



Limits of the Continental Shelf in the Arctic Ocean

[Øystein Jensen](#)

Research Fellow, The Fridtjof Nansen Institute, Norway

Climate change and the assumption that a significant proportion of the world's undiscovered oil and gas deposits lie beneath the Arctic seabed have turned the Arctic into a region of considerable geopolitical interest. Natural conditions aside, the Arctic is also attracting attention because of the ongoing legal process whereby coastal states are engaged in defining the outer limits of their continental shelves. For the Arctic coastal states, this work is conducted within the framework of the UN Convention on the Law of the Sea (LOS Convention), except for the USA, which is not a party to the Convention.¹ The LOS Convention stipulates that a coastal state intending to establish the outer limits of its continental shelf beyond 200 nautical miles from the baselines must submit the details of its claim to the Commission on the Limits of the Continental Shelf, no later than ten years after the entry into force of the LOS Convention for that state.²

As regards the Arctic areas, the Commission has already processed the submission from Norway. With three other coastal states currently preparing their submissions (Canada, Denmark/Greenland and Russia), it is timely to reflect on some legal aspects regarding implementation of the LOS Convention's continental shelf regime as applied in the Arctic Ocean.

The basic question is which parts of the Arctic seabed are actually covered by the LOS Convention's 'continental shelf' regime. More specifically, where shall the outer limits of the continental shelf lie? This is of paramount importance because seabed that is *not* continental shelf is defined as forming part of the international seabed area – and here the resources are to be managed on behalf of *all* states by the International Seabed Authority.³ On the continental shelf, by contrast, the coastal state enjoys sovereign rights to exploit and explore its natural resources.⁴

In fact, it is no easy matter under the terms of the LOS Convention to locate exactly where the continental shelf ends and thus where the international seabed area begins.

The extent of other maritime zones to which a coastal state may lay claim is determined by measuring nautical miles from that coastal state's baselines. The continental shelf, however, comprises all submarine areas that extend beyond a state's territorial sea *throughout the natural prolongation of its land territory to the outer edge of the continental margin*.

This matter is especially complex in the Arctic Ocean. The difficult point is the criterion of 'natural prolongation', i.e. the potential discontinuity in the continental margin. This problem is acute in relation to the seafloor highs that extend across the Arctic Ocean, conjoining Russian, Greenlandic and Canadian territory: the *Lomonosov*, *Alpha* and *Mendeleev* seafloor highs. When Russia first made a submission to the Commission in 2001, it claimed a continental shelf stretching all the way to the North Pole, thereby encompassing parts of the *Lomonosov*, *Alpha* and *Mendeleev* highs.⁵ A central purpose of Canada's and Denmark's on-going explorations of the Arctic seabed is to furnish evidence that *Lomonosov* should be considered part of the continental shelf.

However, even a cursory glance at maps of the Arctic Ocean seabed will reveal the contours of morphological ruptures separating the seabed outside Russia/Canada/Greenland from the seabed comprising the said seafloor highs. Indeed, Russia's shelf claim evoked reactions from several states, including the USA. The *Lomonosov*, the latter argued, is a 'freestanding feature in the deep, oceanic part of the Arctic Ocean basin, and not a natural component of the continental margins of either Russia or any other State'.⁶ The Commission on the Limits of the Continental Shelf concluded that Russia would have to make a revised submission, which is still pending.⁷

In evaluating the Russian submission, the Commission probably encountered problems of another sort as well: If these seafloor highs are in fact natural extensions of a coastal state's land territory, should they be considered as submarine 'ridges', or as 'elevations'? This is a critical distinction, as the category of 'elevations' confers a more favourable maximum limitation on the extent of the continental shelf under the LOS Convention.⁸ And indeed, if the said seafloor highs were to be legally classified as elevations, estimates indicate that in the entire Arctic Ocean only two relatively small enclaves would remain part of the international seabed area: the Gakkel Ridge, and a smaller seabed area in the Canada Basin.⁹

It would be premature to draw final conclusions, both as to whether the seafloor highs in the Arctic basin constitute natural prolongations, and whether they are ridges or elevations. More information about the physical nature of the seabed must be assembled and analysed. This is why the Commission on the Limits of the Continental Shelf will continue to play a key role. The Commission receives submissions from coastal states; it performs a substantive assessment of the coastal state's tentative delineation and thereafter issues its recommendations. Only outer limits that are established 'on the basis of' the Commission's recommendations become legally 'final and binding'.¹⁰

On the face of it, this procedure would appear satisfactory. In several essential respects, however, the workings of the Commission are closed to the outside world.

And while the Commission was established in order to deal with a *treaty* provision, it is composed exclusively of experts in geology, geophysics and hydrography. Furthermore, it is unclear whether the Commission draws on information on the seabed other than that provided by the coastal state in its submission. And, given the direct interest of other states in the extent of the international seabed area, we should ask what realistic options are available for bringing the issue of the delineation of the outer limits before an international dispute settlement body for re-examination.

This latter point is relevant in light of the scenario where almost the entire Arctic Ocean might become subject to national jurisdiction. The Arctic could become an example of how the LOS Convention's continental shelf regime may serve the interests of a limited number of coastal states, to the detriment of other states lacking regional attachment. And since the entire procedure for establishing the outer limits of the continental shelf is characterized by general inaccessibility and inscrutability, with experts at the helm in putting legal provisions into practice, substantive weaknesses of the legal framework could eventually undermine its political legitimacy.

Thus far, the process of determining the outer limits of the continental shelf in the Arctic Ocean has shown that states do adhere to the process that UNCLOS stipulates. And although Arctic coastal states should not be criticized for complying with deadlines under the LOS Convention, there is, *lex ferenda*, good reason to ask whether the time-limits regarding mapping the Arctic Ocean seabed are prudent. First of all, implementation of international law of this importance should not require coastal states to embark on what would seem to be a race against the clock. In ice-covered waters, it is extraordinarily demanding to collect and analyse data that describe the geophysical characteristics of the seabed and subsoil. Furthermore, there is the risk of erroneous measurements. Also, establishing the outer limits of the continental shelf beyond 200 nautical miles in the Arctic Ocean will have little or no practical significance for the foreseeable future. Conventional oil and gas technology still lacks capacity to operate effectively and safely in the extreme Arctic conditions. Notable is the absence of an adequate international regime for oil-spill contingencies and environmental protection in the Arctic – which perhaps should have been the overriding priority of states at this point.

Finally, some remarks on potential maritime *delimitation* issues are pertinent here. An extensive Arctic Ocean continental shelf may lead to several overlapping seabed claims, whose resolution will depend on the application of delimitation agreements. The delimitation agreement between Russia and Norway concerning the Barents Sea and the Arctic Ocean entered into force on 7 June 2011.¹¹ Disputes may also arise in the central Arctic Ocean, involving Denmark/Greenland, Canada and Russia. In principle, there is nothing unique about the Arctic in this respect, since the LOS Convention provides a generally applicable legal framework.¹² However, in the category of 'relevant circumstances' under the jurisprudence of the International Court of Justice, which have provided a basis for adjusting tentative median lines, certain factors stand out. First, there is the extraordinary complexity of the Arctic, with its semi-enclosed seas surrounded by several continental landmasses and the consequent configuration of the seabed. Second, there is the role of perception, which, with regard to sources of

minerals/energy beyond national control, has had a major impact on the development of the law of the sea so far, and which will inevitably add increasing urgency to the need to resolve the issue of Arctic maritime boundaries.

¹ *United Nations Treaty Series*, Vol. 1833, pp. 3ff.

² The time-limit for submissions was modified in 2001 by a decision of the Meeting of the States Parties as ‘having commenced on 13 May 1999’ for states for which the LOS Convention had entered into force before that date (UN doc. SPLOS/72). In 2008, the Meeting further decided that the 2009 time-limit could consist only in the submission of ‘preliminary information’ and description of the status of preparation and intended date for making a full submission (UN doc. SPLOS/184).

³ Article 1 of the LOS Convention.

⁴ Article 77 of the LOS Convention.

⁵ David A. Colson, ‘The Delimitation of the Outer Continental Shelf Between Neighboring States’, *American Journal of International Law*, Vol. 97, 2003, pp. 91–107.

⁶ Sean Murphy, ‘Contemporary Practice of the United States Relating to International Law: U.S. Reaction to Russian Continental Shelf Claim’, *American Journal of International Law*, Vol. 96, 2002, pp. 969–970.

⁷ UN doc. A/57/57/Add.1, para. 41.

⁸ According to Article 76, paras. 5 and 6, of the LOS Convention, the continental shelf can extend to 350 nautical miles on submarine ridges, and to either 350 nautical miles or 100 nautical miles beyond the 2,500 metre isobath on submarine elevations.

⁹ Ron Macnab, ‘The Outer Limits of the Continental Shelf in the Arctic Ocean’, in: Myron Nordquist, John N. Moore & Tomas Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limits* (Martinus Nijhoff, 2004) pp. 301–311.

¹⁰ Article 76, para. 8, of the LOS Convention.

¹¹ See Øystein Jensen, ‘Treaty between Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean’, in: *The International Journal of Marine and Coastal Law*, Vol. 26, 2011, pp. 151–168.

¹² Ted McDorman, ‘The Outer Continental Shelf Limits in the Arctic Ocean: Legal Framework and Recent Developments’, in: Davor Vidas (ed), *Law, Technology and Science for Oceans in Globalisation* (Brill/Martinus Nijhoff, 2010) pp. 499–520.