was discussed during an inter-sessional Committee meeting convened in Hamburg, Germany on 16-17 March 2012. A revised draft final report was subsequently submitted to the Committee on 18 May 2012, and this final report was submitted to ILA headquarters in advance of the 8 June 2012 deadline. This final Report takes account of comments submitted by Committee Members both during and subsequent to the Hamburg inter-sessional meeting.

This Report introduces the issues, identifies the existing law concerning the normal baseline, and suggests possible clarification or development of that law. The Committee has set out the relevant background information on the origin and significance of the normal baseline and has sought to highlight the interests of various actors in the location of the baseline (Section II). The Committee has investigated the meaning of the conventional law of normal baselines, including an analysis of the *travaux préparatiores*, and an assessment of other sources of law. On the basis of this analysis, the Committee has stated its conclusions concerning the existing law on the normal baseline (Section III). The Committee considers the impact on the normal baseline of territorial gain and territorial loss from, for example, the construction of coastal defenses or the effects of sea level rise (Section IV). Finally, the Committee's assessment of the need for further clarification or development of the law of normal baselines is set forth (Section V). The Annex to this Report provides a brief description of the technical reasons for the difference – in some circumstances – between the charted low-water line and the actual low-water line.

## II. The Normal Baseline: Origin, Significance, and Interests

### *A. Origin*

Article 5 of the United Nations Convention on the Law of the Sea (UNCLOS or the 1982 Convention) defines the normal baseline. The normal baseline article is concise, providing that:

> 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.[11]

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[7] Award of the Arbitral Tribunal in the Matter of an Arbitration between Guyana and Suriname (Guyana v. Suriname), 47 ILM 166 (2008) (Sept. 17, 2007), *available at* http://www.pca-cpa.org/upload/files/Guyana-Suriname%20Award.pdf.
[8] *See Proposal*, *supra* note 3, para. 2.
[9] *See id*. para. 3. These 'straight line' baselines include Article 7 straight baselines, Article 9 baselines across the mouths of rivers, Article 10 bay closing lines, and Article 47 archipelagic baselines. It should be noted that the low-water line serves as the anchor for these 'straight line' baselines. To be valid in international law each of these baselines – which deviate from the location of the normal baseline – still must attach to or link up with the low-water line at their endpoints, and intermediate turning points. So, while the focus of this report is on the normal baseline, the issues raised here between the charted and actual low-water line are no less important for locating the other baselines contemplated in the Convention.
[10] The issue of the normal baselines along ice-covered coasts was introduced during the open working session of 19 August 2010. *Baselines under the International Law of the Sea*, REPORT OF THE 74TH CONFERENCE 827, 833 (2010) (Noyes). The question of whether ice may be treated as 'land' under certain circumstances is not resolved.
[11] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 UNTS 397. The first clause in this article refers to other baseline provisions within the Convention, including Article 7 (straight baselines), Article 9 (mouths of rivers), and Article 10 (bays).

Although seemingly straightforward, the Committee notes that the concise language of Article 5 has been interpreted and applied in two ways:

(1) the normal baseline is the low-water line depicted on the charts officially recognized by the coastal State; or

(2) the normal baseline is the low-water line along the coast at the vertical, or tidal, datum indicated on the charts officially recognized by the coastal State.[12]

The application of the first interpretation would lead to the conclusion that the charted low-water line is the legal normal baseline and the chart itself is the legal document that determines the position of that baseline irrespective of the physical realities of the coast. The second interpretation would support a conclusion that the actual low-water line is the legal normal baseline and that charts, although not insignificant, are not determinative of the location of the normal baseline under Article 5 of the 1982 Convention. Under the latter interpretation adjudicators may consider evidence of the physical coastal realities or the actual coastal configuration notwithstanding the depiction of the normal baseline on officially recognized charts.

Prescott and Schofield have framed this issue, referring to several prominent members of this Committee, including Christopher Carleton, Alex Oude Elferink, and Michael Reed. They write:

> Under normal circumstances it might be considered that the low-water line shown on a chart officially recognized by a country is the baseline from which its territorial sea is measured and that this will prevail in any dispute. That is certainly the attitude of the British and Dutch governments (Carleton, pers. comm., 2001; [Oude] Elferink, pers. comm., [May] 2001). According to this view it is the chart that is the legal document determining the position of the normal baseline and this remains the case even where the coastline's configuration has changed. Thus, if the coastline has altered, but it has not been published, the legal baseline is that on the published chart. Where this is the case, the normal baseline will only come to reflect the physical change in the coastline if a fresh survey is undertaken and the chart correspondingly updated (Carleton and Schofield, 2001: 24-25).
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> However, Reed (2000: 180) records that members of the International Law Commission, during the preparation of draft articles for the 1958 Convention, expressed views that if the charted baseline departed appreciably from the actual low-water line the chart could be challenged in any legal tribunal. There does not appear to be any precise definition of the term 'appreciably' found in the *travaux préparatoires*. Reed records that in domestic cases even minor deviations have been raised and taken into account (Reed, 2000: 182).[13]

The Committee notes that the issue of the interpretation of Article 5 is largely academic. It is often the case that the application of either interpretation will result in the same line or in lines that differ in very minor ways. In these circumstances the issue addressed herein does not arise or is not one with which the law concerns itself – *de minimis non curat lex*. However, in some circumstances the application of the competing interpretations could result in normal baselines that are appreciably different – in absolute spatial terms – or that are different in small but important ways.[14]

The question before the Committee is, in essence, whether the Article 5 normal baseline is a line on a chart (the charted low-water line) or a line on the 'ground' (the actual low-water line). And, depending on the answer to that question, what are the implications when this rule is applied in practice in a variety of current and readily foreseeable situations involving territorial loss or gain? Recognizing that the location of these two lines can be substantially different, the Committee notes that the interpretation of Article 5 may have significant real-world consequences.

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[12] The concept of vertical or tidal datums is instrumental to understanding the baselines issue. "In UNCLOS analysis, 'datum (vertical)' or 'vertical datum' means any level surface, e.g., mean sea level, taken as a surface of reference from which elevations may be reckoned". DEFINITIONS FOR THE LAW OF THE SEA: TERMS NOT DEFINED BY THE 1982 CONVENTION 163 (George K. Walker ed., 2012). See the Annex to this Report for a complete explanation of datums and how they impact the location of the normal baseline and the depiction of that line on nautical charts.

[13] VICTOR PRESCOTT & CLIVE SCHOFIELD, THE MARITIME POLITICAL BOUNDARIES OF THE WORLD 101 (2d ed. 2005).

[14] For example, the transformation of a low-tide elevation into a fully submerged feature could result from only a small physical change but could significantly reduce the size of a state's territorial sea.

### *B. Significance*

The baseline is the legal expression of a state's coast, which, in turn, functions as an intermediary for the land territory of a coastal State in the determination of maritime zones and the generation of maritime rights and jurisdiction. As the International Court of Justice noted, "[t]he land is the legal source of the power which a State may exercise over territorial extensions to seaward".[15] Weil expands on this fundamental notion, writing that maritime 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 the coastal front."[16] The ICJ emphasized the importance of the coast in this context:

> What distinguishes a coastal State with [maritime] rights from a landlocked State which has none, is certainly not the landmass, which both possess, but the existence of a maritime front in one State and its absence in the other. The juridical link between the State's territorial sovereignty and its rights to certain adjacent maritime expanses is established by means of its coast.[17]

The Committee notes that the coast, and the baseline to the extent that it represents the coast,[18] is foundational to the very concept of maritime jurisdiction.

The baseline issue may be conceptualized in a number of ways. For example, the baseline plays three distinct roles. First, the baseline divides land territory, including internal waters, from the territorial sea.[19] The navigational rights of flag states and the rules relating to jurisdiction over foreign vessels differ substantially between internal waters and the territorial sea. Specifically, the right of innocent passage does not exist in internal waters, with one exception.[20] Coastal State regulations may also differ between these two zones. It is therefore important for citizens and foreigners alike to know where the line of division – the baseline – is located.

Second, the outer limits of the territorial sea,[21] contiguous zone,[22] exclusive economic zone,[23] and, under certain circumstances, the continental shelf[24] are measured from the baseline and are delineated on the basis of that measurement. Here too, the rights and duties of the coastal state and of other ocean users will differ substantially depending upon the jurisdictional zone.[25] A coastal state's exploitation of offshore natural resources and a flag state's navigation through maritime areas provide two examples of activities for which the associated rights and duties differ substantially depending upon the jurisdictional zone in which those activities occur.

Third, baselines are often the starting point for determining title to maritime areas subject to overlapping coastal state claims.[26] It is this third role – the role of baselines in the bilateral delimitation of maritime boundaries –

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[15] North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands), 1969 ICJ 3, 51 (Feb. 20).
[16] PROSPER WEIL, THE LAW OF MARITIME DELIMITATION – REFLECTIONS 50 (1989). Weil borrows the phrase "the land dominates the sea" from the *North Sea* judgment. *North Sea*, *supra* note 15, at 51.
[17] Continental Shelf (Libyan Arab Jamahiriya/Malta), 1985 ICJ 13, 41 (June 3).
[18] The term 'coast' is broader than the term 'baseline', but undoubtedly the low-water line is part of the coast. 'Coast' is defined as "the edge or margin of land next to the sea". DEFINITIONS, *supra* note 12, at 130. An earlier version of the International Hydrographic Organization glossary defines "coast" as "The sea-shore. The narrow strip of land in immediate contact with any body of water, including the area between high- and low-water lines". *Quoted in id*. at 131.
[19] *See* United Nations Convention on the Law of the Sea, *supra* note 11, art. 8(1) ("[W]aters on the landward side of the baseline of the territorial sea form part of the internal waters of the State".).
[20] *See id*. art. 8(2) ("Where the establishment of a straight baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters".).
[21] *Id*. art. 3.
[22] *Id*. art. 33(2).
[23] *Id*. art. 57.
[24] *Id*. art. 76(1), (5) & (6).
[25] In some federal states the federated states or entities within the country may have jurisdiction over certain maritime areas off their coasts. While the rules governing the relationship between the federal and regional powers within a federation are not part of international law, the relationship can give rise to judicial consideration of international law rules (such as those governing baselines) within municipal legal systems.
[26] In *Romania* v. *Ukraine* the Court distinguishes the role of baselines in the delineation of the outer limits of maritime zones from their role in the delimitation of a boundary between two states. Maritime Delimitation in the Black Sea (Romania v.

that, at least in part, prompted the formation of this Committee.[27] Parties in two recent maritime delimitation cases argued, among other things, "that the baselines depicted on the chart did not reflect the situation on the ground".[28] Other cases have raised related issues.[29] As noted above, it is land territory, with the coast as intermediary, which generates entitlements to maritime area. As such, coastal geography is of paramount importance in delimiting boundaries between coastal states with overlapping claims to maritime areas.

The territorial sea delimitation provisions of the 1958 Convention and 1982 Convention refer to baselines.[30] With an exception for historic title and other special circumstances, Article 15 of the 1982 Convention provides that:

> [w]here the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points *on the baselines* from which the breadth of the territorial seas of each of the two States is measured.[31]

As a consequence, the location of the baseline is a primary consideration in the delimitation of lateral or opposite territorial sea boundaries. In contrast, the 1982 Convention delimitation provisions for the exclusive economic zone and continental shelf do not refer to baselines as a starting point. However, the maritime delimitation jurisprudence appears to give a procedural presumption to the construction of a provisional delimitation line measured from baselines.[32]

These three roles – (1) division of territory/internal waters from territorial sea, (2) delineation of outer limits of maritime jurisdictional zones, and (3) delimitation of boundaries dividing one state's maritime area from another state's maritime area – may also be separated or grouped on the basis of their unilateral or bilateral aspects. The first and second roles of baselines share a common characteristic: they both establish the outer limits of coastal state jurisdiction beyond which flag states or the international community enjoy different rights from those enjoyed in various coastal zones. In these two roles, the establishment, maintenance, notification, and use of the baseline are prerogatives of the coastal state.[33] The baseline, although it impacts interests beyond the coastal state, is largely a unilateral concern weighted heavily toward the interests of the coastal state. It is not, however, purely unilateral. The inherent tension between unilateral prerogative and multilateral interest is captured in the *Fisheries* case. The ICJ wrote:

> The delimitation of sea areas has always an international aspect; it cannot be dependent merely upon the will of the coastal State as expressed in its municipal law. Although it is true that the act of delimitation [of baselines and outer limits] is necessarily a unilateral act,

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Ukraine), 2009 ICJ 61, 108 (Feb. 3) ("The Court observes that the issue of determining the baseline for the purpose of measuring the breadth of the continental shelf and the exclusive economic zone and the issue of identifying base points for drawing an equidistance/median line for the purpose of delimiting continental shelf and exclusive economic zone between adjacent/opposite States are two different issues".).

[27] Historically, the word 'delimitation' has been used to refer to the bilateral process of boundary making between two neighboring coastal states and to the unilateral process of establishing the outer limits of various maritime zones. Here we use the word 'delimitation' to refer only to the former and the word 'delineation' to refer to the latter. Where, in quotations, 'delimitation' has been used to refer to the establishment of outer limits, we note this use for the sake of clarity.

[28] *Proposal*, *supra* note 3 (referring to *Nicaragua* v. *Honduras* and *Guyana* v. *Suriname*).

[29] *See, e.g.*, Continental Shelf (United Kingdom/France), XVIII RIAA 271 (Mar. 14, 1978); Award of the Arbitral Tribunal in the second stage of the proceedings between Eritrea and Yemen (Maritime Delimitation) (Eritrea/Yemen), XXII RIAA 335 (Dec. 17, 1999); Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain), 2001 ICJ 40 (Mar. 16); Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea intervening), 2002 ICJ 303 (Oct. 10); *Romania* v. *Ukraine*, *supra* note 26; Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar), ITLOS Case No. 16 (Mar. 14, 2012).

[30] Convention on the Territorial Sea and the Contiguous Zone, art. 12, Apr. 29, 1958, 516 UNTS 206.

[31] United Nations Convention on the Law of the Sea, *supra* note 11, art. 15 (emphasis added).

[32] *See Romania* v. *Ukraine*, *supra* note 26; *Bangladesh/Myanmar*, *supra* note 29. In practice, courts and tribunals have disregarded specific base points in delimitations that would be legitimate base points for measuring the outer limits of maritime zones. *See, e.g.*, Ukraine's Serpents' Island, Romania's Sulina Dyke, and Bangladesh's Saint Martin's Island.

[33] *See, e.g.*, United Nations Convention on the Law of the Sea, *supra* note 11, arts. 3 ("Every State has the right to establish the breadth of its territorial sea . . . measured from baselines determined in accordance with this Convention".), 5 ("charts officially recognized by the coastal State"), and 14 ("The coastal State may determine baselines in turn by any of the methods provided for . . .".).

> because only the coastal State is competent to undertake it, the validity of the delimitation with regard to other States depends upon international law.[34]

In contrast, in the delimitation role a coastal state's baseline is a bilateral concern, and it is, in the case of adjudication, the court or tribunal's prerogative to determine the location of baselines and, in some instances, to disregard a claimed baseline in part or in its entirety.[35]

Lastly, baseline rules may be considered in light of two different contexts in which they are applied. The first is when a coastal State defines and regulates the status of its territorial sea and other maritime zones, usually by means of domestic legislation. Here, the baseline rules are intended to be applied in a domestic setting and on an enduring basis. The second is when a base point or subsection of a baseline is subject to examination at a particular time, for example, following an arrest or incident at sea or in the context of maritime boundary negotiations or litigation. In these latter circumstances, baseline rules are applied in a much more restricted context where questions of evidence assume greater importance.

These different roles of baselines and conceptualizations of the issue do not affect the Committee's assessment of the existing law on the normal baseline. However, they may affect the manner in which a baseline question is posed or – in the event of litigation – the way in which a challenge to a baseline is framed, including the possible litigants and venue. For example, bilateral delimitation cases are heard in public international law forums, while claims challenging the right of coastal States to enforce its laws in areas defined on the basis of distance from baselines are more likely to be heard in the national courts of the enforcing coastal State. It is not surprising therefore that the issue of baselines has come to the attention of the ILA following various international maritime delimitation cases.[36]

### *C. Interests*

Many different interests are at play with respect to the location of baselines. Churchill and Lowe, referring to the desirability of precise baseline rules, highlight the role of state self-interest: the interest of the coastal State in moving baselines seaward against the interest of all other States. They write:

> If the rules are not sufficiently precise, it may be possible for a State to draw its baselines in a generous manner, thus pushing the outer limit of its territorial sea and other zones seawards and bringing greater areas of sea within internal waters, thus reducing the areas of sea available for use by other States.[37]

Of course, it is not just internal waters, but the extent of all maritime zones measured from baselines that would be affected by the coastal State's 'generous' drawing of its baselines. In a subsequent delimitation of overlapping zones, these baselines might be challenged by a neighboring state.

Sub-state political units may have an interest in the location of the baseline if it separates or is linked to the line separating their areas from the area of the state. This is the situation as between the United States of America and its coastal federated states, and has given rise to several cases before the U.S. Supreme Court in which the location of the baseline was at issue.[38]

Private actors may have an interest in the location of baselines and the outer limits of zones measured therefrom. Consider, for example, a vessel fishing in the vicinity of the outer limit of the exclusive economic zone, or a lessee with a license to explore or exploit natural resources within, but not beyond, the outer limit of a state's maritime area. Any private actor involved with maritime transportation will have an interest in the location of baselines and outer limits, as would defendants raising certain jurisdictional defenses in the courts of a coastal

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[34] Fisheries (United Kingdom v. Norway), 1951 ICJ 116, 132 (Dec. 18) (addressing the unilateral act of declaring straight baselines; however, the same issues apply with respect to normal baselines).
[35] *See Romania* v. *Ukraine*, *supra* note 26 (disregarding points on Romania's straight baseline, including the seaward end of Sulina dyke); *Nicaragua* v. *Honduras*, *supra* note 6 (disregarding Honduran straight baselines).
[36] Klein notes that "[i]t is most typical that a challenge to baselines will ensue in the context of a delimitation between States with opposite or adjacent coasts". NATALIE KLEIN, DISPUTE SETTLEMENT IN THE UN CONVENTION ON THE LAW OF THE SEA 268 (2005).
[37] R.R. CHURCHILL & A.V. LOWE, THE LAW OF THE SEA 32 (3d ed. 1999).
[38] *See infra* section III.C.2.

State. In all of these examples, private actors may find themselves contesting the coastal State's official baseline, perhaps on the grounds that it does not reflect the physical realities of the actual low-water line.

Prescott and Schofield note that

> [i]n practice it seems likely that the dispute over whether the charted or actual low-water line should prevail will only arise in two situations. The first is when a country realises that the actual line lies significantly seawards of the charted line. The second is when a foreigner, accused of improperly entering a maritime zone, realises that the actual line lies significantly landwards of the low-water line shown on the chart.[39]

As demonstrated in maritime delimitation cases there is a third situation in which a coastal state may contest its neighbor's asserted baseline when it realizes that the actual line lies significantly *landwards* of the charted line.

Finally, there is a special category of coastal State with an existential interest in this issue. The Committee refers here to the low-lying, small island developing states that may be particularly vulnerable to the effects of sea level rise. It is possible that some of these States could lose the entirety of their territory to the sea, and thereby the basic qualifications of statehood itself.[40] The plight of these States contributed to the formation of this Committee, and, certainly, they have a unique interest in the subject of this Report. The existing law of the normal baseline as it affects the interests of small island developing states is addressed in Section IV.B.

## III. The Normal Baseline: Existing Law

In an effort to identify the existing law concerning the normal baseline, the Committee has applied the rules of treaty interpretation to Article 5 of the 1982 Convention, including a review of its predecessor provision – Article 3 of the 1958 Convention – and the relevant *travaux préparatoires*. The Committee begins this section with the results of that exercise (III.A). The treatment of the normal baseline in international judicial decisions (III.B) and in municipal legislation and litigation (III.C) provides important perspectives on the existing law, as do the writings of legal and technical experts (III.D). We complete our study of the existing law with an assessment of two other normal baseline articles, Article 6 (reefs) and Article 13 (low-tide elevations) (III.E), before providing our general conclusions on the existing law (III.F).

### *A. Interpreting Article 5*

#### 1. General Rule

The Committee begins with the text of Article 5 and the interpretive rules of Articles 31 (general rule of interpretation) and 33 (interpretation of treaties authenticated in two or more languages) of the Vienna Convention on the Law of Treaties.[41] In English, Article 5 reads:

> 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.[42]

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[39] PRESCOTT & SCHOFIELD, *supra* note 13, at 101.

[40] Susin Park, *Climate Change and the Risk of Statelessness: The Situation of Low-lying Island States* (UNHCR, May 2011) ("The Intergovernmental Panel on Climate Change (IPCC) thus concluded that '[s]ea-level rise impacts on the low-lying Pacific Island atoll States of Kiribati, Tuvalu, Tokelau and the Marshall Islands may, at some threshold, pose risks to their sovereignty or existence'". (quoting IPCC, Climate Change 2007, Fourth assessment report, Report of the international working group II, *Impacts, adaptation and vulnerability* 736)).

[41] Vienna Convention on the Law of Treaties, May 23, 1969, 1155 UNTS 331.

[42] United Nations Convention on the Law of the Sea, *supra* note 11.
In French:
Sauf disposition contraire de la Convention, la ligne de base normale à partir de laquelle est mesurée la largeur de la mer territoriale est la laisse de basse mer le long de la côte, telle qu'elle est indiquée sur les cartes marines à grande échelle reconnues officiellement par l'Etat côtier.
In Spanish:

The text of this provision, which is equally authoritative in Arabic, Chinese, English, French, Russian, and Spanish,[43] must be interpreted "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose",[44] with the presumption that the provision has "the same meaning in each authentic text".[45]

As noted above, the English version of Article 5 could lead to two different meanings of "the normal baseline for measuring the breadth of the territorial sea": (1) the low-water line along the coast (the actual low-water line), or (2) the low-water line as marked on charts officially recognized by the coastal State (the charted low-water line). Put more simply, the charted line could *be* the legal normal baseline or the charted line could *illustrate* the legal normal baseline.

The Committee has reached the view that an analysis of the equally authentic texts in other languages provides no indication regarding which meaning should prevail. The Spanish equivalent of the phrase "as marked on" is, "*tal como aparece marcada mediante el signo apropiado en*" (as marked/shown by the appropriate symbol on). The French equivalent of the phrase "as marked on" is "*telle qu'elle est indiquée sur*" (as it is indicated on).[46] The Spanish and French may indicate that the charted line is meant to be a representation, depiction, or illustration of the normal baseline, not the normal baseline itself. In contrast, the Chinese and Russian texts are in line with the English version, which seems to emphasize the charted line. For lack of linguistic expertise, the Committee has not analyzed the Arabic text.

The interpretation of Article 5 may be assisted by a review of Article 7 (straight baselines), and the apparent exception made in Article 7(2), which 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 baseline shall remain effective until changed by the coastal State in accordance with this Convention.[47]

The Committee notes that this provision distinguishes between the actual low-water line and the representational version of that low-water line (here, the straight baseline constructed by connecting appropriate turning points on a low-water line that no longer exists in its original location). Article 7(2) allows – in very particular circumstances – for the representational version to remain effective despite the fact that it does not reflect the actual low-water line. This appears to support the interpretation that, with this one exception, in conditions of physical change the baseline must reflect the actual low-water line. However, Article 7(2) also lends weight to the role of the coastal State in recognizing and depicting its own baselines. In the Article 5 context, this might include depiction of the normal baseline in the form of revised or updated "large-scale charts officially recognized by the coastal State," irrespective of physical changes to the coast.

The other related provisions of the 1982 Convention that the Committee considers may assist in the interpretation of Article 5 are the 'notice' or 'publicity' provisions of Article 16(1) and Article 47(8). Both

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Salvo disposición en contrario de esta Convención, la línea de base normal para medir la anchura del mar territorial es la línea de bajamar a lo largo de la costa, tal como aparece marcada mediante el signo apropiado en cartas a gran escala reconocidas oficialmente por el Estado ribereño.

In Chinese:

除本公约另有规定外,测算领海宽度的正常基线是沿海国官方承认的大比例尺海图所标明的沿岸低潮线。

In Russian:

Если иное не предусмотрено в настоящей Конвенции, нормальной исходной линией для измерения ширины территориального моря является линия наибольшего отлива вдоль
берега, указанная на официально признанных прибрежным государством морских картах крупного масштаба.

[43] *Id.* art. 320. *See also* Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber) paras. 208-17, ITLOS Case No. 17 (Feb. 1, 2011).

[44] Vienna Convention on the Law of Treaties, *supra* note 41, art. 31(1).

[45] *Id.* art. 33(3).

[46] In both the French and Spanish texts, the same phrasing is used in Article 6 (reefs) as in Article 5, while in the English version Article 5 and Article 6 differ. In English, Article 6 reads "as shown by the appropriate symbol on". This might lead to the conclusion that the English phrases, "as marked on" and "as shown by the appropriate symbol on", were intended to have the same meaning in both Articles.

[47] United Nations Convention on the Law of the Sea, *supra* note 11, art. 7(2) (emphasis added).

articles address the role of charts in depicting artificial, straight-line baselines determined in accordance with Article 7 (straight baselines), Article 9 (mouths of rivers), Article 10 (bays), and Article 47 (archipelagic baselines), respectively. Both articles provide that baselines drawn in accordance with these articles "shall be shown on charts of a scale or scales adequate for ascertaining their position".[48] Here, the role of charts is to allow others to ascertain the position of the artificial baseline. Publicity of these baselines through charts provides notice of their location for mariners and other interested parties. What is particularly noteworthy is that these publicity provisions do not apply, and there is no equivalent provision that does apply, to the publicity of charts depicting the Article 5 normal baseline.

### 2. Supplementary Means

The treatment of charts and the low-water line in these articles seems to indicate that the Article 5 normal baseline is the actual low-water line, not the representational, charted low-water line. However, the supplementary means of interpretation contained in Article 32 of the Vienna Convention are also available, and the Committee has applied these means to this interpretation exercise. In this regard, the Committee recalls that supplementary means of interpretation – namely a review of the *travaux préparatoires* – may be applied to confirm a meaning determined pursuant to Article 31, or to determine a meaning where the Article 31 interpretation "leaves the meaning ambiguous or obscure; or leads to a result which is manifestly absurd or unreasonable".[49] The Committee has applied the supplementary means of interpretation for all three of the reasons outlined above: that is, to confirm that the actual low-water line is the normal baseline; to clarify the roles of charts and the charted line in Article 5, which remain ambiguous; and to avoid the manifestly absurd or unreasonable results that might arise from certain interpretations and applications of Article 5.[50]

The *travaux préparatoires* reveal that the original role of the charted line was neither to *illustrate* nor to *be* the normal baseline. Instead, charts and the charted line played an indirect role in defining the word 'low-water' in what has now become the Article 5 phrase 'low-water line'.

The language adopted in Article 5 of the 1982 Convention is substantially the same as in Article 3 of the 1958 Convention on the Territorial Sea and Contiguous Zone (the 1958 Convention),[51] which reads:

> Except where otherwise provided in these articles, 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.

The only change from the 1958 Convention was the replacement of the words 'these articles' with 'this Convention' in the first line. No substantive alteration was intended. This understanding is confirmed in the *Virginia Commentary*, which notes that "[i]n the Main Trends Working Paper (Source 9), Provision 4, Formula A, repeated article 3 of the 1958 Convention, and became the basis for the final text of the 1982 Convention".[52]

Article 5 was not new in 1982, nor was Article 3 new in 1958. Baselines were considered during preparations for the 1930 Hague Codification Conference (1930 Conference), and though that Conference adopted no

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[48] *Id.* arts. 16(1) and 47(8).

[49] Vienna Convention on the Law of Treaties, *supra* note 41, art. 32.

[50] Absurd or unreasonable results might arise in two situations. First, if the charted line were the legal normal baseline and the Article 5 chart no longer reflected the physical reality of the coast, the maritime zones generated from that baseline would no longer correspond to the territory from which they were derived. In circumstances of significant territorial loss this would defy the fundamental principle of international law that maritime rights are subsidiary rights derived from title to territory leading to an absurd result: maritime zones without territory. Second, if the legal normal baseline (the actual low-water line) and outer limits measured therefrom were subject to revision with each minute physical change to the coast, this would impose an insurmountable burden on coastal states and mariners alike. In tandem with the principle *de minimis non curat lex*, nautical charts perform an important stabilizing role in this regard. They provide the most authoritative depiction of the normal baseline and enjoy a presumption of accuracy.

[51] Convention on the Territorial Sea and the Contiguous Zone, *supra* note 30.

[52] 2 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA, 1982: A COMMENTARY 88 (Satya N. Nandan & Shabtai Rosenne eds., 1993). *See also* CHURCHILL & LOWE, *supra* note 37, at 32 (stating that the baselines provisions of the 1958 Convention "were not only binding on parties to the Convention, but in most respects were also regarded . . . as representing the rules of customary international law. Thus it is not surprising to find that the Law of the Sea Convention . . . simply repeats most of the 1958 Convention's [baseline] provisions *verbatim* . . ."); DEFINITIONS, *supra* note 12, at 114 (referring to 1982 Convention, Article 5 and noting of 1958 Convention, Article 3 that "Article 3 applies the same rule").

convention on the law of the sea, draft articles were produced, including draft articles on baselines.[53] Those draft articles formed the basis of the work by the International Law Commission on the law of the sea in the 1950s,[54] which culminated in the 1958 Conventions, including the Convention on the Territorial Sea and Contiguous Zone. The 1930 draft article dealing with the normal baseline formed the basis of Article 3 of the 1958 Convention. In turn, Article 3 was adopted nearly *verbatim* as Article 5 of the 1982 Convention. The Committee finds no evidence of an intention to change the meaning of the normal baseline provision in all of that time.

In its infancy, the baseline discussion focused on the distinction between what we now refer to as normal and straight baselines. In 1929, in advance of the 1930 Conference, the conference preparatory committee distributed a questionnaire to governments that included the following inquiry: "Along the coasts. Is the line that of low tide following the sinuosities of the coast; or a line drawn between the outermost points of the coast, islands, islets or rocks; or some other line?"[55] A substantial majority of responding states opined that the 'line of low tide following the sinuosities of the coast' is the proper baseline.[56] However, it was immediately clear that a treaty provision that merely referred to the 'line of low tide' would be inadequate.[57] The line of low tide is defined by a vertical datum, or chart datum, and, as Germany pointed out in its questionnaire response, there were at least six datums in use at the time which might be used to identify the 'line of low tide'.[58] These six datums would lead to six different 'lines of low tide' along the same coast. To add to the problem there was no international agreement as to which of these datums should be used for charting purposes. At that time, nautical charts provided the only visual representation of the 'line of low tide'.

The problem facing the preparatory committee and the Hague conferees in 1929 and 1930 was, in short, the issue of vertical datums, specifically the fact that several different vertical datums were in use by the charting agencies of participating States. In order to describe the 'line of low tide' with any precision, the vertical datum would also have to be specified. But, if a single vertical datum were specified, a significant number of coastal States' charts would cease to reflect the legal baseline or 'line of low tide' at that specified vertical datum, requiring expensive, time-consuming updates. The solution was to decline to identify a single datum and, instead, to ratify any reasonable datum already in use. Germany was the first to suggest this solution in its response to the pre-conference questionnaire: "The German Government considers that the baseline to be adopted in the Convention on Territorial Waters should be *the 'sea level adopted in the charts' . . . of the coastal State* . . .".[59]

At the 1930 Conference, the United States proposed language that "defined the low-water mark as that '. . . which is employed by the coastal State for the particular coast'".[60] The 1930 Conference Sub-Committee No. II, charged with considering delimitation issues, submitted a draft provision, which read:

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[53] CHURCHILL & LOWE, *supra* note 37, at 32-33.
[54] *See Summary Records of the Fourth Session*, [1952] 1 Y.B. Int'l L. Comm'n 143, UN Doc. A/CN.4/SER.A/1952 (Special Rapporteur François, Regime of the Territorial Sea, noting that he had "tak[en] as a basis the work of the The Hague Conference").
[55] Excerpt of *Bases of Discussion Drawn up for the Conference by the Preparatory Committee, II. Territorial Waters*, League of Nations Doc. C.74.M.39.1929.V. (1929), *reprinted in Official Documents: Conference for the Codification of International Law*, 24 AM. J. INT'L L. SUPP. 29 (1930).
[56] *Id.* at 30. The ICJ, in a recent case, notes the exceptional nature of straight baselines: "the method of straight baselines, which is an exception to the normal rules for the determination of baselines, may only be applied if a number of conditions are met. This method must be applied restrictively". *Qatar* v. *Bahrain*, *supra* note 29, at 103. In 1929, Norway was a notable exception, taking an early position in support of what we now refer to as straight baselines.
[57] *See Bases of Discussion*, *supra* note 55, at 30 ("Various replies call attention to the different meanings which can be given to the expression 'low water'. This is a question of a technical character which must be brought to the notice of the Governments . . .").
[58] *Bases of Discussion Drawn up for the Conference by the Preparatory Committee, II. Territorial Waters*, League of Nations Doc. C.74.M.39.1929.V. (1929) at 35. Germany pointed out that "different methods are employed in the existing marine charts of the various States to fix the 'spring-tide low-water level', which corresponds to the 'low-water mark'". It continued, noting that "[a] number of other criteria are also adopted by the various countries to determine the base line, *e.g.*, 'mean water', the 'line of mean low-water spring-tides', the 'spring-tide low-water line during the equinoxes', the 'low-water level' and the 'mean sea-level'".
[59] *Id.* (emphasis added). O'Connell reports, regarding this proposed solution, that "Germany proposed that a draft Convention should refer to the 'sea level adopted in the charts' of the coastal State, which might be based on geodesic principles applied by the State in question". D.P. O'CONNELL, 1 THE INTERNATIONAL LAW OF THE SEA 172 n.21 (I.A. Shearer ed., 1982) (citing League of Nations Doc. C.74.M.39.1929.V, at 35.).
[60] Baselines, 4 Whiteman DIGEST § 3, at 182.

> For purposes of this Convention, the line of low-water mark is that indicated on the charts officially used by the Coastal State, provided the latter line does not appreciably depart from the line of mean low-water spring tides.[61]

The International Law Commission relied heavily on the 1930 precedents (including this draft article) in its work in the 1950s leading up to the 1958 Convention. Understanding the discussions in 1929 and 1930 and the proposed language that resulted is critical to the interpretation of 1958 Article 3 and 1982 Article 5, specifically the transition from the concept in the German proposal – "the sea level adopted in the charts" – to the language used in the draft article – "the line of low-water mark is that indicated on the charts". In the context of the dilemma faced by the 1930 conferees and considering the reference in the same draft article to a specific vertical datum – "the line of mean low water spring tides" – it may be understood that "the line of low-water mark . . . indicated on the charts" did not refer to the line, *per se*, but to the chart datum that, when applied to that coast during the chart-making process, would result in that particular charted line.

Several related points deserve emphasis. First, the problem within the purview of the 1930 conferees was the identification of a single vertical datum, the use of which would allow states to identify the location of the normal baseline, that is, the "line of low tide" or the "line of low-water mark". That is to say, the conferees were concerned with the many meanings of the word "low-water". Second, realizing that the identification of a single vertical datum was impractical, the conferees opted to allow coastal States to continue to use the vertical datum already in use on their charts. The phrase "is that indicated on the charts officially used by the coastal State" was a drafting innovation designed to address the absence of a single, internationally-agreed vertical datum. Third, the main concern with this lack of a single agreed datum was the potential for abuse. Thus the final provision in the draft article which reads "provided the latter line does not appreciably depart from the line of mean low water spring tides," which is one of several possible vertical datums.

The problem in 1930 was the existence of multiple vertical datums to define the low-water line. The solution was to refer to coastal States' charts, and implicitly to the datums in use on those charts, as a proxy for specifying a single datum, while limiting the freedom of states to define their chart datum by adding a reference to the vertical datum mean low water spring tides.[62]

The issues of baselines, charts, and datums arose when the International Law Commission's first considered the regime of the territorial sea in 1952. At that time, the Commission was considering a Draft Regulation produced by Special Rapporteur François (Netherlands),[63] which included baseline provisions substantially similar to the 1930 draft article. The relevant parts of the provision provided as follows:

> 1. As a general rule and subject to the provisions regarding bays and islands, the breadth of the territorial sea is measured from the line of low-water mark along the entire coast.
> . . .
> 3. The line of low-water mark is that indicated on the charts officially used by the coastal State, provided the latter line does not appreciably depart from the line of mean low-water spring tides.[64]

The final clause of paragraph 3 ultimately was deleted, but not until it was further scrutinized by the Commission in 1952 and a Committee of Experts in 1953. Commission member Amado (Brazil) captured the discussion in 1952 noting, "the proviso should be deleted, since, if the low-water mark in official charts departed appreciably from the line of mean low-water spring tides, those charts would not be accurate and their validity would be questioned by any legal tribunal".[65] Commission member Yepes (Colombia) did not agree with the deletion, but noted that "if a dispute arose as to whether a chart did or did not 'appreciably' depart from

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[61] *Id.* at 183. Shalowitz explains that "[t]he Committee observed that different States employ different criteria to determine the line of low water on their charts but that these are slight and may be disregarded. However, in order to guard against abuse, the [final] proviso was added". A.L. SHALOWITZ, 1 SHORE AND SEA BOUNDARIES 29 n.19 (Washington, US Department of Commerce, 1962).

[62] For a modern example of the link between the reference to charts and the datums upon which they are based, see Maritime Zone Act, No. 23 (1981) (Vanuatu), *reprinted in* UN OFFICE FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, BASELINES: NATIONAL LEGISLATION WITH ILLUSTRATIVE MAPS 376, UN Sales No. E.89.V.10 (1989) [hereinafter BASELINES: NATIONAL LEGISLATION] (Part 1 – Interpretation: "'Low waterline' means the relevant low-water datum line shown on the latest relevant British Admiralty Charts or where there is no such datum the lowest astronomical tide line".).

[63] *Régime of the Territorial Sea*, *in* [1952] 2 Y.B. Int'l L. Comm'n 25, UN Doc. A/CN.4/53.

[64] *Summary Records of the Fourth Session*, *supra* note 54, at 171 n.6.

[65] *Id.* at 172.

that criterion, it could be referred to an international tribunal".[66] Commission member Scelle (France) pointed out that, even with the proviso, the article "would not exclude charts which were unacceptable on other grounds, as being out of date, for instance".[67]

In 1953, a Committee of Experts was convened at the invitation of François. He drafted a questionnaire in light of the outstanding technical issues faced by the Commission in 1952. Importantly, the Report of the Committee of Experts warns that "these replies are given from the technical point of view, bearing in mind in particular *the practical difficulties of the navigator*".[68] The first question posed to the Committee was "[a]ssuming the territorial sea to be measured from the low-water line, what line might then preferably be taken as such?"[69] Considering the context arising from the 1930 draft text and from the previous year's debate, it is clear that the experts were being asked to identify the preferred vertical datum for defining low-water. Still without international agreement on a single datum for charting purposes, the experts declined to answer the question with a specific vertical datum and answered instead that "the base-line for measuring the territorial sea should be the low-water line along the coast as marked on the largest-scale chart available, officially recognized by the coastal State".[70] The "largest-scale chart available" is the chart that any prudent navigator would have referred to while navigating near the coast. The experts also agreed that the proviso regarding the mean low-water spring tides was unnecessary and that there was no danger that omitting the provision "might tempt governments unreasonably to extend their low-water lines on their charts".[71]

The Commission incorporated the Experts' answers. Article 4 of the 1956 ILC draft articles (soon to become Article 3 of the 1958 Convention) read:

> Subject to the provisions of article 5 [straight baselines] and to the provisions regarding bays and islands, the breadth of the territorial sea is measured from the low-water line along the coast, as marked on large-scale charts officially recognized by the coastal State.[72]

The commentary accompanying this article indicates that the unresolved problem of different vertical datums continued to influence the thinking of the Commission through 1956. In that commentary the Commission noted the following:

> The traditional expression "low-water mark" may have different meanings; *there is no uniform standard by which States in practice determine this line*. The Commission considers that it is permissible to adopt as the base line the low-water mark as indicated on large-scale charts officially recognized by the coastal State. The Commission is of the opinion that the omission of detailed provisions such as were prepared by the 1930 Codification Conference is hardly likely to induce Governments to shift the low-water lines on their charts unreasonably.[73]

As noted above, Article 3 was adopted *verbatim* in the text of Article 5 of the 1982 Convention. To the extent that the wording of Article 5 is vague, the Committee considers that this was deliberate, and was intended to 'paper over' the practical difficulties resulting from the absence of a universally agreed vertical datum for defining low water. The insertion of the reference to charts was intended to address these difficulties, and was not intended to give primacy to the charted line.

### *B. International judicial decisions*

The manner in which international courts and tribunals have dealt with the normal baseline is also informative. The Committee recalls that two international judicial decisions were specifically referred to in the proposal for

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[66] *Id.* at 178.
[67] *Id.* (emphasis added).
[68] *Rapport du Comité d'experts sur certaines questions d'ordre technique concernant la mer territoriale*, [1953] 2 Y.B. Int'l L. Comm'n 77, UN Doc. A/CN.4/SER.A/1953/Add.1, English translation *reprinted in* 2 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA, 1982: A COMMENTARY 59 (Myron H. Nordquist ed., 2003).
[69] *Id*.
[70] *Id*.
[71] *Id*.
[72] *Report of the International Law Commission to the General Assembly*, [1956] 2 Y.B. Int'l L. Comm'n 253, 266, UN Doc. A/CN.4/SER.A/1956/Add.1.
[73] *Id.* at 267 (emphasis added).

the establishment of this Committee: the ICJ judgment in *Nicaragua* v. *Honduras* and the arbitral award in *Guyana* v. *Suriname*.[74] In both cases, the parties argued "that the baseline depicted on the chart did not reflect the situation on the ground".[75] The Committee accordingly addresses the baseline issues raised in *Guyana* v. *Suriname* and *Nicaragua* v. *Honduras* before turning to other international judicial decisions.

The arbitration between Guyana and Suriname involved the delimitation of a lateral maritime boundary from the land boundary terminus of the adjacent coastal states out to the 200 nautical mile outer limit. In this region of northeastern South America massive shoals of soft 'sling mud' originating in the mouth of the Amazon River are carried slowly along the coast from east to west by the Guyana Current toward the mouth of the Orinoco River. These shoals of mud are substantial and "the presence of these mud banks complicates survey work along the coast".[76] One large shoal of mud, attached to Suriname's coast near Vissers Bank, contributed to the charted low-water line depicted on the most recent large-scale chart of the area officially recognized by Suriname: Netherlands Hydrographic Office Chart 2218 (2005 ed.). The newly charted low-water line was located several kilometers seaward of the charted line shown on previous charts of the area. In the arbitration, Suriname selected a base point on Vissers Bank – point S14 – as depicted on Chart 2218, and Guyana challenged point S14 on the grounds that the charted low-water line on Chart 2218 did not represent the actual coastal configuration of Vissers Bank.[77]

Guyana contended that the new chart inaccurately depicted Suriname's low-water line, supported that contention with additional map and satellite evidence,[78] urging the Tribunal to disregard the chart.[79] Suriname countered with an explanation of how the new chart had been constructed noting that data were used from older charts, aerial photography, and ship-based echo sounders, and that Chart 2218 was "produced in accordance with the requirements for the safety of navigation, the primary purpose of nautical charts".[80]

The Tribunal, faced with the argument that the low-water line marked on the large-scale chart officially recognized by the coastal State was not an accurate reflection of the actual low-water line, did not simply accept the charted line as the legal normal baseline of Suriname, but instead admitted evidence from both parties regarding the accuracy of that line. After consideration of the evidence, the Tribunal rejected Guyana's challenge to the charted line, explaining that "[t]he Tribunal is not convinced that the depiction of the low-water line on chart NL 2218, a chart recognised as official by Suriname, is inaccurate. As a result, the Tribunal accepts the basepoint on Vissers Bank, Suriname's basepoint S14".[81]

For the purposes of this Report, the relevance of this case centers on the approaches of the parties and the Tribunal to the question of charts. In this regard, the Committee notes that neither party contended that the chart was dispositive, even though it was a large-scale chart officially recognized by the coastal State. Instead, both sides introduced evidence in support of, or against, the accuracy of the chart and, specifically, the charted low-water line. The Tribunal accepted the evidence, weighed it, and reached conclusions based upon it – most notably that the party challenging the officially recognized large-scale chart had not convinced the Tribunal of the inaccuracy of the contested chart. All participants proceeded on the assumption that officially recognized charts may be challenged before an international tribunal and that the actual location of a baseline may be determined by that body.[82]

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[74] Several Committee members were involved in these cases as counsel, advocates, and advisers. The Committee Chair, Judge Dolliver Nelson, was President of the Annex VII tribunal in *Guyana* v. *Suriname*, *supra* note 7.
[75] *Proposal*, *supra* note 3, para. 2.
[76] *The production of the June 2005 edition of chart NL 2218*, Annex SR43, Rejoinder of Suriname, *Guyana* v. *Suriname*, *supra* note 7, *available at* http://server.nijmedia.nl/pca-cpa.org/upload/files/SR%20Annexes%2041-44.pdf.
[77] Reply of Guyana, *Guyana* v. *Suriname*, *supra* note 7, at 40, *available at* http://www.pca-cpa.org/upload/files/GUYANA%20Reply%20brief%20volume%20I.pdf.
[78] *Analysis of Recent Shoreline Revisions to the 2005 Edition of Dutch Nautical Chart NL 2218*, Annex R2, Reply of Guyana, *Guyana* v. *Suriname*, *supra* note 7, *available at* http://www.pca-cpa.org/upload/files/GR%20Annex%20R02-a.pdf.
[79] Reply of Guyana, *supra* note 77, at 40 n.31 ("It is plain that the hastily-prepared June 2005 version of chart NL 2218 should be given no weight".).
[80] *The production of the June 2005 edition of chart NL 2218*, *supra* note 76.
[81] *Guyana* v. *Suriname*, *supra* note 7, para. 396.
[82] The Commission on the Limits of the Continental Shelf, a scientific and technical body formed pursuant to Annex II of the Law of the Sea Convention, is not a judicial body and lacks the authority to determine the location of baselines. This is set out in the Commission's guidelines:

> 3.3.1. The Commission is not entitled by the Convention to issue any recommendations with respect to the delineation of baselines from which the breadth of the territorial sea is measured. Its role is limited to a potential request for information about the geodetic position and definition of the baselines used in a submission made by a coastal State.

Two conclusions arise from *Guyana* v. *Suriname* regarding charts and the normal baseline. First, the charted low-water line may be challenged before an international tribunal on the basis that it does not reflect accurately the actual low-water line. Second, the officially recognized chart is presumed accurate and the burden of proof is on the party challenging that chart.

The other international judicial decision mentioned in the Committee proposal – the judgment in *Nicaragua* v. *Honduras* – dealt with different baseline questions. Here too adjacent coastal states sought to resolve their lateral maritime boundary off unstable coasts. The instability in this case was created by sediment transported down the border river to its deltaic mouth at Cape Gracias a Dios. The parties agreed that sediment transport caused the delta "as well as the coastline to the north and south of the Cape, to exhibit a very active morpho-dynamism".[83] The Court also recognized that, generally, there was a process of accretion in the delta area by which the actual low-water line continued to move seaward.[84]

Here, the charted low-water line was not at issue – the Court does not once mention nautical charts or the charted low-water line in the judgment. In fact, it does not appear that the parties in *Nicaragua* v. *Honduras* introduced nautical charts into evidence, nor does it appear that they argued their positions on the basis of charts or the charted low-water lines. Instead, both parties introduced satellite imagery of the mouth of the Rio Coco to demonstrate the location of the actual low-water line. Nonetheless, two conclusions regarding baselines may be gleaned from the Court's judgment. First, despite the fact that Honduras had deposited a list of coordinates of its straight baseline turning points mere months after Nicaragua filed its Application in this case, the Court did not regard them as viable base points because they no longer reflected the actual coastal configuration.[85] Second, invoking Article 5 of the 1982 Convention, the Court concluded that a base point that is not on the actual low-water line "cannot be properly used as a base point".[86] Both of these conclusions support the interpretation that the actual low-water line is the Article 5 normal baseline.

Baseline issues have arisen in other international judicial decisions. With respect to the "international aspect" of baselines, the 1951 judgment in *Fisheries* is directly on point. That judgment was quoted above for the proposition that "[t]he delimitation of sea areas has always an international aspect; it cannot be dependent merely upon the will of the coastal State as expressed in its municipal law". This is undoubtedly the passage Hudson was referring to in 1952 when he pointed out that "to accept a line indicated on official charts . . . would be inconsistent with the judgment of the Court."[87] Although the case addressed a challenge to straight baselines, *Fisheries* is consistent with the perspective that the charted line cannot stand as an unchallengeable fact simply because a coastal state recognizes, officially, the chart on which that line appears. This would allow the normal baseline to be established "merely upon the will of the coastal State".

In *Qatar* v. *Bahrain* the International Court of Justice was faced with several features whose status as either an island or a low-tide elevation was ambiguous.[88] In the confined geographic context of the case, islands would be taken into account in the delimitation while many low-tide elevations would not.[89] The Court began its analysis by recalling "that under the applicable rules of international law the normal baseline for measuring [the breadth of the Territorial Sea] is *the low-water line along the coast* (Art. 5, 1982 Convention on the Law of the Sea)".[90] The manner in which the Court dealt with the feature named Qit'at Jaradah is particularly instructive:

> 191. Another issue on which the Parties have totally opposing views is whether Qit'at Jaradah is an island or a low-tide elevation.

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> 3.3.2. There are only two instances in which the Commission might request geodetic information about baselines. First, it must be satisfied that the test of appurtenance has been positively met. Secondly, if the 350 M limit is employed as a constraint in a submission, the Commission might also find it useful to make recommendations in relation to the methodology employed in the delineation of this limit.

Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf, CLCS/11 (May 1999).

[83] *Nicaragua* v. *Honduras*, *supra* note 6, at 742.

[84] *Id.*

[85] *See id.* at 743.

[86] *Id.* ("This point, even if it can be said to appertain to Honduras, is no longer in the mouth of the River Coco and cannot be properly used as a base point (see UNCLOS, Art. 5.)".).

[87] *Summary Records of the Fourth Session*, *supra* note 54, at 173.

[88] *Qatar* v. *Bahrain*, *supra* note 29.

[89] *See id.* at 102 ("The Court, consequently, is of the view that in the present case there is no ground for recognizing the right of Bahrain to use as a baseline the low-water line of those low-tide elevations which are situated in the zone of overlapping claims, or for recognizing Qatar as having such a right".).

[90] *Id.* at 97 (emphasis added).

> . . . .
> 193. Qatar maintains that Qit'at Jaradah is not, and has never been, reflected on nautical charts as an island but always as a low-tide elevation . . . .
> 194. Bahrain commissioned an expert to examine the geographical situation; this expert concluded that Qit'at Jaradah – though small in size – is permanently above water, and is thus an island. . . .
> 195. . . . *The Court has carefully analysed the evidence submitted by the Parties* and weighed the conclusions of the experts referred to above . . . . On these bases, the Court concludes that the maritime feature of Qit'at Jaradah satisfies the above-mentioned criteria and that it is an island which should as such be taken into consideration for the drawing of the equidistance line.[91]

Despite the chart evidence indicating that Qit'at Jaradah was a low-tide elevation, the Court concluded – on the basis of evidence other than charts – that Qit'at Jaradah was an island.[92]

In *Cameroon* v. *Nigeria* the Court drew a short maritime boundary segment constructed from two base points, one each on the low-water lines of Nigeria and of Cameroon.[93] The Court relied on a chart in order to identify the coordinates of those points. The Court wrote:

> In the present case the Court has determined that the land-based anchorage points to be used in construction of the equidistance line are West Point and East Point, as determined on the 1994 edition of British Admiralty Chart 3433. These two points, situated respectively at 8° 16′ 38″ longitude east and 4° 31′ 59″ latitude north and 8° 30′ 14″ longitude east and 4° 30′ 06″ latitude north, correspond to the most southerly points on the low-water line for Nigeria and Cameroon . . . .[94]

This was the only current large-scale chart available to the Court, both parties had depicted their maritime boundary positions on an earlier version, and neither party challenged the accuracy of the low-water line as depicted.[95]

Similar circumstances arose in the most recent delimitation case. In *Bangladesh* v. *Myanmar*, baselines played a minor role in the pleadings and no role in the Tribunal's decision. Despite being situated in a region with notoriously unstable coasts, both parties relied on British Admiralty Chart 817 to determine their baselines and base points, and neither party challenged the accuracy of the chart. The Tribunal adopted baselines and base points from Chart 817 in its decision.[96]

Other cases currently pending before international courts and tribunals are likely to contain baseline issues, in particular the need to prove the location of the normal baseline and the existence or status of particular features. The parties in *Nicaragua* v. *Colombia* have presented the Court with different positions on the status of Quitasueño related to the measurement of the high-water line on that feature.[97] The outstanding maritime delimitation between Bangladesh and India is before an Annex VII tribunal that will undoubtedly be faced with baseline questions.[98]

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[91] *Id.* at 98-99 (emphasis added).
[92] The Court followed the same approach to charts as evidence of baselines elsewhere in the judgment. *See id.* at 98 ("After careful analysis of the various reports, documents and charts submitted by the Parties . . .".).
[93] *Cameroon* v. *Nigeria*, *supra* note 29.
[94] *Id.* at 443.
[95] When it was later discovered that the chart did not reflect the actual low-water line at the time of the judgment as a result of coastal change, the parties entered into negotiations to adjust the boundary to reflect the actual low-water line.
[96] *Bangladesh/Myanmar*, *supra* note 29, para. 156 ("The Tribunal sees no reason to depart from the common approach of the Parties on the issue of base points. Accordingly, it will draw an equidistance line from the low-water line indicated on the Admiralty Chart 817 used by the Parties".).
[97] *See* Rejoinder of Colombia, Territorial and Maritime Dispute (Nicaragua v. Colombia), at 84, para. 3.2 ("according to Colombia it has the status of a group of islands and other features as defined in the law of the sea; for Nicaragua, on the other hand, it is a submerged bank"). For additional information see the Court's website at http://www.icj-cij.org.
[98] For additional information about the case between Bangladesh and India, see the website of the Permanent Court of Arbitration at http://www.pca-cpa.org.

### *C. The normal baseline in municipal law*

The treatment of the normal baseline in municipal legislation and judicial decisions provides an additional perspective on the existing law on the normal baseline, in particular on the role of charts. In this regard, the Committee has carried out a comprehensive survey of municipal baseline legislation.[99] A summary of that survey is provided (III.C.1). The Committee has also investigated national judicial decisions in several states in which municipal courts were confronted with baselines questions. The treatment by national courts of those questions is briefly reviewed (III.C.2).

#### **1. National legislation**

The Committee has undertaken to identify, categorize, and provide representative examples of a robust sample of relevant state practice through a survey of the practice of Committee members' home States, among other States. This research indicates that a number of approaches are taken to the question of baselines, in particular to the statutory definition of the baseline and to the role of charts in defining, publicizing, and proving the baseline.

We have identified four approaches taken by States for defining their normal baselines: (1) the normal baseline is described with no reference to a charted line;[100] (2) the normal baseline is described with an explicit reference to a charted line;[101] (3) the normal baseline is described with an implied reference to a charted line;[102] and (4) the State does not have a normal baseline.[103]

Some States define their normal baseline without reference to the charted line. These States may refer to a chart publication requirement or the use of charts as evidence of the line, but they do not define the baseline itself on the basis of charts of a charted line. Statutory definitions of the baseline from the laws of Australia,[104] France,[105] and Grenada[106] demonstrate this approach.

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[99] During the 2010 Committee working session, it was suggested that "data on state practice should be included" in this report. REPORT, *supra* note 10, at 832 (Yee). Several Committee members have provided such data from their home states. Publications of the UN Division for Ocean Affairs and the Law of the Sea have also been excellent sources of information. *See, e.g.*, BASELINES: NATIONAL LEGISLATION, *supra* note 62; UN DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, NATIONAL LEGISLATION ON THE TERRITORIAL SEA, THE RIGHT OF INNOCENT PASSAGE AND THE CONTIGUOUS ZONE, UN Sales No. E.95.V.7 (1995); UN OFFICE FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, NATIONAL CLAIMS TO MARITIME JURISDICTION: EXCERPTS OF LEGISLATION AND TABLE OF CLAIMS, UN Sales No. E.91.V.15 (1992); UN Division for Ocean Affairs and the Law of the Sea, *Maritime Space: Legislation and Treaties* (online database), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/index.htm

[100] States in this category include: Australia, Bahamas, Barbados, Belize, Benin, Bulgaria, Cameroon, Chile, Columbia, Congo, Costa Rica, Cyprus, Dominican Republic, Djibouti, El Salvador, Equatorial Guinea, Eritrea, France, Gambia, Germany, Greece, Grenada, Guatemala, Haiti, Honduras, Iceland, Iran, Iraq, Ireland, Italy, Ivory Coast, Jordan, Kiribati, Kuwait, Latvia, Lebanon, Madagascar, Maldives, Mauritania, Mauritius, Monaco, Morocco, Namibia, Nauru, New Zealand, Oman, Papua New Guinea, Poland, Romania, Saint Kitts & Nevis, Saint Lucia, Saudi Arabia, Senegal, Sierra Leone, Slovenia, Somalia, Sri Lanka, Suriname, South Africa, Spain, Sweden, Tonga, Tunisia, Turkey, United Arab Emirates, United Kingdom, Russian Federation, Venezuela, and Yugoslavia.

[101] States in this category include: Argentina, Brazil, Cook Islands, Denmark, Guyana, Ghana, Japan, Liberia, Malaysia, Micronesia, Mozambique, Myanmar, Netherlands, Niue, Portugal, Republic of Korea, Russia, Samoa, Sudan, Syria, Trinidad & Tobago, Turkey, Tuvalu, Tanzania, Vanuatu, and Yemen.

[102] States in this category include: Bahrain, Brunei, Qatar, and United States of America.

[103] States in this category include: Antigua & Barbuda, Cambodia, Cape Verde, China, Comoros, Cuba, Ecuador, Egypt, Estonia, Faroe Islands, Fiji, Finland, Guinea-Bissau, Indonesia, Jamaica, Kenya, Lithuania, Malta, Norway, Philippines, Saint Vincent & Grenadines, Sao Tome & Principe, Seychelles, Solomon Islands, and Viet Nam.

[104] "[T]he baseline from which the breadth of the part of the territorial sea adjacent to the mainland of Australia is to be measured is the line constituted by the following: (a) the low-water line along the coast, except where that low-water line is landward of a line mentioned in paragraph (b) [river closing line], (c) [bay closing line], (d) [straight baseline] or (e) [historic bay closing line] . . .". Seas and Submerged Lands (Territorial Sea Baseline) Proclamation (2006) (Australia) § 6, *available at* http://www.comlaw.gov.au/Details/F2006L00525.

[105] "The baselines are the low-water mark as well as straight baselines and closing lines of bays as determined by decree". Delimitation of French Territorial Waters, Law No. 71-1060 (1971) (France) art. 1, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/FRA_1971_Law.pdf ("*Les lignes de base sont la laisse de basse mer ainsi que les lignes de base droites et les lignes de fermeture des baies qui sont determines par décret*".).

[106] "The baselines, for the purpose of measuring the breadth of the territorial sea, shall be (a) the low-water line; or (b) [straight archipelagic baselines]". Territorial Sea and Maritime Boundaries Act, No. 25 (1989) (Grenada) § 4(1), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/grd_act_25_1989.pdf.

Other States define their normal baseline with an express reference to charts or the charted line. In doing so, these States tend to adopt a version of the language of Article 5 of the 1982 Convention. Where the language of Article 5 is adopted, the role of charts and the charted line is made no less ambiguous. Statutory definitions of the baseline from the laws of Brazil,[107] Japan,[108] and the Netherlands[109] demonstrate this approach.

Still other States define their baselines with an implied reference to a charted line. For example, when the phrase "determined in accordance with international law" is utilized to describe the normal baseline, it indicates the adoption of the relevant rules and provisions to which the coastal State is bound pursuant to its international law obligations. For the preponderance of coastal States this obligation is codified in the 1982 Convention, Article 5; for others the same rule is codified in the 1958 Convention, Article 3. Statutory definitions of the baseline from the laws Bahrain,[110] Brunei,[111] and the United States[112] demonstrate this approach.

Finally, for some states their entire baseline consists of Article 7 straight baselines or Article 47 archipelagic baselines. These States need not, and often do not, mention charts in their statutory description because both straight baselines and archipelagic baselines may be, and typically are, described using lists of geographical coordinates.[113]

The Committee's survey of national legislation indicates that many coastal States do not include charts or the charted line in the legal description of the normal baseline. The non-use of charts to describe the normal baseline does not detract from or conflict with the two other roles nautical charts play in national baseline legislation: (1) to publicize or give notice of baselines and associated outer limits to interested parties in the domestic and international spheres; and (2) to prove the location of the baseline when challenged.

Unlike the notice provisions of Articles 16 and 47 of the 1982 Convention, which require coastal states to depict their straight and archipelagic baselines "on charts of a scale or scales adequate for ascertaining their position", notice requirements in national legislation often do not distinguish between normal baselines and artificial, straight baselines.[114]

The 1982 Convention does not specify that the depiction of baselines on nautical charts is conclusive in proving the location of a coastal State's baseline. Some states, however, expressly refer in their national legislation to the role of charts, and the weight to be given to charts, as evidence of the baseline.[115] Among these states, the

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[107] "The Brazilian territorial sea is . . . measured from the low-water line along the Brazilian coast, as marked on large-scale charts officially recognized by Brazil". The Territorial Sea, the Contiguous Zone, the Exclusive Economic Zone and the Continental Shelf, Law No. 8.617 (1993) (Brazil) art. 1, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/BRA_1993_8617.pdf.

[108] "2. . . . the baseline . . . shall be the low-water line along the coast . . . . 6. The low-water line along the coast referred to in paragraph 2 . . . shall be the line[] marked on large-scale charts published by the Maritime Safety Agency". Enforcement Order of the Law on the Territorial Sea and the Contiguous Zone (Cabinet Order No. 210 of 1977, as amended by Cabinet Order No. 383 of 1993, Cabinet Order No. 206 of 1996 and Cabinet Order No. 434 of 2001) (Japan) art. 2, 66 LOS BULL. 71 (2008).

[109] "The territorial sea of the Netherlands shall extend to a line, each point on which lies twelve international nautical miles . . . seawards of the nearest point on the low-water line along the coast . . . . The low-water line shall be defined as the line indicating the depth of 0 metres on the large-scale Dutch sea charts issued upon the instructions of the Minister of Defense". Territorial Sea (Demarcation) Act (1985) (Netherlands) § 1, Staatsblad, 1985, 129. An electronic version is available on the following site of the Dutch government: http://wetten.overheid.nl/BWBR0003748/.

[110] "The breadth of the territorial sea of the State of Bahrain shall be twelve nautical miles, measured from baselines drawn in accordance with the United Nations Convention on the Law of the Sea, 1982". Decree-Law No. 8 (1993) (Bahrain) art. 1, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/BHR_1993_Decree.pdf.

[111] "[The breadth of the territorial waters] shall be measured in accordance with international law". Territorial Waters Act (1982) (Brunei) § 2(2), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/BRN_1982_Act.pdf.

[112] "The territorial sea of the United States henceforth extends to 12 nautical miles from the baselines of the United States determined in accordance with international law". Territorial Sea of the United States, Proclamation (1988) (United States), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/USA_1988_Proclamation.pdf.

[113] United Nations Convention on the Law of the Sea, *supra* note 11, arts. 16(1) and 47(8).

[114] *See, e.g.*, Delimitation of Marine Waters Act, No. 32 (1978) (Solomon Islands) art. 8(1), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/SLB_1978_Act.pdf ("The Minister shall cause all closing lines, baselines and other lines drawn under the provisions of this Act for the purpose of determining the limits of the internal waters, territorial seas and exclusive economic zone of Solomon Islands to be clearly indicated on charts of a scale or scales adequate for them to be readily determined and shall give due publicity to such charts . . .".).

[115] These provisions appear in the legislation of the following states: Barbados, Brunei, Grenada, Namibia, New Zealand, Saint Kitts & Nevis, Saint Lucia, Samoa, Seychelles, Solomon Islands, Sri Lanka, Tuvalu, and United Kingdom.

weight of charts as evidence varies significantly from mere 'evidence'[116] to '*prima facie* evidence'[117] to 'sufficient evidence'[118] to 'conclusive evidence'.[119] In one example, certified charts "shall be judicially noticed for all purposes of the law as indicating the baselines from which the territorial waters shall be measured".[120]

Many of the states that give nautical charts significant weight as evidence of baselines do not include charts or the charted line in their statutory definitions of the normal baseline. Moreover, several states that expressly recognize charts as evidence only refer to the charts as evidence of their artificial, 'straight line' baselines, and not of the normal baseline.[121] To the extent that a conclusion may be drawn from the relatively scarce and disparate provisions related to charts as evidence in national legislation, it appears that in most municipal legal systems nautical charts are accorded no special legal role in proving the location of the normal baseline and merely provide a source of evidence to prove a disputed fact. However, in practical terms, in particular where charts have been specially produced to publicize a baseline as required by national law, nautical charts may be the best evidence of the baseline location. It must be acknowledged that in some national systems charts do hold a special position as evidence. The wide range of approaches to charts as evidence is demonstrated by a brief review of national judicial decisions related to baselines.

### 2. National judicial decisions

Analyzing statutory language may be informative, but its utility is augmented when this language is applied in municipal judicial decisions.[122] Unfortunately, these decisions have been more difficult to access than

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[116] *See, e.g.*, Maritime Areas Act, No. 3 (1984) (St. Kitts & Nevis) §§ 19 & 20, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/KNA_1984_Act.pdf ("§19. The Minister shall cause to be prepared such charts . . . as he thinks fit showing . . . (b) the baseline of the territorial sea . . . . § 20. A document, purporting to be certified by the Minister to be a true copy of a chart . . . prepared pursuant to section 19, shall be received in any Proceedings as evidence of any matter shown in the document, but without prejudice to the right to adduce evidence in rebuttal".). *See also* Territorial Sea and Maritime Boundaries Act, No. 25 (1989) (Grenada), *supra* note 106, §§ 28 & 29; Maritime Zones Act (1999) (Samoa) § 10(2), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/WSM_1999_MaritimeZ.pdf; Delimitation of Marine Waters Act, No. 32 (1978) (Solomon Islands), *supra* note 114, § 8(2); Marine Zones (Declaration) Act (1983) (Tuvalu) §§ 13 & 14, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TUV_1983_Act.pdf.

[117] *See, e.g.*, Territorial Sea and Exclusive Economic Zone Act, No. 3 (1990) (Namibia) § 2(2), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/NAM_1990_Act.pdf ("(b) Any baseline referred to in this section may be marked or indicated by appropriate symbols on scale charts officially recognized by Namibia; (c) In any proceedings before a court of law any chart referred to in paragraph (b) shall be *prima facie* evidence of the matters referred to therein".). *See also* Territorial Waters Act, (1982) (Brunei), *supra* note 111, § 4(1); Maritime Zones Law, No. 22 (1976) (Sri Lanka) § 14, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/LKA_1976_Law.pdf.

[118] *See, e.g.*, Territorial Sea and Exclusive Economic Zone Act, No. 28 (1977, as amended by Act No. 146 of 1980) (New Zealand) § 31, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/NZL_1980_Act.pdf ("(1) For the purposes of this Act, in any proceedings in any Court the line of low water for any area depicted on the charts . . . shall be sufficient evidence of the line of the low-water mark for that area. (2) For the purpose of this Act . . . a certificate . . . that any specified chart is a chart referred to in subsection (1) of this section shall be admissible as evidence of the matters stated in the certificate".).

[119] *See, e.g.*, Maritime Zones Act, No. 2 (1999) (Seychelles) §§ 27 & 28, *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/SYC_1999_Act2.pdf ("§ 27. The President shall cause to be prepared charts . . . as the President thinks fit, showing . . . (a) the baselines, low-water lines and any closing lines . . . . § 28. A document purporting to be certified by the President to be a true copy of a chart . . . prepared pursuant to section 27 shall be received in any proceedings as conclusive evidence of any matter referred to in that section and shown in the document".). *See also* Territorial Sea Act (1987) (United Kingdom) § 1(3), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/GBR_1987_Act.pdf.

[120] Territorial Waters Act, No. 1977-26 (1977) (Barbados) § 4(3), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/BRB_1977_26.pdf ("(3) Where baselines are prescribed under subsection (2) [straight baselines] the Minister shall cause the baselines . . . to be marked on a scaled map or chart and such map or chart *shall be judicially noticed for all purposes of the law* as indicating the baselines from which the territorial waters shall be measured . . .".) (emphasis added). However, only those charts showing the Barbados straight baselines are subject to judicial notice.

[121] *See, e.g.*, Barbados, Seychelles, and Solomon Islands.

[122] Committee member Yee expresses concern about the probative value of municipal judicial decisions: "I do not believe that the practice of the judicial organs of some States examining the appropriateness of the charts recognized by their own governments should be given much weight. To the extent that one branch of the government can examine the work of

legislation. The Committee has been able to find a total of eight relevant decisions from Australia (1), the Netherlands (2), Nigeria (1), the United Kingdom (1), and the United States (3).

These decisions fall into two categories: law enforcement cases in which the decisions are related to an act by a mariner, such as a fisherman, accused of violating a coastal state law applicable within a certain distance of a baseline; and title cases in which the decisions are related to ownership of resource rights, usually to mineral resources, as between a federal government and one of its federated states the spatial extent of which is defined by, or in relation to, baselines. In the law enforcement category, the interests are short term, the activity is ephemeral and difficult to detect (often involving repetitive behavior by multiple individuals), and certainty, publicity, and prior notice of lines and limits are desirable for the orderly conduct of activities in and beyond the relevant maritime zone. In the title category, the interests are longer term, the actors fewer, and the location of the activity or interest is fixed. Most importantly, the title category of cases tends to involve a dispute between equals while the law enforcement category of cases is characterized by a power imbalance between the state and an individual.

In some municipal jurisdictions the burden of proof falls on the state as a result of this power imbalance. In our scenario this means that the state must prove every element of a crime in order to prevail, including the location of the conduct relative to the baseline, and the defendant may challenge that evidence with evidence to the contrary. As indicated by the statutory language related to charts as evidence surveyed above and the Dutch jurisprudence reviewed here, this is not true of all municipal law jurisdictions. It does, however, appear to be universally acknowledged that, once publicized through officially recognized charts, the baseline location shown on those charts may not be challenged by the coastal state itself in law enforcement cases. The state is estopped from contesting its own officially recognized depiction of baselines. Here, it seems, the charted line reigns supreme.

The national judicial decisions reviewed below draw from both law enforcement and title cases. The preponderance of the decisions seem to indicate that the normal baseline exists even in the absence of officially recognized charts depicting it, that where the charted line does appear on officially recognized charts its accuracy may be challenged, and that, in some cases, the charted line may be found to be inaccurate on the basis of evidence to the contrary.

In the Australian case of *Chia Hsing* v. *Rankin* the defendant was accused of having in his charge a foreign fishing vessel within a declared fishing zone (measured from Australia's normal baseline). The defendant argued that there could be no fishing zone because Australia had not marked the baseline on large scale charts pursuant to Article 3 of the 1958 Convention. In that decision, Chief Justice Barwick of the High Court of Australia wrote of the low-water line:

> That line does not depend for its existence and significance upon any chart. The precise position of that line is a fact to be determined if occasion demands by a court of law. No doubt a hydrographer's chart will provide cogent evidence of that fact, and a chart conforming to the specification in Art. 3 of the Treaty may be decisive internationally, particularly if a conventional baseline were adopted. But the fact of the low water mark cannot depend upon the existence of any such chart.[123]

In the same case Justice Gibbs observed:

> In any case it is impossible to suppose that it was intended by the Geneva Convention that the existence of a territorial sea should be dependent upon the existence of officially recognized large-scale charts showing the low-water line. . . . Article 3 of the Geneva Convention must be regarded as doing no more than provide a means by which the low-water line may be evidenced. If there are charts of the kind mentioned they provide evidence (perhaps conclusive) of the position of the low water line.[124]

The Australian High Court appears to take the view that the low-water line exists independent of charts, but that officially recognized, large-scale charts (if available) would provide strong evidence of the location of that line.

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another branch, one has to wonder which act is the final one as far as the determination of the baseline is concerned. It seems that only the examination or not, or how such an examination is done, by a foreign organ is of value in our inquiry."

[123] Chia Hsing v. Rankin, (1978) 141 CLR 182, 192, *available at* http://www.austlii.edu.au/au/cases/cth/HCA/1978/56.html.

[124] *Id.* at 195.

Nigerian courts appear to take a similar view. In the case *A-G of the Federation* v. *A-G of Abia State and 35 Others*, in which the federal government failed to tender charts in support of its baseline position, Judge Ogundare (JSC) opined "In my humble view . . . the seaward boundary of a littoral State as we are called to determine in this case, is a matter of law. What becomes factual, and on which evidence will be required to prove, is the actual location of that boundary".[125]

In the United States, officially recognized nautical charts are susceptible to challenge. The United States Supreme Court has, on several occasions, addressed disputes between the United States Government and coastal federated states of the United States that raise the baselines issue. The issue arises in the United States because each of its coastal states was granted mineral rights seaward to three nautical miles from the coast.[126] When the Court was asked to define the 'coast' for purposes of that grant it concluded that "[t]he [1958] Convention on the Territorial Sea and the Contiguous Zone . . . provides such definitions. We adopt them for purposes of the Submerged Lands Act. This establishes a single coastline for both the administration of the Submerged Lands Act and the conduct of our future international relations . . .".[127]

Three United States Supreme Court decisions demonstrate the view within the United States municipal legal system that officially recognized charts may be used as evidence of the baseline, but that they are not dispositive of that fact: *United States* v. *Louisiana*, *United States* v. *California*, and *United States* v. *Alaska*.[128] In a case involving sedimentary deposits from the Mississippi River that altered the shape of the mainland coastline, and alternately created and destroyed offshore islands and low-tide elevations, Louisiana argued that the drafters of the 1958 Convention, Article 3, purposely adopted the charted line, believing that it would err on the side of navigational safety and that the United States Government should not be allowed to disprove its own official charts. The Supreme Court disagreed, and both sides were allowed to introduce the best available evidence to prove the present location of the actual low-water line.[129]

California, having found errors in United States Government charts that worked to California's advantage,[130] contended that "pursuant to Article 3 [of the 1958 Convention], the United States is bound by these charts . . .".[131] The Supreme Court's Special Master recommended that the nautical charts not be treated as conclusive evidence,[132] and the Court agreed.[133]

Finally, Alaska and the United States disagreed as to the status of an offshore feature in the Arctic Ocean near the Prudhoe Bay oil field known as Dinkum Sands. Alaska contended that Dinkum Sands was an island generating Alaskan rights to mineral resources within three nautical miles. The United States contended that it was not an island and generated no rights for the state. In 1950 Dinkum Sands had been observed by hydrographic surveyors, and charted as an island, but in 1955 a naval vessel reported that Dinkum Sands no longer stood above mean high water. The following year the official United States nautical chart of the area was updated to depict Dinkum Sands as a low-tide elevation, not an island. The feature has been charted as a low-tide elevation ever since.[134] In *United States* v. *Alaska*, the parties introduced extensive evidence regarding the

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[125] Edwin Egede, *The Nigerian Territorial Waters Legislation and the 1982 Law of the Sea Convention*, 19(2) INT'L J. MARINE & COASTAL L. 151, 160 (2004), *quoting* [2002] 6 NWLR (Part 764), at 542, 643-44.
[126] Submerged Lands Act, 43 USC §§ 1301, 1311. There are some exceptions to the three-mile rule for certain states.
[127] United States v. California, 381 US 139, 165 (1965).
[128] Committee member Yee expresses particular concern about the value of United States practice in this analysis: "The complicated dynamics of the relationship between the United States and its component states cast doubt on the value of the U.S. practice in dealing with federal-state relations as practice within the meaning of Article 38(1)(b) of the ICJ Statute."
[129] United States v. Louisiana, 394 US 11, 40-41 n.48 (1969), and 420 US 529 (1975).
[130] Most of those errors resulted from the unintended use of coastal piers as base points for generating three-mile arcs to describe the territorial sea and California's Submerged Lands Act outer limits.
[131] United States v. California, Report of the Special Master 25 (Aug. 20, 1979).
[132] *Id*.
[133] United States v. California, 447 US 1, 6-7 (1980).
[134] For a period of nearly 30 years the charted status of Dinkum Sands as a low-tide elevation did not correspond with the depiction of Alaska's three-mile zone or the United States three-mile territorial sea. Rather than treating it as a low-tide elevation situated beyond three nautical miles from Alaskan territory, the US Baselines Committee charged with charting the limits of the territorial sea continued to treat it as an island generating a territorial sea. Apparently, one member of the Baseline Committee persuaded the whole Committee to treat Dinkum Sands as an island based solely on his personal observation of Dinkum Sands as a member of the 1949-1950 survey party. United States v. Alaska, 511 US 1, 28 (1997). That depiction of the Dinkum Sands territorial sea outer limits was corrected by the Baseline Committee in 1984. Minutes of Baseline Committee Meeting of July 17, 1984. From the international perspective the issue became moot in 1988 when the United States extended the breadth of its territorial sea from three nautical miles to 12 nautical miles. Dinkum Sands is

feature's elevation, composition and transiency, including chart evidence. Relying on this updated evidence the Special Master concluded that Dinkum Sands was not an island.[135] The Supreme Court agreed.[136] In this case nautical charts were offered as evidence, but the parties and the Court did not rely on them to determine the status of Dinkum Sands. Instead an extensive updated survey was conducted, at a cost of approximately $2.5 million, on the understanding that nautical charts are not conclusive.

The courts in the Netherlands have a different opinion of charts as evidence. In a pair of cases the District Court of Amsterdam took a highly deferential view of the role of officially recognized charts in proving the location of baselines. The two decisions of 29 June 2007 dealt with the relationship between the charted low-water line and the actual low-water line.[137] In both cases the defendants argued that they were not fishing inside the 12-nautical-mile zone because a low-tide elevation, which was included in the current official large-scale chart, actually no longer existed. As a consequence, they argued, the location where they were accused of committing a violation was no longer within 12 nautical miles of the actual low-water line. The District Court rejected this plea in identical terms in the two cases, observing that:

> *In law the chart officially published by the authorities is determinative*. On the date of the charges the chart dated 3 January 2002 applied, with the 12-mile zone that had been determined also taking into account the low-tide elevation off Schouwen. That the defendant had received information that the boundary would shift and that this apparently was already indicated on the plotter he was using (alongside the "old" boundary), does not change the fact that until 22 December 2004, the date of publication of the new nautical chart 110, *de jure* a different situation applied. The defendant, being an experienced fisherman, had at least to have been aware of this.[138]

This outcome reflects the language of the Territorial Sea Demarcation Act, which is quite clear with respect to the charted line.[139] It is also in conformity with the view of the Netherlands executive branch. In a press release on a separate matter the Ministry of Defense observed "A change in the actual coastline thus has no effect, until it is included in the nautical chart".[140]

It appears that the courts in the United Kingdom may sit somewhere between the Australia/Nigeria/United States and Netherlands positions, allowing that charts may be challenged, but giving them primacy as evidence. There, the best known baselines case is *Post Office* v. *Estuary Radio Ltd*.[141] The question before the Court was whether Red Stone Radio Tower, located in the Thames estuary, was within either the internal waters (here, a juridical bay) or the territorial sea of the United Kingdom, a determination that hinged on the location of the low-water line.[142] The trial Court ultimately ruled for the Crown, but not before noting:

> I would have thought that the best evidence of what is the low-water line along the coast would be found on the large-scale charts officially recognized by the coastal state . . . and that *prima facie* there would be good ground for accepting those as accurate until they were shown to be inaccurate; but I agree with counsel for the defendants that *it is open to a party to bring forward evidence and say; the chart is inaccurate, that which it shows is not there*.[143]

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well within 12 nautical miles of two islands and the United States mainland and generates territorial sea regardless of its status as an island or a low-tide elevation.

[135] United States v. Alaska, No. 84 Original, October Term, 1995, Report of Special Master J. Keith Mann of March 1996, at 227-310.

[136] United States v. Alaska, 511 US 1, 22-31 (1997).

[137] This concerned cases 13/501817-05 and 13/500730-05 (A) & 13/994290-06 (B). The Dutch text of the two decisions can be accessed through http://rechtspraak.nl.

[138] Translation by Committee members Oude Elferink, Soons, and Kwiatkowska (emphasis added).

[139] *See* Territorial Sea (Demarcation) Act (1985) § 1(2), *available at* http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/NLD_1985_DemarcationAct.pdf ("The low-water line shall be defined as the line indicating the depth of 0 meters on the large-scale Dutch sea charts issued upon the instructions of the Minister of Defence".).

[140] Maritieme zones gewijzigd door aanleg Maasvlakte 2 (press release of 22 Dec. 2009), *available at* http://www.defensie.nl/actueel/nieuws/2009/12/22/46142802/Maritieme_zones_Noordzee_gewijzigd_door_aanleg_Maasvlakte_2 (translation by Committee members Oude Elferink, Soons, and Kwiatkowska) (emphasis added).

[141] [1967] 3 All English Reports 663.

[142] *Id.* at 665.

[143] *Id.* at 675 (emphasis added).

The appellate Court upheld the trial Court's decision. With respect to finding the natural entrance points of the juridical bay on that low-water line, the appellate Court concluded that "[t]he only simple and convenient way in which they can do this is by visual inspection and measurement of the officially recognised charts of the claimant state".[144]

The Committee notes that a single conclusion is difficult to glean from the small sample of cases with widely variable parties and fact patterns. At one end of the spectrum are the Australian, Nigerian, and United States cases reviewed, in which charts have been viewed as a source of evidence for proving the fact of the normal baseline location. At the other end is the Dutch approach, in which the officially recognized chart has been declared 'determinative' of the baseline. The British approach appears to lie somewhere in the middle of the spectrum. As a practical matter the Dutch and British reliance on charts may be understood against the back drop of widely-publicized, frequently-updated nautical charts issued by unusually diligent hydrographic services.[145]

### *D. Expert views on the normal baseline*

The preponderance of the scholarship in this area appears to support the view that charts are not determinative of the naturally ambulatory normal baseline, although this view is not universally held. Alexander writes: "Normal baselines may change over time as the low-water line changes because of erosion, deposition or the emplacement of human-made structures on the shore. Official baselines have been, and will continue to be challenged by affected parties".[146] Beazley, writing about the technical considerations in maritime boundary delimitation notes that:

> both the 1958 and 1982 Conventions specify that the large-scale charts officially recognized by the coastal state are the appropriate documents from which to determine the position of the 'normal baseline'. . . . In some cases, however, existing charts have been thought to be inadequate. It may be that the existing charts were held to be on too small a scale or based on surveys too old to truly represent the current situation.[147]

In these situations, states turn to other evidence of the location of the baseline, including aerial photography, large-scale land maps, or new coastal surveys.[148]

Caron, referring to the outer limits of maritime zones as 'boundaries', writes:

> maritime boundaries under the 1982 Convention generally are contingent upon the continued existence of the baseline. If the baseline moves, the boundary moves. If a baseline point such as an exposed rock disappears, the boundary generated by that point also disappears. Although this is obviously an important principle, it often goes unstated.[149]

Caron arrives at this conclusion through an analysis of other provisions in the Convention, in particular Article 7(2). He concludes that "in other than article 7(2) situations, the outer boundary of the exclusive economic zone, the contiguous zone, and the territorial sea are ambulatory in that they will move with the baselines from

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[144] *Id.* at 683.

[145] The example of the Netherlands raises the question does the regularity of chart updating change the application of the normal baseline rule? The Dutch rule that "[i]n law the chart officially published by the authorities is determinative" would lead to bizarre and indefensible results in coastal states where charts have not been updated for, literally, centuries. This question circles back to the 1952 argument of French ILC member Scelle, who noted that outdated charts might be unacceptable. On this basis, Committee member Oude Elferink suggests that "Article 5 indicates that a coastal State in principle is entitled to rely on the low-water line as depicted on its nautical charts but this may not be the case if an area is not regularly surveyed and the relevant nautical chart is outdated".

[146] Lewis M. Alexander, *Baseline Delimitations and Maritime Boundaries*, 23 VA. J. INT'L L. 503, 535 (1983).

[147] Peter Beazley, *Technical Considerations in Maritime Boundary Delimitations*, *in* 1 INTERNATIONAL MARITIME BOUNDARIES 243, 245 (Jonathan I. Charney & Lewis M. Alexander eds., 1993).

[148] *Id.* These types of evidence are not inherently better than nautical charts, but where no recent large-scale nautical chart is available they may be of some utility.

[149] David D. Caron, *When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level*, 17 ECOLOGY L.Q. 621, 634 (1990).

which they are measured".[150] Caron maintains this perspective on the existing law of the normal baseline in subsequent writing, but argues that the rules should be changed in the interest of efficiency and stability.[151]

O'Connell asserts that "[t]here is no doubt that changes in the shoreline, however and how quickly effected, result in changes in the baseline from which the territorial sea is measured".[152] Reed sums up the situation succinctly: "It is the actual low-water line and not the charted line that is to be used as the baseline under the Convention". Reed continues:

> In practice, the charted line is clearly the starting point in each effort to locate the low-water line.
>
> . . . .
>
> A final element of the normal low-water line must be mentioned, that being its ambulatory nature. . . . As the baseline ambulates, so does each of the maritime zones measured from it.
>
> . . . Although the chart may provide a presumption of that line's location, extrinsic evidence will be permitted to prove its actual location and no particularly oppressive burden of proof seems to be required.[153]

Sohn and Noyes, writing about the ambulatory nature of outer limits measured from baselines, write: "Perfect stability, however, is impossible when the coastline is used as the baseline. The territorial sea 'will remain ambulatory because it is measured from an impermanent feature – the natural coastline'".[154] Soons also indicates that the outer limits of most maritime zones will move with movement of the baseline.[155] He suggests that loss of maritime area resulting from landward movements of the baseline can be prevented through the "artificial conservation of the baseline",[156] but that "[a]s far as the low-water line is concerned, this means the construction or reinforcement of sea defences (shoreline protection)".[157] Soons does not suggest that artificial conservation of the baseline can be achieved by publishing, recognizing, or maintaining charts that depict a low-water line that does not reflect the physical realities of the coast.

Finally, a group of technical experts assembled by the United Nations examined the baselines provisions of the 1982 Convention and concluded, among other things, that "[t]he low-water line along the coast is a fact irrespective of its representation on charts. The territorial sea exists even if no particular low-water line has been selected or if no charts have been officially recognized".[158] It defines the 'low-water line' as "the intersection of the plane of low-water with the shore," and distinguishes the 'low-water mark on a chart' as "the line depicting the level of chart datum".[159]

On the other side of the ledger are several technical experts who assert that the charted line is the normal baseline irrespective of changes to the actual low-water line. Kapoor and Kerr state that "once 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".[160] Carleton and Schofield appear to agree with Kapoor and Kerr's interpretation of Article 5. They write:

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[150] *Id.* at 635.
[151] 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).
[152] D.P. O'CONNELL, 2 THE INTERNATIONAL LAW OF THE SEA 682 (I.A. Shearer ed., 1984).
[153] MICHAEL W. REED, 3 SHORE AND SEA BOUNDARIES 182-85 (2000).
[154] LOUIS B. SOHN & JOHN E. NOYES, CASES AND MATERIALS ON THE LAW OF THE SEA 235 (2004) (quoting Robert D. Hodgson & Robert W. Smith, *The Informal Single Negotiating Text (Committee II): A Geographical Perspective*, 3 OCEAN DEV. & INT'L L. 225, 234 (1976)).
[155] A.H.A. Soons, *The Effects of a Rising Sea Level on Maritime Limits and Boundaries*, 37(2) NETH. INT'L L. REV. 207, 216-18 (1990).
[156] *Id.* at 222.
[157] *Id.*
[158] UN OFFICE OF OCEAN AFFAIRS AND LAW OF THE SEA, BASELINES: AN EXAMINATION OF THE RELEVANT PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 3, UN Sales No. E.88.V.5 (reissued 1989) [hereinafter BASELINES: AN EXAMINATION]. For a list of the experts, see Appendix II at 66-68. *See also* TORSTEN GIHL, THE BASELINE OF THE TERRITORIAL SEA 129 (1967) ("The coast is, of course, the place where the land and the sea meet, and where the area of the sea that will be subjected to the state's sovereignty consequently begins....The situation of the coast is a geographical fact. The coast lies where it lies . . .".).
[159] BASELINES: AN EXAMINATION, *supra* note 158, at 2.
[160] D.C. KAPOOR & ADAM J. KERR, A GUIDE TO MARITIME BOUNDARY DELIMITATION 31 (1986).

> It is, however, worth recognising that Article 5 refers to the low-water line along the coast "*as marked on large-scale charts officially recognised by the coastal state*". It is therefore the chart that is the legal document determining the position of the normal baseline and this remains the case even where the coastline has, in reality, changed. Thus, if the coastline has altered, but it has not been published, the legal baseline is still that on the published chart. Where this is the case, the normal baseline will only come to reflect the physical change in the coastline if a fresh survey is undertaken and the chart correspondingly updated.[161]

These authors appear to be of the minority view that the charted line is the Article 5 normal baseline.

### *E. Reefs and low-tide elevations*

Two other provisions in the 1982 Convention address particular situations in which the normal baseline may be used, Article 6 (reefs) and Article 13 (low-tide elevations).[162] Once Article 5 is interpreted and the meaning of "the normal baseline" is agreed, these two provisions hold no mystery. However, reefs and low-tide elevations are highly susceptible to coastal change, and these provisions merit brief comment. Article 13 provides:

> 1. A low-tide elevation is a naturally formed area of land which is surrounded by and above water at low tide but submerged at high tide. Where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the mainland or an island, the low-water line on that elevation may be used as the baseline for measuring the breadth of the territorial sea
> 2. Where a low-tide elevation is wholly situated at a distance exceeding the breadth of the territorial sea from the mainland or an island, it has no territorial sea of its own.

Under this provision, whether a naturally-formed feature may be included in the baseline depends on its height relative to the vertical datum *and* its horizontal location relative to the nearest mainland or island. In order to be included, some part of the feature must be above water at low tide as defined by the low-water datum. Absent this characteristic, the feature would not have a low-water line. Some drying part of the feature as defined by its low-water line must also be within the territorial sea generated from the nearest mainland or island. Without both of these qualities a low-tide elevation does not contribute to the normal baseline. Therefore, an otherwise unqualified low-tide elevation situated within the territorial sea of a qualified low-tide elevation does not contribute to the baseline.

Changes in sea level, or other natural processes, that lead to the total submersion of an otherwise qualified low-tide elevation could have an impact on the location of the normal baseline and of outer limits measured from that feature.[163] Similarly, changes in the coastal configuration of the nearest mainland or island could have the effect of placing a previously qualified low-tide elevation outside the territorial sea and therefore unable to contribute to the generation of the territorial sea outer limit. Of course, accretion along a mainland or island coast could bring a low-tide elevation within the territorial sea. Alternatively, if a feature were to rise above

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[161] Christopher Carleton & Clive Schofield, *Developments in the Technical Determination of Maritime Space: Charts, Datums, Baselines, Maritime Zones and Limits*, 3(3) IBRU MARITIME BRIEFING 24-25 (2001) (emphasis in original). *See also* DAVID ANDERSON, MODERN LAW OF THE SEA – SELECTED ESSAYS 454 (Leiden: Martinus Nijhoff, 2008) ("The low-water line remains fixed to the extent that the chart remains current; however, the low-water line may change as a result of new surveys or the adoption of a different chart datum or the extension of the breadth of the territorial sea from say three to twelve miles – followed, in each case, by the production of new charts. This link between the low-water mark and the chart was made in 1930 by the Hague Conference and maintained by the ILC, the Geneva Convention and the LOS Convention".).

[162] Some regard Article 9 (mouths of rivers) and Article 10 (bays) as normal baseline provisions. *See, e.g.*, Christopher Carleton, *Problems Relating to Man-made Basepoints under UNCLOS, presented at* CURRENT PROBLEMATIC ISSUES IN THE LAW OF THE SEA (Dublin, 3-4 June 2010). Other sources include only Articles 5, 6, and 13 under a consideration of normal baselines. *See, e.g.*, BASELINES: AN EXAMINATION, *supra* note 158, at v. River and bay closing lines are not straight baselines. They are not governed by Article 7 and are not subject to the Article 8(2) exception to which certain Article 7 straight baselines are subject. The river mouth and bay closing lines are not, however, baselines that follow the sinuosities of the low-water line. Instead, they are artificial 'straight line' baselines that must 'attach' to, or start and end at points on the low-water line.

[163] See the controversy surrounding the status of Dinkum Sands as an island or low-tide elevation, *supra* note 135 and associated text.

water even at high tide, a low-tide elevation could transform into an island with its own baseline, irrespective of its distance from other territory.[164]

Article 6 contains an exception to the distance from mainland or island requirement for reefs and provides:

> In the case of islands situated on atolls or of islands having fringing reefs, the baseline for measuring the breadth of the territorial sea is the seaward low-water line of the reef, as shown by the appropriate symbol on charts officially recognized by the coastal State.

As with Article 5, the low-water line is the normal baseline and charts may be used to depict or show that line. The reef need only rise above low-water,[165] but unlike low-tide elevations that do not meet the requirements of Article 6, the Article 6 reef need not be within the territorial sea or any specified distance from the reference island.

The analysis of the normal baseline generated by these features does not differ from the analysis of Article 5. The normal baseline is the actual low-water line, not the charted line. The baselines on these features may not be preserved solely through the publication of a chart depicting them.

### *F. General Conclusion*

The Committee concludes that the legal normal baseline is the actual low-water line along the coast at the vertical datum, also known as the chart datum, indicated on charts officially recognized by the coastal State. The phrase "as marked on large-scale charts officially recognized by the coastal State" provides for coastal State discretion to choose the vertical datum at which that State measures and depicts its low-water line. The charted low-water line illustrates the legal normal baseline, and in most instances and for most purposes the charted low-water line provides a sufficiently accurate representation of the normal baseline. As a matter of evidence for proving the location of the normal baseline the charted line appears to enjoy a strong presumption of accuracy. However, where significant physical changes have occurred so that the chart does not provide an accurate representation of the actual low-water line at the chosen vertical datum, extrinsic evidence has been considered by international courts and tribunals in order to determine the location of the legal normal baseline.

## IV. The Existing Law Applied in a Changing World

The baseline issues that arose in the two international cases cited in the Committee Proposal and reviewed in Section III.B resulted from natural changes to the shape of the coast: migrating banks of sling mud and accretion at the mouth of a river. Human-induced change can also impact the shape of coasts and the location of the intersection between land and sea at low-water. The Committee Proposal acknowledges such possibilities observing:

> Climate change and the resulting sea level rise are impacting on the normal baselines. Low lying small island developing states may in particular be negatively affected by this phenomenon. . . . Human activities in the sea are increasing. This among others concerns the artificial extension of existing coasts, which may have a huge impact on the location of the normal baseline.[166]

In this section the Committee considers the existing law of the normal baseline in relation to territorial gain resulting from human-made structures and the artificial conservation or extension of existing coasts (IV.A) and territorial loss in relation to sea level rise (IV.B).

### *A. Territorial gain: harbour works, coastal protection, land reclamation*

[164] *See Qatar* v. *Bahrain*, *supra* note 29.
[165] *See Eritrea/Yemen*, *supra* note 29, at 368 (citing to the language of Article 6, the Tribunal concludes that "[a] reef that is not also a low-tide elevation appears to be out of the question as a base point . . .".).
[166] *Proposal*, *supra* note 3, paras. 4 and 5.

### 1. Harbour works

The case that harbour works constitute part of the normal baseline is fairly clear cut.[167] Article 11 (ports) speaks directly to this subset of artificial structures. It reads:

> For the purpose of delimiting the territorial sea, the outermost permanent harbour works which form an integral part of the harbor system are regarded as forming part of the coast. Off-shore installations and artificial islands shall not be considered as permanent harbour works.

That is to say, the structures referred to in the first sentence are to be considered part of the coast along which the low-water line is the baseline from which the territorial sea and other maritime zones are measured. This treatment of harbour works is not new to the 1982 Convention. Identical or similar provisions were offered at the 1930 Conference and again in ILC drafts preceding the 1958 Convention. In fact, commentary to the ILC's 1954 draft article on ports indicated that the "article is consistent with the positive law now in force".[168] Nonetheless, there has been some debate as to which structures qualify under this provision.

Authorities have tended to define 'harbour works' with examples. Jessup recommended that stone jetties and breakwaters connected with the shore should extend the outer limit of the territorial sea.[169] Pearcy cited 'piers and breakwaters' as the most common examples of harbour works, but cautioned that they must be connected to the shore or an installation on the shore.[170] However, several decades later the group of technical experts assembled by the United Nations to examine the baseline provisions of UNCLOS included "jetties, moles, quays or other port facilities, coastal terminals, wharves, breakwaters, sea walls, etc.",[171] emphasizing that "[t]his would include features like *detached* breakwaters".[172] A later UN publication emphasized that same point.[173]

Walker includes 'piers' in a list otherwise identical to the UN technical experts' list.[174] Sohn and Noyes cite an ILC member's comment that the Commission's recognition of "jetties and piers" as part of the baseline assumed that those features "would be of such a type as to constitute a physical part of the coastline", and those authors go on to point out that the United States Supreme Court declined to include open-pile piers on the California coast as part of the baseline, in part on the reasoning that they provided no coast protective function.[175]

Other authorities have identified coastal projects that, they contend, should not be assimilated to harbour works or form part of the coast. These include: piers that do not provide a coast protective function, such as open pile piers,[176] bridges,[177] causeways,[178] and dredged channels.[179] The ILC questioned the status of "a jetty extending

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[167] Shalowitz opined that "this provision is open to interpretation as to what constitutes a 'harbour system' and 'harbour works'", but there has been surprisingly little controversy associated with either term. SHALOWITZ, *supra* note 61, at 229-30. Shalowitz was referring to Article 8 of the 1958 Convention on the Territorial Sea and the Contiguous Zone, *supra* note 30, but that article is identical to UNCLOS Article 11. Nor has a structure's 'permanence' been controversial. The Committee has found no international situation in which a structure has been denied 'harbour work' status on the basis of impermanence.

[168] *Report of the International Law Commission to the General Assembly*, [1954] 2 Y.B. Int'l L. Comm'n 140, 155, UN Doc. A/CN.4/SER.A/1954/Add.1.

[169] PHILIP C. JESSUP, THE LAW OF TERRITORIAL WATERS AND MARITIME JURISDICTION 69-70 (1927).

[170] G. Etzel Pearcy, *Measurement of the Territorial Sea*, 40 DEP'T ST. BULL. No. 1044, at 963 (June 29, 1959).

[171] BASELINES: AN EXAMINATION, *supra* note 158, at 54.

[172] *Id*. at 33 (emphasis added).

[173] "Under Article 11, '*the outermost permanent harbour works which form an integral part of the harbor systems*' are regarded as forming part of the coast. This would include features such as detached breakwaters . . .". UN DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES 7, UN Sales No. E.01.V.2 (2000). *See also* Carleton, *supra* note 162, at 5 ("Providing the structures are considered to be an integral part of the harbour system, even constructions such as detached moles or breakwaters would form an integral part of the harbour and be a legitimate part of the normal baseline".). This understanding is important because without it detached breakwaters would arguably be treated as artificial islands and ineligible as base points.

[174] DEFINITIONS, *supra* note 12, at 216.

[175] SOHN & NOYES, *supra* note 154, at 278 n.3 (referring to United States v. California, 447 US 1, 8 (1980)). *But see* Carleton, *supra* note 162, at 10 ("State practice would indicate that [single jetties of pile construction] are usually considered to be harbour installations under Article 11 and as such form a legitimate part of the normal baseline".).

[176] United States v. California, 447 US 1, 8 (1980). *But see* Carleton, *supra* note 162, at 19 ("This is a unique judgment and particular to the United States, reflecting the administration's reluctance to extend State maritime jurisdiction".).

[177] Pearcy, *supra* note 170, at 966-67.

[178] *See id*.

several kilometers into the sea", but declined to state an opinion, purportedly because of the rareness of the situation.[180]

This last category was considered in *Romania* v. *Ukraine* where the seaward end of Romania's Sulina dyke (extending 7.5 kilometers into the sea) was proposed as a base point to be used in the delimitation with Ukraine.[181] The International Court of Justice considered the work of the ILC in 1956, writing:

> In the light of the above, the ILC did not, at the time, intend to define precisely the limit beyond which a dyke, jetty or works would no longer form "an integral part of the harbour system". The Court concludes from this that there are grounds for proceeding on a case-by-case basis, and that the text of Article 11 of UNCLOS and the *travaux préparatoires* do not preclude the possibility of interpreting restrictively the concept of harbour works so as to avoid or mitigate the problem of excessive length identified by the ILC. This may be particularly true where, as here, the question is one of delimitation of areas seaward of the territorial sea.[182]

While the Court did not reject the use of the seaward end of the dyke in Romania's baseline system for the purpose of measuring the breadth of the territorial sea, it did reject the dyke as a base point from which to measure an equidistance boundary with Ukraine.[183]

### 2. Coast protective works: artificial conservation of the baseline

The Committee recalls that in 1956, the ILC commented that "[p]ermanent structures erected on the coast and jutting out to sea (such as jetties and coast protective works) are assimilated to harbour works".[184] McDougal and Burke take a similar position for certain coast protective works writing, "[t]here would seem to be no substantial objection to assimilating 'coast protective works' to harbor installations even when they are isolated structures if, as is usually the case, they are not extensive".[185] Shalowitz includes "structures along the seacoast at inlets or rivers for protective purposes", but does not specify whether they must have a functional relationship with a harbour system.[186]

It is not clear whether coast protective works that do not form an integral part of a harbour system would be assimilated to harbour works under Article 11 or would be considered part of the Article 5 'coast' independent of Article 11. Notwithstanding, in practice these structures have been taken to form part of the coast. Prescott and Schofield observe that "[s]ometimes protecting walls will lie *along* the coast and cover the normal low-water line rather than jutting out significantly into the sea. Nevertheless they are clearly to be regarded as part of the baseline from which territorial waters are measured".[187] Carleton writes of dykes, levees, berms, and seawalls "[w]here these constructions abut directly onto the sea they effectively form part of the State's coast. In these circumstances it is also considered that they form a legitimate part of the State's coastline and can be used as territorial sea basepoints".[188]

Although there is a clear requirement under Article 11 that harbour works be an "integral part of a harbour system", the Committee finds no authority to suggest that coast protective works must be associated with

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[179] Louisiana argued that dredged offshore channels leading to ports constitute harbour works and should be treated as baselines for the territorial sea. The Supreme Court, reasoning that dredged channels are below water at all times and do not possess a low-water line, concluded that they are not part of the 'coast'. United States v. Louisiana, 394 US 11, 38 (1969).
[180] *Report of the ILC (1956)*, *supra* note 72, at 270.
[181] Sulina dyke may be better described as a pair of parallel training walls designed to maintain water depth and access to the river port of Sulina. Contrary to the Court's conclusion that Sulina dyke serves no "direct purpose in port activities" (*Romania* v. *Ukraine*, *supra* note 26, para. 138), Carleton argues that the only reason to build a training wall such as Sulina dyke "is to facilitate the safe navigation of vessels to and from a river port". Carleton, *supra* note 162, at 28.
[182] *Romania* v. *Ukraine*, *supra* note 26, para. 134.
[183] *Id*. paras. 137-38.
[184] *Report of the ILC (1956)*, *supra* note 72, at 270.
[185] MYRES MCDOUGAL & WILLIAM BURKE, THE PUBLIC ORDER OF THE OCEANS 422-23 (1962). *But see* Carleton, *supra* note 162, at 13 (referring to the coast protective works of the Netherlands which cover 17 percent of the coastline and yet are "considered to be part of the normal baseline").
[186] SHALOWITZ, *supra* note 61, at 292.
[187] PRESCOTT & SCHOFIELD, *supra* note 13, at 135.
[188] Carleton, *supra* note 162, at 13.

harbors in order to qualify as part of the coast and, therefore the normal baseline. To the contrary, Soons – referring to "artificial conservation of the baseline" – writes that "[a]rtificial conservation of the coastline, including that of islands, is fully permitted under public international law: this is proved by abundant State practice".[189]

### 3. Land reclamation: artificial extension of the baseline

Artificial extension of the baseline appears to receive a similar treatment.[190] Here too, what little state practice there is indicates that artificial extensions of the coast serve to extend the normal baseline.

Carleton cites examples from the Netherlands, United Arab Emirates, Singapore, and Japan,[191] and concludes that "[p]rovided the reclaimed land is an integral part of the mainland or an island, State practice would indicate that it is acceptable to consider it as part of the State's coast for the generation of maritime limits".[192] Malaysia, upon instituting proceedings against Singapore in *Land Reclamation*, appeared to believe that Singapore's land reclamation projects would impact the location of Singapore's baseline for the purpose of a delimitation between their opposite coasts. Malaysia's concern indicates that Malaysia considered that such a reconfiguration of Singapore's coasts would functionally and legally extend Singapore's baseline seaward to Malaysia's disadvantage in a delimitation of maritime spaces between the opposite states.

The United States Supreme Court considered the issue with respect to a spoil bank made of dredged material that attached to and extended offshore from the natural coastline. Louisiana contended that the artificial extension should be considered part of the state's coast while the United States argued that it should not on the theory that spoil banks are not useful and are likely to be short-lived. The Court rejected this argument, noting simply, "it suffices to say that the [1958] Convention contains no such criteria",[193] and the spoil bank was included as part of the baseline.

In the Netherlands, the impact of artificial extensions of the baseline on the normal baseline has been considered in connection with the adoption of the Territorial Sea Demarcation Act. A Dutch Parliamentary Commission asked whether an artificial extension of the coast would lead to a shift of the normal baseline. The Minister of Foreign Affairs answered that it would.[194] This approach has been consistently followed by the Netherlands. A recent example is provided by the latest extension of the Port of Rotterdam. There, land reclamation extended the coast a couple of kilometers seaward and this also has led to a shift in the low-water line.[195]

From the foregoing the Committee concludes that existing international law recognizes harbour works as described above, any coast protective work which extends above the chart datum, and any human-induced extension of the natural coast, as part of the coast for the purposes of Article 5. As such, the normal baseline moves, sometimes seaward, with the resulting changes in coastal configuration.

## *B. Sea level rise and coastal erosion*

In the Committee's view, it follows that if the legal baseline changes with human-induced expansions of the actual low-water line to seaward, then it must also change with contractions of the actual low-water line to landward. These contractions could occur, for example, from the actual loss of land through erosion or from rising sea levels that, over time, would submerge coastlines and associated territory. In theory, these

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[189] Soons, *supra* note 155, at 222.
[190] Artificial extension of the coast should be distinguished from territorial gain resulting from natural means such as accretion and land rise, or post-glacial rebound. These natural modes of territorial gain would extend the low-water line when they occur in coastal areas.
[191] Carleton, *supra* note 162, at 19-22.
[192] *Id*. at 22.
[193] United States v. Louisiana, 394 US 11, 41 (1969).
[194] Determination of the boundaries of the territorial sea of the Netherlands (Act boundaries Netherlands territorial sea); Note in response to the report (Tweede Kamer (1982-1983) 17 654, No. 7, at 8).
[195] *See further* Maritieme zones gewijzigd door aanleg Maasvlakte, *supra* note 140, at 2. A figure illustrating the shift in the low-water line and the corresponding shift in maritime limits is included in a figure forming part of the press release, *available at* http://www.defensie.nl/_system/handlers/generaldownloadHandler.ashx?filename=/media/detail_ENC_NL50132A_2009_tcm46-142800.pdf.

contractions could occur to such an extent that the entire territory, and actual low-water line, of low-lying small island nations would be below the vertical datum, thereby eliminating entirely the normal baseline and any entitlement to maritime zones generated from the baseline. Even if such an extreme scenario were not to arise, the Committee considers that the likelihood that some offshore low-lying small islands will be completely submerged will still remain, which will give rise to debate as to whether a coastal state loses the totality of its entitlement to claim a normal baseline from territory that has become submerged. Islands presently above the water surface at high tide may, as a result of sea level rise, disappear at high tide and become low tide elevations, resulting in the feature being reclassified from an island to an insular feature.[196]

This may be the unavoidable consequence of using the actual low-water line as the baseline from which maritime zones are measured, but it is a consequence that authors seem to agree reflects the existing law of the normal baseline. Caron and Soons reach this conclusion.[197] Rayfuse has also written recently on the topic of the disappearing state, baselines, and the impact on maritime entitlements.[198] Schofield and Arsana have also addressed this issue, with particular reference to the impact of sea level rise on islands.[199] These authors agree that under the existing law the normal baseline would disappear along with any territory that it once circumscribed and the maritime entitlements it once generated if that territory submerges below the relevant vertical datum. Short of actual physical protection of the coast the authors do not find that the existing law provides for any other way to protect the maritime interests of states threatened with a total loss of territory.

Unlike most of the scenarios considered above in which possible differences between the charted and actual low-water lines are small and the effects local – sling mud banks, deltaic accretion, other forms of accretion and erosion, land reclamation projects, or the construction of harbour works – the prospect of significant sea level rise carries with it problems of global scale and effect and serious existential implications for some states. Among these problems are negative impacts on maritime boundaries negotiated in reliance on normal baselines in existence at the time of a delimitation,[200] and the outer limits of a State's maritime zones proclaimed in reliance upon a normal baseline. Under these circumstances, a question arises as to whether the existing law of normal baselines would or should apply.

Considering the possibility of total loss of territory and all maritime rights, Caron, Soons, Rayfuse, Jesus, Schofield and Arsana, and Hayashi have proposed changes to existing international law. The Committee notes that the implementation of these proposals would undoubtedly create serious challenges to fundamental principles of the law of the sea (such as, for example, the principle that "the land dominates the sea"[201]),[202] notwithstanding that the proposals seek to promote stability, particularly regarding the preservation of the outer limits of maritime zones. In this respect, Jesus argues that "a substantial rise in sea level, whatever the cause, should not entail the loss of States' ocean space and their rights over maritime resources, already recognized by the 1982 Convention and by the community of nations".[203]

After acknowledging that States may protect their coasts through the creation or reinforcement of sea defenses, Soons suggests that "[a] less expensive, but probably also less dependable means for these States to prevent negative consequences as a result of sea level rise . . . is to contribute towards the creation of a new rule of customary international law which allows coastal States in case of sea level rise to maintain the original outer

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[196] Clive Schofield & I Made Andi Arsana, *Imaginary Islands? Options to Preserve Maritime Jurisdictional Entitlements and Provide Stable Maritime Limits in the Face of Coastal Instability*, 6th IHO-IAG ABLOS Conference, 25-27 October 2010, at 6, *available at* http://www.iho.int/mtg_docs/com_wg/ABLOS/ABLOS_Conf6/ABLOS_Conf6.htm.

[197] *See* Caron (1990), *supra* note 149; Caron (2009), *supra* note 151; Soons, *supra* note 155.

[198] *See* Rosemary Rayfuse, *W(h)ither Tuvalu? International Law and Disappearing States*, University of New South Wales Faculty of Law Research Series, 2009, Paper 9, *available at* http://law.bepress.com/unswwps/flrps09/art9/; Rosemary Rayfuse, *Sea Level Rise and Maritime Zones: Preserving the Maritime Entitlements of 'Disappearing' States*, *in* THREATENED ISLAND NATIONS: LEGAL IMPLICATIONS OF RISING SEAS AND A CHANGING CLIMATE (M.B. Gerrard & G.E. Wannier eds., forthcoming 2012) (citing manuscript of this chapter).

[199] Schofield & Arsana, *supra* note 196. *See also* Clive Schofield, *Shifting Limits? Sea Level Rise and Options to Secure Maritime Jurisdictional Claims*, 3 CARBON & CLIMATE L. REV. 405, 408 (2009); Moritaka Hayashi, *Sea-Level Rise and the Law of the Sea: Future Options*, *in* THE WORLD OCEAN IN GLOBALISATION 187 (Davor Vidas & Peter Johan Schei eds., 2011).

[200] José Luís Jesus, *Rocks, New-born Islands, Sea Level Rise and Maritime Space*, *in* NEGOTIATING FOR PEACE – LIBER AMICORUM TONO EITEL 599, 602 (Jochen Frowein *et al*. eds., 2003); Schofield, *supra* note 199, at 406; Katherine Houghton *et al*., *Maritime Boundaries in a Rising Sea*, 3 NATURE GEOSCIENCE 813 (2010) (discussing case studies).

[201] *See supra* note 15 and associated text.

[202] Jenny Grote Stoutenburg, *Implementing a New Regime of Stable Maritime Zones to Ensure the (Economic) Survival of Small Island States Threatened by Sea-Level Rise*, 26 INT'L J. MARINE & COASTAL L. 263, 271-75 (2011).

[203] Jesus, *supra* note 200, at 601.

limits of their maritime zones".[204] In order to succeed, these States would need to "gain approval for this practice in the relevant international fora".[205]

Caron notes that "[i]n the case of a rising sea level, the law of baselines gives rise to a legal feedback that increases the potential for the waste of resources as well as private and interstate conflict".[206] Like Soons, he acknowledges that states may "preserve their rights and entitlements by committing resources to stabilize that aspect of the physical world which is threatened by climatic change [that is, the baseline]".[207] He continues noting the inefficiencies of preserving baselines, "not because the aspect itself is valuable, but rather because the entitlements are valuable, and those entitlements, for purely conventional reasons, require its preservation".[208] In order to address the problems of inefficiency and conflict, Caron suggests modifying the rule and concludes "that states should move toward permanently fixing ocean boundaries".[209]

Rayfuse also acknowledges that "[c]urrent international law does not adequately address the continued maintenance of [maritime] entitlements in the context of sea level rise,"[210] and suggests that "a more lasting solution to the challenges to coastal states posed by sea level rise will require the international community to adopt new positive rules of international law to freeze existing baseline claims".[211] She continues: "For states whose very existence is threatened, recognition of a new category of state, able to capitalize on existing maritime entitlements, will also be needed".[212] According to this author, a freezing of maritime zone outer limits "would be consistent with, and would significantly assist in, the promotion and achievement of the LOSC objectives of peace, stability, certainty, fairness, and efficiency in ocean governance".[213] Rayfuse concludes that, considering the possibility of total loss of territory and all associated maritime rights, recognition of the concept of the 'deterritorialised state' might provide an equitable solution to the legal problems involved in sea level rise.[214]

Schofield and Arsana consider that one option to resolve this issue would be to "legally fix or declare the location of normal baselines and/or the maritime limits derived from them".[215] While considering the potential for unilateral state practice in this area to develop new customary law, they assert that a "preferable approach would be to seek multilateral agreement on, effectively, a revised legal regime applicable to normal baselines".[216]

The Committee concludes that the existing law of the normal baseline applies in situations of significant coastal change caused by both territorial gain and territorial loss. Coastal states may protect and preserve territory through physical reinforcement, but not through the legal fiction of a charted line that is unrepresentative of the actual low-water line.

All coastal States face the threat of territorial loss as a result of predicted sea level rise. When coastal territory submerges below the selected low-water datum, the normal baseline would retreat, and in extreme cases would be lost. As indicated in the proposal establishing this Committee, low-lying, small-island developing states are likely to be the most severely affected by this phenomenon. If current predictions of sea level rise are realized, some States will become completely submerged. The resulting deterritorialization will likely mean, among other things, a total loss of baselines and of the maritime zones generated by coastal territory and measured from those baselines. Should the issue of deterritorialization fall to be considered by the international community at least in part as a baseline issue, the existing law of the normal baseline does not offer an adequate solution.

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[204] Soons, *supra* note 155, at 231.
[205] *Id.*
[206] Caron (2009), *supra* note 151, at 2.
[207] *Id.* at 13.
[208] *Id.*
[209] *Id.* at 14 (using the term 'boundaries' to refer to the outer limits of maritime zones).
[210] Rayfuse (2012) (manuscript), *supra* note 198, at 12.
[211] *Id.* at 12-13.
[212] *Id.* at 13. *But see* Julia Lisztwan, *Stability of Maritime Boundary Agreements*, 37 YALE J. INT'L L. 153 (2012) (offering a competing view on the equities of freezing existing baselines considering that zones preserved under such rules would otherwise have reverted to the commons).
[213] Rayfuse (2012) (manuscript), *supra* note 198, at 6.
[214] *Id.* at 9-13.
[215] Schofield & Arsana, *supra* note 196, at 11.
[216] *Id.*

Here the Committee raises the possibility of deterritorialization in the context of Article 5 baselines, but the loss of a State's territory to rising sea levels is not primarily a baseline or law of the sea issue. Substantial territorial loss is a much broader issue encompassing concerns of statehood, national identity, refugee status, state responsibility, access to resources, and international peace and security. This issue requires consideration by a committee established for the specific purpose of addressing this range of concerns. The work of that committee should take into account the spirit of the modern law of the sea in which the interests of differently situated states are balanced. That committee should also recall the aims of the Convention: to strengthen peace, security, cooperation, and friendly relations among nations in conformity with the principles of justice and equal rights; to take account of the interests and needs of humankind as a whole; and to promote the economic and social advancement of all peoples of the world considering the special interests and needs of developing countries.

## V. Conclusions

The Committee concludes that the legal normal baseline is the actual low-water line along the coast at the vertical datum, also known as the chart datum, indicated on charts officially recognized by the coastal State. The phrase "as marked on large-scale charts officially recognized by the coastal State" provides for coastal State discretion to choose the vertical datum at which that State measures and depicts its low-water line. The charted low-water line illustrates the legal normal baseline, and in most instances and for most purposes the charted low-water line provides a sufficiently accurate representation of the normal baseline. As a matter of evidence for proving the location of the normal baseline the charted line appears to enjoy a strong presumption of accuracy. However, where significant physical changes have occurred so that the chart does not provide an accurate representation of the actual low-water line at the chosen vertical datum, extrinsic evidence has been considered by international courts and tribunals in order to determine the location of the legal normal baseline.[217] [218]

The Committee concludes that the normal baseline is ambulatory, moving seaward to reflect changes to the coast caused by accretion, land rise, and the construction of human-made structures associated with harbour systems, coastal protection and land reclamation projects, and also landward to reflect changes caused by erosion and sea level rise. Under extreme circumstances the latter category of change could result in total territorial loss and the consequent total loss of baselines and of the maritime zones measured from those baselines. The existing law of the normal baseline does not offer an adequate solution to this potentially serious problem.

The Committee recommends that the issue of the impacts of substantial territorial loss resulting from sea level rise be considered further by a Committee established for the specific purpose of addressing the wide range of concerns it raises.

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[217] Committee member Oude Elferink does not subscribe to the Committee's conclusion on the interpretation of Article 5 of the United Nations Convention on the Law of the Sea and aspects of the analysis leading up to that conclusion.

[218] Committee member Yee would like to emphasize the following: "Article 5 says that the normal baseline is 'the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State'. It is neither 'the low-water line along the coast', pure and simple, nor the line 'as marked on large-scale charts officially recognized by the coastal State', pure and simple. The conclusions of the Committee have the effect of interpreting 'as marked on large-scale charts officially recognized by the coastal State' out of Article 5, despite the lip service paid to it under the guise of giving the charts 'a strong presumption of accuracy'. To the extent that the phrase 'as marked on large-scale charts officially recognized by the coastal State' was put in the provision (or its predecessor) to address the difficulty resulting from the lack of a universal standard for determining the low-water line, and to the extent that this difficulty has not yet disappeared (that is to say, there is still no universal standard for determining the low-water line on the coast), there is no justification for downplaying this phrase. A proper interpretation of Article 5 must give effect to both components: (1) 'the low-water line along the coast' and (2) 'as marked on large-scale charts officially recognized by the coastal State'. This requires at least that the coastal State's choice of any reasonable method, which need not be the best method in the view of a *post-facto* decision-maker, to determine the low-water line on the coast as well as its reasonable operations to achieve such a determination under that method, be respected, if the coastal State's determination is open to examination. For example, if a coastal State has determined its low-water line by using Method A, it should not be assessed subsequently by using Method B. In short, if there is any reasonable ground for, or any reasonable method that can result in, the coastal State's decision, that decision should be respected or be given deference. International judicial decisions that have not addressed these points have not tackled the issues head-on and as a result their value is questionable. The so-called 'strong presumption of accuracy' does not give any special weight to the recognition of the chart by the coastal State, as it seems that, according to the Committee, the presumption is rebutted whenever the chart is shown not to reflect physical reality accurately."

**Annex: Actual Low-Water Line vs. Charted Low-Water Line**

This Annex explains the technical reasons there may be differences between the actual and charted low-water lines. Walker provides the following definition of 'low-water line':

> (a) In UNCLOS, the phrases "low-water line" and "low-water mark" are synonymous. They mean the intersection of the plane of low water with the shore, or the line along a coast or beach to which the sea recedes at low tide.
> (b) It is the normal practice for the low-water line to be shown as an identifiable feature on nautical charts unless the scale is too small to distinguish it from the high-water line or where there is no tide so that the high and low water lines are the same.
> (c) The actual water level taken as low water for charting purposes is known as the level of chart datum.[219]

When the "identifiable feature on nautical charts" (the charted line) does not accurately reflect the "intersection of the plane of low water with the shore" (the actual line), the difference between the two may be attributed to any combination of the following: (1) the actual low-water line is elusive; (2) coastal zones are highly dynamic zones experiencing constant morphologic change; (3) the main purpose of nautical charts is safety of navigation; and (4) there is a significant lag time in the charting process.

*Elusive line.* The low-water line is the line of intersection of the sea with the coast at low tide. This is problematic for two reasons: (1) the line of intersection between land and sea is constantly in flux, and (2) there is no international agreement on a mandatory universal low tide datum.[220] The line of intersection between land and sea is constantly in flux at several different spatial and temporal scales. At the micro-spatial/micro-temporal scale wave action changes this line of intersection by the second or minute. At the macro-spatial/macro-temporal scale this line of intersection changes by virtue of erosion, accretion, dredging, land reclamation, and sea level changes. At an intermediate scale this line of intersection changes over the course of a single tidal cycle. The tidal cycle, which is easily observed over the course of hours, also exhibits longer-term, seasonal, annual, and decadal fluctuations.

The changes caused by the tidal cycle can be fixed by identifying the single vertical, or tidal, datum to represent 'low water'. This vertical datum is the 'zero level' to which elevation and depth measurements are reduced. The intersection of the land with the sea – at that chosen level – is the low-water line. The low-water line thus defined is an elusive feature if not a purely conceptual construct. For example, the vertical datum recommended by the International Hydrographic Organization for use on nautical charts – the lowest astronomical tide (LAT) – is defined as "[t]he lowest tide level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions".[221] The actual low-water line defined using the LAT datum will only be visible once every full metonic cycle of 18.6 years provided the meteorological conditions are normal. This means the low-water line will actually be underwater during all but the very lowest tides. Proving the existence of something that does not make an appearance but once every two decades presents obvious difficulties.

*Morphologic change.* In addition to tidal fluctuation, the coastal zone is an area of constant physical change brought about by the forces of wind and water. These forces contribute to the actual change in the morphology, or shape, of the coast. Some coastal areas are highly dynamic; others are less so. This will affect the rate of morphologic change. Coastal material – sand, mud, pebbles, rock, coral reef, mangrove, etc. – will also influence the rate at which the change occurs. Morphologic change, which creates territorial loss and gain through erosion and accretion, can be slowed (and sometimes inadvertently accelerated elsewhere) by the construction of coastal defenses. Morphologic change and its relationship to the chart-making process contributes to the problem addressed by this Committee.

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[219] DEFINITIONS, *supra* note 12, at 239.
[220] *But see Datums and Bench Marks*, RESOLUTIONS OF THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION 35 (2d ed. 2010 [updated to Mar. 2012]), IHO Res. 3/1919 (last amended by circular letter 19/2008), para. 2(a), *available at* http://www.iho.int/iho_pubs/misc/M3-E-MARCH12.pdf ("It is further resolved that the Lowest Astronomical Tide (LAT), or as closely equivalent to this level as is practically acceptable to Hydrographic Offices, be adopted as chart datum where tides have an appreciable effect on the water level".). For an analysis of vertical datums, see Nuno Sergio Marques Antunes, *The Importance of the Tidal Datum in the Definition of Maritime Links and Boundaries*, 2(7) (IBRU) MARITIME BRIEFINGS (2000).
[221] *Datums and Bench Marks*, *supra* note 220.

*Safety of navigation.* The primary purpose of nautical charts is safety of navigation. As a result, the focus of new surveys, updates and corrections to charts is on navigational hazards and navigational aids, not necessarily on changes to coastal configuration. Nautical charts err on the side of caution. The vertical datums to which depths are referenced on a chart are chosen because they represent the worst case tidal scenario, not because they reflect the reality of the low-tide line under normal or average conditions. Finally, hydrographic agencies focus their resources on updating and producing large-scale charts of high traffic areas. This leaves less-traveled stretches of coast under-researched and uncorrected even if these areas are important for the purposes of defining outer limits of maritime zones or delimitating boundaries with neighbors.

*Production time lag.* Conceptually the low-water line is fixed by the selection of a vertical datum from which to measure depths and elevations. This hydrographic fiction neutralizes the impact of tidal fluctuation but does not neutralize the impact of morphologic change to the coast. To the extent that coastal change occurs and charts are not updated to reflect that change, differences between the actual and charted low-water line will arise. In order to minimize these differences, detection and depiction of coastal change must occur rapidly. However, even with modern detection technology (for example, satellite sensors, global positioning systems, and aerial photography) and analysis and depiction technology (for example, geographic information systems (GIS) and electronic chart display and information systems (ECDIS)) charting agencies are not able to achieve real-time chart making and distribution. To the contrary, there are coasts in the world for which the best available charted low-water line is based on surveys made in the 19th century. In these circumstances coastal changes that have occurred in the interim will not be reflected in the charted low-water line.