

**SEA-LEVEL RISE AND AMBULATING MARITIME ZONES: AN ANALYSIS OF  
THE LEGAL IMPLICATIONS FOR COASTAL AND ISLAND STATES**

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Mini dissertation submitted to the Unit of Maritime Law and Maritime Studies in  
partial fulfilment of the requirements for the degree of *Master of Laws in Maritime  
Law*.

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Durban

5 June 2017

## **ABSTRACT**

As a result of climate change and the rising of sea levels worldwide, maritime baselines along Coastal and Island States are starting to shift. There are many legal consequences that arise as a result of this shift in maritime baselines. Maritime baselines play an important role in delineating maritime territory for the purposes of the United Nations Convention on the Law of the Sea (UNCLOS). When a baseline shifts due to sea level rise, so too does the maritime territory that is measured from it. Therefore, this dissertation aims to undertake an in-depth analysis of the consequences of this shift and methods to curb these consequences.

In order to provide an in-depth analysis on this issue, the dissertation includes an examination of the current legal regimes that govern maritime baselines. This includes an analysis of: The relevant provisions of UNCLOS; international and municipal judicial decisions; reports by the International Law Association Committee on Baselines under the Law of the Sea; as well as academic scholarly views. The dissertation then aims to provide and critique possible solutions to the legal complications outlined. The solutions provided focus on the fixing of baselines this provides certainty to maritime nations worldwide.

## DECLARATION

I, Kyra Leah Guy, declare that:

- (i) The research reported in this dissertation, except where otherwise indicated, is my original work.
- (ii) This dissertation has not been submitted for any degree or examination at any other university.
- (iii) This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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Kyra Guy

Date: \_\_\_\_\_

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## **ACKNOWLEDGMENTS**

This dissertation would not have been possible if not for my parents. Your love, support and guidance has led me on this path and I am so grateful for that. Thank you for all the sacrifices you have made in order for me to get an education.

Thank you to my partner, Bryan, for the unconditional love and support whilst undertaking this dissertation.

It has been a privilege to work with my supervisor, Vishal Surbun. The guidance I have received on matters relating to the law of the sea has been an immense help in putting this dissertation together. Thank you for your guidance and for sharing your wealth of knowledge on this topic with me.

I would also like to thank my editor, Aideen Ross, for the help in structuring this dissertation. The structure is just as important as the content, thank you for helping my work come to life in the best way possible.

## LIST OF ACRONYMS

AU	African Union
EEZ	Exclusive Economic Zone
CCRIF	Caribbean Catastrophe Risk Insurance Facility
GDP	Gross Domestic Profit
ICJ	International Court of Justice
ILA	International Law Association
IPPC	Intergovernmental Panel on Climate Change
ITLOS	International Tribunal for the Law of the Sea
LAT	Lowest Astronomical Tide
NAPAs	National Adaption Programme of Action
OAU	Organisation of African Unity
SPLOS	State Parties to UNCLOS
UNCLOS	United Nations Convention of the Law of the Sea
UN	United Nations
US	United States

# Chapter 1: Introduction

## 1.1 Background to sea level rise

Whilst climate change has gained much attention since the late 20<sup>th</sup> century, the true reality of its effects on our environment are only recently being discovered. Therefore, an analysis of sea-levels worldwide has been imperative in order to report on the changes that are occurring. The Intergovernmental Panel on Climate Change (hereafter referred to as the “IPCC”) was created to study all the aspects of climate change and it comprises the world’s leading climate scientists. The IPCC’s work is important for the purposes of this dissertation as their reports are the leading authority on climate change globally. The IPCC has stated that the sea is rising at a rapid rate.<sup>1</sup> In its most recent report,<sup>2</sup> the IPCC has predicted an increase in sea levels in the region of 0.52 – 0.98 m by 2100.<sup>3</sup> The predicted rise is not uniform, and certain states may experience a far more drastic rise than others.<sup>4</sup> This rise has already begun to affect low lying coastal and island states and their baselines.<sup>5</sup>

The level by which the sea will eventually rise depends on many factors and scientists cannot with absolute certainty project sea-level rise.<sup>6</sup> The IPCC have been criticised by Schofield, a prominent writer on the issue of baselines and sea level rise, for being conservative in their predictions and the view is that their figures are overly optimistic.<sup>7</sup> Whilst figures may be susceptible to change, it is certain that the sea will rise dramatically and even a slight rise would have the potential to cause changes in

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<sup>1</sup> D Vidas et al ‘International Law and Sea Level Rise: The New ILA Committee’ (2014) 21(2) *ISLA Journal of International & Comparative Law* at 397.

<sup>2</sup> IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, at 151 pp.

<sup>3</sup> Intergovernmental Panel on Climate Change ‘Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change’ (2013) available at [http://www.climatechange2013.org/images/report/WG1AR5\\_ALL\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf) (accessed on 30 March 2016) at 25.

<sup>4</sup> *Ibid* 1142.

<sup>5</sup> RS Abate *Climate Change Impacts on Ocean and Coastal Law: U.S. and International Perspectives* (2015) at 256.

<sup>6</sup> C Schofield ‘Shifting Limits? Sea Level Rise and Options to Secure Maritime Jurisdictional Claims’ (2009) 4 *Carbon and Climate Law Review* at 406.

<sup>7</sup> *Ibid*.

coastal baselines<sup>8</sup> worldwide.<sup>9</sup> Influential writers on natural and legal aspects of sea level rise, David Caron and Clive Schofield, note that the Maldives is one such island state that is susceptible to being detrimentally affected by rising seas.<sup>10</sup> Many of the islands that comprise the Maldives sit between 1 and 1.5 metres above sea level; a one metre rise would be detrimental to this island nation.<sup>11</sup> Sea level rise would result in a loss of land territory within the Maldives. This rise would cause their maritime zones to move inward and result in a gradual loss of their existing maritime zones. The Maldives largely depends on the resources within their claimed maritime territory; activities such as fishing and tourism make up a large portion of their gross domestic profit (“GDP”).<sup>12</sup> Therefore, a loss in maritime territory could be detrimental to their economy.<sup>13</sup> The further consequences of the sea level rise in general will be discussed in detail in chapter 3.

It is important to stress that this dissertation does not aim to provide a scientific analysis of the sea level rise. However, in order to provide a comprehensive analysis on the legal implications of sea level rise, it is important to understand the basic scientific principles. The generally accepted scientific reason for the rise in sea level is thought to be two-fold: firstly, thermal expansion of the surface waters and secondly, the melting of the ice glaciers.<sup>14</sup> Thermal expansion is also known as steric sea level rise and it refers to a situation where the ocean volume increases even where the sea-levels remain constant.<sup>15</sup> Thermal expansion occurs more frequently where water is under a large amount of pressure or when water is higher in temperature.<sup>16</sup> Temperatures in the water are rising due to increasing temperatures in the atmosphere as a result of carbon emissions and global warming.<sup>17</sup> In addition to this, changes in

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<sup>8</sup> The baseline is an important term for the purposes of this dissertation as it is the “low-water line along the coast” as defined within Article 5 of United Nations Convention on the Law of the Sea. Schofield (n 6) outlines the significance of baselines by stating that they are the point from which all maritime territory is measured.

<sup>9</sup> Schofield (n 6) at 406.

<sup>10</sup> D Caron ‘When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level’ (1990) 17 *Ecology Law Quarterly* at 628; Schofield (n 6) at 406.

<sup>11</sup> *Ibid* 628.

<sup>12</sup> A Powers ‘Sea-Level Rise and its Impact on Vulnerable States: Four Examples’ (2012) 73 *Pace Law Faculty Publications* at 159.

<sup>13</sup> *Ibid*

<sup>14</sup> *Ibid* 626.

<sup>15</sup> IPCC ‘Working Group I: The Scientific Basis’ available at (accessed 9 December 2016).

<sup>16</sup> *Ibid*.

<sup>17</sup> Schofield (n 6) at 406.

the salinity of the ocean might also lead to thermal expansion.<sup>18</sup> The melting of ice glaciers is also a major cause for concern as it may lead to the deterioration of major ice sheets.<sup>19</sup> This deterioration also has the potential to undermine the stability of the major ice sheets in Greenland and the Antarctic which can have disastrous effects.<sup>20</sup> Should the major ice sheets melt completely, it would cause global sea levels to rise by 70 meters.<sup>21</sup>

## 1.2 Sea level rise and baselines

Baselines are used to delineate maritime territory and therefore serve an important role in the law of the sea. Baselines have gained a greater significance during this century due to the United Nations Convention on the Law of the Sea (“UNCLOS”).<sup>22</sup> The purpose of baselines within UNCLOS is that they are the first point from which a state delimits its maritime zones.<sup>23</sup> However, baselines are crucial for more than the measurement of maritime zones; they also have direct relevance to maritime boundaries as they assist in constructing a median line or equidistance between states which are in maritime boundary negotiations.<sup>24</sup> Perhaps equally as significant, baselines represent where the land territory of a coastal state comes to an end and the ocean territory begins.<sup>25</sup> Thus, where there is a rise in sea level, it causes the baseline to ambulate landward, which causes the relevant state to lose a portion of the maritime territory that it once held.<sup>26</sup>

Worldwide, the determination of baselines is regulated by UNCLOS. Where a baseline is ordinary in nature,<sup>27</sup> “normal” baselines are established as per Article 5 of UNCLOS. Article 5 provides for the baseline to be measured from the “low-water line” of a coastal state. Where the baseline of a coastal state is “deeply indented and cut into” or where

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<sup>18</sup> IPCC Working Group I (n 15).

<sup>19</sup> Schofield (n 6) at 406.

<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*

<sup>22</sup> Caron (n 10) at 631.

<sup>23</sup> Abate (n 5) at 256.

<sup>24</sup> Schofield (n 6) at 407.

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*

<sup>27</sup> A baseline is usually considered ordinary in nature or “normal” when it contains no substantial indents, is not highly unstable and is not surrounded by fringing islands.

there is “a fringe of islands along the coast” the baseline of the state would be regulated by Article 7 of UNCLOS. Both of these provisions only deal with claiming the baseline as it stands on the coastline and there are no other provisions which deal with a situation where the baseline shifts in position. This vacuum in the legal framework has led to uncertainty on this issue.<sup>28</sup> However, what is certain is that the consequences of ambulating baselines are apparent: it results in the maritime zones shifting due to the changed baseline, causing complexities in ascertaining the location of valid maritime borders. Caron asserts that the reason for the uncertainty within UNCLOS is possibly owing to the fact that the rising of seas is a phenomenon which only came to the fore after the creation of UNCLOS, and the drafters did not anticipate such a change.<sup>29</sup> Regardless of the reasons for the omission, the uncertainty may be the subject of much political tension due to the resources that are available within these maritime territories.<sup>30</sup> Therefore, the need for clarity on the issue became of great import to the international community at large.

These concerns were addressed by the establishment in 2008 of The International Law Association Committee on Baselines under the International Law of the Sea (“the Baselines Committee”) with the mandate to analyse the law on baselines of coastal and island states.<sup>31</sup> In addition, the Baselines Committee was to assess whether there was a need for more clarity within the laws that govern baselines in light of the rising sea levels, as well as the possibility of developing those laws as a result of such findings.<sup>32</sup> The Baselines Committee released its first final report at an International Law Association (“ILA”) Baselines Conference in Sofia in 2012 (“Sofia Report”).<sup>33</sup> The Baselines Committee had a mandate that was four years in length and ended in 2012.<sup>34</sup> As a result of the preliminary investigations, there was a need for the formation of a new committee to operate for a further four year period to address further issues

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<sup>28</sup> Abate (n 5) at 254.

<sup>29</sup> Caron (n 10) at 636.

<sup>30</sup> *Ibid* 257.

<sup>31</sup> International Law Association, Baselines Under the International Law of the Sea ‘Conference Report Sofia’ (2012) available at <http://www.ila-hq.org/index.php/committees?committeeID=46> (accessed 15 July 2016) at 1.

<sup>32</sup> *Ibid*.

<sup>33</sup> *Ibid*.

<sup>34</sup> International Law Association, Baselines Under International Law of the Sea ‘Working Session Report Washington’ (2014) available at <http://www.ila-hq.org/en/committees/index.cfm/cid/1028>, (accessed 15 July 2016) at para 1.

which were not covered in the initial report, such as straight baselines.<sup>35</sup> The idea was that if the investigations were confined to the “normal” baselines under Article 5, the Baselines Committee’s analysis would not be complete.<sup>36</sup>

The first report of the new Committee was released at the Washington Conference<sup>37</sup> in 2014 (“Washington Report”).<sup>38</sup> That report was confined to the issues of straight baselines and archipelagic baselines.<sup>39</sup> There was a further extension of the Baselines Committee mandate to 2016 to deal with additional issues that were not covered by the Washington Report by the Baselines Committee due to the complexity of the issues.<sup>40</sup> The two year extension was aimed at analysis of issues such as the review of state practice in terms of baselines; political disputes on baselines and how to settle such disputes; the means to distinguish between islands, rocks and low-tide elevations; and some other ancillary matters.<sup>41</sup>

Some of the concerns dealt with in the reports by the Baselines Committee are beyond the scope of this discussion on baselines, however, some of the issues discussed within the reports are vitally important and will be deliberated on in the chapters to follow.

### 1.3 Structure of the dissertation

This dissertation seeks to undertake an in-depth analysis of the legal regimes governing baselines and the interpretations of these regimes in light of the problematic

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<sup>35</sup> Working Session Report Washington (n 34) at para 5.

<sup>36</sup> the Washington Report, the Baselines Committee had its mandate extended to focus on the following interpretations: straight baselines in terms of Article 7 of UNCLOS and state practice in this regard; internal water provisions in Article 8(2) of UNCLOS and the state practice in this regard; straight baseline provisions and the state practice of drawing straight baselines within bays of coastal and island states in terms of Article 10 of UNCLOS; low-tide elevations in Article 13 of UNCLOS as well as the state practice in this regard; the combination of methods for determining baselines in Article 14 and the state practice on this issue. This analysis would also include all baseline measurement methodologies; and lastly, archipelagic baselines and the state practice with regard to these baselines in terms of Article 47.

<sup>37</sup> Baselines Committee released its 2015 report at The Washington Conference.

<sup>38</sup> Washington Report (n 34) at para 10.

<sup>39</sup> *Ibid.*

<sup>40</sup> International Law Association, Baselines Under International Law of the Sea ‘Draft Conference Report Johannesburg’ (2016) available at <http://www.ila-hq.org/en/committees/index.cfm/cid/1028> (accessed 16 July 2016) at para 7 (“Draft Johannesburg Report”).

<sup>41</sup> For example, the decision of *Philippines v China* PCA 2013–19 with regard to the South China Sea.

issue of rising sea levels. The second chapter focuses on the relevant provisions of UNCLOS<sup>42</sup> and all the pertinent international judicial decisions. In addition to this, reference will be made to the interpretations offered by the Baselines Committee of the relevant UNCLOS provisions within the Sofia and Washington Reports. Notwithstanding the fact that these reports have yet to culminate in a legally binding document, they are the only authoritative text by the United Nations on the current state of the laws in light of rising sea levels. Of particular relevance to this dissertation is the Baseline Committee's interpretation of the resources available on baselines and the legal conclusions that have been reached in this regard. The Baselines Committee's work has not yet been completed. Further, the work is merely at an analysis stage with its findings not yet being implemented. The Baselines Committee has, however, made findings on the nature of baselines, concluding that they are ambulatory under the current regimes.<sup>43</sup> Whilst it is important to take cognisance of the reports, the discussion will not be confined to these sources and will in some instances go beyond their scope.

Once the analysis on the legal regimes has been completed, the third chapter will evaluate the consequences of rising sea levels in light of the current legal regimes. In addition to this, it will explore the various scholarly views on regimes to curb the effects of rising sea levels. The dissertation will, to some extent, explore other projects being successfully implemented to manage the consequences of rising sea levels. However, these projects will only be viewed as interim measures; emphasis will be placed on remedies that are legal in nature and can be viewed as long term fixes in view of the uncertainty in the law. There will also be a critical analysis of all viable legal remedies available along with recommendations on the means to address the legal uncertainty that exists.

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<sup>42</sup> Such as the territorial zone, the contiguous zone, the exclusive economic zone, the normal baseline, the straight baseline and the archipelagic baseline.

<sup>43</sup> Sofia Report (n 31) at 8.

## Chapter 2: International regimes and the shifting of baselines

As outlined in the introduction, sea level rise carries the risk of shifting baselines, resulting in ambulatory maritime zones. It is therefore important to examine the international convention which regulates baselines and maritime zones on the ocean; UNCLOS.

UNCLOS was opened for signature on the 10<sup>th</sup> of December 1982 and came into force on the 16<sup>th</sup> November 1994.<sup>44</sup> UNCLOS was created with the aspiration of reaching an agreement on issues which relate to the law of the sea.<sup>45</sup> The States party to the Convention were aware that it played a vital role in maintaining “peace, justice and progress” for nations worldwide.<sup>46</sup> There are 168 nations worldwide that have ratified UNCLOS, which is a significant number.<sup>47</sup> UNCLOS aims to provide a uniform legal regime to govern the affairs of the ocean and seas.<sup>48</sup> It furthermore aims to ensure that there is peaceful use of the oceans and seas leading to the “equitable and efficient” use of the resources that are within it.<sup>49</sup> UNCLOS is vital to peaceful settlement of any disputes arising out of the ocean and seas worldwide.

In order to understand the concept of baselines under UNCLOS, this chapter will undertake a survey of the specific provisions of UNCLOS that govern the maritime zones and the baselines from which they are measured. Specific reference will then be made to the various reports by the Baselines Committee that analyse these relevant provisions. Reference will also be made to international and municipal decisions on the issue of baselines.

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<sup>44</sup> The Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs of the United Nations ‘Status of the Convention and its implementing Agreements’ available at <http://www.un.org/depts/los/LEGISLATIONANDTREATIES/status.htm> (accessed 4 November 2016).

<sup>45</sup> UNCLOS Preamble.

<sup>46</sup> *Ibid.*

<sup>47</sup> The Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs of the United Nations ‘Chronological List of UNCLOS Ratifications’ [http://www.un.org/depts/los/reference\\_files/chronological\\_lists\\_of\\_ratifications.htm](http://www.un.org/depts/los/reference_files/chronological_lists_of_ratifications.htm) (accessed 4 November 2016).

<sup>48</sup> UNCLOS Preamble.

<sup>49</sup> *Ibid.*

## 2.1 The Maritime Zones: An Analysis

UNCLOS provides us with four major maritime zones: the territorial sea<sup>50</sup>, the contiguous zone<sup>51</sup>, the exclusive economic zone (“EEZ”)<sup>52</sup> and the continental shelf.<sup>53</sup> The most important of these zones for our purposes are the territorial sea, the contiguous zone and the EEZ as they are vital to any study on shifting baselines and will thus be examined in more detail. The reason for the emphasis on these three of the four maritime zones is that the continental shelf is arguably permanently fixed.<sup>54</sup> When claiming a continental shelf, the claiming State has to abide by the following as per Article 76(9) of UNCLOS:

‘The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, *permanently* describing the outer limits of its continental shelf’ (my emphasis)

Thus, the Article indicates that the outer limits of the continental shelf are ‘permanently’ fixed.<sup>55</sup> There are no similar provisions which provide for the permanent description of the territorial sea, the contiguous zone or the EEZ when a State claims such zones. Thus the implication from the language of the provision is that the continental shelf is intended to be permanently fixed, and unsusceptible to any shifts in sea level.<sup>56</sup> Numerous scholars worldwide interpret baselines under UNCLOS to be ambulatory.<sup>57</sup> Caron supports this view by stating that the maritime zones are dependent upon the baselines from which they are measured; therefore where the baselines shift, so too will the maritime zones.<sup>58</sup> Therefore, the discussion on maritime zones will be confined to the remaining four zones as they are, by implication, ambulatory and as such are

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<sup>50</sup> UNCLOS Article 3.

<sup>51</sup> *Ibid* Article 33.

<sup>52</sup> *Ibid* Article 55.

<sup>53</sup> *Ibid* Article 76.

<sup>54</sup> C Di Leva and S Morita ‘Maritime Rights of Coastal States and Climate Change: Should States Adapt to Submerged Boundaries?’ *Law and Development Working Paper Series No 5, Legal Vice President, The World Bank* 17.

<sup>55</sup> *Ibid*.

<sup>56</sup> *Ibid* 18.

<sup>57</sup> Caron (n 10) at 641; Powers (n 12) at 166; J Stoutenburg ‘Implementing a New Regime of Stable Maritime Zones to Ensure the (Economic) Survival of Small Island States Threatened by Sea-Level Rise’ *The International Journal of Marine and Coastal Law* 26 (2011) 263; Schofield (n 6) at 410.

<sup>58</sup> Caron (n 10) 635.

affected to a large extent by rising seas. The territorial sea is the first zone which is measured from the coastal baseline and should therefore be examined first.

### 2.1.1 *The Territorial Sea*

The territorial sea is an extension of the sovereignty of a claiming State.<sup>59</sup> It follows that the law applicable within such maritime territory is the law of the coastal State. A State may claim a maximum area of 12 nautical miles which is to be measured from a baseline as prescribed in the provisions in the Convention.<sup>60</sup> The area of sovereignty also includes the air space that is above the territorial sea, as well as the sea bed and any subsoil within that territory.<sup>61</sup> In the case of archipelagic states, the sovereignty of a State extends beyond its archipelagic waters<sup>62</sup> to the “outermost points of the outermost islands and drying reefs”.<sup>63</sup>

### 2.1.2 *The Contiguous Zone*

The contiguous zone is a zone which extends beyond the territorial sea. It is so named because it is contiguous to the territorial sea. The contiguous zone is an area in which a coastal State may exercise limited powers. The coastal State may implement customs, fiscal, immigration or sanitary laws within that territory.<sup>64</sup> The State may also punish those who infringe such laws within the contiguous zone.<sup>65</sup> The breadth of the zone may extend up to 24 nautical miles, which is measured from the same baseline with which the territorial sea is measured.<sup>66</sup>

### 2.1.3 *The Exclusive Economic Zone*

The exclusive economic zone (‘EEZ’) is an area that extends beyond both the territorial sea and the contiguous zone.<sup>67</sup> The claiming State may exercise sovereign rights to

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<sup>59</sup> UNCLOS Article 2(1).

<sup>60</sup> *Ibid* Article 3.

<sup>61</sup> *Ibid* Article 2(2).

<sup>62</sup> *Ibid* Article 2(1).

<sup>63</sup> *Ibid* Article 47.

<sup>64</sup> *Ibid* Article 33(1)(a).

<sup>65</sup> *Ibid* Article 33(1)(b).

<sup>66</sup> *Ibid* Article 33(2).

<sup>67</sup> *Ibid* Article 55.

explore, exploit, conserve and manage the natural resources within its EEZ waters, which may be above the seabed or within the seabed and the subsoil.<sup>68</sup> Importantly, it does not matter whether the natural resources are living or non-living.<sup>69</sup> In addition, the claiming State may create “artificial islands, installations and structures” within this territory.<sup>70</sup> The claiming State may also engage in marine scientific research and they may undertake to protect and preserve the marine environment within their EEZ territory.<sup>71</sup> UNCLOS also gives the claimant of an EEZ other rights and duties within the Convention.<sup>72</sup> The EEZ provides a claiming state with up to 200 nautical miles of territory from the same baseline with which the territorial sea is measured.<sup>73</sup>

The powers of the claiming State are constrained in that it must have due regard to other states and their rights and act in accordance with the provisions of UNCLOS as well as take cognisance of Part IV of the Convention which deals with the seabed and subsoil.<sup>74</sup>

The aforementioned zones must be measured according to the baseline provisions as articulated in UNCLOS. These baseline provisions are now set out below.

## 2.2 *Methods of determining baselines*

Article 14 of UNCLOS provides that States may ‘in turn’ determine the methods used for fixing their specific baseline. The method chosen would vary according to the conditions of particular coastlines. It has been stated by the ILA, with reference to the *Virginia Commentaries*,<sup>75</sup> that the phrase ‘in-turn’ is significant in that it means “according to the circumstances”, alternatively “to suit different conditions”.<sup>76</sup> This is important as the implication is that states have the discretion to elect which method

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<sup>68</sup> UNCLOS Article 56(1)(a).

<sup>69</sup> *Ibid.*

<sup>70</sup> *Ibid* Article 56(1)(b)(i).

<sup>71</sup> *Ibid* Article 56(1)(b)(ii)-(iii).

<sup>72</sup> *Ibid* Article 56(1)(c).

<sup>73</sup> *Ibid* Article 57.

<sup>74</sup> *Ibid* Article 56(2) and (3).

<sup>75</sup> S Nandan and S Rosenne *United Nations Convention on the Law of the Sea 1982: A Commentary Vol II* (1993) 130 - 131.

<sup>76</sup> Washington Report (n 34) at 6.

they use to measure their baselines.<sup>77</sup> This interpretation is also favoured by the text of the Article itself as it expressly states “to suit different conditions”<sup>78</sup>, thereby taking allowing for the varying nature of coastlines of coastal states worldwide. State practice has also shown that different states have employed various methods of delimitation.<sup>79</sup>

Part II of UNCLOS provides for three main methods to determine the baseline in different circumstances. These methods are: the “normal” baseline,<sup>80</sup> the straight baseline<sup>81</sup> and the archipelagic baseline.<sup>82</sup> These baseline methods are largely the same as those reflected in the 1958 Convention on the Territorial Sea and the Contiguous Zone.<sup>83</sup> Possibly the most commonly used method, where the coast of a claiming state is ordinary in nature, is the *normal baseline* in terms of Article 5.

The normal baseline in terms of Article 5 will be the main topic of discussion and shall be discussed in detail below.

### 2.2.1 *The Normal Baseline*

The normal baseline will be analysed first. Article 5 of UNCLOS defines the normal baseline in the following terms:

‘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.’

Article 5 provides that the baseline from which one is to measure the breadth of the territorial sea and beyond is the “low-water line” which extends adjacent to the coastal State. The article provides that the low-water line must be marked on large-scale charts which are to be officially recognised by the claiming State. The low-water line

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<sup>77</sup> Washington Report (n 34) at 6.

<sup>78</sup> *Ibid.*

<sup>79</sup> *Ibid.*

<sup>80</sup> UNCLOS Article 5.

<sup>81</sup> *Ibid* Article 7.

<sup>82</sup> *Ibid* Article 47.

<sup>83</sup> L Alexander ‘Baseline Delimitation and Maritime Boundaries’ (1983) 23(4) *Virginia Journal of International Law* 504.

chosen by a State would depend on the 'vertical datum' that the state selects.<sup>84</sup> The vertical datum is effective in displaying any hazards that could potentially affect the navigation of mariners along the coast.<sup>85</sup> However, the vertical datum has a dual purpose because it is also the point at which a coastal state measures their baseline.<sup>86</sup> Therefore, the lower the water line used by a State to map their baseline, the further seaward the baseline will lie, thereby giving the nation increased maritime jurisdiction.<sup>87</sup> This is why the most common vertical datum used worldwide is the lowest astronomical tide (LAT).<sup>88</sup> The LAT is the lowest tidal level to be predicted under "normal meteorological conditions" and "any combination of astronomical conditions".<sup>89</sup>

The relevance of the low-water line and the baseline is that where the baseline retreats inland due to sea level rise, so would the low-water line and consequently, the baseline as well. The shift in baselines would then cause the maritime zones measured therefrom to retreat landward decreasing the length of claiming State's maritime territory. A State will attempt to claim as much seaward territory as possible from the maritime zone, given the benefits of extended maritime territory. However, a rise in sea level will negatively affect a State's ability to do so. The question then arises - how should one approach normal baselines and the eventual rise in sea level?

The concept of the normal baseline has received two distinct interpretations by various coastal and island nations worldwide.<sup>90</sup> It has been argued by some that baselines are articulated on charts and therefore the charts should be recognised as the official baseline of a coastal State.<sup>91</sup> This interpretation would result in the baseline remaining unchanged despite changes in the "physical realities" along the coastline.<sup>92</sup> The alternate interpretation is that the baseline comprises the low-water mark and that a

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<sup>84</sup> C Schofield 'Against a rising tide: ambulatory baselines and shifting maritime limits in the face of sea level rise' *Paper presented at the Proceedings of International Symposium on Islands and Oceans, Akasaka, Tokyo, (22-23 January) 73.*

<sup>85</sup> *Ibid.*

<sup>86</sup> *Ibid.*

<sup>87</sup> *Ibid.*

<sup>88</sup> *Ibid.*

<sup>89</sup> *NTC Glossary 2010 Tidal Terminology*

[http://www.bom.gov.au/oceanography/projects/ntc/NTC\\_glossary.pdf](http://www.bom.gov.au/oceanography/projects/ntc/NTC_glossary.pdf) accessed on 1 February 2017.

<sup>90</sup> Sofia Report (n 31) at 3.

<sup>91</sup> *Ibid.*

<sup>92</sup> *Ibid.*

chart is merely a representation of the baselines as they are recognised by a coastal State.<sup>93</sup> The latter interpretation allows adjudicators and judges alike to look beyond the charted baseline to the actual reality of the baseline.<sup>94</sup>

Due to the conflicting interpretations of Article 5, the Baselines Committee took the decision to apply the rules of the Vienna Convention on the Law of Treaties (“Vienna Convention”)<sup>95</sup> to interpret the provision most efficiently.<sup>96</sup> The general rule of treaty interpretation is articulated in Article 31 of the Vienna Convention and involves a process of looking to the previous provisions that once governed the same aspect. In this case, the relevant provision is Article 3 of the 1958 Convention on the Territorial Sea and the Contiguous Zone, Geneva (“1958 Geneva Convention”).<sup>97</sup> The Baselines Committee also considered international case law as well as municipal case law.<sup>98</sup> Treaty interpretation is also guided by the principle espoused in Article 33 of the Vienna Convention; that the text should have the same meaning in each authoritative language, namely Arabic, Chinese, English, French, Russian and Spanish.<sup>99</sup> The Spanish text<sup>100</sup> translates to “as marked/shown by the appropriate symbol on” and the French text<sup>101</sup> provides “as it is indicated on”.<sup>102</sup> Both of these translations possibly point to the baseline depiction on the official chart being the representation of the normal baseline and not the actual baseline.<sup>103</sup> However, the Chinese text as well as the Russian text articulate a situation where, as the English text, the chart appears to be the depiction of the baseline in place of the baseline itself.<sup>104</sup> The Baselines Committee was unable to interpret the Arabic text.<sup>105</sup>

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<sup>93</sup> Sofia Report (n 31) at 3.

<sup>94</sup> *Ibid.*

<sup>95</sup> Vienna Convention on the Law of Treaties, May 23, 1969, 1155 UNTS 331 Article 31 (general rule of interpretation) and 33 (interpretation of treaties authenticated in two or more language).

<sup>96</sup> Sofia Report (n 31) at 7.

<sup>97</sup> *Ibid.*

<sup>98</sup> The Baselines Committee analysed normal baselines in municipal law from territories worldwide, as well as judicial decisions in municipal law worldwide. However, this is out of the scope of the current discussion as this chapter focusses primarily on international regimes and international based decisions by the ICJ.

<sup>99</sup> *Ibid* 8.

<sup>100</sup> “*Tal como aparece marcada mediante el signo apropiado en*”.

<sup>101</sup> “*Telle qu’elle est indiquée sur*”.

<sup>102</sup> Sofia Report (n 31) at 8.

<sup>103</sup> *Ibid.*

<sup>104</sup> *Ibid.*

<sup>105</sup> *Ibid.*

The Baselines Committee then considered Article 7(2) on straight baselines, which provides that:

“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.”

It must be noted that the above provision is an exception to the norm. Furthermore, it makes a clear distinction between the actual low-water line and the low-water line that remains represented on the official charts of a coastal state despite any changes in such low lying water line.<sup>106</sup> Thus, the inference is that the baseline should reflect the actual low lying water line and not merely the depiction on a chart, with Article 7(2) as an exception to this rule.<sup>107</sup> It was suggested by the Baselines Committee that Article 5 could require that the normal baseline be articulated on re-evaluated “large-scale” official charts issued by coastal states regardless of the actual changes that appear physically to the coast.<sup>108</sup>

The “chart” that is mentioned throughout UNCLOS is a nautical chart.<sup>109</sup> These charts are used as navigational aids and they include features such as low-water lines, low-tide elevations as well as all other relevant features which may assist mariners.<sup>110</sup> Large-scale charts are different to ordinary charts because they are more accurate than ordinary charts.<sup>111</sup> The Baselines Committee provides the following on the role of these large-scale charts:

“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.”

The Baselines Committee has also considered other provisions within the Convention

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<sup>106</sup> Sofia Report (n 31) at 8.

<sup>107</sup> *Ibid.*

<sup>108</sup> *Ibid.*

<sup>109</sup> United Nations Office for Ocean Affairs and the Law of the Sea ‘The Law of the Sea Baselines: An examination of the Relevant Provisions of the United Nations Convention on the Law of the Sea’ New York, (1989) at 1.

<sup>110</sup> *Ibid.*

<sup>111</sup> *Ibid.*

that would help interpret Article 5.<sup>112</sup> Article 16(1) and 47(8) provide for the depiction of the baseline on large-scale charts, in order to provide a chart on which it can be determined where the baselines of a particular State begin and end.<sup>113</sup> However, there is no provision which regulates the depiction of the baseline charts with reference to Article 5 normal baselines. Regardless of this lack of guideline for Article 5, the implication is that the chart is merely a means to represent a baseline.<sup>114</sup>

The Vienna Convention provides a means in Article 31 to interpret international treaties. However, where the application of the general rule of interpretation stated in Article 31 of the Vienna Convention might lead to a situation where the meaning is 'ambiguous or obscure; or which is manifestly absurd or unreasonable'<sup>115</sup> then the *travaux préparatoires* can be applied.<sup>116</sup> The *travaux préparatoires* is the preparatory work of a treaty and includes all the drafts of the treaty, the records from the conferences and all the documents which culminated in the final treaty itself.<sup>117</sup> The *travaux préparatoires* may also be considered to confirm the meaning ascertained by an application of Article 31.<sup>118</sup>

The Baselines Committee elected to use the *travaux préparatoires* because of two distinct disparities: The first of which is that the baseline is plotted on an official chart and the low water line is subject to shift due to rise in sea levels. The result is that the zones which are created from the baselines plotted according to the original low water line would no longer correspond to the land territory.<sup>119</sup> The important fundamental principle in this regard is that in international law maritime rights are rights that exist because of the land territory.<sup>120</sup> This principle was articulated by the International Court of Justice in the *United Kingdom v Norway (Norwegian Fisheries case)*,<sup>121</sup> where it was stated that the territorial sea is dependent on the land domain.<sup>122</sup> Thus, it follows that where the chart no longer illustrated the realities of the baseline, the maritime

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<sup>112</sup> 'The Law of the Sea Baselines' (n 66) at 9.

<sup>113</sup> *Ibid* 9.

<sup>114</sup> *Ibid*.

<sup>115</sup> Vienna Convention (n 52) at Article 32.

<sup>116</sup> Sofia Report (n 31) at 9.

<sup>117</sup> 'International Law Research: Travaux Préparatoires' available at <http://libguides.vermontlaw.edu/c.php?g=309188&p=2063150> accessed on 30 May 2017.

<sup>118</sup> *Ibid*.

<sup>119</sup> *Ibid* Fn. 50.

<sup>120</sup> *United Kingdom v Norway* ICJ December 18, 1951.

<sup>121</sup> *Ibid*.

<sup>122</sup> *Ibid*.

territory which is claimed from the baseline would not correlate with the land domain from which they were originally derived.<sup>123</sup> The second absurdity is that coastal nations cannot be expected to revise their “low-water line” each time there is a change in the nature of the coast; it would put too great a burden on coastal nations, particularly on developing nations.<sup>124</sup> Based on these disparities, the Baselines Committee concluded that the *travaux préparatoires* provides the understanding that the original role of the chartered normal baseline was “not illustrative nor was it intended to be the normal baseline itself”.<sup>125</sup> Rather, the baseline as reflected on the nautical chart gave a meaning to the term ‘low-water line’ as it is currently as per Article 5.<sup>126</sup> This is also evident in the examination of the United Nations Law of the Sea by the Office for Ocean Affairs and the Law of the Sea (“UN Ocean Affairs Study”).<sup>127</sup> The examination of Article 5 in particular shows that the “low-water line” remains regardless of what is depicted on the charts.<sup>128</sup> The “low-water line” will still exist even where it is not yet depicted on a chart, and therefore the chart cannot be said to take over the role of the actual “low-water line”.<sup>129</sup>

Notably, the current normal baseline provision does not deviate by any appreciable extent from the previous Articles of its kind.<sup>130</sup> In fact, Article 3 in the 1958 Geneva Convention<sup>131</sup> was the basis upon which Article 5 of UNCLOS was drafted.<sup>132</sup> But these articles were not novel; the topic of baselines was discussed in 1930 in the Hague Codification Conference.<sup>133</sup> At the 1930 Conference there was no convention adopted but there was a draft Article produced on baselines.<sup>134</sup> This draft Article stated as follows:

‘For purposes of this Convention, the line of low-water mark is that indicated on the

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<sup>123</sup> Sofia Report (n 31) at Fn. 50.

<sup>124</sup> *Ibid.*

<sup>125</sup> *Ibid* 9.

<sup>126</sup> *Ibid.*

<sup>127</sup> United Nations Office for Ocean Affairs and the Law of the Sea ‘Baselines: An examination of the Relevant Provisions of the United Nations Convention on the Law of the Sea’ (1989).

<sup>128</sup> *Ibid* 3.

<sup>129</sup> *Ibid.*

<sup>130</sup> Sofia Report (n 31) at 9.

<sup>131</sup> Article 3 of the 1958 Geneva Convention 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.’

<sup>132</sup> Sofia Report (n 31) at 9.

<sup>133</sup> *Ibid.*

<sup>134</sup> *Ibid* 11.

charts officially used by the Coastal State, provided the latter line does not appreciably depart from the line of mean low-water spring tides.’

The ILA put much emphasis on the abovementioned article and other proposals from the Conference.<sup>135</sup> This is important because there was a German Proposal in 1929 and 1930 which provided for the baseline to be “the sea level adopted on the charts”.<sup>136</sup> The wording which was eventually adopted was “the line of low-water is that indicated on the charts” and thus it is important to understand how the discussions led to this result.<sup>137</sup> The most contentious issue which was dealt with in the 1930 Conference was determining the various methods employed to measure the starting point of baselines and in addition, methods of defining the low-water line of a coastal state.<sup>138</sup> The solution was to look to charts of coastal States as an aid and determine how they have measured such baselines.<sup>139</sup> This enabled States to plot their low-water line whilst giving them the guidance of the low water spring tide as a way to regulate such baselines.<sup>140</sup>

When the issue of baselines was first analysed by the ILA in 1952 leading up to the eventual drafting of the 1958 Convention on the Territorial Sea and Contiguous Zone, the wording first considered was that of a Special Rapporteur François (the Netherlands), which stated as follows:

‘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.’<sup>141</sup>

The International Law Commission did not promulgate this provision due to the fact that a commission Member, Amado (Brazil), asserted that if the line on a chart departed to any appreciable extent from the low-water line it would be inaccurate and therefore open to have its legal validity challenged in an tribunal.<sup>142</sup> However,

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<sup>135</sup> Sofia Report (n 31).

<sup>136</sup> *Ibid* 11.

<sup>137</sup> *Ibid.*

<sup>138</sup> *Ibid.*

<sup>139</sup> *Ibid.*

<sup>140</sup> *Ibid.*

<sup>141</sup> *Ibid.*

<sup>142</sup> *Ibid*

Columbia did not agree with these assertions, instead stating that any disputes arising due to inaccuracy of the charts could be determined by an international tribunal.<sup>143</sup> The Commission Members could not agree on any particular method to measure and determine low-line water lines (which the Baselines Committee terms “vertical datum”) and thus the provision was worded in the following manner:

‘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.’<sup>144</sup>

The above text was adopted without any changes in Article 5 of the 1982 Convention.<sup>145</sup> The background of the promulgation of the text should be taken into account when determining how Article 5 of UNCLOS should be interpreted. However, the text of the Convention itself, the text of those provisions preceding it, as well as the circumstances surrounding its promulgation are not the only sources which can be examined. The international judicial decisions in this regard will be considered at a later stage as we must first look to the straight baseline provisions.

### 2.2.2 *Straight baselines*

As discussed above, straight baselines are somewhat different to normal baselines and they are an exception to the normal baseline rule. The baseline is different due to the fact that it remains in place despite any regression of water on the coastline.<sup>146</sup> The straight baseline is most frequently employed where the coastline is “deeply indented and cut into” or where a “fringe of islands” are present along the coastline.<sup>147</sup> The straight baseline method provides for the baseline to be drawn by joining points across the unstable coast where the coastline is substantially indented. A straight baseline may also be drawn where there is a delta or other natural phenomenon that makes the baseline ‘highly unstable’.<sup>148</sup> These instances are not cumulative, and thus

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<sup>143</sup> Sofia Report (n 31) at 12.

<sup>144</sup> *Ibid.*

<sup>145</sup> *Ibid.*

<sup>146</sup> UNCLOS Article 7(2).

<sup>147</sup> *Ibid* Article 7(1).

<sup>148</sup> *Ibid* Article 7(2).

any of the circumstances listed are sufficient to entitle a State to claim a straight baseline.<sup>149</sup> In such an instance, the baseline should be drawn not from the low-line baseline, but rather from the appropriate point, such as a delta.<sup>150</sup> The significant consideration with straight baselines is that they may not deviate by any appreciable extent from the coast's natural trend.<sup>151</sup>

There is no universally accepted criteria for determining when a straight baseline deviates too significantly from the coast.<sup>152</sup> It has been stated by Hodgson and Alexander, whilst examining the Norwegian baseline in their paper, that a straight baseline should not deviate more than 15 degrees from the coast unless there is a historic title which justifies such deviation and this has been approved by the ICJ.<sup>153</sup> Hodgson and Alexander have suggested three criteria to test the "reasonableness" of the straight baseline: the ratio of the water area and land area should not be in excess of 3.5:1; the water that is encircled into the baseline should not be considered "unreasonable"; and lastly, the straight baseline points that are indicated must be within sight of the land.<sup>154</sup> In terms of the idea of 'deeply indented', the UN Ocean Affairs Study has noted that Article 7(1) can be understood in 'either an absolute or a relative sense'.<sup>155</sup> In the absolute sense an indentation that is narrow on a large land territory is that which measures four nautical miles, such an indent would not likely warrant a description of a deep indent.<sup>156</sup> With regard to the fringing islands, there is no uniform approach that can be used for every island to determine whether there is a fringe.<sup>157</sup> Precedent in the form of the *Norwegian Fisheries* case has stated that islands would form a fringe where they are 'sufficiently closely linked to the land domain'.<sup>158</sup> There are other considerations that are important, such as economic interests.<sup>159</sup>

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<sup>149</sup> Washington Report (n 34) at para 25.

<sup>150</sup> *Ibid.*

<sup>151</sup> UNCLOS Article 7(3).

<sup>152</sup> Alexander (n 84) at 515.

<sup>153</sup> *Ibid.*

<sup>154</sup> *Ibid* Fn. 81.

<sup>155</sup> UN Ocean Affairs Study (n 127) at 21.

<sup>156</sup> *Ibid.*

<sup>157</sup> *Ibid.*

<sup>158</sup> Norwegian Fisheries case (n 120) 133.

<sup>159</sup> *Ibid.*

A straight baseline cannot be drawn from a low tide elevation unless there is a lighthouse or other installation which is built on the low-tide elevation and is permanent in nature.<sup>160</sup> Straight baselines are also used where there is a river mouth which flows into the sea.<sup>161</sup> There may also be instances where there is a “low-tide” elevation which has naturally formed on a coast that is out of the water at low tide but may be submerged at high tide.<sup>162</sup> In such an instance, the baseline (“low-water line”) can be measured from such elevation.<sup>163</sup> However, where the low-tide elevation is further than the breadth of the territorial sea from the mainland or the island itself, it will not be able to claim its own territorial sea.<sup>164</sup>

The straight baseline provisions in Article 7 were greatly influenced by Article 4 of the Convention on the Territorial Sea and the Contiguous Zone and also the *Norwegian Fisheries* case which will be examined later on within this chapter.<sup>165</sup> The most significant addition in Article 7 of UNCLOS is that it takes into account “delta and other natural conditions” and coastlines which are “highly unstable”.<sup>166</sup> The Baselines Committee explains that “Bangladesh was a strong supporter of such a change, and made a number of proposals at various stages of the conference negotiations.”<sup>167</sup> It is therefore important to take into account that the Ganges/Brahmaputra delta was the situation that the drafters of Article 7 had in mind.<sup>168</sup>

The Ganges-Brahmaputra delta is extremely vast and is extremely volatile due to monsoons and storms, causing sea levels to change dramatically.<sup>169</sup> It has been suggested by some authors, such as Schofield, that the straight baseline provisions can be used as something of a remedy to coastlines that are susceptible to change due to rising sea levels under the “highly unstable coast” provision.<sup>170</sup> This issue will

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<sup>160</sup> UNCLOS Article 7(4), further low tide elevations may only be part of a straight baseline provided that it is ‘permanently above the sea level’ or where there has been international recognition of such straight baseline.

<sup>161</sup> *Ibid* Article 8.

<sup>162</sup> UNCLOS Article 13 (1).

<sup>163</sup> *Ibid* Article 13(2).

<sup>164</sup> *Ibid*.

<sup>165</sup> Washington Report (n 34) at para 20.

<sup>166</sup> UNCLOS Article 7(2).

<sup>167</sup> Washington Report (n 34) at para 20.

<sup>168</sup> Schofield (n 6) at 411.

<sup>169</sup> ‘Ganges River Delta’ available at [https://climate.nasa.gov/climate\\_resources/111/](https://climate.nasa.gov/climate_resources/111/) accessed on 4 June 2017.

<sup>170</sup> Schofield (n 6) at 411.

be discussed in more detail under remedies in chapter four. However, what is important to note is that the UN Ocean Affairs Study has stated that straight baselines should be used only where there are “complexities” associated with using normal baselines to delineate a coastline. Such “complexities” arise where the coast is deeply indented and fringing islands are present.<sup>171</sup> The straight baseline should not be used to increase a claim to territory inordinately as this is not its purpose.<sup>172</sup>

### 2.2.3 Archipelagic Baselines

Before the Archipelagic baseline is analysed, it is important to clarify just what an archipelagic state is. The ‘archipelagic state’ is defined in Article 46(a) of UNCLOS as “a State constituted wholly by one or more archipelagos and may include other islands”. An “archipelago” is defined in Article 46(b) as:

‘a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such’.

There was no provision for archipelagic baselines in the 1958 Geneva Convention.<sup>173</sup> Archipelagic baselines have been provided for in Article 47 of UNCLOS. In terms of Article 47, a State may claim an archipelagic baseline where the area of water in relation to the land area, with the inclusion of atolls, is between 1:1 or 9:1.<sup>174</sup> The archipelagic baseline joins the “outermost islands and drying reefs” of an archipelago State and may do so in the event that the main islands are included in the baseline.<sup>175</sup> The length of the archipelagic baseline may not extend more than 100 nautical miles.<sup>176</sup> The only exception to the latter rule is that 3 percent of all the baselines that enclose the archipelago may exceed the 100 nautical mile mark but may not be in

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<sup>171</sup> UN Ocean Affairs Study (n 127) at 21.

<sup>172</sup> UN Ocean Affairs Study (n 127) at 21.

<sup>173</sup> Alexander (n 84) at 519.

<sup>174</sup> UNCLOS Article 47(1).

<sup>175</sup> *Ibid.*

<sup>176</sup> *Ibid* Article 47(2).

excess of 125 nautical miles.<sup>177</sup>

There are very few archipelagic baselines that have been claimed by archipelagic States<sup>178</sup> and thus, these baselines will not be analysed in any further detail. What must be analysed in more detail, however, are the international judicial decisions on the issues of normal and straight baselines.

### 2.3 *International judicial decisions*

The International Court of Justice (“ICJ”) has on numerous occasions been required to interpret UNCLOS. Although none of the following decisions have directly dealt with the issue of rising sea levels, they have created important principles which are fundamental to the understanding of baselines and need to be discussed when analysing the baseline provisions. These decisions were analysed by the Baselines Committee in their Sofia Report and the most relevant of the decisions will be analysed in turn.

The most fundamental issue that the ICJ has been asked to determine is whether the nautical chart is the actual baseline or whether the “low-water line” is the baseline. Cases that have dealt with these and similar issues include *Guyana v Suriname*,<sup>179</sup> *Nicaragua v Honduras*<sup>180</sup> and *Qatar v Bahrain*.<sup>181</sup> In addition to this, the primary precedent on the issue of baselines is the *Norwegian Fisheries* case. It sets out some of the most essential guidelines on baselines in general and thus it is paramount to first understand the *Norwegian Fisheries* case.

#### 2.3.1 *United Kingdom v Norway*

The *Norwegian Fisheries* case was one of the first baseline-related cases. Although the judgment does consider straight baselines, it is important to understand the basics

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<sup>177</sup> UNCLOS Article 47(2).

<sup>178</sup> Alexander (n 84) at 521.

<sup>179</sup> ICGJ 370 PCA 2007

<sup>180</sup> ICGJ 23 ICJ 2007

<sup>181</sup> ICGJ 370 PCA 2007

principles that were stated by the court. The *Norwegian Fisheries* case concerned a conflict between the United Kingdom and Norway with regard to British fishing vessels which were being continuously seized off of the coasts of Eastern Finmark from 1911 until the late 1940s.<sup>182</sup> The seizure of vessels became more prevalent in 1948 as no agreements between the two countries had been reached on leniency when fishing within certain distances from the fishing territory of Norway.<sup>183</sup> The United Kingdom took the matter to the ICJ and asserted that the baselines delineated by Norway were irregular.<sup>184</sup>

The Court had to determine if Norway had violated international law when delimiting their baselines in accordance with a Norwegian Royal Decree.<sup>185</sup> This brought many issues regarding delimitation of baselines to the fore.<sup>186</sup> At the time, there was no Convention governing the law on baselines; rather the issue was governed by general principles of international law. Despite the fact that there were no “rules” to assist the Court, it used certain principles to determine the validity of Norway’s baselines under international law.<sup>187</sup> The first of which, as stated by the Court, is that delimitation is not merely left to the State to decide on, but rather it is an international issue that cannot only be governed by municipal law.<sup>188</sup> Whilst the act of delineating a baseline can only be done by a coastal or island State unilaterally, fixing a baselines does not always mean that it is valid in terms of international law.<sup>189</sup> This statement by the ICJ is supported by the fact that maritime baselines and territories have far-reaching consequences which are not reduced merely to the claiming State.

The Court then highlights that the territorial sea is dependent on the land domain.<sup>190</sup> Thus as aforementioned, the territorial sea is a right conferred upon a State as a result of its land domain.<sup>191</sup> The court does accept that a State may adjust its maritime

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<sup>182</sup> *Norwegian Fisheries* case (n 120) at 124.

<sup>183</sup> *Ibid* 125.

<sup>184</sup> *Ibid* 125.

<sup>185</sup> *Ibid* 124.

<sup>186</sup> *Ibid* 132.

<sup>187</sup> *Ibid* 133.

<sup>188</sup> “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.” *Norwegian Fisheries* case at 132.

<sup>189</sup> *Ibid*.

<sup>190</sup> *Ibid*.

<sup>191</sup> *Ibid*.

territory to meet its own needs, but that it must not “depart to any appreciable extent” from the approximate area of the coastline.<sup>192</sup> In instances where there are land formations in close proximity to the coast of a State, such as Norway, the Court has to establish whether the sea which surrounds these formations are close enough to be understood as internal waters.<sup>193</sup> This idea should be used in a liberal manner in respect of coasts which are abnormal in nature.<sup>194</sup> The last factor to be taken into account is the interests which relate to the economy of the particular state being examined.<sup>195</sup> In certain instances, these economic concerns would be long-term issues.<sup>196</sup>

### 2.3.2 *Guyana v Suriname*

In *Guayana v Suriname* the Guyana made submissions to the ICJ that the maritime boundary Suriname had depicted on their new charts was inaccurate and did not reflect the actual low-water line of the State.<sup>197</sup> Both Guyana and Suriname put evidence before the Court on what points they believed were correct for the purposes of the delimitation of the baseline.<sup>198</sup> The ILA contends that this case is important due to the fact that the parties involved assumed the charts depicted by Suriname were susceptible to challenge in an international tribunal and that such tribunal may determine the baseline that is binding on the parties.<sup>199</sup> Where a party alleges inaccuracy of a chart, the burden of proof rests on the party who challenges the chart to prove its inaccuracy.<sup>200</sup> The chart will be presumed to be an accurate depiction of the relevant baseline until proven otherwise.<sup>201</sup>

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<sup>192</sup> *Norwegian Fisheries case* (n 120) at 132.

<sup>193</sup> *Ibid.*

<sup>194</sup> *Ibid*133.

<sup>195</sup> *Ibid.*

<sup>196</sup> *Ibid.*

<sup>197</sup> *Guyana v Suriname* at para 115

<sup>198</sup> *Ibid* para 397.

<sup>199</sup> Sofia Report 2012 (n 31) 13-14.

<sup>200</sup> *Ibid.*

<sup>201</sup> *Ibid.*

### 2.3.3 *Nicaragua v Honduras*

Another ICJ judgment that is relevant to the discussion of normal baselines is the case of *Nicaragua v Honduras*.<sup>202</sup> The Court stated that the coordinates of the straight baseline submitted by Honduras could not be accepted as valid points because they no longer depicted the configuration of the coast line.<sup>203</sup> Further, one of the points mapped on the chart was no longer a point in the mouth of the River Coco and therefore could not be used as a point in the baseline.<sup>204</sup>

The implication of this judgment is that where a base point submerges due to the rising of sea levels, one can no longer measure a baseline from that point. This has the potential to affect the baseline from which maritime zones are measured. That has the potential to affect the claimed territory of a State.

### 2.3.4 *Qatar v Bahrain*

In *Qatar v Bahrain*<sup>205</sup> the ICJ had to determine whether Qit'at Jaradah (an island) could legally be considered an island possessed by Qatar in terms of UNCLOS, despite the island never having been depicted on any nautical charts. The Court found that the island was a valid island on the basis that it was permanently above water.<sup>206</sup> Thus, despite the charts submitted not depicting the island historically, other evidence showed that it was now permanently above water and as such it had to be considered an island in order to reflect the actual position.<sup>207</sup> The Court had to deliberate on the method of straight baseline delimitation which was undertaken by Bahrain due to the fact that they claimed the existence of an 'external fringe'.<sup>208</sup> The

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<sup>202</sup> *Nicaragua v Honduras* ICJ 659 (Oct. 8).

<sup>203</sup> *Ibid* 743.

<sup>204</sup> "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, Article 5.) Nicaragua has not yet deposited the geographical co-ordinates of its base points and baselines." *Nicaragua v Honduras* at para 278

<sup>205</sup> *Qatar v Bahrain* (n. 181).

<sup>206</sup> *Ibid* 98-99.

<sup>207</sup> Sofia Report (n 31) at 15.

<sup>208</sup> *Qatar v Bahrain* (n. 181) at 103.

Court concluded that the straight baseline method has to be applied restrictively.<sup>209</sup> In Bahrain's case the multitude of islands could not qualify as a fringe of islands for the purposes of Article 7(1).<sup>210</sup>

### 2.2.5 ICJ Judgment Remarks

The *Nicaragua v Honduras* ICJ decision highlights the idea that where the baseline shifts and the charts no longer reflect the reality of the baseline, the baseline as depicted on the chart can no longer be accepted as valid. All points that are used to measure a baseline must still be in existence for a baseline to be valid. Courts may deviate from nautical charts in determining a baseline where the circumstances call for such deviation. In addition, despite the fact that straight baselines remain in place even where there is regression of the water, the provision is reserved for restrictive use and cannot be employed in instances other than the purpose intended by the law. The rising of baselines would not in an ordinary instance be enough to constitute a straight baseline delimitation.

The Baselines Committee has stated the following:

“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.”<sup>211</sup>

The Baselines Committee noted that this view is not shared by all scholars worldwide, however concluded that one may prove that a baseline has shifted by extrinsic evidence where the chart no longer depicts a baseline accurately.<sup>212</sup> The chart is a means for other parties to be able to view where the baseline of a territory begins in

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<sup>209</sup> “The Court observes that 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. Such conditions are primarily that either the coastline is deeply indented and cut into, or that there is a fringe of islands along the coast in its immediate vicinity.” *Qatar v Bahrain* (n 181) at para 212.

<sup>210</sup> *Qatar v Bahrain* (n 181) at 212.

<sup>211</sup> Sofia Report (n 31) at 25

<sup>212</sup> *Ibid.*

order to be cautious of how to navigate the coast. The nautical chartered low-water line does not mean that the low-water line loses character as such when depicted on a chart.<sup>213</sup> Where physical changes occur to the baseline itself, it is possible that such baseline may be challenged in an International Tribunal as has been done in the case of *Guayana v Suriname*.<sup>214</sup> It is important to note that the baseline is often accurate and the presumption of accuracy will remain until such time as the validity of the baseline is challenged by another State by way of “extrinsic evidence”.<sup>215</sup>

As a result of the ability of states to challenge baselines, sea level rise has the potential to create maritime disputes between States worldwide. The potential would be more likely in areas where States have a lot to gain from a baseline shift of another nation. This is not the only consequence of rising sea levels and it is important to examine all the prospective threats posed to coastal and island nations.

#### *2.4 Municipal Judicial Decisions*

The Baselines Committee examined a few municipal decisions on the issue of baselines.<sup>216</sup> Their findings outlined that most coastal States do not make reference to the term “chart” when setting out what a normal baseline encompasses within their legislation.<sup>217</sup> However, this has no bearing on whether charts may be used to “prove the location” of a baseline where it is changed or has been challenged.<sup>218</sup>

A brief synopsis of a few municipal decisions from Australia, the United Kingdom and the United States will be provided below. It is necessary to refer to foreign cases because South African courts have yet to adjudicate on this issue. The jurisprudence from the chosen jurisdictions is relevant because they are viewed worldwide as being prominent maritime nations.

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<sup>213</sup> Sofia Report (n 31) at 25

<sup>214</sup> *Ibid.*

<sup>215</sup> “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.” Sofia Report (n 31) at 25.

<sup>216</sup> *Ibid* 17.

<sup>217</sup> *Ibid.*

<sup>218</sup> *Ibid.*

#### 2.4.1 Australia

In the case of *Li Chia Hsing v Rankin*<sup>219</sup> the High Court of Australia stated that the low-water line does not depend on a chart for its existence.<sup>220</sup> Further, the Court stated that it is their duty from time to time to determine the location of a low-water line where this is required.<sup>221</sup>

#### 2.4.2 United Kingdom

In the case of *Post Office v Estuary Radio Ltd*<sup>222</sup> an Appellate court upheld a decision by the trial court which stated that the large-scale chart is the “best evidence” to prove the low-water line along the coast.<sup>223</sup> However, the Court went on to say that the chart would remain accurate “until [it was] shown inaccurate”.<sup>224</sup>

#### 2.4.3 United States

In the cases of *United States v Louisiana*<sup>225</sup>, *United States v California*<sup>226</sup> and *United States v Alaska*<sup>227</sup> the Supreme Court has postulated that charts can be submitted as evidence of a low-water line, but are not the final determinative of the low-water line.<sup>228</sup> In the *United States v Louisiana*, the court accepted evidence by both parties to the dispute on the current location of the low-water line along the Mississippi River.<sup>229</sup> In the case of *United States v California* the Supreme Court accepted an opinion from the Court’s Special Master that charts were not to be regarded as indisputable.<sup>230</sup> In

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<sup>219</sup> *Li Chia Hsing v Rankin* (1978) 141 CLR 182 available at <http://www.austlii.edu.au/au/cases/cth/HCA/1978/56.html> at para 26.

<sup>220</sup> *Ibid.*

<sup>221</sup> *Ibid.*

<sup>222</sup> [1967] 3 All English Reports 663.

<sup>223</sup> *Ibid* 675.

<sup>224</sup> *Ibid.*

<sup>225</sup> 420 US 529 (1975).

<sup>226</sup> 381 US 139, 165 (1965).

<sup>227</sup> 511 US 1, 22-31 (1997).

<sup>228</sup> Sofia Report (2012) at 20.

<sup>229</sup> *United States v Louisiana*, 394 US 11, 40-41 (1969), and 420 US 529 (1975).

<sup>230</sup> *United States v California*, 447 US 1, 6-7 (1980).

the case of *United States v Alaska*, nautical charts were not accepted as the only evidence in determination of the existence of islands.<sup>231</sup>

#### 2.3.4. *Municipal decision remarks*

The municipal decisions on baselines do not provide certainty on the issue. However, they provide us with an idea of how courts around the world interpret baselines. Cognisance must be taken of the municipal judgments in conjunction with the international judgments and the international law. The views of Australia and the United States are that the chart is a means to prove a baseline with evidence but that the chart is not baseline.<sup>232</sup> The views of the United Kingdom are that the chart provides an accurate depiction of the baseline until proven otherwise.

All of these decisions provide us with the view that the low-water line, whether measured by way of LAT or not, is not the line as charted on a nautical chart. Rather, it is the low-water line as it lies on a coastal baseline and may be subject to change on a nautical chart when appropriate.

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<sup>231</sup> *United States v Alaska*, No. 84 Original, October Term, 1995, Report of Special Master J. Keith Mann of March 1996, at 227-310.

<sup>232</sup> Sofia Report (n 31) at 22.

## Chapter 3: Consequences of sea level rise

### 3.1 The threats posed as a result of the sea level rise

As discussed in the preceding chapters, the sea level rise combined with the ambulatory nature of baselines has the potential to shift baseline points along coastal and island States so that they no longer reflect the baselines that were once delineated by those States. This issue must be explored in more detail in order to adequately understand the implications of such a shift. Schofield suggests that the shift in baselines and the submerging of island nations has the potential to create a multitude of consequences.<sup>233</sup> These issues include economic concerns, loss of maritime territory, loss of Statehood in the case of islands, and litigation where boundaries are uncertain. These issues will be discussed in detail below.

#### 3.1.1 Economic consequences

Some of the maritime zones which island and coastal States stand to lose are of considerable value to their respective jurisdictions because of the resources that reside within them.<sup>234</sup> The Maldives is an example that illustrates the importance of the EEZ territory to a nation.<sup>235</sup> The Maldives has an EEZ that stretches 859 000 square kilometres.<sup>236</sup> As a result, fishing is a major role player in the Maldives economy contributing 6% of the nationwide GDP.<sup>237</sup> In addition, 11% of nationwide employment stems from the fishing industry and a massive 98% of all the country's exports comprise of fish.<sup>238</sup> Thus, the Maldives stands to lose significant income if both of these industries are affected by climate change. This could occur even with a slight decrease in EEZ territory.

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<sup>233</sup> C Schofield 'Rising Waters, Shrinking States: The Potential Impacts of Sea Level Rise on Claims to Maritime Jurisdiction' 53 *German Y.B. Int'l L.* 2010 203

<sup>234</sup> *Ibid.*

<sup>235</sup> Powers (n 520) at 159.

<sup>236</sup> Food & Agricultural Organization of the United Nations, National Fishery Sector Overview: Maldives (2009) at 5 ("FAO Maldives"), available at [ftp://ftp.fao.org/FI/DOCUMENT/fcp/en/FI\\_CP\\_MV.pdf](ftp://ftp.fao.org/FI/DOCUMENT/fcp/en/FI_CP_MV.pdf) (accessed 21 December 2016) (Notably these figures have not changed on the fao.org country profile of the Maldives since 2009).

<sup>237</sup> *Ibid.*

<sup>238</sup> FAO Maldives (n 236) at 5.

However, these consequences are beyond the scope of this dissertation which focuses on the legal consequences of sea level rise.

### 3.1.2 *Loss of Maritime Territory*

As outlined previously, a legal consequence is that a shift in baselines can inevitably result in a dramatic shift in the endpoint of a maritime zone. This problem is also exacerbated in instances where there is a low tide elevation. Where the baseline is measured from a low-tide elevation within the territorial sea, such an elevation may eventually be submerged at low tide by rising seas. This would result in the low tide elevation no longer being a valid point from which the baseline can be measured. This is because the low tide elevation as a requirement of law must be submerged at high tide but above water at low tide.<sup>239</sup> If this were to occur, it would have a dramatic effect on the actual position of the baseline and in turn, the maritime territory claimed. The result would be that a portion of the ocean that once comprised a nation's maritime territory would no longer be under the sovereign jurisdiction of that State. The added risk here is that neighbouring nations can attempt to claim important maritime territories where they no longer fall into the neighbouring territory's maritime zones.<sup>240</sup> There is a strong likelihood of political tension in such an instance.<sup>241</sup>

### 3.1.3 *Loss of Statehood for Island Nations*

There is another legal aspect to be explored that is peculiar to island nations. Some island nations face the very real fate of being submerged by the rising sea levels in the near future.<sup>242</sup> In some instances, even a small shift in sea level has the potential to render some island nations uninhabitable.<sup>243</sup> The sea level rise is not the only threat in this regard; changes in the salinity of the water threaten the ability of an island to maintain human population which leads to the displacement of whole communities<sup>244</sup>.

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<sup>239</sup> UNCLOS Article 13.

<sup>240</sup> Schofield (n 165) at 205.

<sup>241</sup> For example: *Nicaragua v Honduras*.

<sup>242</sup> Schofield (n 165) at 201.

<sup>243</sup> *Ibid.*

<sup>244</sup> Schofield (n 165) at 201.

The severe consequences of this stem from the Montevideo Convention<sup>245</sup>, which outlines the requirements for Statehood. In order for a nation to have the rights and duties of a State it must, *inter alia*, be able to sustain a 'permanent population' and have a territory which is defined.<sup>246</sup> Thus there is a real possibility that an island State may cease to be a State.<sup>247</sup> Thus, when an island nation loses its ability to sustain human life it loses its character as a State and as such has to be reclassified as a rock.<sup>248</sup> Rocks are not able to claim any maritime zones.<sup>249</sup> Therefore, the maritime zones that were once part of a State, become part of the high seas when an island nation reverts to a rock in accordance with Article 121(3) of UNCLOS.<sup>250</sup>

#### 3.1.4 *Litigation*

In addition to the above, due to the fact that there are valuable resources within maritime territory, there is an increased possibility of litigation. This results in inevitable costs for parties where they litigate due to uncertainty on surrounding boundaries within particular maritime zones further, litigation is lengthy. This occurred in the United States when the US Supreme Court declared inland water baselines<sup>251</sup> to be ambulatory and not fixed.<sup>252</sup> Due to the valuable oil reserves within the marginal seabeds, there has been considerable litigation over the issue, the most notable of which occurred in Louisiana because of the volatility of the Mississippi river shoreline.<sup>253</sup> The litigation was put to an end when the federal government and Louisiana decided to fix the seabed boundaries via a special boundary agreement.<sup>254</sup>

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<sup>245</sup> The Montevideo Convention on the Rights and Duties of States December 26, 1933.

<sup>246</sup> *Ibid* Article 1.

<sup>247</sup> Schofield (n 165) at 202.

<sup>248</sup> UNCLOS Article 121(3): 'Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.'

<sup>249</sup> Schofield (n 165) at 202.

<sup>250</sup> *Ibid* 205.

<sup>251</sup> The inland waters baselines, as described in *United States v California* 332 U.S. 19 at 27, are the point where the "inland waters end and the marginal sea begins...".

<sup>252</sup> The baselines were held to be ambulatory in the case of *United States v California* 332 U.S. 19 (1947).

<sup>253</sup> *United States v Louisiana* 349 U.S. 11 (1969).

<sup>254</sup> *United States v Louisiana* 452 U.S. 726 (1981).

As outlined above, because of the issues of economic loss, loss of maritime territory, loss of Statehood for island nations as well as the costly litigation that may occur, it is important to provide potential remedies to the issue of baselines.

### *3.2 Potential remedies to the shifting of baselines*

The uncertainty on the issue of baselines has been the subject of much academic debate. One of the first scholars to write on the topic was David Caron.<sup>255</sup> Caron argues that the international community has only two solutions to the rise in sea levels; namely the fixing of baselines or the maintenance of baselines as ambulatory.<sup>256</sup> Hayashi argues that the current regime of ambulatory baselines encourages states to spend money on preserving their shoreline which is wasteful.<sup>257</sup> Therefore, there is a need to examine potential remedies to the current baseline regime in light of rising sea levels.

The remedies that will be discussed focus on prevention which usually occurs through physical intervention, and legal fixes. It is important to assess all of these potential remedies and their respective success in various nations in light of the rising sea levels.

#### *3.2.1 Physical Interventions*

Schofield discusses measures that States can take which are non-legal in nature, such as to prevent erosion via a “bulkhead” policy.<sup>258</sup> This policy requires that States take steps to secure their territory with mechanisms such as sea defences which include sea walls, groynes<sup>259</sup> and wave reduction structures.<sup>260</sup> Wave reduction

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<sup>255</sup> See David Caron’s article ‘When Law Marks Climate Change Worse: Rethinking the Law of Baselines in Light of Rising Sea Level’ (1990) 17 *Ecology Law Quarterly* 628.

<sup>256</sup> Caron (n 10) at 641.

<sup>257</sup> M Hayashi ‘Sea Level Rise and the Law of the Sea: Legal and Policy Options’ International Symposium on Islands and Oceans Tokyo, Jan 22 and 23, (2009) at 81.

<sup>258</sup> Schofield (n 6) at 411.

<sup>259</sup> “... a low wall built out from the coast into the sea, to prevent the repeated movement of the waves from removing parts of the land” as defined by the Cambridge online dictionary at <http://dictionary.cambridge.org/dictionary/english/groyne> (accessed 3 June 2017).

<sup>260</sup> Schofield (n 6) at 411.

structures comprise of offshore breakwaters, rock armour and gabions.<sup>261</sup><sup>262</sup> Mozambique is one such nation that has adopted the prevention methods of seawalls and gabions in Beira and Maputo.<sup>263</sup> However, the seawalls in particular have caused negative effects on the areas which are adjacent to those protected by the sea walls.<sup>264</sup> In Maputo, the seawalls as well as groynes in the Costo do Sol region have cause a large increase in erosion; the Polana beach has eroded since the placement of these structures and the seawall is now the only thing separating land from sea.<sup>265</sup>

The Maldives is also adopting prevention methods and is reported to have begun dredging lagoons in order to relocate sand.<sup>266</sup> The sand is being used to build up islands that have been created with concrete reinforcements to safeguard land for their country's population.<sup>267</sup> These reinforced islands will be three metres above sea level, which is much higher than the majority of their land surface, which is not in the region of one metre above sea level.<sup>268</sup> However, this measure is not without flaws. Not only is it costly, but it may lead to changes in the flow of sediment around the islands.<sup>269</sup> In island States, this is particularly harmful as island States require an uninterrupted sediment flow to maintain its integrity as an island.<sup>270</sup> In addition it has also shown to cause unforeseen erosion and disposition along the coastline.<sup>271</sup> The implications are also not confined to the nation that implements such policies; there is a potential that these measures will also affect neighbouring nations.<sup>272</sup>

Di Leva and Morita from the World Bank also provide some preventative measures aimed at ensuring preservation of the maritime boundaries.<sup>273</sup> They suggest taking

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<sup>261</sup> "... a basket or cage filled with earth or rocks and used especially in building a support or abutment" as defined by the Merriam Webster online dictionary at <https://www.merriam-webster.com/dictionary/gabion> (accessed on 3 June 2017).

<sup>262</sup> *Ibid.*

<sup>263</sup> J Palalane et al 'Coastal Erosion in Mozambique: Governing Processes and Remedial Measures' *Journal of Coastal Erosion* at 705.

<sup>264</sup> *Ibid.*

<sup>265</sup> *Ibid.*

<sup>266</sup> Schofield (n 6) at 411.

<sup>267</sup> *Ibid.*

<sup>268</sup> *Ibid.*

<sup>269</sup> *Ibid.*

<sup>270</sup> *Ibid.*

<sup>271</sup> *Ibid.*

<sup>272</sup> C Schofield and D Freestone 'Options to Protect Coastlines and Secure Maritime Jurisdictional Claims in the Face of Global Sea Level Rise' MB Gerrard and GE Wannier (ed), *Threatened Island Nations Legal Implications of Rising Seas and a Changing Climate* (2013) at 151.

<sup>273</sup> Di Leva and Morita (n 54) at 27.

steps to circumvent erosion, such as building sea walls where there are none, and where the sea walls are inadequate to withstand the changes, to enlarge them.<sup>274</sup> As discussed previously, these prevention measures can, in some instances, cause more erosion in areas adjacent to the sea walls which makes them largely ineffective in preventing sea level rise in the long term.

It is also suggested by Di Leva and Morita that another way in which coastal and island States can curb sea level rise is to construct artificial islands or structures within their EEZ that can sustain populations in the event that part of an island or coastal State is submerged.<sup>275</sup> UNCLOS provides in Article 60 for the right of a coastal State to:

‘... construct and to authorise and regulate the construction, operation and use of: (a) artificial islands; (b) installations and structures for the purposes provided for in article 56 and other economic purposes; (c) installations and structures which may interfere with the exercise of the rights of coastal State in the zone’

What is important to note about the above Article is that it expressly states that the artificial island does not have the right to claim status as an island and that it cannot claim its own territorial sea.<sup>276</sup> Therefore, a coastal nation can construct these islands to house human population but it does not assist them with claims to maritime territory. Further, the cost involved to construct artificial islands is not feasible for most coastal and island States. A positive aspect is that the presence of an artificial island has no bearing on the pre-existing territorial sea, contiguous zone or EEZ.<sup>277</sup> The constructing State does have ‘exclusive jurisdiction’ over any artificial islands, installations or structures and in addition has the rights to implement any ‘customs, fiscal, health, safety and immigration laws and regulations’.<sup>278</sup>

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<sup>274</sup> Di Leva and Morita (n 54) at 27.

<sup>275</sup> *Ibid.*

<sup>276</sup> UNCLOS Article 60(8).

<sup>277</sup> *Ibid.*

<sup>278</sup> UNCLOS Article 60(2).

### 3.2.2 *Legal Remedies*

Whilst preventative remedies are important, the focus within this dissertation is on legal resolutions to the consequences of rising sea levels. The remedies discussed are as follows: Straight baselines, historical title, ambulatory baselines and fixing of baselines.

#### 3.2.2.1 *Straight Baselines*

Schofield suggests that a legal solution to ambulatory baselines is the straight baseline regime.<sup>279</sup> Article 7(2) of the straight baseline provision states that if a coast is “highly unstable” because of a delta and “other natural conditions”, a straight baseline may be drawn from the “low-water line”. The provision goes on to say that “notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the coastal State in accordance with this Convention”.<sup>280</sup> The difficulty with this idea is that a State may object to another State’s straight baseline claim on the grounds that it is overindulgent due to the restrictions that are imposed with the use of straight baselines.<sup>281</sup> Straight baselines are restrictively applied and it is unlikely that a court would accept a straight baseline where the conditions do not meet the straight baseline criteria. ‘Highly unstable’ requires more than just a gradual sea-level rise, as discussed in Chapter Two. The ICJ in *Qatar v Bahrain* has already confirmed the restrictive interpretation of straight baseline methods.

Furthermore, the ambulatory baseline issues are not fully resolved with the application of straight baselines provisions because straight baselines are constructed with normal baselines in mind.<sup>282</sup> The straight baselines are drawn from specific points that Schofield terms as ‘anchoring’ the baseline.<sup>283</sup> Thus, in the event that these ‘anchor’

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<sup>279</sup> Schofield (n 6) at 413.

<sup>280</sup> UNCLOS Article 7(2).

<sup>281</sup> Schofield (n 1); *Ibid.*

<sup>282</sup> *Ibid.*

<sup>283</sup> Schofield and Freestone (n 272) at 157.

points are submerged, the straight baseline would need to be altered in a similar manner as the normal baseline.<sup>284</sup>

Lastly, Article 7(2) is reserved for situations where an unstable delta is present. This is clear from the language of the Article; “where because of a delta *and* other natural conditions” (my emphasis).<sup>285</sup> Thus, Article 7(2) has been used in cases such as the Ganges-Brahmaputra river delta in Bangladesh.<sup>286</sup> Bangladesh claims a straight baseline that does not meet the coast at any single point.<sup>287</sup> Schofield suggests that States which anticipate that they will be threatened by sea level rise could claim straight baselines that are not connected to the coast where it is currently located but to a point where it previously was located.<sup>288</sup>

### 3.2.2.2 *Historical title*

Schofield asserts one of the options that was also suggested by Caron<sup>289</sup>, which is to allow states to claim maritime baselines on the basis of historical title.<sup>290</sup> He asserts that this could help to create a justification for retaining the baselines as they are currently depicted.<sup>291</sup> However, the previous 1958 Convention, the Law of the Sea Convention and UNCLOS did not and do not provide for historical water title.<sup>292</sup> In the international community, States do not take lightly to maritime claims that are in excess of what others consider to be fair; the United States is known to be restrictive in its views on excessive maritime claims.<sup>293</sup> It has been stated by the United States that in order for a historical title to succeed “a State must demonstrate its open, effective, long-term and continuous exercise of authority over the body of water, coupled with acquiescence by foreign States to the exercise of that authority”.<sup>294</sup> Therefore, the historic title appears not to be a feasible method to fix a baselines unless coastal and

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<sup>284</sup> Schofield and Freestone (n 272) at 157.

<sup>285</sup> Schofield (n 6) at 413.

<sup>286</sup> *Ibid.*

<sup>287</sup> *Ibid.*

<sup>288</sup> *Ibid.*

<sup>289</sup> Caron (n 6) at 645.

<sup>290</sup> Schofield (n 6) at 413.

<sup>291</sup> *Ibid.* 414.

<sup>292</sup> *Ibid.*

<sup>293</sup> *Ibid.*

<sup>294</sup> JJA Roach and R Smith *United States Responses to Excessive Maritime Claims* (1996) at 31

island nations were to come together to agree on less restrictive conditions. However, the act of creating less restrictive conditions would be a creation of an agreement to govern historical title which alone is problematic due to the many nations involved and the possibility of conflicting ideals.

### 3.2.2.3 *Ambulatory baselines*

Di Leva and Morita suggest an alternative fix, which provides for the maintenance of ambulatory boundaries.<sup>295</sup> First they suggest that the best way to address the future implications of rising seas is the ratification of UNCLOS and the publication of baselines under UNCLOS in terms of Article 16 (2), Article 47(9), Article 75(2), Article 76(9) and Article 84(2).<sup>296</sup> The reason for this assertion is due to the fact that there are still coastal States which are not party to the Convention. One such nation is the United States, which signed the agreement in 1994 but is yet to ratify the Convention.<sup>297</sup> Whilst most of these nations have maritime zones that, for the most part, comply with UNCLOS, some of these nations claim boundaries which exceed what is provided for in the Convention. Despite the fact that UNCLOS has become part of international customary law, there are many commentators who believe that the continued ratification of the Convention will assist the Convention in fulfilling its purpose to prevent political conflict arising out of maritime claims.<sup>298</sup>

In addition to this, Di Leva and Morita assert the importance of the “deposit and publicity” requirements of the UNCLOS as per Article 16(2) which requires nations to deposit nautical charts detailing baselines with the UN Secretary General.<sup>299</sup> It is noteworthy to mention that as at December 2016 the deposit and publicity requirements of UNCLOS have been adhered to by 72 states.<sup>300</sup> Di Leva and Morita highlight the need for information to be deposited with the UN and in addition, regularly updated in order to ensure its accuracy.<sup>301</sup>

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<sup>295</sup> Di Leva and Morita (n 54) at 26.

<sup>296</sup> *Ibid.*

<sup>297</sup> *Ibid.*

<sup>298</sup> *Ibid* 26.

<sup>299</sup> *Ibid.*

<sup>300</sup> ‘Deposit of Charts/ Lists of coordinates under the Convention’ available at <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/depositpublicity.htm> (accessed 22 December 2016).

<sup>301</sup> Di Leva and Morita (n 54) at 27.

#### 3.2.2.4 *Fixing baselines*

The main legal remedy that is suggested by many academic writers, and Schofield in particular, is that of fixing of baselines. Schofield suggests that one may fix the baseline on large-scale charts that are officially recognised by a claiming State.<sup>302</sup> In this way, the coastal or island State may create a chart that is largely advantageous to them and where certain parts of the coast might be susceptible to sea level rise, they may be fixed in place prior to any changes in the coastline.<sup>303</sup> It is stated by Schofield that changes in coastlines are important for navigation and as such changes would need to be reflected on charts for safety purposes.<sup>304</sup> However, this might cause difficulties as the difference in the charts might be the cause of tensions between states.<sup>305</sup> He asserts that charts have historically been recognised as legal documents, such as the act of depositing official charts with the UN for approval of baselines.<sup>306</sup> In this regard, States would have to be open to recognising charts that claim territory that was once above sea level despite any changes to the low-water line.<sup>307</sup> Schofield suggests that this would be an effective measure in the context of domestic law. However, it is debatable whether it would be successful internationally.<sup>308</sup> Notably, in an international context a State might not want to accept territory that is no longer above sea level if they stand to gain more territory or more valuable territory as a result of the shift in baseline.

Caron also states that fixing boundaries is a more desirable option in order to avoid conflict between neighbouring states over maritime borders.<sup>309</sup> He identifies two methods by which baselines may be fixed: first, the international community can create a new rule to govern baselines; second, there is the possibility of interpreting the current international laws as liberally as possible in order to allow for the freezing of baselines much like the Article 7(2) provision of UNCLOS. In a more recent article by

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<sup>302</sup> Schofield (n 6) at 411.

<sup>303</sup> *Ibid* 413.

<sup>304</sup> *Ibid.*

<sup>305</sup> *Ibid.*

<sup>306</sup> *Ibid.*

<sup>307</sup> *Ibid.*

<sup>308</sup> *Ibid.*

<sup>309</sup> Caron (n 10) at 645.

Caron<sup>310</sup> he asserts that the most obvious fix to the issue of baselines is to amend UNCLOS and the rules that gives rise to the uncertainty. However, the rule is not easily altered as it is not possible for one state to unilaterally alter a collective international rule.<sup>311</sup>

Caron has also suggested that the international community condition the right to “freeze” their boundaries according to the charts from which they currently claim their maritime zones.<sup>312</sup> He suggests that during this process, States should be able to object to the particular permanent baseline that a state wishes to fix.<sup>313</sup> The problem with this line of thinking is that not all nations worldwide have adequately deposited their nautical charts outlining their baselines with the Secretary-General of the United Nations.<sup>314</sup> Therefore, if a boundary dispute had to occur in the future, it would be difficult to argue the location of the baselines as they originally stood before the rise, due to lack of technical information in some coastal areas.<sup>315</sup> South Africa has yet to deposit a chart with the United Nations, and is one such nation that would be difficult to determine changes to coastlines in the event of conflict.<sup>316</sup>

Di Leva and Morita believe that another way in which one may provide for shifting baselines is to enter into bilateral treaties to fix the baselines as agreed by neighbouring nations, this point will be discussed in more detail Chapter Four. These treaties should contain provisions which can accommodate any subsequent shifts along any baseline points.<sup>317</sup> Further, they stress the importance of these agreements in areas that are at high risk in order to prevent any future disputes on boundaries and baselines.<sup>318</sup> They stress that it is necessary, even where major shifts in baselines are

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<sup>310</sup> D Caron ‘Climate Change, Sea Level Rise and the Coming Uncertainty of Oceanic Boundaries: A Proposal to Avoid Conflict Maritime Boundary Disputes, Settlement Processes, and The Law of the Sea’ (2008) *From the Selected Works of David D. Caron* at 14.

<sup>311</sup> *Ibid* 14.

<sup>312</sup> Caron (n 54) 645.

<sup>313</sup> *Ibid*.

<sup>314</sup> ‘Deposit and Due Publicity – Background Information’ available at [http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/backgroud\\_deposit.htm](http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/backgroud_deposit.htm) (accessed 23 May 2017), the act of deposit and publicity of charts with the Secretary-General has been explained to be an “act by a State Party to the Convention in order to comply with the deposit obligations” in UNCLOS.

<sup>315</sup> Caron (n 10) at 645.

<sup>316</sup> ‘Deposit of Charts/ Lists of coordinates under the Convention’ available at <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/depositpublicity.htm> (accessed 22 December 2017).

<sup>317</sup> Di leva and Morita (n 54) at 27.

<sup>318</sup> *Ibid*.

not projected, that States have their territories surveyed in order keep their baseline measurements up to date and possibly presuppose any shifts that are to take place.<sup>319</sup> They emphasise the importance of having up-to-date data on deposited charts because of the court's and arbiter's inclination to revert to charts in making a determination on boundary disputes.<sup>320</sup> Two cases were identified to illustrate this point – *Nicaragua v Honduras* and *Guriname and Suriname* where an analysis of deposited charts was conducted.<sup>321</sup> They suggest that where a country is low-lying, has a continental shelf or is in possession of a highly unstable baseline along their coast that such states should be given the necessary assistance in conducting surveys of their coast.<sup>322</sup> Simple methods suggested by Di Leva and Morita to collect such data are Geographic Information Systems (GIS), Webmapping or any online databases that may assist a coastal state in collecting data on their baselines on a regular basis.<sup>323</sup> However, the cost implications involved in regularly surveying coastlines is immense. Given the uncertainty in the law of baselines, it is not feasible to simply rely on this method. Therefore, a new solution to these problems has to be crafted. This solution may even focus on a collaboration of many solutions offered.

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<sup>319</sup> Di leva and Morita (n 54) at 27.

<sup>320</sup> *Ibid.*

<sup>321</sup> *Ibid.*

<sup>322</sup> *Ibid.*

<sup>323</sup> *Ibid.*

## Chapter 4: Recommendations and Conclusions

It has been clearly established by the Baselines Committee and international scholars that baselines along coastal and island States are ambulatory in nature due to the fact that the baseline is as it lays on the coast rather than as it is depicted on nautical charts.<sup>324</sup> Therefore, baselines have the potential to be affected by rising sea levels regardless of the methods of delimitation. Baselines which are measured by means of the Article 5 'normal' baseline method and baselines measured by the Article 7 'straight' baseline provision are both equally susceptible to rising sea levels. The provisions of UNCLOS do not adequately provide for the effects that are being felt as a result of climate change. It is submitted that maintaining baselines as ambulatory is not a preferable method to remedy the associated consequences because it is not sustainable, despite the assertions of Di Leva and Morita. Developing nations with coastal boundaries would not be able to assess their maritime baselines on a regular basis due to the financial implications. Further, leaving baselines as ambulatory does not foster certainty in law.

The use of methods to prevent baseline erosion, such as the erection of artificial structures is not a remedy which can completely eradicate all the consequences associated with climate change. Further, concerns have been raised over the effects of these methods on the ocean environment.<sup>325</sup> As discussed in Chapter Three, the interruption of natural sediment flows is particularly problematic for island nations.<sup>326</sup> The action of one nation in taking steps to artificially protect their coast has the potential to affect the nations which neighbour them.<sup>327</sup> The construction of artificial islands is costly and a large portion of the vulnerable states concerned do not have the resources to construct such islands. The construction of an artificial island, whilst a valuable asset, would not fix the consequences of rising seas particularly for island nations. The fatal flaw in this remedy is that when an island State is submerged or can no longer sustain human population, the maritime territory upon which the artificial islands are constructed will cease to be claimed exclusively by the constructing State,

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<sup>324</sup> Sofia Report (n 31) at 8.

<sup>325</sup> Schofield and Freestone (n 272) at 151.

<sup>326</sup> *Ibid* 152.

<sup>327</sup> *Ibid*.

because the island State will no longer be eligible for statehood. This would lead to the complex uncertainty of an island being left within territory that no longer belongs to the State that created the island. This would mean that the artificial island would reside in the high seas. Therefore, a legal remedy of its own for island nations and statehood in particular has to be created. The other methods suggested by Di Leva and Morita for maintaining baselines as they currently stand are merely temporary fixes; legal disputes are bound to arise based on claims to maritime territory which cannot be fixed by way of non-legal measures.

Without doubt, there are many helpful digital programmes which assist with temporary relief, such as: Webmapping which includes monitoring the effects of climate change; the National Adaptation Programmes of Action (“NAPAs”)<sup>328</sup> and the Caribbean Catastrophe Risk Insurance Facility (CCRIF). However, these programmes do not provide a long-term solution to the legal impediments associated with climate change. The importance of a legal remedy is apposite due to the need for peaceful relations between nations worldwide on matters which relate to the ocean, which has always been the main aim of UNCLOS. As previously outlined, the ocean contains some of the most valuable resources on earth and therefore the potential for conflict is high. The current regime leaves room for much uncertainty.

After a careful analysis of the existing literature at hand, the fixing of baselines is the preferable approach to amend the uncertainty in the law of baselines. Therefore, the most viable legal methods of fixing baselines must be analysed in detail below. All these remedies focus on the fixing of baselines rather than the maintenance of the baselines as ambulatory. Some of the other remedies discussed cannot be used in conjunction with these methods as temporary barriers to the effects of sea level rise. However, long-term improvements must focus on a way to fix baselines.

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<sup>328</sup> Created under the U.N. Framework Convention on Climate Change. The NAPAs intend to identify the activities which need to take priority in assisting the ‘least developed countries’ in order to adapt to the rising sea levels. Some of the least developed nations which are vulnerable to climate change in Africa include: Mozambique, Somalia, Gambia, Madagascar, Zambia and Mali. Information on the NAPAs can be found in the ‘United Nations Framework Convention on Climate Change, National Adaptation Programmes of Action ‘LDC Country Information’ available at [http://unfccc.int/cooperation\\_and\\_support/ldc/items/3097.php](http://unfccc.int/cooperation_and_support/ldc/items/3097.php) (accessed 22 December 2016).

## 4.1 Recommendations

The recommendations discussed below focus on the most viable methods for the fixing of baselines. The proposals for fixing the baselines include: the meeting of state parties to UNCLOS in order to amend UNCLOS;<sup>329</sup> agreements to supplement UNCLOS<sup>330</sup>; and bilateral treaties.<sup>331</sup> Hayashi is an author who has provided actual remedies to the uncertainties in the law of baselines. Most scholarly articles mention the issue of rising seas, but few provide a means to solve the various uncertainties. Hayashi focuses on amending UNCLOS and supplementing UNCLOS. The most viable of the two methods is the supplementation of UNCLOS with an agreement which provides for the future consequences of sea level rise.

However, amending or supplementing UNCLOS would take a long time and therefore the proposition is that bilateral treaties can be used to fix boundaries in sensitive areas. These ideas will be discussed in detail below.

### 4.1.1 Meeting of State Parties to UNCLOS

Author Hayashi has suggested that a meeting or conference where the States party to UNCLOS discuss the issue may be one of the best methods to amend UNCLOS.<sup>332</sup> He states that it would only be a viable method if it were possible for non-State parties to later accede to UNCLOS or if the conference could allow the full participation of all coastal states such as the US.<sup>333</sup> Hayashi explains that State parties to UNCLOS have amended provisions within the Convention with consensus between the Meeting of States Parties (“SPLOS”).<sup>334</sup> Such a meeting of State parties has taken place on four separate occasions.<sup>335</sup> It is not certain whether the agreements that have resulted were amendments to the provisions in which they relate, or whether they merely

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<sup>329</sup> Hayashi (n 257) at 78.

<sup>330</sup> *Ibid* 87.

<sup>331</sup> Di Leva and Morita (n 54) at 27.

<sup>332</sup> Hayashi (n 257) at 78.

<sup>333</sup> *Ibid* 90.

<sup>334</sup> *Ibid* 87.

<sup>335</sup> *Ibid*.

provide a clearer understanding of the provisions of UNCLOS.<sup>336</sup> However, what is certain is that the agreements between States parties have only related to the provisions which govern certain time limits within which States must act.<sup>337</sup> For example, state parties postponed the first election of Judges of International Tribunal for the Law of the Sea (“ITLOS”) to the 1 August 1996 which, as per the Convention in terms of Article 4(3) of Annex VI, was supposed to be held “within six months of the date of [its] entry into force” which would have meant the 16 May 1995.<sup>338</sup> Thus, such an agreement had the effect of amending the time frame within which an election of Judges had to take place.

Despite the lack of clarity on the exact nature of such an amendment, the agreements do have the result of changing the effect of the provisions where time limits are involved.<sup>339</sup> The time limit provisions in UNCLOS are not similar in nature to the baseline provisions and therefore a meeting of States Parties is not certain to be an appropriate method to amend UNCLOS provisions.<sup>340</sup> However, Hayashi asserts that such a method is a viable way of amending the UNCLOS baseline provisions.<sup>341</sup>

An amendment to UNCLOS should focus on the provision that provides for the depiction of the baseline on charts or alternatively, the coordinates of the baseline being deposited with the Secretary General of the United Nations.<sup>342</sup>

Article 16 reads as follows:

“(1) The baselines for measuring the breadth of the territorial sea determined in accordance with articles 7, 9 and 10, or the limits derived therefrom, and the lines of delimitation drawn in accordance with articles 12 and 15 shall be shown on charts of a scale or scales adequate for ascertaining their position. Alternatively, a list of geographical coordinates of points, specifying the geodetic datum, may be substituted.

(2) The coastal State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-

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<sup>336</sup> Hayashi (n 257) at 88.

<sup>337</sup> *Ibid.*

<sup>338</sup> *Ibid.*

<sup>339</sup> *Ibid.*

<sup>340</sup> *Ibid.*

<sup>341</sup> *Ibid* 89.

<sup>342</sup> Article 16 of UNCLOS.

General of the United Nations.”

The amendment could focus on adding the term “permanently” to provide for the fixing of baselines. A possible amendment for Article 16(1) could provide “...shall be *permanently* shown on charts of a scale or scales adequate for ascertaining their position. Alternatively, “a list of *permanent* geographical coordinates of points, specifying the geodetic datum, may be substituted”.

Such an amendment to Article 16(1) would mirror the wording of Article 76(9) which deals with the continental shelf. The latter provision states that when the charts depicting the continental shelf are deposited with the Secretary-General, they must “permanently” describe “the outer limits of the continental shelf.” The addition of “permanently” provides that the charts deposited with the UN Secretary-General are permanent in nature and not subject to change based on changing baselines along the coastline.

#### 4.1.2 *Agreements to supplement UNCLOS*

Hayashi suggests that an alternative means to amend UNCLOS is by way of an agreement which may be reached by the General Assembly of the UN to follow on to the discussions and findings of the bodies that are subsidiary to the UN.<sup>343</sup> An agreement to supplement the existing provisions of UNCLOS may be concluded not only by way of a Meeting of States Parties to UNCLOS as discussed above, but also by having a conference which invites all interested parties to discuss the issue. Alternatively, an agreement can be taken by the UN General Assembly.<sup>344</sup>

A conference which invites all interested parties has the purpose of conducting negotiations in an effort to decide on an agreement which relates to UNCLOS in respect of the uncertainties within the Convention.<sup>345</sup> An example of such an agreement is that which has been adopted by way of UN Conference which is termed the Agreement for the Implementation of Straddling Fish Stocks and Highly Migratory Fish Stocks.<sup>346</sup> This method is advantageous as not only has it been successfully used

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<sup>343</sup> Hayashi (n 257) at 78.

<sup>344</sup> *Ibid* 89.

<sup>345</sup> *Ibid*.

<sup>346</sup> *Ibid*.

previously, it also includes all interested parties and not just parties to UNCLOS. Therefore, it is a way to include parties such as the United States and all nations that have ocean territory.<sup>347</sup> The conference would have to include all the world's most important ocean territories in order to successfully create an agreement which is likely to be widely acceptable.

The other option available is an agreement which is entered into by the General Assembly.<sup>348</sup> The General Assembly could take a decision to adopt such an agreement after an agreement has been negotiated by a subsidiary forum in the form of a special committee or a working group.<sup>349</sup> The General Assembly may even adopt an agreement which has been negotiated by a different body or by way of consultations which are informal in nature outside of the Assembly.<sup>350</sup> Hayashi identifies the informal agreement as being a useful method where the aim is to revise or even amend UNCLOS.<sup>351</sup> The reason for this preference is that the issue of baselines is a subject which is problematic in that it could cause negotiation to occur on other provisions of UNCLOS which should be avoided.<sup>352</sup>

The agreement in the form of a text, regardless of the method by which the agreement has been reached, has to be submitted to the General Assembly.<sup>353</sup> In its submission form it will usually include an annex to a draft resolution which Member States will be encouraged to sign and ratify.<sup>354</sup> The Agreement relating to Implementation of Part XI of UNCLOS was enacted by the General Assembly in this manner and despite the fact that it professes to implement the provisions of Part XI, it substantially amends Part XI of UNCLOS and even temporarily suspends some of the provision's application.<sup>355</sup> The Agreement relating to the Implementation Part XI was negotiated in full by way of informal meetings and it provided for all interested parties to engage in the negotiations.<sup>356</sup> The amendment of the text allowed for the revision of some of the

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<sup>347</sup> Hayashi (n 257) at 89.

<sup>348</sup> *Ibid* 90.

<sup>349</sup> *Ibid.*

<sup>350</sup> *Ibid.*

<sup>351</sup> *Ibid.*

<sup>352</sup> *Ibid.*

<sup>353</sup> *Ibid.*

<sup>354</sup> *Ibid.*

<sup>355</sup> *Ibid.*

<sup>356</sup> *Ibid.*

provisions due to the fact that there have been many economic and political changes since Part XI had been adopted which were unseen at the time of adoption.<sup>357</sup> The rise in sea level can be seen as an similarly unforeseen impediment that would not have otherwise been provided for at the time that UNCLOS was adopted.

The creation of a supplementary agreement would take long time as it would require extensive negotiation. However, despite this lengthy process, this remedy would be best suited to cover all the consequences of the rising of sea levels. Further, the negotiations that are required would take place between all interested parties and not just the signatories to UNCLOS. Considering the numerous consequences that can occur as a result of sea level rise for coastal and island nations, a supplementary agreement could cover all these consequences as well as any future complications that may arise. Since this remedy will be slow to effect, it follows that an interim remedy may be a means to give more time for a supplementary agreement to be drawn up.

#### *4.1.3 Bilateral treaties dealing with delimitation*

Perhaps one option for the fixing of baselines that has not been adequately discussed by many scholars, and should be seen as a viable interim solution, is that of entering in bilateral treaties. In their article, Di Ieva and Morita mention this as a viable method to provide for possible changes to baselines due to sea level rise but not much emphasis is placed on this remedy in other academic texts.<sup>358</sup> Whilst it is preferable to fix all baselines worldwide via a multilateral treaty, the task of getting all interested nations to agree on an adequate solution is immense. Therefore, the bilateral treaty is a remedy which can provide sufficient certainty between neighbouring countries by focusing on defining maritime boundaries particularly in areas which are more susceptible to sea level rise.

This can be a lasting solution which will create certainty. In international law, there exists a fundamental principle articulated in Article 26 of the Vienna Convention; “*pacta sunt servanda*”, which translates to ‘Every treaty in force is binding upon the parties to

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<sup>357</sup> Hayashi (n 257) at 90.

<sup>358</sup> Di Ieva and Morita (n 54) at 27.

it and must be performed by them in good faith'.<sup>359</sup> Thus, where neighbouring countries enter into a treaty of this sort, they will be bound by it. It is important to mention that there is an exception to this rule which is provided for in Article 62 of the Vienna Convention termed 'fundamental change of circumstances'.<sup>360</sup> This exception states that where the parties did not envisage a particular change in circumstances at the time the treaty was concluded, they may not withdraw from the treaty. They may only withdraw where such a ground was an essential basis upon which the parties consented to the treaty<sup>361</sup> or the change is radical in nature and it alters the obligations that have to be performed under the treaty.<sup>362</sup> However, this exception of fundamental change may not be invoked where the treaty deals with a boundary.<sup>363</sup> Therefore, where parties delineate a maritime boundary, the other state may not withdraw from such an agreement which makes this a stable method with which to fix boundaries.

The bilateral treaty has already been used as a method to create certainty in the face of uncertain maritime boundaries in Africa. The African Union ('the AU') created the AU Border Programme in 2007<sup>364</sup> which not only deals with land borders but also extends to the maritime borders within Africa in an effort to delineate boundaries in the region.<sup>365</sup> The Organisation of African Unity ("OAU", the predecessor to the AU) Boundaries Commission decided to create this programme due to the prevailing uncertainty with reference to land and maritime boundaries within Africa.<sup>366</sup> The lack of clarity on maritime borders was seen by the AU as even greater than that of land borders. The Commission therefore understood that this uncertainty leaves coastal and island nations within Africa vulnerable to conflict and tension.<sup>367</sup> Furthermore, the AU believes that the lack of defined boundaries within the ocean is an obstacle to the development of industries such as energy, fishing and all marine resources.<sup>368</sup> This would have serious repercussions for Africa, the economies of which rely heavily on

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<sup>359</sup> Vienna Convention Article 26.

<sup>360</sup> *Ibid* Article 62.

<sup>361</sup> *Ibid* Article 62(1)(a).

<sup>362</sup> *Ibid* Article 62(1)(b).

<sup>363</sup> *Ibid* Article 62(2)(a).

<sup>364</sup> African Union Commission 'From Barriers to Bridges' Collection of Official Texts on African Borders from 1963 to 2012 (2013) 7.

<sup>365</sup> *Ibid* 18.

<sup>366</sup> *Ibid*.

<sup>367</sup> *Ibid*.

<sup>368</sup> *Ibid* 83.

the export of raw materials. Although the AU border programme focuses on 'delimitation and demarcation' of maritime boundaries, it is a sovereign decision that states must take by themselves.<sup>369</sup> The African Union Border Programme culminated in the African Union Convention on Cross-Border Cooperation ("Niamey Convention") in 2012<sup>370</sup> which also recalls the provisions of UNCLOS. The Niamey Convention aims to facilitate cross-border cooperation between States in order to solve legal impediments, amongst others.<sup>371</sup>

The AU Border Programme aims to assist States to demark their boundaries by entering into bilateral agreements to define their borders and in addition, ensure that these agreements deal with the rights of the populations affected and provide solutions to any existing problems.<sup>372</sup> The AU Border Programme can be used as a means to illustrate that bilateral treaties can be implemented on a wide-scale basis to provide a remedy on the issue of uncertain baselines. The reason for the recommendation of the bilateral treaty to define maritime boundaries is because the ICJ has held maps to be an insufficient means to legally define boundaries on their own.<sup>373</sup> A map is merely a means to express the physical character of the boundary (as discussed extensively in the subsequent chapters) as held in the case of *Burkina Faso and Mali*, 1986.<sup>374</sup> The bilateral treaty agreement would have to stipulate that the border will be outlined in an annexure, in the form of a map as has been done with the United States of America and Mexico in 1970 and in a Danish Chart in an agreement between Denmark and Poland in 1971.<sup>375</sup> The AU recommends that the map that defines the maritime boundaries should be completely identified within the treaty and that mention of an annexed map is not enough; the treaty must make reference to the publisher, title, scale, date and other features.<sup>376</sup> The AU states that the ICJ, the International Tribunal for the Law of the Sea and the Arbitral Tribunal should only be approached as a last resort in the event of conflict, as these mechanisms are expensive and time-

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<sup>369</sup> African Union Commission (n 364) at 68.

<sup>370</sup> African Union Convention on Cross-Border Cooperation (Niamey Convention) Ex. CI/726(Xxi) Annex Iii, 17 May 2012.

<sup>371</sup> African Union Commission (n 303) at 92.

<sup>372</sup> *Ibid.*

<sup>373</sup> African Union Border Programme 'Delimitation and Demarcation of Boundaries in Africa: The User's Guide' 2ed (2014) *Commission of the African Union, Department of Peace and Security* 50.

<sup>374</sup> *Ibid.*

<sup>375</sup> *Ibid.*

<sup>376</sup> *Ibid.*

consuming and in addition, might impair relationships between States.<sup>377</sup> The recommendation is that states should resort to third party mediation only where they cannot resolve a dispute through negotiation.<sup>378</sup> In addition, the AU recommends the United Nations Treaty Handbook on multilateral treaties as a guideline for the creation of their bilateral agreements.<sup>379</sup>

Some of the countries within Africa that have entered into bilateral agreements regarding their boundaries are as follows: Angola and Namibia; Mozambique and Tanzania; Kenya and Tanzania; Equatorial Guinea and Sao Tome and Principe; a joint regime between Nigeria and Sao Tome; Benin and Nigeria; Guinea and Guinea-Bissau; Gambia and Senegal; and Cape Verde and Senegal.<sup>380</sup> Information about the borders can be accessed on the AU Border Information System which allows the public to view where all the boundaries within Africa are situated, the length of the boundaries, whether there is an agreement in place regarding the boundaries and the latest documents deposited for those boundaries.<sup>381</sup> This digital system is extremely thorough and would be a positive model to create more certainty going forward for the international community.

Despite the border programme in place with the AU, there are still many countries that have not entered into bilateral treaties with their neighbouring nations and perhaps this is the downfall of this remedial measure. Many of the bilateral agreements that are in place had been entered into before the border programme was created. It is difficult to motivate states to delineate their boundaries between neighbouring states on each of their borders on a wide scale.

#### *4.2 Conclusion*

In conclusion, it is important to reiterate the basic principles that have been discussed. According to UNCLOS, the territorial sea, contiguous zone and the EEZ are measured from the low-water line on the coastal or island state. UNCLOS provides that the

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<sup>377</sup> Delimitation and Demarcation of Boundaries in Africa (n 381) at11.

<sup>378</sup> *Ibid.*

<sup>379</sup> *Ibid*

<sup>380</sup> 'AU Border Information System' available at <http://bis.peaceau.org/en/> (accessed 11 January 2016).

<sup>381</sup> *Ibid.*

baseline is the low-water line which is to be depicted on large-scale charts and deposited with the Secretary-General of the United Nations. According to the Baseline Committee, as well as international and municipal decisions, the chart is merely a means to depict the baseline and not the baseline itself. The baseline then is the low-water line as it lies on the coastline of the coastal or island State. Therefore, where the baseline shifts and it no longer reflects the reality of the low-water line, the chart becomes inaccurate. There is currently no certainty on what to do in instances where the baseline shifts. There is also no ascertainable legal remedy for the attendant consequences of rising sea levels, and the affect thereof on maritime baselines and boundaries.

A combination of the methods that have been discussed within the preceding chapters such as an agreement to supplement UNCLOS and bilateral treaties can help coastal and island nations worldwide work toward a legal remedy that is suitable for the majority of coastal nations. Whilst an agreement to supplement UNCLOS is the most viable method to create stability worldwide, it is my projection that – as with the IPCC – it would take years of negotiation and consideration to come up with a viable draft of a supplementary agreement. The negotiations leading up to an agreement would have to cover viable solutions to all the consequences associated with sea level rise such as the shifting of baselines and in addition the consequences for islands nations and their statehood. Whilst these two issues may lead to two separate agreements, both must be provided for as these are real threats that are being faced by coastal and island nations. In some instances, these issues are no longer threats but rather inevitabilities.

The creation of an agreement to supplement UNCLOS is an important goal to work toward, however, it cannot be the only answer to the current problems faced by coastal and island nations due to the rising sea levels. Therefore, the measures currently being undertaken to curb the effects of climate change must continue and even be increased. As discussed in the preceding chapters, the nations which are the most vulnerable to climate change should be the focus of the preliminary measures aimed at protecting coastal and island states from already present threats. The nations on the least developed nations list under the NAPAs should be provided with more support worldwide to ensure their continued existence in the face of climate change.

It would be useful to implement Webmapping and other digital means to monitor sea levels in these nations. These States stand to be dramatically affected by climate change and have little resources to curb the effects.

In addition to the means currently being employed, bilateral treaties are a good means to create certainty in areas where the sea is projected to rise and the risk of conflict is high. Despite the AU's rocky history, its border programme is a positive model which can provide a temporary remedy to curb tension in areas where there is a higher potential for conflict. Africa is not new to disputes on boundaries, with *utis possedendi* being a major contributor to peaceful border settlements historically. The AU border programme is not a perfect science, as it relies on nations themselves to conclude treaties but it facilitates and encourages the conclusion of such treaties. In addition, it provides a platform to make those treaties accessible and in the public domain. The United Nations should consider backing a worldwide UN ocean border programme in an effort to delineate boundaries between neighbouring states within ocean territories that have, or are projected to, become uncertain. The treaties would remain valid despite any changes that may occur with the boundaries. It not a solution which can be quickly effected, but it is a means to facilitate negotiation and consensus on maritime boundaries. In the alternate, the regional bodies worldwide such as the European Union; the Pacific Islands Forum; the Organisation of American States; the Organisation of Eastern Caribbean States and the various other organisations<sup>382</sup> should consider setting up border programmes in an effort delineate the ocean boundaries in those regions.

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<sup>382</sup> 'Regional and International Organisations' <http://www.iccnw.org/?mod=rio> (accessed 27 January 2017).

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