

Information on the limits of the continental shelf beyond 200 nautical miles

Alexandre T.M. de Albuquerque
Diretoria de Hidrografia e Navegação (DHN)
Rua Barão de Jaceguay s/n
24048-900 Niterói
Rio de Janeiro, Brazil

and

Galo Carrera H.
53 Hawthorne Street
Dartmouth, Nova Scotia
Canada B2Y 2Y7

1 General information

- 1.1 Paragraph 8 of article 76 of the United Nations Convention on the Law of the Sea (UNCLOS) establishes an obligation on coastal States to submit information on the limits of the continental shelf beyond 200 nautical miles (M) to the Commission on the Limits of the Continental Shelf (CLCS) (United Nations, 1997a). Paragraph 8 also requires the CLCS to make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.
- 1.2 In accordance with the above provisions, article 3 of Annex II to UNCLOS, establishes the functions of the CLCS: (a) to consider the data and other material 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; and (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).
- 1.3 The CLCS has produced by consensus three official documents intended to regulate its own activities and to assist coastal States in the preparation of submissions:
 - (a) Rules of Procedure (United Nations, 1998);
 - (b) Modus Operandi (United Nations, 1997b); and
 - (c) Scientific and Technical Guidelines (United Nations, 1999).

2 Rules of Procedure of the CLCS

The Rules of Procedure of the CLCS is an integral document. It must be consulted in its entirety. We simply limit our review in this paper to those provisions contained in it which are of interest to States vis-à-vis the preparation of a submission or any interaction with the CLCS.

2.1 Rule 4 (Venue of meetings).

Meetings of the Commission and its subcommissions shall normally be held at United Nations Headquarters. Another venue for a meeting may be designated by the Commission in consultation with any coastal State which made a submission to be considered at the meeting and the Secretary-General, subject to the requirements established by the United Nations that no additional costs are directly or indirectly incurred by the United Nations.

2.2 Rule 40 (Subcommissions).

Unless the Commission decides otherwise, the Commission shall, for the consideration of each submission, establish in a balanced manner a subcommission composed of seven of its members, taking into account the following factors:

- (a) The specific elements of each submission;
- (b) The position of States with opposite or adjacent coasts; and
- (c) Any dispute between States regarding the submission.

2. Nationals of the coastal State making the submission who are members of the Commission and any Commission member who has assisted a coastal State by providing scientific and technical advice with respect to the delineation shall not be a member of the subcommission dealing with the submission, but has the right to participate as a member in the proceedings of the Commission concerning the submission. Such members, by prior consultation and agreement within the subcommission, may be invited to participate in the proceedings of the subcommission on specific issues concerning the said submission without a right to vote.

2.3 Rule 43 (Submission by a coastal State).

In accordance with article 4 of Annex II to the Convention:

- (a) Where a coastal State intends to establish the outer limits of its continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, it shall submit particulars of such limits to the Commission along

with supporting scientific and technical data as soon as possible, but in any case within ten years of the entry into force of the Convention for that State;¹

(b) The submitting State shall at the same time give the names of any Commission members who have provided it with scientific and technical advice.

2.4 Rule 44 (Submissions in case of a dispute between States with opposite or adjacent coasts or in other cases of unresolved land or maritime disputes).

1. In case there is a dispute in the delimitation of the continental shelf between opposite or adjacent States or in other cases of unresolved land or maritime disputes, submissions may be made and shall be considered in accordance with Annex I to these Rules.

2. The actions of the Commission shall not prejudice matters relating to the delimitation of boundaries between States.

2.5 Rule 45 (Form and language of submission).

1. A submission shall conform to the requirements established by the Commission.

2. A submission shall be addressed to the Chairperson of the Commission and submitted to him or her through the Secretary-General.

3. A submission shall be made in one of the official languages of the Commission (i.e., Arabic, Chinese, English, French, Russian or Spanish) and if necessary shall be translated by the Secretariat into English. The same applies to annexes, attachments and other materials supporting the submission.

2.6 Rule 46 (Recording of the submission).

1. Each submission shall be recorded by the Secretary-General upon receipt.

2. The record shall contain the date of receipt of the submission, a list of attachments and annexes thereto and the date of entry into force of the Convention for the coastal State which made the submission.

2.7 Rule 47 (Acknowledgement of the receipt of the submission).

The Secretary-General shall promptly acknowledge by letter to the submitting State the receipt of its submission and attachments and annexes thereto, specifying the date of receipt.

2.8 Rule 48 (Notification of the receipt of a submission and publication of the proposed outer limits of the continental shelf related to the submission).

The Secretary-General shall, through the appropriate channels, promptly notify the Commission and all members of the United Nations, including States Parties, of the receipt of a submission, and make public the proposed outer limits of the continental shelf pursuant to the submission.

2.9 Rule 49 (Consideration of the submission).

1. Upon receipt of a submission by the Secretary-General, the consideration of that submission shall be included in the agenda of the next meeting of the Commission provided that the next meeting is held not earlier than three months after the date of the publication by the Secretary-General of the proposed outer limits of the continental shelf related to the submission, pursuant to rule 48.

2. The submission shall be considered in accordance with the rules on confidentiality contained in Annex II to these rules.

3. Unless it decides otherwise, the Commission shall establish a subcommission in accordance with rule 40 for the consideration of each submission.

4. The recommendations of the subcommission shall be submitted in writing to the Commission.

2.10 Rule 50 (Attendance by the coastal State at examination of submission).

The Commission shall, through the Secretary-General, notify the coastal State which has made a submission, no later than sixty days prior to the opening date of the meeting, of the date and place at which the submission will be examined. The coastal State shall, in accordance with article 5 of Annex II to the Convention, be invited to send its representatives to participate, without the right to vote, in the proceedings deemed relevant by the Commission.

2.11 Rule 51 (Recommendations of the Commission).

1. In accordance with article 6, paragraph 3, of Annex II to the Convention, the recommendations of the Commission on matters related to the establishment of the outer limits of the continental shelf shall be submitted in writing to the coastal State which made the submission and to the Secretary-General.

2. In the case of disagreement by the coastal State with the recommendations of the Commission, the coastal State shall, in accordance with article 8 of Annex II to the Convention, make a revised or new submission to the Commission within a reasonable time.

2.12 Rule 52 (Due publicity).

The coastal State shall deposit with the Secretary-General charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.

2.13 Rule 53 (Advice to a coastal State).

1. A coastal State may request scientific and technical advice from the Commission according to article 3, paragraph 1 (b), of Annex II to the Convention.
2. The Commission shall elect a standing subsidiary body composed of five of its members who will prepare with respect to each request a list of proposed members who may provide advice taking into consideration the technical and scientific nature of each request. The list shall contain a copy of the scientific curriculum vitae of each proposed member. The preparation of this list may take into consideration an explicit request made by a coastal State for the advice of any member of the Commission.
3. The maximum number of members of the Commission who may provide advice to a State in support of a submission shall not exceed three.
4. The dates and terms of advice will be determined by agreement between the selected members of the Commission and the coastal State.
5. The members selected to provide technical and scientific advice to the coastal State shall submit to the Commission a report outlining their activities.

3 Modus Operandi of the CLCS

The Modus Operandi of the CLCS is an integral document. Like all other documents of the CLCS, it must be consulted in its entirety. We simply quote in this paper the text of the articles contained in it. The reader is referred to the actual UN publication CLCS /L.3 for a full description of the flow diagrams contained in it.

- 3.1 Article 1. Each submission will be made by the coastal State to the Commission through the Secretary-General of the United Nations in accordance with rule 43 of the Rules of Procedure of the Commission. 1/
- 3.2 Article 2. This submission will contain the following three separate parts: an executive summary, a main body, and all supporting scientific and technical data.
- 3.3 Article 3. The executive summary will contain the following information:
 - (a) Charts at an appropriate scale and coordinates indicating the proposed outer limits of the continental shelf and the relevant territorial sea baselines;

(b) Which provisions of article 76 are invoked to support the claim;

(c) The names of any Commission members who rendered advice in the preparation of the submission; and

(d) Any disputes as referred to in rule 44 and annex I to the Rules of Procedure of the Commission.

3.4 Article 4. All charts and coordinates referred to in paragraph 3 (a) and included in the executive summary will be given due publicity by the Secretary-General in accordance with rule 48.

3.5 Article 5. Subject to rule 49, the consideration of that submission will be included in the agenda of the next meeting of the Commission.

3.6 Article 6. Upon notification that a submission has been received and given due publicity in accordance with rule 48, and after a period of at least three months following the date of publication, in accordance with rule 49, paragraph 1, the Commission will convene its meeting with the following items on the agenda:

Section 6.1 Presentation of the submission by coastal State representatives, to include the following subjects:

- (i) Charts indicating the proposed limits;
- (ii) The criteria of article 76 of the United Nations Convention on the Law of the Sea which were applied;
- (iii) Names of members of the Commission who acted as advisers; and
- (iv) Any dispute arising from the submission.

Section 6.2 Nominations and selection of the subcommission members.

In accordance with rule 40, the Commission will receive nominations from among its members and will select seven of them to serve in the subcommission, ensuring that the composition of the subcommission is a balanced one, and that none of the selected members has provided scientific and technical advice with respect to the delineation of the continental shelf of the coastal State.

Section 6.3 Arrangements for meetings of the subcommission and consultations

As provided for in rule 15, the Secretary-General makes the arrangements related to the meetings of the subcommission and provides the support required for such meetings. Upon the recommendation of the subcommission, the Commission, at the earliest opportunity at any meeting of its regular sessions, will decide whether the advice of a specialist should be sought, as provided for in rule 55, or whether the cooperation of relevant international organizations pursuant to rule 54 is needed.

3.7 Article 7. Format and completeness of the submission.

The subcommission will examine whether the format of the submission is in compliance with the requirements set out in the Technical Guidelines of the Commission, and will ensure that all necessary information is included in the submission. If it is deemed necessary, the subcommission may request the coastal State to correct the format or to provide any other information.

3.8 Article 8. Executive summary.

The subcommission will examine the content of the executive summary to ascertain whether it complies with the requirements provided for in paragraph 3 of section I.

3.9 Article 9. Clarification required.

The subcommission will examine whether there are any matters to be clarified by the coastal State.

If necessary, the subcommission will request clarification through the Chairperson of the subcommission from the representatives of the coastal State on those matters.

3.10 Article 10. Consideration of any disputes

The subcommission will examine the information on disputes presented by the Coastal State, or on any dispute relevant to the submission.

If necessary, the subcommission will take action based on the procedures in annex I to the Rules of Procedure.

3.11 Article 11. Need for advice of specialists.

The subcommission will discuss the necessity for seeking the advice of specialists concerning the submission.

If so decided, the subcommission will refer the matter to the Commission.

3.12 Article 12. The subcommission will conduct a technical evaluation of the submission, and will carry out the following functions, inter alia:

12.1 Confirmation of criteria used.

The subcommission will verify which criterion or criteria specified in article 76 is/are used by the coastal State.

12.2 Analysis of the data.

In accordance with the applicable Technical Guidelines of the Commission, the subcommission will undertake an analysis of the submitted data in order to verify:

- (a) Whether the coordinates were established from primary sources, or from other sources;
- (b) The validity of all coordinates;
- (c) That no segment in the delineation is longer than 60 nautical miles; and

(d) That the data submitted are sufficient in terms of quantity and quality to justify the proposed limits.

12.3 Findings.

Should the subcommission arrive at the conclusion that there is a need for more data or information, it will request the Chairperson of the subcommission to communicate that need to the coastal State. The coastal State will provide the required data or information within the time period specified by the subcommission.

- 3.13 Article 13. Consultations at United Nations Headquarters. Subject to rule 50, the representatives of the coastal State will provide the members of the subcommission with any clarification required on any specific issue of the submission.
- 3.14 Article 14. Formulation of recommendations.
The recommendations of the subcommission will be prepared in accordance with the provisions of article 76 of the United Nations Convention on the Law of the Sea and Annex II of the Convention, the Rules of Procedure and the Technical Guidelines of the Commission.
- 3.15 Article 15. Recommendations of the subcommission.
The recommendations of the subcommission will be submitted in writing to the Commission in accordance with rule 49, paragraph 4.
- 3.16 Article 16. The next session of the Commission at United Nations Headquarters will consider and approve or amend the report of the subcommission. The recommendations of the Commission based on the subcommission's report will be approved in accordance with rule 34 and rule 36, paragraph 1. Participation at the relevant meeting by representatives of the coastal State is provided for in rule 50.
- 3.17 Article 17. The recommendations of the Commission will be submitted in writing to the coastal State that made the submission, via the Secretariat, and to the Secretary-General of the United Nations. The recommendations of the Commission will deal primarily with the definitive position of the outer limit of the continental shelf of the coastal State. Where the outer limit of the continental shelf is different from that proposed in the submission, the Commission's recommendations will include the position of its revised outer limits, and the reasons for its revision.
- 3.18 Article 18. In the case of disagreement by the coastal State with the recommendations of the Commission, the coastal State will, within a reasonable time, make a revised or new submission to the Commission (rule 51, paragraph 2).
- 3.19 Article 19. The limits of the continental shelf established by a coastal State on the basis of the recommendations of the Commission will be final and binding.

3.20 Article 20. The coastal State will deposit with the Secretary-General of the United Nations charts and coordinates permanently describing the outer limits of its continental shelf.

4 Scientific and Technical Guidelines of the CLCS

The Scientific and Technical Guidelines of the CLCS is a document which contains twelve chapters and four annexes. Like all other documents of the CLCS, it must be consulted in its entirety. We have decided to limit our discussion in this paper to some of the most important kinds of data involved in a submission.

4.1 Bathymetric data

The complete bathymetric data set may include any of the following measurements, or a combination thereof:

- Single-beam echo sounding measurements;
- Multi-beam echo sounding measurements;
- Bathymetric side-scan sonar measurements;
- Interferometric side-scan sonar measurements;
- Seismic reflection-derived bathymetric measurements; and
- Light detection and ranging (LIDAR) measurements.

This complete bathymetric data set used in the submission will be included by the coastal State in its third part as an Annex. This information can be available to the Commission in an analytical form, or, whenever possible, in digital form.

Bathymetric data should be processed as much as possible to represent the correct depth. Spurious depth measurements should have been edited out.

A full technical description of the bathymetric database will include the following information:

- Source of the data;
- Sounding survey techniques and their technical specification;
- Geodetic positioning methods and reference system;
- Time and date of the survey;
- Corrections applied to the data for speed of sound in water; and
- A priori or a posteriori estimates of random and systematic errors.

The main body of the submission will include all necessary cartographic products derived from the compiled bathymetric database. These cartographic products may include the following analytic or digital forms:

- Two-dimensional depth profiles;

- Three-dimensional bathymetric models; and
- Charts and maps with contours.

Each cartographic product will be accompanied by a detailed description of the mathematical methodology and bathymetric data used to produce it. The Commission will pay particular attention to the transit from numeric soundings to analytic functions. The coastal State may be requested by the Commission to document the following information:

- Interpolation or approximation method;
- Density of measured bathymetric data; and
- Perceptual elements such as map projections, vertical and horizontal scales, contour intervals, units, colors and symbols.

Wherever the bathymetric information presented to the Commission may be a filtered or smoothed subset of the original data, a full description of the methodology employed to produce it will be reported by the coastal State.

4.2 Geodetic data

Coastal States will be requested to provide information about the geodetic reference system used in the submission. Coordinate transformation parameters from this system to ITRF94 or WGS84 (G873) will be requested whenever one of these systems is not used in a submission.

Geodetic information may need to be included about some baselines. This will be the case only for those baselines which define a line at a distance of 350 M, if this constraint is applied at all to define the outer limits of the continental shelf. The following information may be requested by the Commission:

- Source of the data;
- Geodetic positioning technique and reference system;
- Corrections applied to the data;
- Geodetic definition in the case of straight or archipelagic baselines;
- A priori or a posteriori estimates of random and systematic errors;
- Geodetic reference system; and
- Geometric definition of straight, archipelagic and closing baselines.

4.3 Seismic data

Seismic data may include both seismic reflection and seismic wide-angle reflection / refraction data. The submission ought to include a list of all seismic surveys used in relation to the submission. This should be supplemented with one or several maps showing the line coverage of each survey. Several surveys may be combined in one map provided that the distinction between them is indicated.

Seismic lines must be tied to a navigation plot and annotated in the same units as the seismic lines (shot points, CDPs).

Multi-channel seismic data should be processed to at least the necessary level of quality to justify the particular approach used. A description of the acquisition parameters and the processing sequence should either appear on the individual seismic line or be included separately for each survey in the submission. This should also include information on the cruise or ship on which the data were collected and the dates of collection and the processing of the data. In addition, seismic lines should have a vertical scale in seconds, an indication of direction and an indication of horizontal scale.

Seismic velocity data used in the conversion should be submitted together with a description of how they were derived, where they apply and an estimate of their accuracy. For the specific seismic lines that document the sediment thickness at the outermost fixed points of the outer limit line, the actual velocity analysis from the processing job should be submitted at least for a part of the line where it crosses the fixed points.

4.4 Gravity data

The complete gravity database used the preparation of the submission may include a combination of:

- Marine, aerial and sea-bottom gravimeter measurements; and
- Gravity values derived from satellite altimetry and orbital analysis.

This information can be made available to the Commission in an analytical form or, whenever possible, in digital form. The coastal State will be required to document the following information:

- Source of data;
- Gravity meters and their technical specifications;
- Geodetic positioning methods and reference system;
- Time and date of the survey;
- Corrections applied to the data : tides, Eötvös and other; and
- *A priori* or *a posteriori* estimates of random and systematic errors.

The data should be accompanied by a description of the acquisition parameters (including track direction, elevation and position control), correction procedures and a contoured anomaly map which also display the actual data coverage.

Maps and profiles should be clearly marked with geodetic coordinates and a reference to original data on which they are based (survey names).

4.5 Magnetic data

The complete magnetic database used in the preparation of the submission may include a combination of:

- Marine and aerial fluxgate and proton-precession magnetometer measurements; and
- Magnetic values derived from satellite observation campaigns.

A list of all magnetic surveys and their year of acquisition should be provided together with a map showing the outline of each separate survey.

The data should be accompanied by a description of the acquisition parameters (including track direction, elevation and position control), correction procedures and a contoured anomaly map which also displays the actual data coverage.

4.6 Geological data

In the case that a State might supply evidence to the contrary of the general rule for the determination of the foot of the continental slope, it is recommended to include the following data obtained from sampling and coring of crustal subcrops at the continental margin with information about the source of the data:

- Lithology;
- Radiometric / paleontological / paleomagnetic age dating; and
- Geochemical-isotope geochemical results.

4.7 Profiles and cross-sections

The previous types of data may be presented as geological / geomorphologic profiles and cross-sections. Such profiles and cross-sections should be clearly marked with references to the specific data (seismic, gravity, magnetic or bathymetry) on which they are based.

The geodetic positions of all profiles must be given, preferably on maps. Geological /geomorphologic features shall be shown on those maps. Vertical and horizontal scales should be noted, as well as an indication of the direction of the profiles or cross-sections. Vertical axis may be in time (milliseconds) or depth (metres).

In the case of crustal structure cross-section based on gravity data, information on the densities and the calculation methods and software applied must be included.

4.8 Maps and charts

It is recommended that the geophysical and bathymetric data and their interpretation documenting the sediment thickness and the foot of the continental slope be presented as a series of charts, maps, profiles and other graphics.

Latitude and longitude should be clearly marked on maps. It should be clear whether the units are degrees / minutes or decimal degrees. Every map should be supported by the database, preferably in digital form, from which it was derived.

In support of the executive summary to be submitted, it will be necessary to prepare a map of the outer limits of the continental shelf, indicating the criteria on which the submission is based. Such a map should be on a scale suitable to fit A4 size paper, and should cover the full extent of the continental shelf, up to its outer limit.

The coastal State can use the color schemes, symbology and type of projection deemed adequate to the cartographic representation.

Maps, charts and databases submitted to the Commission must bear the authentication from the national agency of the respective coastal State which is legally authorized to certify its quality and reliability.

4.9 Digital data

In recent years, most bathymetric and geophysical data have been captured, processed and stored in digital form. Therefore, the coastal State may find it convenient to submit much of its material in digital form. The coastal State can submit digital data in any internationally recognized format.

4.10 Checklist of relevant supporting information and data

The submission in support of the outer limit of the continental shelf of a coastal State may include one of five possible cases at any point along the outer limit:

- A line delineated at a distance of 60 M seaward from the foot of the continental slope; or
- A line along which the sediment thickness is at least 1 per cent of the shortest distance from the foot of the continental slope;

And not further than

- A line delineated at a distance of 350 M from the baselines; or
- A line delineated at a distance of 100 M from the 2,500-metre isobath; or
- A limit agreed to with other States with opposite or adjacent coasts.

For each of these cases, the Commission may request that it be provided with the information indicated under the corresponding case in the table contained in item 9.5 of its Scientific and Technical Guidelines.

References

1. United Nations (1997a). Office of Legal Affairs. Division of Ocean Affairs and the Law of the Sea. The Law of the Sea. Official texts of the United Nations Convention on the Law of the Sea of 10 December 1982 and of the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 with Index and excerpts from the Final Act of the Third United Nations Conference on the Law of the Sea. Sales No. E.97.V.10, 294 p.
2. United Nations (1997b). Commission on the Limits of the Continental Shelf. *Modus Operandi* of the Commission. CLCS/L.3, 4 September 1998. 8 p.
3. United Nations (1998). Commission on the Limits of the Continental Shelf. Rules of Procedure of the Commission on the Limits of the Continental Shelf. CLCS/3/Rev.2, 4 September 1998. 24 p.
4. United Nations (1999). Commission on the Limits of the Continental Shelf. Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf. CLCS/11, 13 May 1999, 91 p.