

# **Protection of High Seas biodiversity in the Antilles, West Africa and Antarctica: inventory of EBSAs and VMEs**

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Report number C058/12



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BAS code: BO-10-011-002-IMARES

Publication date:

7 May 2012

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## Contents

Contents.....	3
Summary .....	5
1 Introduction.....	6
1.1 Background .....	6
1.2 Scope and purpose .....	6
1.3 Layout of the report .....	6
1.4 Assignment.....	6
1.5 List of acronyms and abbreviations.....	8
2 Progress in closures of VMEs.....	10
3 Progress in the EBSA identification process .....	11
3.1 EBSA criteria .....	11
3.2 Regional CBD EBSA workshops .....	11
3.3 CBD EBSA repository.....	11
3.4 Other EBSA selection processes .....	11
4 Caribbean.....	15
4.1 Importance to the Netherlands .....	15
4.2 Area delimitation .....	15
4.3 Description of the ecosystem.....	15
4.4 Institutions and their mandates .....	16
4.4.1 Treaties and conventions relevant for spatial protection.....	16
4.4.2 Regional Fishery Bodies .....	16
4.5 Spatial protection measures .....	17
4.5.1 MPAs within EEZ .....	17
4.5.2 VMEs in the high seas.....	17
4.5.3 EBSAs in the high seas/EEZ.....	17
5 West-Africa.....	18
5.1 Importance to the Netherlands .....	18
5.2 Area delimitation .....	18
5.3 Description of the ecosystem.....	19
5.4 Institutions and their mandates .....	19
5.4.1 Treaties and conventions relevant for spatial protection.....	19
5.4.2 Regional Fishery Bodies .....	19
5.5 Spatial protection measures .....	19
5.5.1 MPAs within EEZs.....	19
5.5.2 VMEs in the high seas.....	20
5.5.3 EBSAs in the high seas .....	20

6	Antarctica .....	21
6.1	Importance to the Netherlands .....	21
6.2	Area delimitation .....	21
6.3	Institutions and their mandates .....	21
6.4	Spatial protection measures .....	21
6.4.1	MPAs21 .....	22
6.4.2	Fishery management measures related to bottom fisheries .....	22
6.4.3	VMEs .....	22
6.4.4	EBSAs .....	22
7	Conclusions.....	23
8	Links.....	25
9	Quality Assurance .....	26
10	Acknowledgements .....	26
	References.....	27
	Justification.....	30
Annex A	EBSAs: Convention on Biological Diversity, COP9 Decision IX/20 .....	31
Annex B	EBSA Maps .....	33
	North East Atlantic.....	33
	Mediterranean.....	34
	Arctic.....	35
	Canada .....	37
Annex C	MPAs within West-African EEZs.....	39
Annex D	Regional Fishery Body Maps (alphabetically per region) .....	40
	Caribbean.....	40
	West-Africa.....	43
	Antarctica.....	46

## Summary

To protect deep-sea biodiversity, the United Nations have adopted a number of resolutions that should protect vulnerable marine ecosystems (VMEs), such as cold water corals and sponges, by the regulation of deep-sea fisheries on the high seas.

In a parallel process, the Convention on Biological Diversity (CBD) calls upon states to identify Ecological and Biological Significant Areas (EBSAs) that serve as focal areas, without any special legal status, and establish a network of marine protected areas by 2012. In addition, at the tenth meeting of the Conference to the Parties of the CBD in Nagoya, in 2010, it was agreed that by 2020, 10% of coastal and marine areas should be protected.

The Netherlands is involved in both processes since our country has ratified the CBD and therefore is bound to contribute to the protection of biodiversity, both in its national waters and in the high seas.

In this report we provide a worldwide overview on the protection of VMEs and of the status of the EBSA selection processes as per March 2012. Next, we zoom in on three areas that are of interest to the Dutch government (Caribbean, West Africa, Antarctica) and we summarize the spatial protection measures, list the closed VME areas and EBSA selection processes and we provide information on the regional seas conventions and their mandates.

# **1 Introduction**

## **1.1 Background**

To protect deep-sea biodiversity, the United Nations have adopted a number of resolutions that should protect vulnerable marine ecosystems (VMEs), such as cold water corals, by the regulation of deep-sea fisheries in the high seas. In a parallel process, the Convention on Biological Diversity (CBD) calls upon states to identify Ecological and Biological Significant Areas (EBSAs) and establish a network of marine protected areas by 2012. In addition, at the tenth meeting of the Conference to the Parties of the CBD in Nagoya (2010) it was agreed that by 2020, 10% of all coastal and marine areas should be conserved. This is especially the case for areas of particular importance for biodiversity and ecosystem services. Such conservation should be done by effective and equitable management of ecologically representative areas that are well-connected, and by other effective area-based conservation measures. Conserved areas should be integrated into the wider seascapes.

## **1.2 Scope and purpose**

The aim of this report is to generate an overview of ongoing activities on the protection of high seas biodiversity. Through the CBD, The Netherlands is responsible for the protection of biodiversity both in national waters and in the high seas. In this context the Dutch government wants to have insight in protection measures that are currently taken in three areas of interest to our country:

- (1) The (Dutch) Caribbean; the BES islands (Bonaire, St. Eustatius and Saba) are Dutch territory since 10-10-2010;
- (2) West-Africa, since part of the Dutch fishing fleet is fishing there;
- (3) Antarctica, since The Netherlands are involved in the Antarctic Treaty.

To broaden the scope of this report and to provide a global context we included a world-wide overview of the closed VMEs and of EBSAs. For background information on VMEs and EBSAs we refer to our previous report: Gianni & Bos (2012). We also created an interactive map showing these areas ([www.highseasmpas.org](http://www.highseasmpas.org)).

## **1.3 Layout of the report**

The first chapters of this report give a worldwide overview of closed VME areas and of the EBSA selection processes. The next chapters focus on the Caribbean, West-Africa and Antarctica. For these regions we describe the protection measures, both within the Exclusive Economic Zones (EEZs) and in the high seas, the relevant regional seas conventions, fisheries organizations and their mandates and the actions taken so far to protect deep sea biodiversity. In the last chapter we draw conclusions and provide recommendations.

This report is based on literature research and to some extent on information that was obtained through correspondence with informants at meetings (World Conference on Marine Biodiversity, Aberdeen, September 2011).

## **1.4 Assignment**

The Dutch Ministry of Economic Affairs, Agriculture and Innovation (EL&I) has requested IMARES to provide an overview of the status of biodiversity protection on the high seas (who, where, what) in three

regions that are of economic and other interest to the Dutch Government. This request resulted in the current report and the additional Google Earth presentation (available at [www.highseasmpas.org](http://www.highseasmpas.org)).



*Figure 1. Composite of images from Saba Bank, the largest submarine atoll in the Atlantic Ocean (source: en.wikipedia.org; Photos: Juan Armando Sanchez, Diane Littler, and Jeff Williams. Composite image: Paul Hoetjes, Department of Environment & Nature of the Netherlands Antilles). The Saba bank was proposed as EBSA by The Netherlands at the CBD meeting in Recife, Brasil, March 2012.*

## 1.5 List of acronyms and abbreviations

ABNJ	Areas Beyond National Jurisdiction	
ASPAs	Antarctic Specially Protected Areas	
ASMAs	Antarctic Specially Managed Areas	
Cartagena Convention	Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region	<a href="http://www.cep.unep.org/cartagena-convention">www.cep.unep.org/cartagena-convention</a>
CBD	Convention on Biological Diversity	<a href="http://www.cbd.int">www.cbd.int</a>
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources	<a href="http://www.ccamlr.org">www.ccamlr.org</a>
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	<a href="http://www.cites.org">www.cites.org</a>
CMS	Convention for Migratory Species	<a href="http://www.cms.int">www.cms.int</a>
COMHAFAT	Ministerial Conference on Fisheries Cooperation among African States bordering the Atlantic Ocean	<a href="http://www.atlafco.org">www.atlafco.org</a>
CoML	Census of Marine Life	<a href="http://www.coml.org">www.coml.org</a>
COP	Conference of the Parties	<a href="http://www.cbd.int/cop/">www.cbd.int/cop/</a>
CPPS	Permanent Commission for the South Pacific	
CRFM	Caribbean Regional Fisheries Mechanism	<a href="http://www.caricom-fisheries.com/">www.caricom-fisheries.com/</a>
DFS	Demersal Fish Stocks	
EBSA	Ecologically and Biologically Significant Area	
EEZ	Exclusive Economic Zone	
EU	European Union	
FAO	United Nations Food and Agriculture Organization	<a href="http://www.fao.org">www.fao.org</a>
FSA	United Nations Fish Stock Agreement	
GFCM	General Fisheries Commission for the Mediterranean	<a href="http://www.gfcm.org">www.gfcm.org</a>
high seas	All parts of the sea that are not included in the exclusive economic zone (EEZ), in the territorial sea or in the internal waters of a State	
IAC	Inter-American Convention for the Protection and conservation of Sea Turtles	<a href="http://www.iacseaturtle.org">www.iacseaturtle.org</a>
ICCAT	International Commission for the Conservation of Atlantic Tunas	<a href="http://www.iccat.es/en/">www.iccat.es/en/</a>
ICES	International Council for Exploration of the Sea	<a href="http://www.ices.dk">www.ices.dk</a>
IPEV	Institut Polair Français Paul Emile Victor	<a href="http://www.institut-polaire.fr">www.institut-polaire.fr</a>
IUCN	International Union for Conservation of Nature	<a href="http://www.iucn.org">www.iucn.org</a>
LME	Large Marine Ecosystem	
MPA	Marine Protected Area	
NAFO	Northwest Atlantic Fisheries Organization	<a href="http://www.nafo.int">www.nafo.int</a>
NEAFC	North East Atlantic Fisheries Commission	<a href="http://www.neafc.org">www.neafc.org</a>
RFMA	Regional Fishery Management Association	
NPFC	North Pacific Fisheries Commission	<a href="http://nwpbfo.nomaki.jp/">http://nwpbfo.nomaki.jp/</a>
RAMPAO	Réseau Régional d'Aires Marines Protégées en Afrique de l'Ouest	<a href="http://www.rampao.org">www.rampao.org</a>

RFMO	Regional Fishery Management Organization	
OLDEPESCA	Latin American Organisation for Fisheries Development	<a href="http://www.oldepesca.com">www.oldepesca.com</a>
OSPESCA	Organización del Sector Pesquero y Acuicola de Centroamerica	<a href="http://www.sica.int/ospesca/">www.sica.int/ospesca/</a>
SEAFO	South East Atlantic Fisheries Organization	<a href="http://www.seafo.org">www.seafo.org</a>
SIOFA	Southern Indian Ocean Fisheries Arrangement	
SPAMI	Specially Protected Areas of Mediterranean Importance (under Barcelona Convention Protocol)	
SPAW Protocol	Protocol concerning Spatially Protected Areas and Wildlife	<a href="http://www.cep.unep.org/cartagena-convention/spaw-protocol/overview-of-the-spaw-protocol">www.cep.unep.org/cartagena-convention/spaw-protocol/overview-of-the-spaw-protocol</a>
SPRFMO	South Pacific Regional Fisheries Management Organization	<a href="http://www.southpacificrfmo.org">www.southpacificrfmo.org</a>
SRFC	Subregional Fisheries Commission (W-Africa)	<a href="http://www.csrsp.org">www.csrsp.org</a>
UNCLOS	United Nations Convention on the Law of the Sea	
UNGA	United Nations General Assembly	
VME	Vulnerable Marine Ecosystem	
WECAFC	Western Central Atlantic Fishery Commission	

## 2 Progress in closures of VMEs

Since 2005 a number of vulnerable marine ecosystems (VMEs) in the high seas have been closed to deep sea bottom trawling, such as cold water coral reefs and sponge ecosystems, in response to the UNGA resolutions 61/105 and 64/72 (UNGA 2006, 2009). A number of reports have reviewed the implementation of these resolutions (Gianni 2004, DSCC 2009, Rogers & Gianni 2010, Gianni et al. 2011). We have provided an overview of these areas, including coordinates, in our previous report (Gianni & Bos 2012). In Figure 2 these closed areas are indicated in green. The closures are implemented through the conservation measures of regional fishery management organisations/arrangements (RFMO/As) (grey areas in Figure 2). An interactive map is available at [www.highseasmpas.org](http://www.highseasmpas.org).

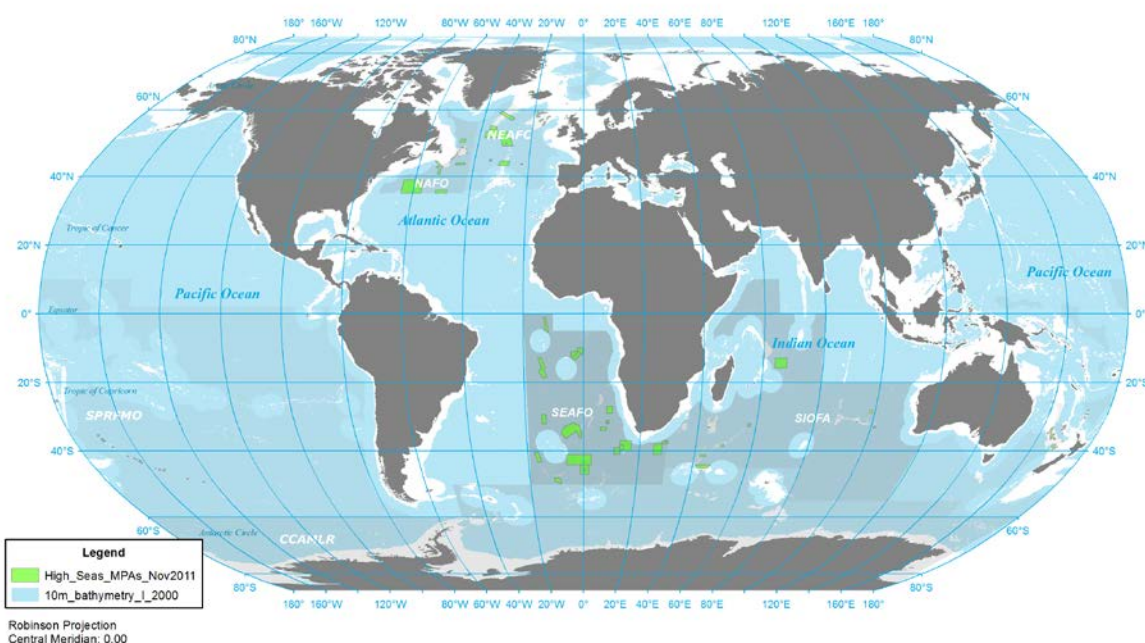


Figure 2. Overview of (1) closed vulnerable marine ecosystems (VMEs) in the high seas (green, Nov 2011), (2) RFMOs (grey) and (3) theoretically fishable area (white <2000 m) (Gianni & Bos 2012). In the Mediterranean and Black Sea, the area <1000 m is closed to bottom trawling. The Antarctic (CCAMLR) area is also closed to bottom trawling and there an MPA closed to all fisheries south of the South Orkneys.

### **3 Progress in the EBSA identification process**

Ecologically or biologically significant marine areas (EBSAs) are areas in need of protection, based on their unique biology or ecology, presence of special habitats, species, their function to certain species (e.g. feeding areas), and/or other criteria. EBSAs should form the basis for selecting areas to establish a representative network of marine protected areas, as was called for by the World Summit on Sustainable Development (Johannesburg, 2002) and do have any legal protection status.

#### **3.1 EBSA criteria**

Identification of EBSAs is based on an internationally agreed set of seven scientific criteria, adopted by the 9<sup>th</sup> Conference of Parties to the Convention on Biological Diversity (see Annex A). The criteria are: (1) uniqueness, (2) life history importance, (3) importance to endangered/threatened species; (4) vulnerable/fragile/slow recovery areas; (5) areas of high productivity; (6) areas of high diversity; and (7) "naturalness." EBSA sites may be proposed when they meet one or more of the selection criteria (GOBI 2010).

#### **3.2 Regional CBD EBSA workshops**

The CBD has organized a number of regional workshops in 2011/2012 to select EBSAs on the high seas. The results of the EBSA regional workshops will be submitted to the Scientific Body meeting of the Convention (SBSTTA 16), scheduled for April 2012, for its consideration, and the 11th meeting of the Conference of the Parties (COP 11), scheduled for October 2012, for its endorsement. The EBSAs reports endorsed by the COP will be transmitted to relevant UN General Assembly Process on marine biodiversity conservation in areas beyond national jurisdiction (source: <http://www.cbd.int/doc/speech/2011/sp-2011-11-22-marine-en.pdf>; <http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf>).

The regional CBD EBSA workshops are:

- North East Atlantic workshop, France, Sept 2011 (10 EBSAs selected)
- Southern Pacific workshop (November 2011)
- Caribbean workshop (Recife, Brazil, March 2012)
- Indian Ocean (Mauritius, 30 July – 3 August, 2012, in collaboration with FAO);
- Eastern Tropical and Temperate Pacific (Galapagos, Ecuador, 27 – 31 August 2012, in collaboration with the Permanent Commission for the South Pacific (CPPS)
- North Pacific (Russia, 2012);
- South-east Atlantic (2013).

#### **3.3 CBD EBSA repository**

At COP10 (CBD 2010), it was agreed to construct a database of EBSAs, the CBD EBSA repository. A test version of the EBSA repository is available at: <http://ebsa-review.cbd.int/>.

#### **3.4 Other EBSA selection processes**

In addition to the official CBD process of selecting EBSAs, a number of other EBSA selection processes have taken place. For a full overview, see Table 1. In summary, these are:

- In Canada, EBSAs were identified for different bio-geographical units within their EEZ. For example, in 2011, 51 EBSAs were identified in the Canadian Arctic.
- In the wider Arctic, 77 EBSAs and 13 'super EBSAs' have been selected in 2010.

- Birdlife International has identified over 2000 candidate marine Important Bird Areas (IBAs) which are likely to be strong candidates for identification of/inclusion within EBSAs.
- In the Mediterranean, EBSA criteria have been used to select 10 focal areas in 2009 which were input for the process of selecting Special Protected Areas in the Mediterranean (SPAMIs).
- In 2009-2010, GOBI (Global Ocean Biodiversity Initiative) had put forward a number of EBSA examples that served to get the EBSA process started. These illustrate what kind of ecosystems would satisfy the EBSA selection criteria on a worldwide scale. A number of examples have now been elaborated upon and could be considered as real EBSAs.

Table 1. Overview of progress in EBSA selection processes per ocean (combination of official CBD EBSA selection process with other initiatives).

Regions	EBSAs identified?	Process/meeting	Outcome
<b>ATLANTIC OCEAN</b>			
North West Atlantic	No		
North East Atlantic	Yes	<p>CBD regional workshop 1. The EBSA identification process was started at the Joint OSPAR/NEAFC/CBD Scientific Workshop on the Identification of Ecologically or Biologically Significant Marine Areas (EBSAs) in the North-East Atlantic, 8-9 Sept 2011, Hyeres, France (<a href="http://www.ospar.org/html_documents/ospar/html/ospar_enews_letter_issue6_211011.pdf">http://www.ospar.org/html_documents/ospar/html/ospar_enews_letter_issue6_211011.pdf</a>)</p> <p>The discussion focussed on finding a scientific basis for selection and did not include selection of any protective measure that could be considered by the Competent Authorities (NEAFC 2011).</p>	<p>18 proposals, 10 candidate EBSAs. Proposal is forwarded to ICES by NEAFC for review. Output has been presented to the OSPAR Biodiversity Committee for their consideration 13-17 Feb 2012 (E. Corcoran, OSPAR, pers. com). Documents are available at: <a href="http://www.ospar.org/v_meetings/download.asp">http://www.ospar.org/v_meetings/download.asp</a></p> <p>The candidate EBSAs are</p> <ul style="list-style-type: none"> <li>• Josephine Seamount Complex</li> <li>• Bird Life International IBA candidate (4 proposals)</li> <li>• Rockall and Hatton Bank</li> <li>• Charlie Gibbs North (fracture zone) and Sub Polar Front.</li> <li>• Arctic High Seas and Arctic Domain (2 proposals)</li> </ul> <p>(NAFO 2011)</p> <p>For maps: see Annex A Maps on internet: <a href="http://geoiq.grida.no/maps/729">http://geoiq.grida.no/maps/729</a></p>
Mediterranean	Yes (SPAMIs)	<p>To create a network of MPAs in ABNJ, SPAMIs proposals were made based on amongst others criteria for EBSA.</p> <p>Website: <a href="http://medabnj.rac-spa.org/">http://medabnj.rac-spa.org/</a></p>	<p>10 sites selected (UNEP 2010) that serve as focal areas for selection of priority conservation areas, in which there could be SPAMI candidates (Figure 6.)</p>

Regions	EBSAs identified?	Process/meeting	Outcome
		The second phase of the project (2010-2011) aims at facilitating the process of designating as SPAMIs sites.	
Caribbean	Yes	The EBSAs identification process has started at the Wider Caribbean and Western Mid-Atlantic Regional Workshop to Facilitate the Description of EBSAs, 28 Feb -2 Mar 2012, Recife, Brazil (see meetings at <a href="http://www.cbd.int">www.cbd.int</a> )	Report is available at: <a href="http://www.cbd.int/doc/vacancies/2011/scbd/scbd-2011-consultancy-ebsa-en.pdf">http://www.cbd.int/doc/vacancies/2011/scbd/scbd-2011-consultancy-ebsa-en.pdf</a>
South West Atlantic	No		
South East Atlantic (Africa)	No yet	Meeting planned for 2013	<a href="http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf">http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf</a>
<b>INDIAN OCEAN</b>			
	Not yet	Mauritius, 30 July – 3 August, 2012, in collaboration with FAO	<a href="http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf">http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf</a>
<b>PACIFIC OCEAN</b>			
Western South Pacific	Probably (not known yet)	Western South Pacific Regional Workshop to Facilitate the Description of EBSAs, 22-25 Nov 2011, Nadi, Fiji	Submissions of documents and an overview of data on the Western South Pacific that was prepared for the workshop are available at: <a href="http://www.cbd.int/doc/?meeting=RWEBSA-WSPAC-01">http://www.cbd.int/doc/?meeting=RWEBSA-WSPAC-01</a>
North Pacific	Not yet	Meeting planned: Russia, 2012	<a href="http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf">http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf</a>
Eastern Tropical and temperate Pacific	Not yet	Meeting planned: Galapagos, Ecuador, 27 – 31 August 2012, in collaboration with CPPS	<a href="http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf">http://www.cbd.int/doc/meetings/mar/ebsa-briefing/other/ebsa-briefing-oth-01-en.pdf</a>
<b>ARCTIC</b>			
Arctic	Yes	IUCN/NRDC Workshop to Identify Areas of Ecological and Biological Significance or Vulnerability in the Arctic Marine Environment, Scripps Institution of Oceanography in La Jolla, California on 2-4 November, 2010.	A list of 77 EBSAs and 13 Super EBSAs was identified in the Arctic (Speer & Laughlin 2011) ( <a href="http://data.iucn.org/dbtw-wpd/edocs/Rep-2011-001.pdf">http://data.iucn.org/dbtw-wpd/edocs/Rep-2011-001.pdf</a> ). Not known if they will enter the EBSA repository or if they will be part of the CBD process in 2012 (L. Speer, pers.com.)

Regions	EBSAs identified?	Process/meeting	Outcome
Canadian Arctic (within EEZ)	Yes	As part of the Ocean Action Plan (2005-2007), 5 Large Ocean Management Areas (LOMAs) were selected as pilot areas and Canadian EBSA criteria were applied.	51 EBSAs were identified in the Canadian Arctic in 2011 (within EEZs) (DFO 2011).  All publications can be found here <a href="http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/result-eng.asp?params=0&amp;YearValue=equal&amp;Year=&amp;Year1=2011&amp;DocNumber=&amp;mode=0&amp;desc=ebsa&amp;author=&amp;DatePub=on&amp;T1=&amp;B1=Search">http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/result-eng.asp?params=0&amp;YearValue=equal&amp;Year=&amp;Year1=2011&amp;DocNumber=&amp;mode=0&amp;desc=ebsa&amp;author=&amp;DatePub=on&amp;T1=&amp;B1=Search</a>
<b>ANTARCTIC</b>			
	CBD not applicable (Ardron, pers. Com)	At the CCAMLR MPA workshop in September 2011 at IPEV in Brest (CCAMLR 2010b, CCAMLR 2010c, 2011b), proposals for MPAs were submitted for consideration at the annual CCAMLR meeting in Hobart, Australia, October 2011 (CCAMLR 2011c).	In 2008, 12 priority regions have been defined (CCAMLR 2010c). In the 2011 Brest workshop, many aspects of the MPA planning process were discussed. Overviews are available of the progress, including maps (CCAMLR 2010c). By November 2012 a network of MPAs, including marine reserves, should be designed.
<b>SPECIES groups</b>			
<b>Birds</b>	More or less	BirdLife International has set-up a marine IBA programme to identify and conserve sites that are critical for the long-term viability of bird populations ( <a href="http://www.birdlife.org/seabirds/">http://www.birdlife.org/seabirds/</a> )	Birdlife International has identified over 2000 candidate marine Important Bird Areas (IBAs) which are likely to be strong candidates for identification of/inclusion within EBSAs (Birdlife International 2010)
<b>GOBI Candidate EBSAs</b>			
	Yes	GOBI has proposed as set of candidate EBSAs (Leatherback turtle, birds, elephant seals, eel, seagrass). The illustrations are not meant as proposals for specific management measures. They are presented as examples of various scientific methods and techniques relevant to each criterion.	Candidate EBSAs can be found on <a href="http://www.gobi.org/">http://www.gobi.org/</a>

## 4 Caribbean

### 4.1 Importance to the Netherlands

On 10 October 2010, the BES islands (Bonaire, St. Eustatius, Saba) have obtained the status of special municipalities, while Aruba, Curacao and St. Maarten are independent countries within the Netherlands.

### 4.2 Area delimitation

The focus of this chapter is on the wider Caribbean (Figure 3). Almost the entire marine environment of the Caribbean Region falls under national jurisdiction, i.e. within nations EEZ.

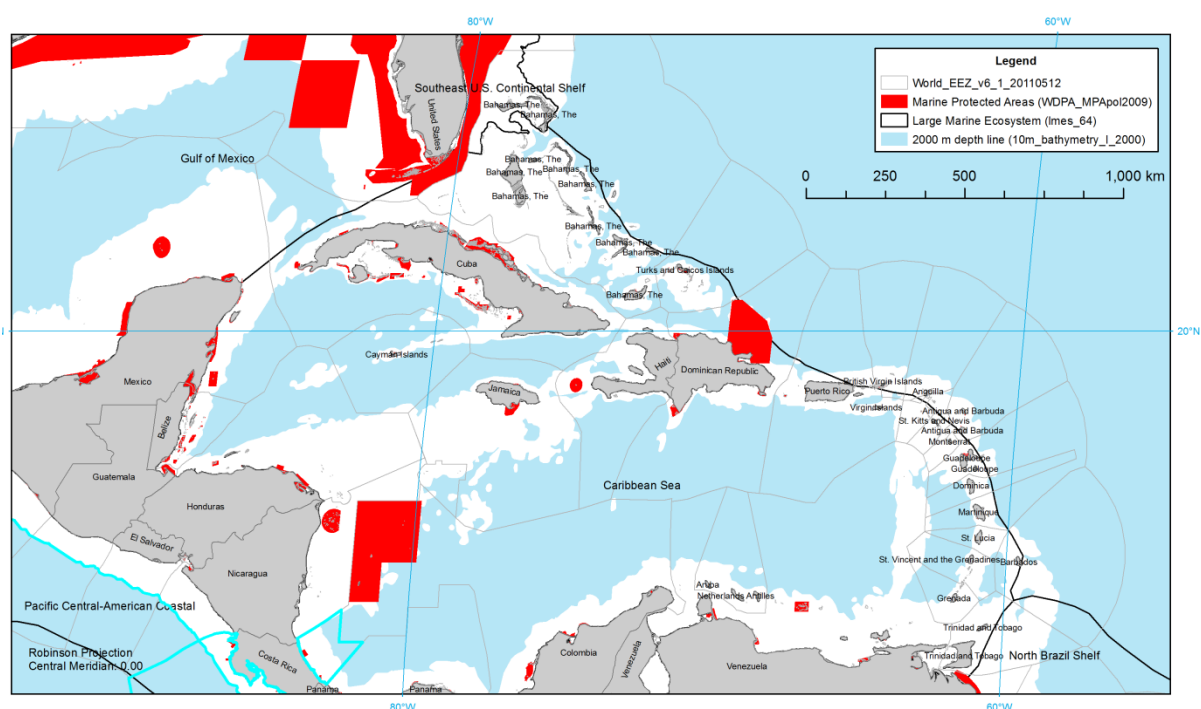


Figure 3. Caribbean study area. Red: marine protected areas within EEZs (world MPA database 2009). Blue: area with a depth of more than 2000 m (in theory, no bottom fisheries is possible). Black lines: Large Marine Ecosystem. No VMEs or EBSAs have been defined in this area (December 2011).

### 4.3 Description of the ecosystem

The Caribbean Large Marine Ecosystem (LME) is characterized by moderate productivity. High productivity occurs only at plumes of continental rivers, localized upwelling areas and nearshore habitats such as coral reefs, mangroves and seagrass beds, the remaining area of the LME is mostly comprised of clear nutrient-poor waters. The fishery pressure is high and many local fisheries have collapsed, indicating unsustainable fisheries.

A description of the LME can be found at <http://www.lme.noaa.gov/> (Heileman & Mahon 2009). The ecosystem of the BES islands is described in the report 'Biodiversiteit voor de BES-eilanden: Bonaire, St. Eustatius en Saba by Alterra/IMARES (Jongman et al. 2010).

## 4.4 Institutions and their mandates

### 4.4.1 *Treaties and conventions relevant for spatial protection*

Treaties and conventions applying directly to marine biological resources in the Caribbean region are:

- Cartagena / SPAW protocol. The SPAW protocol (Protocol concerning Spatially Protected Areas and Wildlife), adopted in 1990, in many ways acts as a vehicle to implement the CBD in the Caribbean. The protocol is legally binding and focuses on protection and sustainable management of special areas and ecosystems and of threatened and endangered flora and fauna and their habitat. More details can be found at: <http://www.cep.unep.org/cartagena-convention/spaw-protocol>. SPAW covers only the EEZs.
- Convention on Biological Diversity (CBD; [www.cbd.int](http://www.cbd.int)): implemented through SPAW in national waters.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; [www.cites.org](http://www.cites.org))
- Convention for Migratory Species ([www.cms.int](http://www.cms.int))
- Inter-American Convention for the Protection and conservation of Sea Turtles (IAC) ([www.iacseaturtle.org](http://www.iacseaturtle.org))

### 4.4.2 *Regional Fishery Bodies*

In the Caribbean, the following regional fishery bodies play a role:

- Advisory bodies (without management mandate): Western Central Atlantic Fishery Commission (WECAFC), Caribbean Regional Fisheries Mechanism (CRFM), Latin American Organisation for Fisheries Development (OLDEPESCA), Organización del Sector Pesquero y Acuicola de Centroamerica (OSPESCA)
- Management Bodies (regulating tuna and tuna-like species): International Commission for the Conservation of Atlantic Tunas (ICCAT)
- No RMFO present

The Western Central Atlantic Fishery Commission (WECAFC) is a FAO advisory body for both the EEZ and the high seas. In the Central Atlantic there is no RMFO with a mandate for managing straddling stocks or discrete high seas fish stocks, although the FAO (United Nations Food and Agriculture Organization ) and the Fisheries Committee for the Eastern Central Atlantic have for several years discussed the potential to transform them into RFMOs (Takei 2008, Lugten 2010).

The CRFM (Caribbean Regional Fisheries Mechanism) is primarily concerned with EEZ and transboundary aquatic resources in the Caribbean region. It is an inter-governmental organization that strives to promote and facilitate a responsible utilization (sustainable) of regional fisheries and other aquatic resources for the economic and social benefits of the current and future population in these regions (<http://www.caricom-fisheries.com/>)(Takei 2008).

The main aim of OLDEPESCA (Latin American Organization for Fisheries Development) is to meet Latin American food requirements. Their activities are directed at development and research (<http://www.oldepesca.com/convenio>).

OSPESCA (Organization of Fishing and Aquaculture in Central America) has the goal to stimulate the development and management of regionally harmonized sustainable fisheries and aquaculture (<http://www.sica.int/ospesca>).

ICCAT has the mandate to regulate all tuna and tuna-like species in the Atlantic.

## 4.5 Spatial protection measures

### 4.5.1 *MPAs within EEZ*

In the coastal area of the 38 countries and territories in the Wider Caribbean a large number of small MPAs are registered. A database of Wider Caribbean's Marine Protected Areas, part of SPAW, can be found at: <http://campam.gcfi.org/CaribbeanMPA/CaribbeanMPA.php>. The world database on marine protected areas also shows these MPAs: <http://protectedplanet.net/> (see also Figure 3).

### 4.5.2 *VMEs in the high seas*

There are no closed VME areas in the Caribbean (J. Ardron, pers. com). A worldwide overview of all closed VME areas elsewhere is available at [www.highseasmpas.org](http://www.highseasmpas.org).

### 4.5.3 *EBSAs in the high seas/EEZ*

An EBSA workshop took place early in 2012 (28 Feb – 2 Mar) in which specialists have identified EBSAs. The workshop was convened by the CBD secretariat in Brazil. The workshop was about the Wider Caribbean and Western Mid-Atlantic region. Documents are available at: <http://www.cbd.int/doc/?meeting=RWEBSA-WCAR-01>

## 5 West-Africa

### 5.1 Importance to the Netherlands

The Dutch fishing fleet is active in West-African waters, in accordance with the Fisheries Partnership Agreements between the EU and West African Countries. The EU pays for the fishing rights (in the order of 95 million Euros per year) (Sall 2010). The Fisheries Partnership is supposed to contribute to the development in the West-African countries by providing jobs and food for the local inhabitants. In reality, most fish is directly exported and the development targets are not met. The New Partnership for Africa's Development (NEPAD, <http://www.nepad.org/>) of the African Union, has developed a plan to let the West-African countries build their own fisheries sector, which should ideally be operational by 2025 (Kennisonline 2010). Furthermore, it is estimated that illegal fishery activities fishes up to a value of 300 million US dollar (MRAG 2010). The agreements between the EU and the West African countries are listed on the EUR-LEX website (<http://eur-lex.europa.eu>). In addition, many 'Dutch' migratory birds use this part of Africa as their wintering areas.

### 5.2 Area delimitation

In this report we concentrate on the area from Morocco to Nigeria (Figure 4).

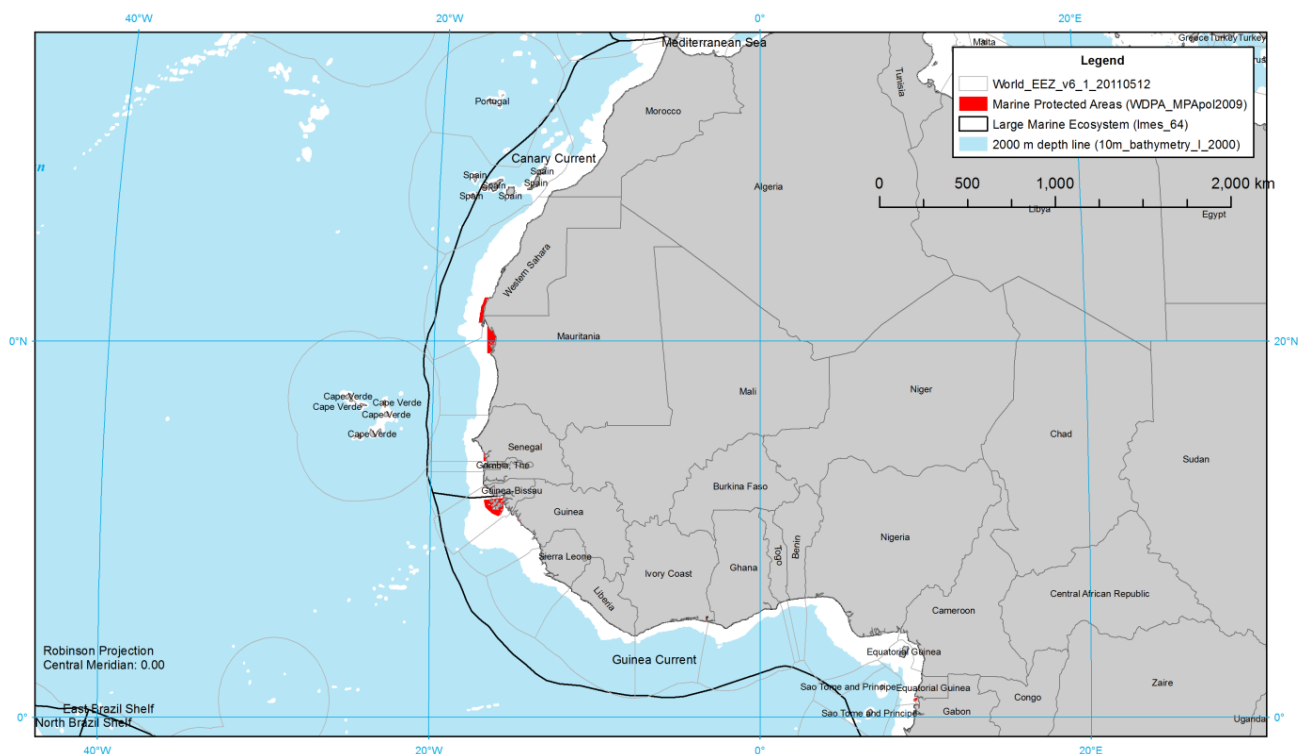


Figure 4. West-Africa study area. Red: marine protected areas within EEZs (world MPA database 2009). Blue: area below 2000 m depth (in theory, no bottom fisheries is possible). Black lines: Large Marine Ecosystems. No VMEs or EBSAs have been defined in this area (December 2011).

### 5.3 Description of the ecosystem

Both the Canary Current Large Marine Ecosystem (LME), from Morocco to the Western Sahara, and the Guinea Current LME (Togo to Angola) are highly productive upwelling systems, rich in small pelagic fish and other migratory or transboundary species. In the Canary Current LME, in 2005, about 40% of the exploited stocks was considered collapsed and another 40% overexploited. For the Guinea Current LME similar numbers are published (Heileman 2009, Heileman & Tanstad 2009). The shelf area is relatively narrow compared to other ocean systems. The coastal habitats, such as lagoons, bays, estuaries and mangrove swamps area serve as spawning and breeding grounds for many fish. These habitats are threatened by both anthropogenic (e.g. hydrocarbon extraction) and natural processes (erosion, sedimentation). More information can be found in the LME descriptions by UNEP (Heileman 2009, Heileman & Tanstad 2009).

### 5.4 Institutions and their mandates

#### 5.4.1 *Treaties and conventions relevant for spatial protection*

In West-Africa, marine spatial protection within the EEZs is the responsibility of the Abidjan Convention/RAMPAO. The West and Central Africa Regional Seas Programme, known as the Abidjan Convention was signed in 1981 and encompasses 22 nations (<http://www.unep.org/abidjanconvention/>). There is no MPA related protocol, but in 2002 a regional strategy for MPAs was developed with support of several partners for a subset of 6 countries. By 2007, the regional network of MPAs in West Africa (RAMPAO, [www.rampao.org](http://www.rampao.org)) consisted of 23 MPAs (UNEP-WCMC 2008). The areas are indicated in Figure 9. To our knowledge, no RFMO/A or regional seas convention exist for the high seas.

#### 5.4.2 *Regional Fishery Bodies*

Institutions related to marine fisheries are:

- Advisory bodies (without management mandates): COMHAFAT, SRFC, CECAF
- Management Bodies: ICCAT

The COMHAFAT/ATLAFCO ([www.atlafco.org](http://www.atlafco.org)) advisory body is the Ministerial Conference on Fisheries Cooperation among African States bordering the Atlantic Ocean. COMHAFAT promotes strengthening of regional cooperation on fishery development and is involved in conservation (Lugten 2010) (<http://www.fao.org/Legal/treaties/022t-e.htm>). The objectives of the Subregional Fisheries Commission (SRFC) are to harmonize the long-term policies of member States in preservation, conservation and exploitation of fisheries resources for the benefit of the respective populations. Furthermore, SRFC strives to strengthen cooperation among member States" (<http://www.fao.org/fishery/rfb/srfc/en>). The current members of the SRFC are: Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania and Senegal and the convention is open for accession to other States in the subregion (Lugten 2010). The objective of CECAF (Fisheries committee for the Eastern Central Atlantic) is to promote the sustainable utilization of the living marine resources within its area of competence by proper management and development of fisheries and fishing operations (<http://www.fao.org/fishery/rfb/cecaf/en>).

### 5.5 Spatial protection measures

#### 5.5.1 *MPAs within EEZs*

Within the EEZ a network of 23 MPAs has been established within the RAMPAO network (see Figure 9). "RAMPAO's purpose is to ensure, at the scale of the West African marine eco-region, the upkeep of a coherent set of critical habitats needed for the dynamic functioning of ecological processes necessary for the regeneration of natural resources and conservation of biodiversity for the benefit of society, through the establishment and operation of a network of MPAs" ([www.rampao.org](http://www.rampao.org)).

#### *5.5.2 VMEs in the high seas*

In West Africa, there are no closed VME areas (Adron, pers. com).

#### *5.5.3 EBSAs in the high seas*

In West-Africa, there is no process going on to identify EBSAs. Possibly, such a process may start in 2013 (Adron, pers. com).

## **6 Antarctica**

### **6.1 Importance to the Netherlands**

Antarctica is managed through the Antarctic Treaty System (ATS). The Netherlands is one of the 28 consultative members of the ATS and has the right to participate in decision making during the Antarctic Treaty Consultative Meetings (ATCM). To be a consultative member, Countries have to demonstrate their interest in Antarctica by conducting substantial research activity in the Antarctic.

One of the treaties established under the ATS is the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). The Netherlands is one of the signatory parties of CCAMLR and as such has an observer status in CCAMLR, but does not (yet) hold consultative membership.

### **6.2 Area delimitation**

In this report we concentrate on the CCAMLR competence area (Figure 19).

### **6.3 Institutions and their mandates**

CCAMLR is in charge of designating and regulating which part of the Southern Ocean can become part of the network of MPAs. CCAMLR is also in charge of fisheries management. CCAMLR is part of the Antarctic Treaty System (<http://www.asoc.org/issues-and-advocacy/antarctic-environmental-protection/marine-protected-areas>).

### **6.4 Spatial protection measures**

#### **6.4.1 MPAs**

In the Antarctic, a general framework has been developed to establish a network of marine MPAs in order to conserve biodiversity, in accordance with the decision at the Johannesburg World Summit on Sustainable Development in 2002, which strives to create a representative network of MPAs by 2012. This framework is described in Conservation Measure 91-04(2011) ([www.ccamlr.org/pu/e/e\\_pubs/cm/11-12/91-04.pdf](http://www.ccamlr.org/pu/e/e_pubs/cm/11-12/91-04.pdf)).

At the CCAMLR MPA workshop in September 2011 at IPEV in Brest a number of draft proposals for the development of MPAs were reviewed, as well as progress towards the development of a system of MPAs within the 11 priority regions identified in 2008 (CCAMLR 2010b, CCAMLR 2010c, 2011b). The report of this workshop meeting in Brest is available at [http://www.ccamlr.org/pu/e/e\\_pubs/sr/11/sc-30-advance-a6-mpa.pdf](http://www.ccamlr.org/pu/e/e_pubs/sr/11/sc-30-advance-a6-mpa.pdf). These proposals for MPAs were submitted for consideration at the annual CCAMLR meeting in Hobart, Australia, October 2011. There, proposals were discussed on MPAs in the Ross Sea, for a representative system of MPAs in East Antarctica and for ice shelves. However, nothing concrete has been decided (CCAMLR 2011c). The establishment of the South Orkney Islands southern shelf MPA is a first step towards this network of MPAs in the Convention Area.

EBSA selection criteria are not used to develop the CCAMLR network of MPAs, but they have been considered.

The existing system of Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMAs) is part of the Antarctic Treaty under the Madrid Protocol and concerns protected areas both on land and in the ocean. An overview is available at: [http://www.ats.aq/documents/ATCM34/WW/atcm34\\_ww003\\_e.pdf](http://www.ats.aq/documents/ATCM34/WW/atcm34_ww003_e.pdf) (Secretariat of the Antarctic Treaty 2011b, a).

#### 6.4.2 Fishery management measures related to bottom fisheries

- Bottom trawling is prohibited in all high seas areas since 2006, except in areas for which the Commission has conservation measures in force (CM 22-05) ([http://www.ccamlr.org/pu/e/e\\_pubs/cm/11-12/toc.htm](http://www.ccamlr.org/pu/e/e_pubs/cm/11-12/toc.htm))
- Deep Sea gillnetting is also prohibited since 2006 (CM 22-04).
- Exploratory fisheries for *Dissostichus* (toothfish) is prohibited in depths shallower than 550 m to protect benthic communities, except where a deeper depth is specified in a separate conservation measure (CM 22-08).

#### 6.4.3 VMEs

In the context of CCAMLR, VMEs include seamounts, hydrothermal vents, cold water corals and sponge fields. A VME classification guide is available (CCAMLR 2009), as well as a CCAMLR VME registry in which VME encounters are stored (CCAMLR 2010a) such as those of Jones & Lockhart (2011).

Conservation Measure 22-06 (2007) deals with discoveries of VMEs predominantly made during research cruises. It states that these are to be reported. Conservation Measure 22-07 (2008) deals with coincidental encounters during bottom fishing. Prior to fishing, risk assessments should be made of potential for and mitigation against potential adverse impacts to VMEs. When VMEs are encountered during fishing, this has to be reported to CCAMLR. An area is considered a VME risk area (size 1 nautical mile) when a critical number of VME indicator units (currently 10 or more) are recovered in one line segment (1000 hooks or 1200 m of line). VME risk area are notified to all fishing vessels in the area (Wright 2011).

Since 2011, 2 small VME areas have been closed (CCAMLR Conservation Measure 22-09), apart from the South Orkney Islands southern shelf MPA. These are circular areas with a radius of 1.25 nautical miles with centers at 66°56.04'S 170°51.66'E and 67°10.14'S 171°10.26'E (CCAMLR 2011a).

#### 6.4.4 EBSAs

The CBD does not apply to the Southern Ocean, owing to its status under the Antarctic Treaty and Annex I of CBC Decision 1X/20. Therefore, EBSAs may never be identified in this region. The EBSA criteria have been used, however, in the proposal for a Ross Sea MPA by ASOC (ASOC 2010).

## 7 Conclusions

### Worldwide overview of closed VMEs (December 2011)

The closure of Vulnerable Marine Ecosystems (VME) areas is regulated by Regional Fishery Management Organizations/Arrangements (RFMO/As) that manage high seas bottom fisheries. Closed VME areas can be found in the North East and North West Atlantic, Mediterranean, South-East Atlantic, the Indian Ocean, and part of the South Pacific. The overview created in our previous report (Gianni & Bos 2012) is still up-to-date. We therefore refer to that report for an overview of closed VMEs. An overview is also available at [www.highseasmpas.org](http://www.highseasmpas.org).

### Worldwide overview of the EBSA selection processes (March 2012)

The official selection process of Ecologically or Biologically Significant Areas (EBSAs) by the Convention on Biological Diversity (CBD) is an ongoing process. The regional CBD EBSA workshops that have taken place or will take place are:

- North East Atlantic workshop, France, Sept 2011 (10 EBSAs selected)
- Southern Pacific workshop (November 2011)
- Caribbean workshop (Recife, Brazil, March 2012)
- Indian Ocean (Mauritius, 30 July – 3 August, 2012, in collaboration with FAO);
- Eastern Tropical and Temperate Pacific (Galapagos, Ecuador, 27 – 31 August 2012, in collaboration with CPPS)
- North Pacific (Russia, 2012)
- South-east Atlantic (2013).

In addition to the selection of EBSAs in CBD workshops, a number of other EBSA selections have taken place: In Canada, EBSAs were identified for different bio-geographical units within the Canadian Exclusive Economic Zone (EEZ). For example, in 2011, 51 EBSAs were identified in the Canadian Arctic.

- In the wider Arctic, 77 EBSAs and 13 'super EBSAs' have been selected in 2010.
- Birdlife International has identified over 2000 candidate marine Important Bird Areas (IBAs) which are likely to be strong candidates for identification of/inclusion within EBSAs.
- In the Mediterranean, EBSA criteria have been used to select 10 focal areas in 2009 that are used in the process of selecting Special Protected Areas in the Mediterranean (SPAMIs).
- In 2009-2010, GOBI (Global Ocean Biodiversity Initiative) had put forward a number of EBSA examples that served to get the EBSA process started. These illustrate what kind of ecosystems would satisfy the EBSA selection criteria on a worldwide scale. A number of examples have now been elaborated upon and could be considered as real EBSAs.

Since 2011 there is a EBSA repository test website (<http://ebsa.cbd.int/>), which will be filled with EBSAs in the future. As far as we understand, mainly the EBSAs identified through the CBD regional workshops will enter this repository.

### Protection of marine biodiversity in areas of interest to the Dutch Government

- The BES islands and the wider Caribbean

In the BES Islands a number of Marine Protected Areas (MPAs) exist within the Exclusive Economic Zones (EEZs) of the islands. In the wider Caribbean there are no closed VME areas. The EBSA selection process has started in March 2012 and is organized by the CBD. The SPAW protocol (Protocol concerning Spatially Protected Areas and Wildlife) adopted in 1990, under the Cartagena Convention acts as a vehicle to implement the CBD in the Caribbean.

- West-Africa

Since Dutch vessels are fishing on pelagic fish in West-Africa, this area is of interest to the Dutch government. Also many 'Dutch' migratory birds use this part of Africa as their wintering areas. Within the EEZs of West-African countries, a regional network of MPAs exists (Réseau Régional d'Aires Marines Protégées en Afrique de l'Ouest, RAMP AO, [www.rampao.org](http://www.rampao.org)) consisting of 23 MPAs since 2007. In the high seas, there is no RFMO/A that regulates bottom fisheries and hence no VME areas have been closed. As far as we are aware of, there is also no EBSA selection process going on in the high seas. The CBD announced an EBSA selection workshop for the South Atlantic high seas, but it is not clear if it will happen, nor if it includes Western African high seas.

- Antarctica

Antarctica is managed through the Antarctic Treaty System (ATS). The Netherlands is one of the 28 consultative members of the ATS and has the right to participate in decision making during the Antarctic Treaty Consultative Meetings (ATCM). To be a consultative member, countries have to demonstrate their interest in Antarctica by conducting substantial research activity in the area. One of the treaties established under the ATS is the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). CCAMLR is in charge of designating and regulating which part of the Southern Ocean can become part of the network of MPAs. CCAMLR has adopted a framework to establish a MPA network (CM 91-04), but nothing has been decided yet on the establishment of particular MPAs. The establishment of the South Orkney Islands southern shelf MPA in 2010 is a first step towards this network of MPAs in the Convention Area. EBSA criteria are known but not used for this process because the CBD does not apply to the Southern Ocean. Therefore, EBSAs may never be identified in this region. A number of VMEs have been identified in the Antarctic and they are registered in a VME registry. Two very small VME areas (circular, with a radius of 1.25 nautical miles) are closed.

## 8 Links

### EBSAs/VMEs

VME/EBSA overview: [www.highseasmpas.org](http://www.highseasmpas.org)

CBD EBSA repository (test version): <http://ebsa-review.cbd.int/>

GOBI collection of candidate EBSAs: <http://www.gobi.org/candidate-ebsas>

CBD regional workshop results North East Atlantic: <http://geoiq.grida.no/maps/729>

Mediterranean SPAMI project: <http://medabnj.rac-spa.org/>

### MPAs within EEZs

World database of MPAs: <http://www.wdpa-marine.org/#/countries/about>

RAMPAO - Regional network of MPAs in West Africa: [www.rampao.org](http://www.rampao.org)

Caribbean MPAs: database of the Wider Caribbean's Marine Protected Areas:  
<http://campam.gcfi.org/CaribbeanMPA/CaribbeanMPA.php>

### Ecosystems and species

Caribbean Large Marine Ecosystem Project: <http://clme.iwlearn.org/>

Southern Caribbean Cetacean Network: <http://www.sccnetwork.org/>

### Regional Fishery Bodies

FAO Regional Fishery Bodies Map Viewer: <http://www.fao.org/figis/geoserver/factsheets/rfbs.html>

(see also section 1.5 'List of acronyms and abbreviations' for more links)

## 9 Quality Assurance

*Decimal characters: Data is in derogation Dutch SI reported a decimal point (.) Instead of a comma (,).*

IMARES utilises an ISO 9001:2008 certified quality management system (certificate number: 57846-2009-AQ-NLD-RvA). This certificate is valid until 15 December 2012. The organisation has been certified since 27 February 2001. The certification was issued by DNV Certification B.V. Furthermore, the chemical laboratory of the Environmental Division has NEN-AND-ISO/IEC 17025:2005 accreditation for test laboratories with number L097. This accreditation is valid until 27 March 2013 and was first issued on 27 March 1997. Accreditation was granted by the Council for Accreditation.

## 10 Acknowledgements

We thank Peter Prins for his help in the literature research and discussions. We also thank Joclyn Paulic, Jeff Ardron, Dorothée Herr, Léa Olsen, Giuseppe Notarbartolo di Sciara for providing data and information on EBSAs. We are also grateful to Jan Andries van Franeker and Chris Klok for their comments and suggestions.

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## Justification

Report number : C058/12

Project Number : 4308201048

The scientific quality of this report has been peer reviewed by the a colleague scientist and the head of the department of IMARES.

Approved: Chris Klok  
Senior researcher

Signature:



Date: 7 May 2012

Approved: Jakob Asjes  
Head IMARES Department of Marine Ecosystems

Signature:



Date: 7 May 2012

## Annex A EBSAs: Convention on Biological Diversity, COP9 Decision IX/20

*Annex I: Scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open-ocean waters and deep-sea habitats (CBD 2008)*

Criteria	Definition	Rationale	Examples	Consideration in application
<b>Uniqueness or rarity</b>	Area contains either (i) unique ("the only one of its kind"), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features	-Irreplaceable -Loss would mean the probable permanent disappearance of diversity or a feature, or reduction of the diversity at any level.	<i>Open ocean waters</i> Sargasso Sea, Taylor column, persistent polynyas. <i>Deepsea habitats</i> endemic communities around submerged atolls; hydrothermal vents; sea mounts; pseudo-abyssal depression	-Risk of biased-view of the perceived uniqueness depending on the information availability -Scale dependency of features such that unique features at one scale may be typical at another, thus a global and regional perspective must be taken
<b>Special importance for life history stages of species</b>	Areas that are required for a population to survive and thrive.	Various biotic and abiotic conditions coupled with species-specific physiological constraints and preferences tend to make some parts of marine regions more suitable to particular life-stages and functions than other parts.	Area containing: (i) breeding grounds, spawning areas, nursery areas, juvenile habitat or other areas important for life history stages of species; or (ii) habitats of migratory species (feeding, wintering or resting areas, breeding, moulting, migratory routes).	-Connectivity between life-history stages and linkages between areas: trophic interactions, physical transport, physical oceanography, life history of species -Sources for information include: e.g. remote sensing, satellite tracking, historical catch and by-catch data, vessel monitoring system (VMS) data. -Spatial and temporal distribution and/or aggregation of the species.
<b>Importance for threatened, endangered or declining species and/or habitats</b>	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.	To ensure the restoration and recovery of such species and habitats.	Areas critical for threatened, endangered or declining species and/or habitats, containing (i) breeding grounds, spawning areas, nursery areas, juvenile habitat or other areas important for life history stages of species; or (ii) habitats of migratory species (feeding, wintering or resting areas, breeding, moulting, migratory routes).	-Includes species with very large geographic ranges. -In many cases recovery will require reestablishment of the species in areas of its historic range. -Sources for information include: e.g. remote sensing, satellite tracking, historical catch and by-catch data, vessel monitoring system (VMS) data.
<b>Vulnerability, fragility, sensitivity, or slow recovery</b>	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	The criteria indicate the degree of risk that will be incurred if human activities or natural events in the area or component cannot be managed effectively, or are pursued at an unsustainable rate.	<i>Vulnerability of species</i> -Inferred from the history of how species or populations in other similar areas responded to perturbations. -Species of low fecundity, slow growth, long time to sexual maturity, longevity (e.g. sharks, etc). -Species with structures providing biogenic habitats, such as deepwater corals, sponges and bryozoans; deep-water species. <i>Vulnerability of habitats</i> -Ice-covered areas susceptible to ship-based pollution. -Ocean acidification can make deepsea habitats more vulnerable to others, and increase susceptibility to human-induced changes.	-Interactions between vulnerability to human impacts and natural events -Existing definition emphasizes site specific ideas and requires consideration for highly mobile species -Criteria can be used both in its own right and in conjunction with other criteria.
<b>Biological productivity</b>	Area containing species, populations or communities with comparatively higher natural biological productivity.	Important role in fuelling ecosystems and increasing the growth rates of organisms and their capacity for reproduction	-Frontal areas -Upwellings -Hydrothermal vents -Seamounts polynyas	-Can be measured as the rate of growth of marine organisms and their populations, either through the fixation of inorganic carbon by photosynthesis, chemosynthesis, or through the ingestion of prey, dissolved organic matter or particulate organic matter -Can be inferred from remote-sensed products, e.g., ocean colour or process-based models -Time-series fisheries data can be used, but caution is required
<b>Biological diversity</b>	Area contains comparatively higher diversity of ecosystems,	Important for evolution and maintaining the	-Sea-mounts -Fronts and convergence zones	-Diversity needs to be seen in relation to the surrounding environment -Diversity indices are indifferent to

Criteria	Definition	Rationale	Examples	Consideration in application
	habitats, communities, or species, or has higher genetic diversity.	resilience of marine species and ecosystems	-Cold coral communities -Deep-water sponge communities	species substitutions -Diversity indices are indifferent to which species may be contributing to the value of the index, and hence would not pick up areas important to species of special concern, such as endangered species -Can be inferred from habitat heterogeneity or diversity as a surrogate for species diversity in areas where biodiversity has not been sampled intensively.
<b>Naturalness</b>	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	-To protect areas with near natural structure, processes and functions -To maintain these areas as reference sites -To safeguard and enhance ecosystem resilience	Most ecosystems and habitats have examples with varying levels of naturalness, and the intent is that the more natural examples should be selected.	-Priority should be given to areas having a low level of disturbance relative to their surroundings -In areas where no natural areas remain, areas that have successfully recovered, including reestablishment of species, should be considered. -Criteria can be used both in their own right and in conjunction with other criteria.

*Annex II: Scientific guidance for selecting areas to establish a representative network of marine protected areas, including in open ocean waters and deep-sea habitats*

Required network properties and components	Definition	Applicable site specific considerations ( <i>inter alia</i> )
Ecologically and biologically significant areas	Ecologically and biologically significant areas are geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole, compared to other surrounding areas or areas of similar ecological characteristics, or otherwise meet the criteria as identified in annex I to decision IX/20.	<ul style="list-style-type: none"> <li>• Uniqueness or rarity</li> <li>• Special importance for life history stages of species</li> <li>• Importance for threatened, endangered or declining species and/or habitats</li> <li>• Vulnerability, fragility, sensitivity or slow recovery</li> <li>• Biological productivity</li> <li>• Biological diversity</li> <li>• Naturalness</li> </ul>
Representativity	Representativity is captured in a network when it consists of areas representing the different biogeographical subdivisions of the global oceans and regional seas that reasonably reflect the full range of ecosystems, including the biotic and habitat diversity of those marine ecosystems.	A full range of examples across a biogeographic habitat, or community classification; relative health of species and communities; relative intactness of habitat(s); naturalness
Connectivity	Connectivity in the design of a network allows for linkages whereby protected sites benefit from larval and/or species exchanges, and functional linkages from other network sites. In a connected network individual sites benefit one another.	Currents; gyres; physical bottlenecks; migration routes; species dispersal; detritus; functional linkages. Isolated sites, such as isolated seamount communities, may also be included.
Replicated ecological features	Replication of ecological features means that more than one site shall contain examples of a given feature in the given biogeographic area. The term "features" means "species, habitats and ecological processes" that naturally occur in the given biogeographic area.	Accounting for uncertainty, natural variation and the possibility of catastrophic events. Features that exhibit less natural variation or are precisely defined may require less replication than features that are inherently highly variable or are only very generally defined.
Adequate and viable sites	Adequate and viable sites indicate that all sites within a network should have size and protection sufficient to ensure the ecological viability and integrity of the feature(s) for which they were selected.	Adequacy and viability will depend on size; shape; buffers; persistence of features; threats; surrounding environment (context); physical constraints; scale of features/processes; spillover/compactness.

## Annex B EBSA Maps

### North East Atlantic

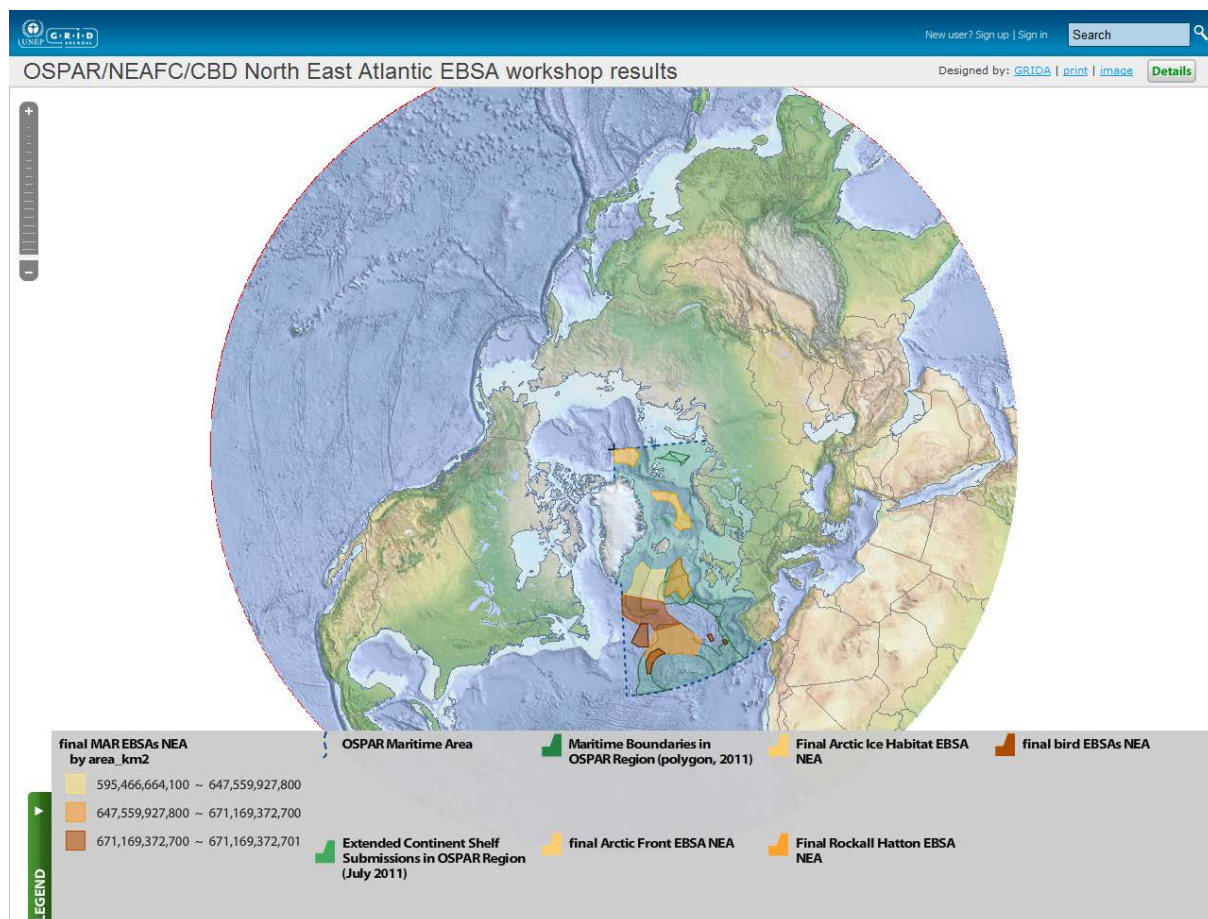
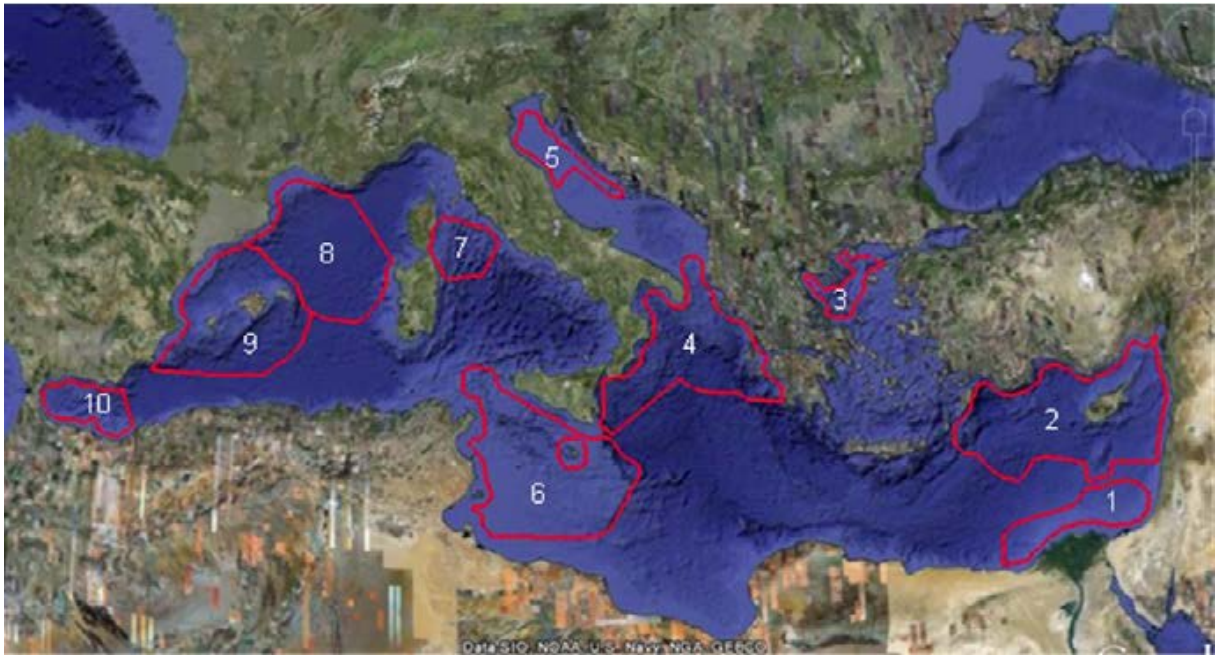


Figure 5. EBSAs selected at the OSPAR/NEAFC/CBD North East Atlantic EBSA workshop, September 2011, France (Source: <http://geoiq.grida.no/maps/729>).

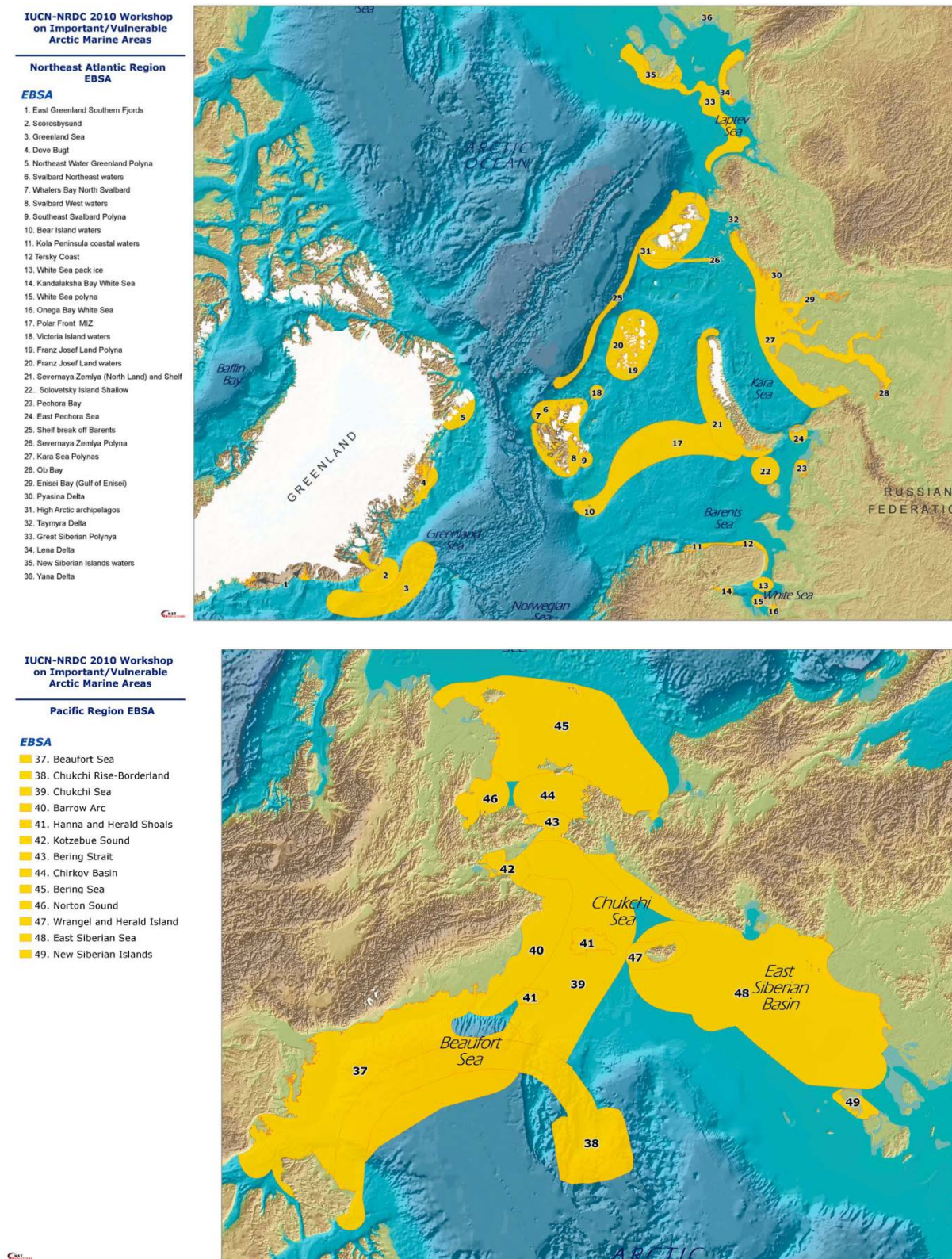
## Mediterranean



*Figure 6. Marine Ecologically or Biologically Significant Areas in the Mediterranean (1 – Nile Delta Region; 2 – Levantine Sea; 3 – Aegean Sea; 4 – Ionian Sea; 5 –Adriatic Sea; 6 – Tunisian Plateau; 7 – Tyrrhenian Sea; 8 – Gulf of Lions area; 9 –Balearic Islands area; 10 – Sea of Alboran) (Notarbartolo di Sciara & Agardy 2009).*

## Arctic

Figure 7. (3 maps) EBSAs selected at the IUCN/NRDC Workshop to Identify Areas of Ecological and Biological Significance or Vulnerability in the Arctic Marine Environment, November 2010 (Speer & Laughlin 2011)).

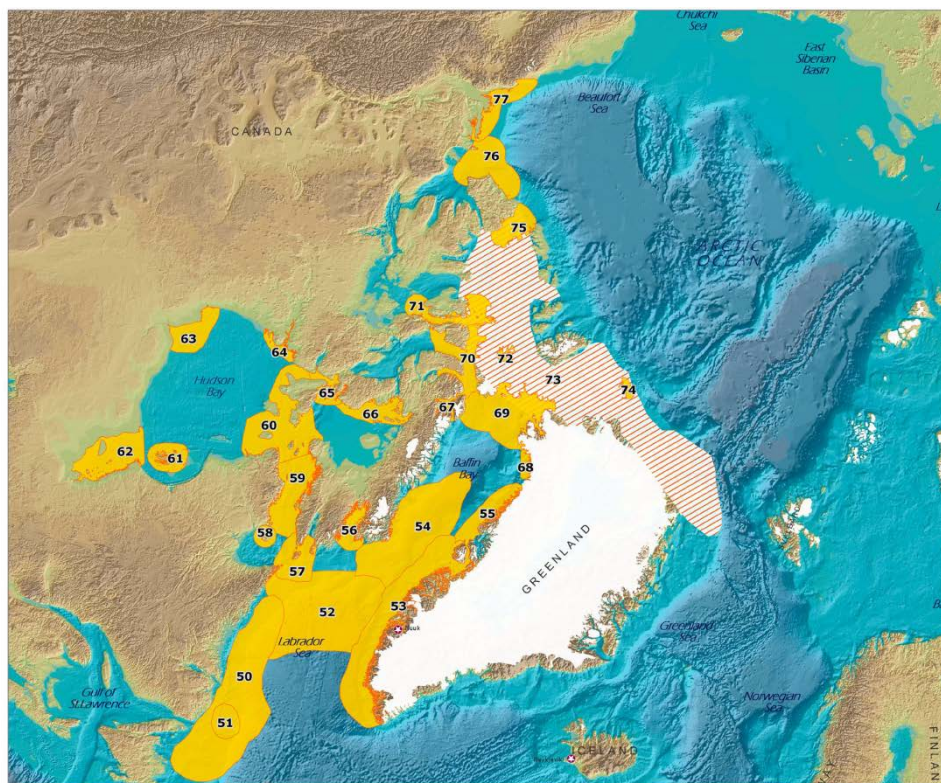


**IUCN-NRDC 2010 Workshop  
on Important/Vulnerable  
Arctic Marine Areas**

**EBSA**

50. Labrador Shelf Edge
51. The Front
52. Southern Davis Strait
53. West Greenland Current Area
54. Central Davis Strait
55. Upernavik Migration Corridor
56. Cumberland Sound
57. Eastern Hudson Strait/Frobisher Bay
58. Ungava Bay
59. Central Hudson Strait
60. Northern Hudson Bay Narrows
61. Belcher Islands
62. James Bay
63. Churchill/Nelson Rivers
64. Chesterfield Inlet
65. Repulse Bay
66. Northwest Foxe Basin
67. Navy Board Inlet
68. Melville Bay
69. North Water Polynya
70. Lancaster Sound
71. Peel Channel
72. Western Jones Sound
73. Polar Pack September 2040 Projection
74. Ice Shelves
75. M'Clure Strait
76. Cape Bathurst Polynya
77. Mackenzie Estuary

 ESRI



## Canada

Figure 8. (2 maps) EBSAs selected in Canada (DFO 2007, 2011). More EBSAs have been selected in other parts of the Canadian EEZ.

### SIGNIFICANT AREAS (EBSA) IN THE CANADIAN ARCTIC

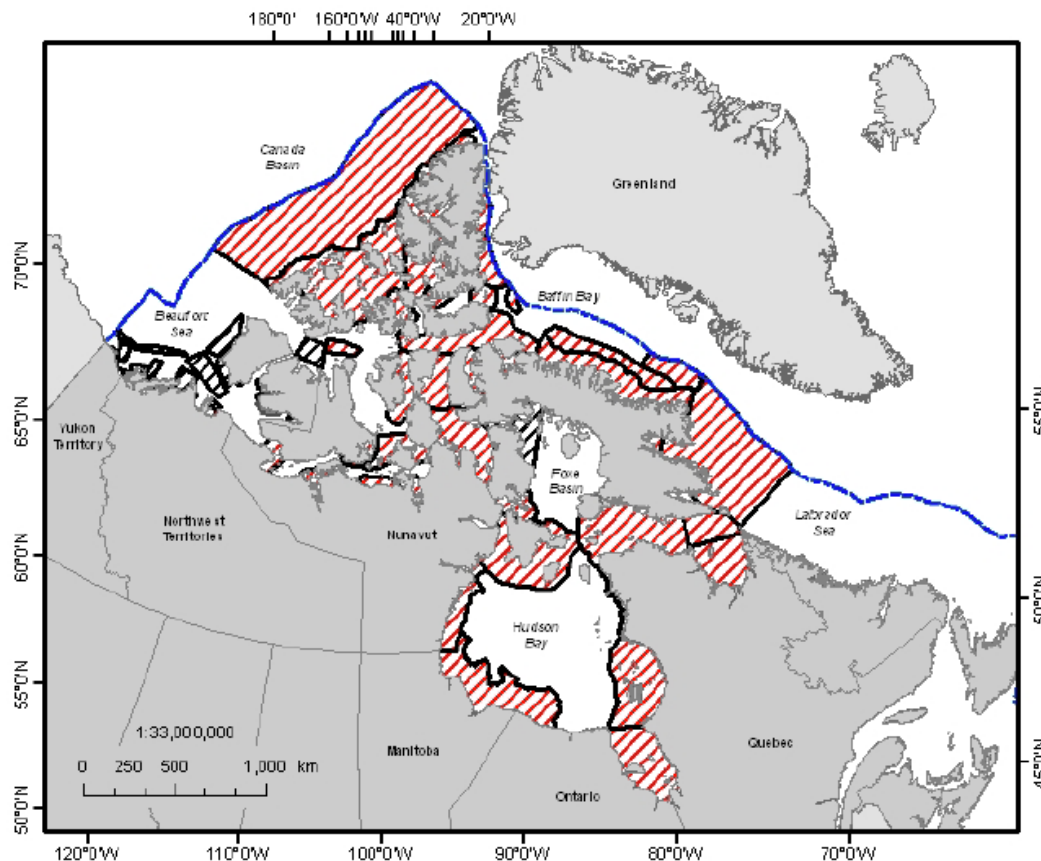


Figure EBSAs identified within the five Arctic biogeographic regions (DFO 2009a) within Canadian Arctic waters, including those identified during this advisory meeting (red hatch marks) and those identified previously from the northern Foxe Basin and Beaufort Sea exercises (black hatch marks). The blue dashed line represents Canada's international boundary.

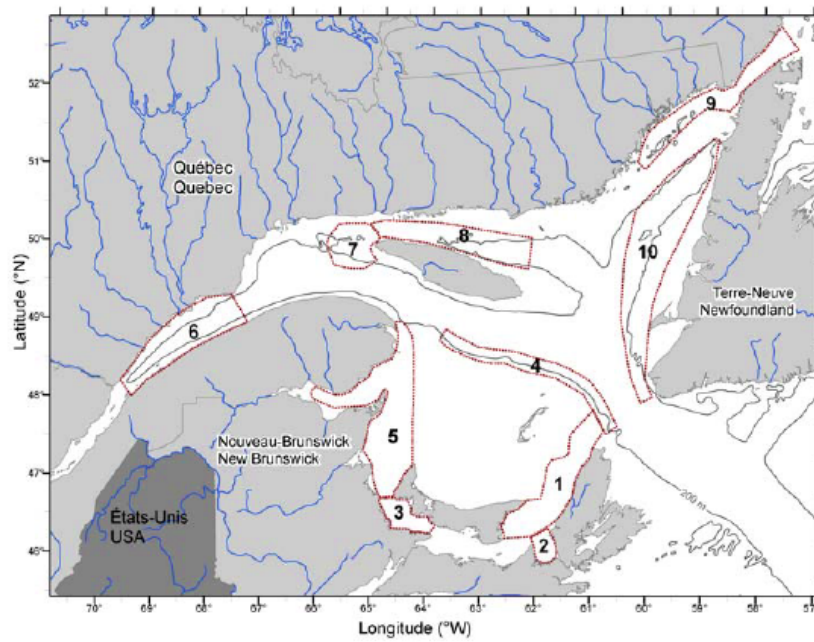


Figure EBSA distribution in the Estuary and Gulf of St. Lawrence: EBSA (1) western Cape Breton, (2) St. George's Bay, (3) Northumberland Strait, (4) the southern fringe of the Laurentian Channel, (5) the south-western coast of the Gulf, (6) the lower estuary, (7) western Anticosti Island, (8) northern Anticosti Island, (9) the Strait of Belle Isle, (10) the west coast of Newfoundland.

## Annex C MPAs within West-African EEZs



Figure 9. West-African network of MPAs inside the EEZs (UNEP-WCMC 2008)

## Annex D Regional Fishery Body Maps (alphabetically per region)

### Caribbean

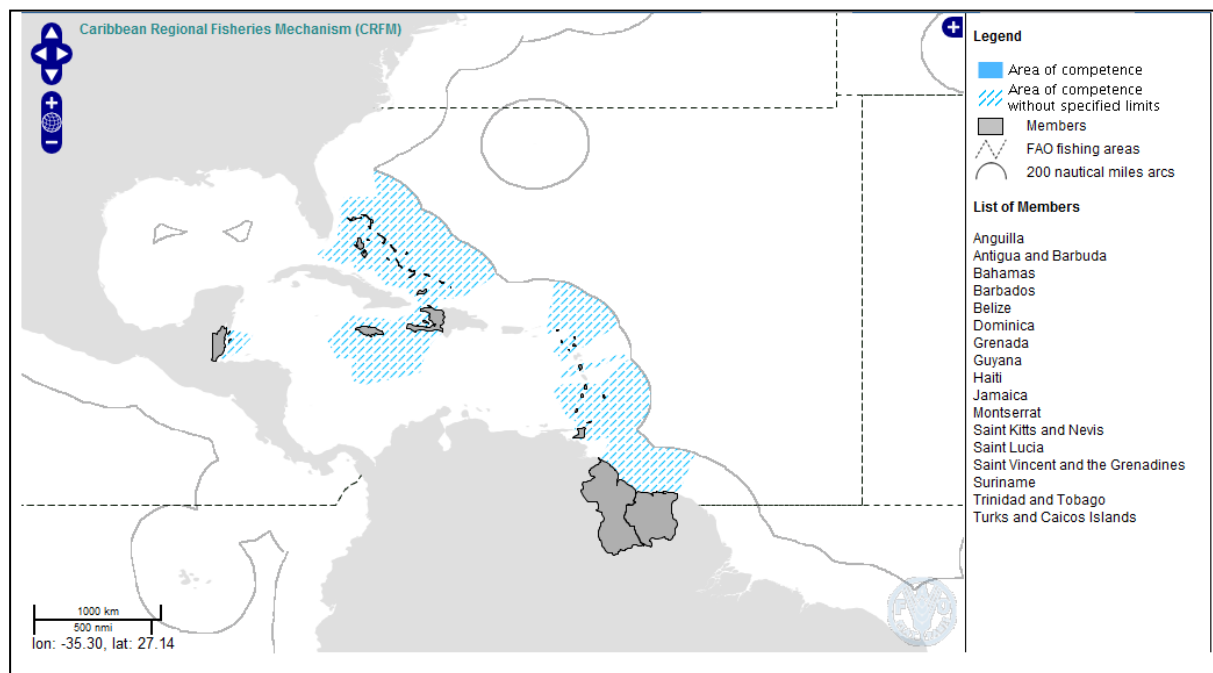


Figure 10. Competence area of the Caribbean Regional Fisheries Mechanism (CRFM) (map: FAO).

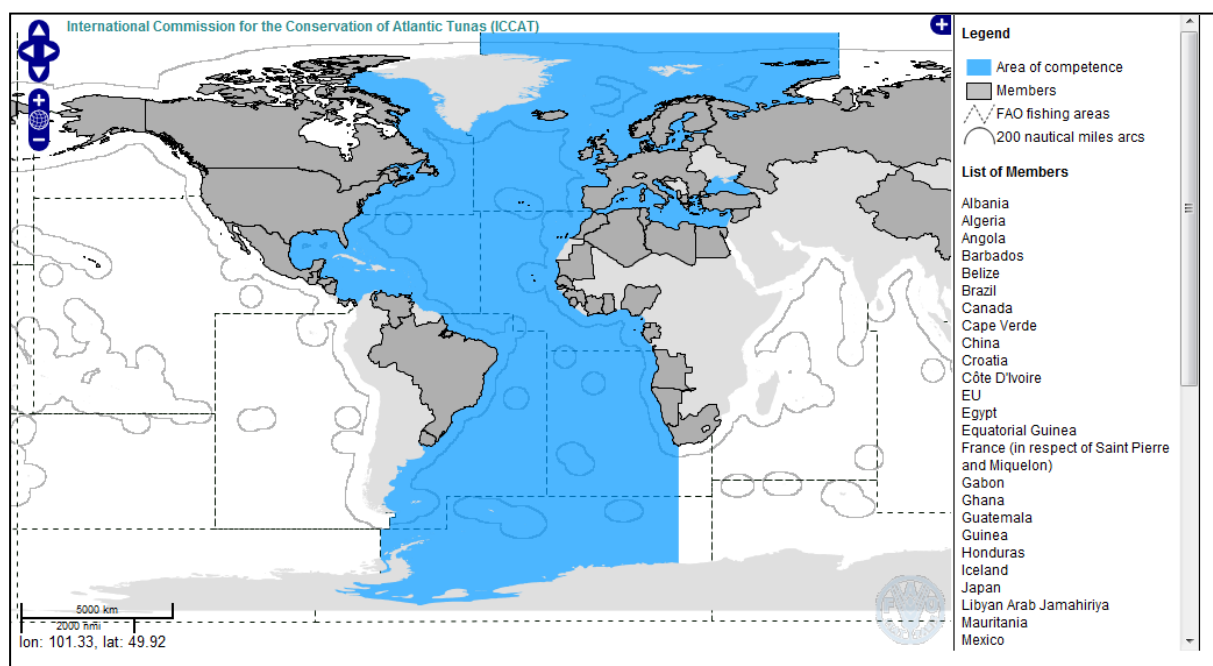


Figure 11. Competence area of the International Commission for the Conservation of Atlantic Tuna (ICCAT) (map: FAO).

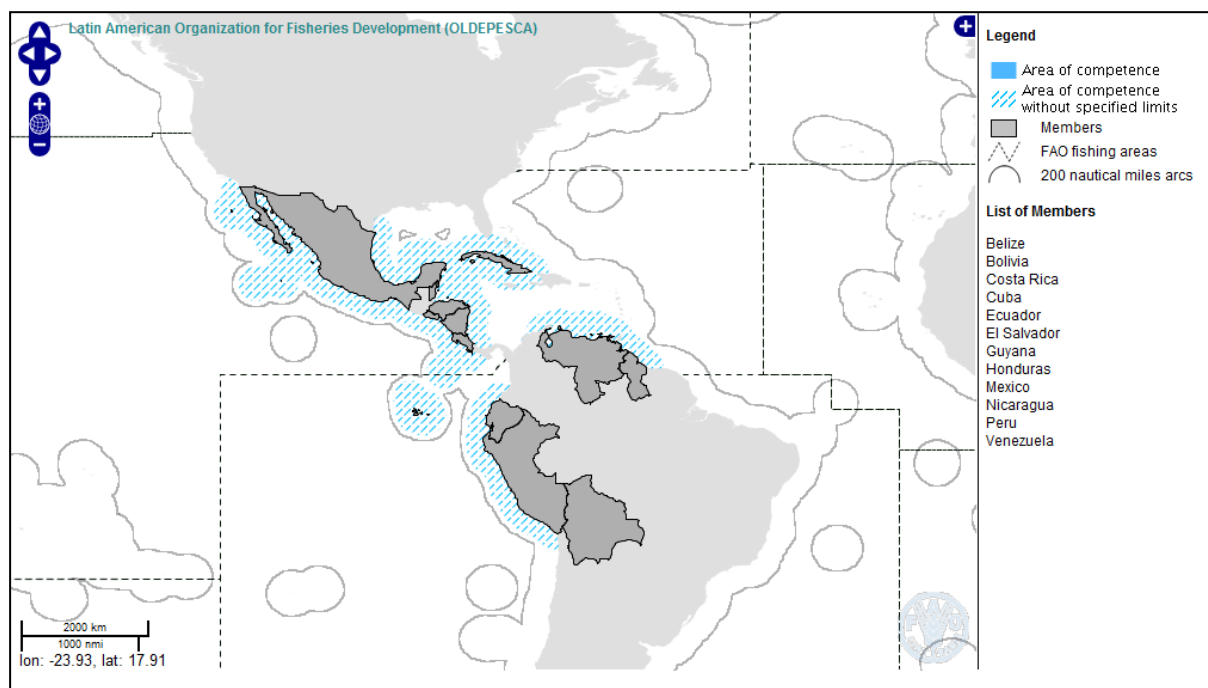


Figure 12. Competence area of the Latin American Organization for Fisheries Development (OLDEPESCA)(map: FAO).

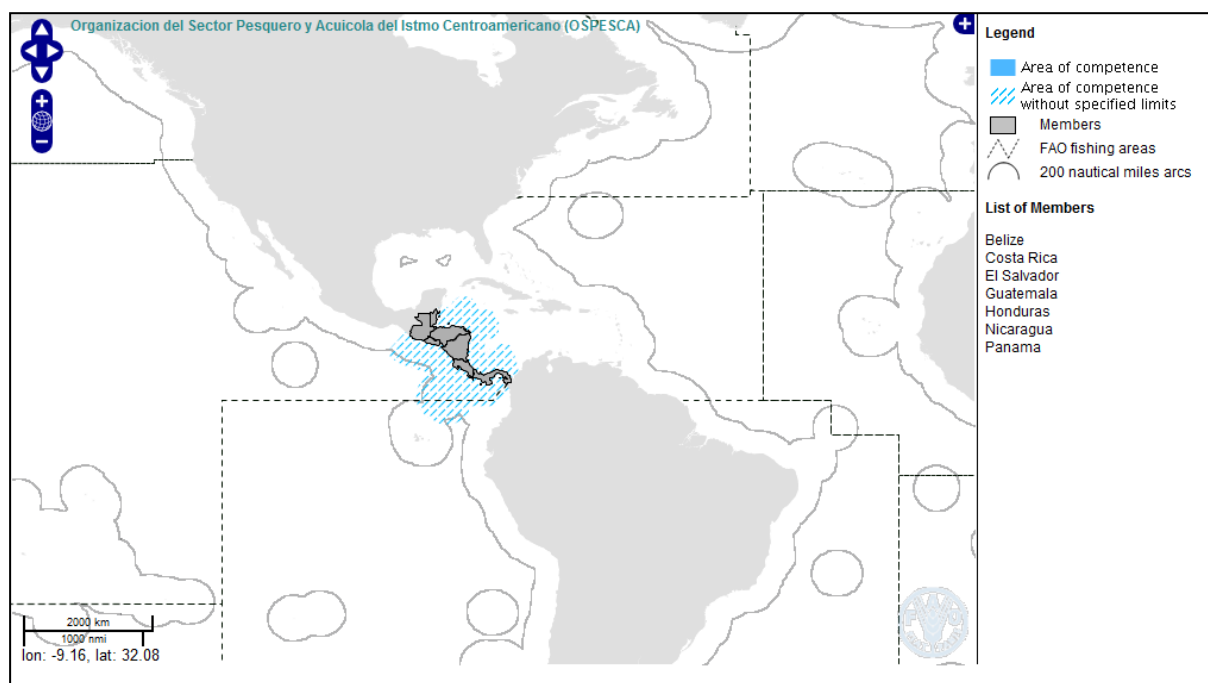


Figure 13. Competence area of the Sector Pesquero y Acuicola del Istmo Centroamericano (OSPESCA) (map: FAO).

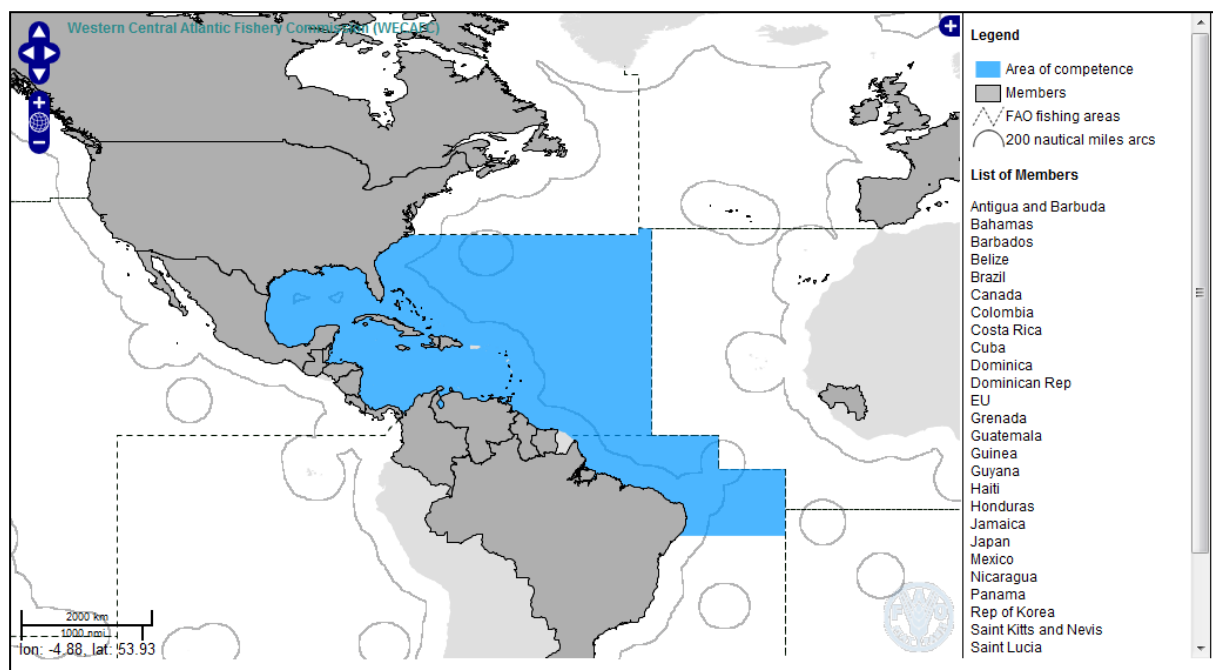


Figure 14. Competence area of the Western Central Atlantic Fishery Commission (WECAFC) (map: FAO).

## West-Africa

### CECAF area of competence - High seas, National waters

[Launch the RFBs map viewer](#)

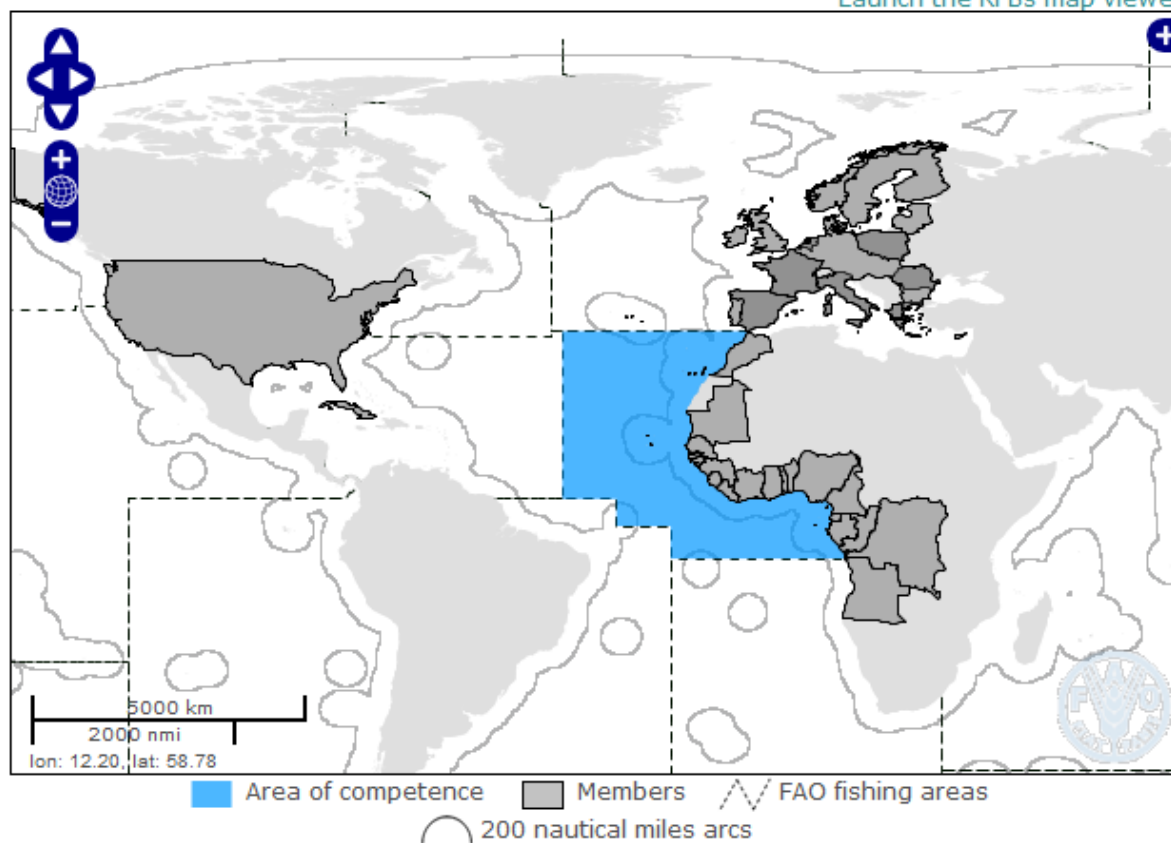
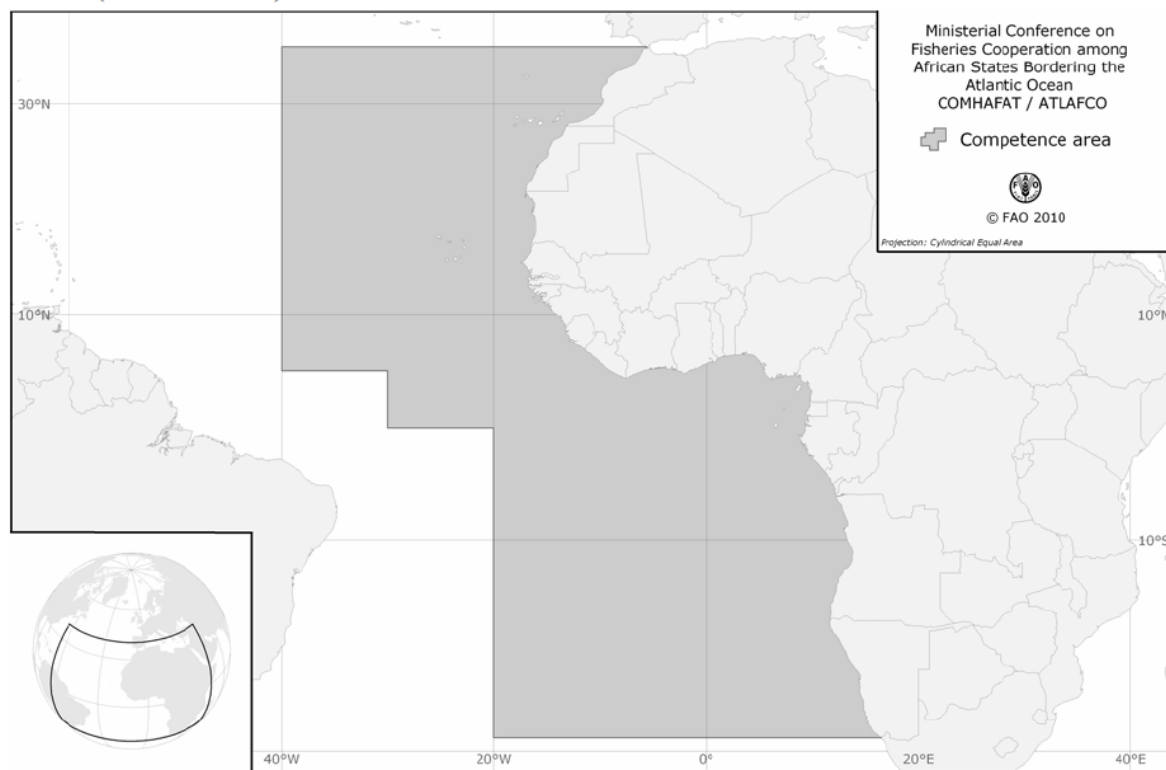


Figure 15. Competence area and members of CECAF (<http://www.fao.org/fishery/rfb/cecaf/en>).

## Ministerial Conference on Fisheries Cooperation among African States bordering the Atlantic Ocean (COMHAFAT)



Source: FAO.

Figure 16. Competence area of COMHAFAT (Lugten 2010).

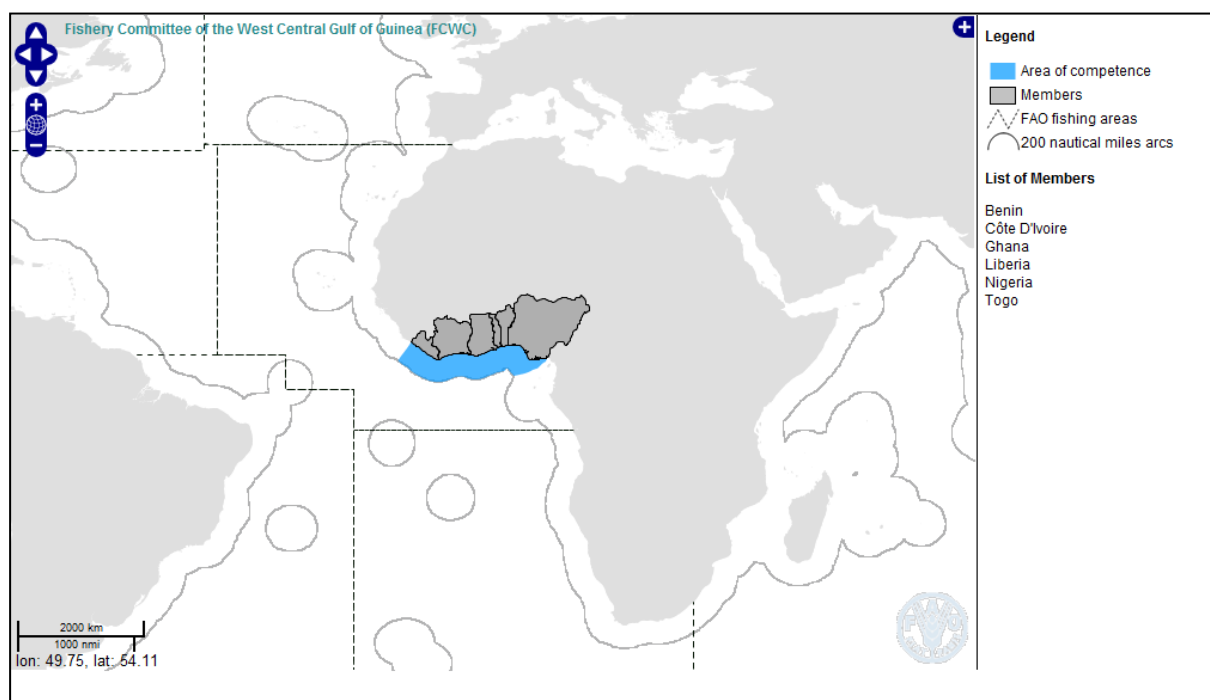


Figure 17. Competence area of the Fisheries Committee of the West Central Gulf of Guinea (FCWC) (map: FAO).

## SRFC area of competence - National waters

[Launch the RFBs map viewer](#)

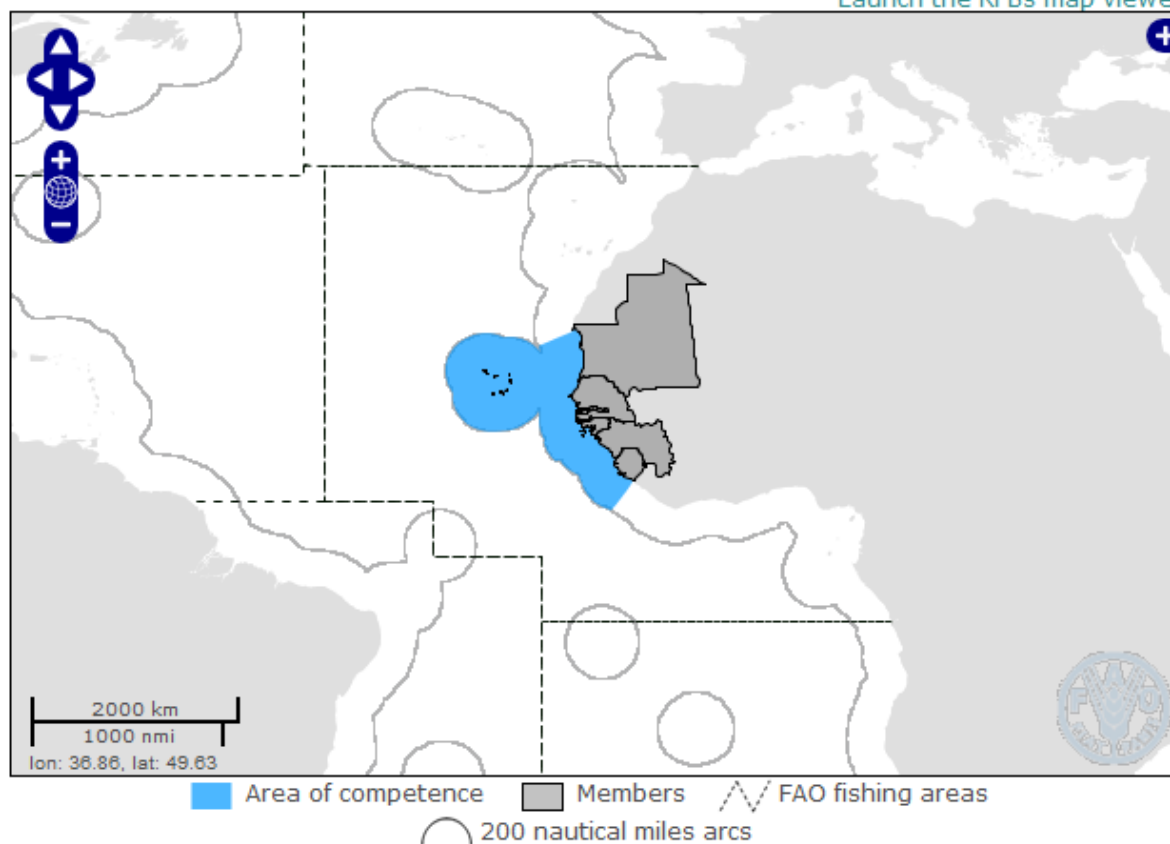
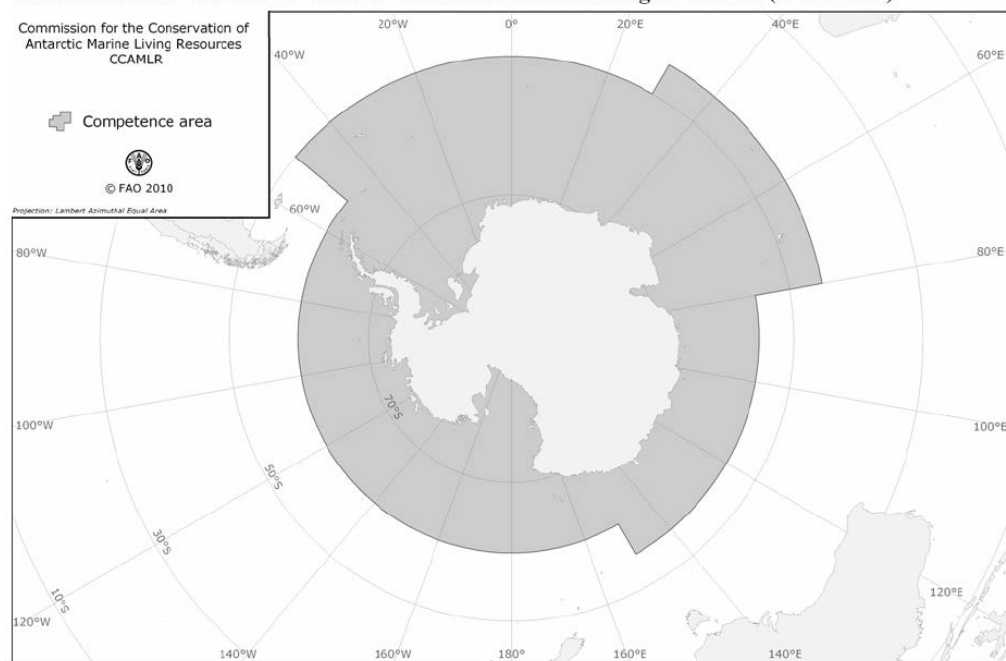


Figure 18. Competence area and members of the Subregional Fisheries Commission (SFC) (<http://www.fao.org/fishery/rfb/srhc/en>).

## Antarctica

### Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)



Source: FAO.

Figure 19. Competence area of CCAMLR (Lugten 2010)