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Islands Awash Amidst Rising Seas: Sea Level Rise and Insular Status under the Law of the Sea

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Abstract

This article considers the potential impacts of sea level rise on maritime zones with particular reference to impacts on islands. It considers the sea level rise predictions of the Intergovernmental Panel on Climate Change; it outlines the existing legal framework for coastal baselines and insular features established by the 1982 Law of the Sea Convention. It highlights the work of the International Law Association Committee on International Law and Sea Level Rise, which in its 2018 report had identified the development of a body of State practice among the States and Territories of the South Pacific regarding the maintenance of existing maritime zone claims in the face of sea level rise. That practice is considered, together with the implications of the 2016 Tribunal Award on the *South China Sea* case on maritime zone claims based on islands.

Keywords

sea level rise – Pacific Islands – *South China Sea* Award – International Law Association (ILA) Committee on International Law and Sea Level Rise – Intergovernmental Panel on Climate Change (IPCC) – State practice – islands

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Introduction

On 12 July 2016 the Arbitral Tribunal in the case between the Philippines and China delivered its Award on the Merits.[1] One of the most controversial aspects of the Award were its findings concerning the status of certain insular features in the South China Sea. However in the course of its considerations the Tribunal looked in considerable detail at the regime of islands adumbrated by the 1982 United Nations Convention on the Law of the Sea (LOSC or the Convention).[2]

Indeed, the Tribunal's detailed analysis of Article 121 represents the first judicial interpretation of these important, yet previously regarded as ambiguous, provisions of the Convention. The Award's interpretation of the legal regime of islands has potential implications for the maritime claims of the many coastal States that have generally sought to maximise their maritime entitlements through advancing broad maritime claims from remote, insubstantial and frequently uninhabited insular features. The Award also has considerable significance for coastal and low-lying States which are seeking to maintain their claims to maritime zones in the face of the impacts of sea level rise.

This contribution will examine the likely impacts of sea level rise on maritime zones with particular reference to impacts on islands and their associated maritime zones. It will look first briefly at the sea level rise predictions of the Intergovernmental Panel on Climate Change (IPCC), both its 2013/14 Fifth Assessment Report (AR5), its more recent Special Report on 'Global Warming of 1.5 C°[3] and selected recent contributions to the scientific literature related to sea level rise. Then, it will outline the existing legal framework for coastal base-

1 Clive Scholfield acknowledges the support of the Australian Research Council through Discovery Projects grant DP180101996, held with colleagues Professor Stuart Kaye of ANCORS, University of Wollongong and Professor Michael Petterson of Auckland University of Technology. *In the Matter of the South China Sea Arbitration before an Arbitral Tribunal Constituted under Annex VII to the 1982 United Nations Convention on the Law of the Sea between the Republic of the Philippines and the People's Republic of China*, Award, 12 July 2016, Permanent Court of Arbitration (PCA), PCA Case No. 2013–19, available at: <https://pca-cpa.org, at https://pcacases.com/web/view/7> (hereinafter, the South China Sea Award or Award).

2 United Nations Convention on the Law of the Sea (Montego Bay, 10 December 1982, in force 16 November 1994) 1833 *UNTS* 396. Also available at: <http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm> (hereinafter 'LOSC' or 'the Convention').

3 V Masson-Delmotte et al. (eds), *Global Warming of 1.5°C*, An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (IPCC, Geneva, 2018) available at: https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

lines and insular features established by the LOSC and highlight the important work of the International Law Association (ILA) Committee on International Law and Sea Level Rise (Sea Level Rise Committee). This Committee reported in 2018 to the 78th ILA Conference in Sydney, and the recommendations that the Committee made were incorporated in two notable 2018 ILA Resolutions.

The Sea Level Rise Committee had in its 2018 report identified the development of a body of State practice regarding the maintenance of existing maritime zone claims in the face of sea level rise among the States and Territories of the South Pacific, which will also be assessed. The article will then consider in more detail the implications of the Award in the *South China Sea* case on maritime zone claims based on islands in the face of sea level rise, and offers a number of conclusions and recommendations.

Predictions of Sea Level Rise

It has been well established in the scientific community that global sea level has fluctuated substantially over millions of years, in keeping with cycles of ice-sheet growth and decay. Indeed, the geological record indicates that sea levels were over 5 metres higher than present levels during periods when the global mean temperature was up to 2°C warmer than pre-industrial levels.[4]

However, the development of the modern international law of the sea coincided with a period of general stability in sea level. Accordingly, although it was understood at the time of the negotiation of the LOSC that coastlines were dynamic and subject to change in response to natural processes of deposition and erosion, 'there was no widespread recognition of the possible problems of sea level rise'.[5]

This is no longer the case. Global mean sea level (GMSL) is rising and there is strong evidence that the rate of sea level rise is accelerating. Moreover, projections of GMSL rise have tended to increase over time as scientific understanding of this complex phenomenon has improved. In its most recent report, AR5, the IPCC indicated that sea level was projected to rise up to 98cm by 2100

4 Intergovernmental Panel on Climate Change (IPCC), 'Climate Change 2013: The Physical Science Basis', Contribution of Working Group I, *Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 2013) available at: <http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf>, at p. 1139.

5 See D Freestone, 'International Law and Sea Level Rise', in RR Churchill and D Freestone (eds), *International Law and Global Climate Change* (Graham and Trotman/Martinus Nijhoff, London/Dordrecht, 1991) 109–125 at p. 114.

if greenhouse gas emissions are not meaningfully curtailed.[6] This compares with a projection of up to 59cm above 1990 levels by 2100 under the IPCC's previous Assessment Report 4 (AR4) of 2007.[7]

Advances in scientific research suggest, however, that the IPCC's projections may be overly conservative. The primary cause of sea level rise is thermal expansion of the ocean which it is estimated will account for 33–55% of GMSL rise in the 21st century.[8] In essence, the oceans act as the planet's primary heat sink and as the oceans warm they expand, leading to rising sea levels. A recent study indicated that the five years subsequent to AR5 being published in 2013 have been 'the warmest on record' for the oceans, with 2018 setting 'a new record for ocean heating'.[9] Indeed, the present rate of ocean warming has been described in dramatic terms by one of the authors of the study as 'equivalent to five Hiroshima-size atomic bombs exploding every second'.[10]

A further critical driver for global sea level rise is contributions from the cryosphere. That is, the role of melting land-based or grounded ice in changing sea levels. The possibility of the melting of major land-based ice sheets, resulting in massive and abrupt sea level rise, has been appropriately termed as one of the major climate 'wild cards'[11] as even relatively negligible melting of such

6 The IPCC 2013 AR5 medium confidence-level projection is for global mean sea level rise of 0.52–0.98 metres under its representative concentration pathways (RCP) 8.5 scenario which envisages continued very high greenhouse gas emissions and a resulting increase in global mean temperature likely to exceed 2°C. See, *ibid*., at pp. 20, 25 and 1140.

7 The IPCC's 2007 AR4 model-based range of sea level rise under its A1FI scenario was 0.26–0.59 metres excluding future rapid dynamical changes in ice flow. See, IPCC, 4th Assessment Report 2007, 'Synthesis Report', Section 3.2.1, 21st century global changes, at p. 45 available at: https://www.ipcc.ch/report/ar4/syr/. The IPCC's A1FI scenario envisages, under the A1 storyline and scenario family, very rapid economic growth, global population that peaks mid-century and declines thereafter and with the rapid introduction of new and more efficient technologies coupled with the use of fossil fuel intensive (FI) energy sources. Regarding IPCC scenarios see IPCC, Special Report on Emission Scenarios, 2000, available at https://www.ipcc.ch/report/emissions-scenarios/.

8 IPCC (n 4) at p. 25.

9 L Cheng, J Zhu, J Abraham, KE Trenberth, JT Fasullo, B Zhang, F Yu, L Wan, X Chen and X Song, '2018 Continues Record Ocean Warming' (2019) 36 *Advances in Atmospheric Sciences* 249–252, at p. 249.

10 J Abraham, 'Our ocean broke heat records in 2018 and the consequences are catastrophic', *The Guardian*, 16 January 2019, available at: https://www.theguardian.com/environment/climate-consensus-97-per-cent/2019/jan/16/our-oceans-broke-heat-records-in-2018-and-the-consequences-are-catastrophic; see also, L Cheng, J Abraham, Z Hausfather and KE Trenberth, 'How fast are the oceans warming?' (11 Jan 2019) 363 (6423) *Science* 128–129, doi: 10.1126/science.aav7619.

11 See, G Walker and D King, *The Hot Topic: How to Tackle Global Warming and Still Keep the Lights on* (Bloomsbury, London, 2008), at pp. 75–80.

enormous volumes of ice as the Antarctic and Greenland ice sheets has the potential to significantly influence the pace and scale of global sea level rise. In this context it can be observed that the Greenland ice sheet holds enough water to raise global sea levels by an alarming 6–7 metres; the Antarctic ice sheet could alter them by a truly catastrophic 58 metres in the thankfully extremely unlikely event that these vast bodies of ice were to collapse and melt completely.[12]

Understanding the changing volume and dynamics of grounded Polar ice sheets is therefore critical to accurate projections of sea level rise. Accordingly, the upgrading in the scale of sea level rise projections between IPCC AR4 and AR5 was partly attributed to 'the inclusion of ice-sheet dynamical changes'.[13] Contributions to the scientific literature since AR5 suggest that both of these major ice sheets are experiencing accelerated melting. For example, it was suggested in 2016 that, if emissions continue unabated, accelerated melting of Antarctic ice sheets could lead to sea level rise of twice that projected by the IPCC by 2100.[14] Losses of ice mass in parts of Antarctica have been linked to ocean-driven melting and reductions in the thickness and extent of floating ice-shelves. The collapse and diminution of these floating ice shelves, that have hitherto played a critical buttressing role shielding inland ice, has led to accelerating melting, especially in West Antarctica and the Antarctic Peninsular regions.[15] When compared with the IPCC's AR5 projections for ice

12 *Ibid*., pp. 778–780, and Ice sheet Mass Balance Inter-comparison Exercise (IMBIE), 'Mass balance of the Antarctic Ice Sheet from 1992 to 2017' (2019) 558 *Nature* 219–222, at p. 219. The IMBIE exercise involved 44 international organisations and 84 scientists and involved the collation and inter-comparison of 24 independently derived estimates of Antarctic ice-sheet mass balance in what has been termed 'the most comprehensive account of the Antarctic ice sheet to date'. See, *ibid*., at p. 219.

13 The other factors are improved understanding of the components of sea level and improved agreement of process-based models and observations. See, IPCC (n 4), at p. 25.

14 See RM DeConto and D Pollard, 'Contribution of Antarctica to past and future sea-level rise' (2016) 531 *Nature* 591–597. This model incorporates ice sheet and climate dynamics leading to predictions of the collapse of buttressing ice shelves and marine-terminating ice cliffs, 'paleo-filtered' or calibrated against Pliocene and last interglacial estimates of past sea level rise. Although limitations to the model are acknowledged, it allows for the coupling of distinct drivers of melting and thus sea level rise, including those caused by ocean warming and atmospheric warming-associated surface ice melting. *Ibid*., pp. 591 and 596.

15 Less certainty and greater variation, including ice mass gains, were found in estimates of surface mass balance and glacial isostatic adjustment was found for East Antarctica. See IMBIE (n 12); A Shepherd, HA Fricker and SL Farrell, 'Trends and connections across the Antarctic cryosphere' (2016) 558 *Nature* 221–232. It can also be noted that the related hypothesis concerning marine ice cliff instability (MICI), whereby coastal ice cliffs rapidly collapse following the disintegration of ice shelves, is open to debate. See, for instance,

losses from Antarctica, it has been noted that observed losses between 2007 and 2017 are around 30 times greater than the IPCC's lower range of estimates, 80% higher than the IPCC's central projections and close to those projected for the IPCC's RCP8.5 projections.[16] However, it was noted that the IPCC's projections in AR5 'did not account for the effects of increasing emission concentrations on ice-sheet dynamics, or for the possible impacts of processes such as ice cliff instabilities'.[17] Analogously, the overall mass of the Greenland ice sheet declined at a progressively increasing rate from 2003 to mid-2013, with the rate of ice loss in 2013 being four times that in 2003. Although a pause in ice loss occurred for 12–18 months from mid-2013 linked to the phase of the North Atlantic Oscillation (NAO), the melting of surface ice due to NAO-related atmospheric forcing,[18] rather than discharge from marine-terminating outlet glaciers, particularly in southwest Greenland, has been identified as 'a major future contributor to sea level rise'.[19]

Some coasts and coastal ecosystems, such as mangroves and corals, may be able to adjust to rising sea levels.[20] This highlights the key point that at the interface of land and sea at the coast, it is *relative* sea level that is the vital consideration. Relative sea level is a product not only of changes in sea level but also of the complex responses of the coastline and near-shore sea floor morphology and the intricate feedbacks between them.[21] Indeed, in making

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TL Edwards, MA Brandon, G Durand, NR Edwards, NR Golledge, PB Holden, IJ Nias, AJ Payne, C Ritz and A Wernecke, 'Revisiting Antarctic ice loss due to marine ice-cliff instability' (2019) 566 *Nature* 58–64.

16 Under IPCC AR5, RCP8.5 a contribution to sea level rise from Antarctic ice loss was projected to be 0.68mm yr^{-1} with satellite observations indicating a contribution of 0.55mm-^{1}. See T Slater and A Shepherd, 'Antarctic ice losses tracking high', Letter to the editor (2018) 8 *Nature Climate Change* 1025–1026.

17 *Ibid*., at p. 1025. See also, JL Bamber, M Oppenheimer, RE Kopp, WP Aspinall and RM Cooke, 'Ice sheet contributions to future sea-level rise from structured expert judgment' 116(23) (4 June 2019) *Proceedings of the National Academy of Sciences of the United States of America* (PNAS) 11195–11200.

18 That is, the influence of atmospheric conditions on Earth's energy balance and in particular the amount of radiative energy from the sun reaching the surface of the Earth.

19 M Bevis, C Harig, SA Khan, A Brown, FJ Simons, M Willis, X Fettweis, MR van den Broeke, FB Madsen, E Kendrick, DJ Caccamise II, T van Dam, P Knudsen and T Nylen, 'Accelerating changes in ice mass within Greenland, and the ice sheet's sensitivity to atmospheric forcing' (22 Jan 2019) 22 *Proceedings of the National Academy of Sciences*, doi: https://doi.org/10.1073/pnas.1806562116.

20 See, for example, K Rogers and CH Schofield, 'Responding to Changing Coasts: The Need for Fixed and Flexible Limits and Boundaries in the Face of Sea Leve Rise' in J Kraska and C Esposito (eds), *Ocean Law and Policy: Twenty Years of Development under UNCLOS* (Martinus Nijhoff, Leiden, 2016), 419–445, at p. 437.

21 *Ibid*.

its AR5 projections, the IPCC acknowledged that changes in sea level exhibit substantial spatial and temporal variability, indicating that sea level changes would likely feature 'a strong regional pattern, with some places experiencing significant deviations of local and regional sea level change from the global mean change'.[22] However, if sea level rises too much and too swiftly and the ability of key coastal ecosystems to adapt to changing sea levels is compromised by other climate change-related factors, such as warming and acidifying oceans, or anthropogenic impacts, such as developmental pressures on coastal ecosystems, then coastlines are likely to be inundated and overwhelmed. For example, as we have noted elsewhere, coral reef edges, whose low-water lines provide baselines for the measurement of maritime zones, and their associated reef islands on which people live, have to date proved to be remarkably stable.[23]

However, this stability in coral reefs and reef islands may be a thing of the past. For example, it has been suggested that only 9% of coral reefs are likely to 'keep up' with the IPCC's current projected rates of sea level rise.[24] The vulnerability of coral reefs to ocean warming is also supported by the disastrous consequences of the back-to-back bleaching events that occurred in 2015 and 2016, leading to the loss of 50% of the Great Barrier Reef's shallow-water corals across large parts of the Great Barrier Reef.[25] Moreover, the IPCC's 2018 Special Report on 'Global Warming of 1.5°C[26] makes for dire reading. Even under the now seemingly unlikely scenario of 1.5°C warming above pre-industrial levels,

22 IPCC (n 4), at p. 1140.

23 See D Freestone and C Schofield, 'Securing Ocean Spaces for the Future? The Initiative of the Pacific SIDS to develop Regional Practice concerning Baselines and Maritime Zone Limits' (2019) 33 *Ocean Yearbook* 58–89.

24 See CT Perry, L Alvarez-Filip, NAJ Graham, PJ. Mumby, SK Wilson, PS Kench, DP Manzello, KM Morgan, ABA Slangen, DP Thomson, F Januchowski-Hartley, SG Smithers, RS Steneck, R Carlton, EN Edinger, IC Enochs, N Estrada-Saldívar, MDE Haywood, G Kolodziej, GN Murphy, E Pérez-Cervantes, A Suchley, L Valentino, R Boenish, M Wilson and C Macdonald, 'Loss of coral reef growth capacity to track future increases in sea level' (2018) 558 *Nature* 396–400.

25 TP Hughes, JT Kerry, M Álvarez-Noriega, JG Álvarez-Romero, KD Anderson, AH Baird, RC Babcock, M Beger, DR Bellwood, R Berkelmans, TC Bridge, IR Butler, M Byrne, NE Cantin, S Comeau, SR Connolly, GS Cumming, SJ Dalton, G Diaz-Pulido, CM Eakin, WF Figueira, JP Gilmour, HB Harrison, SF Heron, AS Hoey, J-PA Hobbs, MO Hoogenboom, EV Kennedy, C-y Kuo, JM Lough, RJ Lowe, G Liu, MT McCulloch, HA Malcolm, MJ McWilliam, JM Pandolfi, RJ Pears, MS Pratchett, V Schoepf, T Simpson, WJ Skirving, B Sommer, G Torda, DR Wachenfeld, BL Willis and SK Wilson, 'Global warming and recurrent mass bleaching of corals' (2017) 543 *Nature* 373–377, doi:10.1038/nature21707.

26 See, IPCC (2018) *Global Warming of 1.5°C*, Special Report, 8 October 2018, available at: <http://www.ipcc.ch/report/sr15>.

a 'further loss of 90% of reef-building corals compared to today' is projected.[27] Under the 2°C warming scenario coral losses are put at a calamitous 99%.[28] This means that small island States that are wholly or partially composed of low-elevation coral features would be especially vulnerable to the influence of climate change on coral ecosystems, exacerbating the impacts of sea level rise.[29] With respect to sea level rise, the difference between a 1.5°C and 2°C temperature rise does not appear to be so dramatic, with the IPCC suggesting that this would translate to an additional 10 centimetres in GMSL rise. However, the IPCC Special Report estimates that even this seemingly slight increase in sea level rise would translate to an additional 10.4 million people being exposed to flooding as a result of sea level rise.[30]

Ambulatory Baselines and Shifting Maritime Limits

The key maritime jurisdictional concern related to sea level rise is that it will lead to changes, predominantly recessions, in the location of coastlines from which national maritime claims are based. This can potentially lead to substantial reductions in the scope of claims to maritime jurisdiction.[31] The LOSC provides a clear spatial framework for maritime claims and has achieved near universal acceptance with 167 State parties plus the European Union.[32] It is also generally regarded as reflective of international customary law. National claims to maritime jurisdiction are, however, traditionally understood to be dependent on retaining or maintaining sovereignty over land territory.

Consequently, the continued existence of islands above high water is therefore generally considered to be crucially important to maintaining claims to maritime jurisdiction. Furthermore, the jurisdictional limits of maritime

27 *Ibid*., Chapter 3, at p. 84.

28 *Ibid*.

29 In the Pacific region the Marshall Islands, Tokelau, and Tuvalu are wholly and Kiribati predominantly composed of low-elevation atolls and other coral reef features. Large portions of the Cook Islands and Federated States of Micronesia, as well as the outlying parts of Fiji, Palau, Papua New Guinea, and the Solomon Islands, also comprise such features.

30 *Ibid*., Chapter 3, at p. 51.

31 This section draws on Freestone and Schofield (n 23).

32 See United Nations, 'Status of the United Nations Convention on the Law of the Sea, of the Agreement relating to the implementation of Part XI of the Convention and of the Agreement for the implementation of the Convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks, New York, updated to 31 March 2018', available at: <http://www.un.org/Depts/los/reference_files/status2018.pdf>.

zones are largely dependent on distance measurements from baselines along the coast.[33] In particular, the limits of the territorial sea, contiguous zone, and exclusive economic zone (EEZ) are all defined by reference to distances, of 12, 24, and 200 nautical miles (M) respectively, measured from such baselines.[34] Although the definition of continental shelf limits is more complex, distance-based measurements from baselines still play an important role.[35]

Furthermore, although the LOSC allows coastal States to define or claim several different types of baselines,[36] the predominant type consists of 'normal' baselines that are coincident with the 'low-water line along the coast as marked on large-scale charts officially recognized by the coastal State'.[37] Such 'normal' baselines represent the predominant type of baseline in use globally and are essentially a coastal State's default baseline. Furthermore, it can be noted that the various straight-line alternatives to normal baselines that may be claimed by a coastal State still depend to some extent on the location of normal baselines, because in order to be valid they need to be connected back to the low-water line,[38] such that each system of baselines is 'closed'.[39]

Of course, parts of many coasts are dynamic and can change location and configuration in relatively short periods. Indeed coastlines often change in a cyclical manner over time, alternately shifting seawards through deposition

33 As Weil has observed the land dominates the sea 'by the intermediary of the coastal front'. See, P Weil, *The Law of Maritime Delimitation—Reflections* (Grotius, Cambridge, 1989), at p. 50.

34 LOSC, Arts. 3 and 4 (territorial sea), Art. 33 (contiguous zone), Art. 57 (EEZ).

35 The delineation of the outer limits of the continental shelf largely depends on complex geophysical factors; however, distance measurements from baselines, specifically the 200 M and 350 M limits, remain important (Art. 76 LOSC). It is notable that on the basis of recommendations provided by the CLCS outer continental shelf limits are 'final and binding' (Art. 76(8) LOSC). See further below.

36 These include straight baselines (Art. 7, LOSC), river closing lines (Art. 9), bay closing lines (Art. 10), lines related to ports and roadsteads (Arts. 11 and 12), and in respect of archipelagic states (Art. 47).

37 Art. 5 LOSC.

38 See Arts. 7, 9, 10 and 47, LOSC. See also *Anglo-Norwegian Fisheries* case (*United Kingdom* v. *Norway*), Order, [1951] *ICJ* 117 (January 18), pp. 128–129.

39 The UN Group of Technical Experts on Baselines indicated that, for straight baselines for example, this meant that 'whether the baselines are drawn along the coast of an island or of the mainland, the system must start and finish on or above the low water line' and that where straight baselines were drawn connecting a fringe of islands 'all the intermediate basepoints must be located on or above the low water line'. See, United Nations, *Baselines: An Examination of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (UN Office for Ocean Affairs and the Law of the Sea, New York, 1989) at p. 23.

or accretion of material and then landwards because of erosion.[40] As normal baselines are coincident with the low-water line, this means that as coastlines and low-water lines move or 'ambulate' over time, so the maritime jurisdictional limits measured from them will necessarily also shift and change.[41] This has the potential to lead to related 'knock-on' shifts in the location of the outer limits to national maritime claims that are dependent upon such baselines. Thus, where the baseline advances (for example, by the deposition of material along the coast), the outer limits of the maritime claims measured from that baseline will expand seawards. Conversely, where the normal baseline recedes (through coastal erosion or, indeed, inundation as a result of sea level rise) the coastal State may lose maritime areas as the outer limits of its maritime zones are pulled back.

Here it is important to take into consideration the complex interactions between sea level and the shape and elevation of the land that were alluded to above. This suggests that sea level rise does not necessarily automatically translate into recessions in the location of low-water lines in a straightforward manner. Furthermore, it can be noted that only certain parts of a coastal State's baseline are critical for the definition of the outer limits of maritime claims. Such outer limits are commonly constructed through the 'envelope of arcs' method.[42] Thus, only the outermost points along the baseline will be relevant to the limits of the maritime zones. Nonetheless, significant sea level rise has the potential to pose a distinct threat to critical base points from which maritime zones are measured and thus the extent of national maritime jurisdictional claims of States possessing low-elevation coasts.

The Work of the ILA Committee

In 2012, following a recommendation of the 75th ILA Conference held in Sofia, Bulgaria, the ILA Executive Council established a Sea Level Rise Committee.[43]

40 See, for example, W Hirst and D Robertson, 'Geographic information systems, charts and UNCLOS: Can they live together?' (2014) 136 *Maritime Studies* 1–6.

41 MW Reed, *Shore and Sea Boundaries: The Development of International Maritime Boundary Principles through United States Practice, Volume 3* (U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, DC, 2000) at p. 185.

42 CM Carleton and CH Schofield, *Developments in the Technical Determination of Maritime Space: Charts, Datums, Baselines, Maritime Zones and Limits*, Maritime Briefing 3, no. 3 (International Boundaries Research Unit, University of Durham, 2001) at p. 62.

43 International Law Association (ILA), 'Minutes of the Meeting of the Executive Council', London, 10 November 2012, p. 5. ILA, 'International Law and Sea Level Rise Committee', available online at: <http://www.ila-hq.org/en/committees/index.cfm/cid/1043>.

The mandate of this Committee was to study the possible impacts of sea level rise and the implications under international law of the partial and complete inundation of State territory, or depopulation thereof, in particular of small island and low-lying States; and to develop proposals for the progressive development of international law in relation to the possible loss of all or of parts of State territory and maritime zones due to sea level rise, including the impacts on statehood, nationality, and human rights.[44]

In August 2018, at the 78th Conference of the ILA held in Sydney, Australia, the Sea Level Rise Committee presented its Second Report.[45] The Sydney Report summarizes the key issues as follows. When sea levels rise, the low-water line along the coast—which marks the 'normal baseline' for the purposes of Article 5 LOSC—will usually move inland and some key geographical features used as basepoints for delineating the outer limits of maritime zones and for the delimitation of maritime boundaries may be inundated and lost. If, as a matter of international law, the coastal baseline is ambulatory,[46] then in situations where a baseline moves inland[47] and critical basepoints from which maritime zones are measured are inundated, the outer limits of the maritime zones which are measured from this baseline may also move landward.[48] In situations where key geographical features which are used as basepoints for the construction of systems of straight baselines are totally inundated, these movements landward may be even more substantial. This same principle

44 *Ibid*., see also D Vidas, D Freestone and J McAdam, 'International law and sea level rise: The new ILA Committee' (2015) 21 *International Law Students' Association* (*ILSA*) *Journal of International and Comparative Law* 397–408; D Freestone, D Vidas and A Torres Camprubí, 'Sea level rise and impacts on maritime zones and limits: The work of the ILA Committee on sea level rise and international law' (2017) 3 *Korean Journal of International and Comparative Law* 5–35.

45 ILA, Sydney Conference (2018), *Report of the ILA Committee on International Law and Sea Level Rise*, available at: <http://www.ila-hq.org/en/committees/index.cfm/cid/1043> (hereinafter the Sydney Report). Now republished as D Vidas, D Freestone and J McAdam (eds), *International Law and Sea Level Rise* (Brill Nijhoff, Leiden, 2019).

46 As the ILA Baselines Committee has concluded. See ILA, Sofia Conference (2012), *Report of the Baselines under the International Law of the Sea Committee*, at p. 31, available at: <http://www.ila-hq.org/index.php/committees>.

47 Also, note that because of changes in sediment flows, rising sea level may in some circumstances also have an opposite effect in some places, accreting sediments to push the low-water line seaward.

48 Where the outer edge of the natural prolongation of the continental shelf is less than 200 M from the coastal baseline, then the outer limit of the shelf may extend to 200 M from the baseline (LOSC, Art. 76(1)). Due consideration should be here also given to Article 76(9) LOSC, which states that 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'.

applies to the archipelagic baselines of archipelagic States, where the effect of losses of key basepoint features may result in pronounced changes in maritime entitlements, including the potential invalidation of archipelagic baselines systems.[49] Although small island States are likely to be the most prominently affected by such changes, it is important to note that these changes would be likely to affect many, if not most, coastal States.

The Committee recognized the inequity of a situation where small island States that have contributed the least to the greenhouse gas emissions that are causing anthropogenic climate change, might, under the current rules of international law, suffer the first and most serious impacts of sea level rise. It also recognized the importance of the maritime areas and resources represented to these 'small island, large ocean' States and territories, as well as the wider implications for international peace and security of the unprecedented operation of rules that might upset established claims and boundaries.

Then the Committee considered the question of how it might present any proposal *de lege ferenda*, that is, to progressively develop the law, so that coastal and island States would have the option to maintain their maritime entitlements notwithstanding changes brought about by sea level rise. The options it discussed in its reports, some of which it accepted might not be practical, included the following: the development of customary international law,[50] a protocol to the UN Framework Convention on Climate Change,[51] utilization of the amendment provisions of the LOSC,[52] a decision of the meeting of the State parties to the LOSC (SPLOS),[53] a diplomatic conference open also for States non-parties to the LOSC, or an agreement adopted by the UN General Assembly after negotiation in its subsidiary bodies or informal consultations.[54]

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49 See Art. 47, LOSC.

50 As suggested by Soons in 1990: AHA Soons, 'The effects of a rising sea level on maritime limits and boundaries' (1990) 37 *Netherlands International Law Review* 207–232, at p. 255.

51 As proposed in 1990 by the Coastal Zone Management Subgroup of the IPCC, reported by D Freestone and J Pethick, 'Sea level rise and maritime boundaries: International implications of impacts and responses' in G Blake (ed), *International Boundaries; Fresh Perspectives* (Volume 5, Routledge, London, 1994) 73–90, at p. 76.

52 See Arts. 311–316, LOSC. For a discussion of the complexity of this procedure, see, e.g., D Freestone and AG Oude Elferink, 'Flexibility and Innovation in the Law of the Sea: Will the LOS Convention Amendment Procedures Ever Be Used?' in AG Oude Elferink (ed), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Nijhoff, Leiden, 2005) 163–216.

53 Note that Article 319(2)(e) LOSC appears to allocate only administrative roles to this meeting, e.g., under LOSC Annex II, Article 293 and Annex VI, Articles 4(4), 18 and 19, as discussed in Freestone and Oude Elferink (n 52), pp. 207–209.

54 All discussed further by M Hayashi, 'Sea Level Rise and the Law of the Sea: Future Options' in D Vidas and PJ Schei (eds), *The World Ocean in Globalisation: Climate Change,*

The Committee noted the considerable legal and political complexities involved in a number of these options, including particularly the amendment procedure outlined in the LOSC itself.[55] It then considered the mechanics of the evolution of a new rule of customary international law and also considered whether any proposals it might make on this issue could be influential in the contemporary interpretation of the text of the LOSC. In particular, its attention was drawn to the work of the International Law Commission regarding 'subsequent practice' in relation to the work of the Commission regarding interpretation of treaties under the 1969 Vienna Convention on the Law of Treaties.[56] Article 31(3) of the Vienna Convention envisages that, in interpreting treaties, 'any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation' shall be taken into account, together with the context.[57]

The Committee recognized that a number of procedural options were open to States that wished to take advantage of its proposals and, despite deciding not to propose any specific option at this point, expressed the hope that a Resolution of the ILA might be the most effective first step in bringing its recommendations to a wider audience.[58] It noted the strong evidence of emerging State practice in the Pacific region regarding the intent of many island States to maintain their maritime entitlements in the face of sea level rise.

On the basis of the proposals contained in the 2018 Sydney Report, the 78th ILA Conference passed a Resolution endorsing the proposal of the Committee that:

Sustainable Fisheries, Biodiversity, Shipping, Regional Issues (Martinus Nijhoff, Leiden, 2011) 187–206, at pp. 200–206.

55 See Freestone and Oude Elferink (n 52).

56 United Nations, *Report of the International Law Commission, Sixty-eighth session* (2 May–10 June and 4 July–12 August 2016), UN Doc. A/71/10, p. 121, Chapter VI, Subsequent agreements and subsequent practice in relation to the interpretation of treaties: 'Conclusion 4. Definition of subsequent agreement and subsequent practice: … 2. 'subsequent practice' as an authentic means of interpretation under article 31, paragraph 3(b), consists of conduct in the application of a treaty, after its conclusion, which establishes the agreement of the parties regarding the interpretation of the treaty. 3. Other 'subsequent practice' as a supplementary means of interpretation under Article 32 consists of conduct by one or more parties in the application of the treaty, after its conclusion'.

57 Vienna Convention on the Law of Treaties (Vienna, 23 May 1969) 1155 *UNTS* 331. Article 31(2) and (3).

58 It is notable also that in 2018 the International Law Commission set up a study group with virtually identical terms of reference to the ILA Committee to examine further the same issues of sea level rise. See 2018 report at: http://legal.un.org/ilc/reports/2018/.

> … on the grounds of legal certainty and stability, provided that the baselines and the outer limits of maritime zones of a coastal or an archipelagic State have been properly determined in accordance with the 1982 Law of the Sea Convention, these baselines and limits should not be required to be recalculated should sea level change affect the geographical reality of the coastline.[59]

The Resolution further states that the interpretation of the LOSC in relation to the ability of coastal States to maintain their existing lawful maritime entitlements should apply equally to maritime areas delimited by international agreement or by decisions of international courts or arbitral tribunals.[60]

The impact of this Resolution may be more significant than first appears. The ILA is a professional association of international lawyers that is truly international in reach. Its committees are populated by well-known and established jurists; hence its reports and Resolutions are highly regarded within the profession.[61] The support of the ILA for the recognition of a new rule of customary international law, such as this one, may therefore be seen as a significant contribution to the process of evolution of custom itself, particularly when it is coupled with the development of a strong regional State practice in support of such a rule, which is discussed further below.

Development of Regional State Practice in the Pacific and Beyond

Perhaps unsurprisingly, some of the States most threatened by sea level rise, that is, small island developing States of the Pacific, have sought to protect and preserve their existing maritime entitlements. As we have observed in earlier contributions, these States may well be small island ones with limited territories but they are simultaneously 'large ocean' ones as well.[62] This point is highlighted by the fact that although collectively the Pacific Island States total

59 ILA, *Resolution 5/2018: Committee on International Law and Sea Level Rise*, available at: <http://www.ila-hq.org/images/ILA/Resolutions/ILAResolution_5_2018_SeaLevelRise.pdf>.

60 *Ibid.*

61 Article 38(1)(d) of the Statute of the International Court of Justice, (Appendix to the UN Charter: at https://www.icj-cij.org/en/statute), and generally accepted as an authoritative statement of the sources of international law, does accept, as a subsidiary means for the determination of rules of law, '… the teachings of the most highly qualified publicists of the various nations'.

62 See, for example, Freestone and Schofield (n 23).

just over 550,000 km² of land territory,[63] their combined maritime jurisdiction encompasses and area well over 50 times the size – 30,569,000 km².[64]

Endeavours in the Pacific region to secure maritime zone entitlements evolved from efforts to clarify the extent of EEZs for the purpose of sharing income from fishing license fees under the US Tuna Treaty.[65] This led to an effort by the Pacific Islands Forum Fisheries Agency (FFA) towards definition of baselines and the construction of theoretical, equidistance line-based boundary lines used to apportion revenue from fishing rights. Subsequently, the Pacific Boundaries Project has proved highly successful in enabling the Pacific Island States to revise and update their maritime zones legislation, define their baselines, delineate the outer limits of their maritime zones, including the preparation of submissions to the Commission on the Limits of the Continental Shelf (CLCS) relating to continental shelf areas seawards of 200 M, and delimit maritime boundaries between them.[66]

The maritime map of the Pacific Islands region has therefore been substantially clarified. This is clearly of great significance as it provides certainty over jurisdictional rights, and the States involved are highly dependent on revenues derived from the valuable marine living resources, especially tuna fisheries, within their maritime zones.[67] However, these developments in defining the extent of their maritime jurisdictions are also consistent with regional efforts

63 Of which 86% is accounted for by Papua New Guinea. See, M Tsamenyi and L Manarangi-Trott, 'The Role of Regional Organizations in Meeting LOS Convention Challenges: The Western and Central Pacific Experience' in A Oude Elferink and DR Rothwell (eds), *Oceans Management in the 21st Century: Institutional Frameworks and Responses* (The Hague, Kluwer, 2004), pp. 187–208.

64 Q Hanich, CH Schofield, and P Cozens, 'Oceans of Opportunity?: The Limits of Maritime Claims in the South Pacific', in Q Hanich and M Tsamenyi (eds), *Navigating Pacific Fisheries: Legal and Policy Trends in the Implementation of International Fisheries Instruments in the Western and Central Pacific Region* (Ocean Publications, Wollongong, 2009) 17–46 at p. 22.

65 See R Frost, P Hibbard, M Nidung, E Artack and M Bourrel, 'Redrawing the map of the Pacific' (2018) 95 *Marine Policy* 302–310, at pp. 302–303, 306–309, available at: <https://doi.org/10.1016/j.marpol.2016.06.003>.

66 The Pacific Maritime Boundaries Project involves a partnership between the South Pacific Community (SPC) and Australia with the support of the FFA, Global Resource Information Data Network (GRID-Arendal) and the Commonwealth Secretariat. *Ibid*., at p. 302.

67 For example, in 2016 the value of the tuna catch in the Western and Central Pacific Ocean as a whole was estimated at US$5.3 billion, with the value for Pacific SIDS estimated at US$2.59 billion. See P Williams, P Terawasi and C Reid, *Overview of Tuna Fisheries in the Western and Central Pacific Ocean, including Economic Conditions – 2016* (paper presented to the Thirteenth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission, 9–17 August 2017, Port Moresby, Papua, New Guinea, WCPFC-SC13-2017/GN-WP-01); and, F Blaha, 'The economic value of tuna catches

to preserve these maritime entitlements, despite the impacts of sea level rise. This is evident from the regional ocean policy strategy adopted by the Pacific Island Forum called the 'Framework for a Pacific Oceanscape'.[68] Of particular note in the present context, Strategic Priority 1 under the Pacific Oceanscape, addressing jurisdictional rights and responsibilities, urges Pacific island countries and territories to deposit coordinates and charts delineating their maritime zones with the United Nations,[69] with the explicit objective that once established these areas 'could not be challenged and reduced due to climate change and sea level rise'.[70]

A series of declarations from Pacific Island leaders, notably the 2015 Taputapuātea Declaration,[71] the 2018 Delap Commitment[72] and Boe Declaration,[73] serve to underline that the Pacific States are intent on finalising efforts to define baselines, delineate outer limits and delimit their maritime boundaries, deposit information with the UN and maintain these maritime claims in the face of the impacts of sea level rise. This process is well underway with a number of Pacific Island States having already deposited comprehensive information on their maritime limits and boundaries with the UN. A salient example of State practice that fits this Pacific regional trend that the authors have been previously highlighted is the Republic of the Marshall Islands 2016 maritime zones legislation.[74] The Declaration accompanying the

in the Western Pacific', 4 October 2017, available at: <http://www.franciscoblaha.info/blog/2017/10/4/the-economic-value-of-tuna-catches-in-the-western-pacific>.

68 See C Pratt and H Govan, *Our Sea of Islands, Our Livelihoods, Our Oceania. Framework for a Pacific Oceanscape: A Catalyst for Implementation of Ocean Policy* (Pacific Islands Forum Secretariat, November 2010), available at: <http://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

69 *Ibid*., at p. 57.

70 *Ibid*., at p. 58.

71 Signed by the leaders of French Polynesia, Niue, Cook Islands, Samoa, Tokelau, Tonga, and Tuvalu. Text available at: <http://www.presidence.pf/files/Polynesian_PACT_EN_15-07-15.pdf>.

72 Discussed and reproduced in Freestone and Schofield (n 23).

73 See Pacific Islands Forum Secretariat, 'Boe Declaration on Regional Security' (5 September 2018), available online: <https://www.forumsec.org/boe-declaration-on-regional-security/>. See also Pacific Islands Forum Secretariat, 'Communiqué of the Forty-Ninth Pacific Islands Forum, Yaren, Nauru, 3–6 September, 2018', Doc. PIFS(18)10, available at: <https://uploads.guim.co.uk/2018/09/05/1FINAL_49PIFLM_Communique_for_unofficial_release_rev.pdf>.

74 See, D Freestone and C Schofield, 'Republic of the Marshall Islands: 2016 Maritime Zones Declaration Act: Drawing lines in the sea' (2016) 31 *International Journal of Marine and Coastal Law* 720–746.

Marshall Islands *Maritime Zones Declaration Act*[75] defines the extent of the Marshall Islands maritime jurisdiction in remarkable detail and runs to over 450 pages of geographical coordinates and supporting maps.

The practice of the Pacific Island States is not entirely exceptional. States appear to have employed the language contained in the LOSC, Article 76(8), that on the basis of recommendations received from the CLCS outer continental shelf limits are 'final and binding' to declare and thereby fix these limits.[76] Furthermore, a number of coastal States rely on nautical charts as the legal representation of normal baselines, irrespective of physical changes to the position of the coastline, and this practice is arguably analogous to that of the Pacific Island States.[77] For example, the Netherlands' *Territorial Sea* (*Demarcation*) *Act* of 1985 provides that the territorial sea is measured from the low-water line along the coast which is defined as 'the line indicating the depth of 0 metres on the large-scale Dutch sea charts issued upon the instructions of the Minister of Defence'.[78] This type of practice represents a rather literal interpretation of the phrase 'as marked on large-scale charts' contained in LOSC Article 5. The charted line has subsequently been relied upon by Dutch courts, even where it was questionable whether the baseline feature generating the outer limit concerned still existed.[79]

75 Republic of the Marshall Islands, Maritime Zones Declaration Act, Act No. 13 of 2016, available at: <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/DEPOSIT/mhl_mzn120_2016_1.pdf>. The Declaration provides a comprehensive definition of the baselines, outer maritime zone limits and agreed maritime boundaries of the Republic of the Marshall Islands.

76 For example, Australia's Seas and Submerged Lands (Limits of the Continental Shelf) Proclamation, 2012 appears to cover 200-M continental shelf limits as well as those beyond that limit. Available at: https://www.legislation.gov.au/Details/F2012L01081/Explanatory%20Statement/Text.

77 Coastal States which define normal baselines according to their nautical charts include Brazil, Japan and the Netherlands. See, ILA, Committee on Baselines under the International Law of the Sea, Conference Report, Sofia (2012), available at: <http://www.ila-hq.org/index.php/committees> at p. 17.

78 The Netherlands, Territorial Sea (Demarcation) Act, 9 January 1985, available at: <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/NLD_1985_DemarcationAct.pdf>.

79 Award of the economic police court in the case against Marijs, gebroeders H. en B., V.O.F., of 29 June 2007, available at: http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/abplos08_papers.htm; see also L Dorst, and I Elema, 'The Effects of Changing Baselines on the Limits of the Netherlands in the North Sea' paper presented at the Advisory Board on the Law of the Sea (ABLOS) Conference on Difficulties in Implementing the Provisions of LOSC, 15–17 October 2008, Monaco, available at: <https://www.iho.int/mtg_docs/com_wg/ABLOS/ABLOS_Conf5/Papers/Session6-Paper3-Dorst.pdf>.

This approach tends to provide only for the temporary fixing of baselines and therefore limits. That is, the baseline and dependent outer limits to maritime zones will only stay fixed until such time as the chart is revised and updated. Although the coastal State has discretion to choose a chart advantageous to it,[80] to use nautical charts as a means of, essentially, freezing normal baselines in order to retain claimed maritime entitlements is inherently hazardous. This is because the fundamental purpose of nautical charts is to help provide for safety of navigation, meaning that it is crucial for such charts to reflect the reality of the coastline and thus potential hazards to shipping.[81]

The practice of the Pacific Island States outlined above avoids this problem by opting to provide, through long lists of geographical coordinates from which the positions of baselines, the outer limits of maritime zones and maritime boundaries can be reliably derived. This approach neatly circumvents the need to use nautical charts to define the limits of their maritime jurisdictions.

Implications of the South China Sea Arbitration Award: Scope for Flexible Application for Small Island States?

The Award on the Merits of the Arbitral Tribunal in the case between the Philippines and China, delivered on 12 July 2016,[82] represents the first judicial interpretation of the Regime of Islands under Article 121 of the LOSC. Although, as noted at the outset of this article, the Arbitral Tribunal's findings were controversial and the Tribunal's Award was specifically focussed on insular features in the South China Sea, and its findings are only binding on China and the Philippines in its specifics, the detailed analysis of LOSC Article 121, nonetheless has great potential relevance elsewhere. Indeed, Oxman observes that the Award will 'unquestionably' have an impact on the perceptions of both States that 'border and use the South China Sea, and indeed the seas and oceans beyond' on the basis of its 'authoritative contribution to the law of the sea'.[83]

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80 In keeping with the phrase 'as marked on large-scale charts *officially recognized by the coastal state*' contained in LOSC Article 5 [emphasis added].

81 Conscious of safety-of-navigation concerns among other issues, the ILA Committee on Baselines under the International Law of the Sea was of the view that 'the legal normal baseline is the actual low-water line along the coast at the vertical datum' rather than charted low-water lines, meaning that normal baselines are 'ambulatory'. See, ILA, Committee on Baselines under the International Law of the Sea, Conference Report, Sofia, at pp. 31, 33.

82 The South China Sea Award (n 1).

83 See, BH Oxman, *The South China Sea Arbitration Award*, University of Miami Legal Studies Research Paper No. 16–41, 6 September 2016), available at: SSRN: <https://ssrn

The Tribunal's Interpretation of and Findings on Article 121

In its assessment of the Regime of Islands, the Tribunal undertook a detailed analysis of Article 121 of the Convention encompassing a review and analysis of the text of the article,[84] its context,[85] the object and purpose of Article 121[86] and the *travaux préparatoires*, reaching nine conclusions.[87] The Tribunal concluded that the assessment of a particular feature was not to be based on geological or geomorphological criteria.[88] That is, that the term 'rocks' is meant to apply only to features 'composed of solid rock'.[89] Furthermore, it ruled that assessment should be on the basis of the feature's 'natural capacity' to sustain human habitation or an economic life of its own, 'without external additions or modifications intended to increase its capacity' to do so,[90] and indicated in explicit terms that 'a rock cannot be transformed into a fully entitled island through land reclamation'.[91]

Regarding the phrase 'human habitation', the Tribunal was of the view that '[T]he mere presence of a small number of persons on a feature does not constitute permanent or habitual residence there and does not equate to habitation'.[92] It ruled that the critical factor was that the habitation be 'non-transient in character' such that the population involved 'can fairly be said to constitute the natural population of the feature'.[93] Importantly, the Tribunal also found that the capacity of an insular feature to generate EEZ rights depended on the presence of a population to benefit from the resources within that zone,[94] reasoning that the meaning of the text of Article 121(3) is shaped

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.com/abstract=2835534> or <http://dx.doi.org/10.2139/ssrn.2835534>. Professor Oxman served as counsel for the Republic of the Philippines in the *South China Sea* Arbitration.

84 Award (n 1), paras 478–506. The Tribunal dealt with the terms 'Rocks', 'cannot', 'sustain', 'human habitation', 'or' and 'economic life' in succession, providing a systematic and comprehensive textual analysis of Article 121(3).

85 *Ibid.*, paras 507–520.

86 *Ibid.*, paras 521–538.

87 *Ibid.*, paras 539–551. The Tribunal did, however, acknowledge that the *travaux préparatoires* for Article 121 are 'an imperfect guide' given that 'the key compromise' that yielded the text in question arose from 'informal consultations in 1975, for which no records were kept'. Nevertheless, the Tribunal was of the view that some general conclusions would be drawn from the records available. *Ibid.*, para 534.

88 Award (n 1), para 540.

89 *Ibid.* In reaching this conclusion the Tribunal pointed out that the dictionary definition of the term rock also included 'aggregates', 'organic matter' and 'soft materials such as clays' rather than exclusively hard rock. *Oxford English Dictionary*, quoted in *ibid.*, para 480.

90 *Ibid.*, para 541.

91 *Ibid.* para 508.

92 *Ibid.*, para 489.

93 *Ibid.*, para 542.

94 *Ibid.*

by 'the inherent connection between this provision and the concept of the exclusive economic zone'.[95]

The Tribunal went on to determine that only features with a capacity to sustain either 'a stable community of people'[96] or economic activity that is 'oriented around the feature itself and not focused solely on the waters or seabed of the surrounding territorial sea' and not dependent on outside resources or purely extractive in nature are capable of generating extended maritime claims.[97] It was also made clear that the text of Article 121(3) is disjunctive, meaning that either the capacity to sustain human habitation or an economic life of its own is required in order for a feature to escape being classified as a 'rock'.[98] The assessment of insular features concerns their capacity to sustain human habitation or an economic life of its own rather than whether a feature is presently or has historically done so. The Tribunal did point out that in most instances the two elements would go hand in hand.[99]

Scope for Flexible Application for Small Island States?

The Tribunal's findings, outlined above, clearly set a high bar for an island to generate EEZ and continental shelf rights. That said, the South China Sea Award appears to offer significant scope for flexible interpretation for small island States. Indeed, it seems that aspects of the Award were drafted with the concerns of such States very much in mind. This is supported by the fact that the Award specifically refers to a contribution of the Micronesian delegate to the Third Conference on the Law of the Sea (UNCLOS III).[100]

In particular, the Tribunal in the *South China Sea* case made it clear that the capacity of a feature to sustain human habitation or an economic life of its own 'must be assessed on a case-by-case basis' with emphasis placed on 'the natural capacity of a feature'.[101] Indicators of natural capacity were deemed to include 'the presence of water, food, and shelter in sufficient quantities to enable a group of persons to live on the feature for an indeterminate period of time' with consideration to 'prevailing climate, the proximity of the feature to other inhabited areas and populations'.[102] Variation between different islands

95 *Ibid.*, para 512.
96 *Ibid.*, para 542.
97 *Ibid.*, para 543.
98 *Ibid.*, para 544.
99 *Ibid.*, para 545.
100 *Ibid.*, para 497.
101 *Ibid.*, para 546.
102 *Ibid.*

in diverse contexts was therefore contemplated and 'an abstract test of objective requirements' not viewed favourably.[103]

The Tribunal had already noted with regard to 'human habitation' that the community involved 'need not necessarily be large' and that, for example, 'in remote atolls a few individuals or family groups could well suffice'.[104] Moreover, the Tribunal found that periodic rather than permanent habitation by nomadic people 'could also constitute habitation'.[105] Accordingly, the Tribunal emphasized that assessment of insular features should be with 'due regard for the potential for a group of small island features to collectively sustain human habitation and economic life'.[106] Tellingly, the Tribunal reached this view on the basis that it was 'conscious that remote island populations often make use of a number of islands, sometimes spread over significant distances, for sustenance and livelihoods'.[107] Consequently, the Tribunal provided for an exception where populations might sustain themselves 'through a network of related maritime features'.[108]

The Tribunal therefore appears to have been mindful of the needs of small island developing States. Indeed, it can be anticipated that such States will in the future be able to draw on the Tribunal's findings with a view to retaining broad claims to maritime jurisdiction, particularly from islands that are no longer permanently inhabited. In particular, small island developing States have the opportunity to develop arguments based on the natural state of islands prior to island-building activities and also concerning the historical use of groups of islands to support human habitation and economic activity to support their maritime claims from islands even if they are not currently inhabited.[109] This will likely require research and the gathering of socio-cultural, geographical, geoscientific, environmental and particularly historical evidence concerning the habitation of and economic activities relating to islands and groups of islands.

103 *Ibid.*
104 *Ibid.*, para 542.
105 *Ibid.*
106 *Ibid.*, paras 497, 546.
107 *Ibid.*, para 547.
108 *Ibid.*, para 544.
109 *Ibid.*, para 497.

Conclusions

This contribution is entitled *Islands Awash amid Rising Seas*. Tragically, in light of recent research from the IPCC and elsewhere in the scientific community, the first part of the title might readily have been *Islands Submerged*. Although it was always predicted that sea levels would continue to rise for the next few centuries, even if greenhouse gas emissions were radically reduced, it is becoming increasingly clear that sea level rise in excess of a metre can be reasonably anticipated by the end of this century. Indeed, this rise could be substantially more if pessimistic forecasts of ocean warming and the melting of grounded ice in the polar regions are realized. Furthermore, as noted above, the impacts of sea level rise at the coast are likely to be exacerbated by the influence of climate change on coastal ecosystems that provide crucial ecosystem services, including natural coastal protection and response to changing sea levels.

Indeed, for low-elevation States wholly or partially comprising coral reefs and reef islands, increasingly warm, acidic and deoxygenating oceans spell out a bleak future. This is underscored by the IPCC's 2018 projection that even if warming is held to 1.5°C above pre-industrial levels, 90% of coral reefs will disappear, with fully 99% anticipated to be eliminated under a 2°C above pre-industrial levels scenario.[110] Assessments concerning the vulnerability of coral reef features and associated reef islands need to take into account the diversity of features involved, the complex interactions and feedbacks between coral ecosystems and the reef islands and shoreline they support as well as socio-economic pressures on the health of corals. Nonetheless, the IPCC's grim predictions regarding the future of corals in a warming world strongly suggests that coral reef shorelines may become more subject to erosion and less able to provide protection to reef islands, as well as offer the sediment necessary to support island-building processes on and within reef systems.[111]

Sea level rise of this magnitude will undoubtedly have an impact on a large number of low-lying coastal features on which coastal States rely for the definition of their baselines along the coast, the calculation of their maritime zone entitlements and, frequently, the delimitation of their international maritime boundaries. Substantial sea level rise will likely see the regression of coastlines. Consequently, sea level rise poses a significant threat to the extent of coastal State maritime jurisdiction. This is particularly the case as traditional theories

110 IPCC (n 26) Chapter 3, at p. 84.

111 See, CH Schofield, 'Climate Change and Changing Coasts: Geophysical and Jurisdictional Implications of Sea Level Rise' (2017) 5(1) *Korean Journal of International and Comparative Law* 36–60, at pp. 51–54.

of international law indicate that normal baselines consistent with low-water lines along the coast are ambulatory, that is, that baselines move to reflect the physical realities of coastal geography.

The ILA Sea Level Rise Committee identified the development of a pattern of regional practice among the Pacific Island States and Territories that, after clarifying in detail their maritime zone entitlements, they would intend to maintain those claims intact despite physical changes brought about by sea level rise. The Committee did not think that there was sufficient evidence to say that this State practice amounted as yet to a rule of general customary international law, insofar as it has not to date been accepted by other States outside the region. That said, the Committee made a series of recommendations, reflected in a 2018 Resolution of the ILA itself, that provide that where a State has promulgated its baselines and maritime limits in strict accordance with the detailed requirements of the LOSC, then they should be entitled to maintain these baselines and limits, even if the physical features on which these claims rely change as a result of sea level rise. These recommendations are therefore broadly supportive of the practice being pioneered by the Pacific Island States.

An additional highly pertinent international legal development was the decision of the Arbitral Tribunal in the *South China* case. The Award arising from this case is the first detailed international judicial analysis of the regime of islands under the international law of the sea and its findings therefore carry substantial authority.

The Award seemingly set an exactingly high standard for insular features to generate EEZ and continental shelf rights. However, a closer reading of the Award indicates that the Tribunal was cognizant of the needs of small island developing States. In particular, the Tribunal found that only 'a few individuals or family groups' could meet the requirement that a feature be able to sustain human habitation.[112] Moreover, according to the Tribunal, islands do not need to be inhabited on a permanent basis for this habitability requirement to be met. Although it should be stressed that the Tribunal was not specifically addressing the question of the impacts of sea level rise in its Award, this approach does suggest that small island states may be able to maintain claims that insular features affected by sea level rise, and where perhaps permanent populations have had to move, may still be able to generate a full suite of maritime zones. Arguably, so long as island populations still make use of insular features no longer continuously occupied as a consequence of sea level rise and even if spread over significant distances 'for sustenance and livelihoods',[113]

112 Award (n 1), para 542.

113 *Ibid.*, para 547.

then collectively a group of features could sustain human habitation and economic life.[114]

This exception may be utilized by the populations of island states who continue to visit insular features affected by sea level rise to sustain themselves 'through a network of related maritime features' to argue that these features still remain islands in the fullest sense. Consequently, such islands would escape being classified as mere 'rocks' within the meaning of LOSC Article 121(3) and could thus maintain claimed EEZ and continental shelf rights.

Taken together these significant developments in the international law of the sea raise some hope that the maritime entitlements of coastal States threatened by escalating sea level rise, including those of small island developing States, may be retained even as islands become increasingly awash and overwhelmed by rising seas.

114 *Ibid.*, paras 497 and 546.