

**THE LEGAL REGIME OF THE CONTINENTAL SHELF
AND THE ESTABLISHMENT OF THE OUTER LIMITS
OF THE CONTINENTAL SHELF BEYOND THE 200
NAUTICAL MILES**

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Abstract

The United Nations Convention on the Law of the Sea contains a legal definition of the continental shelf, provides the rules which allow coastal states to claim continental shelves beyond 200 mile limit and the methods in order to establish their outer limits under specific conditions, and introduced a new international body: the Commission on the Limits of the Continental Shelf (art.76).

Article 76 paragraphs 4-7 established the operational methods and constraints for the purposes of delineating the continental shelf's outer limits beyond 200 nautical miles. The operational definition of the continental shelf applies only beyond the 200 nautical miles limit because it is primarily defining the extent of the continental shelf beyond that limit.

The Commission is a body in charge of making sure that coastal States have applied article 76's technical and scientific requirements, assisting them in the process of delineation of its outer limits, and making recommendations based on article 76. Only if the coastal States take into account the recommendations from the CLCS, the outer limits of their continental shelf shall be final and binding.

The Convention provides that a coastal State shall make its submission to the Commission as soon as possible or within a 10-year period for after the date when the Convention enters in to force for that State. At the Eleventh Meeting of the State Parties of the Convention in 2001, the states parties decide that the ten-year time period would commence as of 13 May 1999, for those States that ratified the Convention before that date. In the last few years dramatically

This research wants to examine evolution of the legal regime of the Continental Shelf, the process of establishing the outer limits of the Continental Shelf and the role of the Commission on the Limits of the Continental Shelf in that process.

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Acronyms

CLCS - Commission on the limits of the Continental Shelf.

EEZ - Exclusive Economic Zone

ICJ - International Court of Justice

IMO - International Maritime Organization

ISA - International Seabed Authority

ITLOS - International Tribunal for the Law of the Sea

LOSC - Law of the Sea Convention on the Law of the Sea

UN - United Nations

UNCLOS I - First United Nations Conference on the Law of the Sea

UNCLOS II - Second United Nations Conference on the Law of the Sea

UNCLOS III - Third United Nations Conference on the Law of the Sea

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1. Introduction

”The issues concerning the continental shelf and its outer limits are among the central problems of the law of the sea

The United Nations Convention on the Law of the Sea that entered into force in 1994,

since the XIX century until the adoption of the 1958 Convention on the Continental Shelf which introduced in its article 1 the first definition of the continental shelf. As we will see, the 1958 Convention defined the continental shelf in terms of exploitability as the seabed and subsoil of the submarine areas adjacent to the coasts, outside the area of the territorial sea to a depth of 200 meters, or, beyond that limit, to where the depth of the superjacent water admits of the exploitation of natural resources in those areas.

The second chapter will be related to the 1982 United Nations Convention on the Law of the Sea which is considered as one of the most important legal and political agreements adopted by the United Nations. The Convention modified the approach of the Geneva Convention and provided a legal definition of the continental shelf in article 76 which is based on the concept of the scientific continental margin.

In addition, we will developed all the aspects of the current regime of the continental contained in Part VI of the Convention which sets out the rules which regulate the exploration an exploitation of resources over the continental shelf, that entitled the States to lay submarine cables and pipelines on the continental shelf, that include provisions for contributions to be made by the coastal State in respect the exploitation of the nonliving resources of the continental shelf beyond 200 nautical miles, and also establish rules relating to delimitation of the continental shelf between State with opposite or adjacent coasts.

As John E. Noyes states, “knowing where a coastal state’s continental shelf outer limits are located allows coastal States and other international actors to determine the geographical area in which various international legal rights and responsibilities apply. The location of the outer limits of the continental shelf also raises an international community concern. The Area, which constitutes the “common heritage” of the humankind, begins where the continental shelf ends”².

² John E. Noyes. “Judicial and Arbitral Proceedings and the Outer Limits of the Continental Shelf”. *Vanderbilt Journal of Transnational Law* Volume 42, No 4, October, 2009, p. 1225.

In the third chapter, we will present the operational methods and constraints (limits based on foot of slope plus 60 miles, limits based on foot of the slope and sediment thickness, limits based on 350 miles from the baseline or the 2500-m isobaths-plus-100 miles) for the purposes of delineating the continental shelf's outer limits beyond 200 nautical miles contained in Article 76 paragraphs 4-7 of the Convention.

According to Article 76, there are just two possible scenarios: first, when the continental shelf of a co

2. THE CONTINENTAL SHELF BEFORE THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

2.1 The Legal Status, uses of the Seabed before 1945

2.1.1. The origin of the concept

During the XIXth century, the concept of continental shelf was only familiar to oceanographers and geologists. They established a relationship between coastal states and the resources of seabed and subsoil beyond territorial sea. As an example, Raynebal argued in 1803 on the basis of geological criteria that: “le fond de la mer, le long des côtes, peut être considéré comme fait partie du continent, et qu’il est pour cela considéré comme en faisant encore partie”.³ In addition, the first notion of continental shelf was given by the Spanish oceanographer, Odon de Buen who in 1918⁴ proposed to a National Congress of Fisheries, to “d’ajouter a la mer territoriale une portion dans laquelle les espèces les plus comestibles ont choisi de vivre”⁵

For a long time, there was a theoretical distinction between the deep ocean floor and the continental shelf⁶, which was not an independent term. As an example, the British jurist Sir Cecil Hurst published in 1923 a pioneering article, entitled “Whose is the bed of the Sea?”, in which he concluded, essentially in relation to sedentary species, not in relation to minerals, “that a state could make a claim to ownership of a portion of the continental shelf only where it could demonstrate effective and continuous occupation for a long period of time. He contemplated that this would usually be

shown by exclusive exploitation of bottom species such as oysters, sponges, or coral".⁷

Besides, the Argentinian member of the Committee of Experts for the Progressive Codification of International Law in 1925-1926, José León Suárez, also referred to the continental shelf, in connection with the exploitation of the living resources of the sea (fishery).⁸ In fact, Suarez noted in 1918:

“that what determined the presence of fishery resources was not distance from the coast but rather existence of the continental shelf; it was in this area that the needs of fish for food and appropriate light, temperature, and oxygen levels were met and, thus, it was there that the vast bulk of the fish was found. For fishery purposes, then, the continental shelf, a large parte of which was found beyond the territorial sea, was the key variable”

In this context, it was fairly common practice in the first decades of XXth century for States to claim rights over the resources of the sea bed and subsoil in connection with two types of activities: exploitation of sedentary fisheries, and mining through tunnelling. The United Kingdom, as an example, adopted an ordinance on pearl and chank fishing of Ceylon in 1925 that supplemented a previous legislation applied since 1811; France established sponge fisheries in the Tunis Bay and oyster fisheries in the bay of Granville.¹⁰

⁷ Cecil J. B. Hurst, *Whose is the bed of the sea?* BYL 34 (1923) p. 43. Louis B. Sohn and John E. Jones, *Cases and Materials of the Law of the Sea*. (Ardsey, NY : Transnational Publishers, 2004). p. 495.

⁸ Rossene (ed.) *League of Nations Committee of Experts for the progressive Codification of International Law (1925-1928)*, II, Dobbs Ferry, 1972). Shabtai Rosenne. *The Reconciliation of the old and new law of the sea*, in Choon-ho Park. *The Law of the Sea in 1980s*, Law of the Sea Institute. University of Hawaii, 1983, p. 72

Similarly, mining from the coast was one way of achieving effective occupation over seabed and subsoil, which was sufficient to give rights to States over their resources¹¹. For example, the United Kingdom claimed rights to all mines and minerals lying below low water under the open sea, adjacent to but not being part of the County of Cornwall through the Cornwall Submarines Act of 1858¹². These claims did not affect the legal regime of the high sea which allowed the freedoms of fishing and navigation in the superjacent waters.¹³

2.1.2. The historical evolution of the legal status of the continental shelf.

Russian Notification (September 20, 1916) and the Soviet Memorandum (November 4, 1924).

Historically, the first coastal State to look for recognition of its rights over the continental shelf was Russia, through a Notification made by the Czar Nicholas II in 1916. According to W. Latkthine, the Russian Minister of Foreign Affairs, B. Sturmer, on September 20, 1916, based on the discoveries made in the Arctic regions by Russian Captain Vilkitski on behalf of the Russian Empire in the years 1913 - 1914, notified:

“the governments of all the allied and friendly Powers of the fact that Vilkitski Island, the land of the Czar Nicholas II, the island of the Tsesarevitsh Alexsei, Starokadomski and Novopashenni had been incorporated within the territory of the Russian Empire, as well as the islands Henriette, Jeanette, Bennet, Herald and Quedinenie, which, together with the islands of New Siberia, Wrangler, and other situated near to Asian coast of the Empire, form a northern extension of the Siberian continental upland”¹⁴.

¹¹ Robin Rolf Churchill and Alan Vaughan Lowe. *The Law of the Sea* (New Hampshire: Manchester University Press, 1983) p. 109

¹² Cornwall Submarine Act, 1958.

¹³ Churchill and Alan Vaughan, *op. cit.*, p. 109.

¹⁴ The text of the from the Embassy of the Russian Empire to the Spanish Government, Madrid, October 25th, 1916. See W. Lakhtine, “Rights over the Arctic “, *The American Journal of International Law*, Vol. 24, No. 4 (Oct., 1930), p. 708.

In addition, the same Notification reaffirmed the rights of the Russian Empire over a group of small islands located near to the coast (Novaia Zembla, Kolgonev and Waigatha) which had been recognized by the international community as a part of its territory per decades¹⁵.

After the Russian civil war and revolutionary period, in order to give a new legal protection for its islands, the Peoples Commissariat for Foreign Affairs of the U. S. S. R. replaced the notification of 1916 and avoided attempts to appropriate these territories by other foreign Powers, by addressing on November 4, 1924

subjects of International Law the regulation of which by international agreement would seem to be most desirable and realisable at the present moment...”²⁰.

With this mandate, the Committee of Experts decided to focus on an old and controversial topic, such as the size and limits of the territorial waters, in order to establish a first step before determining or defining a legal regime for others maritime areas and the limits for activities of fisheries and mining.

However, the main doctrinal discussion during the conference took place in the second commission in charge of territorial waters and “the question of jurisdiction and property rights over marine resources was proposed by examination by the Hague conference, but not discussed...”²¹. Thus, this Conference was only indirectly relevant for the development of the regime of the continental shelf.

Unfortunately, the Hague Conference failed because of its inability to find final agreement on the breadth of the territorial waters²². Later, the worldwide economic depression of the 1930s and the beginning of the World War II precluded new initiatives of codification of the legal regime for marines spaces based on an international consensus. As a result, a period of unilateral statements and bilateral agreements between States started and “gradually altered the legal status of the continental shelf from being part of the high seas and available for exploitation by all states until its current recognition as exclusive to the coastal state”²³.

²⁰ Resolution adopted by the Fifth Assembly of the League of Nations dated 22 September 1924. In: 20 American Journal of International Law (1926), Special Number, p. 2-3.

²¹ Churchil and Lowe, op. cit, p. 110.

²² Although the work of the Conference was recognized as a contribution by the International Law Commission in the following terms: “The Commission was assisted by the work done at the Conference for the Codification of International Law held at The Hague in March and April 1930, which had amongst other subjects considered the regime of the territorial sea. Owing to differences of opinion concerning the extent of the territorial sea, it had proved impossib2(ri;w)3(a)(al)4(o)Tj 0.uinitatives of co3tiativ6-4

Anglo-Venezuelan Treaty of the Gulf of Paria (February 26, 1942).

In 1942, the United Kingdom, on behalf of Trinidad and Venezuela signed in Caracas a treaty “to make provision for and to define as between themselves their respective interests in the submarine areas of the Gulf of Paria”, which separated the British Island of Trinidad from the mainland of Venezuela outside their territorial waters.

At this point, it is necessary to say that this treaty marked a departure from earlier State practice. Even though the treaty referred only to “submarine areas” and the term “continental shelf” was not used, there was a direct reference of it in art. 1 which read “submarine areas of the Gulf of Paria ~~denotes~~ the sea-bed and ~~soil~~ outside of the territorial waters”. In this way as Churchill and Lowe noted, this treaty was relevant because it divided the continental shelf as a new marine space before the continental shelf was legally defined²⁴.

According to articles 2 and 3 of the Treaty, the parties “set out what was in effect a modified median line boundary”²⁵ to divide the gulf in two sections and to establish their respective spheres of interest: in the first one, the United Kingdom agreed not to claim to sovereignty or control and to recognize any rights of sovereignty or control lawfully acquired hereafter by Venezuela; and Venezuela gave a similar recognition of rights to the United Kingdom in the other section of the gulf.

Therefore, as Shallowitz stated: “the treaty was not an ~~as~~ assertion of jurisdiction by either party over the continental shelf but rather an agreement by each party not to claim rights in the submarine areas ~~on~~ either side of the dividing line between countries”²⁶. In fact, it seems clear that the treaty does not assert sovereignty which “still had to arise from occupation”²⁷. The treaty encourages the parties to claim and occupy legally some parts of the seabed, because as Jewett comments, the “automatic

attachment of the shelf to the coastal state ownership by inherent rights (...), was in no way assumed²⁸.

Additionally, the Treaty established some limits to the parties: first, that the Treaty is just applicable to the Gulf of Paria outside the territorial waters and does not affect the status of islands, islets or rocks above the surface of the sea (art. 5); second, does not affect the rights of passage or navigation outside the territorial waters (art.6); and third, it does not allow any works or installations erected if they close, impede the navigation or constitute a danger or obstruction to shipping (art. 6).

Finally, the treaty considers some rules related to the exploitation of any submarine areas in the gulf: according to the first one, each contracting parties must take the most effective measures to prevent any kind of pollution or contamination by oil, mud, any fluid or substance in the territorial waters of the other (art. 7); and the second one, each contracting parties which is inserted in any concession for the exploitation of submarine area in the gulf, must ensure that the operation of the concession respect the stipulations provided by articles 6 and 7, including the requirement for the concessionaire to use modern equipment during their activities.

2.2. The 1945 Truman Proclamation and other Unilateral State Declarations.

Immediately after the Second War, as a consequence of the lack of an agreement achieved by the international society in order to establish a legal regime which provides rights of control and jurisdiction to the States over the oceans, many of them started to claim rights over the marine space next to their coasts. In fact, Mounon refers to this period as the **age of the continental shelf** because in some States, documents and publications and discussions referred to what we now consider as continental shelf as “submerged land”, and this term was used to strengthen the thesis

²⁸ M. L. Jeweet, op. cit, p. 163.

that a State was able to claim control and jurisdiction over the resources in the shelf, or even sovereignty over the shelf²⁹.

Ironically, this practice was influenced by the government of the United States of America, who later became the greatest opponent of unilateral claims over the oceans.³⁰ Thus, on September 28, 1945, the U.S. President Harry S. Truman “gave birth to the modern concept of continental shelf”³¹ when he issued Proclamation No. 2667, commonly known as the “Truman Proclamation”, announcing the policy of his government with respect to the natural resources of the seabed and subsoil of the

“first, because utilization or conservation of the resources of the subsoil and seabed of the continental shelf depend upon co-operation from the shore;

The Truman Proclamation was an important step in the evolution of the legal regime of the continental shelf and the first unilateral claim by a major maritime power³⁸. Other States did not and could not react against the proclamation, on the contrary, the majority of them, preferred to focus on the advantages of it, especially, those States that have long stretches of continental shelf.³⁹

The proclamation was followed by similar claims on the part of many other States. By 1956, approximately twenty-five states had unilaterally claimed exclusive coastal control over mineral resources in the adjacent continental shelf or over the shelf as such in terms of “sovereignty” or “jurisdiction”⁴⁰. As McDougal and Burke noted, this number of diverging claims expressed “universal consensus on the desirability of exclusive coastal control, coupled with the lack of protest in relation to the control over mineral resources”⁴¹.

However, the changes in the early practice of States outlined in section 2.1.2-2.2.above did not give rise to establish customary rule of the international law. For instance, Lord Asquith, in the arbitration between the Petroleum Development Ltd and the Sheik of Abu Dhabi in 1951 declared his inability to agree that the doctrine of the continental shelf was already part of the international law⁴².

the cases were subsequently referred to the United States Supreme Court where the United States federal government reiterated and strengthened its position, which was that the issue was international and not domestic. See *Suzete V. Suarez*, *The Outer Limits of the Continental Shelf* (Max Planck Institute for Comparative Public Law and International Law in the series, Contributions on Comparative Public Law and International Law, 2008), p. 27.

³⁸ Barry E. Carter and Philip R. Trimble. *International Law* (Nueva York: Aspen Law&Business,

2.3. Codification Work of the United Nations Convention on the Continental Shelf

On November 21, 1947, the United Nations, founded two years before to replace the League of Nations, which had been established the International Law Commission by Resolution No 174 of its General Assembly, to continue the codification work of the Committee of Experts of the League of Nations interrupted during the Second World War II. The following subsections will introduce the work of the ILC related with the Continental Shelf, and all the aspects considered in the first and second United Nations Conference of the Law of the Sea.

2. 3.1. The work of the International Law Commission (1949-1956)

In 1949, the ILC at its first session appointed professor J.P.A. François as special Rapporteur to study the regime of the high seas as one of the topics selected by the ILC from a provisional list⁴³. In his first Report of 1950, professor Francois, included a section on the continental shelf as a sub-topic of the regime of the high sea and posed the following question to be discussed:

Le droit international reconnaît-il le principe que le ~~coûte~~ et la juridiction, ou même la ~~souverainete~~, en ce qui concerne le sol et le sous-sol du plateau continental, ainsi que des eaux au-dessus de ce plateau, au-delà des eaux territoriales, reviennent à l'Etat riverain?⁴⁴

However, the ILC had to face a new international situation, where the number of claims by States over the continental shelf was increasing. As a result, the ILC noticed the necessity of a legal regime which establishes that a “coastal nation exercises sovereign rights over the shelf for the purpose of exploring and exploiting its natural resources”⁴⁵.

⁴³ M. L. Jewett. “The Evolution of the Legal Regime of the Continental Shelf” 22 Canadian Yearbook of International Law, 1984, p. 164.

⁴⁴ Yearbook of the International Law Commission, vol.2, (1950), p. 50.

⁴⁵ Aaron L. Shalowitz. Shores and Sea Boundaries with special reference to the interpretation and use of coast and geodetic survey data. Vol 1. (Washington D.C.: U.S. Department of Commerce, 1962), p. 188.

The legal basis used by the ILC to recognize rights of the coastal states over the continental shelf, was not the doctrine of *res communis* (the property of all the nations) or the doctrine of *res nullius* (the property of no one and therefore capable of being appropriated by the first occupier). On the contrary, ILC adopted the doctrine of the *ipso iure* (by the law itself) that provided rights to states which are independent of

the exploitability criterion with the 200 metre isobath limit⁵⁰. Considering the limits of the geological shelf and the recent technology which at that time made it possible to exploit the resources of the shelf up to this depth. In addition, the ILC recognized the rights of States without a geological continental shelf over submarine areas up to the same limit of 200 metres of depth.

2.3.2. The First and Second United Nations Conferences on the Law of the Sea

In 1958, the ILC addressed its that7fpth.

2.3.3. The 1958 Convention on the Continental Shelf.

In particular, the definition of the continental shelf contained in article 1 of the 1958 Convention on the Continental Shelf was adopted with minor changes to the language contained in Article 67 of the ILC's report. For instance, the term continental shelf was specifically extended to include the seabed and subsoil of submarine areas adjacent to the coasts of islands. As a result, a State composed of one or more islands has exclusive rights to exploit the seabed and subsoil of its insular shelf or shelves.

At the end of the Conference, States could become party of just one of the four conventions and not necessarily be part of all of them⁵³. This mechanism of becoming party produced later "serious doubts about the value of the whole work of the conference,"⁵⁴

The exploitability criterion, "the strength and weakness of the 1958 Convention"⁵⁵, was criticized by a number of governments as lacking precision, vague, and subject to different interpretations"⁵⁶. However, it was finally adopted in order not to hamper states who might acquire scientific advantages and technology in the future to exploit the continental shelf beyond 200 metres"⁵⁷; and it became part of the dual approach to establish the outer limits of the continental shelf that include the 200 metres, as an alternative limit, because "it was a fairly accurate statement of the limits to which it was technically possible to drill in 1958"⁵⁸.

⁵³ Months later, the General Assembly convened by UN resolution N° 1307 of December 10, 1958, a

Article 1 of the 1958 Convention stated that “the term continental shelf” is used as referring: (a) the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; (b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands”.

The 1958 Convention contained 15 articles and introduced the first legal definition of the continental shelf. As Symodes observed, “the participants in the work on the convention had no relevant customary norm at their disposal,...(the 1958 Convention) constituted rather a step in the gradual development of international law than a codifying set of rules”⁵⁹.

The 1958 Convention established in article 2 the sovereign rights of a coastal State over its continental shelf for the purpose of exploring it and exploiting its natural resources. In addition, three new paragraphs were added to the Commission’s original text (ILC’s Article 68):

2. The rights referred to in paragraph 1 of this article are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities, or make a claim to the continental shelf, without the express consent of the coastal State.
3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.
4. The natural resources referred to in these articles consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile or on the seabed or are unable to move except in constant physical contact with the seabed or the subsoil.

⁵⁹ Janusz Symodes. *The Continental Shelf* In: Mohammed Bedjaoui (ed.), *International Law: Achievements and Prospects*. Paris: UNESCO, 1991), p. 872

Paragraphs 2 and 3, recognized that a coastal State's rights over its continental shelf are *per se* exclusive and do not require acquisition by occupation, or on any explicit statement. Moreover, those rights did not affect the legal status of the superjacent waters; however the same rights are related to two specific activities: the exploration and the exploitation of natural resources which are defined in art. 2, paragraph 4 of the Convention as "the minerals and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species..."

It should be noted that, the ILC draft of 1951 just referred to the exploitation of mineral resources over the continental shelf. It was in 1953, that the article was changed including the reference to sedentary fisheries respecting existing rights of nationals of other states.

During UNCLOS I, article 2, paragraph 4 was the subject of debate between developed and developing countries. The first group of countries favoured a concept of natural resources that would exclude living resources "since these, from the very nature of the things, appertained to the resources of the high seas with the freedom of fishing"⁶⁰. The developing countries considered that the proposal would be the origin of future disputes and fishing conflicts, consequently, they were against the proposal. Finally, the Conference omitted that proposal and recognized exclusive rights over the natural resources.

Article 2, paragraph 4 stipulated that "natural resources" consist of the "mineral and other non-living resources". The text adopted was criticized by States because it included "mineral resources" within the concept of "natural resources". Also, D.W Bowett stated the inclusion of "sedimentary living organisms" produc5 088rodt and fTJ0.0001 Tc 0.1

considered “just one more way of giving the coastal State exclusive claims to fishery resources⁶²”.

On the other hand, there were not objection against article 3 which stated that the rights of the coastal States over the continental shelf did not affect the legal status of the superjacent waters, as appertaining to the high seas, or of the air space above those waters:

Article 3

The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters as high seas, or that of the airspace above those waters.

In addition, Article 4 established that State’s rights to explore and exploit may not interfere the laying or maintenance of submarine cables or pipelines on the continental shelf:

Article 4

Subject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipelines on the continental shelf.

In a similar sense, Article 7 made it clear that nothing in the Convention prejudices the right of a coastal State to explore and exploit the natural resources of submarine areas by tunnels driven from the land:

Article 7

The provisions of these articles shall not prejudice the right of the coastal State to exploit the subsoil by means of tunnelling irrespective of the depth of water above the subsoil.

⁶² Ibidem.

Article 5 of the Convention pr

7. The coastal State is obliged to undertake the safety zones, all appropriate measures for the protection of the living resources of the sea from harmful agents.

8. The consent of the coastal State shall be obtained in respect of any research concerning the continental shelf and undertaken there. Nevertheless, coastal State shall not normally withhold its consent if the request is submitted by a qualified institution with a view to purely scientific research into the physical or biological characteristics of the continental shelf, subject to the proviso that the coastal State shall have the right, if it so desires, to participate or to be represented in the research, and that in any event the results shall be published.

The 1958 Convention established in article 6 a method of maritime delimitation when a physical continental shelf is shared between opposite and adjacent States. This method is based on a median or equidistance line from the nearest points from which the breadth of the territorial sea of a state is measured. This line is also subject to the existence of the special circumstances (equidistance-special circumstance rule):

In short, UNCLOS I was successful in producing four conventions of international law of the sea. Unfortunately, the impact of these conventions was limited due some particular reasons⁶³: 1) Besides developing some new criteria about the use of some maritime zones such as the continental shelf, they mostly codified existing rules which means that they were based in the past rather than current State practice, 2) The conventions entered into force between 1962 and 1966, a period of time when the international political, scientific and technological situation was dramatically changing.

This Conference differed from the previous ones under several aspects:

- I) The 1958 Conference was convened after more than six years of preparations.
- II) Before the Conference, there was a draft prepared by experts, reviewed by them several times, and also reviewed by governments which provided comments.
- III) The Geneva Conventions were declaratory of existing law; in so far as States developed new law⁶⁶, such as the regime of the continental shelf.

UNCLOS III was different:

- I) There was not a single draft before to start the Conference.
- II) There were many States which were represented and divided in committees (a) sea bed, b) main issues of the law of the sea and, c) the preservation of the marine environment and scientific research) and working groups which made it more difficult to achieve agreement.
- III) Many and complex issues were negotiated (covering about 100 separate items)⁶⁷.
- IV) This Conference took place during more than a decade and was "a mirror of an equal international society"⁶⁸, in which developed and developing States were forced to reach compromises. For instance, since the beginning of the Conference, the developed States "wanted a conference to address specific aspects that interested them such as the limits of the territorial sea and the freedom of navigation, on the contrary, developing States opted for a global conference, which comprehensively covers all aspects related to the ocean"⁶⁹. The victory the

⁶⁶ Louis Henkin. *Old Politics and New Directions*. In: Robin Churchill, K.R. Simmonds and Jane Welch (ed.). *New Directions in the Law of the Sea*. Collected Papers – Volume III (London: the British Institute of International and Comparative Law, 1973), p.3

⁶⁷ Edward Milles. *An Interpretation of the Caracas Proceedings*. In: *Law of the Sea: Caracas and Beyond: Proceedings* (Kingston, Rhode Island: Law of the Sea Institute, 1975), p. 41

⁶⁸ Juan Miguel Bákula. "El Dominio Marítimo del Perú" Lima: Fundación M. J. Bustamante De la Fuente, 1985. p.107.

⁶⁹ However, because of the complexity of the issues, were not very rigid state blocks (between the developed and developing States). See: Francisco Orrego Vicuña. *El Estado Actual de las negociaciones en la Tercera Conferencia de las Naciones Unidas sobre el Derecho del Mar*. In: *Quinto Curso de Derecho Internacional Organizado por el Comité Jurídico Interamericano* (Washington D.C.: Secretaría General de la Organización de los Estados Americanos, 1979), p. 374.

determine the economic supremacy of them (...), it would constitute a serious threat to developing countries"⁷⁷.

The Convention was not an answer to a single topic; in contrast, the Convention provided a “legal framework within which all activities in oceans and seas must be carried out”⁷⁸ and is considered the “ultimate source of the law of the sea”⁷⁹.

In general, the Convention established the rights and duties for States over the sea. It tried to balance the interests of a state:

- (1) by giving it an its nationals freedom to act in pursuit of those interests (for example, navigation rights and highs seas freedoms); and
- (2) by limiting the freedom of others to act in a manner adverse to those interests
 - (a) by imposing a duty on foreign states and their nationals to act in a prescribed manner (for example, safety and environmental restrictions), or
 - (b) by giving a state the rights to prevent or control activities of foreign states and their nationals (for example, territorial sovereignty or coastal state jurisdiction over mining of fishing)⁸⁰.

Among the other important achievements, the Convention established a generally accepted limit: 12 nautical miles measured from the baselines, introduced a new maritime zone such as the Exclusive Economic Zone (EEZ) and the procedure to establish the outer limits of the Continental Shelf, assigned rules of delimitation for each of maritime zone, provided a body of rules on marine scientific research, and the protection and preservation of the marine environment; introduced the concept of archipelagic State and the regime of transit passage trough Straits used for

⁷⁷ Jaime Cáceres Enríquez. “Las Naciones Unidas y el Derecho del Mar”. *Revista Peruana de Derecho*

international navigation, set out a comprehensive system for the peaceful settlement of disputes and created three international bodies: the International Seabed Authority (ISA), the International Tribunal for the Law of the Se

This new regime contains a legal definition of the continental shelf, provides the rules which allow coastal states to claim continental shelves beyond 200 mile limit and the methods in order to establish their outer limits under specific conditions, and introduced a new international body: the Commission on the Limits of the Continental Shelf (art.76).

Part VI also sets out the rules which regulate the exploration and exploitation of resources over the continental shelf (art.77), that entitled the States to lay submarine cables and pipelines on the continental shelf (art. 79) and the provisions for contributions to be made by the coastal State in respect the exploitation of the nonliving resources of the continental shelf beyond 200 nautical miles (art. 82), also includes provisions relating to delimitation of the continental shelf between State with opposite or adjacent coasts (art. 84).

3.4.1. The definition of the Continental Shelf and Article 76 of UNCLOS

The Geneva Convention of 1958 had defined the continental shelf in terms of its exploitability rather than a geological definition⁸⁴ (article 1) as the seabed and subsoil of the submarine areas adjacent to the coasts, outside the area of the territorial sea to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of natural resources in those areas. As we have set up before, this provision was criticized, since developing technology was rapidly able to extract resources to a much greater depth than 200 metres. As a result the outer limits of the shelf, under to the jurisdiction of the coastal state, were very unclear⁸⁵. This situation motivated the legal change of this definition during the Third Conference of the Law of the Sea.

At the beginning of the Third Conference, the question about the right of States to extend their outer limits of the continental shelf beyond 200 nautical miles became

⁸⁴ Malcolm N. Shaw. *International Law*(United Kingdom: Cambridge University Press, 2003), p. 523.

⁸⁵ *Ibidem*.

one of the main topics of dispute. By 1975, the first negotiation text already included the definition of the continental shelf. It was embodied without any changes in article 76, paragraph 1 of the 1982 Convention⁸⁶.

In 1978, the Conference focused on seven specific central topics that were proving difficult to resolve⁸⁷. One of them was the outer limits of the continental shelf. The Conference created the Negotiation Group 6 in order to reach a compromise about this topic. The working groups discussed these issues and prepared a final text which was adopted by the Conference.

At this point, it is necessary to distinguish the concept of continental shelf from the concept of continental margin which is also included in the Convention.

The continental margin consists of a relatively shallow plateau of land adjacent to the coast, followed by a steep slope (continental slope) and then by a sedimentary area going area near the deep ocean floor, that is the continental rise. Consequently, from a scientific point of view, the continental shelf as a geomorphologic expression is part of the continental margin.

The regime of UNCLOS modified the approach of the Geneva Convention and provided a legal definition of the continental shelf which is based on the concept of the scientific continental margin (not to the scientific continental shelf), is described in article 76:

1. The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the

⁸⁶ Janusz Symodes. *The Continental Shelf*. In: Mohammed Bedjaoui (ed.), *International Law: Achievements and Prospects*. Paris: UNESCO, 1991), p.874.

⁸⁷ Three of this topics were related to seabed matters, and the others related to the rights of land-locked and so-called geographically disadvantaged states, the settlement of disputes relating to the exercises of the sovereign rights of coastal states in the exclusive economic zone, the outer limits of the continental shelf, and the delimitation of maritime boundaries between states

breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

2. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.

3. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.

According to Article 76, The continental shelf, continental slope and continental rise constitute the “continental shelf” from a legal point of view. Therefore, it is clear at this point, that the legal definition of the continental shelf does not correspond with its scientific definition. It was included to satisfy the interests of two categories of both⁸⁸, States with very large continental shelves and States with small continental shelves⁸⁹.

As a conclusion, to understand the legal basis of the definition of the continental shelf, three characteristics of the shelf should be taken into account:

- “1. It is a land mass that underlies the marginal sea and the high seas.
2. It is a worldwide feature that varies considerably in extent, and
3. It is the submerged extension of the continents⁹⁰”

⁸⁸ It has taken into account the interests of coastal States that did not have continental shelf geological sense or had low dimension (eg, the South American states bordering the Pacific Ocean). For these countries are now recognizing the power to exercise sovereign rights to explore and exploit leg natural resources of the seabed and subsoil up to 200 miles, regardless of depth and that these spaces are or no geological sense platform . On the other hand, states with broad platform called extension or superior to 200 miles (Argentina, Australia, Canada, India, etc).

⁸⁹ Division for Ocean Affairs and the Law of the Sea. Office of Legal Affairs. The Law of the Sea. Training Manual for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of submissions to the Commission on the Limits of the Continental Shelf. (New York: United Nations, 2006), p. I-10.

⁹⁰ Aaron L. Shalowitz.

3.4.2. Limits of the outer continental shelf

Article 76 of the Convention sets up that the continental shelf can be extended beyond the national jurisdiction of 200 nautical miles.

This article contains in paragraphs 4 and 5 a complex set of scientific and technical criteria to be considered in order to establish the outer limits of the continental shelf that in any event shall not exceed either 350 miles from the baselines or 100 miles from the 2,500- metre isobaths.

In the case of a shelf that does not extend as far as 200 miles from the coast, “natural prolongation is complemented as a guiding principle by that distance”⁹¹. When the shelf extends beyond the 200 miles-limit, a set of complex formulations, used as a part of a process described in art. 76 must be followed by states, presenting a submission (with supporting scientific and technical data) to the Commission on the Limits of the Continental Shelf (CLCS), one of the 3 institutions established by LOSC.

The CLCS was established in 1997 and has adopted a number of documents that are relevant for the implementation of article 76 by coastal states. The first submission to the CLCS was made by the Russian Federation on 20 December 2001. Since that day, the number of submissions by states has increased each year.

One of the two functions of the Commission is to make recommendations to the coastal State. According to article 76, the Commission will make, under a technical perspective, recommendations to the coastal state about the limits presented. The limits of the shelf established by a coastal state on the basis of these recommendations are final and binding.

⁹¹ Malcolm N. Shaw, *op. cit.*, p. 524..

In chapter 4 we will examine the criteria for the establishment of the outer limits of the continental shelf in more detail and in chapter 5 the procedure to be followed

sea floor, unable to move, except in constant physical contact with the sea floor, such as oysters, coral, sponges and clams.

3.4.4. The Continental Shelf and the Exclusive Economic Zone compared.

Part VI and Part V of the Convention set up the regime of the Continental Shelf and the Exclusive Economic Zone (EEZ) respectively. Both coexist in the sphere of the customary law and the Law of the Sea Convention of 1982⁹⁵ and together establish the rules governing the rights and duties of the coastal in respect all the economic activities (such as exploitation of natural resources) in the maritime zones under national jurisdiction beyond the outer limits of the territorial sea.

This situation may arise:

- When a Coastal State has established an exclusive economic zone, regime of both the continental shelf and EEZ are applicable.
- When a coastal State has not established an exclusive economic zone, only the regime of the Continental Shelf is applicable
- When a coastal State establishes the outer limits of its continental shelf, both the Continental Shelf and EEZ regimes apply in the first 200 nautical miles, and only the Continental Shelf Regime applies beyond that distance.

It's important to emphasize that there are significant points of distinction between these two regimes:

1. The geographical extent to the shelf may be different from that of the 200-mile economic zone⁹⁶.within the 200-mile limit where the EEZ regime will operate.
2. Under the concept of the EEZ (article 56 of the Convention) a coastal State has sovereign rights primarily, but not exclusively, concerned with the living resources of its exclusive economic zone until a maximum distance from the baselines. On the

⁹⁵Ian Brownlie. *Principles of Public International Law* (New York: Clarendon Press, 1990), p. 224.

⁹⁶Malcolm N. Shaw. *International Law* (United Kingdom: Cambridge University Press, 2003), p. 523

other side, the Continental Shelf Regime is concerned with the natural resources defined as “mineral and other non-living resources” of the seabed and subsoil beyond the outer limits of the territorial sea, to the outer edge of the continental margin or to a distance of 200 nautical miles.

3. In the case of the Continental Shelf Regime, the rights of a coastal state do not “depend on occupation, effective or notional, or on any expe

3.4.5. Legal status of the superjacent waters and airspace and the rights of other states to establish submarine cables and pipelines on the shelf.

As we said before, the Coastal state has sovereign rights for the purpose of exploring and exploiting its natural resources, although, its rights are not unlimited. The Convention in article 78 expresses that the superjacent waters above the continental shelf retain *prima facie*⁹⁷ their status as high seas. It is the same with the status of the airspace above the superjacent waters, which according to art.78 is not affected by the states rights over the continental shelf:

Article 78

1. The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or the air space above those waters.
2. The exercise of the rights of the coastal State over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention.

Based on article 79, coastal states can establish cables or pipelines on the continental shelf and may not impede the laying or maintenance of cables or pipelines by others on the shelf.

Article 79

1. All States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article.
2. Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines.
3. The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.

⁹⁷ Martin Dixon. Textbook on International Law. (London: Blackstone Press Limited, 2002), p.208.

4. Nothing in this Part affects the right ~~of~~ coastal State to establish conditions for cables or pipelines entering its territo

The development of the jurisprudence, especially from the International Court of Justice since 1969¹⁰⁰, has covered the lack of methods of delimitation (such as median line and the perpendicular line to the general direction the coast) in the text of the convention. The Court in several cases has established, as a rule of maritime delimitation, the use of equitable principles when the existence of “relevant circumstances” or “factors to be taken into account”¹⁰¹ (for instance, the general configuration of the coast) do not produce an equitable solution.

3.4.11. Regime of the islands

Under LOSC, islands are considered as an extension of “land territory” (article 21) and generate continental shelves, unless they consist of no more than rocks which are defined in art. 121, para. 3: “Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf”.

As Ian Brownlie said “islands may constitute a relevant circumstance for the purpose of delimiting areas of continental shelf or exclusive economic zone between opposite or adjacent states and in this context they may be given full effect or half-effect, or they may be snubbed and enclaved”¹⁰²

¹⁰² Ian Brownlie. *op. cit.*, p. 231.

4. THE ESTABLISHMENT OF THE OUTER LIMITS OF THE CONTINENTAL SHELF

4.1. Operational Definition of the Continental Shelf

Article 76 paragraphs 4-7 established the operational methods and constraints for the purposes of delineating the continental shelf's outer limits beyond 200 nautical miles in the following terms:

4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:

(i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or

(ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

(b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

5. The fixed points comprising the line of outer limits of the continental shelf on the seabed, drawn in accordance with paragraph 4 (a)(i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.

6. Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This

paragraph does not apply to submarine elevations that are natural components of the continental margin, such as plateaux, rises, caps, banks and spurs.

7. The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical mi

As we seen above, States submit all data and information based on paragraph 4, (a-b) (limits based on foot of slope plus 60 miles, limits based on foot of the slope and sediment thickness) and Article 76, paragraph 5 and 6, (limits based on 350M miles from the baseline or the 2500-m isobaths-plus-100M), to the CLCS which makes recommendations to the coastal States. Only if the coastal States follow the recommendations, the outer limits of their continental shelf “shall be final and binding”.

The operational definition of the continental shelf, mentioned above, applies only beyond the 200 nautical miles limit because it is primarily directed at defining the extent of the continental shelf beyond that limit. The selection of the foot of slope as the point of reference for the procedure of the delineation of the limits of the continental shelf is basically the contribution of Article 76.

4.2. States and the Commission on the limits of the continental shelf in the establishment of the outer limits of the continental shelf

As we explained before, the Convention refers to a “procedure” (not directly) of a number of specific steps that every coastal State should follow to establish the outer limits of its continental shelf. In that sense, Article 76 refers to some elements of this “procedure”: rules, methods and principles that make it possible for each state to delineate the outer limits of its continental shelf.

- (a) to consider the data and other materials submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles, and to make recommendations in accordance with Article 76 and the Statement of Understanding adopted on 29 August 1980 by the Third United Nations Conference on the Law of the Sea;
- (b) to provide scientific and technical advice, if requested by the coastal State concerned during the preparation of the data referred to in subparagraph (a).

As a result, the Commission does not have the power to modify a coastal State's submission. The Commission just can make technical and scientific recommendation based on the Convention.

4.3. Delineation Process of the outer limit of the continental shelf

In order to delineate the outer limit of its extended continental shelf, 4 steps must be taken into account:¹⁰³

1. The coastal States must delineate the outer edge of their continental margin using the complex of rules provided by article 76, paragraph 4.
2. To apply the test of appurtenance. It must demonstrate the continental shelf extends throughout the natural prolongation of its submerged land territory to the outer edge of the continental margin beyond 200 nautical miles.
3. As soon as, the Test of appurtenance was satisfied, it must verify that the lines established in step 1 do not exceed the limits provided by article 76, paragraphs 5 and 6.
4. The outer limits must be delineated using the rules described in step 1 and the limits provided in step 3 of this process.

4.4. Baselines

According to Article 76, paragraph 1, the continental shelf of a coastal State extends

- (i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or
 - (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.
- (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

In order to explain the two formulas included in this Article, it will be necessary to define before the following terms.

4.5.1. The Foot of the Slope

The foot of the slope is defined in the Convention in these terms: “In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base”.

The foot of slope is defined as a point within the landward edge and the seaward edge of the base of the slope, which is taken as point of reference to identify the fixed points referred to paragraphs 4 (a) (i) and (ii) of article 76.

Considering the difficulties presented to identify the exact place of the foot of slope because of the complexity of the seabed, paragraph 4, b, of the Convention, provides a “dual regime”¹⁰⁴ for the determination of the foot of slope.

slope shall be determined finding the point where the gradient changes the most¹⁰⁵ at its base based on morphological evidence.¹⁰⁶

In those cases, coastal States are allowed to use evidence to the contrary to the general rule according Article 76, paragraph 4, (b) of the Convention:

“In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base”.

The “evidence to the contrary” is not defined in the Convention and in general terms it is used as an alternative to general rule, which overrule the gradient determination and the geomorphologic characteristics, and opens the door to other scientific or technical arguments like geological and geophysical evidence available to locate the foot of the continental slope at its base¹¹⁰ (CLCS Guidelines 6.1.2.).

According to the CLCS Guidelines paragraphs 5.2.1 and 5.4.7, “when the foot-of-the-slope cannot be located reliably using geomorphological or mathematical analysis, the geological evidence aimed at identifying the foot of the continental slope at its base may be presented in favor of a specific location under the mechanism of the evidence-to-the-contrary”¹¹¹.

In the case that a coastal State elects to rely on evidence to the contrary rule based on the foot of the continental slope, the Commission will be the body which will request and evaluate the evidence in order to determine the location of the foot of the continental slope that must be accompanied by the results of applying the general rule of maximum change in the gradient of Article 76, 4, b.

In short, this provision complements the general rule established by the determination of the foot of the continental slope as the point of maximum change in the gradient at its base” (CLCS Guidelines 6.1.2), introducing the geological evidence

¹⁰⁹ Division for Ocean Affairs and the Law of the Sea, *op. cit.*, p. I-28.

¹¹⁰ Tomas H. Heidar. *op.cit.*, p. 25

¹¹¹ Steinar Thor Gudlaugsson. *Natural Prolongation and the Concept of Continental Margin for the purposes of article 76*. In: Myron H. Nordquist, John Norton Moore and Tomas H. Heidar. *The Legal and scientific aspects of the continental shelf*. Leiden/Boston: Martinus Nijhoff Publishers, 2004, p. 83

as an alternative for determining the location of the foot of the continental slope at its base.

4. 5. 2. Determination of the outer edge of

formula, requires the identification of fixed points where the sediment thickness is at least 1 percent of the shortest distance from such point to the foot of the slope.

When this paragraph was included in the convention, the general purpose of this formula was to ensure for the benefit of coastal State, sovereign rights in order to extend to a major portion of the continental rise where significant hydrocarbon resources were deemed to exist¹¹⁴. However, it is necessary to set up that not all coastal States have sedimentary areas (sedimentary rocks¹¹⁵) from which they would benefit through this criterion.

To use this criterion, two aspects have to be calculated:

- a. The measure of the thickness of sediment in deepwater beyond the slope¹¹⁶.
- b. The distance from the closest foot of slope point to the fixed point. This section serves to clarify the required information and how it may be obtained, verified, and used in defining an extended continental margin under the provisions of the 1% rule¹¹⁷.

¹¹⁴Tomas H. Heidar. *Legal Aspects of Continental Shelf Limits*. Myron H. Nordquist, John Norton Moore and Tomas H. Heidar. *The Legal and scientific aspects of the continental shelf*. Leiden/Boston: Martinus Nijhoff Publishers, 2004, p. 26

¹¹⁵In general, a conventional rock type cl-0.0 H

In order to draw the line described in this paragraph, the coastal States must to connect the fixed points previously identified where “the sediment rocks is at least 1% of the shortest distance from such point ant the foot of slope”.

The “Bengal Rule”¹¹⁸,

The rule related to the formulae line described in Article 76, paragraph 4, (a), (i), has an exception in the Annex II, Final Act of the UNCLOS III referred to “the Statement of Understanding Concerning a Specific Method to be Used in Establishing the Outer Edge of the Continental Margin” which applies when:¹¹⁹

- The average distance at which the 200-metre isobath occurs is not more than 20 M; and
- The greater proportion of the sedimentary rock of the continental margin lies beneath the rise.

In these cases, the outer edge of the continental margin is established by a “modified sediment thickness formula”¹²⁰: by straight lines not exceeding 60 M in length connecting fixed points, defined by latitude and longitude, at each of which the thickness of sedimentary rock is not less than 1 kilometre.

4.5.2.2. Distance Formula

The second formula contained in paragraph 4, (a), (ii), also known as the “Hedberg Line” (name of its author Hollis H. Hedberg) can be delineated “by reference to fixed points not more than 60 nautical miles from the foot of the continental slope”.

The Hedberg formula entails drawing a line where points are not more than 60 M from the foot of the slope. Having identified the outer edge of the continental margin by using one or both formulas it is possible to do the Test of Appurtenance and verify if the outer edge extends beyond 200 nautical miles.

¹¹⁸ This exception was drafted based on the special characteristics of the Bay of Bengal.

¹¹⁹ Division for Ocean Affairs and the Law of the Sea, *op. cit.*, p. I-34

¹²⁰ *Ibidem.*

Test of Appurtenance

The test of Appurtenance is the process in which the coastal State must demonstrate entitlement to delineate the outer limit of the continental shelf beyond the 200 nautical miles throughout the natural prolongation of its land territory.

In order to outcome the test of appurtenance, the coastal State has to present evidence that the natural prolongation of its land territory to the outer edge of its continental margin extends beyond the 200 nautical mile limit.

However, if a coastal State can not prove that the outer limits of its continental shelf lies beyond that limit, they are automatically delineated up to 200 nautical miles according article 76, paragraph 1.

Notion of Natural prolongation

The Convention, Article 76 paragraph 1 provides a definition of the continental shelf that establishes the right of a coastal State to determine the outer limits of that maritime space based on natural prolongation and consider a minimum distance of 200 nautical miles which is recognized for the benefit of a state when the natural prolongation does not reach that limit.

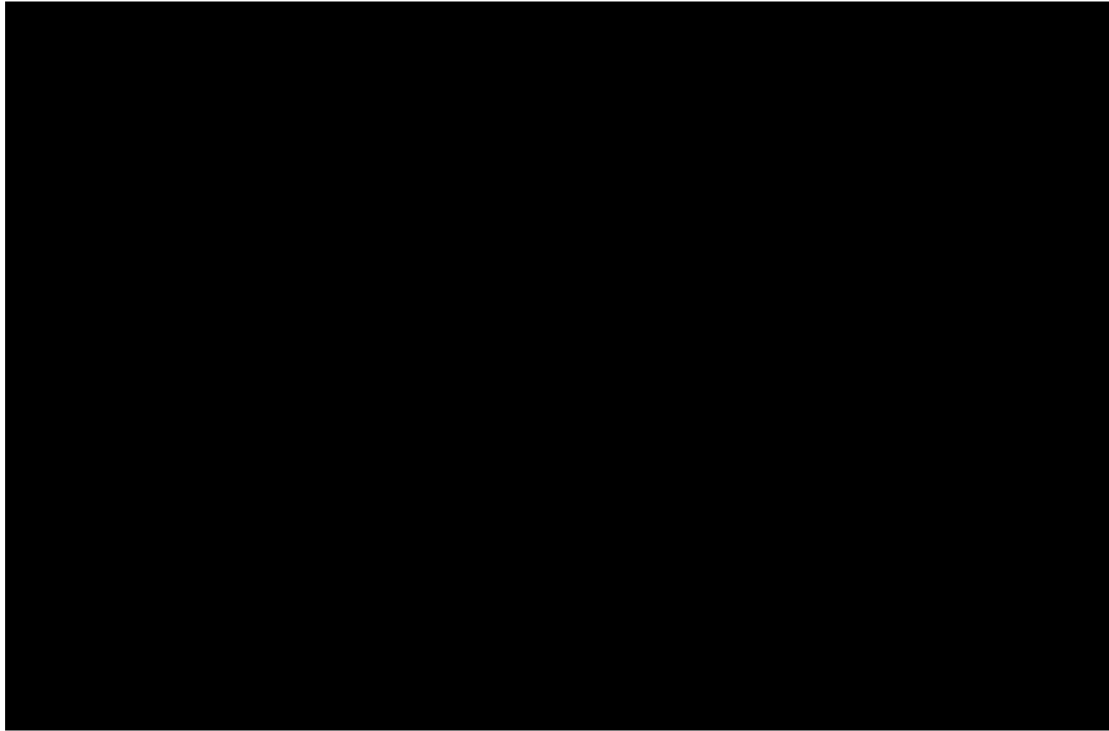
Even though the Convention just refers to “natural prolongation” and omits any definition of it, some authors such as Tomas H. Heidar considers that natural prolongation consists in that “the submerged prolongation of the landmass of a coastal State, regardless of its characteristics, comprises its continental margin and creates its entitlement to a continental shelf”¹²¹.

In this sense, natural prolongation refers to the “unbroken continuity”¹²² of the land territory submerged which is precisely “the property that allows a coastal State to extend entitlement over its continental shelf beyond 200 nautical miles”¹²³.

¹²¹ Tomas H. Heidar. *Legal Aspects of Continental Shelf Limits*. Myron H. Nordquist, John Norton Moore and Tomas H. Heidar. *The Legal and scientific aspects of the continental shelf*. Leiden/Boston: Martinus Nijhoff Publishers, 2004, p. 25

¹²² Tomas H. Heidar , *ibid.*, p. 20.

Figures I: Formulae lines – Article 76, paragraph 4, a.- UNCLOS

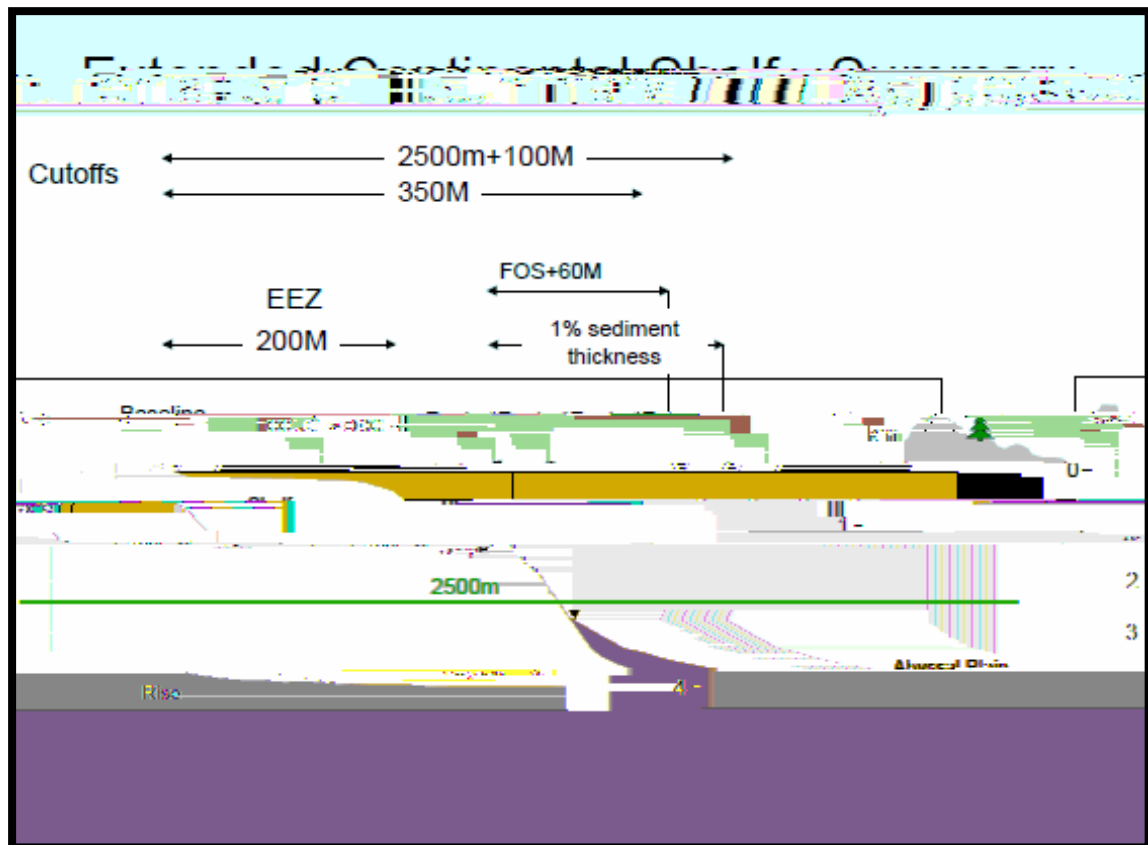


Source:

the baselines or by a line lying at a distance of 100 nautical miles from the 2500 metre isobath. As with the formulas, each State can select one or both of these constraints, and alternatively the most advantageous limit.

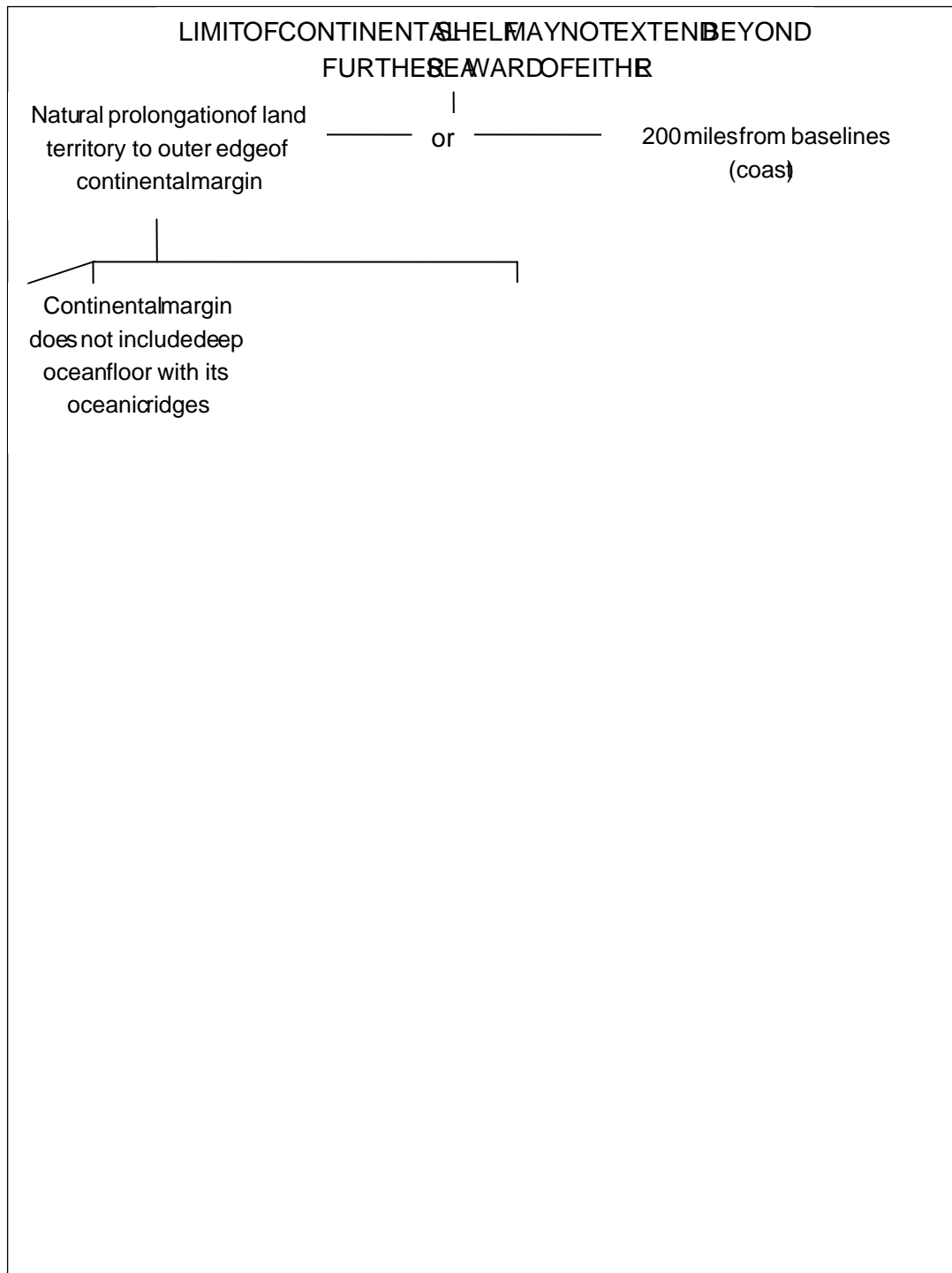
apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks, and spurs.

Figure II: Constraints – Article 76, paragraph 5-UNCLOS.



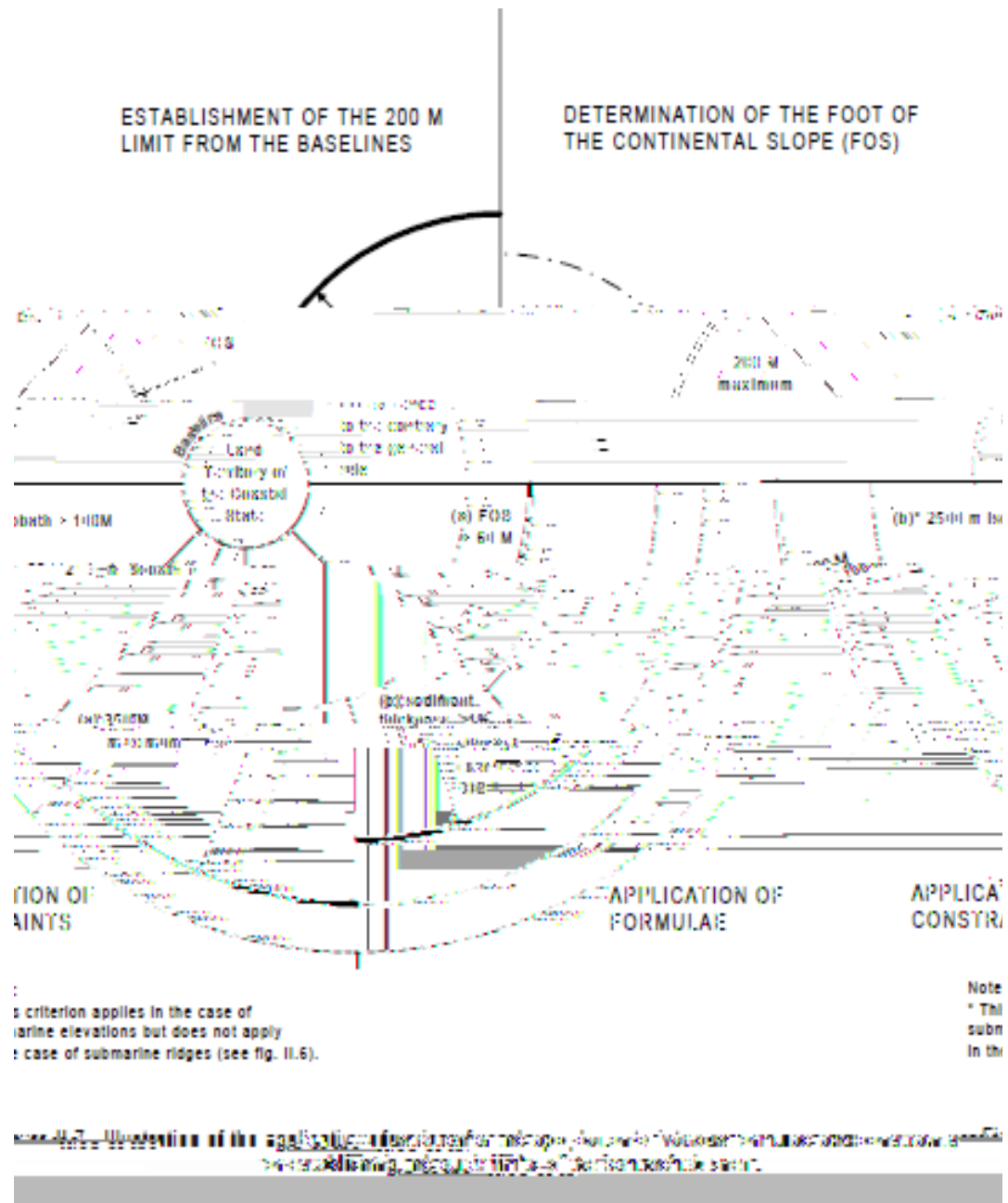
Source: National Oceanography Centre (NOC), Southampton University.

Table 1: Article 76 of the Convention.



Source: Bernard H. Oxman, "The Third United Nations Conference on the Law of the Sea: The Ninth Session (1980)" 75 AJIL 211, 229 (1981).

Table II: Applications of formulae and constraints-Article 76-UNCLOS.



Source: Scientific and Technical Guidelines of the CLCS. Annex II, fig. II. 17, U.N. Doc. CLCS/11/Add.1. (Sept.3, 1999).

4.6. Problems and difficulties related to the interpretation of Article 76.

In general, the main sources of interpretational difficulty associated with the definition of the continental shelf

and a watchdog¹²⁸ that prevents excessive coastal State claims, have a certification function and provide technical advice if it is requested by States.

As it was explained in chapter III, Article 76 of the Convention contains clearly the rules for establishing the outer limit of the continental shelf and the Commission's role, in particular with regard to issuance of a submission.

According to Article 76, paragraph 8 and 10:

8. Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on

Commission appears to clarify Article 76 and as a central source of “promulgation”¹³⁰ of recommendations to any State interested in establishing the outer limits of its continental shelf beyond the 200 nautical miles.

In addition, Annex II to the Convention regulates the functioning of the Commission in detail. It contains provisions related to the establishment, renewal and draying of the costs of the Commission (article 2), Commission’s functions (article 3), deadline for the submission by coastal state (article 4); and the process of preparation, adoption and submission of the recommendations of the Commission (article 6).

In this chapter, we will explore the role played by the Commission according to Article 76 of the Convention and how it interacts with the coastal State during the process of establishment of the outer limits of the continental shelf.

However, the Commission does not simply identify scientific facts. Article 76 provides a technical mandate to the CLCS to incorporate those geological and geomorphologic facts into a delineation process in order to establish the outer limits beyond 200 nautical miles.

5.3. The Rules of Procedure of the Commission

The rules of procedure determine “the day-to day operation”¹³⁴ of the CLCS. The Commission adopted its rules of procedure on September 12, 1997. The Rules of procedure were subsequently amended and the current version is CLCS/40/Rev.1.

There are three annexes to the Rules of procedures: Annex I on submission in case of a dispute between States with opposite or adjacent coasts or in other cases of unresolved land or maritime disputes; Annex II related to issues of Confidentiality; and Annex III to establish the modus operandi for the consideration of a submission made to the Commission.

The Rules of procedure applied to regulate: a) the internal work of the CLCS and its subcommissions related to specific issues such as: meetings, voting, languages used, confidentiality, adoption of regulation, and amendments to the Rules of procedure; and, b) the way how the CLCS interact with coastal States, performing its duties such as examination of submissions and provide technical advice.

By applying the provisions of the Convention in its routine work and adopting its operational documents and Rules of Procedure, the CLCS also started to develop its own practice.

¹³⁴ Division for Ocean Affairs and the Law of the Sea. Office of Legal Affairs. The Law of the Sea. Training Manual for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of submissions to the Commission on the Limits of the Continental Shelf. (New York: United Nations, 2006), p. I-47.

5.4. Scientific and Technical Guidelines

According to the Convention, when a State decides to present a submission to the Commission, it must provide information about these limits. The submission must include extensive geological and geomorphologic data and information in order to test and establish its limits according to the article 76 formula. Then the CLCS reviews it for compliance with article 76 and makes recommendations to the coastal state.

If the coastal State agrees with the recommendations provided by the CLCS and establishes the outer limits based on the recommendation, the limits are “final and binding”. In contrast, if the coastal State does not agree with them, it can resubmit its claim to the CLCS for a new set of recommendations.

But, if the procedure is clear in article 76, the Convention does not explain what the CLCS’ recommendations should consist of, how many times a state can resubmit its claim, “or what happens if a state establishes boundaries without the Commission’s approval”.

Considering the sovereignty of each State to establish its continental shelf limits, the CLCS can not do its work independently and is limited to “making recommendations” about article 76. In fact, the State keep the right to define its boundaries, but must do s[the ilitd ise5ach)ϕ14 do s[0 -1.725 004 Tc -0.nID 5 ðation, thatifst

The Commission drafted the Guidelines in order to facilitate this process. Once the tests and measurements are complete, the state must establish proposed boundaries and prepare a report for the Commission explaining how it arrived at them.

Besides, under confidentiality rules developed by the CLCS (Annex II to the Rules of Procedure), a coastal state can declare si

submitting State or of States with whom the submitting State has a boundary dispute and commissioners who advised the submitting State; are excluded of the sub-commission (Rule 42, paragraph 1-2, of the Rules of Procedure).

During this process, the sub-commission determines if the submission is complete, may request further information or clarification from the submitting state whenever it

State is the owner the data and information. The recommendations of the CLCS given to the coastal State about its submission “may contain an analysis of that data and information that reveals their content, and relevant for the purposes of the recommendations¹³⁸”.

At this point,

Conclusion

The research presented the general aspects of the regime of the continental shelf, reviewed the historical evolution of the definition of continental shelf and described the legal regime of the continental shelf established in the Convention of the Law of the Sea (Part VI and Annex II)

According to Article 76 of the Convention, the continental shelf, continental slope and continental rise constitute the “continental shelf” (legal definition of the continental shelf). Based on the legal definition of the continental shelf, the Convention accepts that the title and rights over the continental shelf are “inherent” to each State. Consequently, a coastal State does not need effective control or on any express proclamation in order to have rights over its shelf. However, States do not have complete sovereignty over the shelf, on the contrary, this type of sovereignty is just for the purpose of exploring and exploiting its natural resources (art. 77 of the Convention).

In addition, the research has explained the operational methods and constraints for the purposes of delineating the continental shelf’s outer limits beyond 200 nautical miles. Any coastal State can apply one or the two formulas, alternatively (combination). For example, a coastal State may use the Sediment Thickness formula (paragraph 4, (a), (i)) in certain areas of its continental shelf and the Distance formula in the other areas (paragraph 4, (a), (ii)), in order to maximize its entitlement. As with the formulas, each State can select one or both of these constraints, and alternatively the most advantageous limit.

The research also described the role played by the Commission on the Limits of the Continental Shelf during the process of establishment of the outer limits of the continental shelf. The Convention (Article 76, paragraph 8) provides that a coastal State shall make its submission to the CLCS. According to the Convention, when a

State decides to present a submission to the Commission, the State must provide geological and geomorphologic data and information in order to test and establish its limits according to the article 76 formula. Then the CLCS reviews it for compliance with article 76 and makes recommendations to the coastal state. In the case that a coastal State agrees with the recommendations provided by the CLCS and establishes the outer limits based on the recommendation, the limits are “final and binding”. In contrast, if the coastal State does not agree with them, it can resubmit its claim to the CLCS for a new set of recommendations.

Finally, the research is a general analysis of the legal regime of the continental shelf, however, the research is not necessary focused in technical aspects which are defined in other type research under a geologic or scientific perspective. Another future research could include all this aspect required to present a complete perspective of the Continental Shelf issues.

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