INTERNATIONAL COURT OF JUSTICE

TERRITORIAL AND MARITIME DISPUTE

(NICARAGUA v. COLOMBIA)

REJOINDER OF THE REPUBLIC OF COLOMBIA

VOLUME II

APPENDICES, ANNEXES & MAPS

18 JUNE 2010

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Appendix 1

EXPERT REPORT BY DR. ROBERT SMITH
"MAPPING THE ISLANDS OF QUITASUEÑO (COLOMBIA) – THEIR BASELINES, TERRITORIAL SEA, AND CONTIGUOUS ZONE",
FEBRUARY 2010

Document on pages to follow

Mapping the Islands of Quitasueño (Colombia)

Their Baselines, Territorial Sea, and Contiguous Zone

Prepared for the

Government of Colombia

February 2010

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10 Poster	Poster map of Figure 10 is located in jacket pocket at the back of Report

1. Introduction

1.1 On November 12, 2009, the Government of Colombia retained my services to provide an independent geographical assessment of (1) what features exist, particularly islands and low-tide elevations, on Quitasueño, and (2) how the principles of the law of the sea may apply to determining maritime jurisdiction from their baselines. This report represents my conclusions after having spent 3 days, 30 November through 2 December 2009, on Quitasueño surveying the reef system with the Colombian Navy and Coast Guard, and having reviewed the results of survey work conducted by the Colombian Navy during the summer of 2008. While I gratefully acknowledged the assistance of the Colombian Government on this survey trip, all the assessments and conclusions made in this report are mine, made as an independent geographic consultant.

1.2 I feel qualified to make such assessments as I served almost 31 years as the United States Government's geographical and technical expert on maritime boundary and jurisdictional issues. As a geographer with the U.S. Department of State, until I retired in March 2006, I assisted in the development and implementation of U.S. ocean policy. I was responsible for the technical and geographical aspects of establishing United States claims to marine jurisdiction and negotiating and arbitrating U.S. bilateral maritime boundaries. In this role, I coordinated the U.S. federal government inter-agency effort to develop technically accurate and precise baselines from which to determine the territorial sea, contiguous zone and exclusive economic zone. I assured that all United States maritime claims were in accordance to international law of the sea principles using modern charting techniques.

1.3 I represented the United States Government at international meetings and conferences. In particular, I was one of the technical experts who participated in the United Nations meeting in 1987 to examine the relevant provisions of the United Nations Convention on the Law of the Sea (LOS Convention) pertaining to the baseline. The result of this meeting of experts was the production of one of the "blue books" produced by the United Nations "to ensure that State practice develops in a manner consistent with the relevant provisions of the Convention."[1]

1.4 Since my retirement from the U.S. Department of State in 2006, I have been an Independent Geographic Consultant providing foreign governments, oil and gas companies, and international law firms with geographical and technical expertise on matters pertaining to maritime boundary delimitation and

[1] Office for Ocean Affairs and the Law of the Sea, United Nations, ***The Law of the Sea: Baselines, No. E.88.V.5***, 1989 (hereinafter referred to as the ***Baseline book***).

arbitrations, maritime jurisdictional claims and the development of offshore energy resources. I have researched and written analytical reports on offshore issues and served as an expert witness on behalf of Guyana in its international maritime boundary arbitration against Suriname. (See ***Annex 1*** for my resume).

2. Logistics of the Quitasueño Survey Trip

2.1 With the assistance of the Colombian military (Navy, Coast Guard, and Air Force) I spent three full days on site at Quitasueño, which includes a reef system that extends approximately 22 miles[2] in a generally north-south direction and surrounds relatively shallow water with coral throughout the area ***(Figure 1*** is a reduction in size of one of Colombia's charts of the area, No. 416***)***. On Sunday 29 November the Colombian Air Force flew three of us (Capt. Leon and Capt. Poveda, and me) in a C90 from San Andrés over the reef system (about an hour flight each way) to gain an appreciation of the area we were about to survey. ***Figure 2*** provides several views we had of the Quitasueño bank and reefs from the plane. It was clear, even from the air, that this area was relatively shallow, included reefs on which waves broke, and generally was not a safe area for navigation.

2.2 We departed Sunday evening 29 November from San Andrés Island on the ARC Malpelo ***(Figure 3)*** and by the morning of 30 November we were about 6 miles west of the reef's eastern fringe.[3] ***Annex 2*** provides a list of Colombian officials that participated on this trip. Each morning it took the survey team about 30 minutes to get from the ARC Malpelo to the survey area at the reef on board a 30 foot vessel.[4] ***Figure 4*** shows the survey team in front of the southern light tower, with the drying fringing reef in the background.

2.3 Due to highly variable winds and currents, and compounded by shallow water depths, measurements for several of the features had to be taken from the boat, several 10s of meters away.[5] Navigation in the area of the coral was done with great care as coral was found throughout the area very near the surface (it can be seen on several of the photos that follow Section 3 below that the waters surrounding many of the features are quite shallow). For twenty two features a team of between 3 and 6 people went directly to the island, or low-tide

[2] Unless otherwise specified, all miles in this report are nautical miles. One nautical mile equals 1,852 meters.
[3] Due to the shallow water and presence of coral throughout Quitasueño the ARC Malpelo remained about 6 miles from the reefs.
[4] We used what the Colombians call a "lobster boat", a small Coast Guard craft boat, with two 200 HP Yahama motors.
[5] For several of the features (QS 30, 43, 49, 50, and 54) readings were also taken by plane in the July 2008 survey conducted by the Colombian Navy. Then, the positions taken from the plane were done with pointers and telescopic view using the NOVATEL DGPS.

COLOMBIAN NAUTICAL CHART 416

MAR CARIBE

REPUBLICA DE COLOMBIA

BANCO QUITASUEÑO

PROYECCION MERCATOR
SISTEMA GEODESICO MUNDIAL (WGS-84)
ESCALA 1:100.000 EN LATITUD 14°22'30"N
Para Símbolos y Abreviaturas, ver la Carta Col 001, 3ra. Ed. 1997

Compilación efectuada por el Centro de Investigaciones Oceanográficas e Hidrográficas
1ra. Ed., Sep. 2000

PROFUNDIDADES EN METROS
(Menores de 30 en metros y decimetros)
reducidos al Nivel Medio de las Bajamares de Sicigias (MLWS)
ALTURAS EN METROS SOBRE EL NIVEL MEDIO DEL MAR

PROFUNDIDADES EN METROS

COL 416

COL 631

COL 630

Cayo Quitasueño
Fl 9s 23m 16M

VER PRECAUCION N°1

VER PRECAUCION N°2

Area no levantada

PRECAUCIONES

1. El navegante debe tener extrema precaución cuando pase por el Este del banco, debido a la existencia de fuertes corrientes hacia el Oeste y sobre el banco.

2. La navegación en esta área es muy peligrosa debido a la existencia de numerosas cabezas de coral.

CAUTIONS

1. The navigator must have extreme caution when pass by the East of the bank, due to strong currents to the West and on the bank.

2. Navigation in this area is very dangerous due to the existence of numerous coral heads.

NOTA

Los límites de las cartas a escala más grande aparecen en color magenta.

NOTE

Limits of next larger escale chart(s) are shown un purple.

FUENTES

Levantamientos hidrográficos efectuados por el Centro de Investigaciones Oceanográficas e Hidrográficas abordo del ARC. Providencia
Hoja Col 416 - 1.....1:50.000, 1999
Hoja Col 416 - 2.....1:100.000, 1999

GLOSARIO

Banco.....bank
Cayo.....cay

1ra.Ed. Sep., 2000 (Corregida hasta A/N 20/00 COLOMBIA). Actualizaciones AN: www.cioh.org.co

COL 416 PROFUNDIDADES EN METROS

ADVERTENCIA
El navegante prudente no se debe confiar totalmente en una sola clase de ayuda a la navegación, especialmente las flotantes.

Publicada por la Dirección General Marítima - Armada República de Colombia
© La reproducción y distribución en cualquier naturaleza de las cartas náuticas publicadas por la Dirección General Marítima - Armada República de Colombia, sólo se autoriza con el permiso de esta Dirección.

WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids.

Banco Quitasueño
PROFUNDIDADES EN METROS - ESCALA 1:100.000

Los usuarios pueden enviar correcciones, adiciones y comentarios a: CENTRO DE INVESTIGACIONES OCEANOGRAFICAS E HIDROGRAFICAS.
A.A. 982 Cartagena de Indias - Colombia
e-mail: hidro@cioh.org.co

Figure No. 1

AERIAL RECONNAISSANCE OF QUITASUEÑO

(29 November 2009)

MAR CARIBE
REPUBLICA DE COLOMBIA
BANCO QUITASUEÑO
Compilación efectuada por el Centro de Investigaciones Oceanográficas e Hidrográficas

PROYECCION MERCATOR
SISTEMA GEODESICO MUNDIAL (WGS-84)
ESCALA 1:100.000 EN LATITUD 14°22'30"N
Para Símbolos y Abreviaturas, ver la Carta Col 001, 3ra. Ed. 1997

PROFUNDIDADES EN METROS
(Menores de 30 en metros y decimetros)
reducidos al Nivel Medio de las Bajamares de Sicigias (MLWS)
ALTURAS EN METROS SOBRE EL NIVEL MEDIO DEL MAR

PROFUNDIDADES EN METROS

COL 416

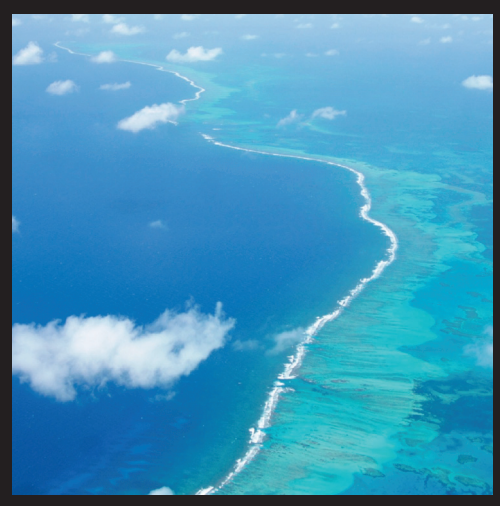
1) Quitasueño's northern light tower
(viewed from west to east)



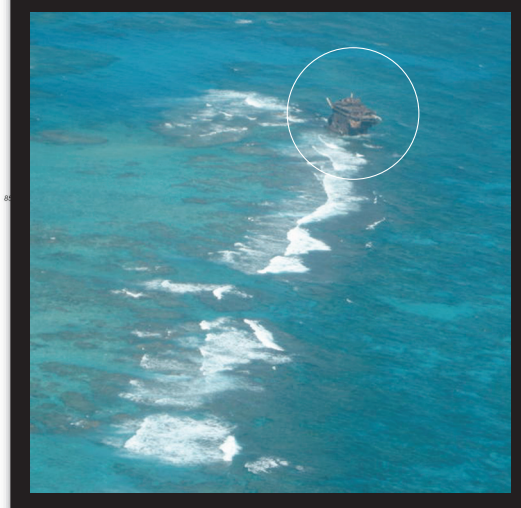
2) Quitasueño's northern light tower
(viewed from northeast to southwest)



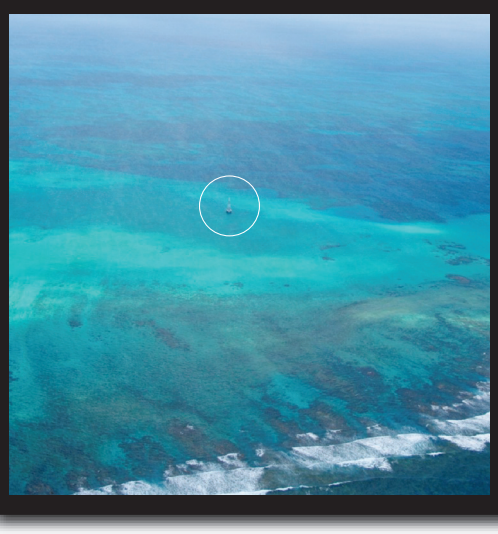
3) Quitasueño's eastern fringing reef
(viewed from north to south)



4) Shipwreck on the eastern reef
(viewed from south to north)



5) Quitasueño's southern light tower
(viewed from east to west)



6) Quitasueño's interior western reef
(viewed from southwest to northeast)



1 2 3 4 5 6

PRECAUCIONES
1.El navegante debe tener extrema precaución cuando pase por el Este del banco, debido a la existencia de fuertes corrientes hacia el oeste y sobre el banco.
2.La navegación en esta area es muy peligrosa debido a la existencia de numerosas cabezas de coral.

CAUTIONS
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Cayo.....cay

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VER PRECAUCION N°2
Cayo Quitasueño
Fl 9s 23m 13M

1ra.Ed. Sep., 2000 (Corregida hasta A/N 20/00 CO
COL 416 PRO

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WARNING
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Banco Quitasueño
PROFUNDIDADES EN METROS - ESCALA 1:100.000

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A.A. 982 Cartagena de Indias - Colombia
e-mail: hidro@cioh.org.co

COL 416

Figure No. 2



Figure 3



Figure 4

elevation, to take measurements which included using geodetic positioning system (GPS) equipment to calculate the geographical position and a leveling rule to determine the height above water level. Up to seven GPS receivers (three Differential GPS receivers which gave more precise measurements and four GPS receivers) were used on any given location. ***Annex 3*** lists the equipment used on this survey trip.

2.4 We had with us tide tables for the area from which we were able to determine whether or not the feature was an island, or merely a low-tide elevation. Captain Leon and the Office of Hydrographic Services of the Colombian National Maritime Directorate (DIMAR) had determined the tidal datum for Quitasueño (see ***Annex 4*** for their report on the tides). The maximum difference between high tide and low tide in this area, measured over a period of 19 years, was calculated to be approximately 561.90 millimeters (mms), with Highest Astronomical Tide (HAT) estimated at 272.99 mms, with reference to Mean Sea Level (MSL). The Lowest Astronomical Tide (LAT) was estimated to be – 288.91 mms, with reference to Mean Sea Level. Thus, any feature that measured higher than 272.99 mms (0.273 meters), with reference to MSL, was considered always above water, even at the HAT.

2.5 For the three days that we were on site, high tide occurred between 10 am and noon. As the table in ***Annex 4*** indicates, on our first day surveying, November 30, 2009, the tide was at its highest (200.31 mms, 72.68 mms less than HAT) with reference to MSL at approximately 10 am. It was at low tide at 1800 (6:00 pm), when the height, with reference to MSL, was -162.41 (126.50 higher than LAT). On December 1, 2009, high tide was encountered at about 11 am when the tide reached 217.56 mms, referenced to MSL (55.43 mms less than HAT) and low tide occurred at 1900 (7:00 pm) when the tide was at -201.27 mms, referenced to MSL, (87.64 mms higher than LAT). And, on December 2, 2009, our last day on site, high tide occurred at approximately noon when the tide reached 229.14 mms, referenced to MSL (43.85 mms less than HAT) and low tide occurred at 20:00 (8:00 pm) when the tide was at -231.71 mms, referenced to MSL (57.20 mms higher than LAT).

2.6 Thus, during our 3 days on site, the high tides were not at the Highest Astronomical Tide levels, but rather between 43.85 mms to 72.68 mms lower than the highest level estimated over a 19 year period. And low tides during our 3-day survey trip were between 57.20 and 126.50 mms higher than the estimated lowest Astronomical tides. When determining whether or not a feature was an island or a low-tide elevation, however, I took into account the HAT. I took a very conservative approach to determining whether or not a feature was an island or a low-tide elevation. I decided that regardless when observations and measurements were taken any feature that measured less than 272.99 mms in height (0.273 meters) was considered a low-tide elevation. There were a few

features that given more observation, at exactly high tide (and adjusting for HAT) could possibly have been considered islands. [6]

2.7 It should be noted that due to the danger of navigating close to the breaking waves at the eastern reef, as evidenced by the several wrecked ships that clearly are visible at different locations along the reef, on site measurements were not possible. Visual inspection from our boat about 50+ meters from this area caused us to firmly believe that many features were at or slightly above tidal datum all along the reef. To me, the Quitasueño reef is similar in nature to many others throughout the world and to those used when discussing reefs as legal baselines.[7]

2.8 During the course of our visit to Quitasueño our team identified 54 features that can be classified as islands or low-tide elevations under LOS Convention Article 13 and Article 121 (1). Although several features were seen as being above water, due to their height and the time of day the measurements were taken, it was felt that at the time of the highest astronomical tide (HAT) they would be either at or below tidal datum. These features (particularly QS23, QS43, and QS46) were categorized as low-tide elevations.

3. Geographical facts of Quitasueño's Islands and Reefs

3.1 The following table provides geographical information for the 54 islands and low-tide elevations identified on this trip, with geographical coordinates given, height, and time of day measurements were taken, along with a picture of the feature. The features have been labeled QS 1 (beginning in the north, near the light tower) to QS 54, in the south, near the southern light tower. [In the table, MSL= Mean Sea Level and geographical coordinates are on World Geodetic System 1984 (WGS 84)].

3.2 In summary, 34 of the 54 features are islands in accordance with international law: QS Nos. **1, 2, 3, 4, 5**, 8, 10,**15, 16, 17**, **20**, 21, **22**, **24, 26, 27,** 29, 30, 31, **32**, 33, 34, **35**, 36, 37, 38, 39, 40, 41, 42, **45**, **47, 52, and 53** (those listed in **bold** were measured on site, at the feature.) The other 20 features are low-tide elevations. In many cases, there were numerous features in proximity to each other and the largest (and highest) feature was the one that was measured. As can be seen in the following photos, examples of where several features were

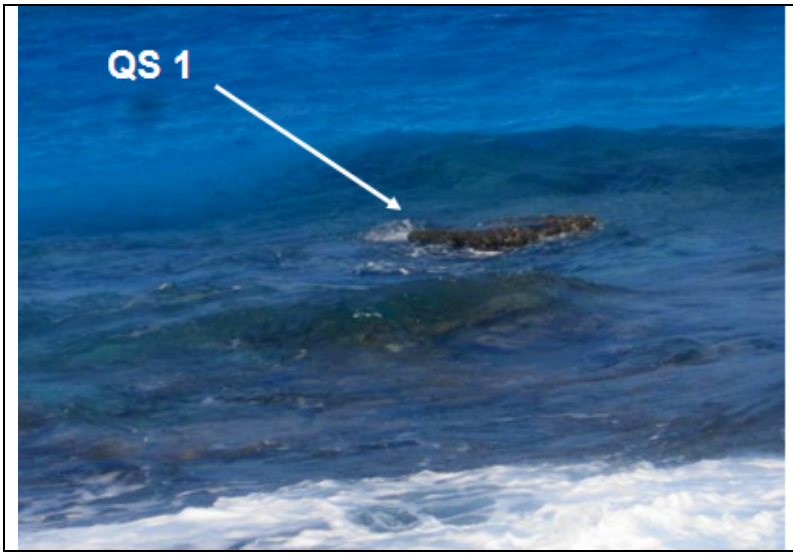
[6] It is possible that QS 23, QS 43, and QS 46 may be considered islands, but due to how close their heights were to tidal datum they were deemed to be low-tide elevations. This determination, however, does not affect the legal status of measuring the territorial sea or contiguous zone from any of the features identified on this trip.

[7] See ***Baseline*** book and P.B. Beazley, "Reefs and the 1982 Convention on the Law of the Sea," ***International Journal of Estuarine and Coastal Law***, Vol. 6, No. 4, 1991, pp. 281-312 (hereinafter cited as , "Beazley, Reefs". Peter Beazley, the U.K. Hydrographer during the Third UN conference on the law of the sea, was one of technical experts that developed the terms that appear in Article 6 on reefs.

located at one numbered site are at QS Nos. 8, 9, 10, 11, 13, 16, 19, 27, 30, 32, 35, 36, 38, 39, and 46. In addition, it will be seen in many of the photos, the area around the features was quite shallow; had our survey occurred closer to low tide more features would have been above the surface. It should be noted that up to about 30 minutes was spent at any given site. Thus, the time shown on the photo may not be exactly the same time shown in the box, which reflects when the measurements were taken for that feature. **Annex 5** provides more survey details of these 54 features.

3.3 The four maps in **Annex 6** serve as locator maps that include photos showing where on Quitasueño the features were surveyed.

Photos and description of QS 1- QS 54



QS 1:
14° 28′ 57.6″ N;
81° 07 19.8″ W
Coral approx. 0.299 meters above MSL- position was taken on site, but exact height measurements, due to wave conditions, were taken about 10 meters from QS 1.

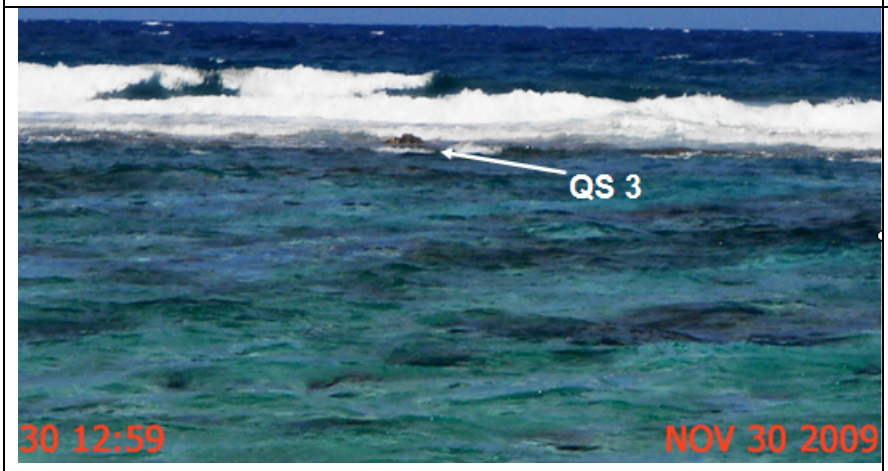
Time 12:09
Date 30 Nov 09



QS 2:
14° 28′ 56.1″ N;
81° 07′ 19.8″ W

Coral at 0.329 meters above MSL.

Time 11:53
Date 30 Nov 09



QS 3:
14° 28′ 31.5″N;
81° 07′ 05.3″ W

Coral approx. 0.288 above MSL- exact height not available due to wave conditions.

Time 13:25
Date 30 Nov 09



QS 4:
14° 28′ 13.4″ N;
81° 07′ 02.0″ W

Coral at 0.277 meters above MSL.

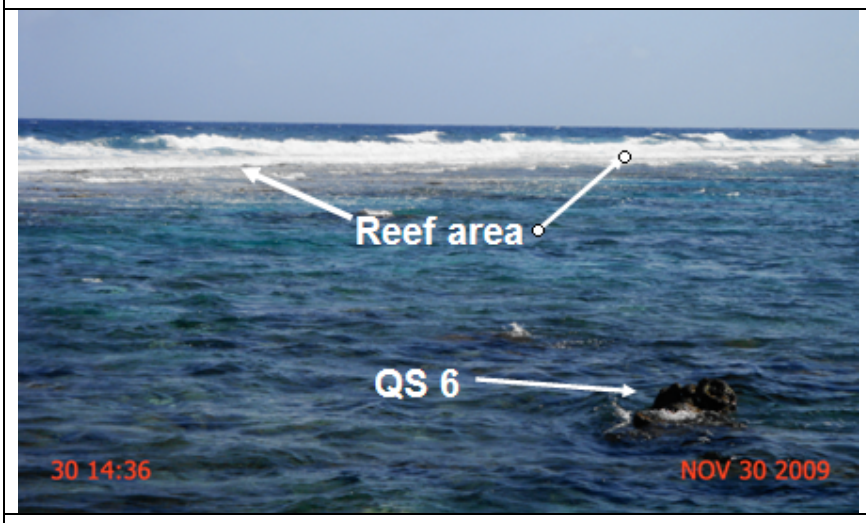
Time 13:47
Date 30 Nov 09



QS 5:
14° 28′ 12.3″ N;
81° 07′ 05.0″ W

Coral at 0.297 meters above MSL.

Time 14:09
Date 30 Nov 09



QS 6:
14° 27′ 58.8″ N;
81° 07′ 01.5″ W

Low-tide elevation approx. 0.198 meters above MSL. Recorded, about 10 meters from the boat using video and cameras due to wave conditions.

Time 14:40
Date 30 Nov 09



QS 7:
14° 27′ 15.0″N;
81° 07′ 03.9″ W

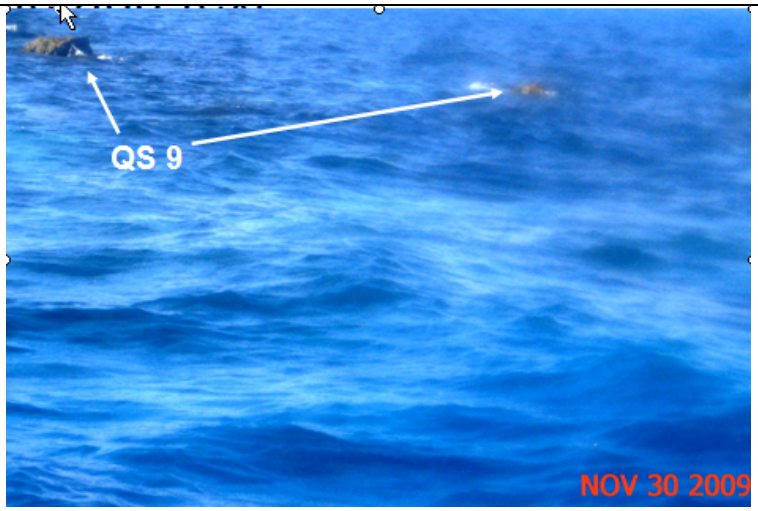
Low-tide elevation reef approx. 0.198 meters above MSL. Recorded about 60 meters from the feature using video and cameras due to wave conditions.

Time 14:54
Date 30 Nov 09



QS 8:
14° 26′ 27.1″N;
81° 07′ 02.9″W

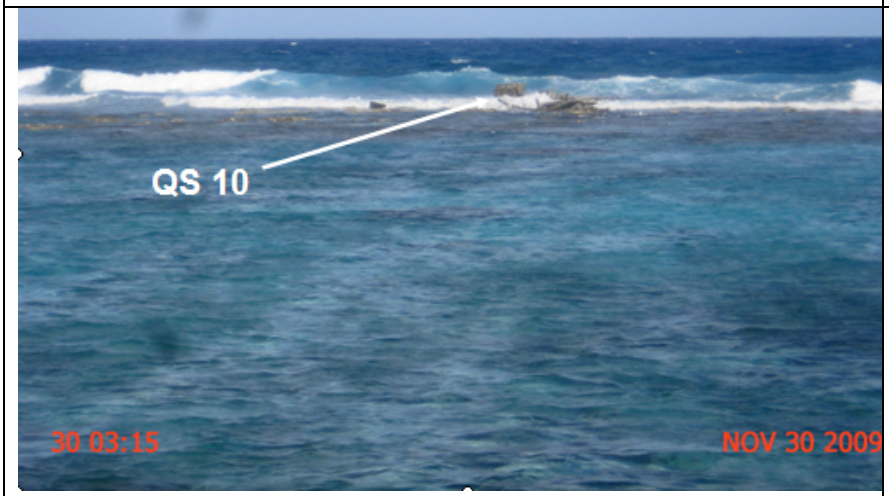
Coral approx. 0.448 meters above MSL. Recorded about 100 meters from the boat using video and cameras due to wave conditions.
Time 15:15
Date 30 Nov 09



QS 9:
14° 26′ 14.6″N;
81° 08′ 35.6″W

Low-tide elevation reef approx 0.189 meters above MSL. Recorded about 40 meters from the feature using video and cameras due to wave conditions.

Time 16:11
Date 30 Nov 09

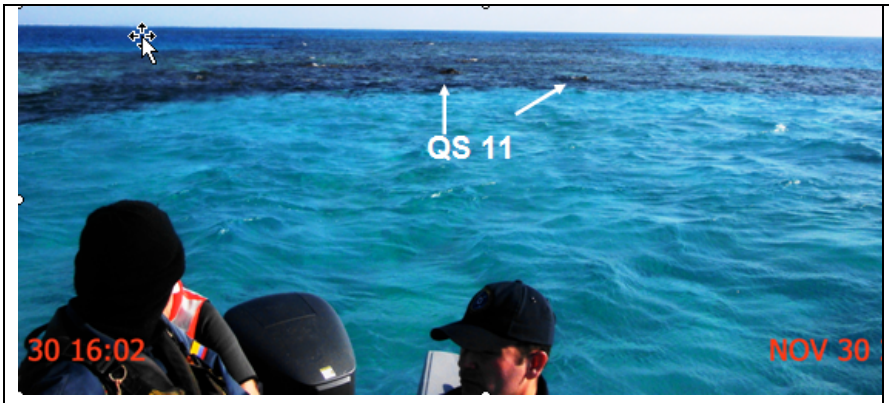
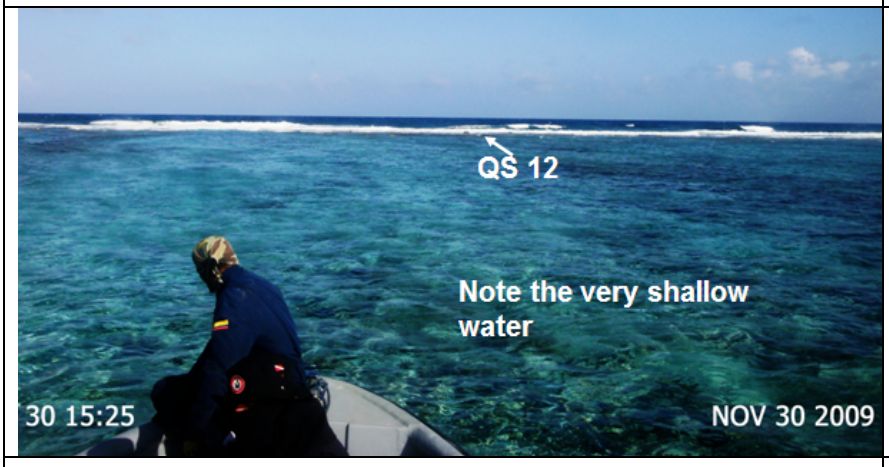
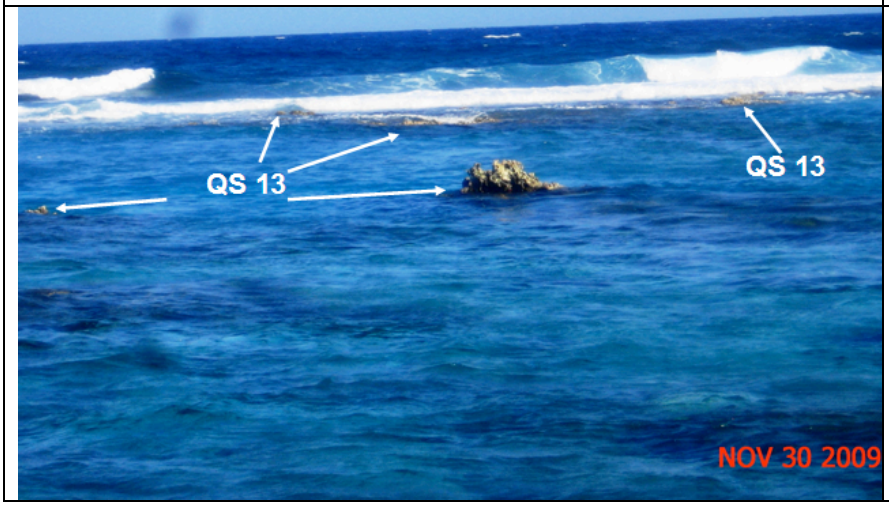


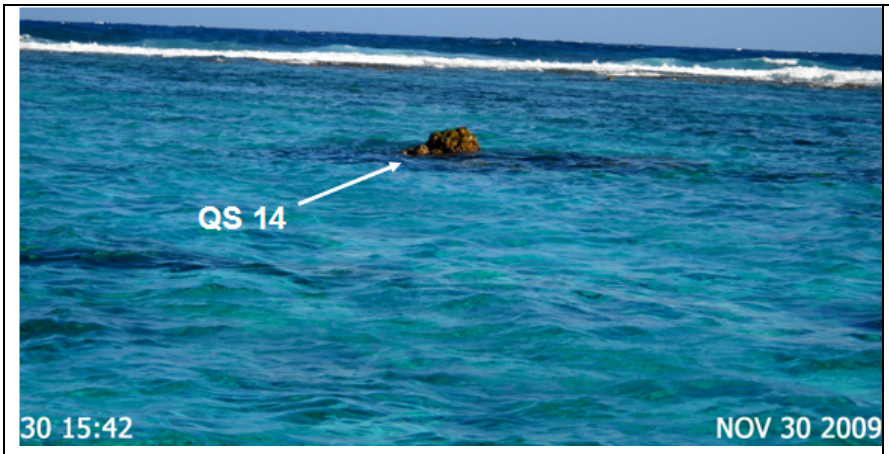
QS 10:
14° 25′ 57.6″N;
81° 06′ 57.6″ W

Coral approx. 0.348 meters above MSL. Recorded about 100 meters distant using video and cameras due to wave conditions.

Time 15:18
Date 30 Nov 09

QS 11:

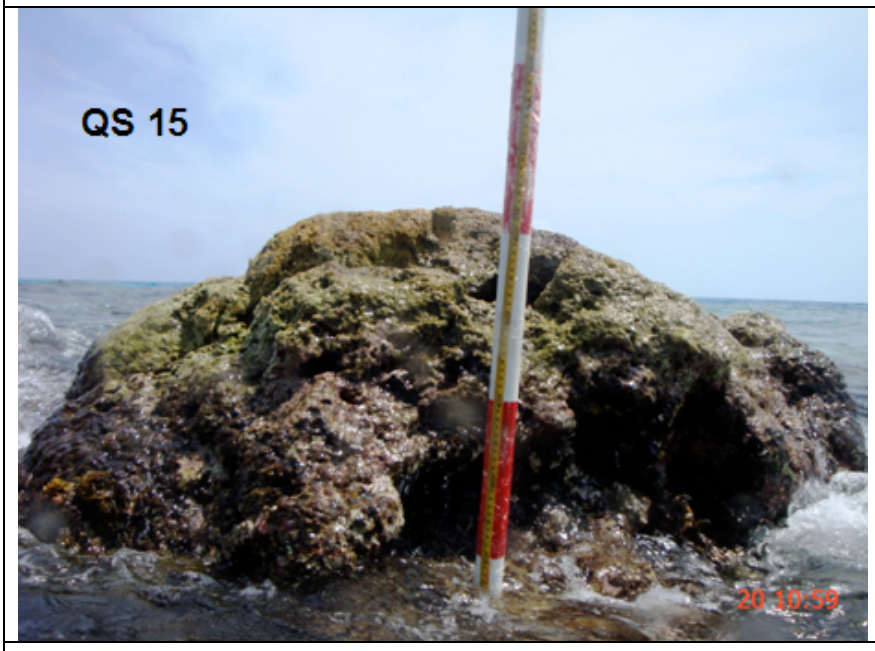
	**14° 25′ 46.6″N;** **81° 08′ 08.3″W** Low-tide elevation approx. 0.089 meters above MSL. Recorded about 30 meters away using video and cameras due to wave conditions. Time 16:03 Date 30 Nov 09
	**QS 12:** **14° 25′ 46.4″N;** **81° 06′ 59.8″W** Low-tide elevation approx. 0.198 meters above MSL. Recorded about 120 meters distant using video and cameras due to wave conditions. Time 15:25 Date 30 Nov 09
	**QS 13:** **14° 25′ 24.9″N;** **81° 06′ 59.2″W** Low-tide elevation approx. 0.189 meters above MSL. Recorded about 50 meters away using video and cameras due to wave conditions. Time 15:34 Date 30 Nov 09



QS 14:
14° 25′ 19.2″N;
81° 06′ 59.5″W

Low-tide elevation approx. 0.139 meters above MSL. Recorded about 40 meters distant using video and cameras due to wave conditions.

Time 15:42
Date 30 Nov 09

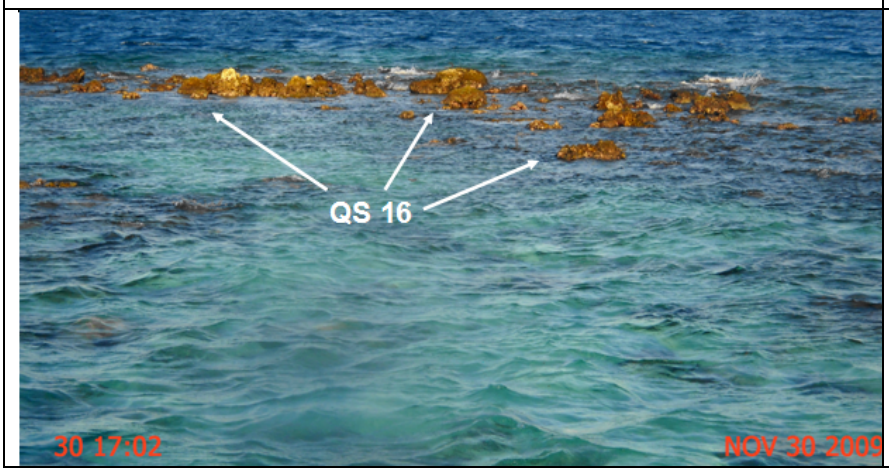


QS 15:
14° 25′ 07.0″N;
81° 08′ 37.9″W

Coral 0.350 meters above MSL.

Time 16:28
Date 30 Nov 09
[15 meters from QS 15]

Photo taken 20 July 2008 at 10:57



QS 16:
14° 25′ 02.8″N;
81° 09′ 08.8W

Coral 0.312 meters above MSL.

Time 16:54
Date 30 Nov 09

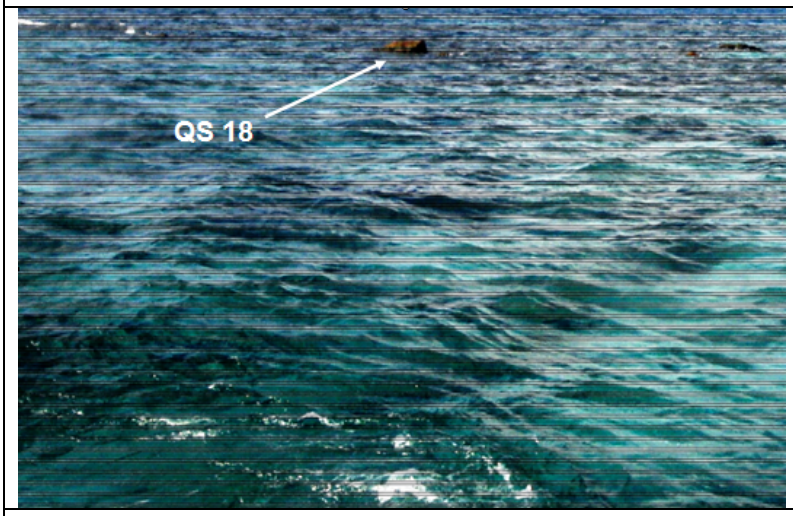


QS 17:
14° 24′ 38.5″N;
81° 08′ 41.9″W

Coral 0.500 meters above MSL.

Time 16:34
Date 30 Nov 09

Photo from on site on 20 July 2008 at 11:29



QS 18:
14° 24′ 38.4″ N;
81° 08′ 54.9″ W
Low tide elevation approx. 0.089 above MSL.
Recorded about 30 meters away using video and cameras due to wave conditions.

Time 16:21
Date 30 Nov 09



QS 19:
14° 24′ 24.0″N;
81° 08′ 51.7″W

Low-tide elevation approx. 0.261 meters above MSL. Recorded about 15 meters away using video and cameras due to wave conditions.

Time 8:25
Date 1 Dec. 09

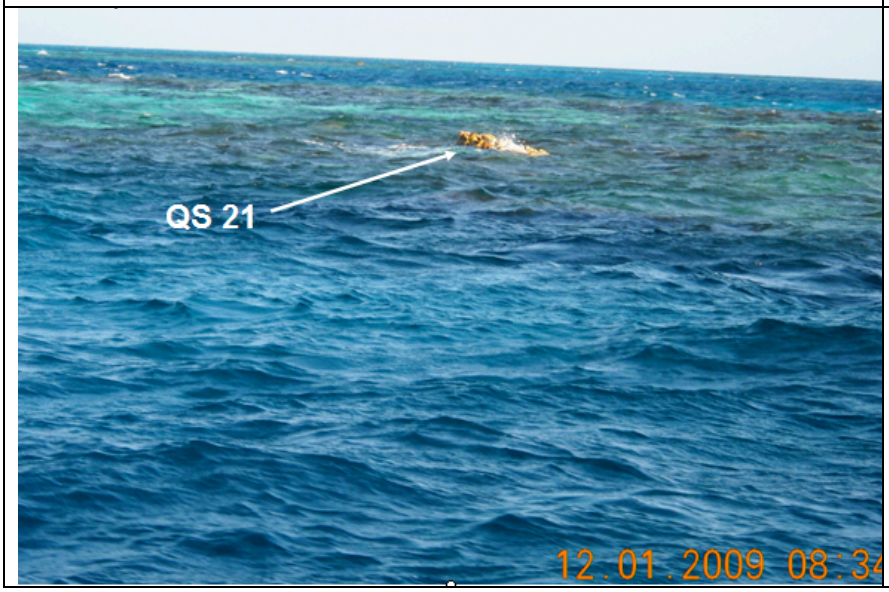


QS 20:
14° 24′ 23.8″N;
81° 08′ 43.8″W

Coral 0.337 meters above MSL.

Time 11:52
Date 20 July 08
[photo taken in 2008]

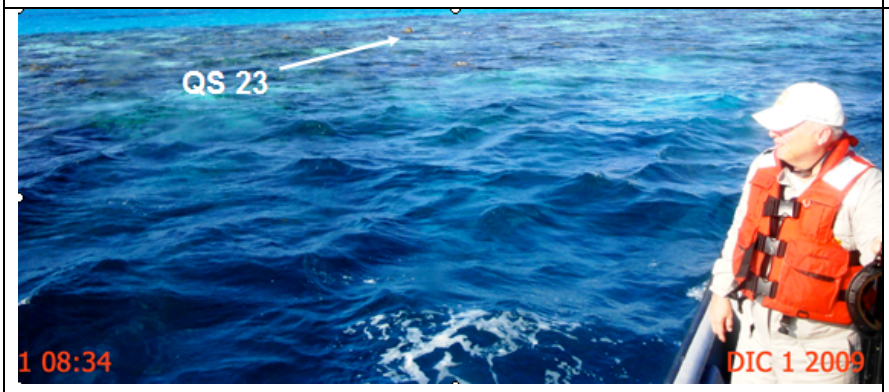
In Dec. 2009 we approached within about 30 meters of the feature.



QS 21:
14° 24′ 22.6″N;
81° 08′ 43.2″W

Coral approx. 0.361 meters above MSL. Recorded about 25 meters from the feature using video and cameras due to wave conditions.

Time 8:29
Date 1 Dec 09

	**QS 22:** **14° 24′ 20.1″N;** **81° 08′ 48.2″W** Coral 0.461 meters above MSL Time 8:00 Date 1 Dec 09
	**QS 23:** **14° 24′ 16.7″N;** **81° 08′ 44.3″W** Low tide elevation approx. 0.267 meters above MSL. Recorded about 25 meters from the feature using video and cameras due to wave conditions. Time 8:35 Date 1 Dec 09

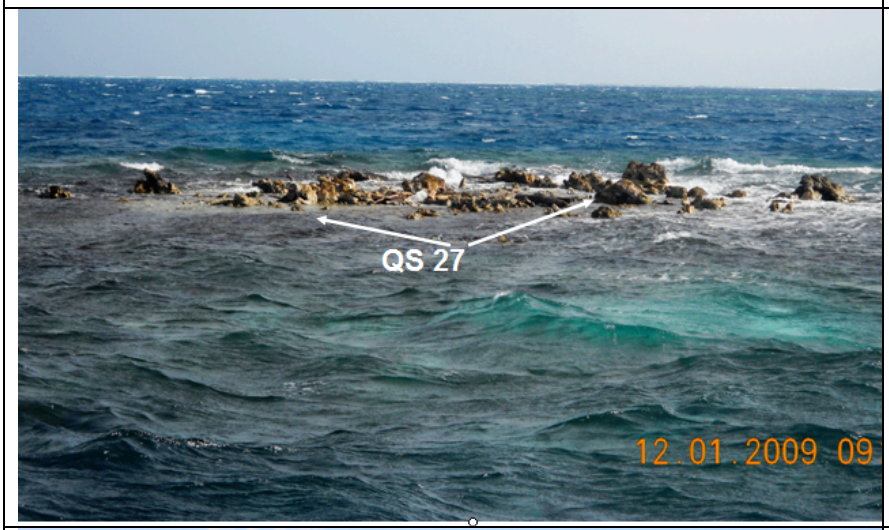
	**QS 24:** **14° 23′ 57.5″N;** **81° 08′ 24.8″W** Coral 0.667 meters above MSL. Time 8:55 Date 1 Dec 09
	**QS 25:** **14° 23′ 41.0″N;** **81° 08′ 19.1″ W** Low-tide elevation 0.124 meters above MSL. Time 13:10 Date 20 July 08



QS 26:
14° 23′ 27.1″N;
81° 08′ 21.3″W

Coral 0.405 meters above MSL

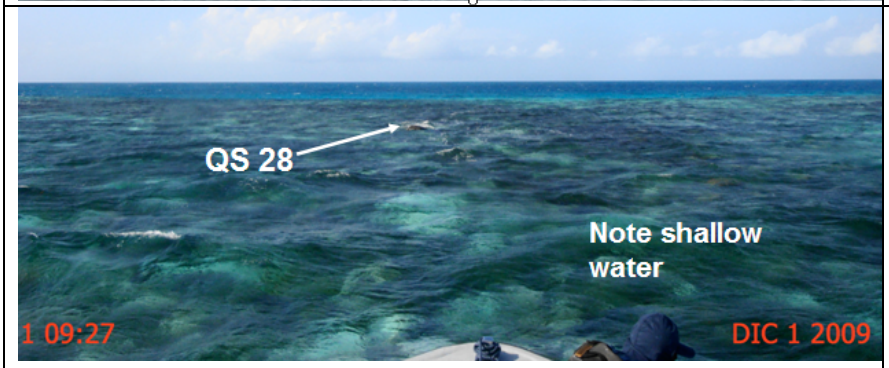
Time 13:43
Date 20 July 2008



QS 27:
14° 23′ 24.1″N′;
81° 08′ 06.7″W

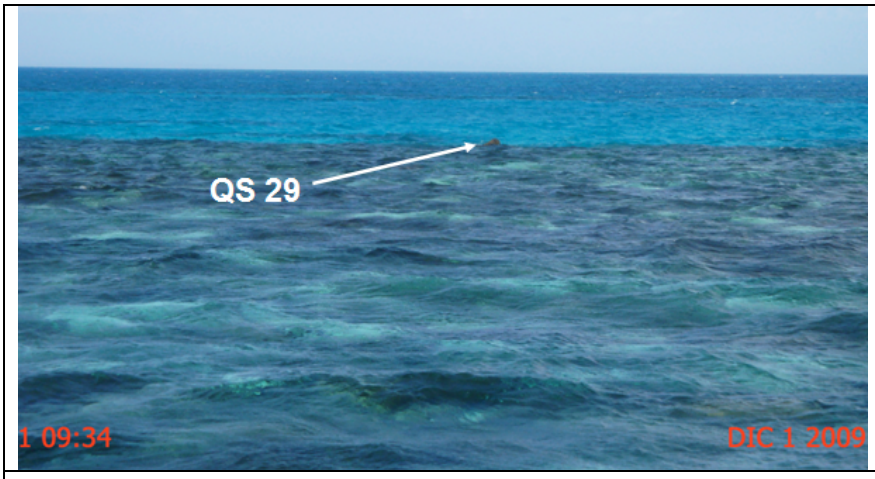
Coral 0.405 meters above MSL

Time 14:21
Date 1 Dec. 09



QS 28:
14° 23′ 14.7″N;
81° 08′ 14.3″W

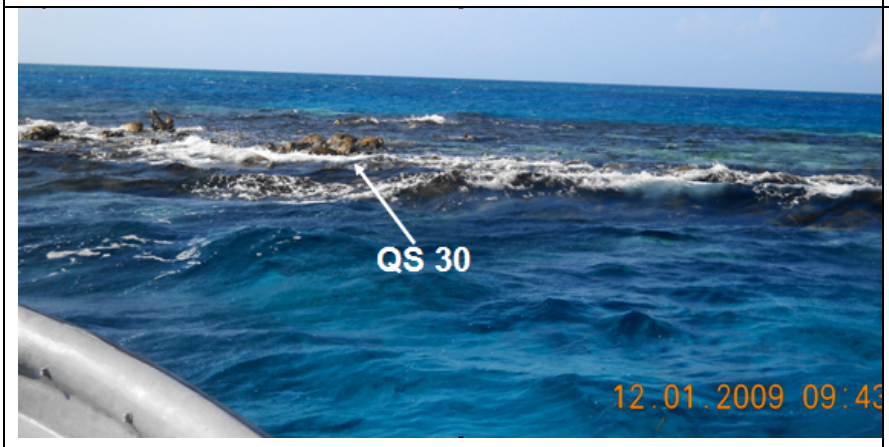
Low-tide elevation approx. 0.217 meters above MSL. Recorded about 20 meters from the feature using video and cameras due to wave conditions.
Time 9:27
Date 1 Dec 09



QS 29:
14° 22′ 45.6″N;
81° 08′ 19.6″W

Coral approx. 0.405 meters above MSL. Recorded about 35 meters distant using video and cameras due to wave conditions.

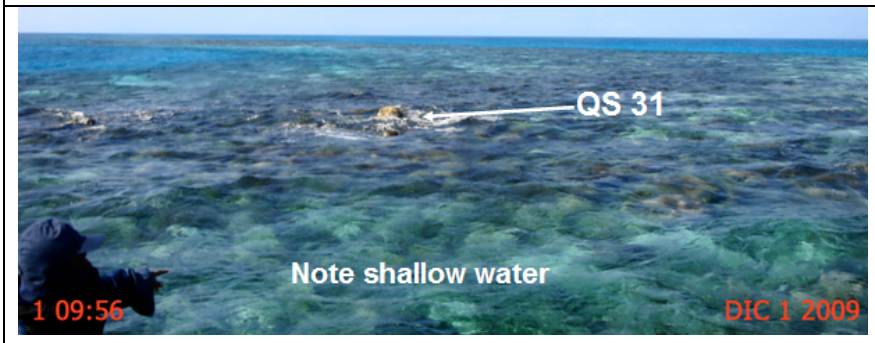
Time 9:34
Date 1 Dec 09



QS 30:
14° 22′ 35.7″N;
81° 08′ 22.3″ W

Coral approx. 0.505 meters above MSL. Recorded about 8 meters from the feature using video and cameras from boat and plane due to wave conditions.

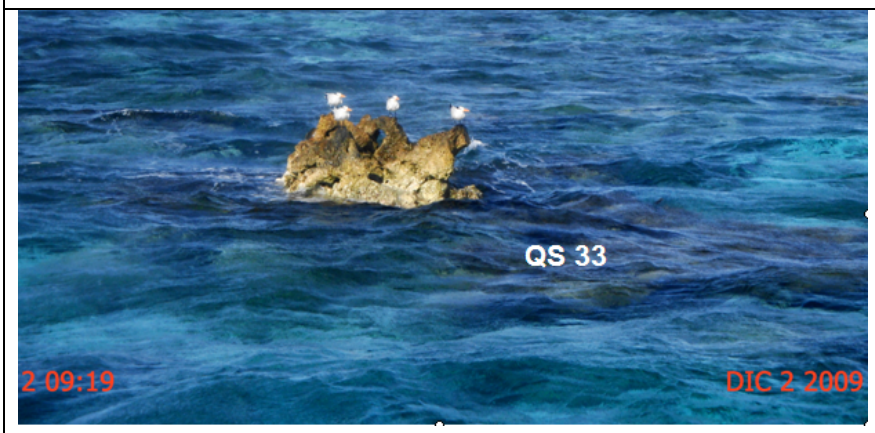
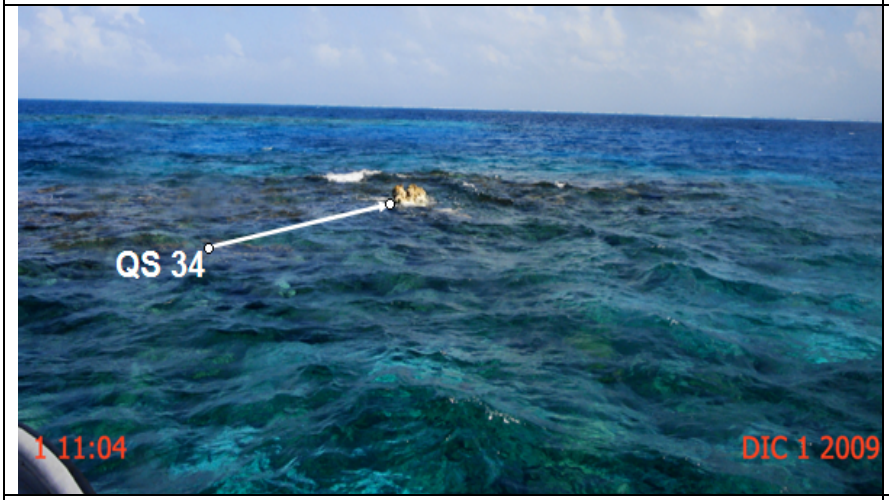
Time 9:37
Date 1 Dec 09

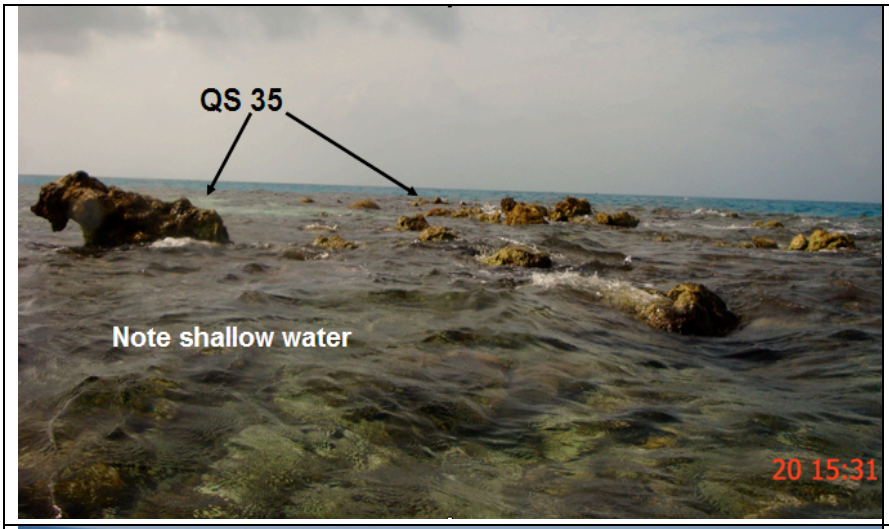
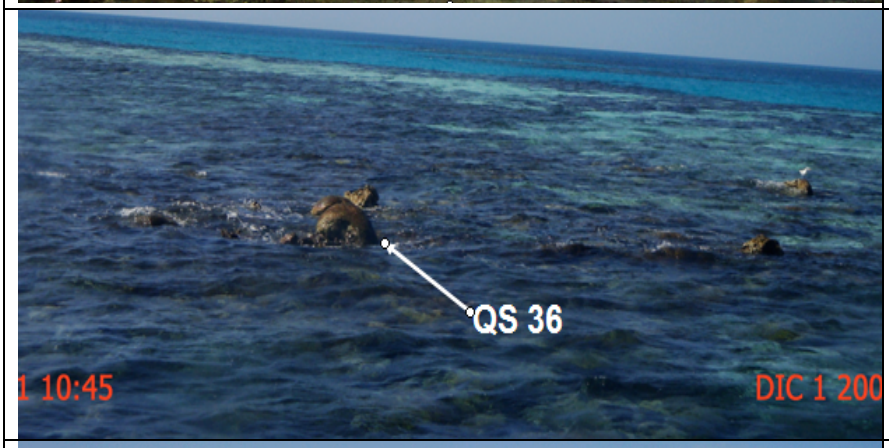
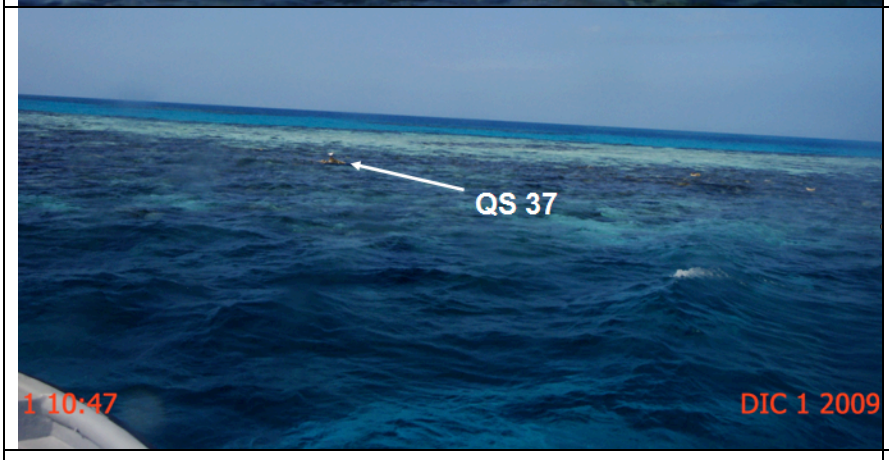


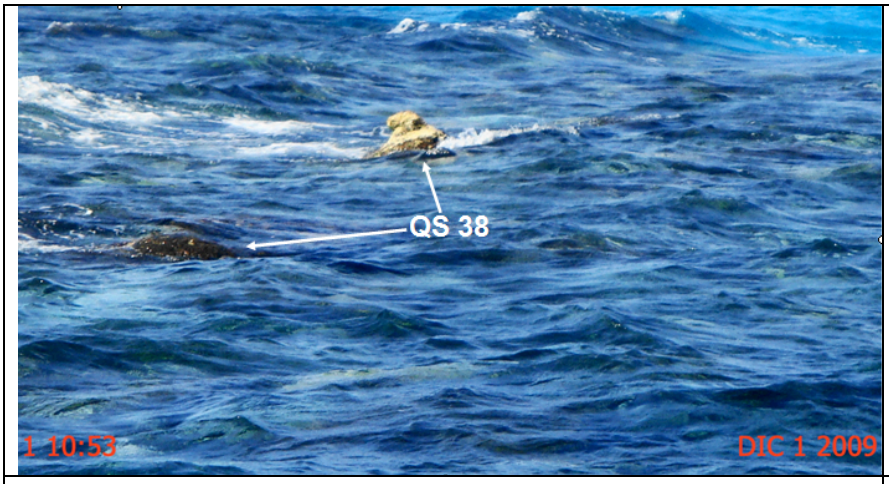
QS 31:
14° 22′ 18.2″N;
81° 08′ 23.5″W

Coral approx. 0.355 meters above MSL. Recorded about 5 meters distant using video and cameras due to wave conditions.

Time 9:57
Date 1 Dec 09

	**QS 32:** **14° 22′ 07.2″N;** **81° 08′ 31.5″W** Coral 1.505 meters above MSL. Time 10:25 Date 1 Dec 09 Note the white guano on the rock indicating that it is above water at all times.
	**QS 33:** **14° 22′ 04.4″N;** **81° 08′ 32.9″W** Coral approx. 0.421 meters above MSL. Recorded about 7 meters from feature using video and cameras due to wave conditions. Time 9:19 Date 2 Dec 09
	**QS 34:** **14° 21′ 57.6″N;** **81° 07′ 38.4″W** Coral approx. 0.467 meters above MSL. Recorded about 15 meters away using video and cameras due to wave conditions. Time 11:04 Date 1 Dec 09

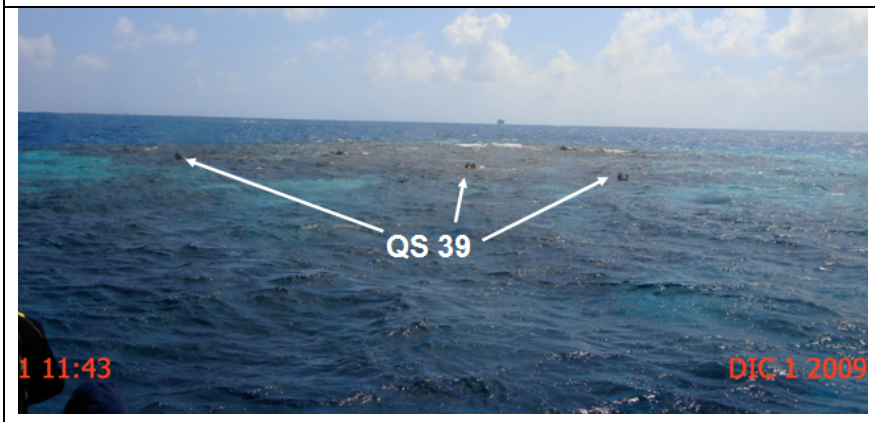
	**QS 35:** **14° 21′ 49.2″N;** **81° 08′ 37.5″W** Coral 0.532 meters above MSL. Time 15:32 Date 20 July 08
	**QS 36:** **14° 21′ 44.9″N;** **81° 08′ 38.8″W** Coral approx. 0.367 meters above MSL. Recorded about 6 meters away using video and cameras due to wave conditions. Time 10:45 Date 1 Dec 09
	**QS 37:** **14° 21′ 38.9″N;** **81° 08′ 39.8″W** Coral approx. 0.317 meters above MSL. Recorded about 30 meters away using video and cameras due to wave conditions. Time 10:48 Date 1 Dec 09



QS 38:
14° 21′ 32.4″N;
81° 08′ 40.9″W

Coral approx. 0.317 meters above MSL. Recorded about 15 meters from feature using video and cameras due to wave conditions.

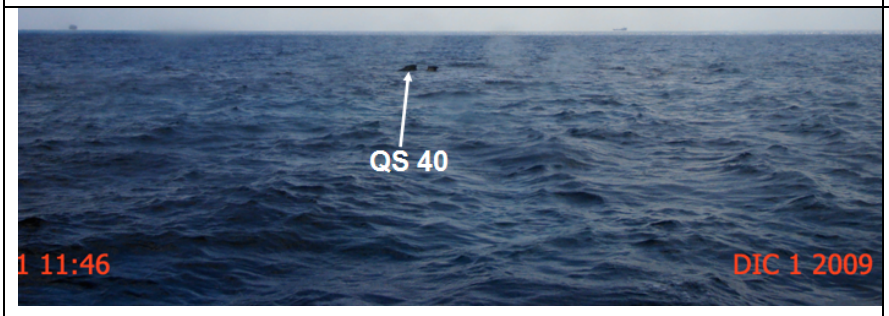
Time 10:53
Date 1 Dec 09



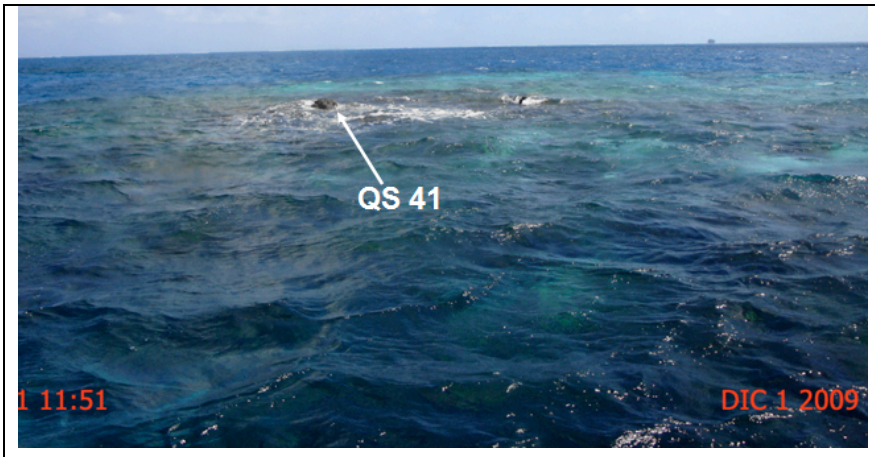
QS 39:
14° 21′ 07.7″N;
81° 08′ 20.8″W

Coral approx. 0.397 meters above MSL. Recorded about 25 meters away using video and cameras due to wave conditions.

Time 11:43
Date 1 Dec 09



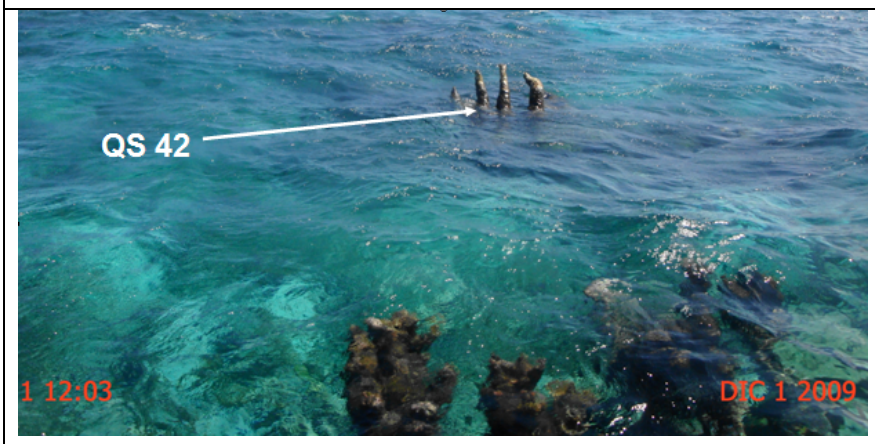
QS 40:
14° 21′ 00.8″N;
81° 08′ 22.2″W
Coral approx. 0.347 meters above MSL. Recorded about 15 meters away using video and cameras due to wave conditions.
Time 11:46
Date 1 Dec 09



QS 41:
14° 20′ 52.9″N;
81° 08′ 39.3″W

Coral approx. 0.347 meters above MSL. Recorded about 18 meters away using video and cameras due to wave conditions.

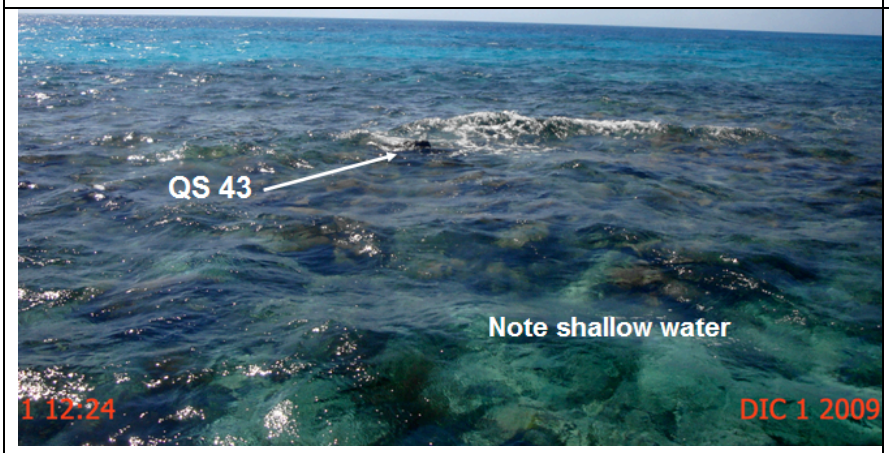
Time 11:51
Date 1 Dec 09



QS 42:
14° 19′ 19.2″N;
81° 11′ 00″W

Coral approx. 0.347 meters above MSL. Recorded about 8 meters distant using video and cameras due to wave conditions.

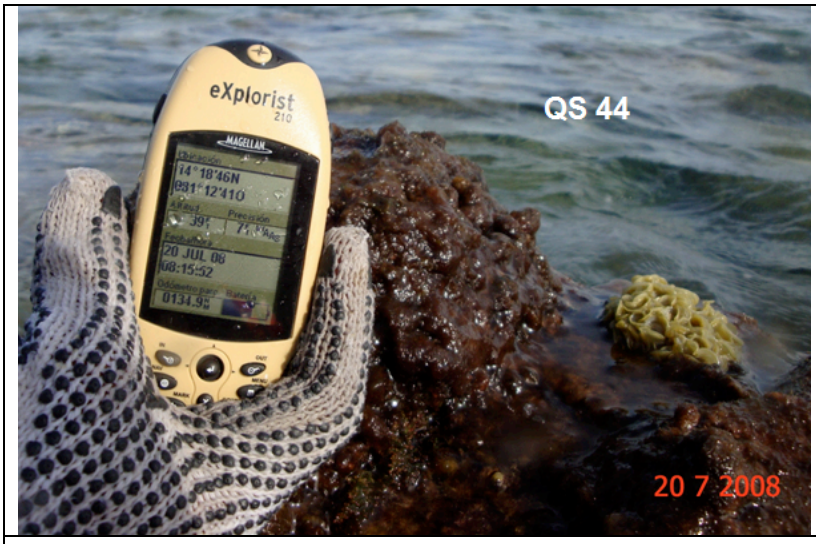
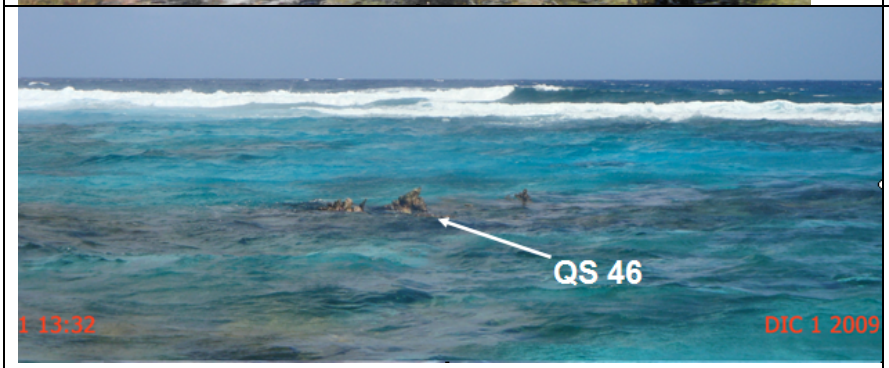
Time 12:03
Date 1 Dec 09



QS 43:
14° 18′ 57.9″N;
81° 10′ 56.6″W

Coral approx. 0.247 meters above MSL. Recorded about 12 meters from feature using video and cameras from boat and plane due to wave conditions.

Time 12:25
Date 1 Dec 09

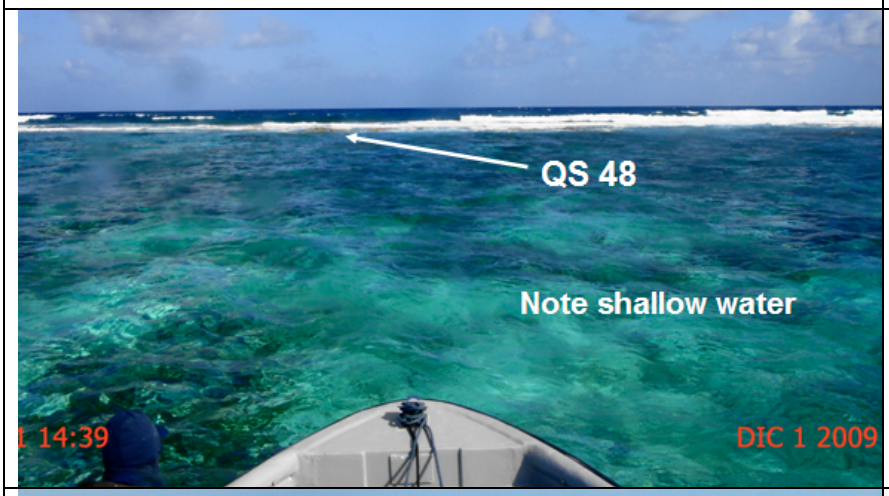
	**QS 44:** **14° 18′ 46.0″N;** **81° 12′ 41.0″W** Low-tide elevation - 0.035 meters at MSL. Time 8:15 Date 20 July 08
	**QS 45:** **14° 18′ 04.5″N;** **81° 11′ 10.3″ W** Coral 0.497 meters above MSL Time 12:59 Date 1 Dec 09
	**QS 46:** **14° 15′ 53.2″N;** **81° 09′ 56.4″W** Coral approx. 0.247 meters above MSL. Recorded about 10 meters away using video and cameras due to wave conditions. Time 13:26 Date 1 Dec 09



QS 47:
14° 15′ 24.4″N;
81° 10′ 03.5″W

Coral 0.374 meters above MSL.

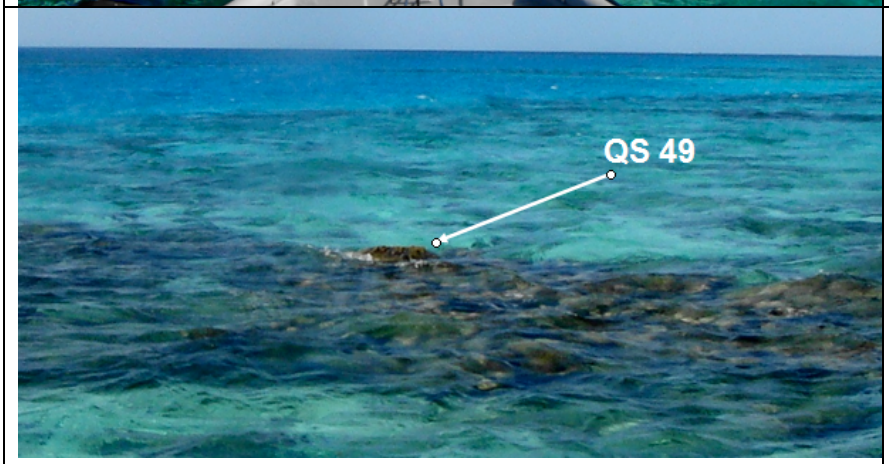
Time 13:59
Date 1 Dec 09



QS 48:
14° 12′ 30.6″N;
81° 09′ 56.1″W

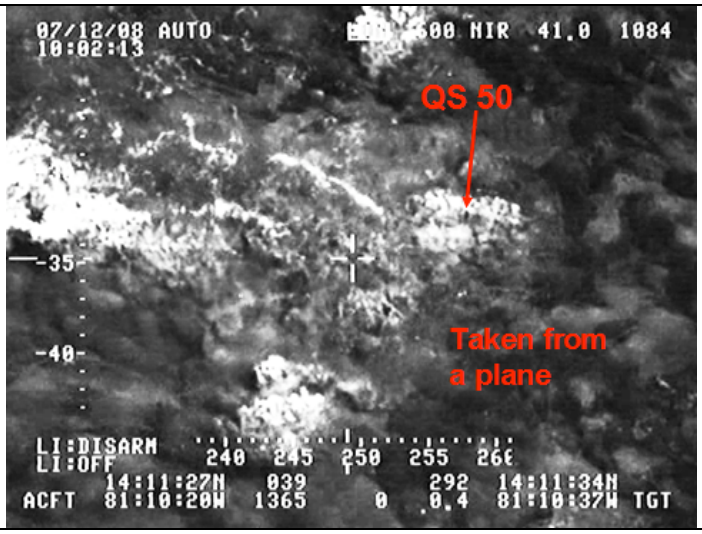
Low tide elevation approx. 0.192 meters above MSL. Recorded about 100 meters distant using video and cameras due to wave conditions.

Time 14:40
Date 1 Dec 09



QS 49:
14° 11′ 45.5″N′;
81° 10′ 32.2″W

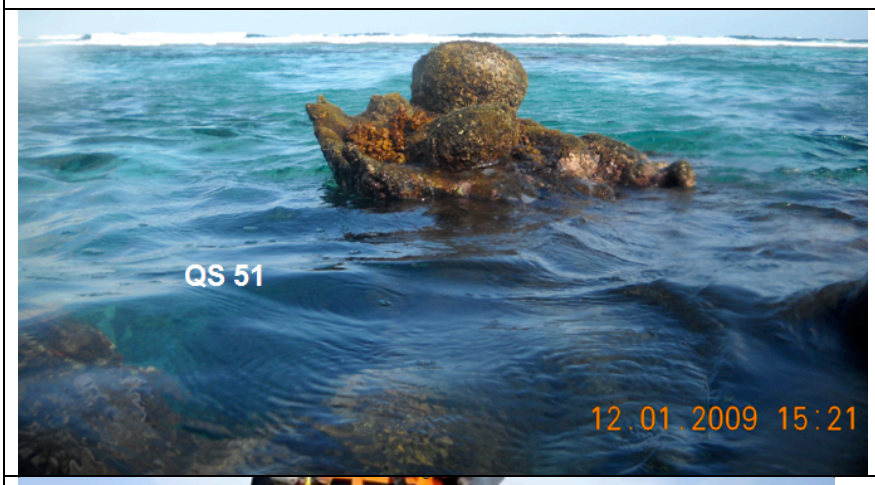
Low-tide elevation approx. 0.042 meters above MSL. Recorded about 20 meters away using video and cameras from boat and plane due to wave conditions.
Time 14:58
Date 1 Dec 09



QS 50:
14° 11′ 34.0″N;
81° 10′ 37.0″W

Coral which emerges but height was not able to be taken from either the boat or plane and the wave conditions prevented on site inspection.

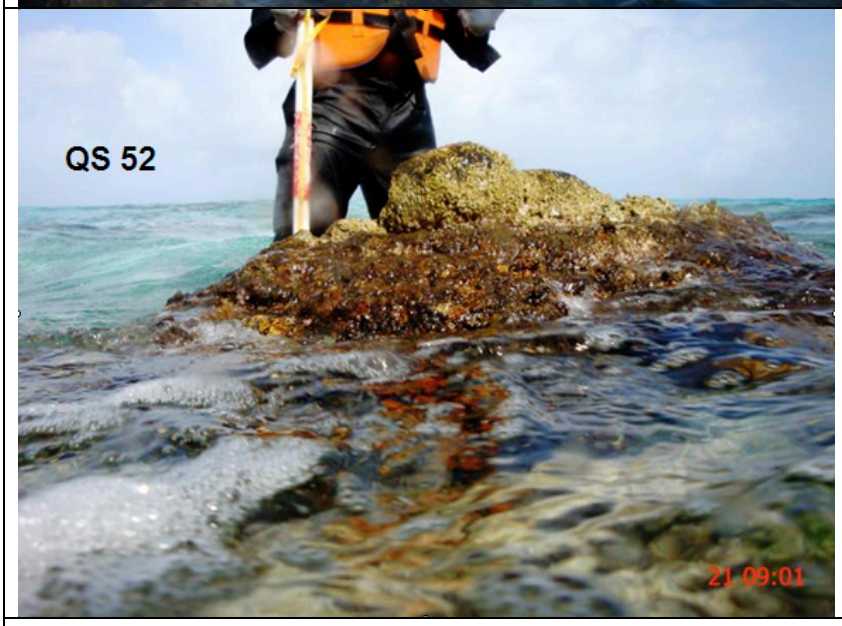
Time 10:03
Date 12 July 08



QS 51:
14° 11′ 21.9″N;
81° 10′ 04.8″W

Low-tide elevation 0.272 meters above MSL. (Labeled "Octopus"). Just below HAT.

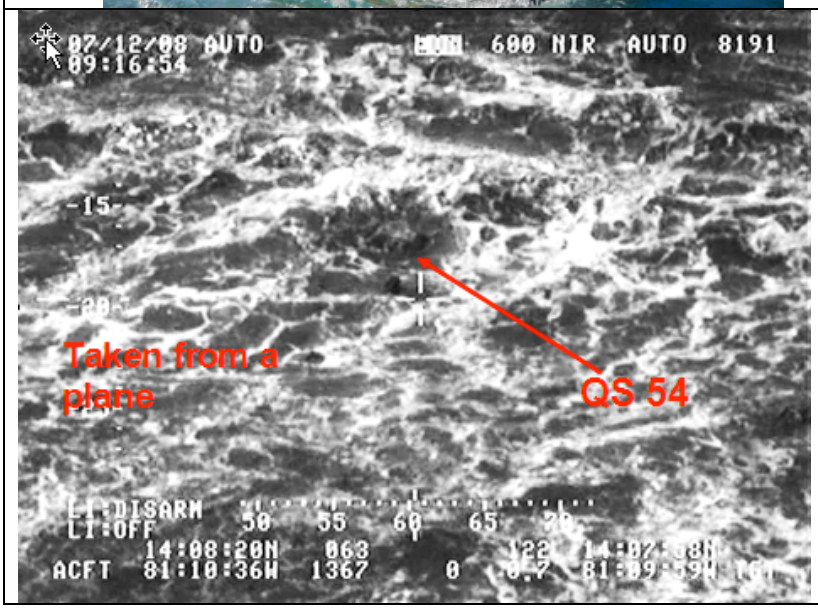
Time 15:17
Date 1 Dec 09



QS 52:
14° 11′ 01.5″N;
81° 10′ 05.2″ W

Coral 0.369 meters above MSL.

Time 10:57
Date 2 Dec 09

	**QS 53:** **14° 09′ 51.1″ N;** **81° 09′ 42.3″W** Coral 0.529 meters above MSL. Time 11:37 Date 2 Dec 09
	**QS 54:** **14° 07′ 58″N;** **81° 09′ 59.0″W** Low-tide elevation which emerges but height was not able to be taken from either the boat or plane and the wave conditions prevented on site inspection. Time 9:18 Date 12 July 08

4. The Law

4.1 The United Nations Convention on the Law of the Sea (LOS Convention), which entered into force 16 November 1994 for those States Party to it, reflects customary international law, according to Colombia, on the question of determining baselines from which to measure the outer limit of the territorial sea.[8] There are several articles in the LOS Convention that are relevant to the present circumstances of determining the baselines of the islands, low-tide elevations and drying fringing reefs that comprise Quitasueño.

4.2 First, there is Article 3 that allows Colombia to establish a territorial sea not to exceed 12 miles, "measured from baselines determined in accordance with this Convention." Article 33 allows a coastal State to claim a zone contiguous to the territorial sea, the outer limits of which are not to exceed 24 miles from the baseline from which the breadth of the territorial sea is measured.

4.3 Article 121 (2) states that an island, save for the exception noted in Article 121 (3), is afforded the same maritime jurisdiction that is applicable to other land territory.[9] Thus, at a very minimum, Colombia may claim a territorial sea and contiguous zone from baselines of the islands identified on Quitasueño.

4.4 Article 5 of the LOS Convention provides that "except where otherwise provided in this Convention the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State."

4.5 And, the article in the Convention most relevant to Colombia at Quitasueño is Article 6 on reefs which states: "In the case of islands situated on atolls or of islands having fringing reefs, the baseline for measuring the breadth of the territorial sea is the seaward low-water line of the reef, as shown by the appropriate symbol on charts officially recognized by the coastal State."

4.6 Throughout Quitasueño there are features that are low-tide elevations which, according to Article 13 of the LOS Convention, are naturally formed areas of land which are surrounded "by and above water at low tide but submerged at

[8] While Colombia is not Party to the LOS Convention I have been given a quote by the Colombian team, from its Counter-Memorial filed at the ICJ in November 2008 in this case. It has stated, in paragraph 4 in the Introduction to Part Three—The Maritime Delimitation, that "In these circumstances, the applicable law in the present case with respect to maritime delimitation is customary international law as mainly developed by the jurisprudence of the Court and by international arbitral tribunals. While the provisions of the 1982 Convention are not applicable as a source of conventional law, per se, the relevant provisions of the Convention dealing with a coastal State's baselines and its entitlement to maritime areas, as well as the provisions of articles 74 and 83 dealing with the delimitation of the exclusive economic zone and continental shelf respectively, reflect well-established principles of customary international law."

[9] Article 121 (3) goes on to state that, "Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf."

high tide." And, where these low-tide elevations are situated "wholly or partly at a distance not exceeding the breadth of the territorial sea from the mainland or an island, the low-water line on that elevation may be used as the baseline for measuring the breadth of the territorial sea." In the case of Quitasueño, all the low-tide elevations found were situated within 12 miles of islands and thus 12-mile territorial seas and 24-mile contiguous zones could be drawn from them, as well.

4.7 One issue pertaining to reef baselines that went unanswered during the third United Nations conference that produced the 1982 LOS Convention was reef closing lines. Very few reef systems in the world have a continuous reef without breaks. When the Informal Single Negotiating Text appeared in May 1975 it was noted at that time that no article provided for reef closing lines.[10] Unfortunately, the conference did not correct this omission.

4.8 Following the completion of the LOS Convention the United Nations published several "blue books" to assist States apply the provisions of the Convention. In its book on Baselines the United Nations stated,[11]

> "The United Nations Office for Ocean Affairs and the Law of the Sea has as one of its major responsibilities to ensure that State practice develops in a manner consistent with the relevant provisions of the Convention….To that end, the Office convened a Group of Technical Experts on Baselines…."

4.9 Among the many topics associated with baselines, the book addresses reefs and acknowledges two terms in Article 6, "islands situated on atolls" and "islands having fringing reefs". For the former, of which Quitasueño is one, it states that,[12]

> "Geomorphologists reserve the term atoll for reefs which surround a lagoon and are surmounted by one or more islands. The reefs are usually interrupted by channels, generally on the lee side of the atoll, and the water in the lagoon has an average depth of 45 metres."

Numerous examples are then given in the Baselines book for different types of atolls throughout the world.

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[10] Robert D. Hodgson and Robert W. Smith, "The Informal Single Negotiating Text (Committee II): A Geographical Perspective," ***Ocean Development and International Law Journal***, Volume 3, Number 3, p.230.

[11] ***Baseline*** book.

[12] For this comment, this study references Shepard, Francis P., ***Submarine Geology*** (New York, Harper and Row, 1963), p. 358.

4.10 The study does address the situation where there is a break in the atoll, where channels exist.[13] Key to the idea that closing lines are needed is that the waters inside an atoll are internal waters. This study states, "If the lagoon waters of the atolls are to be considered as internal waters it follows that it will be necessary to construct closing lines across the entrance channels."[14]

4.11 The study then cites Tokelau's 1977 Territorial Seas and Exclusive Economic Zone Act which describes its baseline in the following way: [15]

> "The baseline from which the breadth of the territorial sea is measured shall be the low-water line along the seaward edge of the reef, except that where there is a break or passage through or over the reef, the baseline shall be a straight line joining the extreme points of that break or passage."

4.12 The Federated States of Micronesia (not cited in the UN study) enacted legislation in 1988 with similar language. In Section 101 (2) its law states,

> "The baseline of an atoll or island or portion of an island having a barrier reef, fringing reef or other reef system is a line following the contour of the seaward edge of the reef system which line **connects** those outermost elevations of the reef which are above at low tide…." (emphasis added)[16]

4.13 In 1983, Kiribati, another Pacific island State, enacted its Marine Zones (Declaration) Act 1983 (No. 7 of 1983) in which in para. 2(1) it claims that,

> "the baseline of Kiribati means the low-water line of the seaward side of the reef fronting the coast of any part of Kiribati or bounding any lagoon waters adjacent to any part of that coast, or where a reef is not present the coast the low-water line of the coast itself."[17]

While no closing line is specified in that paragaph, later in the law at Part II, para. 4 (2),

> "The Minister may, in accordance with the rules of international law, declare, by reference to physical features marked on official charts or to lists of geographical co-ordinates specifying the geodetic datums, the points between **which closing lines are to be drawn for the purpose of**

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[13] ***Baseline book***, paras. 26-28, pp.11-12.
[14] ***Ibid***,. para. 26, p.12.
[15] ***Ibid.*** The text of the full law may be found in Robert W. Smith, ***Exclusive Economic Zone Claims, An Analysis and Primary Documents***, (Boston, Martinus Nijhoff Publishers, 1986), pp. 341-46. (hereinafter, Smith, ***EEZ***).
[16] Law found at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/FSM_1988_Act.pdf
[17] Law found at Smith, ***EEZ,*** p.245.

> **determining the outer limits of internal waters of Kiribati, in the case of the mouths of or entrances to lagoons.**" (emphasis added) [18]

4.14 Closer to Quitasueño geographically, is the country of Belize which included the following reef closing line provision in its legislation:

> "(4) (b) Where there is a break or passage through the fringing reefs referred to in sub-section (4) (a) of this Section, the baseline from which the breadth of the territorial sea is measured shall be a straight line joining the seaward entrance points of that break or passage."[19]

4.15 Thus, it is quite clear that although the LOS Convention drafters did not specifically include language for a reef closing line, the intent was there. How else would the internal waters of an atoll be distinguished from the territorial sea if some type of closing line were not permitted? And, evidenced by the United Nations Baseline book and some state practice, reef closing lines are in accordance with the LOS Convention and customary international law.

5. Charts

5.1 According to Colombian Law 2324 of 1984 the National Maritime Directorate of Colombia (DIMAR) has been given the responsibility to "[i]nstall and maintain the aids to navigation service, to do the hydrographic surveys and to produce the national nautical cartography." As such it has published the following charts of Quitasueño:

COL 416- Banco Quitasueño 1: 100,000 (1st ed, Sept 2000) (see ***Figure 1***)
COL 215- Cayo Quitasueño 1: 25,000 (1st ed., March 2000)
COL 630- Banco Quitasueño (Sector Sur): 1: 50,000 (1st ed., Sept. 2000)
COL 631- Banco Quitasueño (Sector Norte): 1: 50,000 (1st ed., Sept. 2000)

See ***Annex 7*** for a reproduction of COL charts 215, 630 and 631.

5.2 At my request, Captain León of the Hydrographic Service of Colombia's DIMAR prepared a report describing Colombia's practice for producing charts, including the use of symbols (see ***Annex 8*** for an excerpt of this report). According to this report, Colombia uses the same chart symbols adopted by the International Hydrographic Organization (IHO).[20] Specifically,

[18] Law found in Smith, ***EEZ***, pp. 245-49.
[19] Law found in http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/BLZ_1992_MAA.pdf

[20] Colombia was admitted as an IHO member in 1998. The latest IHO publication on charts is ***Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO***, Edition 3.006 April 2009.

Colombia's Chart No. 1, 2nd edition (1991) used the information found in IHO Chart INT 1 published in 1988.[21] The purpose of Chart No.1 is to describe the meaning of the symbols, terms, and abbreviations used on the charts. According the DIMAR report, "[c]urrently, Colombia publish[es] all national charts based on these [IHO] publications and also international charts according to the scheme of IHO INT chart."

5.3 The 2nd edition of Colombia's Chart No. 1 was used to produce the four Quitasueño charts listed in the previous paragraph. An important symbol on these charts is the one depicting breakers, where the waves of the open ocean meet the drying coral reef of Quitasueño. Colombia's symbol, shown below as ***Figure 5,*** is taken from Section K of its Chart No. 1 (the full page is shown at ***Annex 9***). According to the IHO manual, this symbol is to be used in unsurveyed areas that approximate the area of the breakers (***Figure 6***):[22]

5.4 The IHO recognizes that it is impossible for a coastal State to be able to chart all the coral that exists around a reef system. In its manual the IHO states:

> "Usually, **coral reefs** are generalized since it is impossible to chart all the individual lumps and heads, and the area is for practical purposes not navigable." [23]

Then, the IHO quotes Article 6 of the LOS Convention on reefs:

> "In the case of islands situated on atolls or of islands having fringing reefs, the baseline for measuring the breadth of the territorial sea is the seaward low-water line of the reef, as shown by the appropriate symbol on charts officially recognized by the coastal State."

[21] This chart No. 1 is not actually a chart, but a booklet defining and illustrating the various symbols used on Colombian charts. Most, if not all, national hydrographic services produce a similar "Chart No. 1".
[22] ***Ibid***, Section 423-2, p. 7.
[23] ***Ibid***, Section B-440.4, p. 2.

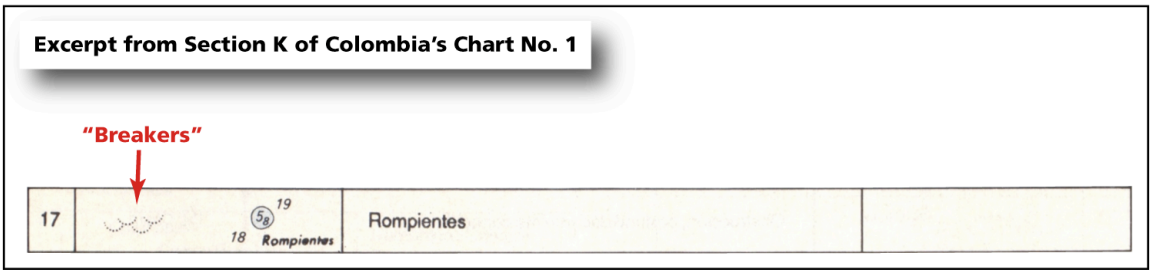

Figure 5

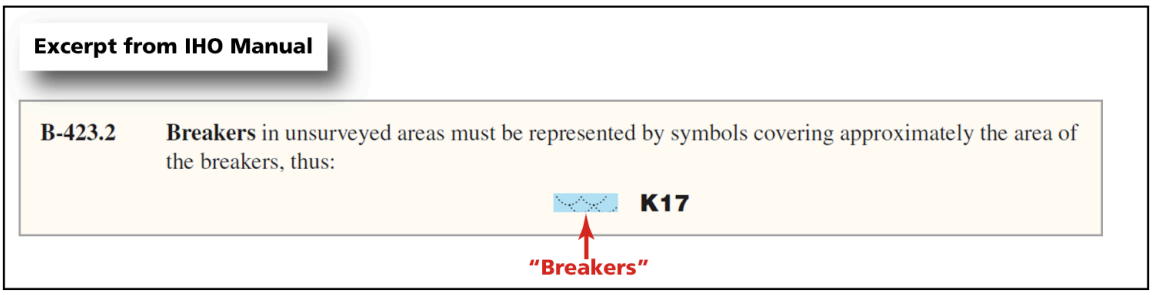

Figure 6

5.5 When discussing the charting practice of reefs, the distinguished British hydrographer Cdr. Peter Beazley stated,

> "…Such reefs cannot be safely crossed by anything but very small boats, and particularly around an oceanic atoll or barrier reef the ocean swell breaking on the seaward edge of the reef will make it unapproachable. Customarily such areas forming constituents of a single reef are charted as a single drying reef using the symbol for coral which dries…..When consulting the chart it may not be possible to distinguish between what rises well above the level of low tide and what may only just reach it…"[24]

5.6 Given the dangers for large hydrographic survey ships to approach close to these fringing reefs it is understandable why Colombia has used the reef symbol that indicates it is approximate. The entire area of Quitasueño is dangerous to navigation, as is evidenced by the several viewable ship wrecks along this reef.

5.7 It is recommended that with this new survey data the Colombian Government, on the next cycle for reviewing and revising the four Quitasueño charts, update them by showing these features. And, it is also recommended

[24] Beazley, Reefs, p. 286. He also cites one of his earlier works in which he makes this same point, Beazley, ***Maritime Limits and Baselines*** (2nd ed, 1978, p. 6.

that Colombia depict, on COL 416, the reef closing lines and territorial sea limit, as described in the next section.

6. Application of the Law of the Sea And Geographical Facts to Quitasueño

6.1 In the first instance, there are islands and low-tide elevations on Quitasueño. The survey conducted on this bank from 30 November to 2 December 2009 verified that there existed at least 34 islands and 20 low-tide elevations (see ***Figure 7***). In addition, there is a fringing drying reef. Given the dangers to navigation in the immediate vicinity of the fringing reef, with the breaking of waves on the coral that were either slightly above or at tidal datum, an "on site" measurement of many of the features was not possible. But visual inspection of the fringing reef area during the time near or at high tide indicated that coral features were either at or slightly above tidal datum. It should be noted that several of the surveyed islands (QS 3, 4, 5, 8, 10, 46, 47, 52, and 53) and low-tide elevations (QS 6, 7, 12, 13, 14, 46, 48, and 51) are basically a part of, or immediately adjacent to, the breakers.

6.2 The fact that 54 features have been identified as islands and low-tide elevations on Quitasueño in the two surveys taken by the Colombian Government (Navy, Coast Guard, and DIMAR) in 2008 and 2009, since the first edition of the charts of the area were produced, in no way precludes Colombia from being able to assert valid maritime claims from these features. It is likely that the next time Colombia revises and publishes these charts, it will show these features.

6.3 Countries have finite budgets to allocate to their hydrographic surveys and charting efforts. And, given the numerous ports, long mainland coastline, many islands, and large maritime areas in both the Caribbean Sea and Pacific Ocean, Colombia has taken great strides in its attempt to make navigation safe in its waters. Charts are first and foremost aids to navigation and Colombia has shown clearly on the charts that cover Quitasueño where the prudent mariner should avoid.

6.4 Coastal States that produce their own charts usually develop a calendar for which to update their charts. And, often there is a national committee that reviews new features to determine if changes should be made to the charts. Since the early 1970s, for example, the United States Government has had a federal inter-agency baseline committee that has reviewed the United States baseline and provided recommendations to the National Oceanic and Atmospheric Administration (NOAA) which is the official charting agency for the U.S. The baseline changes all the time, either due to erosion or accretion resulting from storms and other natural phenomenon. Periodically new features

QUITASUEÑO

Islands and Low Tide Elevations Identified During Site Visit

Legend:

- Islands
- Low tide elevations
- Drying fringing reefs
- Light towers

Mercator Projection
Datum: WGS-84
(Scale accurate at 14°20'N)

0 1 2 3 4 5
Nautical Miles

0 2 4 6 8 10
Kilometers

Source of bathymetric information: Colombian nautical chart 416.

Prepared by: International Mapping

81°20'W
81°10'W
14°30'N
14°20'N
14°10'N

Caribbean Sea

Quitasueño

Northern light tower
(14°28'57"N - 81°07'20"W)

Southern light tower
(14°09'18"N - 81°09'48"W)

QS1 QS2 QS3 QS4 QS5 QS6 QS7 QS8 QS9 QS10 QS11 QS12 QS13 QS14 QS15 QS16 QS17 QS18 QS19 QS20 QS21 QS22 QS23 QS24 QS25 QS26 QS27 QS28 QS29 QS30 QS31 QS32 QS33 QS34 QS35 QS36 QS37 QS38 QS39 QS40 QS41 QS42 QS43 QS44 QS45 QS46 QS47 QS48 QS49 QS50 QS51 QS52 QS53 QS54

30 20 10

Figure No. 7

are discovered as a result of survey work. As changes are recognized and the baseline altered, the territorial sea, contiguous zone and perhaps even the exclusive economic zone limits may be changed. And, when the date for the new printing of that chart occurs, the new depiction of the maritime zones will be shown.[25]

6.5 As noted in Section 4 above, a State may claim a territorial sea from a low-tide elevation only if it is situated 12 miles or less from an island or mainland. All of the low-tide elevations on Quitasueño are well within 12 miles of the nearest island. As shown in the list at ***Annex 10,*** the furthest any of the low-tide elevations is from land is QS 44 which is only 1.62 miles from QS 45. Most of the low-tide elevations are less than a mile distant from the nearest island. Thus, having met the requirement set forth in Article 13 (1) of the LOS Convention, all of the low-tide elevations would receive a 12-mile territorial sea and a 24-mile contiguous zone.

6.6 Setting aside, for a moment, the existence of the drying fringing reef Colombia, at a minimum, can make a claim to a 12-mile territorial sea and 24-mile contiguous zone from all the features surveyed on this last trip, 30 November- 2 December 2009 (QS 1- QS 54). ***Figure 8*** illustrates the territorial sea drawn just from the islands and low-tide elevations. The area enclosed by the 12-mile territorial sea is 1,015 square nautical miles (3,477 square kilometers).

6.7 However, Colombia is allowed, under the provisions of customary international law, to use the drying fringing reef, as depicted on its nautical charts, and closing lines between the reefs where there are openings in the reef system. One proposal for the Colombian baseline for Quitasueño would be,

-- starting in the south, at the drying fringing reef, at approximately 14º 07.25′ N, 81º 09.90′ W (position taken from the fringing reef symbol shown on COL 416) and continuing along the seaward edge of the reef symbol until approximately 14º 29.30′ N, 81º 07.24′ W (position taken from COL 631). This drying reef segment is about 22.1 miles in length, with a few breaks. The largest break in the reef, situated approximately 14º 18′ N, is about 0.1 miles wide. A closing line connecting the shortest distance would be used.

--from the northern point of the drying fringing reef a straight closing line would be drawn to QS 1- and from this point closing lines would be drawn from:

[25] Now that charts are being produced digitally and mariners are using electronic nautical charts these changes can be made much quicker and updated charts can be printed "on demand."

QUITASUEÑO

12 M Territorial Sea Limits

(Measured from all 54 identified features)

Legend:

- Islands
- Low tide elevations
- Drying fringing reefs
- Light towers

Mercator Projection
Datum: WGS-84
(Scale accurate at 14°N)

0 2 4 6 8 10
Nautical Miles

0 5 10 15
Kilometers

Source of bathymetric information: Colombian nautical chart 416.

Prepared by: International Mapping

81°20'W 81°10'W 81°00'W

14°40'N 14°30'N 14°20'N 14°10'N 14°00'N

QS1 QS2 QS3 QS4 QS5 QS6 QS7 QS8 QS9 QS10 QS11 QS12 QS13 QS14 QS15 QS16 QS17 QS18 QS19 QS20 QS21 QS22 QS23 QS24 QS25 QS26 QS27 QS28 QS29 QS30 QS31 QS32 QS33 QS34 QS35 QS36 QS37 QS38 QS39 QS40 QS41 QS42 QS43 QS44 QS45 QS46 QS47 QS48 QS49 QS50 QS51 QS52 QS53 QS54

Quitasueño

3,477.3 sq. km.

12 M Territorial Sea
(measured from 54 identified features)

Figure No. 8

Island points	Distance between points	
	Meters	Nautical miles
QS 1 – QS 6	665.4	0.36
QS 6 – QS 22	1870.8	1.01
QS 22 – QS 26	7442.7	4.02
QS 26 - QS 30	1580.0	0.85
QS 30 - QS 31	539.0	0.29
QS 31 - QS 32	414.4	0.22
QS 32 - QS 33	95.7	0.05
QS 33 - QS 35	487.1	0.26
QS 35 - QS 36	137.8	0.07
QS 36 - QS 37	184.4	0.10
QS 37 - QS 42	6027.9	3.25
QS 42 - QS 45	2316.5	1.25
QS 45 - QS 47	5312.2	2.87

-- from QS 47 continue south along the western side of the reef to the starting point, about 8.5 miles.

6.8 It is from the baseline defined in para. 6.7, as well as from the low-tide elevations situated seaward of this baseline, but well within 12 miles (QS 44, QS 49, QS 50, and QS 54) that the 12-mile territorial sea would be determined (***Figure 9)***. It should be noted that using all relevant baselines permitted under international law Colombia has 24.2 square nautical miles (83.2 square kilometers) of internal waters, that area inside of the drying reef and closing lines.

6.9 For this report, I was not asked to judge on whether or not the islands on Quitasueño are Article 121 (3) "rocks". Even in the event that judgment is made by others that they are "rocks" in this regard, all 54 features identified on this survey would still be entitled to a territorial sea and contiguous zone. ***Figure 10*** illustrates what these two zones would look like. Beyond the territorial sea limit, the contiguous zone would place another 1,922 square nautical miles (6,588 square kilometers) under Colombian jurisdiction. At the back of this report is a large fold-out version of ***Figure 10***.

7. Conclusion

7.1 Colombia clearly has the legal right to use the 54 features surveyed on the 30 Nov- 2 Dec trip as the basis from which to establish a territorial sea and contiguous zone. The fact that these features are not specifically shown on

QUITASUEÑO

12 M Territorial Sea Limits

(Measured from all relevant baselines: islands, low tide elevations, drying fringing reefs and closing lines)

Legend:

- Islands
- Low tide elevations
- Reef closing lines
- Drying fringing reefs
- Light towers

Mercator Projection
Datum: WGS-84
(Scale accurate at 14°N)

0 2 4 6 8 10
Nautical Miles

0 5 10 15
Kilometers

Source of bathymetric information: Colombian nautical chart 416.

Prepared by: International Mapping

81°20'W 81°10'W 81°00'W

14°40'N 14°30'N 14°20'N 14°10'N 14°00'N

12 M Territorial Sea
(measured from all relevant baselines)

3,576.8 sq. km.

83.2 sq. km.

Internal Waters

Quitasueño

Area Gain: 182.7 sq. km.

3,477.3 sq. km.
(As shown on Figure 8: where no internal waters were enclosed by reef closing lines)

12 M Territorial Sea
(measured from 54 identified features)

Figure No. 9

QUITASUEÑO

12 M Territorial Sea and 24 M Contiguous Zone

(Measured from all relevant baselines: islands, low tide elevations, drying fringing reefs and closing lines)

Legend:

- Islands
- Low tide elevations
- Drying fringing reefs
- Reef closing lines
- Light towers
- Exposed ship wrecks

Mercator Projection
Datum: WGS-84
(Scale accurate at 14°N)

0 3 6 9 12 15
Nautical Miles

0 5 10 15 20 25
Kilometers

Source of bathymetric information: Colombian nautical chart 416.

Prepared by: International Mapping

Caribbean Sea

24 M Contiguous Zone

6,588.4 sq. km.

12 M Territorial Sea

3,576.8 sq. km.

Total Area (TS + CZ):
10,165.2 sq. km.

83.2 sq. km.

Internal Waters

Quitasueño

81°30'W 81°20'W 81°10'W 81°00'W 80°50'W

15°00'N 14°50'N 14°40'N 14°30'N 14°20'N 14°10'N 14°00'N 13°50'N

Figure No. 10

current Colombian charts is irrelevant—they do, in fact, exist, and it is expected that in future editions of the four relevant charts Colombia will show them.

7.2 Further, Colombia is entitled, under the principles of the law of the sea, to use the drying fringing reef as depicted on its official charts to measure its territorial sea and contiguous zone. Within and immediately adjacent to this reef, in the area of the "breakers", are nine of the islands and eight of the low-tide elevations that were identified on this survey trip. In addition, there were numerous areas where features were seen within the breakers that ranged from being at tidal datum to perhaps slightly above. Thus, I consider this reef system to be of the type considered by the negotiators of the LOS Convention as being a valid baseline (in terms of Article 6) from which to measure the territorial sea. Thus, in addition to the islands and low-tide elevations identified on this survey, the drying fringing reefs along with reef closing lines would comprise a legally valid baseline.

Annex 1
Resume of Dr. Robert W. Smith

Dr. Robert W. Smith
Independent Geographic Consultant
[U.S. Dept of State, ret.]

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Oakland,MD 21550 E-mail: dr_rwsmith@yahoo.com

February 2010

PROFESSIONAL EXPERIENCE

CURRENT: GEOGRAPHIC CONSULTANT AND ADVISOR

Advise on all aspects of ocean policies and planning including developing strategies for exploring and exploiting offshore resources in an environmentally sound and sustainable manner. Provide geographical and technical expertise for maritime boundary delimitation and arbitration, offshore jurisdictional claims, sovereignty disputes, and the development of offshore energy resources. Write position papers to support policy decisions on the rational development and management of marine resources. Provide technical and geographical expert testimony in domestic and international courts. Teach the geographical aspects of the law of the sea and world regional geography. Clients include the Governments of Guyana, Bangladesh and Colombia, British Gas-Thailand, ExxonMobil, International Mapping Associates, the Rhodes Academy, U.S. Department of Justice, Univ. of Virginia's Semester at Sea program, and several international law firms.

1975-2006 GEOGRAPHER, U.S. DEPARTMENT OF STATE

As the U.S. government expert on maritime boundary and jurisdictional issues, I assisted in the development and implementation of U.S. ocean policy. I was responsible for the technical and geographical aspects of negotiating U.S. bilateral maritime boundaries and establishing U.S. claims to marine jurisdiction. In this role, I coordinated the U.S. effort to develop technically accurate and precise boundaries and outer limits for the territorial sea, contiguous zone, exclusive economic zone, and the continental shelf. For the establishment of U.S. maritime limits, I assured that all U.S. claims were in accordance to the international law of the sea principles using modern charting techniques. I represented the U.S. Government at international meetings and conferences, including United Nations meetings, on subjects of my expertise.

My State Department career was spent in two offices: in the Office of The Geographer (1975-87) I served as the Chief of the International Boundary and Resource where I managed several geographic analysts and then I became the Special Assistant of Ocean Affairs and Policy Planning. From 1987 to March 2006 I was the geographer for the Office of Oceans Affairs in the Bureau of Oceans and International Environmental and Scientific Affairs. Throughout my State Department career I oversaw and was the principle author of the State Department's *Limits in the Seas* studies, in which analyses is given on the state practice of maritime claims and boundaries. Other related experiences during my State Department career included:

United States Representative to:

United Nations 13th States Parties Meeting for the Law of the Sea Convention, 2003
Caribbean Maritime Boundary Conference (Mexico City), 2003
United Nations Conference on Maritime Boundary Delimitation, 1999
United Nations Conference on the Continental Shelf, 1993 and 1995

United Nations Conference on the Maritime Baseline, 1987
International Hydrographic Organization Law of the Sea Group of Technical Experts, 1985

United States Department of State Representative to Department of the Interior's Outer Continental Shelf Advisory Committee, 2002-2006

Member, National Security Council Interagency Committee on the U.S. Baseline, 1975-2006

United States Delegations

Head of Delegation: Major Maritime Powers Meeting: 1998-Tokyo, 1997-London
Delegation Member: numerous bilateral and multilateral negotiations, including maritime boundaries, International Court of Justice Boundary case (U.S. vs. Canada Gulf of Maine case, 1984), fisheries, and law of the sea meetings.

United States Expert Witness in Supreme Court cases:

U.S. vs. Alaska (1985, 1980)
U.S. vs. Louisiana (Mississippi, 1986)
U.S. vs. Maine (Mass., 1982)
U.S. vs. Maine (R.I., 1981)

United States Department of State Deputy Member: United States Board on Geographic Names (1979-83)

TEACHING

2004 – 2005: **Georgetown University**, Adjunct Professor
Course taught: Political Geography of the Oceans

2005-09, 2002 **Rhodes Academy,** Lecturer
(Law of the Sea course, Rhodes, Greece)

1991- 2005 **International Boundary Research Unit**, Instructor**:** maritime boundary workshops (Durham, England and London, England—about 7 times)

1994 **World Affairs Program**, Royal Viking Cruise Line, Lecturer

1976- 1980 **George Mason University,** Adjunct Professor
Courses taught: Marine resource management, world geography

1974-75 **University of North Carolina, Chapel Hill**, Instructor
Course taught: cultural geography

1972 **University of Rhode Island**, Instructor
Course taught: political geography

OTHER PROFESSIONAL ACTIVITIES

Expert Witness, on behalf of the U.S. Government, ***U.S. vs. Marshalls 201***, (2007-09)

Scientific participant, the USCGC ***Healy*** month-long seafloor mapping of the U.S. Arctic (Aug-Sept 2007)

Expert Witness, on behalf of the Government of Guyana, in the Republic of Guyana vs. Republic of Suriname M**a**ritime Boundary Arbitration, under Annex VII of the United Nations Convention on the Law of the Sea (March-December 2006**)**

Board of Advisors: International Boundary Research Unit (IBRU), University of Durham, England (1990-2001)

Advisory Board, *Geopolitics* (1989-1995)

Secretary, International Geographical Union Marine Geography Study Group (1986-87)

Editorial Board, *The Virginia Geographer* (1982-86)

Member, Advisory Council at the Conference of International Straits of the World, Bellagio, Italy (1976)

HONORS

U.S. Department of State Superior Honor Award; 2000, 1984
U.S. Department of State Meritorious Honor Award; 1988, 1977
U.S. Department of Justice Commendation; 1989

EDUCATION

University of North Carolina, Chapel Hill
PhD, Geography, 1980
Dissertation: "A Geographical Analysis of the North Sea Continental Shelf Cases"

University of Rhode Island
MA, Geography, 1973
Thesis: An Analysis of the Concept "Strategic Quality of International Straits": A Geographical Perspective with Focus on Petroleum Tanker Transit and on the Malacca Strait

Bucknell University
BA, Political Science, 1971

LECTURES AND SPEECHES

"United States Maritime Boundaries: Negotiated and Arbitrated Solutions," West Virginia University Geographic Symposium, September 2009.

"Maritime Delimitation in the South China Sea: Potentiality and Challenges," International Conference on the Issues of the South China Sea, Taiwan, August 2009.

Commentator, "Dokdo, Takeshima, Liancourt Rocks: History, Territory, and Sovereignty in Northeast Asia," Johns Hopkins University SAIS, June 2009.

"United States Maritime Boundary Delimitation Experience: Negotiated and Arbitrated Solutions," International Conference on Maritime Delimitation, Taipei Taiwan, June 2008.

"Islands: Disputes and Delimitation," 21st Annual U.S. Pacific Command International Law Conference, Singapore, April 2008.

"The United States- Mexico 'Western Gap" Treaty", Law of the Sea Institute conference, Harte Institute, Texas A&M, Corpus Christi, March 2007.

"Issues in International Oceans Policy", University of Virginia School of Law (March-2002-07).

"The Need for Offshore Certainty: The State of Affairs of Maritime Boundaries in the Caribbean," International Conference on Achieving Fiscal Stability in Upstream Oil and Gas, Houston, November 2006.

"Maritime Boundary Negotiations: National Considerations and the U.S.- Mexico Experience," International Conference on Advanced International Boundary Disputes in Oil and Gas, London, June 2006.

"Maritime Claims and Boundaries in the Arctic", Columbia University (January 2006)

"Hot Spots of Maritime Boundary Disputes—Global Impact on Oil and Gas Interests," Conference on International Border Dispute Resolution, Houston, (September 2004)

"Maritime Boundary Negotiations: National Considerations", Advisory Board on the Law of the Sea Conference, International Hydrographic Organization, Monaco (October, 2003)

"Political Geography of the Oceans", Woodrow Wilson School of Public and International Affairs, Princeton University, (November 2002)

"Future of Islands: Delimitation and Development," SEAPOL conference on Ocean Governance and Sustainable Development, Bangkok (March 2001)

"International Maritime Boundaries: Impact on Oil and Gas Interests," Resolving International Border Disputes, Global Business Network Ltd, London, 2000.

"Geography and U.S. ocean policy", Bucknell University (March 2002, April 1989)

"Baselines: Normal, Straight, and Archipelagic", Institute of Petroleum, International conference on "Oil Under Troubled Waters: An Introduction to Maritime Jurisdiction and Boundary Disputes", London (November 2000)

"International Maritime Boundaries: Impact on Oil and Gas Interests," Global Business Network Limited, "Resolving International Border Disputes", (London, July 2000)

"United States – Canada Maritime Boundaries: A Study of Negotiations, Arbitration, and Management", Korea Maritime Institute Conference on Marine Policy and the Korea Economy: Issues and Opportunities, (Seoul, Korea, October 1998)

"Navigation Considerations in East Asian Waters," Geopolitics and International

Boundaries Research Centre's Conference on Island and Maritime Disputes of South East Asia (London, May 1993)

"United States – Russia Maritime Boundary", International Boundary Conference, Durham University (Durham, England, July 1991)

"The State Practice of National Maritime Claims and the Law of the Sea," University of Virginia School of Law conference on "State Practice and the 1982 Law of the Sea Convention, (Cascais, Portugal, April 1990)

"Navigation and Overflight Rights in the Law of the Sea," Cannon Air Force Base (April 1986)

"Law of the Sea and the United States," Bucknell University (April 1986)

"The Geopolitics of the Arctic," 52nd annual meeting of the Assoc. of American Geographers (Detroit, April 1985)

"National Claims and the Geography of the Arctic," Law of the Sea Institute Conference (San Francisco, September 1984)

"U.S.-Canadian Maritime Relations" and "Geographical Aspects of Foreign Affairs," Bucknell University (October 1984)

"Political Geography and the law of the sea," East Stroudsburg State College (Sept. 1980)

"Geographic influences on the political and economic development in the Pacific," Bucknell University (October 1979)

"National Maritime Claims," International Studies Association 20th annual conference (Toronto, March 1979)

"Geography of Maritime boundary delimitation," Assoc. of American Geographers' annual meeting (New Orleans, April 1978)

PUBLICATIONS

Books

David A. Colson and Robert W. Smith (eds). ***International Maritime Boundaries***, Vol. V, The American Society of International Law, Martinus Nijhoff Publishers, March 2005

Jonathan I. Charney and Robert W. Smith (eds). ***International Maritime Boundaries***, Vol. IV, The American Society of International Law, Martinus Nijhoff Publishers, 2002.

J. Ashley Roach and Robert W. Smith, ***United States Responses to Excessive Maritime Claims***, 2nd edition, Martinus Nijhoff Publishers, 1996.

J. Ashley Roach and Robert W. Smith, ***Excessive Maritime Claims***. International Law Studies Vol. 66, U.S. Naval War College, 1994.

Robert W. Smith. ***Exclusive Economic Zone Claims, An Analysis and Primary Documents***. Martinus Nijhoff Publishers, 1986.

Monographs

Robert W. Smith and Bradford L. Thomas, ***Island Disputes and the Law of the Sea: An Examination of Sovereignty and Delimitation Disputes***. Maritime Briefing Volume 2 Number 4, International Boundaries Research Unit, 1998.

Robert W. Smith, "National Maritime Claims: 1958-85," ***Geographic Research Study No. 20,*** 1985, Office of The Geographer, U.S. Department of State

Book Chapters

With J. Ashley Roach, "Caspian Sea Boundaries," in ***International Maritime Boundaries***, Vol. V, Colson and Smith (eds), Martinus Nijhoff Publishers, 2005

With J. Ashley Roach, "Kazakhstan – Russia", "Azerbaijan – Russia", "Azerbaijan - Kazakhstan", "Azerbaijan - Kazakhstan – Russia" in ***International Maritime Boundaries***, Vol. V, Colson and Smith (eds), Martinus Nijhoff Publishers, 2005

With George Taft, "Legal Aspects of the Continental Shelf" (chapter 3) in, Peter J. Cook and Chris M. Carleton (eds), ***Continental Shelf Limits: The Scientific and Legal Interface.*** Oxford University Press, 2000.

With J. Ashley Roach, "Navigational Rights and Responsibilities in International Straits," (Chapter 14) in ***The Straits of Malacca***, Hamzah Ahmad (ed), Pelanduk Publications, 1997.

"Joint Development Zones: A Review of Past Practice and Thoughts on the Future," in ***Sustainable Development and Preservation of the Oceans: The Challenges of UNCLOS and Agenda 21***. Mochtar Kusuma-Atmadja, Thomas A. Mensah, and Bernard Oxman (eds). The Law of the Sea Institute, 1995.

"United States – Russia Maritime Boundary," In Maritime Boundaries, Volume 5 of World Boundaries, Gerald H. Blake (ed) (Routledge, 1994), 91-102.

"Cuba-United States," "Mexico-United States," "Cook Islands- United States," "New Zealand (Tokelau) – United States," in ***International Maritime Boundaries***, Vol. I, Charney and Alexander (eds), Martinus Nijhoff Publishers, 1993.

"Navigational Issues in the Law of the Sea," (Chapter 6) in ***Maritime Issues in the 1990s***, Dalchoong Kim et al (eds). Institute of East ad West Studies, Yonsei University, 1992.

"United States – Russia Maritime Boundary," International Boundary Research Unit international conference, 1991.

"Establishing Maritime Boundaries: The United States Experience," In ***International Boundaries and Boundary Conflict Resolution***, C.Grundy-Warr (ed), International Boundary Research Unit, Durham, England, 1990.

"Geographic Considerations in Maritime Boundary Delimitations" (Chapter1) in Dorinda G. Dallmeyer and Louis DeVorsey, Jr (eds). ***Rights to Oceanic Resources***. Martinus Nijhoff Publishers, 1989.

"Global Maritime Claims: The Current Status," (Chapter 1) in ***Global Ocean Politics***, Dalchoong Kim, Choon-ho Park and Seo-Hang Lee (eds), Institute of East and West Studies, Yonsei University, 1989.

"National Claims and the Geography of the Arctic," Law of the Sea Institute's San Francisco conference, 1984.

"The Effect of Extended Maritime Jurisdiction on Land Sovereignty Disputes," in ***The 1982 Convention on the Law of the Sea***. Albert Koers and Bernard Oxman (eds), Law of the Sea Institute, 1983.

With Robert D. Hodgson, "Unilateralism: The Wave of the Future?" (Chapter 9) in Law of the Sea: ***Conference Outcomes and Problem of Implementation***. Edward Miles and John King Gamble (eds) Ballinger Publishing Company, 1976.

With Robert D. HodgsonRobert W. Smith, "Boundaries of the Economic Zone" (Chapter 10) in Law of the Sea: ***Conference Outcomes and Problem of Implementation***. Edward Miles and John King Gamble (eds) Ballinger Publishing Company, 1976.

"Coastal Planning and Carteret (North Carolina) Fishermen," in ***Carrying Capacity: A Basis for Coastal Planning***. D Godschalk and F. Parker (eds), Univ. of North Carolina Press, 1974.

Articles

With J. Ashley Roach "Straight Baselines: The Need for a Universally Applied Norm," *Ocean Development and International Law*, 31: 47-80, 2000

"National Maritime Claims," ***Ocean Development and International Law***, Vol. 20, 1989, 83-103.

"A Geographical Primer to Maritime Boundary-Making," ***Ocean Development and International Law***, Vol. 12:1/2, 1982, 1-22.

"Maritime Boundaries of the United States," ***The Geographical Review***, Vol. 71, 1981, 395-410.

"Trends in National Maritime Claims," ***Professional Geographer***, 32(2), 1980, 216-223.

With Robert D. Hodgson, "Boundary Issues Created By Extended National Marine Jurisdictions," ***The Geographical Review***. Vol. 69, No. 4, October 1979, 423-433.

With Robert D. Hodgson, "The Informal Single Negotiating Text (Committee II): A Geographical Perspective," ***Ocean Development and International Law Journal***, Volume 3, Number 3, 1976, 225-259.

"The Political Geography of the Marine Environment," ***The Geographical Bulletin***, Vol 10, 1975.

"An Analysis of the Strategic Attributes of International Straits: A Geographical Perspective," ***Maritime Studies and Management***, 1974.

"Oceanborne Shipment of Petroleum and the Impact of Straits on VLCC Transit, ***Maritime Studies and Management***, 1973.

Author (or co-author) of following U.S. Department of State, ***Limits in the Seas*** studies:

No. 36- National Claims to Maritime Jurisdiction (4th-8th revisions)
No. 62- Continental Shelf Boundary: India-Indonesia, August 25, 1975.
No. 63- Continental Shelf Boundary: Iran- UAE (Dubai), September 30, 1975.
No. 64- Continental Shelf Boundary: Argentina-Uruguay, October 24, 1975.
No. 67- Continental Shelf Boundary: Iran-Oman, January 1, 1976.
No. 68- Territorial Sea and Continental Shelf Boundary: Guinea-Bissau – Senegal, March 15, 1976.
No. 69- Maritime Boundary: Colombia-Ecuador, April 1, 1976.

No. 71- Continental Shelf Boundary: Finland-Sweden, June 16, 1976.
No. 73- Maritime Boundary: Brazil-Uruguay, September 30, 1976.
No. 74- Maritime Boundary: FRG-GDR, October 5, 1976.
No. 75- Continental Shelf Boundary and Joint Development Zone: Japan – Republic of Korea, September 2, 1977.
No. 76- Straight Baselines: Cuba, October 28, 1977.
No. 77- Maritime Boundaries: India-Sri Lanka, February 16, 1978.
No. 78- Maritime Boundary: India-Maldives and Maldives' Claimed Economic Zone, July 24, 1978.
No. 79- Maritime Boundaries: Colombia-Panama, November 3, 1978.

No. 82- Straight Baselines: Korea, January 22, 1979.
No. 84- Maritime Boundary: Colombia-Costa Rica, February 15, 1979.
No. 85- Maritime Boundary: The Gambia-Senegal, March 23, 1979.
No. 86- Maritime Boundary: Chile-Peru, July 2, 1979.
No. 88- Maritime Boundary: Ecuador-Peru, October 2, 1979.

No. 90- Continental Shelf Boundary: Italy-Spain, May 14, 1980.
No. 91- Maritime Boundary: United States-Venezuela, December 16, 1980.
No. 92- Territorial Waters Boundary: Kenya-Tanzania, May 15, 1981.
No. 93- Continental Shelf Boundaries: India-Indonesia-Thailand, August 17, 1981.
No. 94- Continental Shelf Boundaries: The Persian Gulf, September 11, 1981.
No. 95- Maritime Boundary: France (Reunion) –Mauritius, April 16, 1982.
No. 97- Maritime Boundaries: Costa Rica – Panama, December 6, 1982.
No. 98- Archipelagic Straight Baselines: Sao Tome and Principe, November 1, 1983.

No. 100- Maritime Boundaries- United States- Cook Islands and United States- New Zealand (Tokelau), December 30, 1983.
No. 101- Fiji's Maritime Claims, November 30, 1984.
No. 103- Straight Baselines, Colombia, April 30, 1985.
No. 104- Maritime Boundary: Cuba-Mexico, September 10, 1985.
No. 105- Maritime Boundaries: Colombia- Dominican Republic and Netherlands-Venezuela, January 22, 1986.
No. 106- Developing Standard Guidelines for Evaluating Straight Baselines, with P. Bernhardt and G. Greiveldinger, August 31, 1987.
No. 107- Straight Baselines: U.S.S.R. (Pacific, Sea of Japan, Sea of Okhotsk, and Bering Sea), September 30, 1987.
No. 108- Maritime Boundaries of the World (rev.1), November 30, 1990.
No. 109- Continental Shelf Boundary: Turkey-USSR and Straight Baselines: USSR (Black Sea), with D.Dzurek, September 28, 1988.
No. 110- Maritime Boundary: Cuba-United States, February 21, 1990.
No. 111- Straight Baseline: Costa Rica, August 17, 1990.
No. 112- United States Responses to Excessive Maritime Claims, with A. Roach, March 9, 1992.

No. 113- Straight Baseline Claims: Djibouti and Oman, April 22, 1992.
No. 114- Iran's Maritime Claims, March 16, 1994.
No. 115- United States- United Kingdom Maritime Boundaries in the Caribbean, April 11, 1994.
No. 116- Straight Baseline Claims: Albania and Egypt, May 6, 1994.
No. 117- Straight Baseline Claim: China, July 9, 1196.
No. 118: Straight Baseline Claim: Pakistan, December 20, 1996.
No. 119: Maritime Boundary: Niue- United States, July 30, 1997.

No. 120: Straight Baseline and Territorial Sea Claim: Japan, April 30, 1998.
No. 121: Straight Baseline and Territorial Sea Claim: South Korea, September 30, 1998.
No. 122: Straight Baseline Claim: Thailand, with S. Morison, September 8, 2000.
No. 123: Uruguay's Maritime Claims, with S. Morison, November 27, 2000.
No. 124: Straight Baseline Claim: Honduras, June 28, 2001.
No. 125: Jamaica's Maritime Claims and Boundaries, February 4, 2004.
No. 126: Maldives Maritime Claims and Boundaries, September 8, 2005.
No. 127: Taiwan's Maritime Claims with A. Roach, November 15, 2005.

Annex 2

Colombian personnel on December 2010
Quitasueño Survey Trip

National Maritime Directorate (DIMAR)

CF Fernando Parra Silguero -- Commander of ARC "MALPELO"
CN Esteban Uribe Álzate -- Director of Oceanographic and Hydrographic Research Center
CF Julio Cesar Poveda Ortega -- Harbor Master of San Andres Island
CC Herman León Rincón -- Expedition Chief
S3 Diego Pulido Nossa -- Hydrographer
MA2 Juan Santana Mejía -- Hydrographer

San Andrés and Providencia Naval Command (CESYP)

CESYP Staff

CN Evelio Enrique Ramírez Gafaro -- Commander of CESYP
TN Tomas Contreras Castro -- San Andrés Island Coast Guard Commander
TK Jorge Ivan Roncancio Abadía – Chief of CESYP Operations Department

Providence Island Coast Guard Command (CEGPROV)

TN Jorge Uricoechea Pérez -- Providence Island Coast Guard Commander
S3 Oscar Javier Pinto Luna -- Providence Island Coast Guard Pilot
S3 Mauricio Gómez Gutiérrez -- Providence Island Coast Guard Pilot
MA2 Diego Valbuena Rodríquez – Providence Island Coast Guard Sailor
IMAR Eulalio Ruiz Márquez – Providence Island Coast Guard Marine

Colombia Navy Salvage and Dive (EBUSA)

CF Harry Ernesto Reyna Niño - Colombian Navy Salvage and Dive Director
JT Manual Antonio Forero Cubillos – Master Chief Diver
S3 Fabio Alberto Rubio Londoño – Second Class Diver

Colombia Air Force

TC Luis Encisco Sáenz – C90 Pilot
ST Mario Quintero Garzón - C90 Copilot
TP Andrés Castro Hernández – C90 Technician

Annex 3
Geodetic Positioning System (GPS)
Equipment used on Quitasueño Survey Trip

Equipment	References (Brand)	Horizontal Precision (meters)
DGPS Fugro Seastar	8200 HP	< 0.10
DGPS Trimble	PRO XRS 4000	< 1
DGPS Novatel	PROPAK- V3	< 0.6
GPS Garmin	ETREX	< 10
GPS Garmin	GPS MAP 76S	< 15
GPS Garmin	12 XL	< 15
GPS Magellan	EXPLORIST 210	< 3

Annex 4
Technical Report by the Colombia Office of Hydrographic Service On the Tidal Datum in Quitasueño

ANALYSIS OF THE ASTRONOMICAL TIDE PRESENT IN SAN ANDRÉS AND PROVIDENCIA ARCHIPELAGO DURING THE SURVEY

For the generation of 1 year of an hourly astronomical tide series nearby to San Andrés Archipelago, the Grenoble Tide Model FES 95.2 was used, adding the ocean tide correction using Andersen (1995)[26] adjusted model, which uses 13 tidal harmonics to generate data worldwide.

Using the Tidal Analysis Toolbox[27], the 1 year time series was used to evaluate the harmonics values and generate a 19 year time series of astronomical tide with hourly data.

To the 19 year time series the following values were calculated, according to its probability curve (figure 1), all of them referenced to the mean sea level:

- Highest Astronomical Tide (HAT) = 272.99 millimetres ref. MSL.
- Lowest Astronomical Tide (LAT) = -288.91 millimetres ref. MSL.
- The range between HAT and LAT is 561.90 millimetres.

Using the same harmonics, an hourly tide prediction for San Andres Island was calculated for June and July of 2008, November and December of 2009, time in which the field campaign was performed. This astronomical tide level is referenced all the time to mean sea level.

During the field campaign, all the geographical features above sea level were measured, from the sea level at the time to their highest level, which corresponds in the calculus to the "in-situ height observation". Depending on the time of the observation, and a 5 hours correction to Universal Time Coordinated, on the tide prediction table, the level of the astronomical tide for the moment was searched. This was the "height of the astronomical tide" at the moment of the "in-situ height observation", referred to mean sea level.

Adding these last two values, the "height of the feature referred to mean sea level" was founded.

[26] Andersen, O. B. (1995), Global ocean tides from ERS 1 and TOPEX/POSEIDON altimetry, *J. Geophys. Res.*, *100*(C12), 25,249–25,259.
[27] Pawlowicz, R., B. Beardsley, and S. Lentz, "Classical Tidal Harmonic Analysis Including Error Estimates in MATLAB using T_TIDE", Computers and Geosciences, 28 (2002), 929-937.

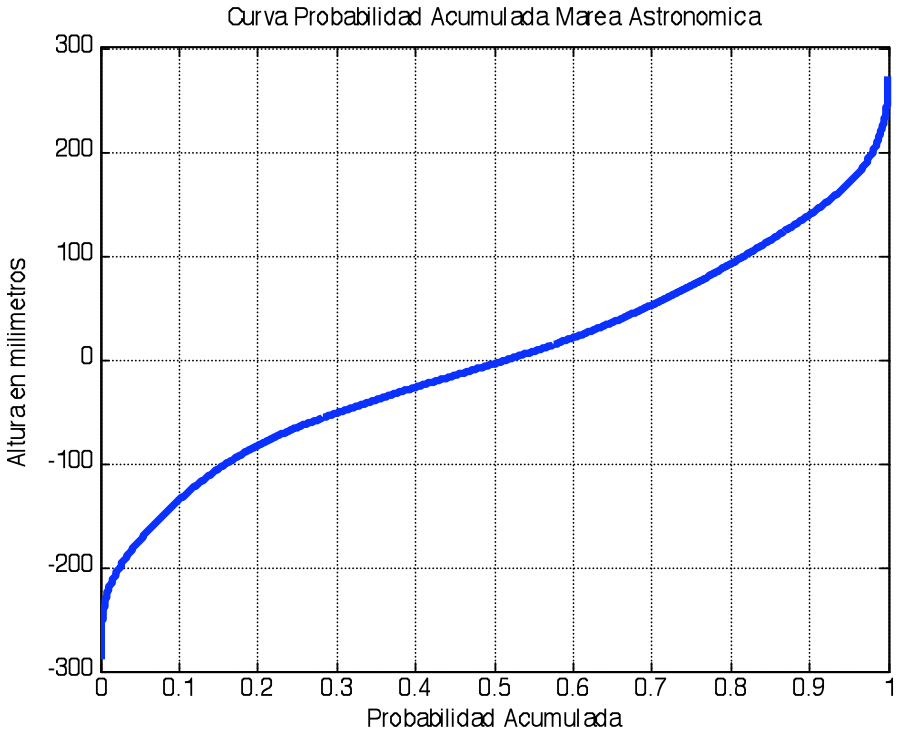


Figure 1. Cumulative probability curve for the 19 years of astronomical tide at San Andrés Archipelago

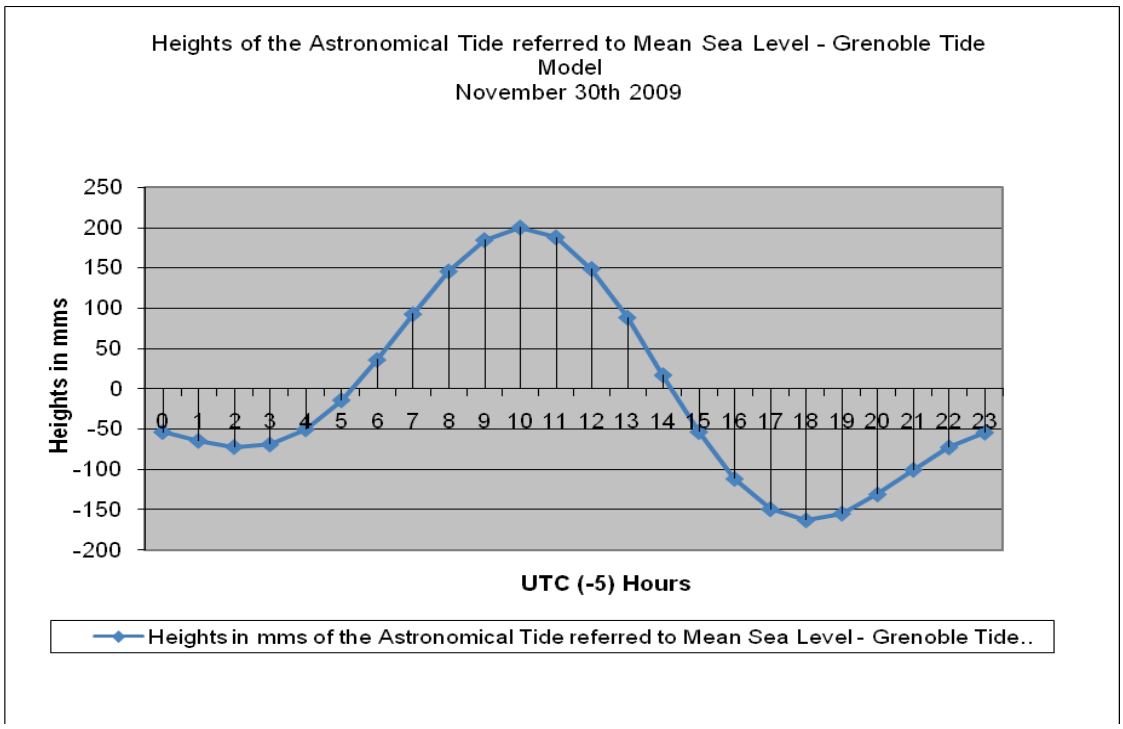
Example: Quitasueño position QS32.

In-situ height observation: 1,300 meters referred to sea level during observation.

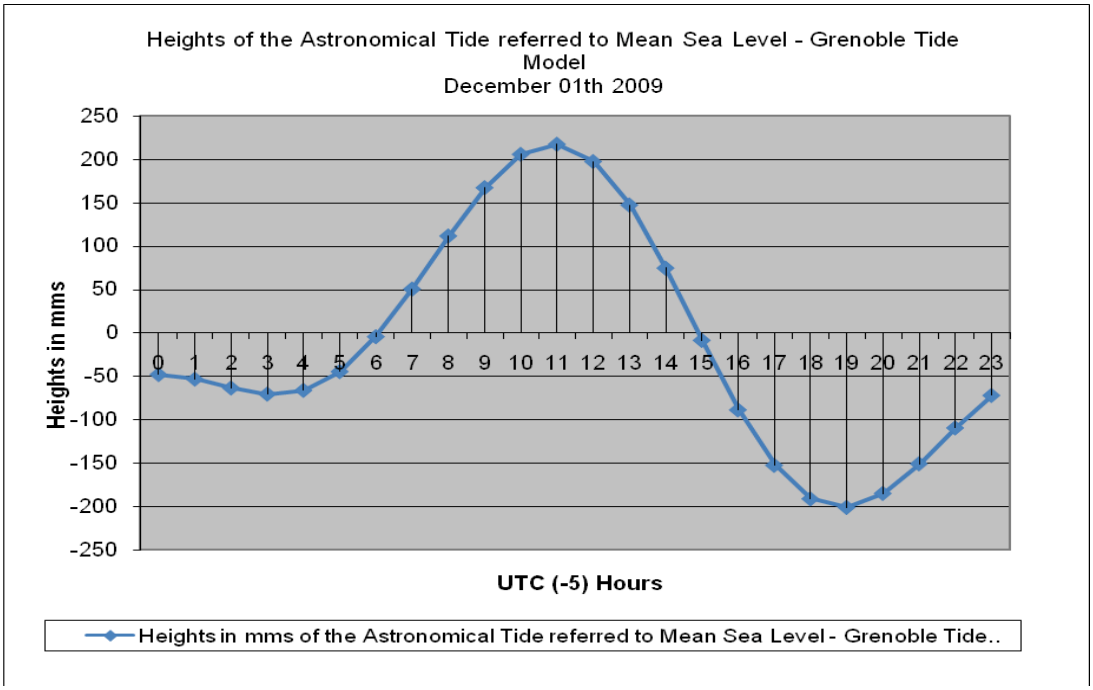
Height of astronomical tide at the moment of the observation: 0,205 meters referred to MSL at the moment of the observation (10:25 Local Time o 15:25 UTC, December 1th, 2009).

Height of the feature referred to mean sea level: 1,300 + (0,205) = 1,505 meters referred to MSL.

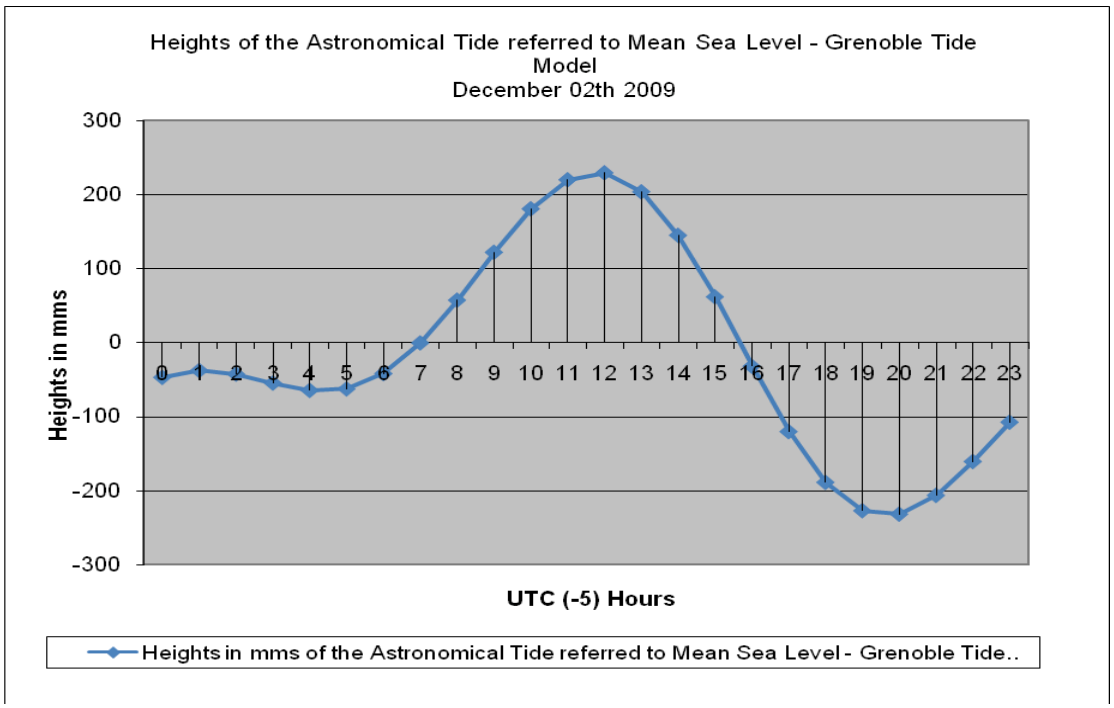
The followings figures and tables correspond to the tide table for the days in which was carried out the survey in 2009:



YEAR	MONTH	DAY	UTC HOUR	DAY	Local Time: UTC (-5) Hours	Heights in mms of the Astronomical Tide referred to Mean Sea Level - Grenoble Tide Model
2009	11	30	5	30	0	-53,07056928
2009	11	30	6	30	1	-63,89892918
2009	11	30	7	30	2	-71,46389074
2009	11	30	8	30	3	-68,46099593
2009	11	30	9	30	4	-49,66668368
2009	11	30	10	30	5	-13,66623225
2009	11	30	11	30	6	36,35497679
2009	11	30	12	30	7	92,97228581
2009	11	30	13	30	8	145,9875843
2009	11	30	14	30	9	184,6832407
2009	11	30	15	30	10	200,3119311
2009	11	30	16	30	11	188,2114313
2009	11	30	17	30	12	149,0300162
2009	11	30	18	30	13	88,74005354
2009	11	30	19	30	14	17,4151691
2009	11	30	20	30	15	-52,94421933
2009	11	30	21	30	16	-111,029279
2009	11	30	22	30	17	-148,6543284
2009	11	30	23	30	18	-162,4132483
2009	12	1	0	30	19	-154,178303
2009	12	1	1	30	20	-130,3222505
2009	12	1	2	30	21	-99,85829693
2009	12	1	3	30	22	-71,99682266
2009	12	1	4	30	23	-53,73685877



YEAR	MONTH	DAY	UTC HOUR	DAY	Local Time: UTC (-5) Hours	Heights in mms of the Astronomical Tide referred to Mean Sea Level - Grenoble Tide Model
2009	12	1	5	1	0	-48,0723964
2009	12	1	6	1	1	-53,28804218
2009	12	1	7	1	2	-63,54880682
2009	12	1	8	1	3	-70,61253479
2009	12	1	9	1	4	-66,22717603
2009	12	1	10	1	5	-44,61781464
2009	12	1	11	1	6	-4,403562513
2009	12	1	12	1	7	50,57262356
2009	12	1	13	1	8	111,7334624
2009	12	1	14	1	9	167,5109781
2009	12	1	15	1	10	205,9542479
2009	12	1	16	1	11	217,5561287
2009	12	1	17	1	12	197,6121867
2009	12	1	18	1	13	147,5370219
2009	12	1	19	1	14	74,78137466
2009	12	1	20	1	15	-8,661667522
2009	12	1	21	1	16	-88,81771018
2009	12	1	22	1	17	-152,7611728
2009	12	1	23	1	18	-191,3882794
2009	12	2	0	1	19	-201,2685343
2009	12	2	1	1	20	-185,1428152
2009	12	2	2	1	21	-150,94554
2009	12	2	3	1	22	-109,5996604
2009	12	2	4	1	23	-72,16113626



YEAR	MONTH	DAY	UTC HOUR	DAY	Local Time: UTC (-5) Hours	Heights in mms of the Astronomical Tide referred to Mean Sea Level - Grenoble Tide Model
2009	12	2	5	2	0	-47,01455885
2009	12	2	6	2	1	-37,80034377
2009	12	2	7	2	2	-42,62408438
2009	12	2	8	2	3	-54,75955792
2009	12	2	9	2	4	-64,6368162
2009	12	2	10	2	5	-62,61649931
2009	12	2	11	2	6	-41,86007396
2009	12	2	12	2	7	-0,536325926
2009	12	2	13	2	8	57,22276847
2009	12	2	14	2	9	121,8858413
2009	12	2	15	2	10	180,5249103
2009	12	2	16	2	11	219,7935892
2009	12	2	17	2	12	229,1442065
2009	12	2	18	2	13	203,5074922
2009	12	2	19	2	14	144,7721455
2009	12	2	20	2	15	61,65515284
2009	12	2	21	2	16	-32,03959096
2009	12	2	22	2	17	-120,3720424
2009	12	2	23	2	18	-188,7368507
2009	12	3	0	2	19	-227,0242515
2009	12	3	1	2	20	-231,7145077
2009	12	3	2	2	21	-206,4117928
2009	12	3	3	2	22	-160,6853666
2009	12	3	4	2	23	-107,5130675

Annex 5
Survey Data

QUITASUENO CAY (QS1 TO QS27)

NAME OF FEATURE	DATE	LOCAL TIME (UTC-5 HOURS)	LATITUDE	LONGITUDE	GPS	In Situ Height Observation	HEIGHT OF THE ASTRONOMICAL TIDE REFERRED TO MEAN SEA LEVEL (AT THE TIME OF THE OBSERVATION)	HEIGHT OF THE FEATURE REFERRED TO MEAN SEA LEVEL	LOWEST ASTRONOMICAL TIDE - LAT	HEIGHT OF THE FEATURE REFERRED TO THE LOWEST ASTRONOMICAL TIDE - LAT	HIGHEST ASTRONOMICAL TIDE - HAT	HEIGHT OF THE FEATURE REFERRED TO THE HIGHEST ASTRONOMICAL TIDE - HAT	POSITIONING BY
QS1	30-nov-09	12:09	14 28 57.6	81 07 19.8	GARMIN	0,150	0,149	0,299	-0,2889185	0,588	0,2729927	0,026	In Situ
QS2	30-nov-09	11:53	14 28 56.1	81 07 19.8	GARMIN	0,180	0,149	0,329	-0,2889185	0,618	0,2729927	0,056	In Situ
QS3	30-nov-09	13:25	14 28 31.5	81 07 05.3	GARMIN	0,200	0,088	0,288	-0,2889185	0,577	0,2729927	0,015	In Situ
QS4	30-nov-09	13:47	14 28 13.4	81 07 02.0	GARMIN	0,260	0,017	0,277	-0,2889185	0,566	0,2729927	0,004	In Situ
QS5	30-nov-09	14:09	14 28 12.3	81 07 05.0	GARMIN	0,280	0,017	0,297	-0,2889185	0,586	0,2729927	0,024	In Situ
QS6	30-nov-09	14:40	14 27 58.8	81 07 01.5	GARMIN	0,250	-0,052	0,198	-0,2889185	0,487	0,2729927	-0,075	Taken from the boat
QS7	30-nov-09	14:54	14 27 15.0	81 07 03.9	GARMIN	0,250	-0,052	0,198	-0,2889185	0,487	0,2729927	-0,075	Taken from the boat
QS8	30-nov-09	15:15	14 26 27.1	81 07 02.9	GARMIN	0,500	-0,052	0,448	-0,2889185	0,737	0,2729927	0,175	Taken from the boat
QS9	30-nov-09	16:11	14 26 14.6	81 08 35.6	GARMIN	0,300	-0,111	0,189	-0,2889185	0,478	0,2729927	-0,084	Taken from the boat
QS10	30-nov-09	15:18	14 25 57.6	81 06 57.6	GARMIN	0,400	-0,052	0,348	-0,2889185	0,637	0,2729927	0,075	Taken from the boat
QS11	30-nov-09	16:03	14 25 46.6	81 08 08.3	GARMIN	0,200	-0,111	0,089	-0,2889185	0,378	0,2729927	-0,184	Taken from the boat
QS12	30-nov-09	15:25	14 25 46.4	81 06 59.8	GARMIN	0,250	-0,052	0,198	-0,2889185	0,487	0,2729927	-0,075	Taken from the boat
QS13	30-nov-09	15:34	14 25 24.9	81 06 59,2	GARMIN	0,300	-0,111	0,189	-0,2889185	0,478	0,2729927	-0,084	Taken from the boat
QS14	30-nov-09	15:42	14 25 19.2	81 06 59.5	GARMIN	0,250	-0,111	0,139	-0,2889185	0,428	0,2729927	-0,134	Taken from the boat
QS15	20-jul-08	10:57	14 25 07.0	81 08 37.9	TRIMBLE	0,450	-0,100	0,350	-0,2889185	0,639	0,2729927	0,077	In Situ
QS16	30-nov-09	16:54	14 25 02.8	81 09 08.8	GARMIN	0,460	-0,148	0,312	-0,2889185	0,601	0,2729927	0,039	In Situ
QS17	20-jul-08	11:29	14 24 38.5	81 08 41.9	GARMIN	0,600	-0,100	0,500	-0,2889185	0,789	0,2729927	0,227	In Situ
QS18	30-nov-09	16:21	14 24 38.4	81 08 54.9	GARMIN	0,200	-0,111	0,089	-0,2889185	0,378	0,2729927	-0,184	Taken from the boat
QS19	01-dic-09	08:25	14 24 24.0	81 08 51.7	GARMIN	0,150	0,111	0,261	-0,2889185	0,550	0,2729927	-0,012	Taken from the boat
QS20	20-jul-08	11:52	14 24 23.8	81 08 43.8	GARMIN	0,400	-0,063	0,337	-0,2889185	0,626	0,2729927	0,064	In Situ
QS21	01-dic-09	08:29	14 24 22.6	81 08 43.2	GARMIN	0,250	0,111	0,361	-0,2889185	0,650	0,2729927	0,088	Taken from the boat
QS22	01-dic-09	08:00	14 24 20.1	81 08 48.2	SEASTAR	0,350	0,111	0,461	-0,2889185	0,750	0,2729927	0,188	In Situ
QS23	01-dic-09	08:35	14 24 16.7	81 08 44.3	GARMIN	0,100	0,167	0,267	-0,2889185	0,556	0,2729927	-0,006	Taken from the boat
QS24	01-dic-09	08:55	14 23 57.5	81 08 24.8	GARMIN	0,500	0,167	0,667	-0,2889185	0,956	0,2729927	0,394	In Situ
QS25	20-jul-08	13:10	14 23 41.0	81 08 19.1	GARMIN	0,150	-0,026	0,124	-0,2889185	0,413	0,2729927	-0,149	In Situ
QS26	20-jul-08	13:43	14 23 27.1	81 08 21.3	GARMIN	0,400	0,005	0,405	-0,2889185	0,694	0,2729927	0,132	In Situ
QS27	20-jul-08	14:21	14 23 24.1	81 08 06.7	TRIMBLE	0,400	0,005	0,405	-0,2889185	0,694	0,2729927	0,132	In Situ

Annex 5 (cont'd)

QUITASUEÑO CAY (QS28 TO QS54)

NAME OF FEATURE	DATE	LOCAL TIME (UTC-5 HOURS)	LATITUDE	LONGITUDE	GPS	In Situ Height Observation	HEIGHT OF THE ASTRONOMICAL TIDE REFERRED TO MEAN SEA LEVEL (AT THE TIME OF THE OBSERVATION)	HEIGHT OF THE FEATURE REFERRED TO MEAN SEA LEVEL	LOWEST ASTRONOMICAL TIDE - LAT	HEIGHT OF THE FEATURE REFERRED TO THE LOWEST ASTRONOMICAL TIDE - LAT	HIGHEST ASTRONOMICAL TIDE - HAT	HEIGHT OF THE FEATURE REFERRED TO THE HIGHEST ASTRONOMICAL TIDE - HAT	POSITIONING BY
QS28	01-dic-09	09:27	14 23 14.7	81 08 14.3	GARMIN	0,050	0,167	0,217	-0,2889185	0,506	0,2729927	-0,056	Taken from the boat
QS29	01-dic-09	09:34	14 22 45.6	81 08 19.6	GARMIN	0,200	0,205	0,405	-0,2889185	0,694	0,2729927	0,132	Taken from the boat
QS30	01-dic-09	09:37	14 22 35.7	81 08 22.3	GARMIN	0,300	0,205	0,505	-0,2889185	0,794	0,2729927	0,232	Taken from the boat
QS31	01-dic-09	09:57	14 22 18.2	81 08 23.5	GARMIN	0,150	0,205	0,355	-0,2889185	0,644	0,2729927	0,082	Taken from the boat
QS32	01-dic-09	10:25	14 22 07.2	81 08 31.5	SEASTAR	1,300	0,205	1,505	-0,2889185	1,794	0,2729927	1,232	In Situ
QS33	02-dic-09	09:19	14 22 04.4	81 08 32.9	GARMIN	0,300	0,121	0,421	-0,2889185	0,710	0,2729927	0,148	Taken from the boat
QS34	01-dic-09	11:04	14 21 57.6	81 07 38.4	GARMIN	0,250	0,217	0,467	-0,2889185	0,756	0,2729927	0,194	Taken from the boat
QS35	20-jul-08	15:32	14 21 49.2	81 08 37.5	GARMIN	0,500	0,032	0,532	-0,2889185	0,821	0,2729927	0,259	In Situ
QS36	01-dic-09	10:45	14 21 44.9	81 08 38.8	GARMIN	0,150	0,217	0,367	-0,2889185	0,656	0,2729927	0,094	Taken from the boat
QS37	01-dic-09	10:48	14 21 38.9	81 08 39.8	GARMIN	0,100	0,217	0,317	-0,2889185	0,606	0,2729927	0,044	Taken from the boat
QS38	01-dic-09	10:53	14 21 32.4	81 08 40.9	GARMIN	0,100	0,217	0,317	-0,2889185	0,606	0,2729927	0,044	Taken from the boat
QS39	01-dic-09	11:43	14 21 07.7	81 08 20.8	GARMIN	0,200	0,197	0,397	-0,2889185	0,686	0,2729927	0,124	Taken from the boat
QS40	01-dic-09	11:46	14 21 00.8	81 08 22.2	GARMIN	0,150	0,197	0,347	-0,2889185	0,636	0,2729927	0,074	Taken from the boat
QS41	01-dic-09	11:51	14 20 52.9	81 08 39.3	GARMIN	0,150	0,197	0,347	-0,2889185	0,636	0,2729927	0,074	Taken from the boat
QS42	01-dic-09	12:03	14 19 19.2	81 11 00.0	GARMIN	0,150	0,197	0,347	-0,2889185	0,636	0,2729927	0,074	Taken from the boat
QS43	01-dic-09	12:25	14 18 57.9	81 10 56.6	GARMIN	0,050	0,197	0,247	-0,2889185	0,536	0,2729927	-0,026	Taken from the boat
QS44	20-jul-08	08:15	14 18 46.0	81 12 41.0	MAGELLAN	0,100	-0,135	-0,035	-0,2889185	0,254	0,2729927	-0,308	In Situ
QS45	01-dic-09	12.59	14 18 04.5	81 11 10.3	GARMIN	0,350	0,147	0,497	-0,2889185	0,786	0,2729927	0,224	In Situ
QS46	01-dic-09	13:26	14 15 53.2	81 09 56.4	GARMIN	0,100	0,147	0,247	-0,2889185	0,536	0,2729927	-0,026	Taken from the boat
QS47	01-dic-09	13:59	14 15 24.4	81 10 03.5	GARMIN	0,300	0,074	0,374	-0,2889185	0,663	0,2729927	0,101	In Situ
QS48	01-dic-09	14:40	14 12 30.6	81 09 56.1	GARMIN	0,200	-0,008	0,192	-0,2889185	0,481	0,2729927	-0,081	Taken from the boat
QS49	01-dic-09	14:58	14 11 45.5	81 10 32.2	GARMIN	0,050	-0,008	0,042	-0,2889185	0,331	0,2729927	-0,231	Taken from the boat
QS50	12-jul-08	10:03	14 11 34.0	81 10 37.0	NOVATEL	N/A	-0,036	N/A	-0,2889185	N/A	0,2729927	N/A	AIR
QS51	01-dic-09	15:17	14 11 21.9	81 10 04.8	GARMIN	0,280	-0,008	0,272	-0,2889185	0,561	0,2729927	-0,001	In Situ
QS52	02-dic-09	10:57	14 11 01.5	81 10 05.2	GARMIN	0,150	0,219	0,369	-0,2889185	0,658	0,2729927	0,096	In Situ
QS53	02-dic-09	11:37	14 09 51.1	81 09 42.3	GARMIN	0,300	0,229	0,529	-0,2889185	0,818	0,2729927	0,256	In Situ
QS54	12-jul-08	09:18	14 07 58.0	81 09 59.0	NOVATEL	N/A	-0,034	N/A	-0,2889185	N/A	0,2729927	N/A	AIR

Annex 6

Four Maps
Produced by the Office of Hydrographic Services
DIMAR
Showing Photos of the QS 1 to QS 54

MAR CARIBE

REPÚBLICA DE COLOMBIA

DEPARTAMENTO ARCHIPIÉLAGO DE SAN ANDRÉS, PROVIDENCIA Y SANTA CATALINA

CAYO QUITASUEÑO

ELABORADO POR LA DIRECCIÓN GENERAL MARÍTIMA
CENTRO DE INVESTIGACIONES
OCEANOGRÁFICAS E HIDROGRÁFICAS

PROYECCIÓN MERCATOR
SISTEMA GEODÉSICO MUNDIAL (WGS- 84)
ESCALA 1:100.000 EN LATITUD 14°22'30"N

NOTAS TÉCNICAS
TECHNICAL NOTES

LEVANTAMIENTO TAQUIMÉTRICO REALIZADO DESDE EL 10 DE JULIO HASTA EL 21 DE JULIO DE 2008, Y DEL 30 DE NOVIEMBRE AL 3 DE DICIEMBRE DE 2009

TACHEOMETRIC SURVEY CARRIED OUT FROM JULY 10TH TO 21TH, 2008, AND FROM NOVEMBER 30TH TO DECEMBER 3TH, 2009

SISTEMA DE POSICIONAMIENTO - POSITIONING SYSTEM

- DGPS NOVATEL
- DGPS TRIMBLE PRO XRS 4000
- DGPS FUGRO SEASTAR 8200 HP
- GPS GARMIN ETREX
- GPS GARMIN MAP 765
- GPS GARMIN 12 XL
- GPS MAGELLAN EXPLORIST 210

CORRECCIÓN DE MAREAS - TIDE CORRECTIONS.
GRENOBLE TIDE MODEL FES 95.2

SOFTWARE: CARIS GIS 4.4a.

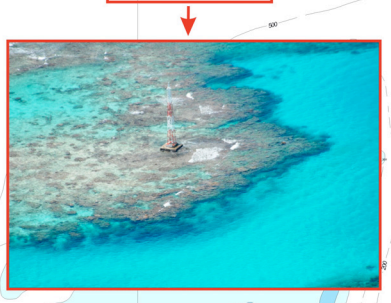
LISTA DE COORDENADAS
COORDINATES LIST

QS 1	14-28-57.6N,81-07-19.8W
QS 2	14-28-56.1N,81-07-19.8W
QS 3	14-28-31.5N,81-07-05.3W
QS 4	14-28-13.4N,81-07-02.0W
QS 5	14-28-12.3N,81-07-05.0W
QS 6	14-27-58.8N,81-07-01.5W
QS 7	14-27-15.0N,81-07-03.9W
QS 8	14-26-27.1N,81-07-02.9W
QS 9	14-26-14.6N,81-08-35.6W
QS 10	14-25-57.6N,81-06-57.6W
QS 11	14-25-46.6N,81-08-08.3W
QS 12	14-25-46.4N,81-06-59.8W
QS 13	14-25-24.9N,81-06-59,2W
QS 14	14-25-19.2N,81-06-59.5W
QS 15	14-25-07.0N,81-08-37.9W
QS 16	14-25-02.8N,81-09-08.8W
QS 17	14-24-38.5N,81-08-41.9W
QS 18	14-24-38.4N,81-08-54.9W
QS 19	14-24-24.0N,81-08-51.7W
QS 20	14-24-23.8N,81-08-43.8W
QS 21	14-24-22.6N,81-08-43.2W
QS 22	14-24-20.1N,81-08-48.2W
QS 23	14-24-16.7N,81-08-44.3W
QS 24	14-23-57.5N,81-08-24.8W
QS 25	14-23-42.6N,81-08-18.8W
QS 26	14-23-27.1N,81-08-21.3W
QS 27	14-23-24.1N,81-08-06.7W
QS 28	14-23-14.7N,81-08-14.3W
QS 29	14-22-45.6N,81-08-19.6W
QS 30	14-22-35.7N,81-08-22.3W
QS 31	14-22-18.2N,81-08-23.5W
QS 32	14-22-07.2N,81-08-31.5W
QS 33	14-22-04.4N,81-08-32.9W
QS 34	14-21-57.6N,81-07-38.4W
QS 35	14-21-49.2N,81-08-37.5W
QS 36	14-21-44.9N,81-08-38.8W
QS 37	14-21-38.9N,81-08-39.8W
QS 38	14-21-32.4N,81-08-40.9W
QS 39	14-21-07.7N,81-08-20.8W
QS 40	14-21-00.8N,81-08-22.2W
QS 41	14-20-52.9N,81-08-39.3W
QS 42	14-19-19.2N,81-11-00.0W
QS 43	14-18-57.9N,81-10-56.6W
QS 44	14-18-46.0N,81-12-41.0W
QS 45	14-18-04.5N,81-11-10.3W
QS 46	14-15-53.2N,81-09-56.4W
QS 47	14-15-24.4N,81-10-03.5W
QS 48	14-12-30.6N,81-09-56.1W
QS 49	14-11-45.5N,81-10-32.2W
QS 50	14-11-34.0N,81-10-37.0W
QS 51	14-11-21.9N,81-10-04.8W
QS 52	14-11-01.5N,81-10-05.2W
QS 53	14-09-51.1N,81-09-42.3W
QS 54	14-07-58.0N,81-09-59.0W





ARRECIFE FARO NORTE
REEF AREA NORTH LIGHT





BARRERA DE ARRECIFE
REEF BARRIER
14-22-35 N 81-06-46 W

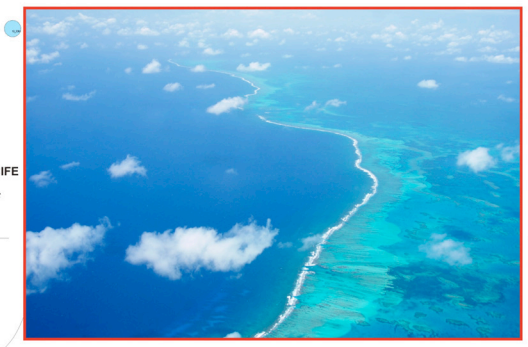




ARRECIFE INTERNO QS30
INNER REEF QS30



ARRECIFE INTERNO QS32
INNER REEF QS32

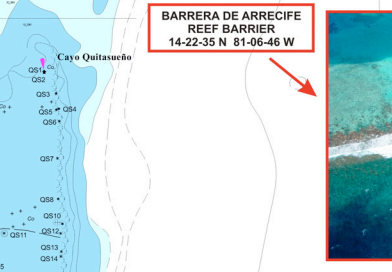


VISTA GENERAL DEL ARRECIFE
REGION CENTRAL
OVERVIEW OF THE REEF
CENTRAL AREA



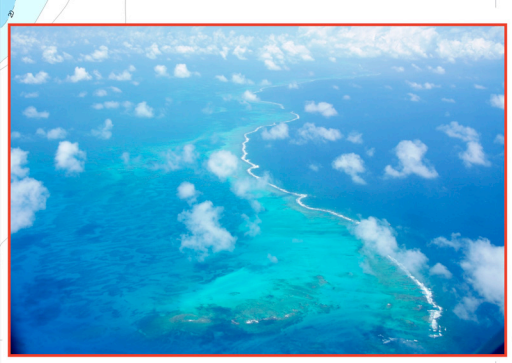


BARRERA DE ARRECIFE
REEF BARRIER
14-15-18.5 N 81-10-14.3 W





BARRERA DE ARRECIFE
SECTOR SUR
REEF BARRIER
SOUTH AREA



MACROLOCALIZACIÓN



SIMBOLOGÍA - SYMBOLS

- ARRECIFE DE CORAL SIEMPRE SUMERGIDO / CORAL REEF WHICH COVERS
- FARO - LIGHT HOUSE
- LÍNEA DE PELIGRO - DANGER LINE
- NAUFRAGIO MOSTRANDO PARTE DEL CASCO O SUPERESTRUCTURA AL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING ANY PORTION OF HULL OR SUPERSTRUCTURE AT THE LEVEL OF CHART DATUM
- NAUFRAGIO MOSTRANDO UNO O MÁS MÁSTILES, SOBRE EL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING MAST OR THE MASTS ABOVE CHART
- ROCA (ISLOTE) QUE NUNCA CUBRE, ALTURA REFERIDA AL NIVEL MEDIO DEL MAR / ROCK (ISLET) WHICH DOES NOT COVER, HEIGHT ABOVE MEAN SEA LEVEL
- ROCA QUE CUBRE Y DESCUBRE / ROCK WHICH COVERS AND UNCOVERS
- ROMPIENTE - BREAKERS
- VERILES - DEPTH CONTOURS
- VERIL APROXIMADO - APPROXIMATE DEPTH CONTOUR
- ZONA NO LEVANTADA - UNSURVEYED AREA

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CENTRO DE INVESTIGACIONES
OCEANOGRÁFICAS E HIDROGRÁFICAS

PROYECCIÓN MERCATOR
SISTEMA GEODÉSICO MUNDIAL (WGS- 84)
ESCALA 1:25.000 EN LATITUD 14°32'38"N

NOTAS TÉCNICAS
TECHNICAL NOTES

LEVANTAMIENTO TAQUIMÉTRICO REALIZADO DESDE EL 10 DE JULIO HASTA EL 21 DE JULIO DE 2008, Y DEL 30 DE NOVIEMBRE AL 3 DE DICIEMBRE DE 2009

TACHEOMETRIC SURVEY CARRIED OUT FROM JULY 10TH TO 21TH, 2008, AND FROM NOVEMBER 30TH TO DECEMBER 3TH, 2009

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- GPS GARMIN MAP 765
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- GPS MAGELLAN EXPLORIST 210

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QS 4	14-28-13.4N,81-07-02.0W
QS 5	14-28-12.3N,81-07-05.0W
QS 6	14-27-58.8N,81-07-01.5W
QS 7	14-27-15.0N,81-07-03.9W

MACROLOCALIZACIÓN



SIMBOLOGÍA - SYMBOLS

- ARRECIFE DE CORAL SIEMPRE SUMERGIDO / CORAL REEF WHICH COVERS
- FARO - LIGHT HOUSE
- LÍNEA DE PELIGRO - DANGER LINE
- NAUFRAGIO MOSTRANDO PARTE DEL CASCO O SUPERESTRUCTURA AL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING ANY PORTION OF HULL OR SUPERSTRUCTURE AT THE LEVEL OF CHART DATUM
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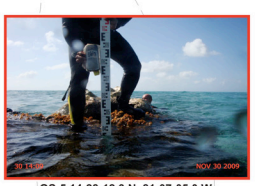
- ROCA QUE CUBRE Y DESCUBRE / ROCK WHICH COVERS AND UNCOVERS
- ROMPIENTE - BREAKERS
- VERILES - DEPTH CONTOURS
- VERIL APROXIMADO - APPROXIMATE DEPTH CONTOUR
- ZONA NO LEVANTADA - UNSURVEYED AREA


QS-1 14-28-57.6 N 81-07-19.8 W


QS-2 14-28-56.1 N 81-07-19.8 W


QS-3 14-28-31.5 N 81-07-05.3 W


QS-4 14-28-13.4 N 81-07-02.0 W


QS-5 14-28-12.3 N 81-07-05.0 W

Cayo Quitasueño
QS1
QS2
QS3
QS4
QS5
QS6
QS7

MAR CARIBE

REPÚBLICA DE COLOMBIA

DEPARTAMENTO ARCHIPIÉLAGO DE SAN ANDRÉS, PROVIDENCIA Y SANTA CATALINA

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ELABORADO POR LA DIRECCIÓN GENERAL MARÍTIMA
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PROYECCIÓN MERCATOR
SISTEMA GEODÉSICO MUNDIAL (WGS- 84)
ESCALA 1:25.000 EN LATITUD 14°22'30"N

NOTAS TÉCNICAS
TECHNICAL NOTES

LEVANTAMIENTO TAQUIMÉTRICO REALIZADO DESDE EL 10 DE JULIO HASTA EL 21 DE JULIO DE 2008, Y DEL 30 DE NOVIEMBRE AL 3 DE DICIEMBRE DE 2009

TACHEOMETRIC SURVEY CARRIED OUT FROM JULY 10TH TO 21TH, 2008, AND FROM NOVEMBER 30TH TO DECEMBER 3TH, 2009

SISTEMA DE POSICIONAMIENTO - POSITIONING SYSTEM
- DGPS NOVATEL
- DGPS TRIMBLE PRO XRS 4000
- DGPS FUGRO SEASTAR 8200 HP
- GPS GARMIN ETREX
- GPS GARMIN MAP 765
- GPS GARMIN 12 XL
- GPS MAGELLAN EXPLORIST 210

CORRECCIÓN DE MAREAS - TIDE CORRECTIONS.
GRENOBLE TIDE MODEL FES 95.2

SOFTWARE: CARIS GIS 4.4a.

LISTA DE COORDENADAS
COORDINATES LIST

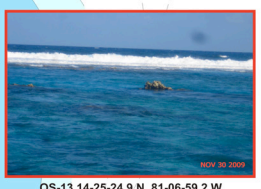
QS 7	14-27-15.0N,81-07-03.9W
QS 8	14-26-27.1N,81-07-02.9W
QS 9	14-26-14.6N,81-08-35.6W
QS 10	14-25-57.6N,81-06-57.6W
QS 11	14-25-46.6N,81-08-08.3W
QS 12	14-25-46.4N,81-06-59.8W
QS 13	14-25-24.9N,81-06-59,2W
QS 14	14-25-19.2N,81-06-59.5W
QS 15	14-25-07.0N,81-08-37.9W
QS 16	14-25-02.8N,81-09-08.8W
QS 17	14-24-38.5N,81-08-41.9W
QS 18	14-24-38.4N,81-08-54.9W
QS 19	14-24-24.0N,81-08-51.7W
QS 20	14-24-23.8N,81-08-43.8W
QS 21	14-24-22.6N,81-08-43.2W
QS 22	14-24-20.1N,81-08-48.2W
QS 23	14-24-16.7N,81-08-44.3W
QS 24	14-23-57.5N,81-08-24.8W
QS 25	14-23-42.6N,81-08-18.8W
QS 26	14-23-27.1N,81-08-21.3W
QS 27	14-23-24.1N,81-08-06.7W
QS 28	14-23-14.7N,81-08-14.3W
QS 29	14-22-45.6N,81-08-19.6W
QS 30	14-22-35.7N,81-08-22.3W
QS 31	14-22-18.2N,81-08-23.5W
QS 32	14-22-07.2N,81-08-31.5W
QS 33	14-22-04.4N,81-08-32.9W
QS 34	14-21-57.6N,81-07-38.4W
QS 35	14-21-49.2N,81-08-37.5W
QS 36	14-21-44.9N,81-08-38.8W
QS 37	14-21-38.9N,81-08-39.8W
QS 38	14-21-32.4N,81-08-40.9W
QS 39	14-21-07.7N,81-08-20.8W
QS 40	14-21-00.8N,81-08-22.2W
QS 41	14-20-52.9N,81-08-39.3W
QS 42	14-19-19.2N,81-11-00.0W
QS 43	14-18-57.9N,81-10-56.6W
QS 44	14-18-46.0N,81-12-41.0W
QS 45	14-18-04.5N,81-11-10.3W
QS 46	14-15-53.2N,81-09-56.4W




QS-15 14-25-07.0 N 81-08-37.9 W



QS-17 14-24-38.5 N 81-08-41.9 W



QS-13 14-25-24.9 N 81-06-59.2 W


QS-20 14-24-23.8 N 81-08-43.8 W


QS-24 14-23-57.5 N 81-08-24.8 W


QS-27 14-23-24.1 N 81-08-06.7 W



QS-30 14-22-35.7 N 81-08-22.3 W

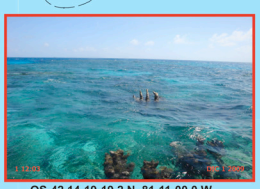


QS-32 14-22-07.2 N 81-08-31.5 W


QS-41 14-20-52.9 N 81-08-39.3 W



QS-44 14-18-46.0 N 81-12-41.0 W


QS-42 14-19-19.2 N 81-11-00.0 W


QS-45 14-18-04.5 N 81-11-10.3 W

SIMBOLOGÍA - SYMBOLS

- ARRECIFE DE CORAL SIEMPRE SUMERGIDO / CORAL REEF WHICH COVERS
- FARO - LIGHT HOUSE
- LÍNEA DE PELIGRO - DANGER LINE
- NAUFRAGIO MOSTRANDO PARTE DEL CASCO O SUPERESTRUCTURA AL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING ANY PORTION OF HULL OR SUPERSTRUCTURE AT THE LEVEL OF CHART DATUM
- NAUFRAGIO MOSTRANDO UNO O MÁS MÁSTILES, SOBRE EL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING MAST OR THE MASTS ABOVE CHART
- ROCA (ISLOTE) QUE NUNCA CUBRE, ALTURA REFERIDA AL NIVEL MEDIO DEL MAR / ROCK (ISLET) WHICH DOES NOT COVER, HEIGHT ABOVE MEAN SEA LEVEL
- ROCA QUE CUBRE Y DESCUBRE / ROCK WHICH COVERS AND UNCOVERS
- ROMPIENTE - BREAKERS
- VERILES - DEPTH CONTOURS
- VERIL APROXIMADO - APPROXIMATE DEPTH CONTOUR
- ZONA NO LEVANTADA - UNSURVEYED AREA

MACROLOCALIZACIÓN



MAR CARIBE

REPÚBLICA DE COLOMBIA

DEPARTAMENTO ARCHIPIÉLAGO DE SAN ANDRÉS, PROVIDENCIA Y SANTA CATALINA

CAYO QUITASUEÑO

(SECTOR SUR)

ELABORADO POR LA DIRECCIÓN GENERAL MARÍTIMA
CENTRO DE INVESTIGACIONES
OCEANOGRÁFICAS E HIDROGRÁFICAS

PROYECCIÓN MERCATOR
SISTEMA GEODÉSICO MUNDIAL (WGS- 84)
ESCALA 1:25.000 EN LATITUD 14°22'30"N

NOTAS TÉCNICAS
TECHNICAL NOTES

LEVANTAMIENTO TAQUIMÉTRICO REALIZADO DESDE EL 10 DE JULIO HASTA EL 21 DE JULIO DE 2008, Y DEL 30 DE NOVIEMBRE AL 3 DE DICIEMBRE DE 2009

TACHEOMETRIC SURVEY CARRIED OUT FROM JULY 10TH TO 21TH, 2008, AND FROM NOVEMBER 30TH TO DECEMBER 3TH, 2009

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GRENOBLE TIDE MODEL FES 95.2

SOFTWARE: CARIS GIS 4.4a.

LISTA DE COORDENADAS
COORDINATES LIST

QS 46 14-15-53.2N,81-09-56.4W
QS 47 14-15-24.4N,81-10-03.5W
QS 48 14-12-30.6N,81-09-56.1W
QS 49 14-11-45.5N,81-10-32.2W
QS 50 14-11-34.0N,81-10-37.0W
QS 51 14-11-21.9N,81-10-04.8W
QS 52 14-11-01.5N,81-10-05.2W
QS 53 14-09-51.1N,81-09-42.3W
QS 54 14-07-58.0N,81-09-59.0W

QS46
QS47
QS48
QS49
QS50
QS51
QS52
QS53
QS54



QS-47 14-15-24.4 N 81-10-03.5 W



QS-51 14-11-21.9 N 81-10-04.8 W



QS-52 14-11-01.5 N 81-10-05.2 W



QS-53 14-09-51.1 N 81-09-42.3 W

SIMBOLOGÍA - SYMBOLS

- ARRECIFE DE CORAL SIEMPRE SUMERGIDO / CORAL REEF WHICH COVERS
- FARO - LIGHT HOUSE
- LÍNEA DE PELIGRO - DANGER LINE
- NAUFRAGIO MOSTRANDO PARTE DEL CASCO O SUPERESTRUCTURA AL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING ANY PORTION OF HULL OR SUPERSTRUCTURE AT THE LEVEL OF CHART DATUM
- NAUFRAGIO MOSTRANDO UNO O MÁS MÁSTILES, SOBRE EL NIVEL DE REDUCCIÓN DE SONDEOS / WRECK SHOWING MAST OR THE MASTS ABOVE CHART
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- ROMPIENTE - BREAKERS
- VERILES - DEPTH CONTOURS
- VERIL APROXIMADO - APPROXIMATE DEPTH CONTOUR
- ZONA NO LEVANTADA - UNSURVEYED AREA

MACROLOCALIZACIÓN



Annex 7

Colombia Charts
215, 630, 631

COLOMBIAN NAUTICAL CHART 215

PROFUNDIDADES EN METROS

COL 215

81°14'

Cayo Quitasueño
Fl Bu 22m 18M

VER PRECAUCION

Area no levantada

Ries (1967) ED 119

MAR CARIBE
REPÚBLICA DE COLOMBIA

CAYO QUITASUEÑO

Compilación efectuada por el Centro de Investigaciones Oceanográficas e Hidrográficas

SONDEOS EN METROS
(menores de 30 en metros y decimetros)
reducidos al Nivel Medio de las Bajamares de Sicigias (MLWS)

ALTURAS EN METROS SOBRE EL NIVEL MEDIO DEL MAR

PROYECCION MERCATOR
SISTEMA GEODESICO MUNDIAL (WGS 84)
ESCALA 1:25.000 EN LATITUD 14°37'07"N

Para Simbolos y Abreviaturas, ver la Carta Col 001, 3ª Ed. 1997

FUENTES
Levantamientos hidrográficos efectuados por el Centro de Investigaciones Oceanográficas e Hidrográficas (CIOH).
Hoja Col 416 - 1.....1:50.000, 1999
Hoja Col 416 - 2.....1:100.000, 1999

PRECAUCION
El navegante debe tener extrema precaución cuando pase por el Este del banco Quitasueño, debido a la existencia de fuertes corrientes hacia el Oeste y sobre el banco.

CAUTION
The navigator must have extreme caution when pass by the East of Quitasueño bank, due to strong currents to the West and on the bank.

GLOSARIO
Cayo.....cay

1ª. Ed., Mar. 2000 (Corregida hasta A/N 04/2009 COLOMBIA)

COL 215

PROFUNDIDADES EN METROS

ADVERTENCIA
El navegante prudente no se debe confiar totalmente en una sola clase de ayuda é la navegación, especialmente las flotantes.

Publicada por la Dirección General Marítima - Armada República de Colombia
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WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids.

Cayo Quitasueño
PROFUNDIDADES EN METROS - ESCALA 1:25.000

Los usuarios pueden enviar correcciones, adiciones y comentarios a: CENTRO DE INVESTIGACIONES OCEANOGRAFICAS E HIDROGRAFICAS
A.A. 982 Cartagena de Indias - Colombia.
e-mail: nautica@cioh.org.co

COL 215

COLOMBIAN NAUTICAL CHART 630

MAR CARIBE

REPÚBLICA DE COLOMBIA

BANCO QUITASUEÑO

(SECTOR SUR)

PROYECCION MERCATOR
SISTEMA GEODESICO MUNDIAL (WGS- 84)
ESCALA 1:50.000 EN LATITUD 14°10'30"N
Para Símbolos y Abreviaturas, ver la Carta Col 001, 3ra. Ed. 1997

Compilación efectuada por el Centro de Investigaciones Oceanográficas e Hidrográficas.

PROFUNDIDADES EN METROS
(Menores de 30 en metros y decimetros)
reducidos al Nivel Medio de las Bajamares de Sicigias (MLWS)

PROFUNDIDADES EN METROS

COL 630

81°20'

15'

10'

5'

20'

15'

10'

5'

14°

Continúa en la Carta Col 631

Área no levantada

VER PRECAUCION N°2

VER PRECAUCION N°1

PRECAUCIONES

1. El navegante debe tener extrema precaución cuando pase por el Este del banco, debido a la existencia de fuertes corrientes hacia el Oeste y sobre el banco.
2. La navegación en esta área es muy peligrosa debido a la existencia de numerosas cabezas de coral.

CAUTIONS

1. The navigator must have extreme caution when pass by the East of the bank, due to strong currents to the West and on the bank.
2. Navigation in this area is very dangerous due to the existence of numerous coral heads.

FUENTES

Levantamientos hidrográficos efectuados por el Centro de Investigaciones Oceanográficas e Hidrográficas abordo del ARC Providencia
Hoja Col 416 - 1.....1:50.000, 1999
Hoja Col 416 - 2.....1:100.000, 1999

GLOSARIO

Banco.....bank

Rep (1933)

1ra. Ed. Sep., 2000 (Corregida hasta A/N 20/00 COLOMBIA). Actualizaciones AN: www.cioh.org.co

COL 630

PROFUNDIDADES EN METROS

ADVERTENCIA
El navegante prudente no se debe confiar totalmente en una sola clase de ayuda a la navegación, especialmente las flotantes.

Publicada por la Dirección General Marítima - Armada República de Colombia
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WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids.

Banco Quitasueño (Sector Sur)
PROFUNDIDADES EN METROS - ESCALA 1:50.000

Los usuarios pueden enviar correcciones, adiciones y comentarios a: CENTRO DE INVESTIGACIONES OCEANOGRAFICAS E HIDROGRAFICAS,
A.A. 982 Cartagena de Indias - Colombia
e-mail: hidro@cioh.org.co

COLOMBIAN NAUTICAL CHART 631

MAR CARIBE

REPÚBLICA DE COLOMBIA

BANCO QUITASUEÑO

(SECTOR NORTE)

Compilación efectuada por el Centro de Investigaciones Oceanográficas e Hidrográficas.

1ra. Ed. Sep. 2000

PROYECCION MERCATOR
SISTEMA GEODESICO MUNDIAL (WGS- 84)
ESCALA 1:50.000 EN LATITUD 14°27'30"N
Para Símbolos y Abreviaturas, ver la Carta Col 001, 3ra. Ed. 1997

PROFUNDIDADES EN METROS
(Menores de 30 en metros y decimetros)
reducidos al Nivel Medio de las Bajamares de Sicigias (MLWS)
ALTURAS EN METROS SOBRE EL NIVEL MEDIO DEL MAR

PROFUNDIDADES EN METROS

COL 631

COL 215

Cayo Quitasueño
Fl 8s 22m 18M

Área no levantada

VER PRECAUCION N°1

VER PRECAUCION N°2

PRECAUCIONES

1. El navegante debe tener extrema precaución cuando pase por el Este del banco, debido a la existencia de fuertes corrientes hacia el Oeste y sobre el banco.
2. La navegación en esta área es muy peligrosa debido a la existencia de numerosas cabezas de coral.

CAUTIONS

1. The navigator must have extreme caution when pass by the East of the bank, due to strong currents to the West and on the bank.
2. Navigation in this area is very dangerous due to the existence of numerous coral heads.

FUENTES

Levantamientos hidrográficos efectuados por el Centro de Investigaciones Oceanográficas e Hidrográficas abordo del ARC. Providencia
Hoja Col 416 - 1.....1:50.000, 1999
Hoja Col 416 - 2.....1:100.000, 1999

GLOSARIO

Banco.....bank
Cayo.....cay

Continúa en la Carta Col 630

1ra. Ed. Sep., 2000 (Corregida hasta A/N 20/00 COLOMBIA). Actualizaciones AN: www.cioh.org.co

COL 631

PROFUNDIDADES EN METROS

ADVERTENCIA

El navegante prudente no se debe confiar totalmente en una sola clase de ayuda a la navegación, especialmente las flotantes.

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WARNING

The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids.

Banco Quitasueño (Sector Norte)
PROFUNDIDADES EN METROS - ESCALA 1:50.000

Los usuarios pueden enviar correcciones, adiciones y comentarios a: CENTRO DE INVESTIGACIONES OCEANOGRAFICAS E HIDROGRAFICAS.
A.A. 982 Cartagena de Indias - Colombia
e-mail: hidro@cioh.org.co

Annex 8

Excerpts from the Report on an Explanation of the Symbols used in the Nautical Charts COL 215, COL 630, COL 631 and COL 416 Related to Quitasueño Cay

Produced by Colombia's Office of Hydrographic Service National Maritime Directorate [English Version]

The National Maritime Directorate - DIMAR is the institution responsible to do the nautical cartography of Colombia according to numeral 4, article 5 (Functions and Attributions) of the Law 2324 from 1984: The National Maritime Directorate has the following functions ***"Install and maintain the aids to navigation service, to do the hydrographic surveys and to produce the national nautical cartography".***

The first hydrographical activities begin in 1947, when Colombia signed the HYSAR Cooperation Agreement between the Ministry of National Defense represented by the Colombian General Maritime Directorate and the Oceanographic and Hydrographic Research Center – CIOH, and the US Department of Defense represented by The Naval Oceanographic Office - NAVOCEANO. ….

When Colombia was admitted as an IHO member in 1998, it was recognized that to fulfill the regulations, standards and specifications established by the IHO, nautical charts would be produced for the Colombia National Maritime Directorate – DIMAR by the Oceanographic and Hydrographic Research Center – CIOH.

References of the Nautical Charts published for Colombia related to Quitasueño Cay

The Colombian nautical charts named Cayo Quitasueño COL 215 (2000), Banco Quitasueño (Sector Sur) COL 630 (2000), Banco Quitasueño (Sector Norte) COL 631 (2000) and Banco Quitasueño COL 416 (2000) related to Quitasueño Cay were made following the Regulations of the IHO for International (INT) Charts and Chart Specifications - M4 (1988), and the Colombian nautical publication named COL 001-Symbols, ABBREVIATIONS and Terms Used in the Colombian Nautical Charts, 2nd edition (1991).

Chart COL 001. SYMBOLS, ABBREVIATIONS AND TERMS USED IN THE COLOMBIAN NAUTICAL CHARTS: Colombian nautical publication which describes the meaning of symbols, abbreviations and terms used in the national nautical charts. The basic information is gathered from the IHO Chart INT1 and the Chart Specifications and Regulations of the IHO for International (INT) Charts – MP 004 (1988). The COL 001, 2nd edition (1991), was used to do the Colombian nautical charts COL 215 (2000), COL 630 (2000), COL 631 (2000) AND COL 416 (2000).

MP 004 (M4, S-4). Chart Specifications and Regulations of the IHO for International (INT) Charts (1988): IHO publication which describes in detail the meaning of symbols, terms and abbreviations used in the international charts. The description of each concept permits the selection of the most appropriate symbol for each situation. This publication is the document required for the edition of the international charts. Currently, Colombia publishes all national charts based on these publications and also international charts according to the scheme of IHO INT chart.

…

Nautical Chart Definition

The main definition of the meaning of the nautical charts is found in the page 40 of the IHO special publication S-32, Hydrographic Dictionary, Spanish version of the Fifth Edition (1996):

> *735 Chart: nautical.* ***Carta náutica.*** *A CHART specifically designed to meet the requirements of MARINE NAVIGATION, showing DEPTHS of water, NATURE OF BOTTOM, ELEVATIONS, configuration or characteristics of COAST, dangers and AIDS TO NAVIGATION. Also called marine chart, navigation chart or simply CHART. See PAPER.*

Therefore, it is inferred that the main purposes of the Colombian nautical charts Col 215, Col 630, Col 631 and Col 416 related to Quitasueño Cay is to permit safe navigation for all classes of vessels, throughout coastal national waters, and the other is showing the detailed configuration of the seabed. In this aspect, hydrographic offices have a *de facto* responsibility for their national waters similar to that of topographic mapping agencies for land areas.

These functions are according to the Regulations of the IHO for International (INT) Charts and Chart Specifications - M4 (2009). Section 100. A-101 Purpose of the International Charts. A-102 International Charting Principles.

Chart Name

The name of the chart is related to the predominant geographic feature, which in this case is the Bank composed for the totally of the seabed elevation that have approximately 31 nautical miles long and 11 nautical miles wide.

Over this bank there are groups of emerging coral reefs, rocks, heads of coral and others geographical features that are permanently above sea level, as Quitasueño Cay and the others 54 features which are described in the technical report.

Symbols Used in the Chart COL 416

In the chart COL 416, as in the Colombian nautical cartography, there are symbols that clearly define the geographical character of the Quitasueño Bank and the Cays, shoals, wrecks, lights, coral heads, rocks, and other geographical features that are important for the safety maritime navigation:

1. **Cay:** This place name is referred to the cay or islet located in the north area of the bank, near to place where was built the light tower, according to the Chart COL 416, 1st Edition. September 2000. The Cay or Islet is named Quitasueño. See map 1, numeral 1.

According to the IHO special publication S-32, Hydrographic Dictionary, Spanish version of the Fifth Edition (1996), pages 37 and 130, there are definitions that apply for this geographical feature:

> *665 cay (also kay, key).* ***cayo.*** *A low, flat ISLAND of SAND, CORAL, etc. awash or drying at LOW WATER; a term originally applied to the coral islets around the COAST and ISLANDS of Caribbean Sea.*
>
> *2555 islet.* ***Islote.*** *A small ISLAND.*
>
> …..

2. **Danger Line:** Was used a dotted line to indicate the area of the bank which don't have enough deep for safety navigation and that take navigator´s attention to a danger which would not stand out clearly enough if it were represented solely by the symbol for the feature (e.g. isolated rock); or delimits a danger zone for navigation because of existence of numerous dangers according to Chart COL 001, 2nd edition (1991), Section K - Rocks, Wrecks and Obstructions, numeral 1, page 24.

In the Chart Specifications and Regulations of the IHO for International (INT) Charts – MP 004 (1988), Part I - Chart Specifications o f the IHO for National and International (INT) Medium and Large Scale Charts, Section 400 - Hydrography and Navigational Aids, there are the next definition:

Numeral 420.1. ***A danger line****, consisting of a line of dots, must be used to draw the navigator's attention to a danger which would not stand out clearly enough if it were represented solely by the symbol for the feature. The danger line must also be used to delimit areas containing numerous dangers, through which it is unsafe to navigate at the scale of the chart.*

According to the scale of the chart is necessary to generalize particular features and dangers as areas, therefore in the letter COL 416 was used the danger line to delimit the area with less than 5 meters depths. This line of dots (danger line) was used to delimit the entire external edge of the reef in the east side that have 23 nautical miles long and in the external edge of the reef in the west side too.

Inside of this danger line are contained the most part of cays or islets detailed in the technical report, including which are in the external edge of the reef. See map 1, numeral

3. **Breakers:** This symbol was used to draw navigator's attention to the obstructions or dangers on the shore where the waves are breaking, which don't permit an adequate hydrographic survey according to Chart COL 001, 2nd edition (1991), Section K - Rocks, Wrecks and Obstructions, numeral 17, page 25. See Map 1, numeral 4.

In the Chart Specifications and Regulations of the IHO for International (INT) Charts – MP 004 (1988), Part I - Chart Specifications o f the IHO for National and International (INT) Medium and Large Scale Charts, Section 400 - Hydrography and Navigational Aids, there are the next definition:

Numeral 423.2. ***Breakers*** *in unsurveyed areas must be represented by lines of dotted semicircles covering approximately the area of the breakers.*



Image 4. Breakers Symbol

The breakers are directly related to the existence of particular geographical features on the drying edge of the coral reefs and foreshore as heads of coral, rocks, coral reef, etc., that are permanently emerged or emerging in low tide.
These geographical features produce disintegration of the wave which breaks with foam in the shallows.

According to the IHO special publication S-32, Hydrographic Dictionary, Spanish version of the Fifth Edition (1996), page 30, there are the next definition:

> *540 breaker.* ***rompiente.*** *A WAVE breaking on the SHORE, over a REEF, etc. Breakers may be roughly classified into three kinds, although the categories may overlap: spilling breakers break gradually over a considerable distance; plunging breakers tend to curl over and break with a crash; and surging breakers peak up, but then instead of spilling or plunging they surge up on the beach face.*

….

4. **Lines for inadequately survey areas:** To demarcate an inadequately survey areas, which cannot be survey, was used a bold segmented line with the legend "Inadequately surveyed" according to Chart COL 001, 2nd edition (1991), Section I - Depths, numeral 25, page 21.

In the Chart Specifications and Regulations of the IHO for International (INT) Charts – MP 004 (1988), Part I - Chart Specifications o f the IHO for National and International (INT) Medium and Large Scale Charts, Section 400 - Hydrography and Navigational Aids, there are the next definition:

> *Numeral 417.6* ***Areas delimited by a bold line****. In some rocky or coral reef waters, depth information may be so inadequate that a very positive form of warning is required. The most effective technique is to delimit the area by a by bold black or magenta line (preferably segmented), with a note of caution.*
>
> *This treatment is likely to be most appropriate in inshore waters such as coastal archipelagos and barrier reefs; it may be reinforced by the omission or insertion of colour tints within the bold line.*

….

Capitán de Corbeta **HERMANN LEÓN RINCON**
ÁREA INVESTIGACIÓN CIENTÍFICA MARINA
DIRECCION GENERAL MARÍTIMA DE COLOMBIA

Annex 9

Colombia Chart Symbols
[Excerpt from Colombia Chart No. 1, 2nd edition 1991]

K Rocas, Naufragios, Obstrucciones

15	21 R	Roca no peligrosa de profundidad conocida	
16	Co Co	Arrecife de Coral Sumergido	Co 3
17	19 5 18 Rompientes	Rompientes	

Naufragios			
Plano de referencia para profundidades		H	
20	Nauf	Naufragio, casco siempre seco en cartas a escala mayor	
21	Nauf	Naufragio que cubre y descubre, en cartas a escala mayor	
22	5 Nauf	Naufragio sumergido con profundidad conocida, en cartas a escala mayor	
23	Nauf	Naufragio sumergido de profundidad desconocida, en cartas a escala mayor	
24		Naufragio mostrando parte del casco o superestructura al nivel de reducción de sondeos	PA
25	Mast	Naufragio mostrando uno o varios mástiles sobre el nivel de reducción de sondeos	
26	4 Nauf 25 Nauf	Naufragio con profundidad mínima conocida sólo por sondeo	5 Nauf
27	4 Nauf 25 Nauf	Naufragio con profundidad mínima determinada mediante barra de alambre o buzo	21 Nauf
28		Naufragio peligroso, profundidad desconocida	
29		Naufragio no peligroso, profundidad desconocida	
30	25 Nauf	Naufragio, profundidad mínima desconocida pero se considera que es seguro hasta la profundidad mostrada	
31	# Sucio	Restos de un naufragio u otras áreas sucias, No peligrosas para la navegación, pero que no deben utilizarse para fondeo, pesca de arrastre, etc.	

25

Annex 10

Distances of
Quitasueño Low-Tide Elevations
To Quitasueño Islands

Distances (nautical miles) Low-tide elevations to Quitasueño Islands					
Low-tide elevation	**Nearest island**	**Distance**	**Low-tide elevation**	**Nearest island**	**Distance**
QS-6	QS-5	0.23	QS-25	QS-26	0.23
QS-7	QS-8	0.80	QS-28	QS-27	0.20
QS-9	QS-15	1.12	QS-43	QS-42	0.36
QS-11	QS-15	0.81	QS-44	QS-45	1.62
QS-12	QS-10	0.19	QS-46	QS-47	0.49
QS-13	QS-10	0.54	QS-48	QS-52	1.49
QS-14	QS-10	0.64	QS-49	QS-52	0.85
QS-18	QS-17	0.21	QS-50	QS-52	0.75
QS-19	QS-20	0.13	QS-51	QS-52	0.34
QS- 23	QS-22	0.08	QS-54	QS-53	1.90

Appendix 2

COLOMBIA'S OFFICIAL NAUTICAL CHARTING OF THE SAN ANDRÉS ARCHIPELAGO

Document on pages to follow

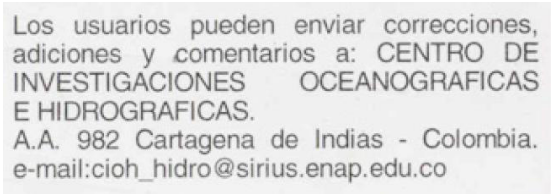
Appendix 2

COLOMBIA'S OFFICIAL NAUTICAL CHARTING OF THE SAN ANDRÉS ARCHIPELAGO

In its Reply, Nicaragua critiques several of the large-scale base maps that Colombia presented in its Counter-Memorial. These maps included Quitasueño Cay **(Figure 2.8)**, Serranilla Cay **(Figure 2.9)**, and Bajo Nuevo Cay **(Figure 2.10)**. The following comments address the technical issues that were raised by Nicaragua in its Reply.

At paragraph 4.9 of its Reply, Nicaragua notes that the blue dotted line surrounding most of the islands of the San Andrés Archipelago, along with an area of lighter shading, were not identified in the map legends. The dotted line is the standard nautical charting symbol used to delimit areas of "hazardous navigation," which in this case tracks the 10-meter isobath. The lighter shading indicates the general configuration of the bank, which in this case tracks the 20-meter isobath. These mapping elements were used for illustrative purposes only and neither one played any role in establishing the baselines or relevant coastlines of the islands.

In the case of Quitasueño, Nicaragua observed that there were no low-water lines (islands) represented on Colombian nautical charts 630, 631 & 215, a point that was illustrated in their Reply at **Figure 4-2**. By way of contrast, **Figure 2.8** from the Colombian Counter-Memorial depicted a total of eight islands and 15 low tide features. The map legend for Figure 2.8 does cite Colombian nautical charts 215, 630 and 631 as the source of coastal information for this map, but it also cites the findings from the Colombian Navy's 2008 reconnaissance survey of the archipelago as a supplementary source of information. While Colombian charting of the area does not reflect any islands, the islands and low-tide features that are depicted on Figure 2.8 were all taken directly from the findings that were documented in detail by the Colombian Navy. The implication by Nicaragua that insular features that have yet to be charted somehow do not exist is misguided. All nautical charts are 'works in progress' and when new information comes to light they are routinely updated. In fact, charting authorities worldwide provide their contact information on every chart so that inaccuracies and new findings can be reported quickly. Colombia's charting authority is no exception. The note below is printed on every Colombian nautical chart so that new information can be reported directly to the National Maritime Directorate of Colombia (DIMAR) for verification.


Los usuarios pueden enviar correcciones, adiciones y comentarios a: CENTRO DE INVESTIGACIONES OCEANOGRAFICAS E HIDROGRAFICAS.
A.A. 982 Cartagena de Indias - Colombia.
e-mail:cioh_hidro@sirius.enap.edu.co

Translation:
Users may send corrections, additions and comments to: Center for Oceanographic and Hydrographic Research. P.O. Box 982 Cartagena de Indias – Colombia. E-mail: cioh_hidro@sirius.enap.edu.co

When DIMAR published the latest editions of the nautical charts for this area (215, 630 & 631), they did not have the benefit of detailed observations from site visits that would have provided the information necessary to reflect more accurately the true physical character of the bank. The recent findings of the Colombian Navy and those resulting from Dr. Smith's survey will, in due course, be incorporated into future editions of the charts covering Quitasueño.

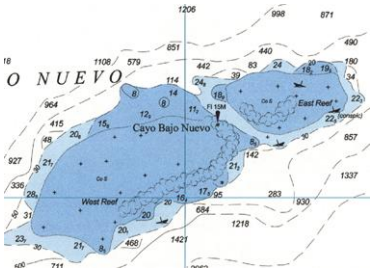
In the case of Serranilla and Bajo Nuevo Cays, Nicaragua points out the inconsistency between the charted low water lines for islands and the depiction of the 12 M territorial sea, which in both cases was rendered from a single point location that corresponded to the main islands located on each bank. This portrayal reflects an overly conservative territorial sea limit for both features since there are other small islands or exposed rocks also shown on the nautical charts. On Serranilla Bank these islands are Cayo del Medio and Cayo del Este and on Bajo Nuevo there is unnamed exposed rock charted slightly south of the main island. In fact, the survey by the Colombian Navy in 2008 found two exposed rocks at Bajo Nuevo and these features were identified on Figure 2.10 as BN-2 and BN-3. Collectively, these islands and exposed rocks allow Colombia to calculate its depiction of the 12 M territorial sea limit in accordance with international law, as has been done on Figure 2.1 of the Counter-Memorial.

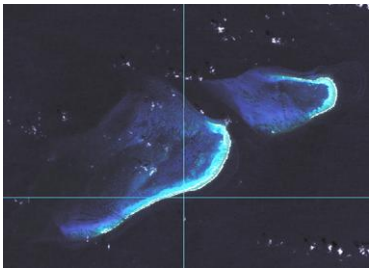
The decision by DIMAR to keep the charted 12 M territorial sea limit based solely on the main islands of Serranilla and Bajo Nuevo reflects Colombia's joint development zone agreement with Jamaica, where the territorial seas for these features are both shown as a single circle with 24 M diameters centered on the main islands. The variance between these two depictions is clearly illustrated by Colombia in Figure 4.3 of the Counter-Memorial.

Nicaragua also noted that areas charted as "breakers" on COL-046 were illustrated in the Counter-Memorial as areas of "drying reefs" or "low tide elevations." Figure 2.10 does interpret the breaker symbols on COL-046 as two drying fringing reefs, one on East Reef and the other on West Reef. This interpretation was made in conjunction with an analysis of Landsat imagery of this bank, which clearly shows two prominent reefs on Bajo Nuevo bank.

Dr. Smith, in his description of Quitasueño, referred to the "breakers" symbol on Colombian charts in the following way: "[a]n important symbol on these charts is the one depicting breakers, where the waves of the open ocean meet the drying coral reef of Quitasueño." This interpretation of the breakers symbol for Quitasueño was also applied to the interpretation of the charted features on Bajo Nuevo. In any event, even if this interpretation were proven to be incorrect, the depiction of the reefs was for illustrative purposes only and neither one was used in determining the 12 M limit of the territorial sea or the 24 M limit of a contiguous zone entitlement. For Nicaragua to infer that this depiction was done to overinflate the significance of Bajo Nuevo is simply not true as the side-by-side comparison of the nautical chart, the satellite image, and map from the Counter-Memorial reveals.

Col-046 **Landsat** **Figure 2.10 CC-M**







ANNEXES

Annex 1

DIPLOMATIC NOTE N° DM 14082-2000 FROM THE COLOMBIAN FOREIGN MINISTER TO THE COSTA RICAN FOREIGN MINISTER, 29 MAY 2000

(Archives of the Ministry of Foreign Affairs of Colombia)

Republic of Colombia
Ministry of Foreign Affairs and Worship

Bogotá, 29 May 2000.

DM 14082-2000

Mr. Minister:

I am honoured to acknowledge receipt of your kind note N° DM 073-2000 of 29th of the current month and year, whereby Your Excellency fixes the position of the Enlightened Government of Costa Rica, to the effect that, being – as always – observant of the rules and principles of international law and of the respect for international treaties, it has complied with and will continue to comply in good faith, until their entry into force, with the treaties of 17 March 1977 and 6 April 1984.

I am pleased to convey to Your Excellency that the fact that, for 23 years – in the case of the delimitation Treaty in the Caribbean Sea – and for 16 in that of the delimitation in the Pacific – there has never been an incident, despite the intense and continuous activities of control, fishing and commercial navigation that ships from our respective States carry out in those areas, is testimony of the beneficial character and efficacy of the aforesaid instruments.

To His Excellency
Roberto Rojas
Minister of Foreign Affairs and Worship

Republic of Costa Rica

The position of the Government of Costa Rica – that my Government is honoured to share – is moreover, a reflection of its unwavering adherence by the principles of international law, and in particular, to the observance and respect for international treaties, that has always distinguished it in the hemisphere and worldwide.

I take this opportunity to state to Your Excellency, the assurances of my highest and most distinguished consideration.

[signed illegibly]
GUILLERMO FERNANDEZ DE SOTO

Annex 2

DIPLOMATIC NOTE N° DM 073-2000 FROM THE COSTA RICAN FOREIGN MINISTER TO THE COLOMBIAN FOREIGN MINISTER, 29 MAY 2000

(Archives of the Ministry of Foreign Affairs of Colombia)

The Minister of Foreign Affairs and Worship

San José, 29 May 2000.
DM 073-2000

Your Excellency:

As the Costa Rican Legislative Assembly is setting out to consider, for its approval, the Treaty on Delimitation of Marine and submarine Areas and Maritime Cooperation signed between our two countries on 6 April 1984, I am pleased to convey to Your Excellency that my country, always observant of the principles and rules of international law and in particular those framing the conclusion of international treaties, has complied with and will continue to comply with that instrument in good faith, as well as the Treaty on Delimitation of Marine and Submarine Areas and Maritime Cooperation of 17 March 1977.

It is evident that throughout these years, both treaties have shown their beneficial character, have facilitated cooperation and contributed to mutual understanding, the preservation of peace and trust between our two States, becoming an example for the region and the continent.

The Government of Costa Rica therefore, will continue the required procedures for the ratification and exchange of corresponding instruments, once approved by the Legislative Power.

May this serve to state to Your Excellency, the assurances of my utmost consideration and esteem, sincerely.

[signed illegibly]
Roberto Rojas

His Excellency
Guillermo Fernández de Soto
Minister of Foreign Affairs
Republic of Colombia

Annex 3

REPORT TO CONGRESS BY THE MINISTER OF FOREIGN AFFAIRS AND WORSHIP OF COSTA RICA 2000-2001

(Ministry of Foreign Affairs and Worship of Costa Rica, pp. 1, 11-15)

[p. 1]

REPORT
BY THE MINISTRY OF
FOREIGN AFFAIRS AND WORSHIP

2000-2001

Submitted to the Legislative Assembly by Eng. Roberto Rojas Lopez, Government Minister in the Bureau of foreign Affairs and Worship

[p. 11]

CHAPTER I

RELATIONS WITH BORDERING COUNTRIES: COLOMBIA

I.- BORDER ISSUES

Although as a consequence of the independence of Panama, recognized by Costa Rica on 29 December 1903, there is no longer a land border between our country and Colombia, they still share a considerable maritime boundary.

On 17 March 1977, the Foreign Minister of Costa Rica Mr. Gonzalo J. Facio and the Ambassador of Colombia in San José, Mr. Heraclio Fernández Sandoval, signed a treaty wherein the delimitation of the Costa Rican waters and those that appertain to Colombia off the Archipelago of San Andrés:

> "A.- Starting on the intersection of a straight line drawn with an azimuth of 225º (45º Southwest) from a point located on latitude 11º 00' 00" North and longitude 81º 15' 00" West, with parallel 10º 49' 00" North.
>
> Along the cited parallel towards the West, until its intersection with meridian 82º 14' 00" West.

B.- From the intersection of parallel 10º 49' 00" North and the meridian 82º 14' 00" West, the boundary continues along the cited meridian towards the North up to where the delimitation shall be done with a third State."

For the maritime delimitation in the Pacific, the Foreign Minister of Costa Rica, Mr. Carlos José Gutiérrez Gutiérrez and his Colombian colleague Rodrigo Lloreda Caicedo, signed [a Treaty] in Bogotá on 6 April 1984, in which both countries agreed the following:

(…)

Originally, the exchange of instruments of ratification of the 1977 Facio-Fernández and the 1984 Gutiérrez-Lloreda treaties was to be carried simultaneously. However, with the purpose of facilitating the congressional approval, it was decided to propose to Colombia – that has already approved both agreements –, the possibility of doing so separately. To that effect, on 29 May 2000, Foreign Minster Rojas addressed the following note to his Colombian colleague, Guillermo Fernández de Soto:

[p. 12]

"No. 396-UAT-PE

San José, 29 May 2000.

Your Excellency,

I have the honor to address Your Excellency with reference to the process of ratification of the Treaty on Delimitation of Marine and Sub-marine Areas and Maritime Cooperation between the Republic of Colombia and the Republic of Costa Rica, signed in Bogotá on 6 April 1984.

The opinion of the Government of Costa Rica is that in accordance with the terms of Article 24, paragraph 1 of the Vienna Convention on the Law of Treaties, the entry into force of the Treaty in question will be that on which instruments of ratifications are exchanged; and that this procedure will be undertaken on the date and in the manner which our Governments deem convenient. In this regard, it considers that the change of the date fixed in Article III of the said Treaty of 6 April 1984 in no way alters its object and purpose. Likewise, the Government of Costa Rica states that the internal process of approval of the Treaty on Delimitation of Marine and Sub-marine Areas and Maritime Cooperation between the Republic of Colombia and the Republic of Costa Rica, signed on 17 March 1977 and referred to in the Treaty of 6 April 1984, will continue in the same situation as before until the internal constitutional requirements for the approval of treaties have been satisfied and ratification instruments are exchanged at the appropriate time.

The Government of Costa Rica wishes to know whether the Illustrious Government of Colombia agrees with the contents of this note.

I beg Your Excellency to accept the expression of my highest esteem.

Roberto Rojas."

On the same date, Foreign Minister Fernández de Soto replied to the Costa Rican proposal with the following note:

"DM-M 14081.

Mr. Minister:

I have the honor to address Your Excellency with regard to your Note 396-UAT-PE of 29 May 2000.

I am pleased to state to Your Excellency that the Government of Colombia shares the criterion that in accordance with the terms of Article 24, paragraph 1 of the Vienna Convention on the Law of Treaties, the entry into force of the Treaty on Delimitation of Marine and Sub-marine Areas and Maritime Cooperation between the Republic of Costa Rica and the Republic of Colombia signed in Bogotá on 6 April 1984, will be that on which instruments of ratifications are exchanged; and that this procedure will be undertaken on the date and in the manner which our Governments deem convenient.

My Government also considers that the change of the date established in Article III of the said Treaty in no way alters its object and purpose.

My Government also shares the position of the Illustrious Government of Costa Rica that the observance and application of the Treaty on Delimitation of Marine and Sub-marine Areas and Maritime Cooperation between the Republic of Colombia and the Republic of Costa Rica signed on

[p. 13]

17 March 1977, will continue in the same situation as before until internal constitutional requirements for the approval of treaties have been satisfied and ratification instruments are exchanged at the appropriate time. Nonetheless, the Government of Colombia trusts that the procedures for the approval by the Legislative Assembly of the Republic of Costa Rica of the abovementioned Treaty of 1977 will continue to progress and that in due time the instruments of ratification will be exchanged in a manner similar to

that in which the Illustrious Government of Costa Rica has proceeded with regard to the Treaty of 1984.

I beg Your Excellency to accept the expression of my highest esteem.

Guillermo Fernández de Soto
Minister of Foreign Affairs"

On 30 July 2001, the Legislative Assembly of Costa Rica voted in favor of a bill that in its first article, approved the Gutiérrez-Lloreda Treaty, the Rojas-Fernández Exchange of Notes and the nautical chart.

On the basis of this law, on the following 16 February, Foreign Ministers Rojas and Fernández de Soto, in the presence of the President, Miguel Ángel Rodríguez, the diplomatic corps, [former] foreign ministers Gonzalo J. Facio, Rodrigo Madrigal and Fernando Naranjo and other special guests, carried out the exchange of ratification instruments of the Gutiérrez-Lloreda Treaty in the *Salon Dorado* of the *Casa Amarilla*. At the event, the Costa Rican Foreign Minister gave the following speech:

"Mr. President of the Republic,
His Excellency, the Minister of Foreign Affairs of Colombia and distinguished delegates joining him,
His Excellency, the Ambassador of Colombia,
Excellencies, Ambassadors and Chiefs of Mission,
Messrs. Deputies, Messrs. Former Ministers,
Ladies and Gentlemen:

The Costa Rican territory, and, in particular, the hall where we are today, have been, on multiple occasions, the scene for the signing of agreements and exchange of ratification instruments. However, today for the first time in Costa Rican history, the exchange of a border treaty takes place in its territory. Without grandiloquence, we must acknowledge that we are living a historic moment and that we should feel privileged to share it.

Historical, cultural, economic and even familial links entangle the destinies of both countries, as indissolubly as the waters of Balboa's ocean mingle at our boundaries. Therefore, for the Government of Costa Rica, and for me personally, for this act to confirm and consolidate the friendship that has joined Costa Rica and Colombia from time immemorial, is a reason for the greatest satisfaction. Because the Gutiérrez-Lloreda [Treaty] is not only an agreement on maritime delimitation, but also on cooperation. The negotiations that led it to fruition were presided over

[p. 14]

by a spirit of cordiality and mutual understanding, in harmony with the authentic kinship that is the common inner sap [flowing] between Colombians and Costa Ricans.

The joyous culmination of the diplomatic journey to define our boundary lines in the Pacific is the best homage we can pay to the memory of the agreement's signatories, Foreign Ministers Carlos José Gutiérrez Gutiérrez and Rodrigo Lloreda Caicedo. Both of them were jurists of singular value, prominent public personae, but, moreover and most importantly, good men who set their efforts and will, even to the detriment of their health, in order to contribute to the understanding between nations and for freedom and democracy to reign in every American corner. It is worth noting that they also shared common family roots, originating in the city of Cartago, former capital of Costa Rica. In fulfilling the mission entrusted to them by the Presidents, don Luis Alberto Monge and don Belisario Betancur, don Carlos José and don Rodrigo combined their talent and their knowledge to conduct the negotiation of the agreement that bears their hyphenated names and that enters into force as of this moment.

I would also like to express our gratitude to all those individuals who, in one way or another, contributed to make this moment possible: Officials of the Foreign Ministries, Diplomats on a Mission, Congressmen, Supreme Justices, public opinion leaders and national and foreign jurists. It is especially pleasant for me to highlight, in particular, the dedication with which His Excellency the Ambassador of Colombia, don Julio Aníbal Riaño, has worked in this task of mutual interest. He has also worked fervently with the purpose of strengthening the friendly links between both nations in many other fields.

The Gutiérrez-Lloreda Treaty, in addition to what it represents for our two countries, is a testimony to the world, that it is possible to work in brotherhood when borders are seen as points of convergence and not of division. Prominent international law experts, such as the French professor Daniel Bardonett, have already made it the subject of valuable studies, and we harbor the hope that it may also serve as inspiration for other nations to define their marine boundaries, under the sign of harmony.

For nearly seventeen years, this agreement of wills has been complied with by both parties, with the good faith and the spirit of consultation that is reflected in so many other avenues of the Colombia-Costa Rica relations. In the same sense, Costa Rica also wishes to reiterate to Colombia its decision to continue complying, as it has up to now, in accordance with the provisions of international law, with the terms of the Facio-Fernández Treaty, concluded for the maritime delimitation of both countries in the Caribbean Sea.

[p. 15]

The presence of the distinguished delegation that visits us confirms that an analogous desire to observe the law and a fraternal solidarity that

has never been belied, continue to be plowed in the task of jointly opening up new horizons. With the awareness of our shared identity, Costa Rica also wishes to express its optimism in light of the recent developments of the peace negotiations in Colombia and its firm hope that the efforts of President Pastrana and his people's decided vocation towards harmony will soon reap venturous rewards.

Mr. President of the Republic,
His Excellency, the Minister of Foreign Affairs of Colombia,
Ladies and Gentlemen:

It was nearly 145 years ago, that the first diplomatic agent of the then New Granada came to Costa Rica, General Pedro Alcántara Herrán. General Herrán, former president of his country and already a veteran in diplomatic battles, gave sincere shows of affection to Costa Rica, made a generous donation for the families of Costa Rican soldiers perished in the campaign against the filibusters, and even volunteered for combat to serve the Central-American cause. In the treaty he signed with the Costa Rican Foreign Minister, the oldest one concluded by our two nations, it was enshrined that there would be perpetual peace and loyal friendship between them and that they would benefit each other as much as possible, by reason of their vicinity.

This beautiful triad, perpetual peace, loyal friendship, mutual benefit, has presided over the road that Colombia and Costa Rica have travelled together since those remote days. With those thoughts in our minds and hearts, Colombians and Costa Ricans shall know how to continue, with a steady step, the march towards a bright and shared future.

Thank you."

The Fernández-Facio Treaty has not yet been ratified by Costa Rica; however, in accordance with Article 18 of the Vienna Convention on the Law of Treaties, our country must refrain of any acts by virtue of which the object and purpose of that agreement may be compromised, as long as it does not manifest its intention to not become a party to it.

In the course of the III Binational Meeting that was held in San José between 19 and 21 February 2001, a sub-committee was organized to deal with matters relating to Drug Trafficking, Arms Smuggling and Management of Common Maritime Boundaries.

Annex 4

1997 AGREEMENT TO SUPPRESS ILLICIT TRAFFIC BY SEA BETWEEN COLOMBIA AND THE UNITED STATES OF AMERICA

(USTIAS 12835)

Document on pages to follow

TREATIES AND OTHER INTERNATIONAL ACTS SERIES 12835

NARCOTIC DRUGS

Shiprider

Agreement Between the
UNITED STATES OF AMERICA
and COLOMBIA

Signed at Bogota February 20, 1997

NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89–497, approved July 8, 1966 (80 Stat. 271; 1 U.S.C. 113)—

". . . the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof."

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

COLOMBIA

Narcotic Drugs: Shiprider

Agreement signed at Bogota February 20, 1997;
Entered into force February 20, 1997.

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE REPUBLIC OF COLOMBIA TO SUPPRESS ILLICIT TRAFFIC BY SEA

PREAMBLE

The Government of the United States of America and the Government of the Republic of Colombia (hereinafter, "The Parties");

Bearing in mind the complex nature of the problem of illicit traffic by sea;

Having regard to the urgent need for international cooperation in suppressing illicit traffic by sea, which is recognized in the 1961 Single Convention on Narcotic Drugs and its 1972 Protocol, in the 1971 Convention on Psychotropic Substances,[1] in the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances[2] (hereinafter, "the 1988 Convention"), and in international maritime law;

Recalling that the 1988 Convention requires the Parties to consider entering into bilateral agreements to carry out, or to enhance the effectiveness of, its provisions;

Desiring to promote greater cooperation between the Parties, and thereby enhance their effectiveness, in combating illicit traffic by sea;

Taking into account the recommendations of the report of the meetings of the Working Group on Maritime Cooperation, held at Vienna from 19 to 23 September 1994 and from 20 to 24 February 1995, and endorsed by the Commission on Narcotic Drugs at its 38th Session, Vienna, 14 to 23 March 1995;

Recognizing the respect for sovereignty and principles of international law accepted by the Parties;

Reaffirming their commitment to fight effectively against illicit traffic by sea through continued mutual cooperation in technical, economic, and training and equipment matters;

Recognizing also the need to strengthen bilateral procedures involving boarding and search of vessels which are suspected of engaging in illicit traffic by sea;

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[1] TIAS 6928, 8118, 9725; 18 UST 1407; 26 UST 1439; 32 UST 543.

[2] *International Legal Materials,* vol. XXVIII, No. 2, Mar. 1989, p. 493.

HAVE AGREED AS FOLLOWS:

DEFINITIONS

1. For the purposes of this Agreement, it shall be understood that:

a. "Illicit traffic" has the same meaning as that term is defined in the 1988 Convention, and includes traffic by sea in narcotic drugs, psychotropic substances and precursor and essential chemicals;

b. "Law enforcement officials" are: for the Government of the Republic of Colombia, uniformed members of the Colombian Navy; and for the Government of the United States of America, uniformed members of the United States Coast Guard.

c. "Law enforcement vessels" are: warships and other ships of the Parties, clearly marked and identifiable as being on government service, including any boat and aircraft embarked on such ships, aboard which law enforcement officials are embarked.

OBJECT AND SCOPE OF THE AGREEMENT

2. The Parties shall cooperate in combating illicit traffic by sea to the fullest extent possible consistent with available resources and the priorities for the use of these resources, through the application of procedures for boarding and search of private or commercial vessels of the nationality of one of the Parties and which meet the conditions set forth in this Agreement.

3. As provided in Article 2, Paragraph 3 of the 1988 Convention, a Party shall not undertake in the territory of the other Party the exercise of jurisdiction and performance of functions which are exclusively reserved for the authorities of the other Party by its domestic law.

OPERATIONS IN OR OVER NATIONAL WATERS

4. Operations to suppress illicit traffic in and over waters within which each Party exercises sovereignty in accordance with its domestic law are carried out by the authorities of that Party.

DETECTION AND MONITORING

5. Each Party recognizes the necessity that the detection and tracking of suspect vessels and aircraft located in its territorial waters and airspace be conducted and maintained by its authorities so that suspect vessels and aircraft can be brought by them under their control.

To this end, the Parties undertake to develop procedures and identify and employ technical equipment needed to improve timely communication between their operations centers and the sharing of tactical information, and to identify and employ other assets, so that detection and tracking of suspect vessels and aircraft, located in the territorial waters and airspace of each Party, is conducted and maintained by their own authorities and that suspect vessels and aircraft can be brought by them under their control.

Each Party recognizes the necessity that the detection and tracking of suspect vessels and aircraft entering or exiting its territorial sea and airspace be conducted and maintained by its authorities so that suspect vessels and aircraft can be brought under their control.

To this end, the Parties undertake to develop procedures and identify and employ technical equipment needed to improve timely communication between their operations centers and the sharing of tactical information, and to identify and employ other assets, so that detection and tracking of suspect vessels and aircraft, entering or exiting the territorial sea and airspace of each Party, is conducted and maintained by their own authorities and that suspect vessels and aircraft can be brought under their control.

SCOPE OF APPLICATION

6. This Agreement regulates the boarding and search of private or commercial vessels of the nationality or registry of one of the Parties, which are found seaward of the territorial sea of any State, and which either of the Parties has reasonable grounds to suspect are involved in illicit traffic.

IMPLEMENTATION

7. Whenever law enforcement officials of one Party find a vessel meeting the conditions under paragraph 6 claiming registration in the other Party, competent authority of the former Party may request the competent authority of the other Party to verify the vessel's registry, and in case it is confirmed, its authorization to board and search the vessel.

8. The reply to the request for boarding and search shall be provided by the requested Party to the requesting Party at the earliest possible opportunity and, in each particular case, in conformity with the procedures referred to in paragraph 14. In replying, the requested Party may take into account whether it has a unit available to carry out the boarding and search in a timely and effective manner. If the requested Party has not responded to the request for authorization to board and search within three (3) hours of receipt of the request, it shall be understood that the authorization has been granted.

In no case shall it be understood that the authorization refers to the conduct of boardings and searches of vessels of a flag other than of the requested State. If the vessel is not of the flag of the requested Party, the requesting Party may proceed in accordance with international law.

9. For application of the above provisions, the competent authority for Colombia shall be the Ministry of National Defense, through the Colombian Navy Operations Center, and, for the United States of America, the appropriate United States Coast Guard Operations Center.

10. The boarding and search authorized by the flag State shall be conducted by law enforcement officials embarked in law enforcement vessels. Law enforcement officials of a Party may embark in and conduct boardings and searches from warships, or other ships clearly marked and identifiable as being on government service (including embarked boats and aircraft) of any other State to which the Parties mutually agree, provided that, when they conduct any actions permitted by this Agreement, such ships, boats and aircraft operate under the responsibility, authority and control of law enforcement officials of that Party.

11. Each Party shall ensure that its law enforcement officials, when conducting boardings and searches pursuant to this Agreement, act in accordance with international law, including this Agreement, with its domestic law, and with internationally accepted practices. When conducting a boarding and search, law enforcement officials shall take due account of the need not to endanger the safety of life at sea, the security of the suspect vessel and its cargo, or to prejudice the commercial and legal interests of the flag State or any other interested State. Such officials shall also bear in mind the need to observe norms of courtesy, respect, and consideration for the persons on board the suspect vessel.

12. When conducting boardings and searches in accordance with this Agreement, law enforcement officials shall avoid the use of force in any way, including the use of firearms, except in the exercise of the right of self-defense, and also in the following cases:

(a) To compel the suspect vessel to stop when the vessel has ignored the respective Party's standard warnings to stop;

(b) To maintain order on board the suspect vessel during the boarding and search or while the vessel is preventively held, when the crew or persons on board resist, impede the boarding and search or try to destroy evidence of illicit traffic or the vessel, or when the vessel attempts to flee during the boarding and search or while the vessel is preventively held.

Law enforcement officials of the Party authorized to conduct the boarding and search may carry conventional small arms and will only discharge them when it is not possible to apply less extreme measures. In all cases where the discharge of firearms is required, it will be necessary to have the previous authorization of the flag State except when indirect warning shots are required as a signal for the vessel to stop, or in the exercise of the right of self-defense.

Whenever force is used, including the use of firearms, at all times it shall be the minimum reasonably necessary and proportional under the circumstances.

13. Once the operation has been concluded, regardless of the results, the Party which conducted the boarding and search shall immediately submit a detailed report to the other Party of what happened in accordance with the procedures referred to in paragraph 14. At the request of a Party, the other Party shall timely report, consistent with its laws, on the status of all investigations, prosecutions and judicial proceedings resulting from boardings and searches conducted in accordance with this Agreement where evidence of illicit traffic was found. The Parties shall provide each other the assistance provided for in Article 7 of the 1988 Convention relating to investigations, prosecutions, and judicial proceedings which result from boardings and searches conducted in accordance with this Agreement where evidence of illicit traffic is found.

14. The authorities designated by each Party shall establish the necessary operational procedures for effective implementation of this Agreement. These procedures may be revised by the designated authorities. The procedures shall be consistent with the terms of this Agreement and may not modify or expand them.

15. Each Party shall, to the extent possible, inform the owners and masters of its private and commercial vessels of the circumstances under which officials may come aboard their vessels pursuant to this Agreement or otherwise in accordance with international law.

LAW ENFORCEMENT

16. In those cases where evidence of illicit traffic is found in Colombian flag vessels located outside the internal waters, territorial sea and exclusive economic zone of Colombia established in accordance with Colombian law, outside the maritime boundaries of Colombia established in treaties signed by Colombia, and seaward of the territorial sea of any other State, the criminal law of the flag State shall apply, except when the domestic law of Colombia provides that the other Party has jurisdiction because it previously initiated criminal action for the same

offense. This paragraph shall be implemented in accordance with the procedures referred to in paragraph 14 of this Agreement.

In those cases where evidence of illicit traffic is found in United States territory, waters, or airspace, or concerning United States flag vessels seaward of any nation's territorial sea, the Government of the United States shall have the right to exercise jurisdiction over the preventively held vessel, the persons on board and cargo, provided however, that the Government of the United States may, subject to its constitution and laws, authorize the enforcement of Colombian law against the vessel, persons on board and cargo.

17. The Parties, to the extent permitted by their laws and regulations, and taking into consideration agreements in force between them, may share those forfeited assets which result from boardings and searches conducted in accordance with this Agreement where evidence of illicit traffic is found, or the proceeds of their sale.

FINAL PROVISIONS

18. Any claim submitted for damage, injury, or loss resulting from an operation carried out under this Agreement shall be processed, considered, and, if merited, resolved in favor of the claimant by the Party whose authorities conducted the operation, in accordance with the domestic law of that Party, and in a manner consistent with international law. Neither Party thereby waives any rights it may have under international law to raise a claim with the other through diplomatic channels.

19. The requested State shall always decide independently on any request for the authorization to board and search vessels of its flag or registry.

20. Situations not provided for by this Agreement will be determined in accordance with international law.

21. Nothing in this Agreement is intended to alter the rights and privileges in any legal proceeding under United States law, and the rights and guarantees in any legal proceeding under Colombian law, due any individual.

22. Nothing in this Agreement is intended to prejudice the position of either Party with regard to the international law of the sea.

23. For the purpose of verifying compliance with this Agreement, the Parties shall meet once a year, and either Party may request consultations when it deems necessary.

24. Disputes arising from the interpretation or implementation of this Agreement shall be settled by mutual agreement of the Parties.

25. This Agreement shall enter into force upon signature by both Parties and be of indefinite duration. However, this Agreement may be terminated by either Party upon written notification through diplomatic channels, such termination to take effect six (6) months from the date of notification. The termination of this Agreement shall not affect the application of the relevant provisions of this Agreement with respect to any administrative proceedings, investigations, prosecutions or judicial proceedings arising out of any boardings and searches conducted pursuant to this Agreement prior to such termination.

IN WITNESS WHEREOF, the undersigned, being duly authorized by their respective Governments, have signed this Agreement.

Done at the city of Santafé de Bogotá, in duplicate, on the 20th day of February, 1997, in the English and Spanish languages, each text being equally authentic.

FOR THE GOVERNMENT OF THE UNITED STATES OF AMERICA	FOR THE GOVERNMENT OF THE REPUBLIC OF COLOMBIA
Myles R. R. Frechette	María Emma Mejía

MAPS

ISLANDS CLAIMED BY NICARAGUA IN ITS 1900 NOTE WITH REGARD TO THE LOUBET AWARD

Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 25 50 75 100
Nautical Miles

0 50 100 150 200
Kilometers

Coastal information sources:
NGA nautical charts: 24480, 24490, 26050, 26060, 26070, 28050, 28110, 28120, 28130, 28140, 28150.
Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.

Prepared by: International Mapping

84°W 82°W 80°W 78°W 76°W 74°W
16°N 14°N 12°N 10°N

Cajones Is.
Cocorocuma Is.
Gorda I.
Gorda Bank
Middle Bank
Rosalind Bank
Alicia Bank
Serranilla Cay
Bajo Nuevo Cay
Barra de Caratasca
HONDURAS
15°N
Edinburgh Reef
Dacura
Miskitos Cays
Quitasueño Cay
Serrana Cay
Puerto Cabezas
Wouhnta
Roncador Cay
Santa Catalina I.
Providencia I.
Prinzapolka
NICARAGUA
Barra de Río Grande
San Andrés I.
East Southeast Cays
Punta de Perlas
Little Corn I.
Great Corn I.
Alburquerque Cays
Bluefields
Monkey Point
82°09'45.975"W
San Juan del Norte
11°N
Note: 82°09'45.975"W *of Greenwich* is equivalent to 84°30'00"W *of Paris*
Parismina
Puerto Limón
San José
COSTA RICA
Portobelo
Colón
PANAMA
Cusapin
La Ensenada
Panamá
Tubuala
Calovébora

Caribbean Sea

Paris le 22 Septembre 1900.

J'ai l'honneur de porter à la connaissance de V. E. que les îles, bancs, cayes, récifs situés dans la mer des Antilles entre le 11e et le 15e parallèles de latitude nord, à l'est de la côte Atlantique de la République de Nicaragua, et jusqu'au 84e 30' méridien de Paris, sont du domaine et propriété de la République de Nicaragua, en sont une appartenance géographique et juridictionnelle incontestable et se trouvent actuellement occupés militairement, et administrés politiquement, par les autorités de la République.

M. Cristanto Medina, Ministre de Nicaragua à Paris, à M. Delcassé, Ministre des Affaires Etrangères.

Figure R-2.1

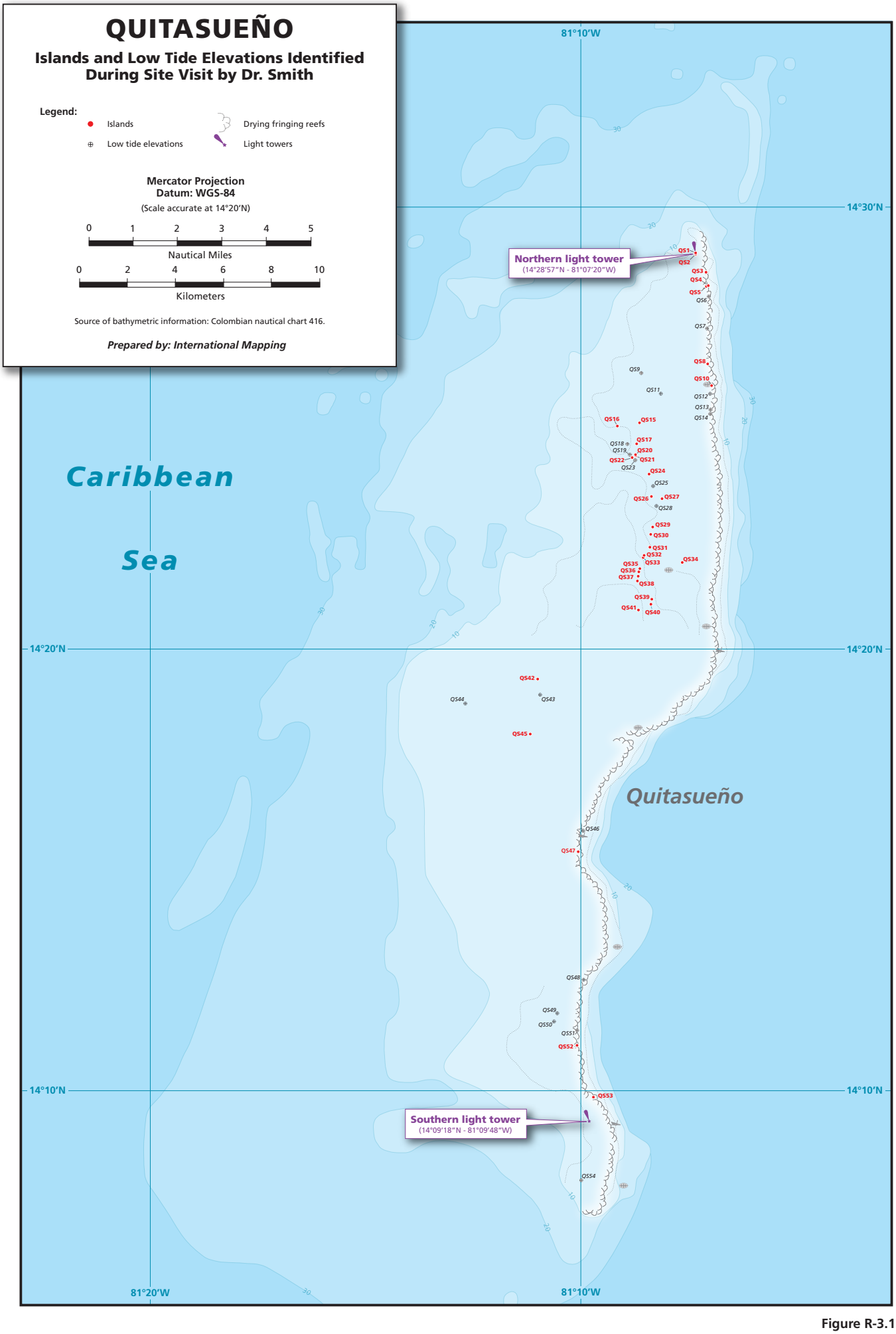

QUITASUEÑO
Islands and Low Tide Elevations Identified During Site Visit by Dr. Smith
Legend:
Islands
Low tide elevations
Drying fringing reefs
Light towers
Mercator Projection
Datum: WGS-84
(Scale accurate at 14°20'N)
0 1 2 3 4 5
Nautical Miles
0 2 4 6 8 10
Kilometers
Source of bathymetric information: Colombian nautical chart 416.
Prepared by: International Mapping
81°10'W
14°30'N
14°20'N
14°10'N
81°20'W
Northern light tower
(14°28'57"N - 81°07'20"W)
Southern light tower
(14°09'18"N - 81°09'48"W)
Caribbean
Sea
Quitasueño

Figure R-3.1

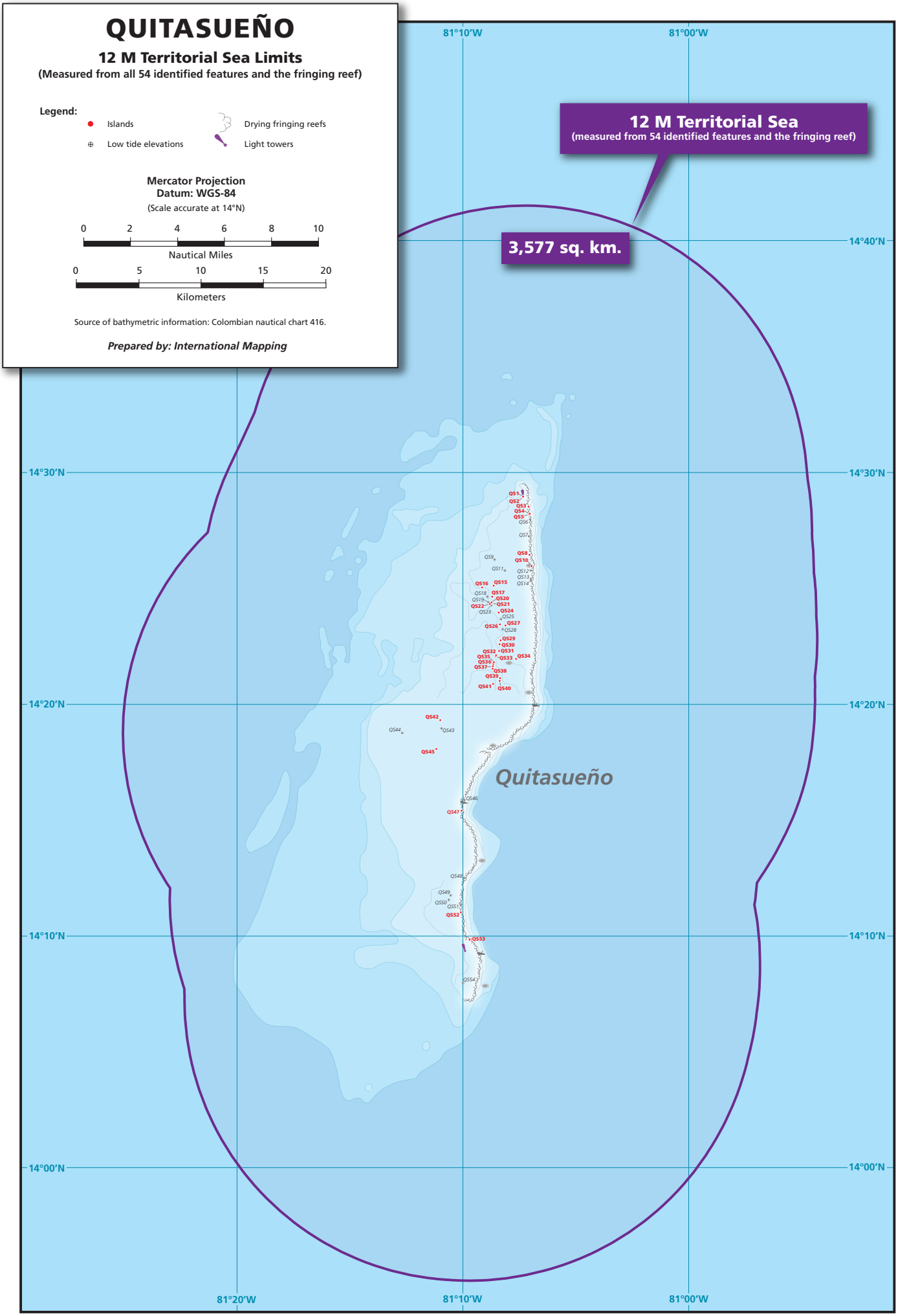

QUITASUEÑO
12 M Territorial Sea Limits
(Measured from all 54 identified features and the fringing reef)
Legend:
Islands
Low tide elevations
Drying fringing reefs
Light towers
Mercator Projection
Datum: WGS-84
(Scale accurate at 14°N)
0 2 4 6 8 10
Nautical Miles
0 5 10 15 20
Kilometers
Source of bathymetric information: Colombian nautical chart 416.
Prepared by: International Mapping
12 M Territorial Sea
(measured from 54 identified features and the fringing reef)
3,577 sq. km.
81°10'W
81°00'W
14°40'N
14°30'N
14°20'N
14°10'N
14°00'N
81°20'W
Quitasueño

Figure R-3.2

Figure I from the Nicaraguan Memorial

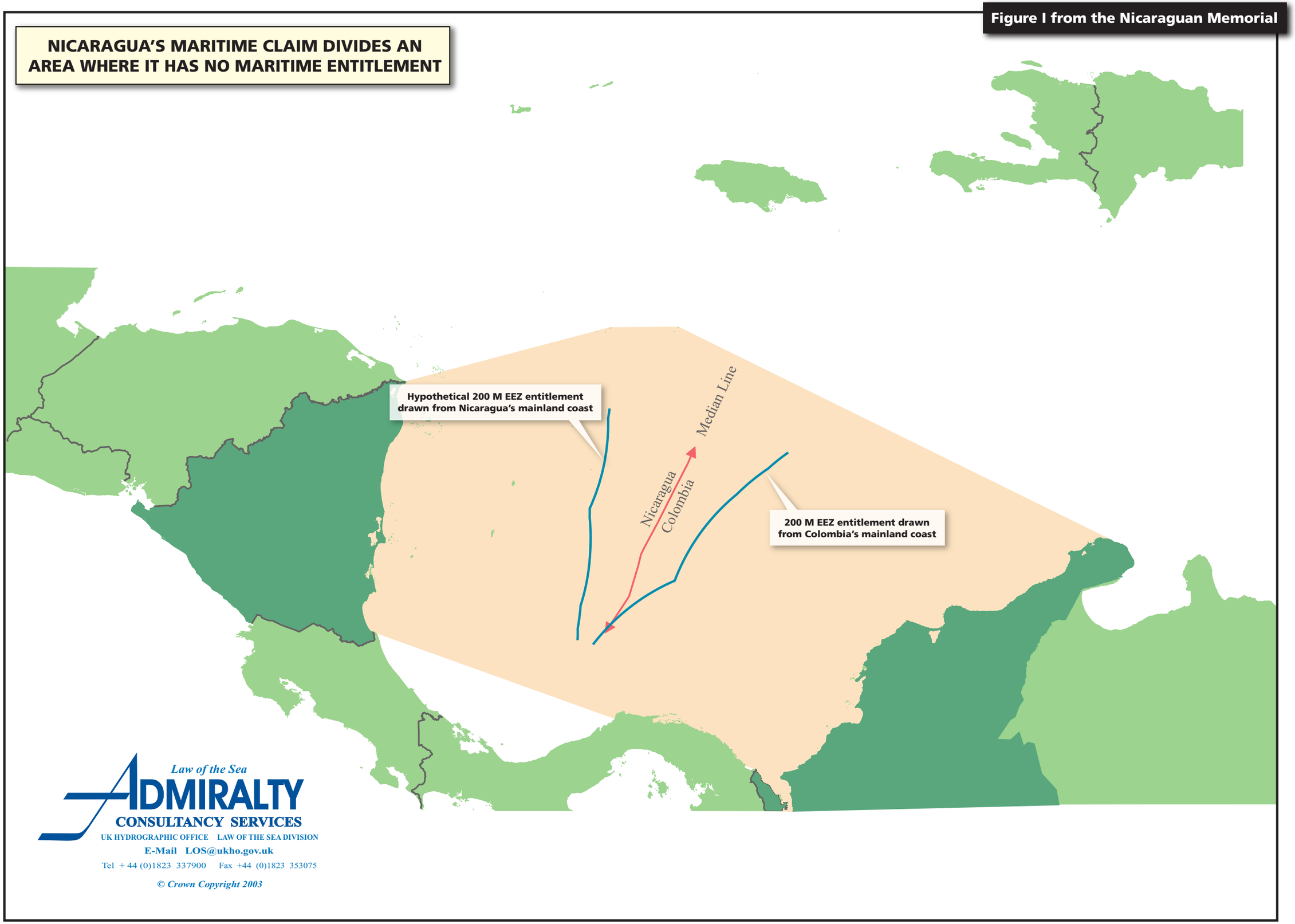


Figure R-4.1

NICARAGUA'S ENCROACHMENT ON COLOMBIA'S 200 M ENTITLEMENTS

Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 50 100 150 200
Nautical Miles

0 50 100 150 200 250 300
Kilometers

Coastal information sources:
NGA nautical charts: 24460, 24470, 24480, 24490, 26050, 26060, 26070, 28050, 28110, 28120, 28130, 28140, 28150.
Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.

Prepared by: International Mapping

26.8 M

36.2 M

69.5 M

80.6 M

Nicaragua's new extended Continental Shelf claim

Colombia's 200 M Entitlements

Area of overlapping continental margins

Continental Shelf Limits (according to article 76)
Nicaragua
Colombia
Area of overlapping margins
Colombia's 200M(EEZ) limit

Figure 3.10 from the Nicaraguan Reply

Figure R-4.2

NICARAGUA'S CLAIMS: ONE MORE EXTREME THAN THE OTHER

FIGURE 3-11

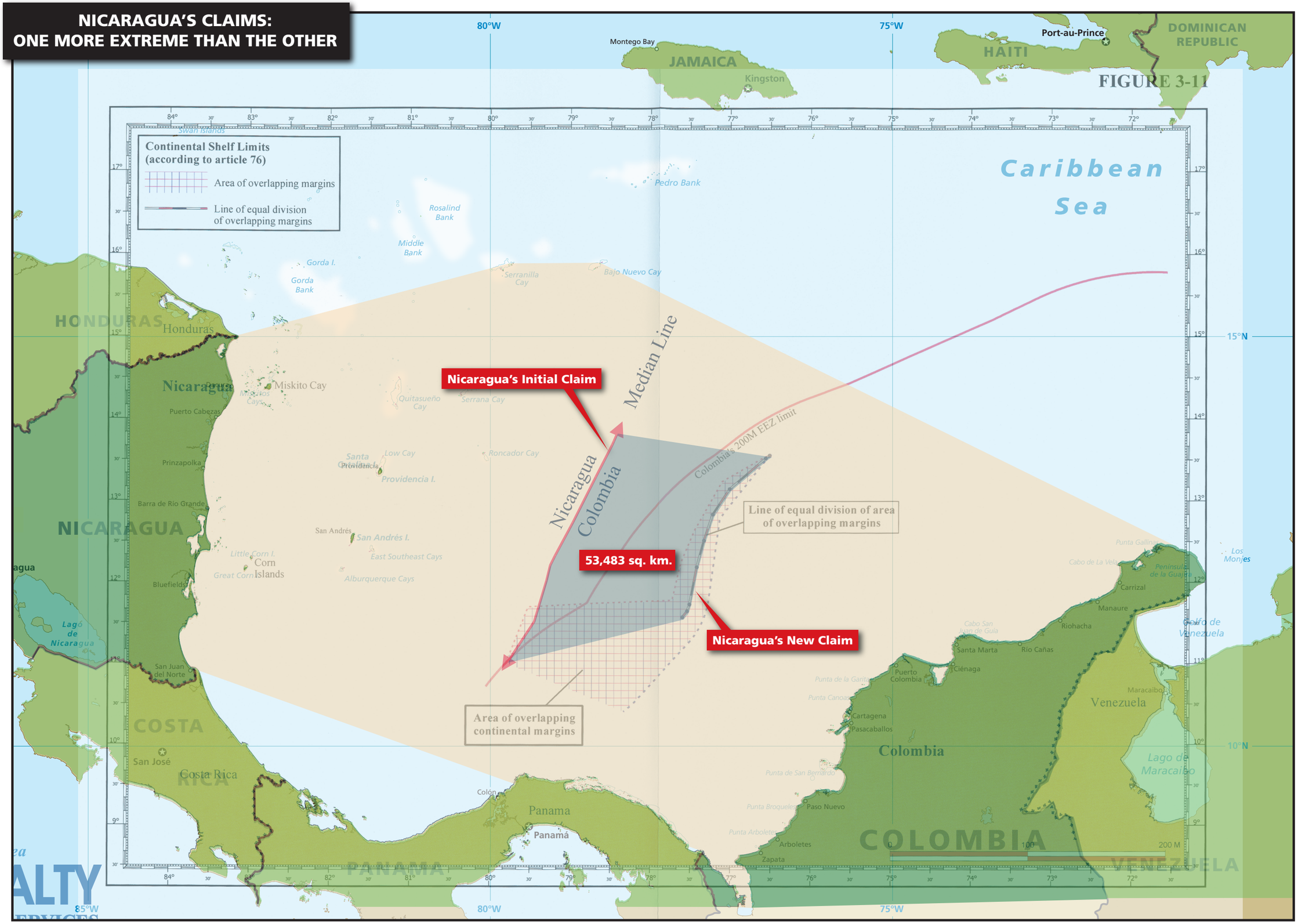


Figure R-4.3

200 M MARITIME ENTITLEMENTS COMPLETELY OVERLAP IN THE WESTERN CARIBBEAN

Mercator Projection
Datum: WGS-84
(Scale accurate at 15°N)

0 50 100 150 200
Nautical Miles

0 50 100 150 200 250 300
Kilometers

Prepared by: International Mapping

Colombian Island's 200 M reach

Jamaica's 200 M reach

Colombia Mainland 200 M reach

Panama's 200 M reach

80°W

15°N

10°N

85°W

75°W

JAMAICA
Montego Bay
Kingston

HONDURAS
Dacura
Puerto Cabezas
Prinzapolka
Barra de Río Grande

NICARAGUA
Managua
Bluefields
Lagó de Nicaragua
San Juan del Norte

COSTA RICA
San José

PANAMA
Colón
Panamá

COLOMBIA
Punta de la Garita
Punta Canoas
Cartagena
Pasacaballos
Punta de San Bernardo
Punta Broqueles
Paso Nuevo
Punta Arboletes
Arboletes
Zapata
Puerto Colombia
Ciénaga
Santa Marta
Río Cañas
Cabo San Juan de Guía
Riohacha
Manaure
Carrizal
Cabo de La Vela
Punta Gallinas
Península de la Guajira
Golfo de Venezuela
Maracaibo
Lago de Maracaibo

VENEZUELA

Caribbean Sea

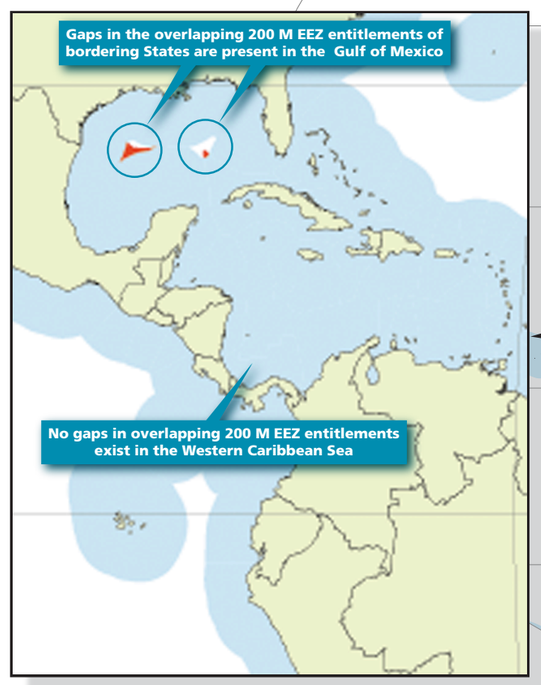
Figure R-4.4

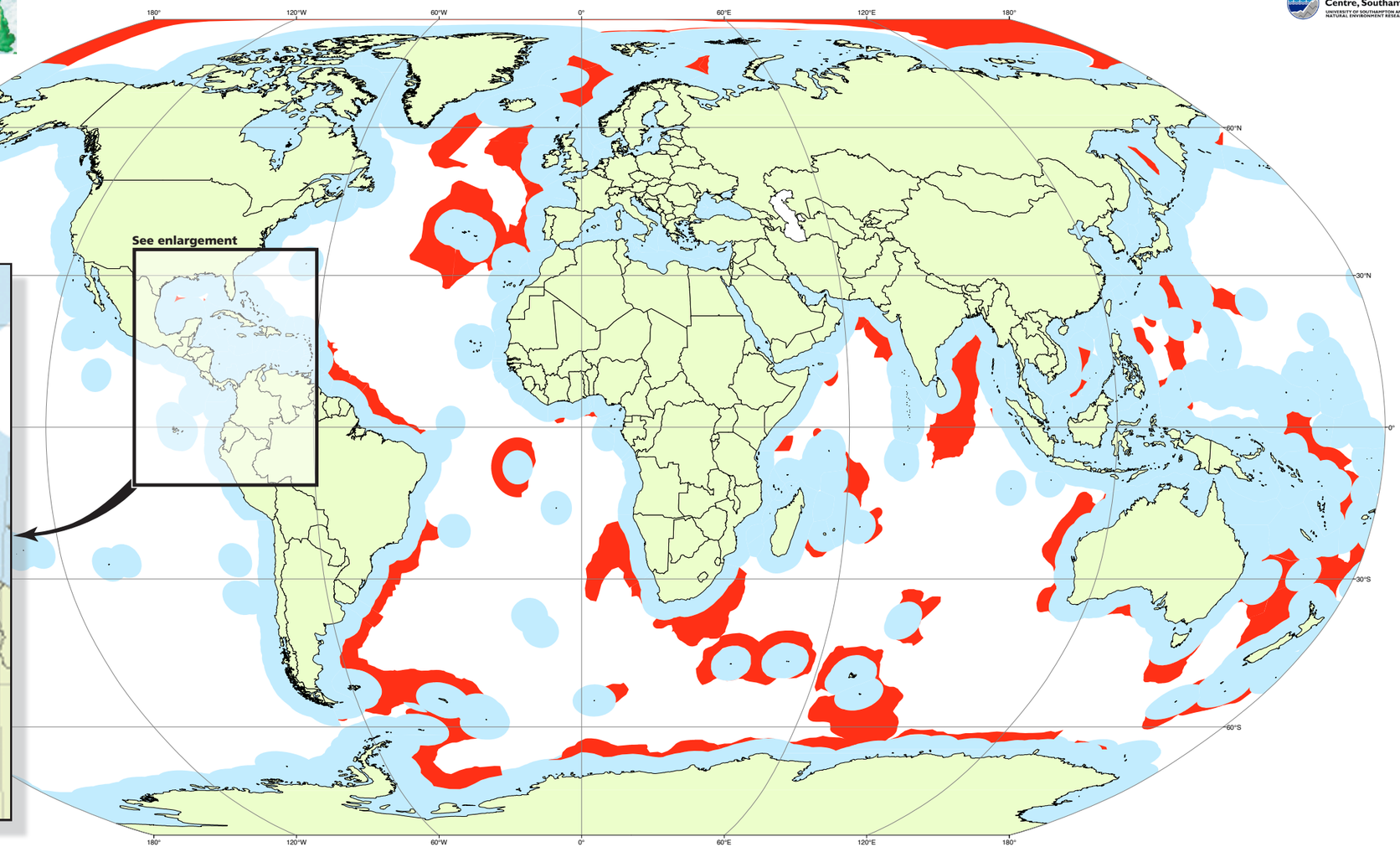
National Oceanography Centre, Southampton
UNIVERSITY OF SOUTHAMPTON AND NATURAL ENVIRONMENT RESEARCH COUNCIL

UNCLOS *UK*



National Oceanography Centre, Southampton
UNIVERSITY OF SOUTHAMPTON AND NATURAL ENVIRONMENT RESEARCH COUNCIL





Continental shelf areas beyond 200 nautical miles
200 nautical mile maritime zones

Continental shelf areas identified in submissions to the UN, as of 10th June 2009

www.unclosuk.org

Areas of continental shelf beyond 200 nautical miles identified in submissions made by coastal states under Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS)1, as of 10th June 2009.

The outer limits of the continental shelf areas identified in the executive summaries of 51 submissions delivered to the Division of Oceans and the Law of the Sea (DOALOS)2 at the UN as of 10th June 2009 have been digitally compiled and are illustrated in red on the accompanying map. The pale blue sections correspond to areas within 200 nautical miles of States' baselines – many of which have been designated as Exclusive Economic Zones (EEZs) under UNCLOS.

In addition to the full continental shelf submissions received by DOALOS before 13th May 20093 (the deadline for 129 of the 158 States Parties to the Convention), and 1 further submission made by Cuba on the 1st June, 42 additional sets of documentation were received in the form of preliminary information indicative of the potential outer limits of continental shelf invoking the special arrangements for, in particular, developing coastal states intending to make a submission but unable to meet the deadline4. Some of these additional areas are less precisely constrained than those for the full submissions, but summaries of these will be added to the current map as soon as practical. All documents relating to these cases are available at the DOALOS website.

The rationale behind all of the submissions lies in the provisions of article 76 of UNCLOS, whereby coastal states demonstrating natural prolongation of land territory as submarine areas of their continental shelf can legally delineate these by outer limit points calculated on the basis of combinations of geomorphologic and geologic characteristics of the seafloor5.

Each of the cases submitted will be examined in the order that they were deposited at the UN by the Commission on the Limits of the Continental shelf (CLCS), a body set up under the Convention and drawing on technical experts in marine geosciences from around the world. Once each case has been assessed for compliance with the provision of article 76, the CLCS will issue recommendations regarding the outer limits of the shelf areas, and, following coastal states acceptance of these recommendations, these can be established by the coastal state as final and binding. The areas of extended continental shelf currently cover a total of approximately 23.8 million square kilometers. It is estimated that areas identified in the preliminary information documentation to date may cover a further area of several million square kilometers of continental shelf beyond 200 nautical miles. These figures can be compared with estimates of approximately 70 million square kilometers of the world's oceans lying within 200 nautical miles of coastal states baselines.

Twenty-nine of the 158 coastal states who have ratified the Convention have a submission deadline of ten years after their ratification date, although some of these have already delivered partial submissions, or preliminary indicative information, relating to continental shelf areas pending formal submissions6. Of the 16 states which have yet to ratify the Convention, the USA is undoubtedly that with the largest potential continental shelf under article 76 of UNCLOS – but the full extent of this can only be speculated upon, at this point.

Many parts of the extended continental shelf are included in more than one submission, where neighbouring or adjacent States consider that their seafloor conditions make them each equally compliant with the criteria in UNCLOS used to define juridical continental shelf areas. Some of these overlap areas have resulted in the issuing of dispute notices to the UN, while others are the subject of mutual non-objection agreements, and others still have been resolved by the submission of joint cases, presented by two or more coastal states7. These coordination initiatives will enable the CLCS process to continue examining these cases, which would otherwise be required to be halted, as The Commission has no mandate to work on submissions where a dispute has been recognized8.

Once the outer limit of the continental shelf has been established by the coastal state, it can exercise its sovereign rights for the purpose of exploring and exploiting its natural resources. These comprise mineral resources and other non-living resources of the seabed and subsoil, along with sedentary living organisms.

Footnotes:
*1 – www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm
*2 - www.un.org/Depts/los/index.htm
*3 – www.un.org/Depts/los/clcs_new/commission_submissions.htm
*4 - http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm
*5 - http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf
*6 – http://www.un.org/Depts/los/reference_files/status2008.pdf
*7 – For example: France, Ireland, Spain and the United Kingdom; Mauritius and Seychelles; Federated States of Micronesia, Papua New Guinea and the Solomon Islands; Malaysia and Vietnam; France and South Africa.
*8 – Article 9 of Annex II of The Convention (see footnote 1)

Figure R-4.5

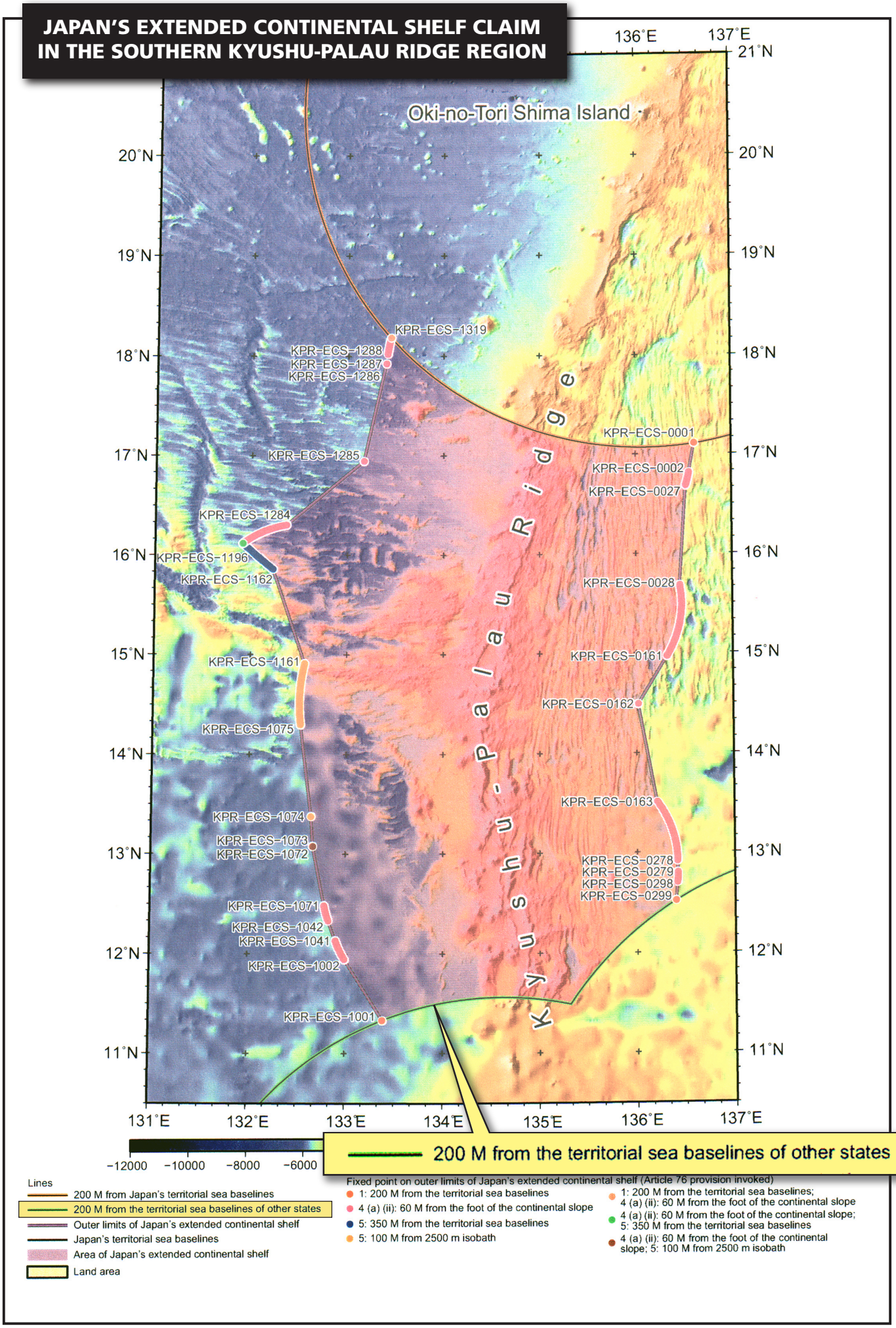

JAPAN'S EXTENDED CONTINENTAL SHELF CLAIM
IN THE SOUTHERN KYUSHU-PALAU RIDGE REGION
Oki-no-Tori Shima Island
Kyushu - Palau Ridge
KPR-ECS-1319
KPR-ECS-1288
KPR-ECS-1287
KPR-ECS-1286
KPR-ECS-1285
KPR-ECS-1284
KPR-ECS-1196
KPR-ECS-1162
KPR-ECS-1161
KPR-ECS-1075
KPR-ECS-1074
KPR-ECS-1073
KPR-ECS-1072
KPR-ECS-1071
KPR-ECS-1042
KPR-ECS-1041
KPR-ECS-1002
KPR-ECS-1001
KPR-ECS-0001
KPR-ECS-0002
KPR-ECS-0027
KPR-ECS-0028
KPR-ECS-0161
KPR-ECS-0162
KPR-ECS-0163
KPR-ECS-0278
KPR-ECS-0279
KPR-ECS-0298
KPR-ECS-0299
136°E
137°E
21°N
20°N
19°N
18°N
17°N
16°N
15°N
14°N
13°N
12°N
11°N
131°E
132°E
133°E
134°E
135°E
136°E
137°E
−12000
−10000
−8000
−6000
200 M from the territorial sea baselines of other states
Lines
200 M from Japan's territorial sea baselines
200 M from the territorial sea baselines of other states
Outer limits of Japan's extended continental shelf
Japan's territorial sea baselines
Area of Japan's extended continental shelf
Land area
Fixed point on outer limits of Japan's extended continental shelf (Article 76 provision invoked)
1: 200 M from the territorial sea baselines
4 (a) (ii): 60 M from the foot of the continental slope
5: 350 M from the territorial sea baselines
5: 100 M from 2500 m isobath
1: 200 M from the territorial sea baselines; 4 (a) (ii): 60 M from the foot of the continental slope
4 (a) (ii): 60 M from the foot of the continental slope; 5: 350 M from the territorial sea baselines
4 (a) (ii): 60 M from the foot of the continental slope; 5: 100 M from 2500 m isobath

Figure R-4.6

NEW CALEDONIA'S EXTENDED CONTINENTAL SHELF CLAIM IN THE LOYALTY RIDGE & LORD HOWE RISE REGIONS

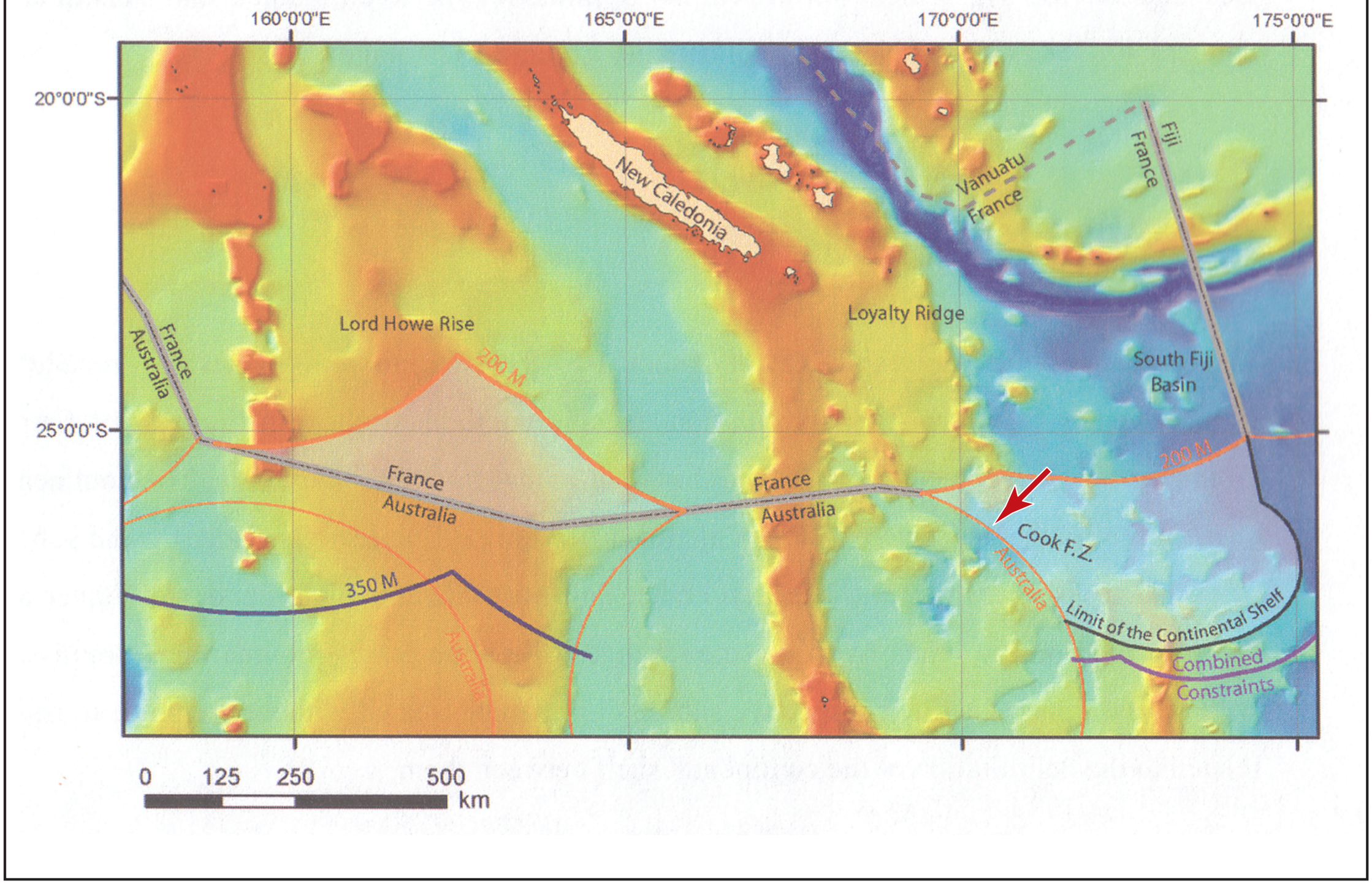


Figure R-4.7

NEW ZEALAND'S EXTENDED CONTINENTAL SHELF CLAIM DOES NOT TRESPASS INTO THE 200 M EEZ ENTITLEMENTS OF NEIGHBORING STATES

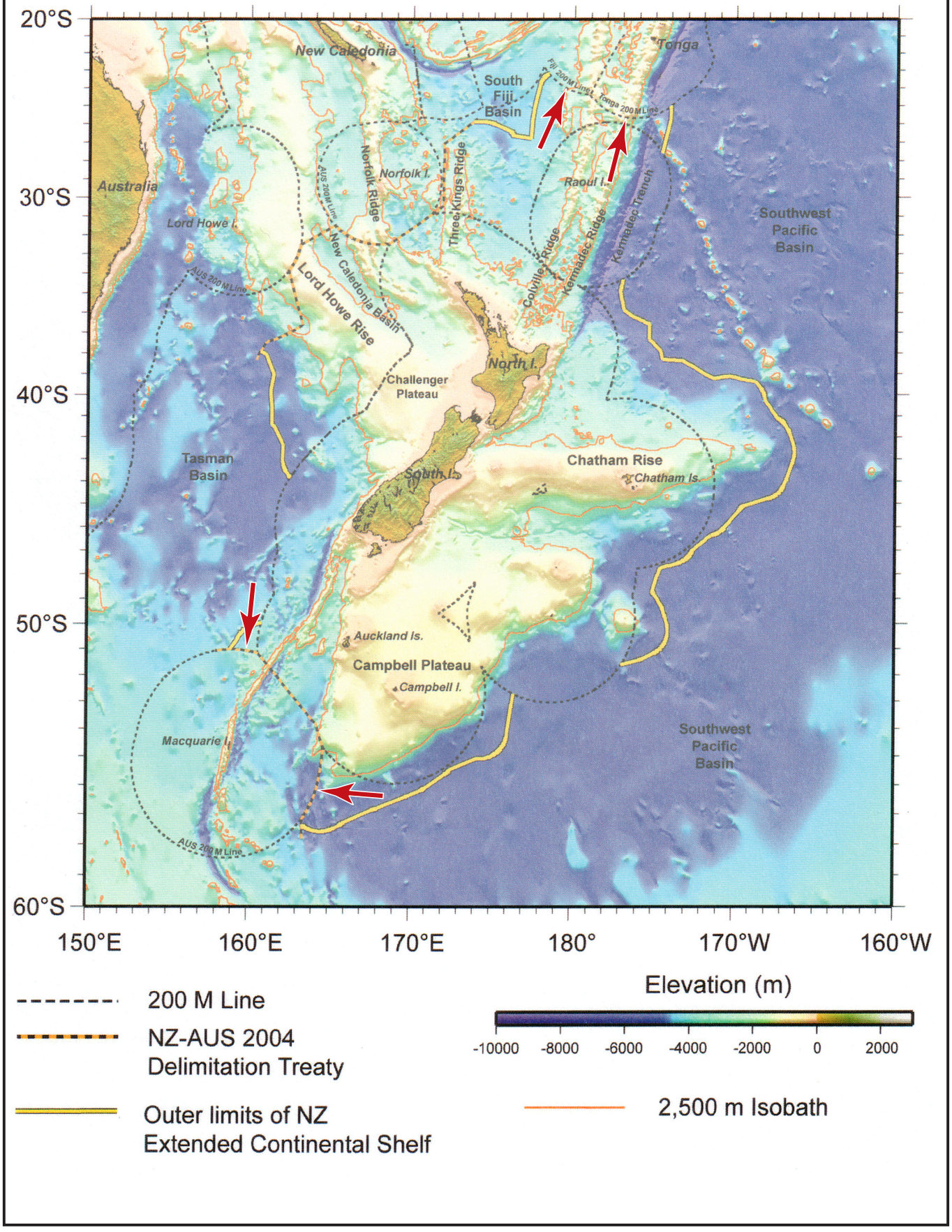


Figure R-4.8

SRI LANKA'S EXTENDED CONTINENTAL SHELF CLAIM DOES NOT TRESPASS INTO THE 200 M EEZ ENTITLEMENTS OF NEIGHBORING STATES

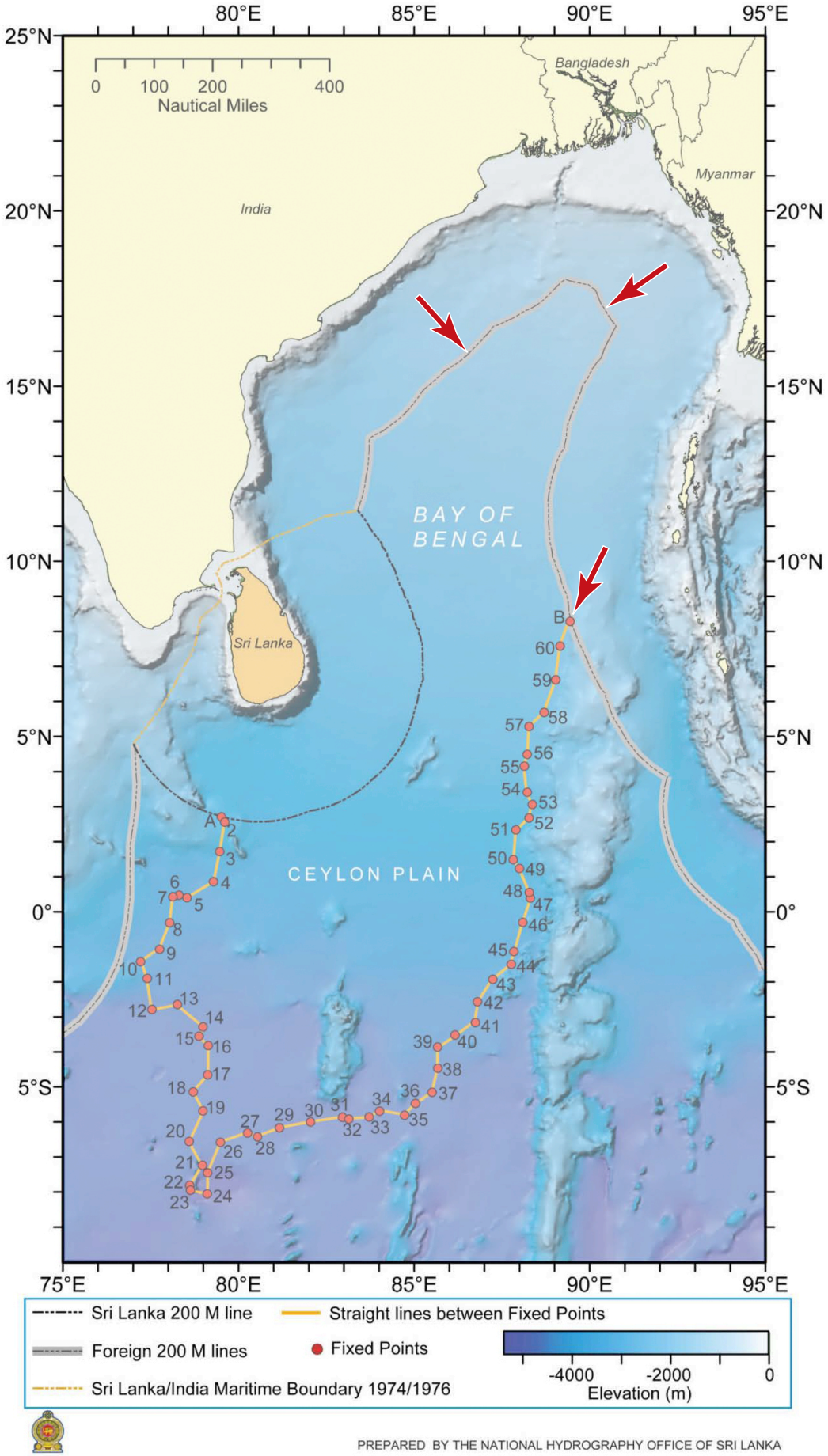


Figure R-4.9

FRANCE, UNITED KINGDOM, SPAIN, & IRELAND'S EXTENDED CONTINENTAL SHELF CLAIM IN THE CELTIC SEA & BAY OF BISCAY AREA

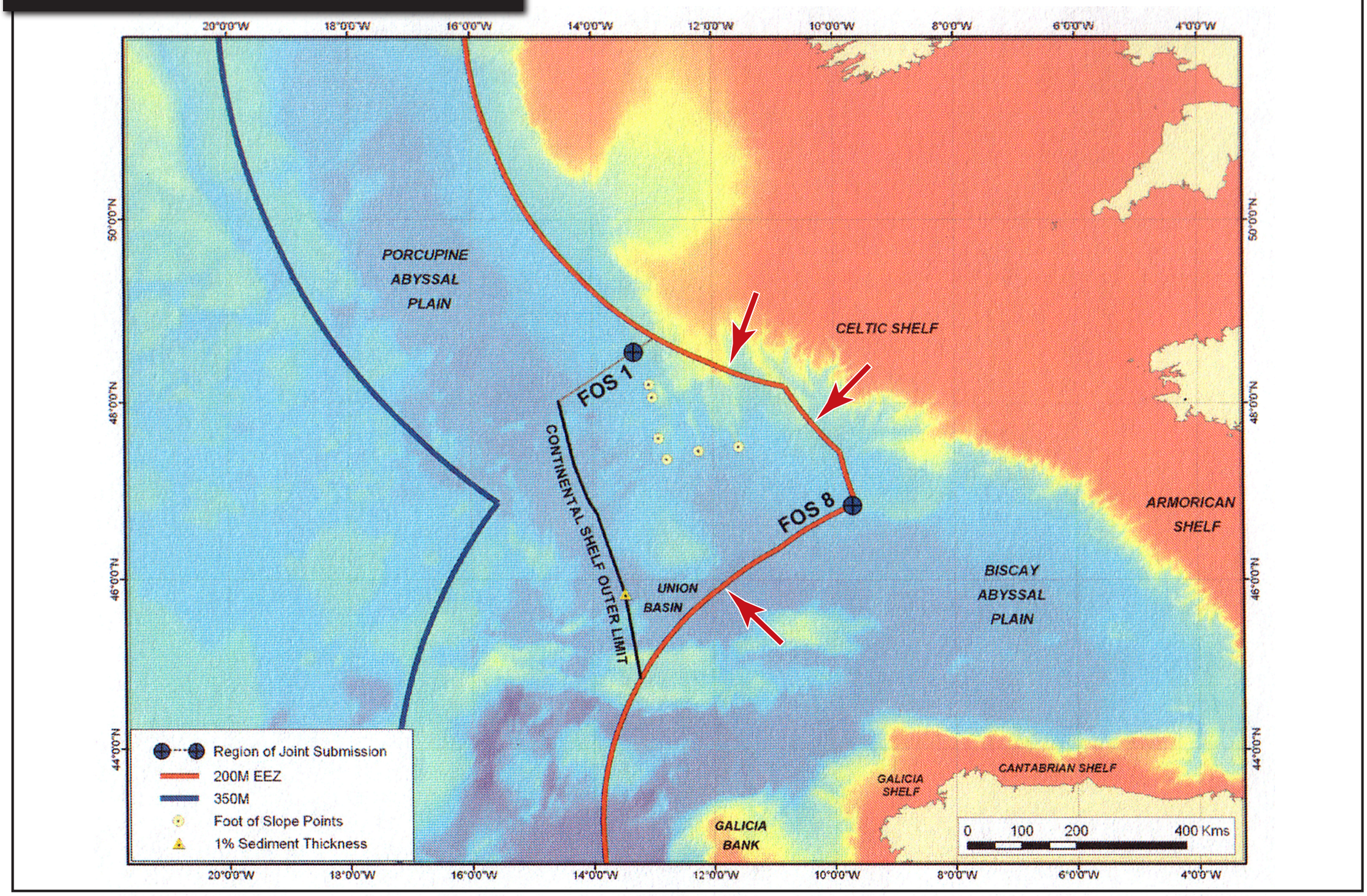
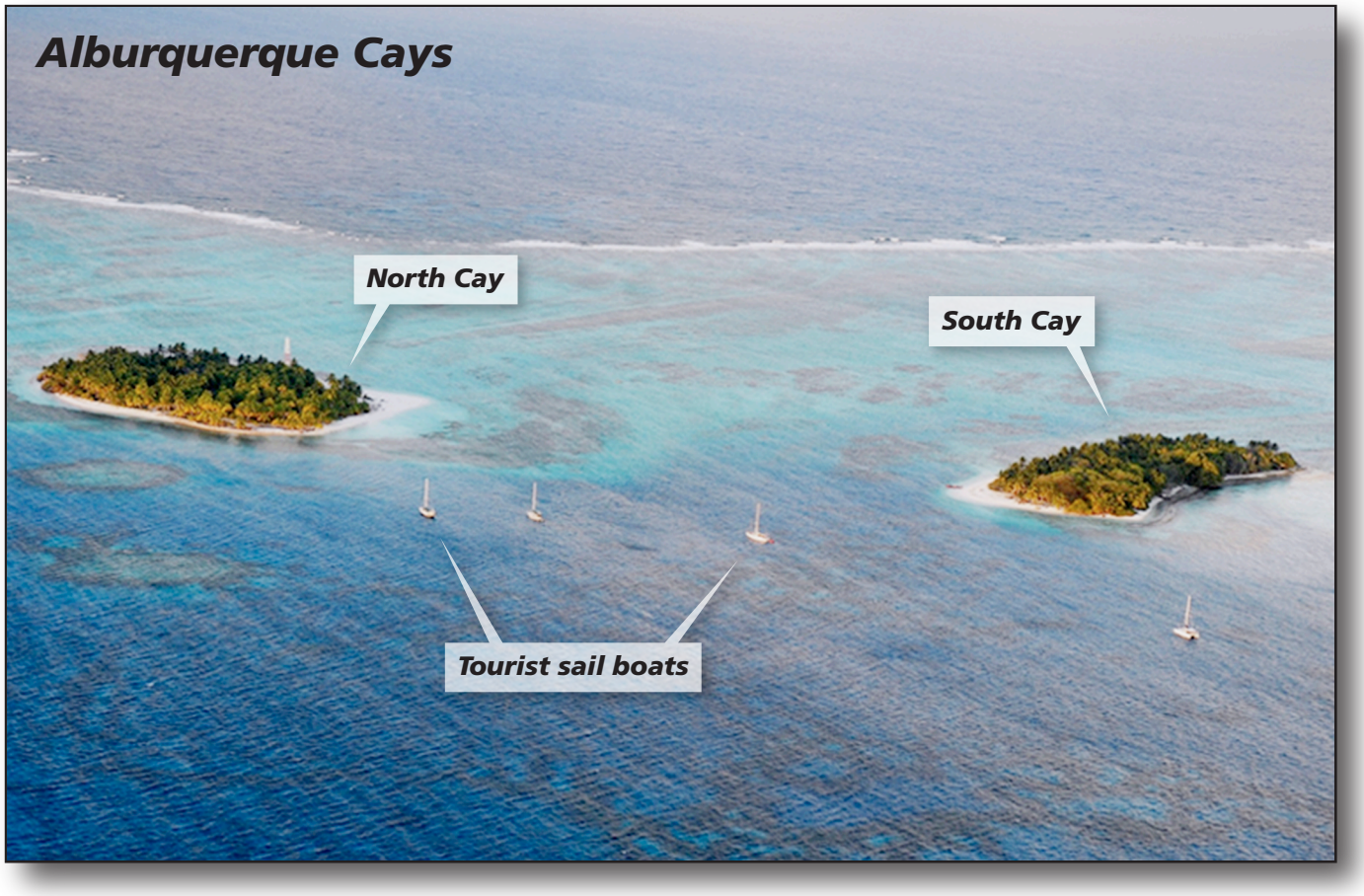


Figure R-4.10


Alburquerque Cays
North Cay
South Cay
Tourist sail boats


Serrana Cay
Fringing Reef

Figure R-5.1A


Roncador Cay
Military Installation


East-Southeast Cays
Middle Cay
East Cay
Middle Cay's Helipad and Radio Tower

Figure R-5.1B


Serranilla Cay
Lighthouse
Colombian Marine Infantry


Bajo Nuevo Cay
Light Tower

Figure R-5.1C





Figure R-5.1D





Figure R-5.1E

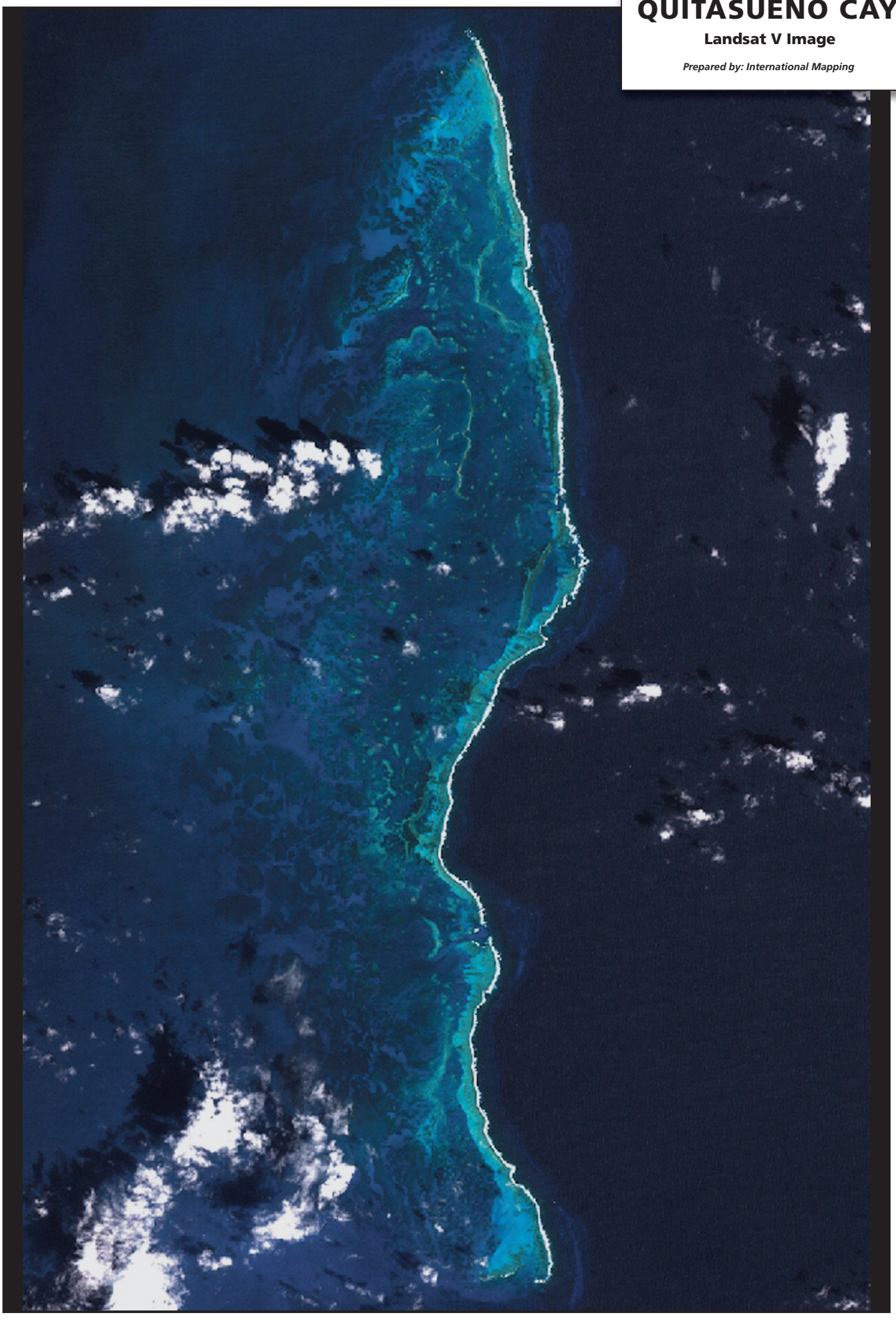

QUITASUEÑO CAY
Landsat V Image
Prepared by: International Mapping

Figure R-5.2

200 M MARITIME ENTITLEMENTS OF COLOMBIA'S ISLANDS

Mercator Projection
Datum: WGS-84
(Scale accurate at 15°N)

0 50 100 150 200
Nautical Miles

0 50 100 150 200 250 300
Kilometers

Prepared by: International Mapping

80°W
75°W
85°W
15°N
10°N
Montego Bay
JAMAICA
Kingston
Port-au-Prince
HAITI
DOMINICAN REPUBLIC
200 M limit measured from Colombia's Islands
Pedro Bank
Rosalind Bank
Middle Bank
Gorda I.
Gorda Bank
Serranilla Cay
Bajo Nuevo Cay
Caribbean Sea
HONDURAS
Dacura
Miskitos Cays
Puerto Cabezas
Quitasueño Cay
Serrana Cay
Prinzapolka
Santa Catalina I.
Low Cay
Providencia I.
Roncador Cay
Barra de Río Grande
NICARAGUA
San Andrés I.
Little Corn I.
East Southeast Cays
Great Corn I.
Alburquerque Cays
Managua
Bluefields
Lagó de Nicaragua
San Juan del Norte
COSTA RICA
San José
Colón
Panamá
PANAMA
Punta Gallinas
Los Monjes
Cabo de La Vela
Península de la Guajira
Carrizal
Manaure
Riohacha
Cabo San Juan de Guia
Golfo de Venezuela
Santa Marta
Río Cañas
Ciénaga
Puerto Colombia
Punta de la Garita
Punta Canoas
Maracaibo
Cartagena
Pasacaballos
Lago de Maracaibo
Punta de San Bernardo
Punta Broqueles
Paso Nuevo
Punta Arboletes
Arboletes
Zapata
COLOMBIA
VENEZUELA

Figure R-5.3

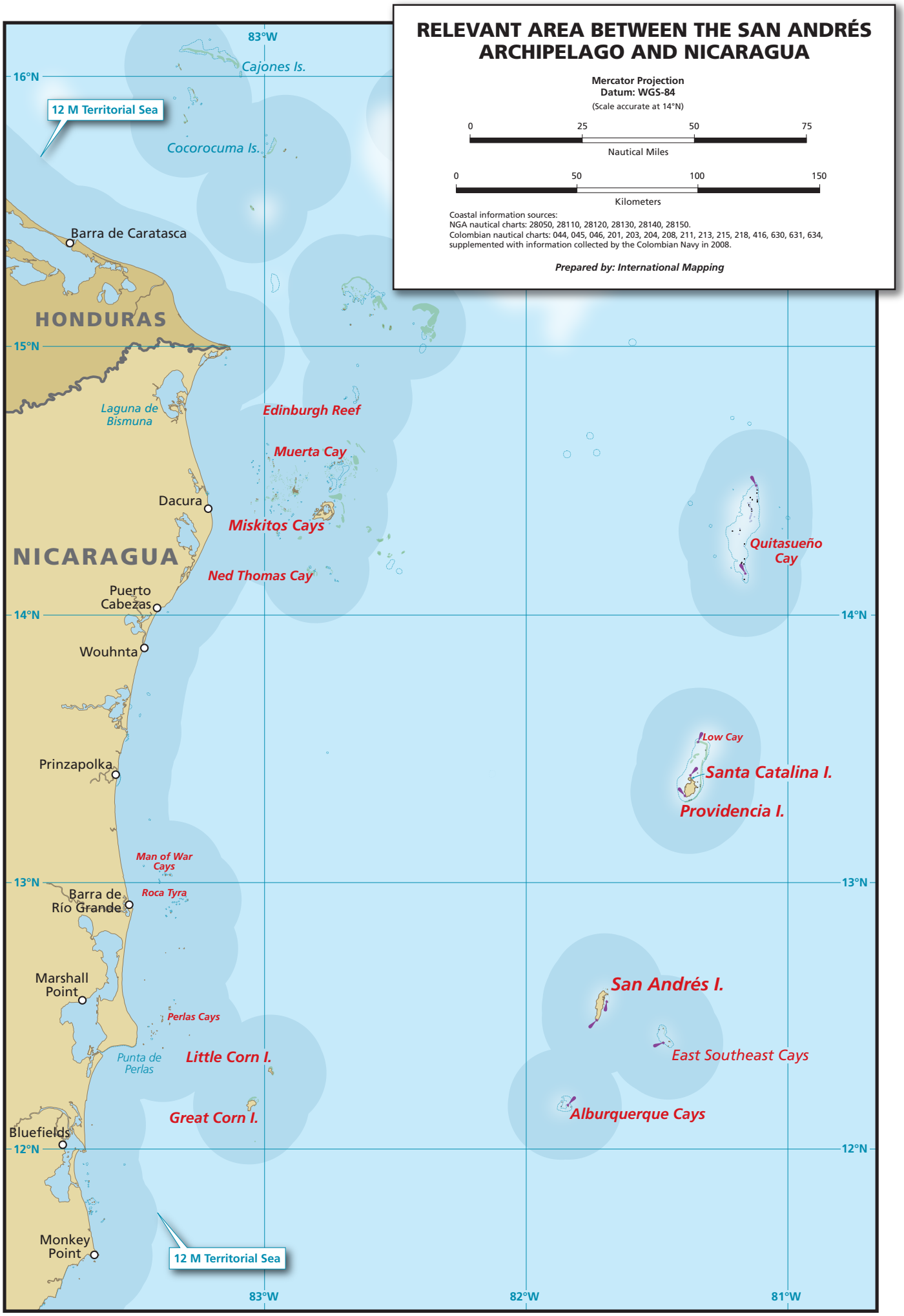
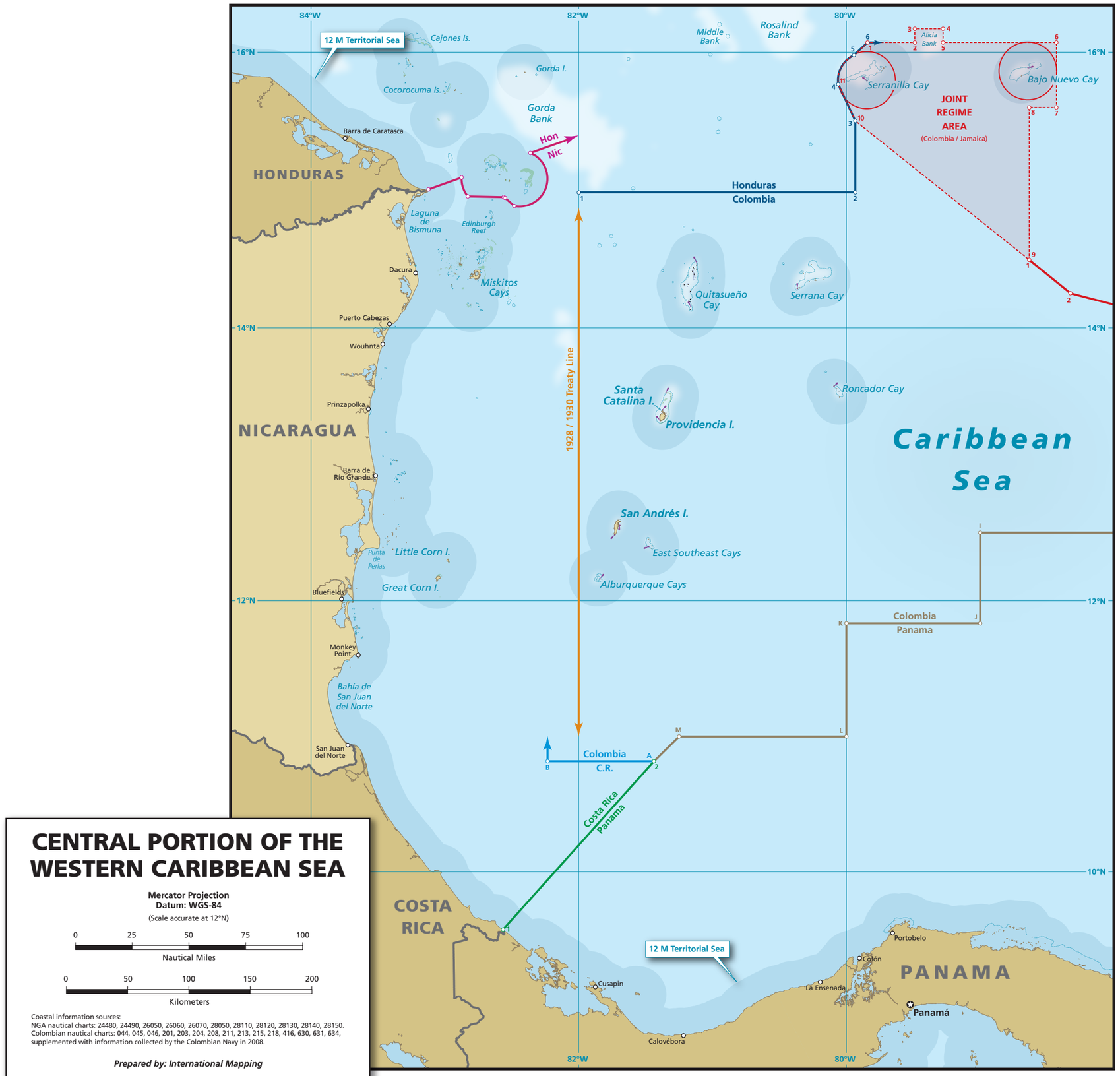

RELEVANT AREA BETWEEN THE SAN ANDRÉS ARCHIPELAGO AND NICARAGUA
Mercator Projection
Datum: WGS-84
(Scale accurate at 14°N)
0 25 50 75
Nautical Miles
0 50 100 150
Kilometers
Coastal information sources:
NGA nautical charts: 28050, 28110, 28120, 28130, 28140, 28150.
Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.
Prepared by: International Mapping
83°W
16°N
15°N
14°N
13°N
12°N
82°W
81°W
12 M Territorial Sea
Cajones Is.
Cocorocuma Is.
Barra de Caratasca
HONDURAS
Laguna de Bismuna
Edinburgh Reef
Muerta Cay
Dacura
Miskitos Cays
NICARAGUA
Ned Thomas Cay
Quitasueño Cay
Puerto Cabezas
Wouhnta
Low Cay
Santa Catalina I.
Providencia I.
Prinzapolka
Man of War Cays
Roca Tyra
Barra de Río Grande
Marshall Point
San Andrés I.
Perlas Cays
East Southeast Cays
Punta de Perlas
Little Corn I.
Great Corn I.
Alburquerque Cays
Bluefields
Monkey Point
12 M Territorial Sea

Figure R-5.4



CENTRAL PORTION OF THE WESTERN CARIBBEAN SEA

Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 25 50 75 100
Nautical Miles

0 50 100 150 200
Kilometers

Coastal information sources:
NGA nautical charts: 24480, 24490, 26050, 26060, 26070, 28050, 28110, 28120, 28130, 28140, 28150.
Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.

Prepared by: International Mapping

Figure R-5.5

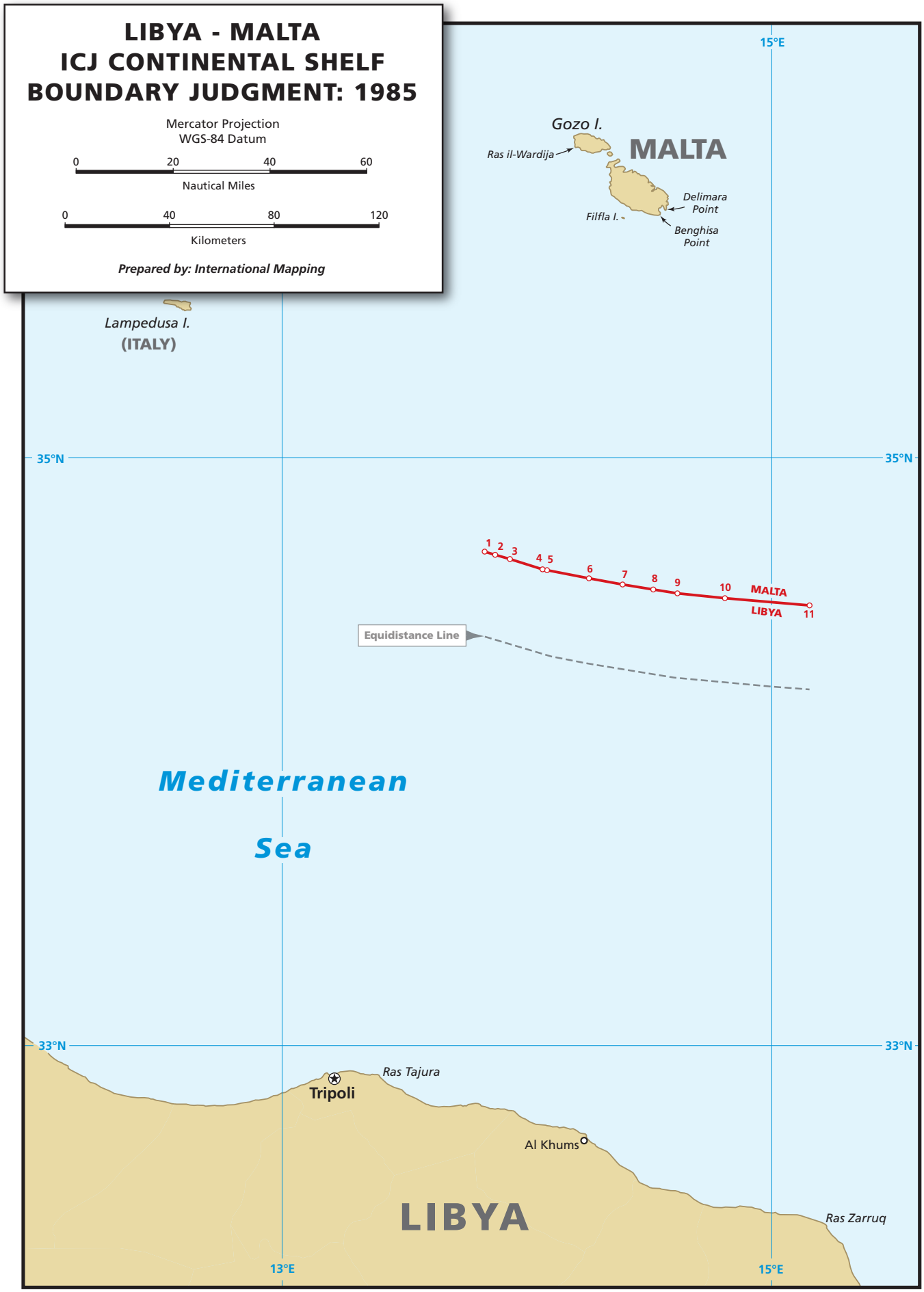

LIBYA - MALTA
ICJ CONTINENTAL SHELF
BOUNDARY JUDGMENT: 1985
Mercator Projection
WGS-84 Datum
0 20 40 60
Nautical Miles
0 40 80 120
Kilometers
Prepared by: International Mapping
15°E
Gozo I.
MALTA
Ras il-Wardija
Delimara Point
Filfla I.
Benghisa Point
Lampedusa I.
(ITALY)
35°N
35°N
1 2 3 4 5 6 7 8 9 10 MALTA
LIBYA 11
Equidistance Line
Mediterranean
Sea
33°N
33°N
Ras Tajura
Tripoli
Al Khums
LIBYA
Ras Zarruq
13°E
15°E

Figure R-6.1

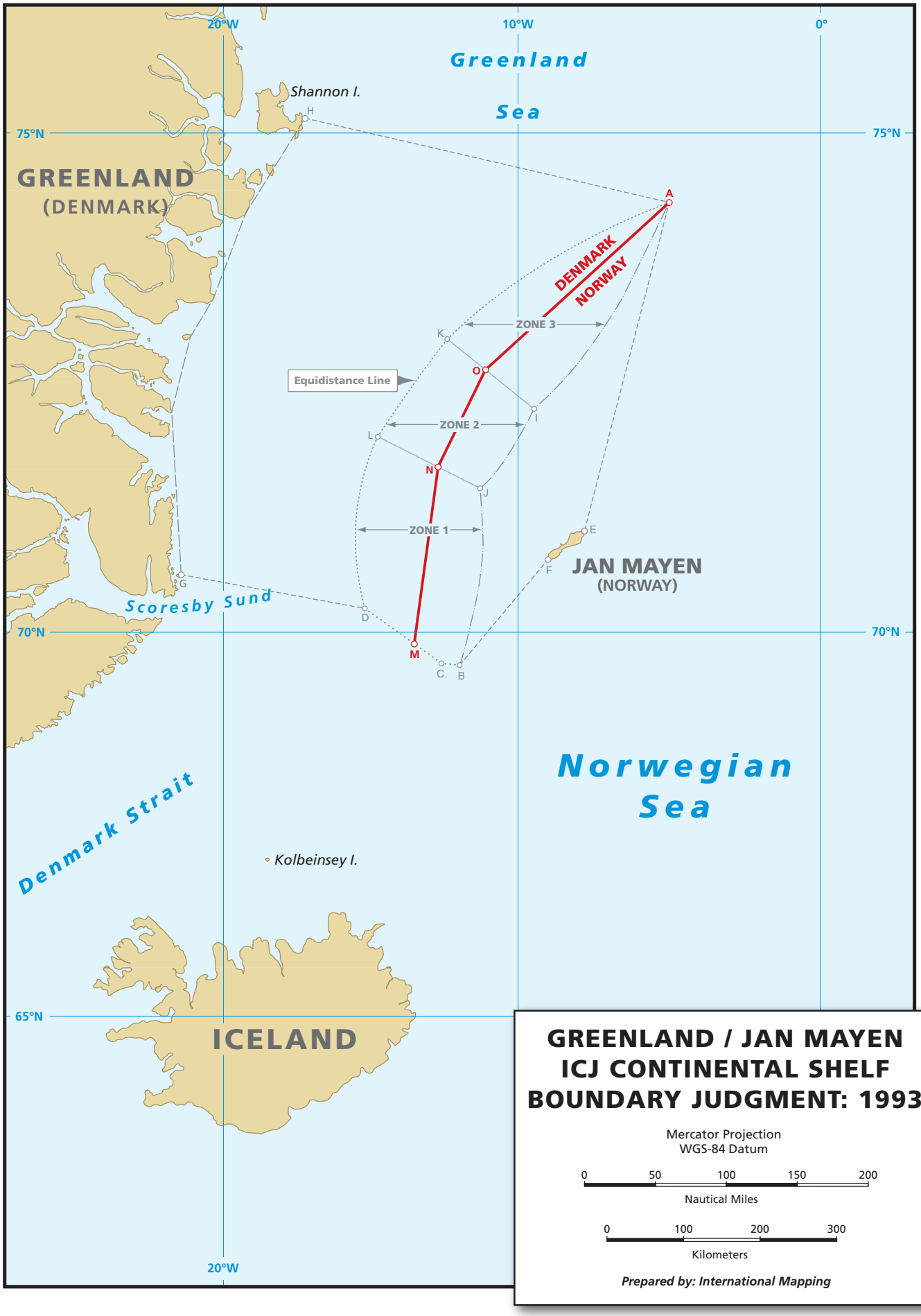
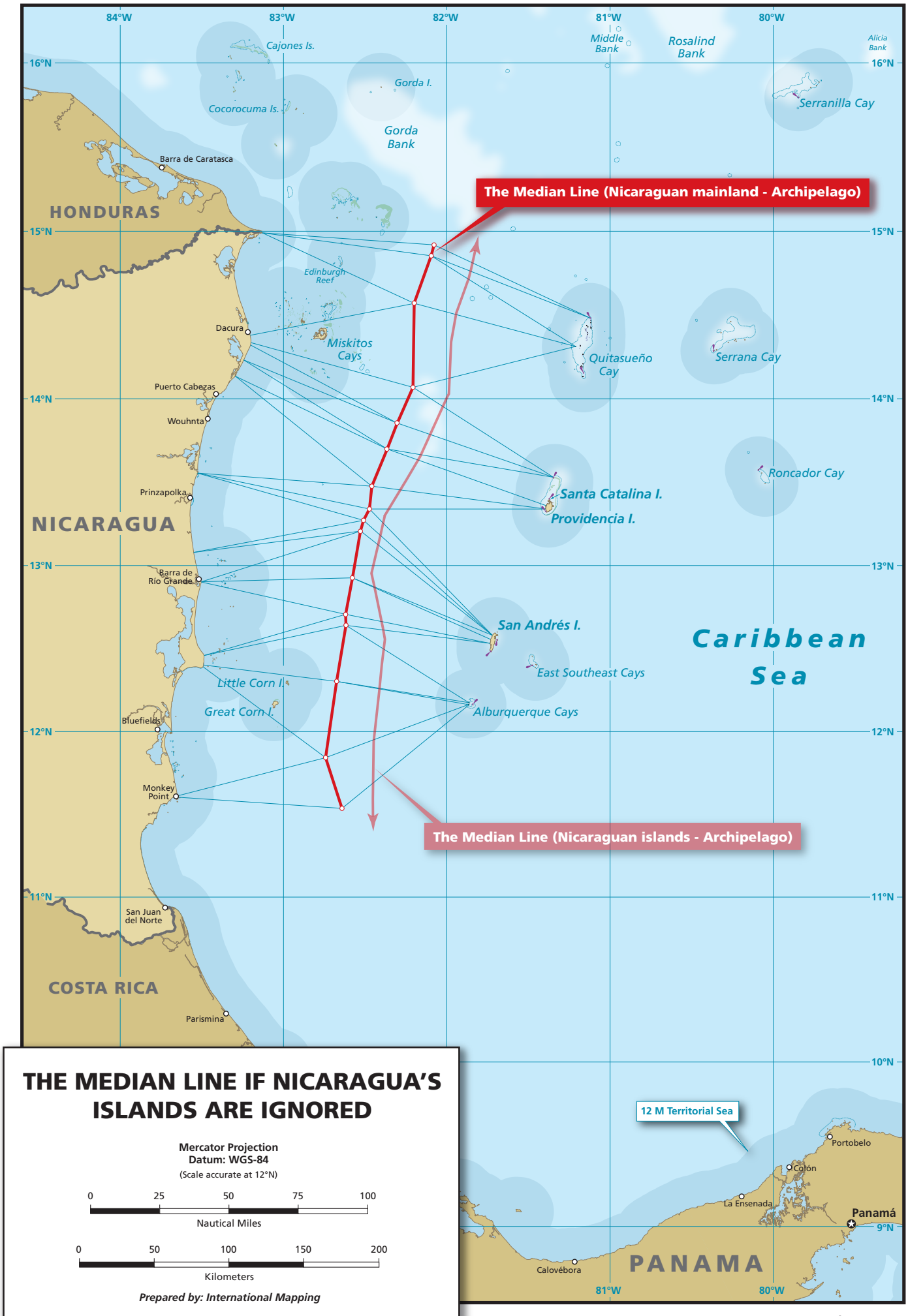

20°W
10°W
0°
Greenland
Sea
Shannon I.
75°N
GREENLAND
(DENMARK)
DENMARK
NORWAY
ZONE 3
ZONE 2
ZONE 1
Equidistance Line
A
H
K
O
I
L
N
J
E
F
G
D
M
C
B
JAN MAYEN
(NORWAY)
Scoresby Sund
70°N
Norwegian
Sea
Denmark Strait
Kolbeinsey I.
ICELAND
65°N
20°W
GREENLAND / JAN MAYEN
ICJ CONTINENTAL SHELF
BOUNDARY JUDGMENT: 1993
Mercator Projection
WGS-84 Datum
0 50 100 150 200
Nautical Miles
0 100 200 300
Kilometers
Prepared by: International Mapping

Figure R-6.2


84°W
83°W
82°W
81°W
80°W
16°N
15°N
14°N
13°N
12°N
11°N
10°N
9°N
Cajones Is.
Cocorocuma Is.
Gorda I.
Gorda Bank
Middle Bank
Rosalind Bank
Alicia Bank
Serranilla Cay
HONDURAS
Laguna de Bismuna
Edinburgh Reef
Muerto Cay
Miskitos Cays
Ned Thomas Cay
Dacura
Puerto Cabezas
Wouhnta
Quitasueño Cay
Serrana Cay
Roncador Cay
Santa Catalina I.
Providencia I.
The Median Line
Prinzapolka
NICARAGUA
Roca Tyra
Barra de Rio Grande
San Andrés I.
Caribbean Sea
Little Corn I.
East Southeast Cays
Great Corn I.
Alburquerque Cays
Bluefields
Monkey Point
San Juan del Norte
COSTA RICA
Parismina
12 M Territorial Sea
Portobelo
Colón
La Ensenada
Panamá
Cusapin
Golfo de los Mosquitos
Calovébora
PANAMA
THE MEDIAN LINE
Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)
0 25 50 75 100
Nautical Miles
0 50 100 150 200
Kilometers
Prepared by: International Mapping

Figure R-6.3



THE MEDIAN LINE IF NICARAGUA'S ISLANDS ARE IGNORED

Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 25 50 75 100
Nautical Miles

0 50 100 150 200
Kilometers

Prepared by: International Mapping

Figure R-6.4

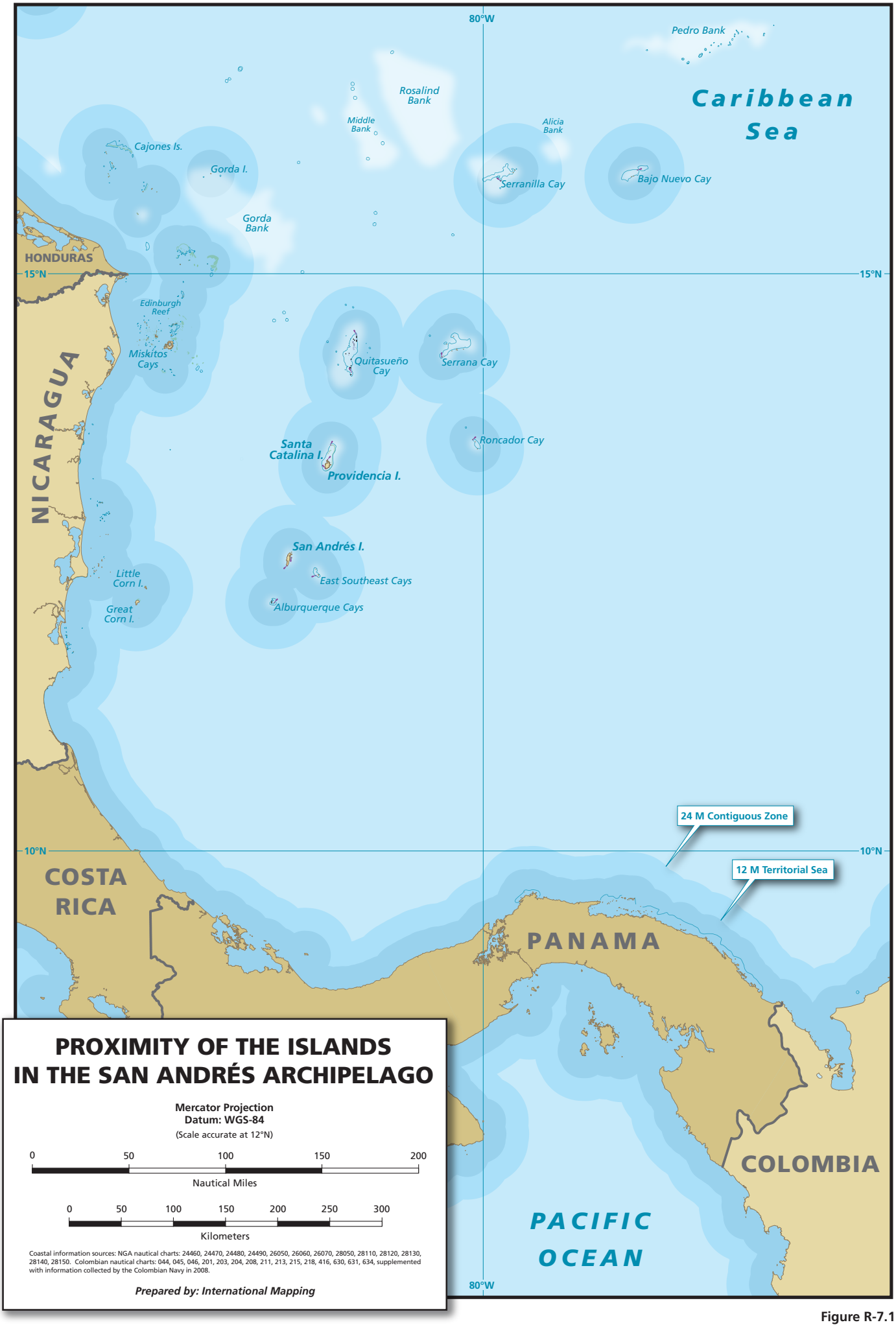

80°W
Pedro Bank
Caribbean Sea
Rosalind Bank
Middle Bank
Alicia Bank
Cajones Is.
Gorda I.
Serranilla Cay
Bajo Nuevo Cay
Gorda Bank
HONDURAS
15°N
15°N
Edinburgh Reef
Miskitos Cays
NICARAGUA
Quitasueño Cay
Serrana Cay
Roncador Cay
Santa Catalina I.
Providencia I.
San Andrés I.
Little Corn I.
East Southeast Cays
Great Corn I.
Alburquerque Cays
24 M Contiguous Zone
12 M Territorial Sea
10°N
10°N
COSTA RICA
PANAMA
COLOMBIA
PACIFIC OCEAN
80°W
PROXIMITY OF THE ISLANDS IN THE SAN ANDRÉS ARCHIPELAGO
Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)
0 50 100 150 200
Nautical Miles
0 50 100 150 200 250 300
Kilometers
Coastal information sources: NGA nautical charts: 24460, 24470, 24480, 24490, 26050, 26060, 26070, 28050, 28110, 28120, 28130, 28140, 28150. Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.
Prepared by: International Mapping

Figure R-7.1

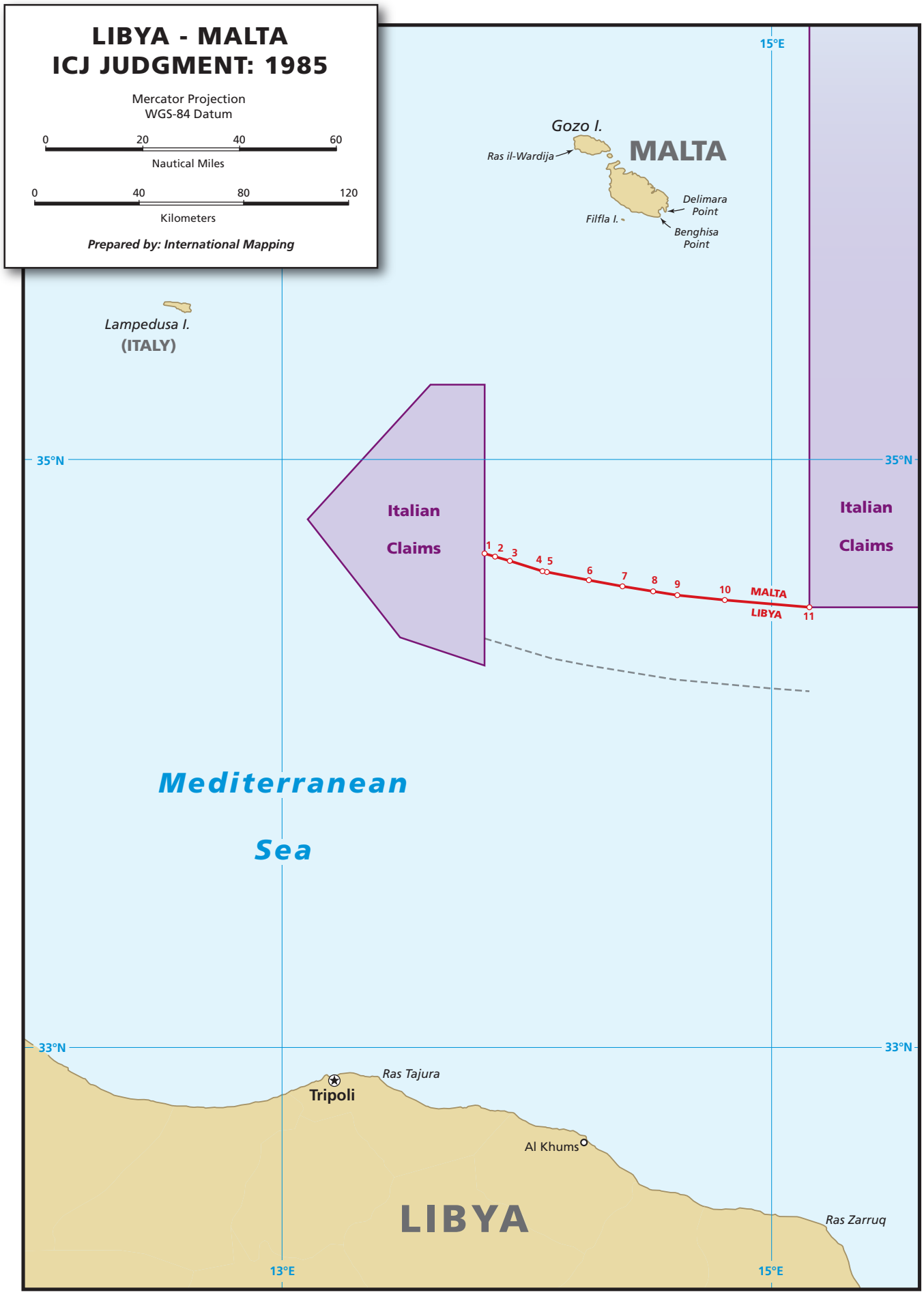

LIBYA - MALTA
ICJ JUDGMENT: 1985
Mercator Projection
WGS-84 Datum
0 20 40 60
Nautical Miles
0 40 80 120
Kilometers
Prepared by: International Mapping
15°E
Gozo I.
Ras il-Wardija
MALTA
Delimara Point
Filfla I.
Benghisa Point
Lampedusa I.
(ITALY)
35°N
Italian Claims
Italian Claims
1 2 3 4 5 6 7 8 9 10 11
MALTA
LIBYA
Mediterranean Sea
33°N
Ras Tajura
Tripoli
Al Khums
LIBYA
Ras Zarruq
13°E
15°E

Figure R-7.2

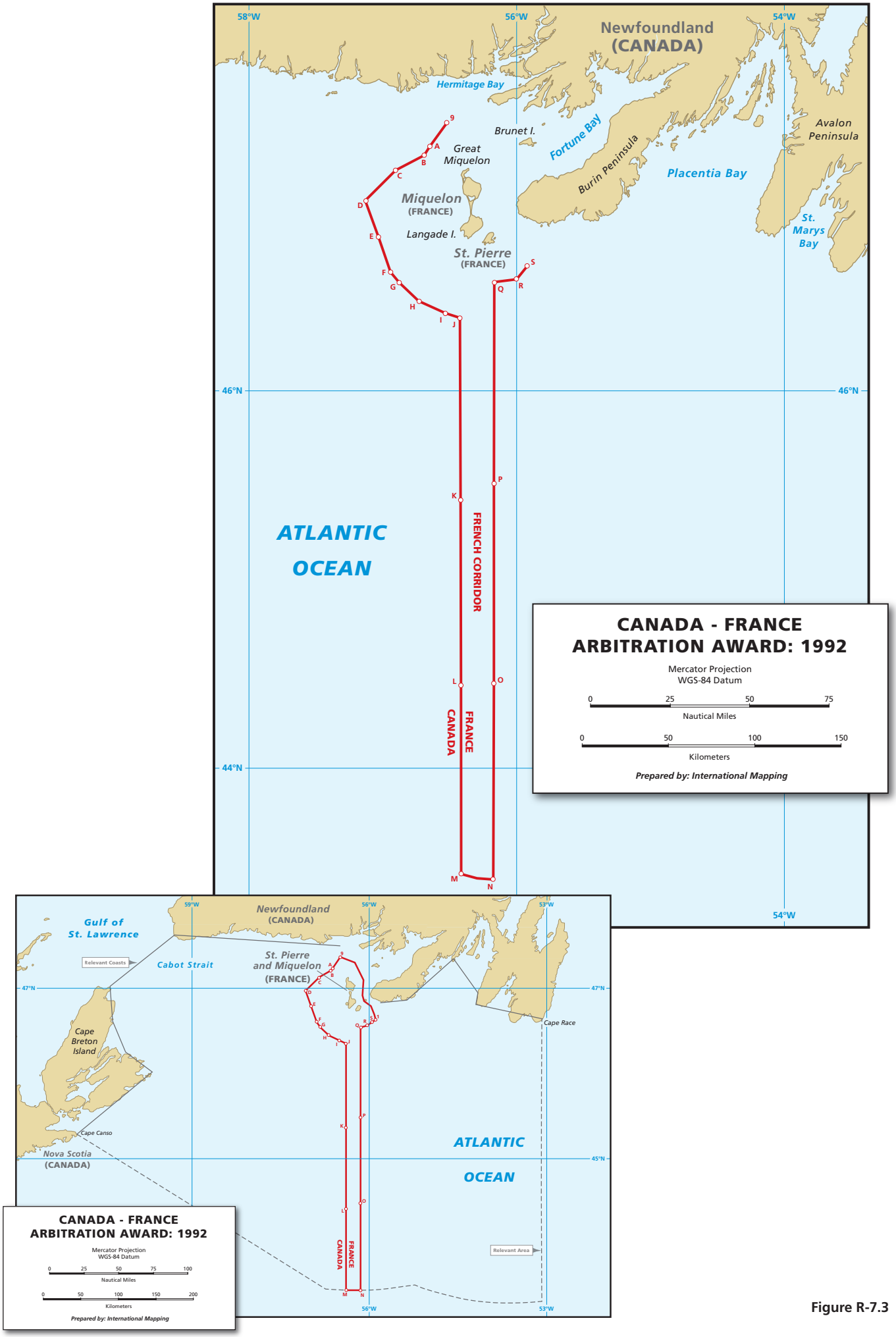

58°W
56°W
54°W
Newfoundland
(CANADA)
Hermitage Bay
Brunet I.
Fortune Bay
Great
Miquelon
Burin Peninsula
Avalon
Peninsula
Placentia Bay
Miquelon
(FRANCE)
Langade I.
St. Marys
Bay
St. Pierre
(FRANCE)
46°N
ATLANTIC
OCEAN
FRENCH CORRIDOR
CANADA
FRANCE
44°N
54°W
CANADA - FRANCE
ARBITRATION AWARD: 1992
Mercator Projection
WGS-84 Datum
0 25 50 75
Nautical Miles
0 50 100 150
Kilometers
Prepared by: International Mapping
59°W
56°W
53°W
Gulf of
St. Lawrence
Relevant Coasts
Cabot Strait
Newfoundland
(CANADA)
St. Pierre
and Miquelon
(FRANCE)
47°N
Cape
Breton
Island
Cape Race
Cape Canso
Nova Scotia
(CANADA)
ATLANTIC
OCEAN
45°N
Relevant Area
CANADA
FRANCE
56°W
53°W
CANADA - FRANCE
ARBITRATION AWARD: 1992
Mercator Projection
WGS-84 Datum
0 25 50 75 100
Nautical Miles
0 50 100 150 200
Kilometers
Prepared by: International Mapping

Figure R-7.3

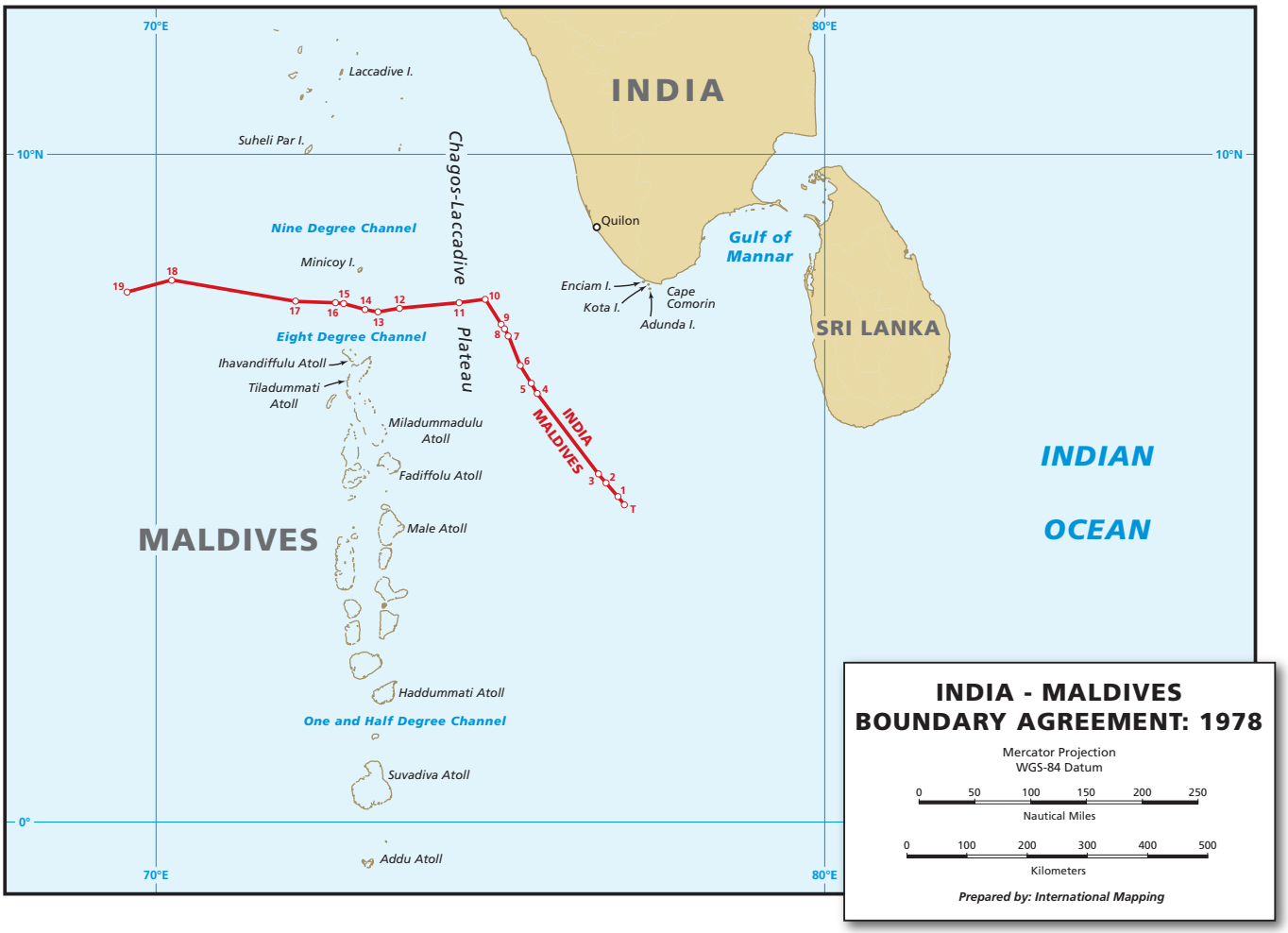


Figure R-7.4

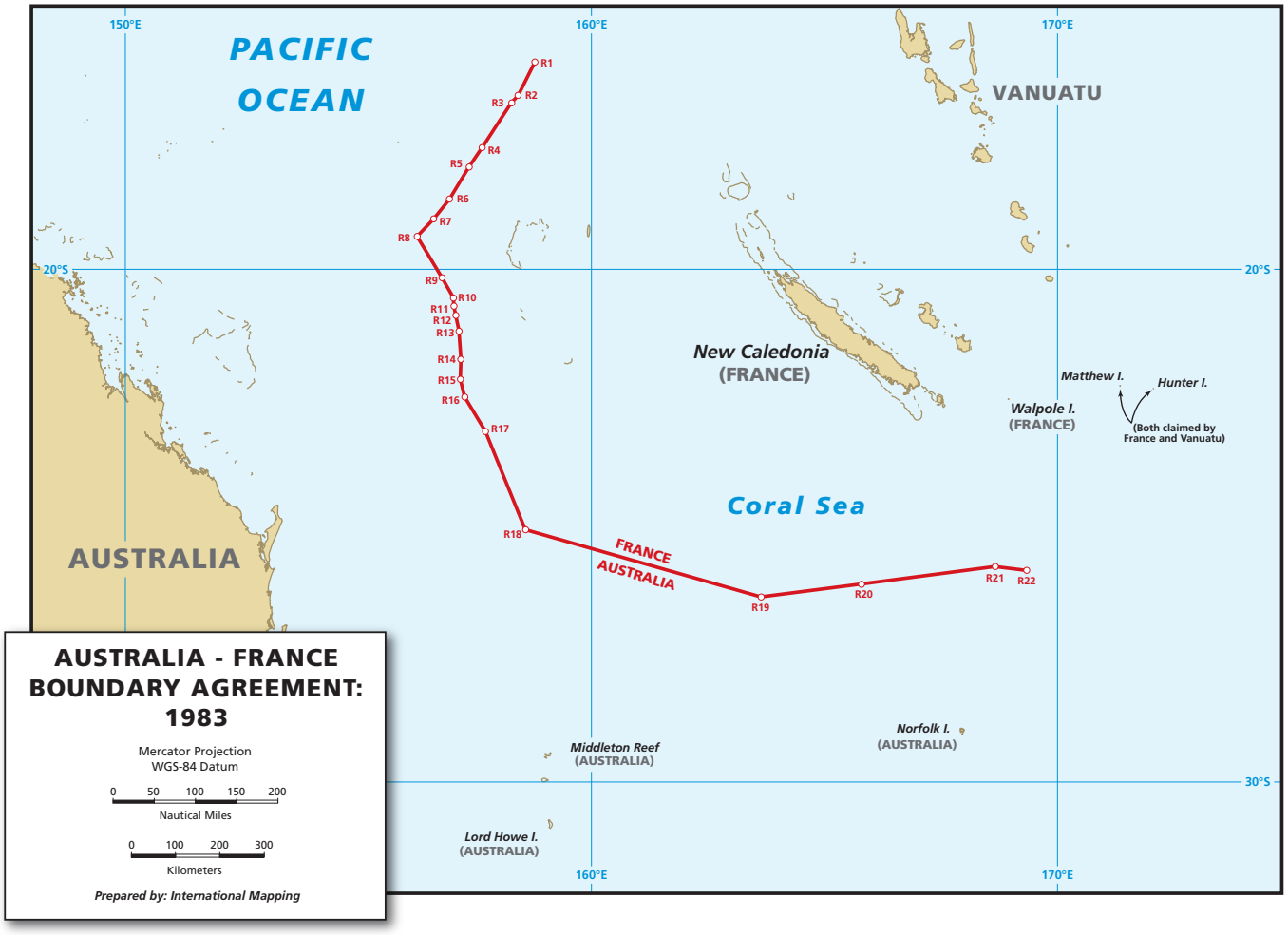


Figure R-7.5

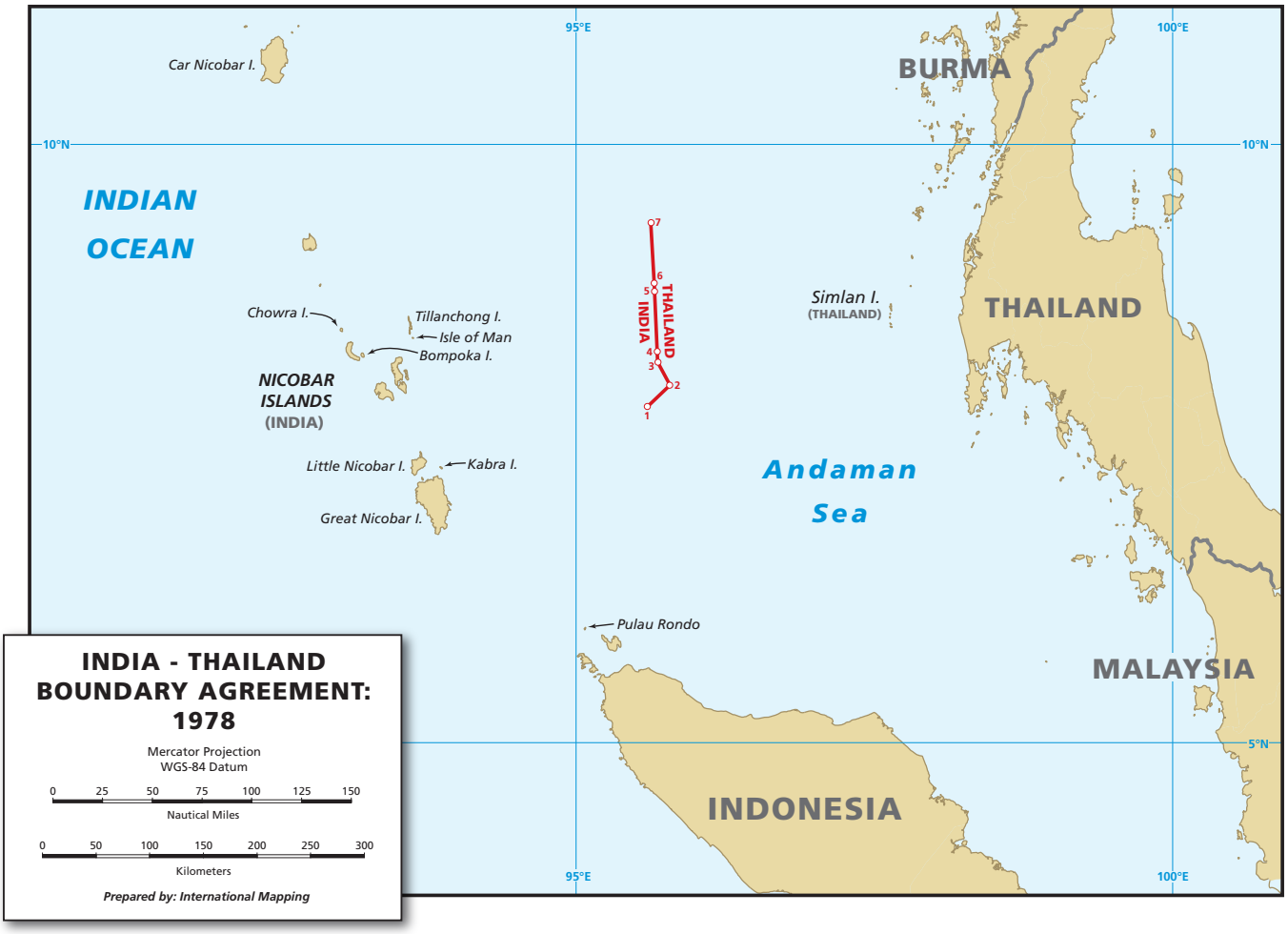


Figure R-7.6

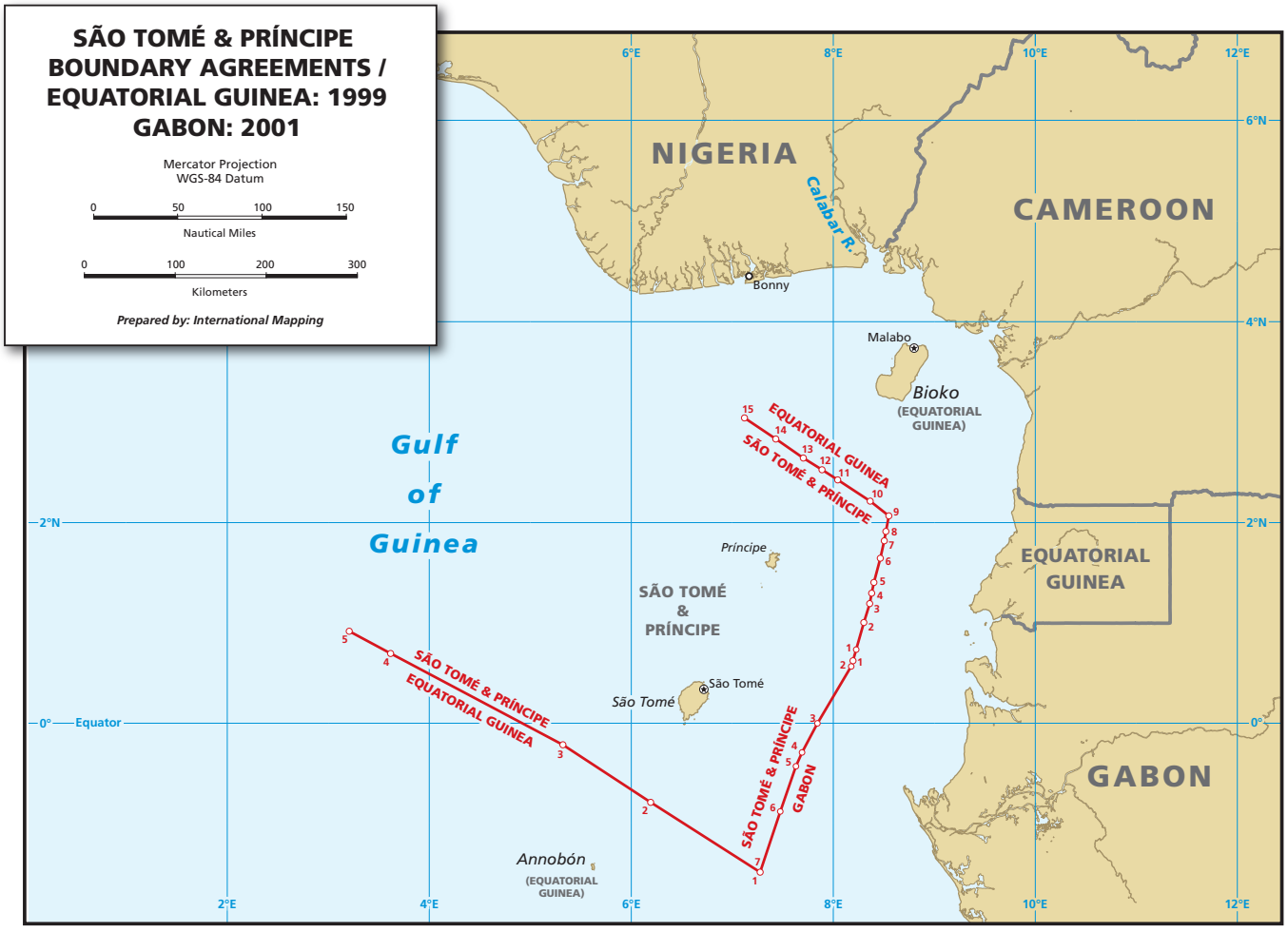


Figure R-7.7

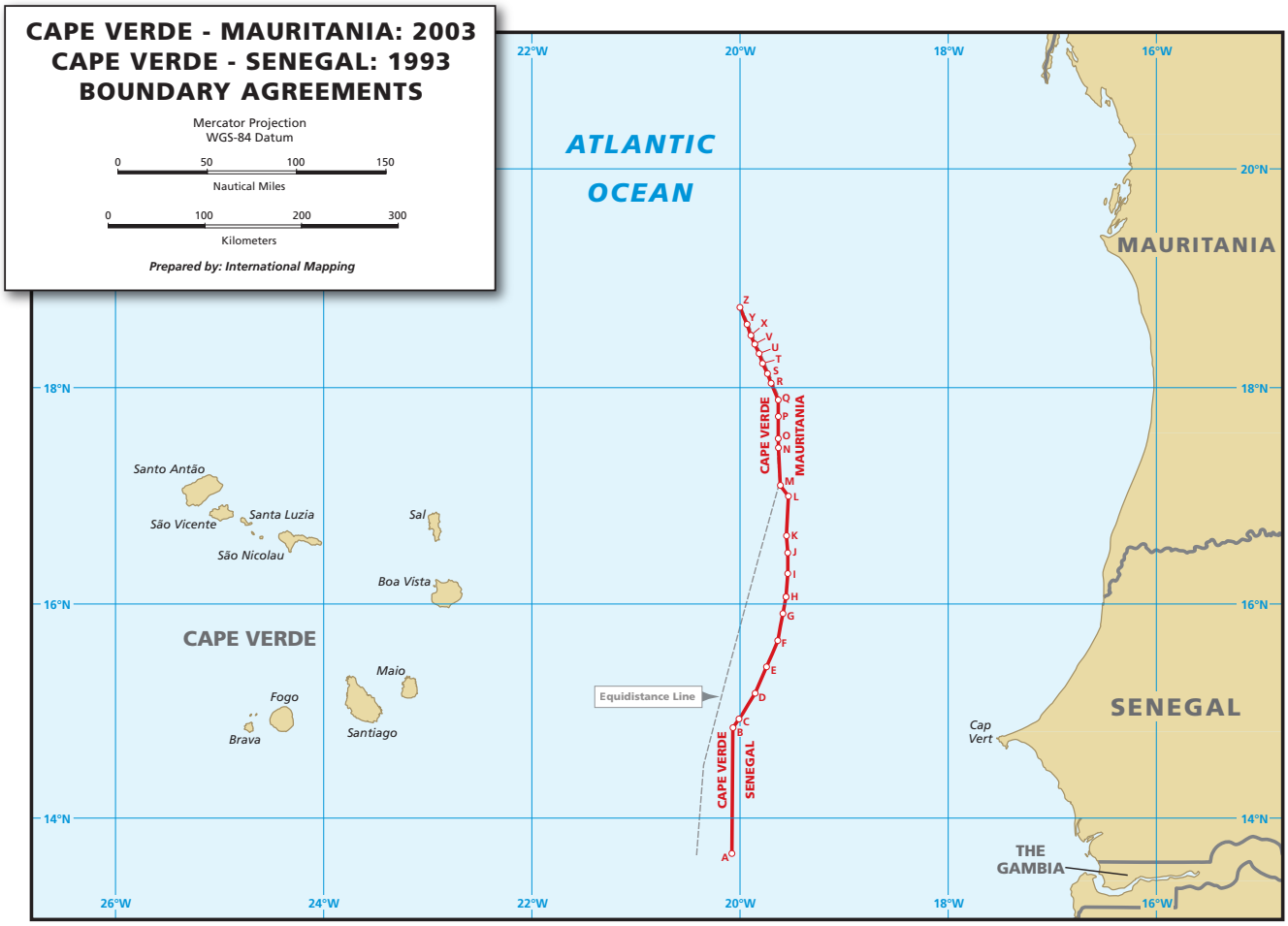


Figure R-7.8

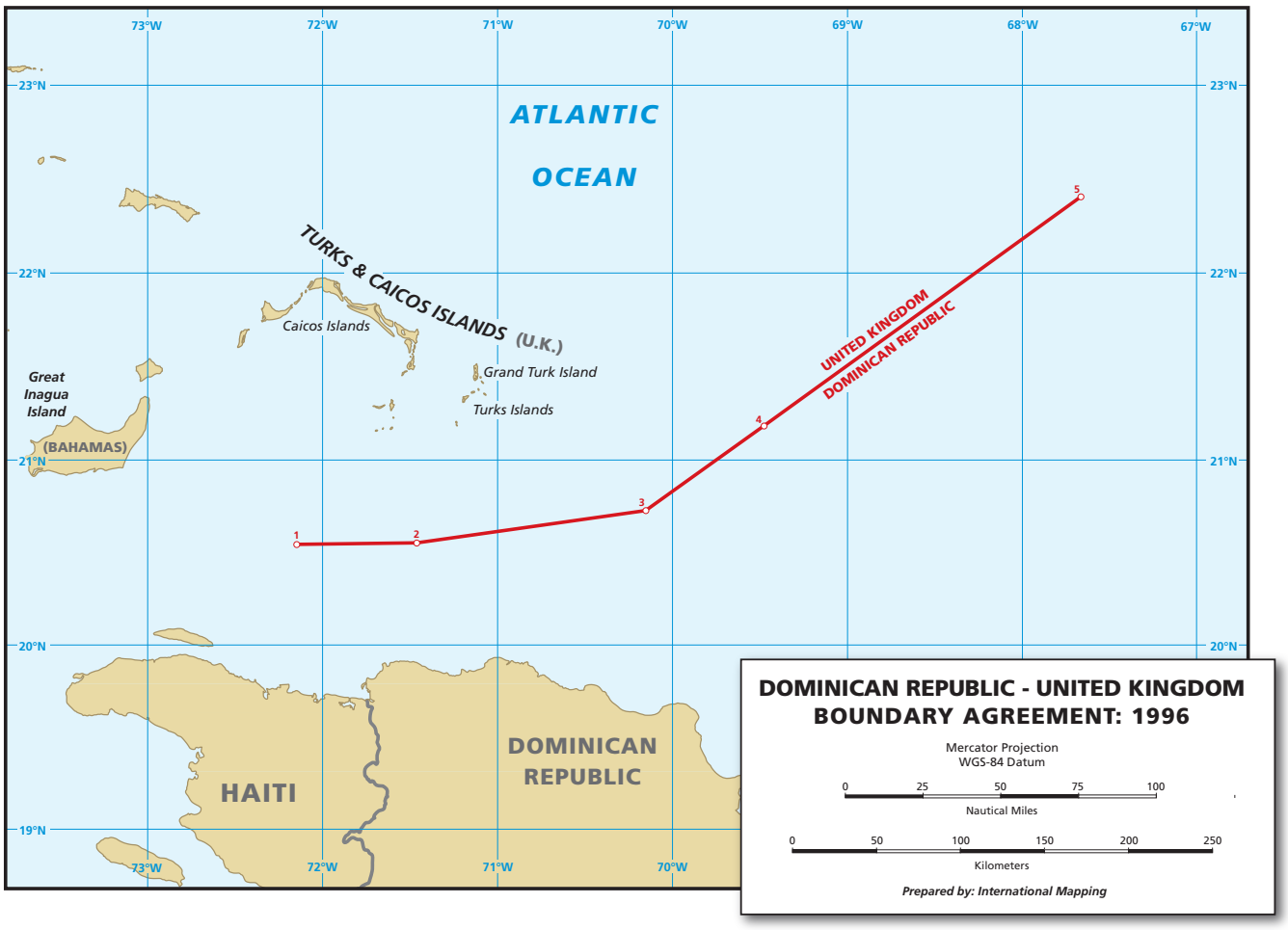
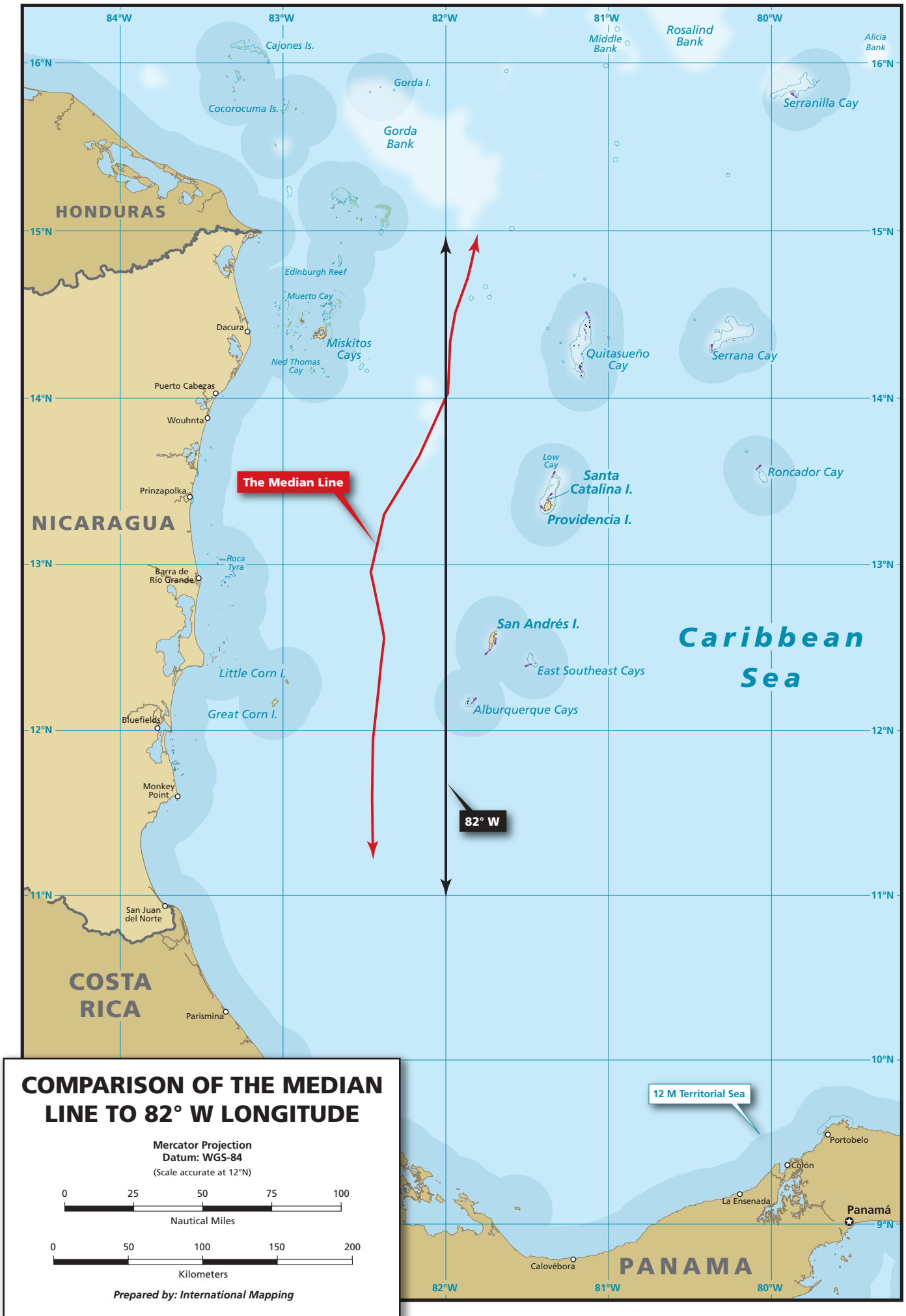


Figure R-7.9


98°E
C.P.
100°E
102°E
104°E
4°N
2°N
Pulau Perak
Pulau Pinang
Pulau Pangkur
Pulau Jarak
Pulau-Pulau Aruah
Strait of Malacca
MALAYSIA
South China Sea
Continental shelf boundary
MALAYSIA
INDONESIA
Sumatra
Port Dickson
Territorial sea boundary
Malacca
Pulau Rupat
"Gray Area"
SINGAPORE
INDONESIA
1
2
3
4
5
6
7
8
9
10
INDONESIA - MALAYSIA
(Strait of Malacca Area)
CONTINENTAL SHELF AGREEMENT: 1969
Mercator Projection
WGS-84 Datum
0 25 50 75
Nautical Miles
0 50 100 150
Kilometers
Prepared by: International Mapping

Figure R-7.10



COMPARISON OF THE MEDIAN LINE TO 82° W LONGITUDE

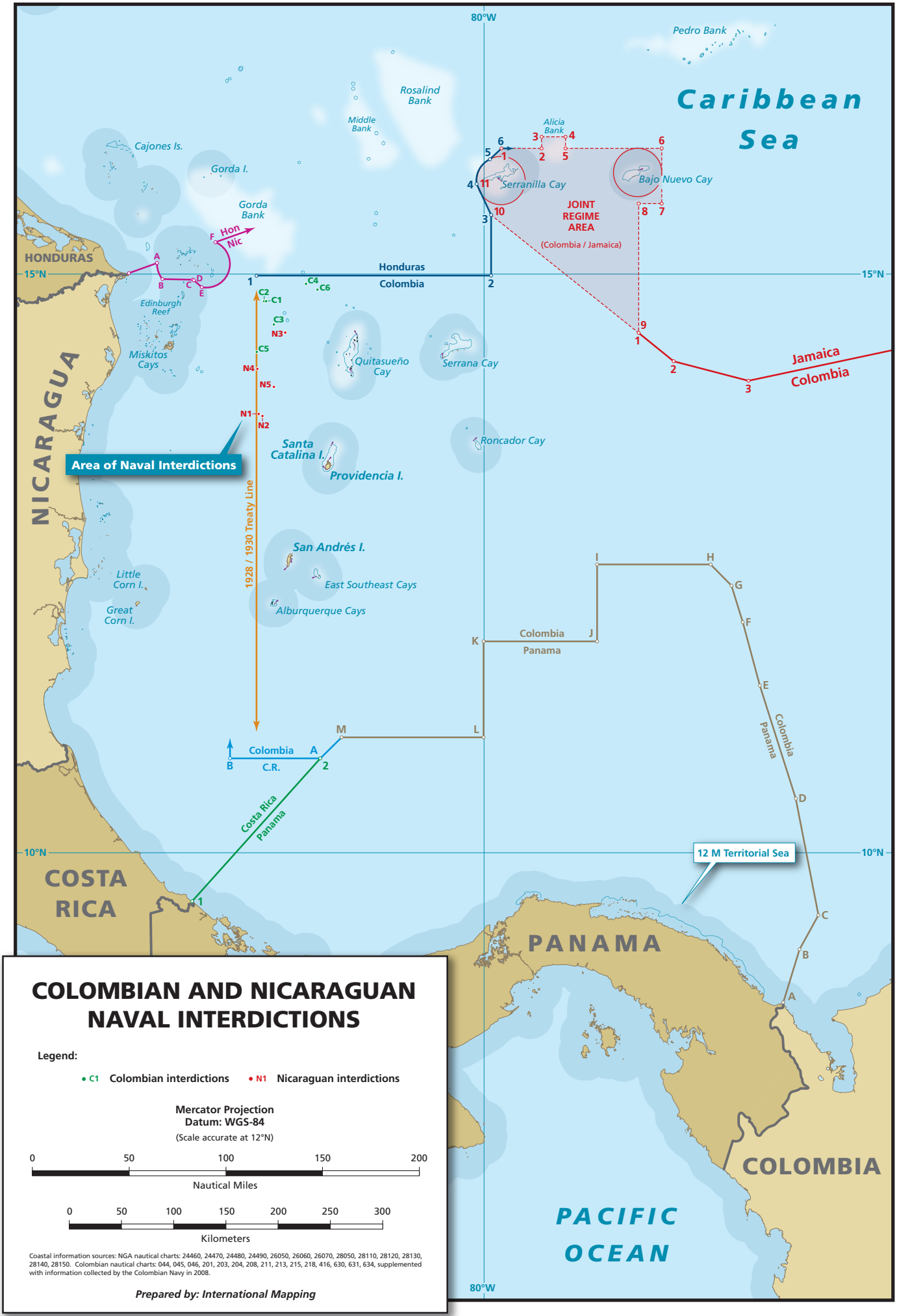
Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 25 50 75 100
Nautical Miles

0 50 100 150 200
Kilometers

Prepared by: International Mapping

Figure R-8.1



COLOMBIAN AND NICARAGUAN NAVAL INTERDICTIONS

Legend:

• C1 Colombian interdictions • N1 Nicaraguan interdictions

Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)

0 50 100 150 200
Nautical Miles

0 50 100 150 200 250 300
Kilometers

Coastal information sources: NGA nautical charts: 24460, 24470, 24480, 24490, 26050, 26060, 26070, 28050, 28110, 28120, 28130, 28140, 28150. Colombian nautical charts: 044, 045, 046, 201, 203, 204, 208, 211, 213, 215, 218, 416, 630, 631, 634, supplemented with information collected by the Colombian Navy in 2008.

Prepared by: International Mapping

Figure R-8.2

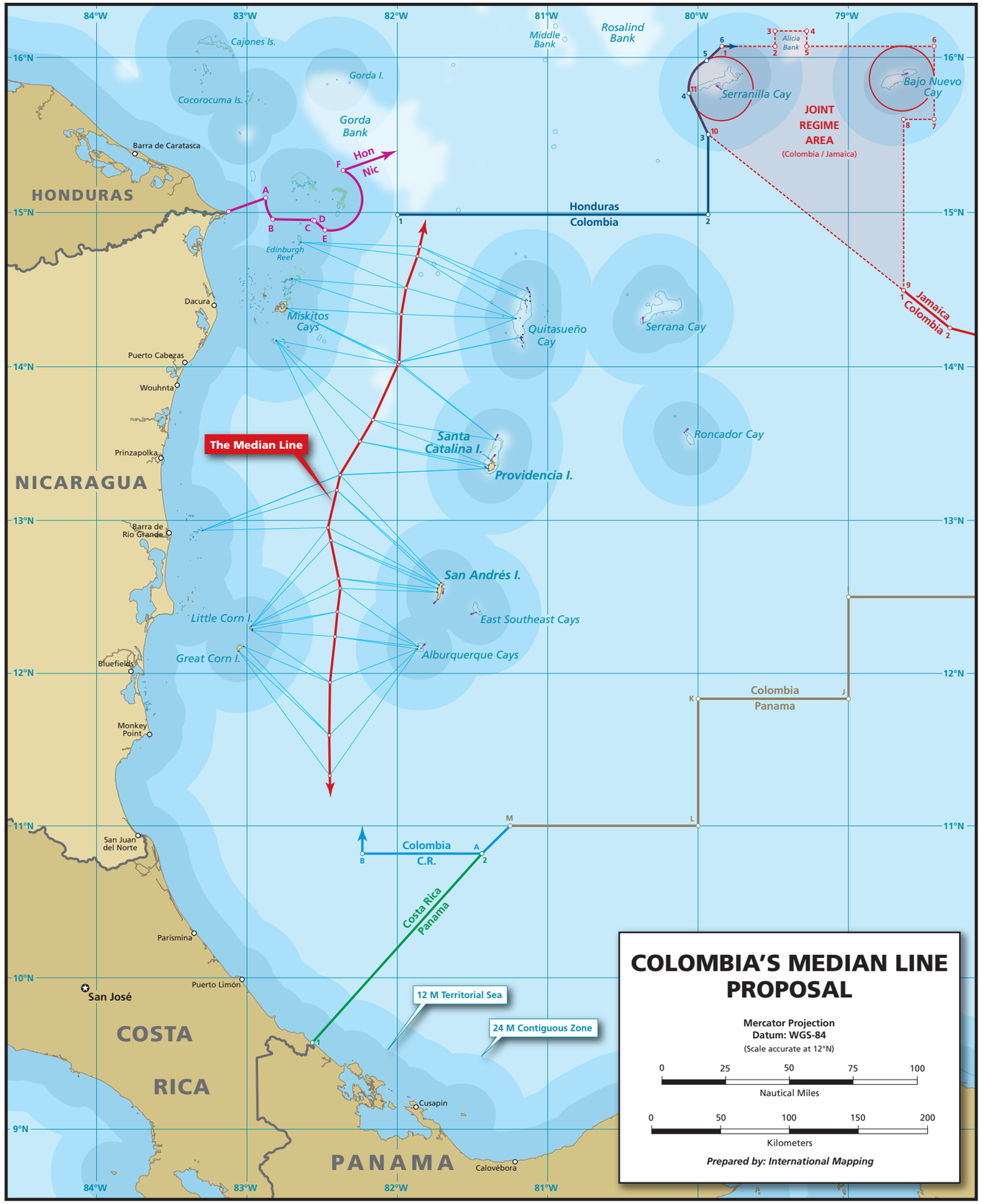

84°W
83°W
82°W
81°W
80°W
79°W
16°N
15°N
14°N
13°N
12°N
11°N
10°N
9°N
Cajones Is.
Cocorocuma Is.
Gorda I.
Gorda Bank
Middle Bank
Rosalind Bank
Alicia Bank
Serranilla Cay
Bajo Nuevo Cay
JOINT REGIME AREA
(Colombia / Jamaica)
Barra de Caratasca
HONDURAS
Hon
Nic
A
B
C
D
E
F
Edinburgh Reef
Honduras
Colombia
Jamaica
Colombia
Dacura
Miskitos Cays
Quitasueño Cay
Serrana Cay
Puerto Cabezas
Wouhnta
Prinzapolka
NICARAGUA
The Median Line
Santa Catalina I.
Providencia I.
Roncador Cay
Barra de Rio Grande
San Andrés I.
Little Corn I.
East Southeast Cays
Great Corn I.
Alburquerque Cays
Bluefields
Monkey Point
Colombia
Panama
San Juan del Norte
Colombia
C.R.
Costa Rica
Panama
Parismina
Puerto Limón
San José
12 M Territorial Sea
24 M Contiguous Zone
COSTA RICA
PANAMA
Cusapin
Calovébora
COLOMBIA'S MEDIAN LINE PROPOSAL
Mercator Projection
Datum: WGS-84
(Scale accurate at 12°N)
0 25 50 75 100
Nautical Miles
0 50 100 150 200
Kilometers
Prepared by: International Mapping

Figure R-8.3