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# A seabed scramble: a global overview of extended continental shelf submissions

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# A seabed scramble: a global overview of extended continental shelf submissions

## **Abstract**

Early 2009 saw a flurry of submissions of information on proposed outer continental shelf limits to the United Nations Commission on the Limits of the Continental Shelf (CLCS). It is evident that many of these submissions overlap with one another where neighbouring States are located on shared continental margins, thereby giving rise to multiple „new“ outer continental shelf boundaries and, it would appear, potential outer continental shelf boundary disputes. The paper provides a global overview of the impact of extended continental shelf submissions. These substantial „additional“ areas of continental shelf may contain valuable seabed resources, including hydrocarbons. However, development of the resources of the outer continental shelf is likely to be constrained by overlapping submissions to the same areas of outer continental shelf. Such overlaps and potential conflicts are highlighted.

## **Keywords**

scramble, continental, shelf, submissions, global, overview, seabed, extended

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# **A SEABED SCRAMBLE: A GLOBAL OVERVIEW OF EXTENDED CONTINENTAL SHELF SUBMISSIONS**

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## **Abstract**

Early 2009 saw a flurry of submissions of information on proposed outer continental shelf limits to the United Nations Commission on the Limits of the Continental Shelf (CLCS). It is evident that many of these submissions overlap with one another where neighbouring States are located on shared continental margins, thereby giving rise to multiple ‘new’ outer continental shelf boundaries and, it would appear, potential outer continental shelf boundary disputes. The paper provides a global overview of the impact of extended continental shelf submissions. These substantial ‘additional’ areas of continental shelf may contain valuable seabed resources, including hydrocarbons. However, development of the resources of the outer continental shelf is likely to be constrained by overlapping submissions to the same areas of outer continental shelf. Such overlaps and potential conflicts are highlighted.

## **1. Introduction**

Early 2009 saw what was characterised as an enormous “land grab” as coastal States around the world raced to confirm their entitlements to vast swathes of seabed far out to sea.<sup>1</sup> If it was indeed a land grab it was an odd one as no land territory was in fact involved. This scenario arose from the 13 May 2009 deadline applicable to many, though not all, coastal States for the submission of information in respect of the outer limits of areas of continental shelf located seaward of 200 nautical miles (nm)<sup>2</sup> from baselines along their coasts. Such areas of continental shelf located beyond the 200nm limit of the exclusive economic zone (EEZ) are generally termed the ‘outer’ or ‘extended’ continental shelf. Such submissions of information are made to the relevant specialist body created in accordance with the United Nations (UN) Convention on the Law of the Sea (LOSC),<sup>3</sup> the United Nations Commission on the Limits of the Continental Shelf (CLCS).<sup>4</sup>

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<sup>1</sup> See, for example, David Sands, “Sea treaty sparks rivalries”, *Washington Times*, 12 November 2007.

<sup>2</sup> It is acknowledged that technically the correct abbreviation for a nautical mile is “M” and that “nm” properly refers to nanometres. However, “nm” is widely used by many authorities (for example the UN Office of Ocean Affairs and the Law of the Sea) and appears to cause less confusion than “M”, which is often assumed to be an abbreviation for metres.

<sup>3</sup> United Nations, *United Nations Convention on the Law of the Sea*, Publication no.E97.V10, (United Nations, New York, 1983). See 1833 UNTS 3, opened for signature 10 December

Many States left things late. Early 2009 saw a flurry of submissions to the CLCS related to outer continental shelf areas stimulated by the May deadline. From a mere 11 submissions being lodged with the Commission as of May 2008, a year prior to the deadline, by 14 May 2009 that figure stood at over 50 submissions (a number of which are either joint or partial in nature),<sup>5</sup> together with over 40 submissions of preliminary information (again, some being either joint or partial ones)<sup>6</sup> – the “scramble” for seabed alluded to above.

This vast ‘extension’ in coastal State maritime jurisdiction carries with it considerable potential opportunities, especially in terms of marine resources on and under the outer continental shelf, although many of these opportunities may only be realised or become apparent in the future. However, the recent surge in submissions has also resulted in the emergence of multiple ‘new’ potential outer continental shelf boundaries and, it appears, numerous fresh maritime disputes where States located on the same continental margin have made submissions to overlapping areas of outer continental shelf. Additionally, a number of submissions have served to highlight and in some cases arguably exacerbate existing territorial and maritime jurisdictional disputes between States.

This paper provides a global overview of extended continental shelf full submissions and submissions of preliminary information through a series of full colour graphic compilations (included in accompanying presentation). This collection of annotated maps essentially constitute an, at the time of writing (September 2010), up-to-date atlas of extended continental shelf submissions. The primary objective of this exercise is to provide an overview of the impact of multiple extended continental shelf submissions on a global scale.

These substantial ‘additional’ areas of continental shelf may contain valuable seabed resources, including hydrocarbons. Indeed, extended continental shelf areas may well become the ‘next frontier’ for seabed resource exploration and exploitation in the future. However, development of the resources of the outer continental shelf is likely to be constrained by overlapping submissions to the same areas of outer continental shelf. Such overlaps and potential conflicts are highlighted.

## 2. Research Approach

The analysis presented here is fundamentally based on the information provided by coastal States in either their full submissions or submissions of preliminary information to the CLCS. This information was incorporated into the Fugro Global Law of the Sea (LOS) Database, developed and compiled by the first author of this paper.

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1982, Montego Bay, Jamaica (entered into force 16 November 1994) (hereinafter “LOSC” or “the Convention”).

<sup>4</sup> See, <[http://www.un.org/Depts/los/clcs\\_new/clcs\\_home.htm](http://www.un.org/Depts/los/clcs_new/clcs_home.htm)> (hereinafter, “CLCS” or “the Commission”).

<sup>5</sup> Submissions available at, <[http://www.un.org/Depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/Depts/los/clcs_new/commission_submissions.htm)>.

<sup>6</sup> Submissions of preliminary information available at, <[http://www.un.org/Depts/los/clcs\\_new/commission\\_preliminary.htm](http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm)>.

This compilation database features: complete global coastlines and borders at 1:75,000 scale, global Landsat TM7 coverage (~2000-2005, 14.25m resolution), Etopo5/Etopo2/Etopo1 bathymetric raster images (2,000m), GEBCO1 bathymetric raster images (2,000m), seismic-derived sediment thickness (fine ~ offshore waters and coarse ~ onshore and offshore) raster images (2,000m), free-air gravity raster images (2,000m) and single-beam (c.24 million nautical miles of data) and multi-beam bathymetry at various resolutions together with the Fugro global cable database. The database also includes territorial sea baselines for all 155 coastal States and agreed maritime boundary delimitation lines, predominantly derived from official sources such as national gazettes. Where the location of territorial sea baselines was absent or otherwise unavailable they were hypothesized and, similarly, theoretical (strict) equidistance lines have been applied for all undelimited maritime boundaries. The database also incorporates information included in the submissions made to the CLCS as mentioned above.

This paper should be read in conjunction with the graphic compilations presented wherein full submissions are highlighted in green, submissions of preliminary information in orange and areas of actual or potential overlap in red. Whilst every effort has been made to ensure the accuracy of the graphics and that of the figures shown on them and quoted in this paper, it should be noted that they are generally not official figures but are instead an independent assessment. It is also worth noting that with respect to many preliminary submissions the precise extent of the areas of extended continental shelf subject to submission is as yet unclear. Whilst the analysis here is based on publically available information most notably that contained in the full submissions and submissions of preliminary information made by the States involved to the Commission and a rigorous, geodetically robust approach has been applied, the calculations summarised here are necessarily preliminary in nature and are yet to be finalised. It is requested that the figures contained in this paper and accompanying presentation are not quoted without the permission of the authors.

### **3. Global Overview of Extended Continental Shelf Submissions**

Of the 192 United Nations member States, 155 are coastal states.<sup>7</sup> Among these coastal States, 75 have, at the time of writing (September 2010), made either full submissions or submissions of preliminary information as a prelude to making full submissions to the CLCS regarding extended continental shelf rights. In total, 95 extended continental shelf submissions have been deposited with the UN, comprising 53 full submissions and 42 preliminary submissions.<sup>8</sup>

These submissions collectively encompass an enormous area, in excess of 30 million square kilometres, of continental shelf located seawards of the 200 nautical mile limit from coastal baselines. However, these submissions have given rise to numerous overlapping claims to the same areas of extended continental shelf covering an area of

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<sup>7</sup> The figure of 155 coastal States includes three States, Azerbaijan, Kazakhstan and Turkmenistan, whose only coastlines are those on the Caspian Sea. Arguably therefore, as the Caspian is not connected to the world ocean save via rivers and canals, this figure could be put at 152 coastal States. For the purposes of this analysis, the more inclusive figure of 155 coastal States is used.

<sup>8</sup> Noting that a number of these submissions are joint or partial and these figures are inclusive of multiple partial submissions for different areas by some States.

well over 2.7 million square kilometres. Further, the process is not yet at an end as, a further nine more States are likely to (or may yet decide to) make submissions in due course but have yet to do so because the deadline for their submissions has yet to pass. These States yet to make submissions are: Bangladesh, Canada, Ecuador, Liberia, Madagascar, Morocco, USA and Venezuela.<sup>9</sup> Overall, therefore, as many as 84 coastal States may ultimately be in a position to make submissions for extended continental shelf rights to the Commission.<sup>10</sup>

#### **4. Regional Analysis**

The approach adopted in this paper has been to divide the world into eight regions for analysis and presentation as follows: North America (23 coastal States plus three overseas territories), South America (10 coastal States plus three overseas territories), Europe (32 coastal States), Africa (38 coastal States plus two overseas territories), Asia (36 coastal States), Oceania (16 coastal States plus one overseas territories), the Arctic (5 coastal States), and the Antarctic (7 coastal States).<sup>11</sup> Mercator projection compilation maps are provided in the presentation for the first six of these regions, coupled with polar stereographic projection maps of the Arctic and Antarctic regions.

##### **4.1 North America (including Caribbean)**

This region comprises 23 coastal States together with three territories belonging to external powers (France, the Netherlands and the UK). Of these 23 coastal States, 21 are parties to LOSC. The region encompasses 122 potential maritime boundaries of which 44 are delimited, leaving 78 (or 63.9%) yet to be resolved.

A total of seven States have made submissions to the CLCS (five full submissions and three preliminary. These are: Bahamas, Barbados, Cuba, Mexico, Nicaragua, Trinidad and Tobago. The overseas territories on behalf of which submissions have been made are France's Saint Pierre et Michelon (preliminary information, 38,764km<sup>2</sup>) and the French Antilles. Canada, Denmark (on behalf of Greenland) and the USA have yet to make submissions.

In the Caribbean a number of States have made submissions: Barbados (53,444km<sup>2</sup>), Cuba (1,207km<sup>2</sup>), France (on behalf of the French Antilles, 23,077km<sup>2</sup>), Mexico (9,882km<sup>2</sup>) and Trinidad and Tobago (partial) 132,355km<sup>2</sup>. Additionally the Bahamas

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<sup>9</sup> It is worth noting that some of these States are more likely to make submissions than others. For example, Canada's preparations towards formulating a submission are known to be well advanced. Other States that appear to be hemmed in by the maritime entitlements of neighbouring States such as Peru may, nonetheless, opt to make submissions in due course. A submission from the USA presupposes that the USA will eventually become a party to LOSC.

<sup>10</sup> This analysis is founded on 2009 Fugro Global LOS Database as compiled by the first author of this paper based on notification and/or analysis.

<sup>11</sup> With regard to the Antarctic the "coastal States" considered are those that make territorial claims over parts of Antarctica (Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom). It is recognised that these sovereignty claims to parts of Antarctica are contested by other States. Additionally, a number of sub-Antarctic island groups (Australia's Heard Island and McDonald Island, France's Crozet Islands and Kerguelen Islands groups and South Africa's Prince Edward Islands) and their associated maritime claims and extended continental shelf submission areas are illustrated on the south polar graphic compilation.

(176,069km<sup>2</sup>) and Nicaragua (41,160km<sup>2</sup>) have submitted preliminary information. As mentioned above the USA has yet to make a submission.

With regard to North America proper as yet unspecified extended continental shelf overlaps are likely between Canada and Denmark, Canada and France and Canada and the USA. Likely overlaps in the Caribbean include those between the Bahamas and USA (as yet unclear), Barbados and France (Antilles) (14,242km<sup>2</sup>), Barbados and Trinidad and Tobago (partial) (27,069km<sup>2</sup>) and Venezuela and Nicaragua (41,160km<sup>2</sup>).

## **4.2 South America**

The South American region includes 10 coastal States together with three overseas Territories (under the sovereignty of France, the Netherlands and the UK). Six of these States are parties to LOSC. Overall there are 22 potential maritime boundaries in the South American region, 15 of which are subject to agreement leaving seven (or 31.8%) potential boundaries to be resolved.

Nine of the ten South American coastal States (Argentina, Brazil, Chile, Costa Rica, Guyana, Suriname, Uruguay) have made submissions (six full, three preliminary at the time of writing). These include Argentina (1,035,608km<sup>2</sup>), Barbados (53,444km<sup>2</sup>), Brazil (two areas totalling ~ 924,813 km<sup>2</sup>), Costa Rica (preliminary information, 176,795km<sup>2</sup>), France (French Guiana 77,718km<sup>2</sup>), Trinidad and Tobago (partial) (132,355km<sup>2</sup>), Suriname (84,518km<sup>2</sup>), Uruguay (91,118km<sup>2</sup>) and the UK (partial, 1,212,077km<sup>2</sup>). A key area of overlap to the northeast is that between Barbados, Trinidad and Tobago, Guyana, Suriname and France (French Guiana) which it is estimated covers an area of 30,788km<sup>2</sup>.

The South American region also includes overseas territories belonging to France (French Guiana) and the United Kingdom (the Falkland Island, South Georgia Island and the South Sandwich Islands). Potential future submissions and/or overlapping claims may yet eventuate from Ecuador and Costa Rica. Additionally Guyana has made a submission of preliminary information in respect of 37,982km<sup>2</sup> of extended continental shelf. Venezuela may also make a submission in due course (the spatial extent of which is, as yet, unknown). Perhaps unsurprisingly major overlaps exist between the submissions of Argentina and the UK.

## **4.3 Europe**

Of the 33 European coastal States, all bar one is a party to LOSC. Of 95 potential maritime boundaries in the region 50 are agreed (treated wholly or partially), leaving 45 undelimited or potentially in dispute. This means that just under half (47.4%) of potential maritime boundaries have yet to be resolved.

In total nine European coastal States have made submissions to the CLCS. These are: Denmark (Faroes north, 88,214km<sup>2</sup>), France, Ireland, the UK and Spain (joint submission, ~84,765 km<sup>2</sup>), Iceland (two areas, ~495,712km<sup>2</sup>), Ireland (~374,607km<sup>2</sup> and ~40,306km<sup>2</sup>), Norway (three areas totalling ~315,940km<sup>2</sup>), Portugal (partial, ~2,085,334km<sup>2</sup>), Russia (partial, 63,040km<sup>2</sup>) and Spain (~63,250km<sup>2</sup>). Additionally,

further submissions may in due course be forthcoming on the part of Denmark on behalf of Greenland and the Faroe Islands (south).

Subsequent to the recent Norway-Russia Barents Sea maritime delimitation agreement the major overlap between extended continental shelf submissions is that between Denmark (on behalf of the Faroes), Iceland and Norway totalling 88,214km<sup>2</sup>. Further south an overlap also exists between Spain and Portugal (22,042km<sup>2</sup>) and between Spain and the area subject to the quadrilateral submission mentioned above (involving France, Ireland, the UK and Spain) (Spain and Portugal, 22,042km<sup>2</sup>).

#### **4.4 Africa**

The African region incorporates 38 coastal States together with two overseas territories (belonging to France and the UK). All but three of the region's States are parties to LOSC. The region gives rise to 141 potential maritime boundaries of which 49 are agreed/treated thus far, leaving 92 potential maritime boundaries (65.3%) unresolved or in dispute.

Thirty coastal African States have made full (12) or preliminary (22) submissions to the CLCS: Angola (preliminary information, 333,863km<sup>2</sup>), Benin (preliminary information, 10,068km<sup>2</sup>), Cameroon (preliminary information, 159,874km<sup>2</sup>), Cape Verde (preliminary information, two areas totalling 170,308km<sup>2</sup>), Comoros, Congo (preliminary information, 12,573km<sup>2</sup>), Côte d'Ivoire (20,669km<sup>2</sup>), Democratic Republic of the Congo (preliminary information, 6,717km<sup>2</sup>), Equatorial Guinea (preliminary information, 24,411km<sup>2</sup>), Gabon (preliminary information, 26,888km<sup>2</sup>), Gambia (preliminary information, 7,995km<sup>2</sup>), Ghana (two areas totaling 15,655km<sup>2</sup>), Guinea (preliminary information, 19,707km<sup>2</sup>), Guinea-Bissau (preliminary information, 10,319km<sup>2</sup>), Kenya (117,461km<sup>2</sup>), Mauritania (preliminary information, 79,112km<sup>2</sup>), Mauritius (410,061km<sup>2</sup>), Mozambique (~106,172km<sup>2</sup>), Namibia (1,066,426km<sup>2</sup>), Nigeria (8,248km<sup>2</sup>), Sao Tomé and Príncipe (preliminary information, 37,090km<sup>2</sup>), Senegal (preliminary information, 12,578km<sup>2</sup>), Seychelles (preliminary information, 92,974km<sup>2</sup>), Sierra Leone (preliminary information, 2,749km<sup>2</sup>), Somalia (preliminary information, 94,340km<sup>2</sup>), South Africa (three areas totaling 1,118,198km<sup>2</sup>), Spain (preliminary information on behalf of the Canary Islands, ~340,084km<sup>2</sup>), Tanzania (partial, preliminary information, 69,849km<sup>2</sup>), Togo (preliminary information, 10,679km<sup>2</sup>), and Togo and Benin (joint, 10,679km<sup>2</sup>). Additionally submissions have been made by France on behalf of Reunion (66,592km<sup>2</sup>), the Crozet Islands, Saint-Paul Island Amsterdam Islands and Kerguelen Islands (totaling 1,317,463km<sup>2</sup>) and by the United Kingdom with respect to Ascension Island (643,020km<sup>2</sup>). Submissions may also be forthcoming from Madagascar and Morocco in due course.

Potential overlaps exist between Spain and Portugal (42,753km<sup>2</sup>), between Spain, Mauritania and Cape Verde (76,397km<sup>2</sup>), Senegal and Gambia (7,995km<sup>2</sup>), Ghana, Togo, Benin, Nigeria, Sao Tomé and Príncipe and Cameroon (20,922km<sup>2</sup>), Guinea and Sierra Leone (2,749km<sup>2</sup>), Gabon, Congo, Angola and the Democratic Republic of Congo (18,103km<sup>2</sup>), Namibia and South Africa (4,776km<sup>2</sup>), Mozambique and South Africa (23,919km<sup>2</sup>), Tanzania and the Seychelles (2,893km<sup>2</sup>), and, Kenya and Somalia (22,490km<sup>2</sup>).

## 4.5 Asia

There are 35 Asian coastal States of which 28 are parties to LOSC. Of 106 potential maritime boundaries in the region 40 have been agreed leaving 66 (or 62.2%) unresolved or in-dispute. Eleven full submissions and four preliminary submissions have been made to the CLCS on the part of Asian States. These have been made by: Brunei (preliminary information), China (preliminary information), India (eastern area ~599,887km<sup>2</sup>, western area 252,831km<sup>2</sup>), Indonesia (partial, 4,538km<sup>2</sup>), Japan (five areas, ~741,572km<sup>2</sup>), Malaysia (joint with Vietnam, 132,233 km<sup>2</sup>), Maldives (two areas), Myanmar (145,751km<sup>2</sup>), Oman (preliminary information, 102,580km<sup>2</sup>), Pakistan (55,844km<sup>2</sup>), the Philippines (partial, 132,233km<sup>2</sup>), Republic of Korea (preliminary information, 18,636km<sup>2</sup>), Sri Lanka (~1,729,213km<sup>2</sup>), Vietnam (two areas, one joint with Malaysia, 132,233km<sup>2</sup>), and Yemen (45,234km<sup>2</sup>).

Potential overlaps exist between Japan and Palau (228,576km<sup>2</sup>), Oman and Pakistan (8,220km<sup>2</sup>), Japan and China in the East China Sea,<sup>12</sup> Japan and the Republic of Korea (concerning the southern part of their joint development area in the East China Sea, 18,636km<sup>2</sup>), Sri Lanka and the Maldives (9,575km<sup>2</sup>), and between Sri Lanka, India and Myanmar in the Bay of Bengal (371,071km<sup>2</sup>). Additionally, possible future overlapping extended continental shelf issue may arise in the South China Sea if, indeed, any extended continental shelf exists in this area, between Brunei, China, Malaysia, the Philippines and Vietnam.<sup>13</sup>

## 4.6 Oceania

Oceania comprises 16 coastal States together with one overseas territory (under French sovereignty). All of the States involved are parties to LOSC. Of the 34 potential maritime boundaries that exist in Oceania 11 have been agreed, leaving 23 (67.7%) yet to be resolved/in dispute.

Eleven submissions have emerged from the region involving Australia (nine areas considered, 2.56 millionkm<sup>2</sup> confirmed by CLCS),<sup>14</sup> the Cook Islands (400,880km<sup>2</sup>), the Federated States of Micronesia (FSM) (preliminary information, western area, 135,021km<sup>2</sup>, eastern area, 76,171km<sup>2</sup>), a joint submission between FSM, Papua New

<sup>12</sup> This is despite the fact that the East China Sea is less than 400 nautical miles broad and the littoral States claim 200 nautical mile breadth exclusive economic zones. The preliminary submissions of both China and the Republic of Korea therefore relate to areas of continental shelf that are beyond 200 nautical miles from their own baselines but are within 200 nautical miles of Japan's baselines. See, Schofield, C.H. and Townsend-Gault, I. (2010) 'Choppy Waters Ahead in a "sea of peace, cooperation and friendship"?': Slow Progress Towards the Application of Maritime Joint Development to the East China Sea', *Marine Policy*, doi:10.1016/j.marpol.2010.07.004.

<sup>13</sup> Extended continental shelf areas only exist in the South China Sea if the South China Sea disputed islands are considered to be "rocks" within the meaning of Article 121(3) of LOSC, and are thus prohibited from generating continental shelf and exclusive economic zone rights. See, Bateman, S. and Schofield, C.H. (2009), 'Outer Shelf Claims in the South China Sea: New Dimension to Old Disputes', *RSIS Commentary* (Singapore: S.Rajaratnam School of International Studies (RSIS), 1 July).

<sup>14</sup> See, Symonds, P., Alcock, M. and French, C. (2009) 'Setting Australia's Limits: Understanding Australia's Marine Jurisdiction', *AUSGEO News*, Issue 93 (March): 6.

Guinea (PNG) and the Solomon Islands (499,462km<sup>2</sup>), PNG (preliminary information, western area, 135,443km<sup>2</sup>, eastern area 76,171km<sup>2</sup>), a joint submission on the part of Fiji, the Solomon Islands and Vanuatu (preliminary information, 73,464km<sup>2</sup>), a further joint submission between Fiji and the Solomon Islands (preliminary information, 47,391km<sup>2</sup>), New Zealand (five areas, ~1,425,373km<sup>2</sup>), Palau (three areas, ~258,385km<sup>2</sup>), Papua New Guinea (two areas, western 135,021km<sup>2</sup>, eastern 67,191km<sup>2</sup>), the Solomon Islands, and Tonga (29,221km<sup>2</sup>).

Further Oceania includes overseas territories including those of France (New Caledonia (two areas, ~187,440km<sup>2</sup>), Wallis and Futuna and French Polynesia (seven areas, ~809,330km<sup>2</sup>)), as well as Tokelau which is non self-governing territory administered by New Zealand (two areas, ~87,908km<sup>2</sup>).

Potential overlaps exist between Australia and France (New Caledonia) (110,091km<sup>2</sup>), Fiji and New Zealand (209,408km<sup>2</sup>), FSM and PNG (two areas, western, 131,722km<sup>2</sup>, eastern, 64,062km<sup>2</sup>), New Zealand (Tokelau) and the Cook Islands (67,038km<sup>2</sup>), and France (Wallis and Futuna) and New Zealand (Tokelau) (18,152km<sup>2</sup>). Additionally a relatively small area of potential overlap involves Fiji, FSM, PNG and the Solomon Islands (589km<sup>2</sup>).

#### **4.7 Polar regions**

The Arctic Ocean is surrounded by five littoral States (Canada, Denmark, Norway, Russia and the USA). Two of these States have made submissions to date: Norway (three areas, ~329,064 km<sup>2</sup>) and Russia (four areas ~1,472,288 km<sup>2</sup>). Canada, Denmark (on behalf of Greenland) and the USA have yet to make submissions to the CLCS. The deadline for Canada's submission falls in 2013 and Denmark's in 2014. No deadline is yet applicable to the USA as it is not yet a party to LOSC. As and when the USA becomes a party to LOSC it will have ten years to prepare its submission on extended continental shelf rights to the Commission. Potential overlaps between submissions in the central Arctic Ocean may well arise between Canada, Denmark, Russia and the USA.

Additionally, multiple potential overlaps between the submissions of the Antarctic claimant States exist, for example between Argentina and the United Kingdom. To a large extent, however, these submissions are 'on hold' in light of the commitment of these (and other) States to the Antarctic Treaty System. For example, while Australia did include extended continental shelf areas off Antarctica in its submission, it requested that the Commission refrain from considering these areas for the time being.<sup>15</sup>

## **5. Conclusions**

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<sup>15</sup> See, 'Note from the Permanent Mission of Australia to the Secretary-General of the United Nations accompanying the lodgement of Australia's submission', November 2004. This action did not, however, stop a number of States, notably Germany and India, The Netherlands, Russia and the United States, from reserving their positions regarding Australia's submission on outer continental shelf off Antarctica. These documents are available at, <[http://www.un.org/Depts/los/clcs\\_new/](http://www.un.org/Depts/los/clcs_new/)>.

Overall as many as 84 coastal States (of 155 or 54%) potentially have the opportunity to secure rights over areas of extended continental shelf. Thus far 75 coastal States (48% of the total) have done so. Spatial analysis of these submissions results in the conclusion that these areas encompass an area of 30,155,031km<sup>2</sup> in total.

For all the talk of an enormous “land grab” through extended continental shelf submission and of these areas becoming the focus for tension and conflict between States, it is notable that coastal States are, in effect, ‘playing by the rules’ set out in LOSC and by the Commission in its Technical and Scientific Guidelines. Many States have invested considerable time and treasure on collecting the complex scientific information necessary to formulate their submissions to the CLCS and the deadline applicable to many States was certainly taken seriously.

It is abundantly clear, however, that the Commission is faced with an enormous workload. This factor, allied to the fact that, at current rates of progress, it takes around two years to consider each submission (though up to three sub-commissions may run simultaneously) means that it is likely to take decades to determine final and binding outer limits to the outer continental shelf. This is particularly the case since, despite the May 2009 deadline, the submissions process is not complete. Submissions will continue to come in from States not bound by that deadline. Additionally, preliminary submissions will gradually be substituted by full submissions. Furthermore, it is the case that numerous States have, thus far, made only partial submissions and have reserved the right to make further partial submissions in respect of other areas of outer continental shelf.

Despite the fact that coastal States are, it seems, generally acting in accordance with LOSC, it is nonetheless the case that the numerous extended continental shelf submissions outlined above have given rise to considerable areas of overlapping continental shelf claims. The analysis presented here suggests that the 34 distinct areas of overlapping extended continental shelf rights have a combined estimated area of 2,711,107km<sup>2</sup> (with an estimated margin of error of around 9%). In this context it is worth emphasising that the Commission is a scientific rather than legal body that lacks the mandate to resolve sovereignty and maritime disputes such as overlapping claims to outer continental shelf areas. Moreover, the Commission’s recommendations are specifically without prejudice to the delimitation of maritime boundaries.<sup>16</sup> Fundamentally, the Commission is concerned with determining the outer limit of the continental shelf, rather than dividing areas of outer continental shelf between neighbouring States.

Ultimately, therefore, it remains up to the submitting states themselves to address and resolve any overlaps between submissions and maritime disputes arising from these overlaps.<sup>17</sup> This is likely to be achieved through the delimitation of extended continental

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<sup>16</sup> LOSC, Article 76(10) states that “[t]he provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.”

<sup>17</sup> See, Annex II of LOSC and the Rules of Procedure of the Commission on the Limits of the Continental Shelf. The current version of the Rules is contained in Doc. CLCS/40/Rev.1 of 17 April 2008. Available at <[http://www.un.org/Depts/los/clcs\\_new/commission\\_documents.htm#Rules%20of%20Procedure](http://www.un.org/Depts/los/clcs_new/commission_documents.htm#Rules%20of%20Procedure)>.

shelf boundaries and it is the case that the significant number of submissions that relate to the same continental margin outlined above have led to a proliferation in the number of potential extended continental shelf boundaries, the vast majority of which have yet to be delimited. The present analysis suggests that for the 75 States that have made submissions thus far, a total of 69 'new' potential maritime boundaries have been created seawards of 200 nautical miles from baselines along the coast. Further, if all of the additional nine States that may yet make submissions do so, an additional 18 potential maritime boundaries will be created, resulting in an estimated total of 87 extended continental shelf boundaries arising from the submissions process.

These overlaps may be problematic to resolve as a number of the submissions made appear to have the character of ambit claims. Fresh overlaps and maritime disputes have emerged and an extra dimension has been added to existing disputes, such as those in the East China Sea and South China Sea. That said, a number of examples of maritime boundary delimitation agreements dealing with extended continental shelf areas do exist, indicating that potential overlaps can be resolved.

An important underlying motivation on the part of coastal States to confirm their rights over extended continental shelf areas stems from the fact that their sovereign rights are at stake (and arguably at risk if the applicable deadline were to be missed). However, another important reason for the enthusiastic "scramble for seabed" mentioned in the title of this paper are perceptions that outer continental shelf areas may yield considerable resource riches. Indeed, extended continental shelf areas hold the potential to be the 'next frontier' for seabed resource exploration and exploitation in the future.

There are indications that extended continental shelf areas may prove to be rich in marine resources, notably seabed hydrocarbon deposits. For example, although Australia's outer continental shelf areas had been generally considered to be of only limited interest to oil companies, recent work by Geoscience Australia using advanced aeromagnetic surveys indicates the existence of significant petroleum potential in basins in at least three of Australia's ten areas of outer continental shelf: in the Great Australian Bight to the south, on the Lord Howe Rise to the east and on the Wallaby Plateau off Western Australia.<sup>18</sup> The prospects of making commercially viable discoveries on inevitably remote from shore extended continental shelf areas have been enhanced significantly in recent years through dramatic technological advances, allowing the drilling of deeper wells, as well as innovations in the design of production platforms and in geophysical exploration techniques.<sup>19</sup> Extended continental shelf areas are also of interest in terms of their sedentary living resources with, for example, bioprospecting on the outer continental shelf potentially becoming a serious consideration.<sup>20</sup>

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<sup>18</sup> Cleary, P. (2010) 'Finds fuel deep-sea oil rush', *The Australian*, 3 April 2010, available at <<http://www.theaustralian.com.au/news/nation/finds-fuelbrdeep-seabroil-rush/story-e6frg6nf-1225849081371>>.

<sup>19</sup> See, for example, Kelly, P. (2004) "Deepwater Oil Resources: The Expanding Frontier", pp.413-419, in *Legal and Scientific Aspects of Continental Shelf Limits*, Myron Nordquist, John More, and Tomas Heidar (eds), (The Hague: Martinus Nijhoff Publishers): 414-416.

<sup>20</sup> Bioprospecting has been defined as including "the entire research and development process from sample extraction by publicly funded scientific and academic research institutions, through to full scale commercialization and marketing by commercial interests such as biotechnology companies." See, United Nations, "An Update on Marine Genetic Resources: Scientific Research, Commercial Uses and a Database on Marine Bioprospecting", United Nations Informal Consultative Process on Oceans and the Law of the Sea Eight Meeting,

Finally, it should be observed that although much of the debate relating to the outer continental shelf has been concerned with the process by which States can secure their rights over continental shelf areas located seaward of their 200nm limits, this is only the beginning. Once outer continental shelf areas are secured, considerable management and oceans governance responsibilities and challenges in respect of these remote, subsurface seabed areas under national jurisdiction are likely to arise.<sup>21</sup> It is to be hoped that coastal States will apply themselves to addressing these challenges with the same commitment and enthusiasm that they have shown in their efforts to secure extended continental shelf areas.

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(New York, 25-29 June 2007): 7-7. See also, Salvatore Arico and Charlotte Salpin, "Bioprospecting of Genetic Resources in the Deep Seabed: Scientific, Legal and Policy Aspects", UNU-IAS Report, (Tokyo: United Nations University, 2005): 25-25.

<sup>21</sup> See, for example, Joanna Mossop, "Protecting Marine Biodiversity on the Continental Shelf beyond 200 Nautical Miles", *Ocean Development and International Law* 38 (2007)