PRELIMINARY INFORMATION

INDICATIVE OF THE OUTER LIMITS OF THE CONTINENTAL SHELF
AND DESCRIPTION OF THE STATUS OF PREPARATION OF MAKING
A SUBMISSION TO

THE COMMISSION ON THE LIMITS OF THE
CONTINENTAL SHELF

FOR

THE REPUBLIC OF COSTA RICA

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1. Introduction

The Republic of Costa Rica presents to the Secretary-General of the United Nations the following preliminary information containing data on the outer limits of its continental shelf beyond 200 nautical miles (M) from the baselines from which the breadth of the territorial sea is measured, in accordance with Article 76 of the 1982 United Nations Convention on the Law of the Sea (hereinafter referred to as UNCLOS or “the Convention”). This preliminary document is presented without prejudice to the right of the Republic of Costa Rica to make other submissions for other areas at a future time.


In accordance with UNCLOS, the Political Constitution of Costa Rica, Article 6, establishes:

“The State exercises complete and exclusive sovereignty over the airspace above its territory, its territorial waters for a distance of 12 miles from the low-water line along its coasts, its continental shelf and its insular sill, in accordance with the principles of international law. Furthermore, it exercises special jurisdiction over the seas adjacent to its territory for an extent of 200 miles from the aforesaid line, in order to protect, conserve, and utilize on an exclusive basis all natural resources and riches existing in the waters, soil and sub-soil of those zones, in conformity with the aforesaid principles.”

On 13 January 1997, Costa Rica deposited with the Secretary-General of the United Nations the Official Chart by the National Geographical Institute of Costa Rica, on the limits of the exclusive economic zone in the Pacific Ocean (see figure 1).
This submission of preliminary information establishes that the natural prolongation of the Costa Rican land mass from its coast to the outer edge of the continental margin extends beyond 200 M to the northwest and southeast of Cocos Island in the Eastern Pacific Ocean (see figure 2).
The Convention (paragraph 1 of Article 76) defines the continental shelf that may be subject to the sovereign rights and jurisdiction of the coastal State as follows:

“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 breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.”
The nature of the continental shelf and its constituent parts are explained in paragraph 3 of Article 76:

“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.”

It is accepted that the cited paragraph of Article 76 provides a legal definition which is different from the geological, morphological or geographical definition of the continental shelf. This difference allows archipelagic states and states with insular territories to delineate the outer limits of the continental shelf beyond 200 M. Based on this premise, Costa Rica will submit to the Commission on the Limits of the Continental Shelf particulars of the outer limits of the continental shelf beyond 200 M from Cocos Island.

According to Article 77 of the Convention, the coastal State’s rights over its continental shelf exist ipso facto and ab initio:

“1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.
2. The rights referred to in paragraph 1 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 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.”

Costa Rica will present to the CLCS a submission according to the rights and obligations emanating from Article 76 (paragraph 8) and Article 4 of annex II of the Convention. Paragraph 8 of Article 76 establishes:

“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 the basis of equitable geographical representation. The Commission shall 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.”
Article 4 of Annex II to the Convention stipulates that where a coastal State intends to establish, in accordance with Article 76, the outer limits of its continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured, it should submit particulars of such limits to the CLCS, along with supporting scientific and technical data as soon as possible.

In accordance with the aforementioned texts, the data and information contained in this document have the purpose of establishing the outer limits of Costa Rica’s continental shelf beyond the 200 M from Cocos Island in two potential areas shown in Figure 3 below. Relevant technical information, preliminary charts and basic argumentation that prove Costa Rica’s right to delineate the continental shelf beyond 200 M are included in this document. The precise final coordinates of the points from which the breadth of the outer limits of Costa Rica’s continental shelf shall extend beyond the 200 M, as well as the coordinates of its outer limit, will be contained in the final submission to be presented by Costa Rica to the Commission.

Figure 3: Areas of potential submission (in yellow) of the Republic of Costa Rica for the extension of the continental shelf beyond 200 M in accordance with Article 76 (8) of UNCLOS.
2. Background

The consistent implementation of the provisions of Article 76 of the Convention is the responsibility of all coastal States that intend to exercise national jurisdiction over the continental shelf beyond 200 M from the baselines from which the breadth of their territorial sea is measured. In order to assist coastal States in carrying out this responsibility, UNCLOS established the CLCS, which has provided for a procedure and regulations for the submission of information on the determination of the outer limits of the continental shelf beyond 200 M. This is indicated in paragraph 8 of Article 76 and Article 4 of the Annex II of the Convention cited above.

In accordance with Article 3 of Annex II of UNCLOS, the CLCS has as functions:

“(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;
(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).”

Under its mandate, and with aim of assisting coastal states to establish, in accordance with Article 76, the outer limits of its continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured, the Commission adopted the Scientific and Technical Guidelines (CLCS/11 and Corr.1 and Corr.2; CLCS/11/Add.1 and Corr.1.).

The Eleventh Meeting of States Parties to the Convention, held from 14 to 18 May 2001, noted that it was only after the adoption of the Scientific and Technical Guidelines by the Commission on 13 May 1999, they had before them the basic documents concerning submissions (SPLOS/72, Decision regarding the date of commencement of the ten-year period for making submissions to the Commission on the Limits of the Continental Shelf set out in Article 4 of Annex II to the United Nations Convention on the Law of the Sea). It is understood that the ten-year time period referred to in Article 4 of Annex II to the Convention shall be taken to have commenced on 13
May 1999 (SPLOS/72, paragraph (a)). This decision applies to Costa Rica. Consequently, in the case of Costa Rica the ten-year time period referred to in Article 4 of Annex II of the Convention expires on 13 May 2009.

In addition, considering the problems encountered by States Parties, in particular developing countries, in complying with the time limit set out in Article 4 of Annex II of UNCLOS, the Eleventh Meeting of States Parties to the Convention also decided that the general issue of the ability of States, particularly developing States, to fulfill the requirements of Article 4 of Annex II to the Convention be kept under review (document SPLOS/72, paragraph (b)). Due to lack of financial and technical resources and relevant capacity and expertise, or other similar constraints, many developing countries face particular challenges to fulfill these requirements.

Therefore, on 20 June 2008, the Eighteenth Meeting of States Parties to the Convention decided that it is understood that the ten-year time period referred to in Article 4 of Annex II to the Convention may be satisfied by submitting preliminary information indicative of the outer limits of the continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured, and a description of the status of preparation and intended date of making a submission (document SPLOS/183, paragraph 1 (a)):

“It is understood that the time period referred to in Article 4 of Annex II to the Convention and the decision contained in SPLOS/72, paragraph (a), may be satisfied by submitting to the Secretary-General preliminary information indicative of the outer limits of the continental shelf beyond 200 nautical miles and a description of the status of preparation and intended date of making a submission in accordance with the requirements of Article 76 of the Convention and with the Rules of Procedure and the Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf;…”

Costa Rica is among the developing States that face particular challenges in fulfilling the requirements of Article 4 of Annex II to the Convention due to lack of financial and technical resources, including the lack of research vessels. It is noteworthy to mention that Costa Rica is one of the few coastal States without armed forces, and therefore does not possess a naval fleet that could be used for oceanographic data acquisition.
On this background Mr. Bruno Stagno, Minister of Foreign Affairs and Worship of Costa Rica, established on 6 June 2008 an Advisory Group of the Executive Power on the Delineation of the Outer Limit of the Continental Shelf. The said Advisory Group is integrated by representatives of the following institutions:

- Ministry of Foreign Affairs and Worship
- Ministry of the Environment, Energy and Telecommunications
- National Geographic Institute (IGN)
- Costa Rican Institute of Electricity (ICE)
- Costa Rican Petroleum Refinery (RECOPE)
- Costa Rican Volcanological and Seismological Observatory (OVSICORI), Universidad Nacional
- School of International Relations, Universidad Nacional
- Central American School of Geology, Universidad de Costa Rica
- Research Center in Ocean Science and Limnology (CIMAR), Universidad de Costa Rica

Other individuals, with relevant expertise in the field, also have assisted and integrated the Advisory Group in their personal capacity.

This Advisory Group met on 6 June, 4 September and 10 November 2008, and on 10 February and 21 April 2009. It has received technical assistance from various public and private entities and people. This preliminary information document is the product of the work of the Advisory Group.

3. **Assistance and advice received during the preparation of this communication**

In addition to the aforementioned Costa Rican institutions and individuals, the Republic of Costa Rica received valuable assistance and guidance from UNEP Shelf Programme/GRID-Arendal, including the facilitation of relevant data contained in its One Stop Data Shop. Based on open and accessible sources and modern Geographical Information System technology (GIS), GRID-Arendal has provided data of the continental shelf of Costa Rica for the purpose of its delimitation work. For working and plotting most of the information presented here, the
Advisory Group used the free domain application GeoMapApp™ (www.geomapapp.org). This software is funded by the US National Science Foundation and was developed by the Lamont Doherty Geological Observatory (LDGO) at Columbia University in New York. With the exception of the Costa Rica land and ocean territory map, which is provided by the Costa Rica National Geographical Institute, all other maps and bathymetric data were taken on-line from the LDGP database using GeoMapApp™.

4. Outer limit of the continental shelf of Costa Rica – Baselines

The present preliminary information and description deals with the outer limits of the continental shelf appurtenant to Costa Rica, without prejudice to any issues of bilateral maritime delimitation with neighboring States. Such issues will be referred to under item 7 below.

In accordance with Article 2 of Costa Rica’s Executive Decree No. 18581-RE of 14 October 1988 concerning straight baselines in the Pacific Ocean, the principles and standards of international law in force recognize the right of the coastal States to establish the breadth of their territorial sea from the normal low-water line or from straight baselines that join the most salient points of the coast. Insofar as the Executive Decree does not establish the baselines of Coco Island, the coastline is used as a preliminary approximation to the normal baseline.

5. Provisions of Article 76 invoked in support of this communication

The provisions of the relevant paragraphs of Article 76 of the Convention, especially 1, 3, 4, 5, 6, and 7 are referred to in support of preliminary information indicative of the outer limits of the continental shelf beyond 200 M. The pertinent provisions of the Rules of Procedure of the Commission (CLCS/40/Rev.1) and the Scientific and Technical Guidelines of the Commission (CLCS/11) are also invoked.

In particular, the Republic of Costa Rica invokes paragraph 4(a)(ii) of Article 76 of UNCLOS: “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”. Application of paragraph 4(a)(ii) meets the
test of appurtenance in support of the preliminary information indicative of the outer limits of the continental shelf beyond 200 M.

Given the nature of the continental shelf southwest from Costa Rica (please see section 6 of this document), with a very rough ocean floor, the application of the second derivative without proper filtering of bathymetric profiles does not give meaningful results. For the Foot of Slope (FOS) analysis presented here a moving average filter has been applied on the topography for 15 data points before and after each depth datum.

The Scientific and Technical Guidelines of the Commission (CLCS/11) establish the following:

“5.4.4. For the purpose of identifying the region defined as the base (of the slope), the Commission defines the continental slope as the outer portion of the continental margin that extends from the shelf edge to the upper part of the rise or to the deep ocean floor where a rise is not developed. The rise, in turn, is the wedge-shaped sedimentary body having a smaller gradient than the continental slope. Many continental margins, however, depart from this ideal picture (see chap. 6, sect. 6.2, and figs. 6.1A-6.1F), and in such cases geological and geophysical data may be used to assist in identifying the region referred to here as the base of the continental slope.”

Since there are no sources of sediments from the Cocos Ridge, there is no continental rise at the base of this ridge and therefore the slope extends all the way down to the deep ocean floor. It is for this reason that as a preliminary approach for this document the potential area of the base of the slope is located, and then the maximum change in gradient is identified.

6. General description of the Pacific continental margin off the coast of Costa Rica

The northern Central America Pacific continental margin, north from 9 degrees N, is characterized by a narrow continental shelf. This margins drops to a deep ocean trench that reaches over 6000 meters (m) in depth off southern Mexico. South from 9 degrees N, in southern Costa Rica, the continental margin extends for over 600 M along the Cocos Ridge to the Galapagos Islands (Fig. 4). The Cocos Ridge is one of the traces created by the Galapagos hot spot.
Figure 4: Continental margin around Central America as depicted by the 2500 m contour.

Central America is located on the western margin of the Caribbean Plate and on the Panama Block (Fig. 5). The Cocos Plate subducts beneath the Caribbean Plate from Guatemala to northern Costa Rica and under the Panama Block in central and southern Costa Rica. South of the border between Costa Rica and Panama, off Burica Peninsula, is the Panama Fracture Zone. This right-lateral transform fault is the plate boundary between the Cocos and Nazca plates. The Cocos Ridge is subducting under the Panama Block in southern Costa Rica.
Cocos and Nazca plates are generated along the East Pacific Rise and along the Galapagos Spreading Center. Ocean lithosphere created along the East Pacific Rise, a mid-ocean ridge with a very fast spreading rate, is characterized by a smooth ocean floor. On the contrary, the ocean lithosphere of both the Cocos and Nazca plates, generated by the slow spreading rate of the Galapagos Spreading Center, is characterized by an ocean floor with very rough topography.

Due to this condition, the ocean floor SW from Costa Rica and S from Panama, along the Cocos Ridge, its NW flank, the Carnegie Ridge, its SW flank and the ocean floor between these two ridges, presents a very rough topography with water depths much shallower than the ocean floor off the rest of Central America and off Peru (Figures 6 and 7). Therefore all the area encompassed between the Cocos and Carnegie Ridges can geo-morphologically be included as

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part of the continental margin of southern Central America and northwestern South America, as can be seen in Figure 7.

**Figure 6:** *Three dimensional view of the Pacific continental margin of Costa Rica and Cocos Island with names of key submarine features.*
Figure 7: Map showing the extention of the Cocos and Carnegie ridges in southern Central America and western South America and depth sections across these ridges.

Cocos Island is part of the Cocos Ridge and is internationally recognized as part of the official territory of Costa Rica. Along this extension of the continental shelf of Costa Rica and from Cocos Island is where the Government of Costa Rica delineates the continental shelf beyond 200 M according to the criteria established in Article 76 of the UNCLOS. Although most of this continental margin is already within the 200 M of Costa Rica’s jurisdiction (Fig. 1), two small wedges to the NW and SE from Cocos Island are in areas that could potentially be part of the extensions of Costa Rica’s continental shelf (Fig 3).

7. Maritime delimitations and other issues

All information and maps contained in this communication are without prejudice to issues of maritime delimitation. Nor do they constitute any statement or expression of views by the United Nations or UNEP Shelf Programme/GRID Arendal.
Unresolved questions remain in relation to bilateral delimitation of the continental shelf with neighboring States. Such questions will have to be considered by reference to Rule 46 and Annex I of the Rules of Procedure of the Commission.

8. Preliminary information indicative of outer limits of the continental shelf beyond 200 M

In accordance with SPLOS/183 op.p. 1 (a), this communication seeks to document that several Foot of Slope Points (FOS points) have locations that make it clear that Costa Rica’s continental shelf extends beyond 200 M from the baseline.

Considering the limited scientific data available at the moment, no final conclusion is made regarding the most appropriate location of the base of the continental slope of Costa Rica at this stage. Rather it is found incumbent, and therefore should be regarded as a preliminary estimation based on available data, which serves to document Costa Rica’s potential to delineate the continental shelf beyond 200 M.

While there may be grounds for carrying out additional surveys for the precise identification of FOS points (for which there is the possibility of significant variations), the following preliminary FOS point is submitted as part of this information. This will be subjected to later revision.

8.1 Existing database

With the exception of the Costa Rican land and ocean territory map, which is provided by the Costa Rica National Geographical Institute, all other maps and bathymetric data used in this preliminary information were taken on-line from the database at the Lamont Doherty Geological Observatory (LDGO) at Columbia University in New York, and displayed using GeoMapApp™.

8.2 Foot of the continental slope points

As a preliminary exercise a FOS point has been identified from the bathymetric databases of GeoMapApp at LDGO. This FOS point, generating continental shelf area beyond 200 M on the
NW flank of the Cocos Ridge is plotted in Figure 8. For documentation purposes and to demonstrate the variable nature of the continental margin of Costa Rica, this FOS point is described in more detail in the following section. FOS points for the area southeast from Cocos Island are not presented since, as described in section 6, that area is an intrinsic part of the continental margin and therefore within the envelope of the foot of the slope. A local slope there does not end on a deep ocean floor.

The possibility of identifying FOS points located further seaward than the one documented here cannot be excluded, should more data be acquired and made available at a later stage.

Figure 8: Map showing the location of FOS-1 point (red circle). This FOS point generates continental shelf area beyond 200 M based on the 60 M (circle around FOS-1) distance criterion of Article 76 paragraph 4(a)(ii). This FOS point is described in more detail in Section 8.2.1. The yellow line shows the location of the depth section plotted on Figure 9 and the red line the section where the second derivative criterion was applied. The dark line shows the extension of the exclusive economic zone of the Republic of Costa Rica.
8.2.1 FOS-1

Basic Data

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Point FOS-1 is located at the base of the continental slope of the north-western part of the Cocos Ridge. The continental slope in this area connects the shelf of Cocos Island with the deep ocean floor of the Tehuantepec Basin in the Pacific Ocean. The area of the base of the slope is identified on the basis of morphology by measured and estimated seafloor topography of the Smith and Sandwell, 1997, database. Point FOS-1 was determined at the maximum change in average gradient within the base of slope area as depicted in Figure 9.

![Graph showing depth and smooth profile](image)

*Figure 9: Analysis of point FOS-1 at the base of the continental slope. Location of bathymetric profile is shown in Figure 8.*
8.3 Indicative extent of the continental shelf based on selected FOS points

Point FOS-1 generates continental shelf area beyond 200 M based on the 60 M distance criterion of Article 76 paragraph 4(a)(ii). The exact location of the outer limits of the continental shelf beyond 200 M awaits the final analyses to be submitted to the CLCS (see section 9).

9. Description of status of preparation and intended date of making a submission

The Costa Rican Government is of the opinion that this communication takes advantage of available data from relevant intergovernmental bodies and organizations. The utilization of preliminary data provides a careful documentation, as an example, of minimum location of a FOS Point and its projection, thus providing in good faith prima facie evidence that Costa Rica’s continental shelf extends beyond 200 M from the baseline.

However, additional data collection will be necessary to provide exact information on the location of FOS points. The relevant data contained in the One Stop Data Shop from UNEP Shelf Programme/ GRID-Arendal will be used for this purpose. The acquisition of new bathymetric data, however, would require extra funding which is not available for the moment. Therefore, the Government of Costa Rica will utilize existing databases extensively to minimize possible acquisition of new data.

The Scientific and Technical Guidelines (STG) of the Commission\textsuperscript{2} give guidance to the type and quality of the data that is required to support a submission by a coastal State to the Commission concerning the outer limit of its continental shelf. Chapter 9 of the STG specifies the format and recommended contents of such a submission. The STG, on the other hand, does not give any guidance as to the planning and organization of the project of preparing a submission.

The Training Manual provided by the Division for Ocean Affairs and the Law of the Sea/Office of Legal Affairs (DOALOS), contains further details on how such a project may be conducted. According this Training Manual the following steps should be taken to plan and manage a submission:

- Undertake the initial appurtenance study;
- Produce a desktop study;
- Plan and acquire data;
- Analyze all data and produce all relevant scientific and technical documentation;
- Prepare the final submission; and
- Provide technical support to political level throughout the project cycle.

The “Preliminary information indicative of the outer limits of the continental shelf” provided in this document shows that Costa Rica passes the test of appurtenance and the next natural step will be to prepare a desktop study.

According to the Training Manual, a desktop study shall cover the following items:

- Assemble and organize all pre-existing data;
- Analyze the data according to Article 76;
- Identify areas of critical value for further studies;
- Subdivide the geographical area being considered according to the applicability of the formulae and constraints provisions;
- Identify the need for further data; and
- Determine preliminary survey plans, cost estimates and recommendations for future work.

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To fund activities related to preparing a submission, Costa Rica will make an application to the “Trust fund for the purpose of facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf for developing States, in particular the least developed countries and small island developing States, and compliance with Article 76 of the United Nations Convention on the Law of the Sea” (UN Trust Fund) (http://www.un.org/Depts/los/clcs_new/trust_fund_Article76.htm).

The UN Trust Fund does not, however, fund acquisition of data. Consequently the desktop study should investigate ways to secure funding for acquisition of additional data if further studies show that this is necessary for the delineation of Costa Rica’s extended continental shelf beyond 200 M, and no relevant data is available from public sources.

A full submission is planned to take place within three years, unless otherwise specified in light of circumstances.

10. Conclusion

The “preliminary information indicative of the outer limits of the continental shelf” provided in the present communication shows that Costa Rica passes the test of appurtenance as described in the Scientific and Technical Guidelines of the Commission. As an example, a FOS point that has been identified on the Costa Rican continental slope makes it clear that Costa Rica’s continental shelf extends beyond 200 M from the baseline.

The above preliminary information submitted in accordance with SPLOS/183 op.p. 1 (a) is without prejudice to the final submission in accordance with the requirements of Article 76 of the Convention and with the Rules of Procedure and the Scientific and Technical Guidelines of the Commission, and the future consideration by the Commission.

It is requested that the Secretary-General inform the Commission and notify member States of this communication in accordance with SPLOS/183 op.p. 1 (d).