Introducing Important Marine Mammal Areas – IMMAs

Unwrapping a new tool for global marine mammal and biodiversity conservation

GOBI Webinar 1: 28.10.2020. 2pm GMT

Erich Hoyt and Giuseppe Notarbartolo di Sciara
Co-chairs, IUCN Marine Mammal Protected Areas Task Force
A tool to support 130 marine mammal species and the biodiversity in their ecosystems
Are marine mammals adequately protected?

- 600+ (out of 17,000) MPAs have substantial marine mammal content
- no coverage for most species (e.g. beaked whales)
- ad hoc or incidental protection is rule
- political, socio-economic bias
- Tiny % covered

NOT GOOD ENOUGH!
Objectives:

- Facilitate collaboration in our community
- Create opportunities for cooperation and communication
- Assist in achieving MPA targets and agreements
- Enhance capacity with new conservation tools

IUCN Task Force co-chairs
Giuseppe Notarbartolo di Sciara
Erich Hoyt

IMMA Secretariat

Task Force Regional Coordinators
Important Marine Mammal Areas (IMMAs) are a place-based conservation tool identifying:

“discrete portions of habitat, important for one or more marine mammal species, that have the potential to be delineated and managed for conservation”.

IMMAs are NOT Marine Protected Areas, and are NOT identified on the basis of management considerations.

The identification of IMMAs is an evidence-driven, purely biocentric process based on the application of scientific criteria and on the best available science.
IMMA Work Programme 2016 - 2021

*PRELIMINARY BOUNDARIES PROVIDED FOR SCALE OF INTENDED GLOBAL IMMA EFFORT - THE AREAS YET TO BE ARRANGED MAY CHANGE DURING THE PREPARATORY STAGES OF ANY WORKSHOP TO BE SCHEDULED AND ASSESSED.
Each workshop follows a predefined process, developed in consultation with the regional marine mammal science and conservation community, to identify **candidate IMMAs (cIMMAs)** on the basis of received proposals for **Areas of Interest (AoI)**.

After the workshop, cIMMAs are submitted to an **independent Review Panel of experts**, to verify that the criteria were applied correctly and that cIMMAs were identified on the basis of robust scientific information.

Candidate IMMAs are then converted into IMMAs and are made publicly available online via the IUCN-MMPATF website and dedicated IMMA e-Atlas:

www.marinemammalhabitat.org/imma-eatlas
IMMA Identification Process

**Stage 1**
- Areas of Interest (AoI)
- Collated information indicating areas of suitable evidence

**Stage 2**
- Candidate IMMA (cIMMA)
- Regionally proposed and accepted by expert workshops

**Stage 3**
- IMMA
  - Globally important areas peer-reviewed and accepted by expert panel

**Data Collection** ➔ **New Analyses** ➔ **Advocacy**
pre-workshop

Area of Interest - AoI
workshop results

candidate IMMA - cIMMA
Area of Interest - AoI
Area of Interest - AoI

pre-workshop
workshop results

- candidate IMMA - cIMMA
- Area of Interest - AoI
Important Marine Mammal Area - IMMA review results

- Area of Interest - AoI
- Candidate IMMA - cIMMA
- Important Marine Mammal Area - IMMA
pre-workshop

Area of Interest - AoI
workshop results

- candidate IMMA - cIMMA
- Area of Interest - AoI
The Marine Mammal Protected Areas Task Force (MMPATF) has been created by the International Committee on Marine Mammal Protected Areas (ICMMPA), the
October 2020 Update
159 IMMA:as Identified

[Map showing distribution of IMMA areas around the world]
October 2020 Update
159 IMMAs Identified
October 2020 Update

159 IMMAs Identified

IMMA e-Atlas
October 2020 Update
159 IMMAs Identified

North West Mediterranean Sea, Slope, and Canyon System - IMMA

Summary: The North West Mediterranean has a set of geomorphological and oceanographic characteristics, including canyon systems and upwellings, which promote levels of productivity of extraordinary biological and ecological significance. The Pelagos Sanctuary area, within the Provençal-Corsican-Ligurian Basin – complemented by an extension to the West encompassing the offshore portion of the Gulf of Lion to the Balearic sub-basin – contains habitat supporting a diversity of cetacean species regularly found in the Mediterranean Sea. In particular, this area contains important habitat for Vulnerable Mediterranean fin whales (Balaenoptera physalus), Endangered sperm whales (Physeter macrocephalus), and Risso’s dolphins (Grampus griseus).
October 2020 Update
159 IMMAs Identified

North West Mediterranean Sea, Slope, and shelf IMMAs

Summary: The North West Mediterranean has a set of geomorphological and ocean systems and upwellings, which promote levels of productivity of extraordinary biological richness, associated with a high diversity of marine species and habitats. This IMMMA includes the Pelagos Sanctuary area, within the Provençal-Corsican-Ligurian Basin – complementing the offshore portion of the Gulf of Lion to the Balearic sub-basin – containing several cetacean species regularly found in the Mediterranean Sea. In particular, this includes the Mediterranean fin whale (Balaenoptera physalus), endangered sperm whale ( Physeter macrocephalus), and other species such as the humpback whale (Megaptera novaeangliae), beaked whale (Ziphius cavirostris), Risso’s dolphin (Grampus griseus), and others.

Size in Square Kilometres
150 ± 15 km2

Qualifying Species and Criteria
- Humpback whale - Megaptera novaeangliae
- Criteria A, B, D, E, F, H

IMMAs: Marine Mammal Diversity

- Balaenoptera acutorostrata, Balaenoptera edeni, Balaenoptera physalus, Delphinus delphis, Globicephala melas, Grampus griseus, Globicephala melas, Phocoena phocoena, Phocoena phocoena, Phyllopus phyllopus, Pseudorca crassidens, Sotalia plumbea, Serrius longirostris, S. australis, Tursiops truncatus, Tursiops aduncus, Tursiops truncatus, Ziphius cavirostris
October 2020 Update
159 IMMAs Identified
October 2020 Update

159 IMMAs Identified
October 2020 Update
159 IMMAs Identified

The Sizes of IMMAs

• The total area of all 159 IMMAs combined is 15,672,267 km².
• The largest is 2,861,819 km² encompassing an area of the Extended Southern Ocean – the Prince Edward Islands and Western Oceanic Waters IMMA – which has habitat for 2 species of fur seals, southern elephant seals and killer whales.
• The smallest is 45 km², the Akrotiri IMMA which includes breeding caves for the Mediterranean monk seal.
• 51% of IMMAs are less than 10,000 km² in size
• Only 13% of IMMAs have an area greater than 100,000 km².
October 2020 Update
159 IMMAs Identified

### Number of IMMAs, cIMMAs and AoI by Region

<table>
<thead>
<tr>
<th>REGION</th>
<th>IMMA</th>
<th>CIMMA</th>
<th>AoI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia, New Zealand and South East Indian Ocean</td>
<td>31</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>African Atlantic</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Extended Southern Ocean</td>
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<tr>
<td>Mediterranean</td>
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<td>7</td>
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</tr>
<tr>
<td>European Atlantic</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North East Indian Ocean and South East Asian Seas</td>
<td>30</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>20</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>Western Indian Ocean and Arabian Seas</td>
<td>37</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>Grand Total</td>
<td>159</td>
<td>24</td>
<td>128</td>
</tr>
</tbody>
</table>
Important Marine Mammal Areas

Selection Criteria and Identification Process

- 8 Selection Criteria
- 3 Stage Identification Process
- Submission Forms
- Guidance on Boundary Delineation
Criterion A - Species or Population Vulnerability

Criterion B – Distribution and Abundance
- Sub-criterion B1 – Small an Resident Populations
- Sub-criterion B2 – Aggregations

Criterion C – Key Life Cycle Areas
- Sub-criterion C1 – Reproductive
- Sub-criterion C2 – Feeding
- Sub-criterion C3 – Migration

Criterion D – Special Attributes
- Sub-criterion D1 – Distinctiveness
- Sub-criterion D2 – Diversity

**Important Marine Mammal Area (IMMA)**

‘A discrete portion of habitat, important for one or more marine mammal species, that has the potential to be delineated and managed for conservation’

Identified using an expert-based bio-centric identification process in open consultation with the wider marine mammal knowledge community.
Important Marine Mammal Area (IMMA)

Guidance drafted in consultation with over 1000 experts within the marine mammal research and conservation community

Public Consultations held between 2013-2016

‘A discrete portion of habitat, important for one or more marine mammal species, that has the potential to be delineated and managed for conservation’

Identified using an expert-based bio-centric identification process in open consultation with the wider marine mammal knowledge community
Alignment of IMMA Criteria with other conservation prioritization classifications:

• Ecologically or Biologically Important Area – EBSA  
  Convention on Biological Diversity  

• Key Biodiversity Area – KBA  
  IUCN Global Standard  

• Biologically Important Area – BIA  
  U.S.A and Australia  

• Critical Cetacean Habitat – CCH  
  Convention on Migratory Species - ACCOBAMS  

• Wetlands of International Importance  
  RAMSAR Convention  

Important Marine Mammal Area (IMMA)

‘A discrete portion of habitat, important for one or more marine mammal species, that has the potential to be delineated and managed for conservation’

Identified using an expert-based bio-centric identification process in open consultation with the wider marine mammal knowledge community
Criterion A - Species or Population Vulnerability

Criterion B - Distribution and Abundance
  Sub-criterion B1 - Small and Resident Populations
  Sub-criterion B2 - Aggregations

Criterion C - Key Life-cycle Activities
  Sub-criterion C1 - Reproductive Areas
  Sub-criterion C2 - Feeding Areas
  Sub-criterion C3 - Migration Areas

Criterion D - Special Attributes
  Sub-criterion D1 - Distinctiveness
  Sub-criterion D2 - Diversity
Which criteria were used?
159 IMMAs Identified
Criterion A - Species or Population Vulnerability

Areas containing habitat important for the survival and recovery of threatened and declining species.

Region: Pacific Islands

Qualifying species: dugong
Criterion B - Distribution and Abundance

*Sub-criterion B1 - Small and Resident Populations*

*Areas supporting at least one resident population, containing an important proportion of that species or population, that are occupied consistently*

Region: Australia-New Zealand and South East Indian Ocean

Qualifying species: Maui dolphin
Criterion B - Distribution and Abundance

Sub-criterion B2: Aggregations

Areas with underlying qualities that support important concentrations of a species or population.

Region: Extended Southern Ocean

Qualifying species: blue, fin, humpback, and killer whales; Antarctic fur seal
Criterion C - Key Life-cycle Activities

Sub-criterion C1 - Reproductive Areas

Areas that are important for a species or population to mate, give birth, and/or care for young until weaning.

Region: Mediterranean

Qualifying species: sperm whale
Criterion C - Key Life-cycle Activities

Sub-criterion C2 - Feeding Areas

Areas and conditions that provide an important nutritional base on which a species or population depends.

Region: Mediterranean

Qualifying species: harbour porpoise
Criterion C - Key Life-cycle Activities

Sub-criterion C3 - Migration Areas

Areas used for important migration or other movements, often connecting distinct life-cycle areas or the different parts of the year-round range of a non-migratory population.

Region: Western Indian Ocean and Arabian Seas

Qualifying species: humpback whale
Criterion D - Special Attributes

Sub-criterion D1 - Distinctiveness

Areas which sustain populations with important genetic, behavioural or ecologically distinctive characteristics.

Region: North East Indian Ocean and South East Asian Seas

Qualifying species: Irrawaddy dolphin
Criterion D - Special Attributes

Sub-criterion D2 - Diversity

Areas containing habitat that supports an important diversity of marine mammal species.

Region: Western Indian Ocean and Arabian Seas

Qualifying species: 22 species of cetaceans
Criteria used to identify IMMAs

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Species or Population Vulnerability</th>
<th>Distribution or Abundance</th>
<th>Key Life Cycle Attributes</th>
<th>Special Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMAs</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>129</td>
<td>111</td>
<td>132</td>
<td>73</td>
</tr>
<tr>
<td>% of Total</td>
<td>29</td>
<td>25</td>
<td>30</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: Many IMMAs have been identified using several criteria.
Qualifying marine mammal species used to satisfy the IMMA criteria (only species listed as qualifying species more than 4 times are shown)
Pre-Workshop:

- Collection of Area of Interest (AoI),
- Inventory of Knowledge / Data Appraisal Forms (DAF) – Knowledge Assessments
Pre-Workshop:

- Collection of Area of Interest (AoI), Inventory of Knowledge / Data Appraisal Forms (DAF) – Knowledge Assessments
**IMMA Identification Process**

**Pre-Workshop:**
- Collection of Area of Interest (AoI), Inventory of Knowledge / Data Appraisal Forms (DAF) – Knowledge Assessments

**During the Expert Workshop:**
- Review of AoI Submissions
- Assignment of cIMMA writing groups
- Drafting of cIMMA Submissions (template)
  Agreement on final cIMMA list
IMMA Identification Process

Pre-Workshop:
- Collection of Area of Interest (Aoi), Inventory of Knowledge / Data Appraisal Forms (DAF) – Knowledge Assessments

During the Expert Workshop:
- Review of Aoi Submissions
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**IMMA Identification Process**

**Pre-Workshop:**
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- Assignment of cIMMA writing groups
- Drafting of cIMMA Submissions (template)
- Agreement on final cIMMA list

After Expert Workshop:
- Independent review of cIMMA
- Confirmation of IMMA status
- OR Request for necessary corrections
- OR Request for additional research
IMMA Identification Process

Part 1 - cIMMA Description
- Title/Name of the area
- Abstract
- Summary Table
- cIMMA Boundary Map
- Description

Part 2 - Criterion A
Part 3 - Criterion B1
Part 4 - Criterion B2
Part 5 - Criterion C1
Part 6 - Criterion C2
Part 7 - Criterion C3
Part 8 - Criterion D1
Part 9 - Criterion D2

Part 10 - References
Part 11 - Maps and Figures
Part 12 - Species List
Guidance on IMMA Delineation

The following hierarchical recommendations are made to help rank the scenarios by which candidate IMMA boundaries can be confidently drawn.

I. features which are spatially stable, supported by directly observed evidence.

II. features which are spatially stable but rely on modelled evidence.

III. features that are not spatially fixed/dynamic supported by directly observed evidence.

IV. features that are not spatially fixed/dynamic and rely on modelled evidence.
Guidance on IMMA Delineation

1. Evidence
2. Envelop
3. Buffer

A. Point Observations
Guidance on IMMA Delineation

1. Evidence

2. Envelop

3. Buffer

A. Point Observations

B. Habitat Use Probability

Initial guidance on the use of selection criteria for the identification of Important Marine Mammal Areas (IMMAs)

September 2016
Guidance on IMMA Delineation

1. Evidence

2. Envelop

3. Buffer

A. Point Observations

B. Habitat Use Probability

C. Density Estimates
Guidance on IMMA Delineation

Initial guidance on the use of selection criteria for the identification of Important Marine Mammal Areas (IMMAs)

September 2016
Guidance on IMMA Delineation

A. cIMMA for a deep-diving species expected to utilise the 0m-4000m of the water column;
B. cIMMA containing a diversity of near-surface and shallow-diving species observed to use the 0m-1000m of the water column;
C. cIMMA for a shelf restricted species known to utilise both the 0m-200m of the water column and the shelf Epibenthic zone (i.e. forage in sea bottom sediments).
Guidance on IMMA Delineation

The following ‘Primary’ currencies of information are considered most suitable for use in the assessment of the selection criteria for the identification of IMMA:

- **P-I** abundance of animals
- **P-II** probability of occurrence
- **P-III** observed sightings
- **P-IV** area of occupancy
- **P-V** extent of suitable habitat
- **P-VI** range

In addition, the following ‘Secondary’ currencies of information are also considered useful for supporting the identification of IMMA:

- **S-I** records of key life-cycle behaviour (habitat utilization)
- **S-II** measures of distinctiveness (separation)
- **S-III** indices of diversity
October 2020 Update

159 IMMAs Identified

Next step after Identification:

Implementation

IMMA identification on its own means little if there is no implementation!

Key point is that if you make a tool then you need to show people what it’s good for and how to use it.

Fortunately, the need for marine mammal data in an accessible form is appreciated by many conservation processes at the local, national and regional level.

Still, there are huge gaps and a big part of our future role, along with monitoring and revising, is selling the IMMAs so that they get utilised.
Marine Conservation and Management Initiatives using products of IMMA Process

- Convention on Biological Diversity Ecologically or Biologically Significant Areas (EBSAs);
- Marine Spatial Planning (MSP) and management of any human activity at sea (e.g., shipping, fishing, industrial and scientific exploration);
- the design, adaptive management, monitoring and review of Marine Protected Areas (MPAs) and MPA Networks;
- Key Biodiversity Areas (KBAs) identified via the IUCN Standard;
- Navy conduct related to sonar testing;
- IMO’s Particularly Sensitive Sea Areas (PSSAs) and other designations;
- International Whaling Commission IWC.
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- International Whaling Commission IWC.

CMS Resolution 12.13 (2017) acknowledges the IMMA criteria and process, requests Parties and invites Range States to identify specific areas where the identification of IMMAs could be beneficial.
Marine Conservation and Management Initiatives using products of IMMA Process

- Convention on Biological Diversity Ecologically or Biologically Significant Areas (EBSAs);
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- International Whaling Commission IWC.

Follow-up

- CBD EBSAs to include IMMA layers in future revision of EBSA process.
- Marine Spatial Planning (MSP) and management of any human activity at sea (e.g., shipping, fishing, industrial and scientific exploration);
- Proposed MPAs in Vietnam, Bangladesh and other countries are using IMMA information; MPA Network planning in new EU-SE Asia project will use IMMAs for network design.
- About 30 Key Biodiversity Areas (KBAs) have been identified in IMMA workshops.
- The US Navy has used IMMAs to indicate where they will avoid testing low frequency sonar.
- The IWC has adopted IMMAs to identify shipstrike issues and will work with IMO to help in identifying speed and lane restrictions.
Making IMMA\textd quotes{\textregistered} Acc\textd quotes{\textregistered}essible

IMMAS SEARCHABLE DATABASE

<table>
<thead>
<tr>
<th>STATUS</th>
<th>REGION</th>
<th>TITLE</th>
<th>DETAILS</th>
<th>CRITERIA</th>
<th>QUALIFYING SPECIES</th>
<th>SUPPORTING SPECIES</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMA</td>
<td>African Atlantic</td>
<td>Cabo Blanco</td>
<td>IMMA</td>
<td>Read full IMMA summary</td>
<td>A, B, C</td>
<td>Monachus monachus</td>
<td>Mauritania, Western Sahara</td>
</tr>
<tr>
<td>IMMA</td>
<td>Australia, New Zealand, and Southeast Indian Ocean</td>
<td>Australian East Coast Migration Corridor</td>
<td>IMMA</td>
<td>Read IUE IMMA summary</td>
<td>C, D, E</td>
<td>Megaptera novaeangliae, Pseudorca crassidens, Stenella longirostris</td>
<td>Australia</td>
</tr>
</tbody>
</table>

The IUCN Joint SSC/WCMC Marine Mammal Protected Areas Task Force maintains the complete spatial dataset of Important Marine Mammal Areas (IMMA) around the world. These areas have been assessed by regional experts and were further assessed by a panel of independent reviewers.

The IMMA spatial dataset compiled by the IUCN-IMMA@P is made publicly available by request under a User Licence Agreement for non-commercial use in GIS compatible Shapefile (.shp) format or to use in GIS mapping software. Please note that we do not provide shapefiles for cIMMAs or AOIs.

For terms of use, including citation guidance and credits, the definition of non-commercial and commercial use, are available from the User Licence Agreement download button below.

A metadata description of the IMMA spatial dataset is also available for download from the button below. This metadata document describes the content within the most current version of the dataset made available by request and the information and spatial extent contained within the IMMA layer.

To make a request to download the IMMA Layer in either a GIS compatible Shapefile (.shp) or Google Earth compatible KML file (.kml) and Keyhole Markup Language (KML) format, please complete the following Contact Form. We shall endeavour to send you the requested file as soon as we can although for some enquiries this may take longer due to the nature of the request.
Rethinking an MPA post-IMMA

IMMAs in proximity to the Pelagos Sanctuary for Mediterranean Marine Mammals

Pelagos Sanctuary for Mediterranean Marine Mammals

- IMMA
- cIMMA
- AOI
Bazaruto Marine Park + Bazaruto Archipelago to Inhambane Bay IMMA
IMMA Title: Bazaruto Archipelago to Inhambane Bay IMMA

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SECTION 1. Summary for IMMA e-Atlas Pop-up Box

There has been a dramatic decline in dugongs in the Western Indian Ocean since the 1960s. Ten and 6 dugongs were counted off Kenya in the mid 1990s (Cockcroft, 1995; Konora, 1996; Wamukoya et al., 1995; Mersh, et al., 2002; Cockcroft et al., 1994). Similar declines were noted for Tanzania, the Mascarene islands (Cockcroft & Young, 1998; Muir et al., 2003) and Mozambique (Cockcroft & Young 1998). Based on boat, aerial and questionnaire surveys conducted from 1991/97 Cockcroft et al., (1994) suggested that the Bazaruto Archipelago supported the last viable WIO population. Comprehensive aerial surveys of the Archipelago in 2007/2008 (Findlay et al., 2011) estimated a population of between 250 and 350 individuals. Recent aerial, acoustic and questionnaire surveys off East African 'hot spots' suggest that dugongs are all but extirpated from the East African region, other than in the Bazaruto Archipelago (Cockcroft et al., 2018).

SECTION 2. Information for IMMA Summary Box

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>IMMA Selection Criteria Met (x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dugong</td>
<td>Dugong dugon</td>
<td>A: x  B: x  C: x  D: x  E: x  F: x</td>
</tr>
</tbody>
</table>

IMMA Future Directions

- IMMAs give international scientific recognition to contribute to local or national protection efforts.
- IMMAs with baseline studies can then be used to monitor against threats to cetaceans, ship strike, noise, climate change.
- IMMAs will play a role in the United Nations BBNJ process helping to close data gaps in the high seas (e.g., using satellite images to detect whales, e-DNA, acoustics plus modelling, etc.).
- Northern hemisphere IMMA Workshops under discussion for 2022-2023; other regions to follow.
- Monitoring and review of IMMAs and AoI needed regularly and in regions at least every 10 years.
- Selling and implementing the IMMA tool and integrating with other conservation tools.
Question and Answer Session
Introducing Important Marine Mammal Areas – IMMAs
Unwrapping a new tool for global marine mammal and biodiversity conservation

GOBI Webinar 1: 28.10.2020. 2pm GMT
http://gobi.org/resources/webinars/

Erich Hoyt and Giuseppe Notarbartolo di Sciara
Co-chairs, IUCN Marine Mammal Protected Areas Task Force