MARINE MAMMAL
PROTECTED AREAS
TASK FORCE

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Bau und Reaktorsicherheit

Important Marine Mammal Area Regional Workshop for Australia-New Zealand and South East Indian Ocean

Perth, Western Australia, 10-14 February 2020

**FINAL REPORT
of the SIXTH IMMA WORKSHOP**

**IMMA Secretariat, IUCN SSC-WCPA
Marine Mammal Protected Areas Task Force**

Contents

This Final Report, along with maps and IMMA background data, is available for download from the IUCN Marine Mammal Protected Areas Task Force website: marinemammalhabitat.org.

Executive summary[1]

From 10 to 14 February 2020, the IMMA Regional Workshop for Australia-New Zealand and South East Indian Ocean was held in Perth, Australia, with the goal to identify and delineate Important Marine Mammal Areas — IMMAs. These discrete portions of habitat, important for marine mammal species, aim to have the potential to be delineated and managed for conservation. Starting with 438 Areas of Interest (AoI), more than 50 which were submitted before and during the meeting by participants, and the others comprised of existing marine mammal spatial designations, some 45 candidate IMMAs (cIMMAs) were identified and proposed through an expert-based process, utilizing dedicated selection criteria. These criteria were devised by the IUCN Marine Mammal Protected Areas Task Force (the "Task Force") in consultation with the marine mammal science and wider conservation and stakeholder community. Following independent review and consideration of how the criteria supported IMMA identification, 31 IMMAs were accepted for full status with 2 remaining as cIMMAs and 13 becoming AoI (Fig. 1). More details are provided later on in this summary and in Annex IV and V. Worldwide, including the Australia-New Zealand and South East Indian Ocean region, there are now 159 IMMAs, as well as 24 cIMMAs and 128 AoI (Fig. 2).

The Perth workshop followed the sequence of IMMA regional workshops starting in the Mediterranean (Chania, Greece, 24-28 October 2016), and continuing with the Pacific Islands (Apia, Samoa, 27-31 March 2017), North East Indian Ocean and South East Asian Seas (Kota Kinabalu, Malaysia, 12-16 March 2018), the Extended Southern Ocean (Brest, France, 15-19 October 2018) and Western Indian Ocean and Arabian Seas (Salalah, Sultanate of Oman, 4-8 March 2019). This sixth IMMA Regional Workshop aimed to help provide conservation priorities to, and strategic direction for, area-based marine mammal conservation within the Australia-New Zealand and South East Indian Ocean region.

The workshop was attended by 31 experts and observers (Fig. 3; Annex I) from seven countries or overseas territories, including Australia, Indonesia, Italy, New Zealand, Turks and Caicos Islands, United Kingdom and United States of America. The observers came from the Australian federal and state governments and the IMMA Review Panel.

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[1] This summary covers the work of the IMMA Regional Workshop for Australia, New Zealand and South East Indian Ocean, held in Perth, Western Australia, in February 2020, as well as the subsequent review with the tally of IMMAs, cIMMAs and AoI made public in October 2020 and reported in Annexes IV and V.
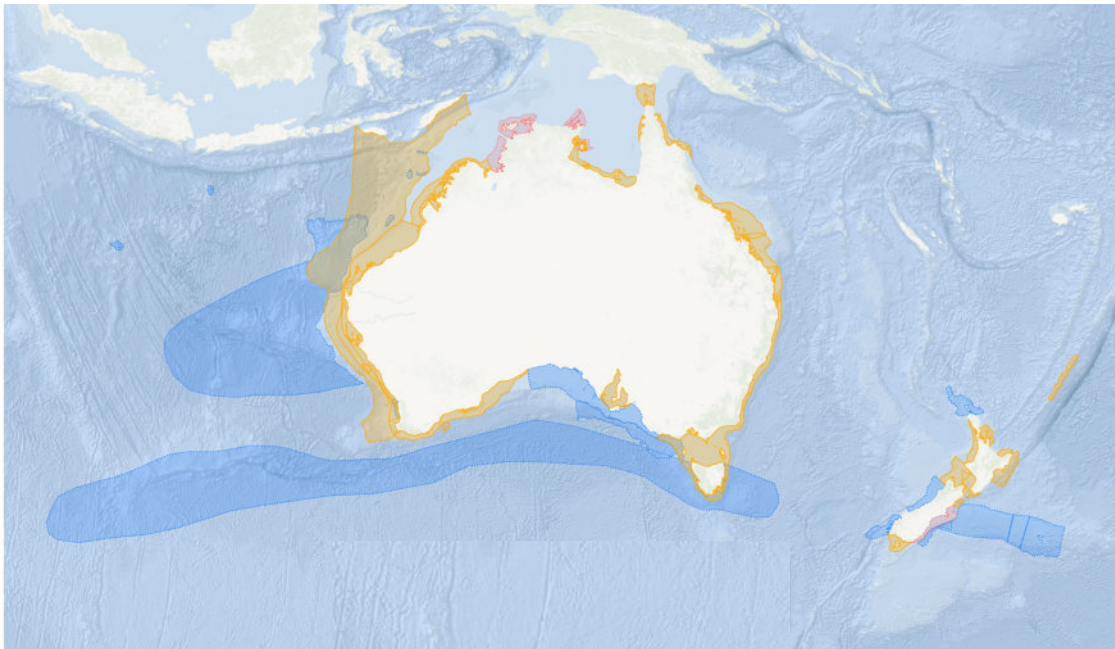
Fig. 1 Geographic location of the 31 IMMAs, 2 cIMMAs and 13 AoI identified in the Australia-New Zealand and South East Indian Ocean Region
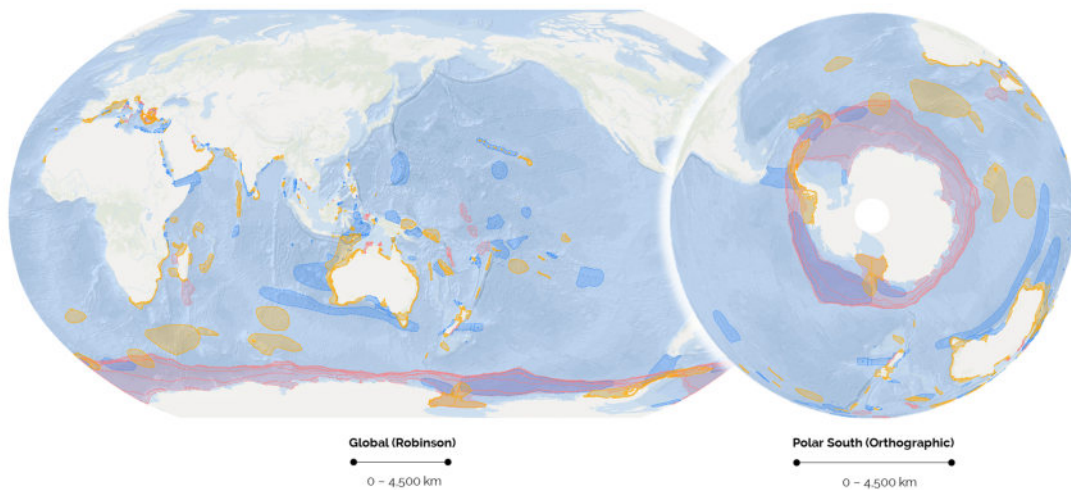
***Fig. 2. Latest version of the IMMA network, including the Australia-New Zealand and South East Indian Ocean Region, totalling 159 IMMAs, 24 cIMMAs and 128 AoI** (October 2020)*

The five members of the IMMA Secretariat were from Italy and the UK. In a number of cases, the expert held a main residence in a country other than where the research was done, and a number of experts had worked in multiple areas in the region. The workshop was organised by the Task Force with support from a partner grant with GOBI funded by the German government's International Climate Initiative (IKI) and a

contribution from Whale and Dolphin Conservation.

The Australia-New Zealand and South East Indian Ocean Region is an area of rich biodiversity. The 50 participant expert AoI submissions were the core of the work to go forward, but the IMMA Secretariat collected, in addition, Biologically Important Areas (BIAs) identified by the Australian government, Ecologically or Biologically Significant Areas (EBSAs) identified through the Convention on Biological Diversity (CBD) process, and other existing areas with known marine mammal habitat consisting of MPAs from the World Database on Protected Areas (protectedplanet.net) and the Cetacean Habitat database (cetaceanhabitat.org). The total participant and reference AoI added up to 438 AoI. On the first two days of the workshop the draft total of 50 participant AoI was expanded by several additional expert submissions which went straight to cIMMA proposals. From these, during the workshop, the group merged some areas and deferred others, and then prepared cIMMA submissions, proposing boundaries and detailing how each one met the various IMMA criteria.

The experts identified cIMMAs for the first time for Endangered Hector's and Critically Endangered Maui dolphins and Vulnerable Australian humpback and Australian snubfin dolphins, only recently recognized as species; as well as nearshore habitat for most of the world's remaining dugong; and deep canyons with Vulnerable sperm, and Endangered blue and pygmy blue whales. Also living in Australia and covered by the cIMMA proposals are two species of bottlenose dolphins and the Endangered Australian sea lion. The full list of marine mammal species included in the region's IMMAs, together with the boundaries of accepted IMMAs, as well as other cIMMAs and AoI, are now available as part of the IMMA e-Atlas.

Still, it was recognized that there are substantial data gaps for marine mammals across many species groups in the region — partly due to the challenges from logistical issues, as well as lack of funding for larger scale surveys and other research, particularly in the High Seas.

The five-day workshop was grateful in the opening session to receive a presentation on Biologically Important Areas (BIAs) for Marine Mammals in Australia from Sylvana Maas, Migratory Species Section, Biodiversity Conservation Division, Department of the Environment and Energy. On Day 4 there were two invited presentations from Daniel Dunn, formerly of Duke University and now senior lecturer at the University of Queensland whose work is part of a sister project on the IMMA work focused on

Migratory Connectivity in the Ocean (MiCO). The other presentation was on the IUCN Key Biodiversity Areas, or KBAs, by Charlotte Boyd.

The introductory plenary presentations were given by Task Force co-chairs Erich Hoyt and Giuseppe Notarbartolo di Sciara and Task Force members Simone Panigada and Caterina Lanfredi. There were several plenary discussions throughout the workshop, but the focus was on the breakout groups that were divided into five tables covering the eight original subregions (Annex III), with the task of sorting through the AoI, merging those areas that might be better considered together and deferring a number of AoI back to the originating authority if the case for becoming a cIMMA were weak. In the main part of the workshop, the subregion groups prepared a solid proposal for each cIMMA. As most participants had expertise in multiple areas and had worked together before, many cIMMA submissions were jointly prepared. The cIMMAs were then presented in plenary and considered to be a joint result of the workshop. IMMA Secretariat members Margherita Zanardelli and Caterina Lanfredi presented the final numbers along with maps of all the polygons prepared by Lanfredi.

On the last day, a regional Task Force group and coordinating committee were set up to further the work of the Australia-New Zealand and South East Indian Ocean IMMA workshop. The volunteer coordinators are Chandra Salgado Kent for Australia and Simon Childerhouse for New Zealand; Childerhouse was not present at the workshop but was proposed by colleagues and he later accepted.

Following the workshop, the next step was to assess and then send the compiled 45 cIMMAs to the independent review panel to determine whether the criteria were applied correctly and to verify that the evidence provided was sufficient to support the case for each cIMMA. However, it was determined post-workshop, in the preparation for the review, that four of the cIMMAs were not considered to have adequate information for review and thus they were recommended for AoI status. This left the 41 cIMMA submissions, and a total of five AoI, with the 4 downlisted cIMMAs added to the 1 AoI selected by participants, to go forward. Following peer review, the boundaries and a summary of the supporting evidence have now been made available on the IMMA e-Atlas (www.marinemammalhabitat.org/imma-eatlas), and included in the online IMMA database, with the option offered to request IMMA layers as shapefiles for implementation initiatives.

Another result of the workshop was the announcement by Charlotte Boyd that 25 of the cIMMAs were likely to fulfil the criteria including thresholds for KBAs. This dramatically

increases the number of KBAs worldwide which feature marine mammals. Considering her focused work on KBAs globally, and her participation at previous IMMA workshops, Boyd concluded that the most productive way to ensure that IMMAs enable the identification of potential KBAs and that KBA thresholds inform IMMAs is if they are selected together – a process currently facilitated by the IMMA Expert Workshop process.

The decisions of the Review Panel were finalized in July 2020. In total, 31 IMMAs were accepted for full status, some of them after receipt of revisions or additional information that was required before their confirmation as IMMAs meeting the criteria. Of the remaining 11 candidate IMMAs, 2 areas were considered to show strong evidence of merit as future IMMAs so they will remain cIMMAs until they are able to fully satisfy the criteria. Another 9 areas which had been proposed as cIMMAs were determined to have insufficient evidence at this time to be considered as either IMMAs or interim cIMMAs, and thus have become AoI, joining the list of the other 5 AoI from the workshop (3 of which had been proposed also as cIMMA but had insufficient evidence and 1 of which was formally submitted as an AoI). This makes a total of 13 AoI that have now been entered into the e-Atlas. These AoI will help to build an evidence base for additional IMMAs and, if given further monitoring and survey effort, they may be reassessed as cIMMAs in a future IMMA expert identification workshop.

The 31 new IMMAs, 2 cIMMAs and 13 areas gaining AoI status are listed below:

Important Marine Mammal Areas (IMMAs)

1. Albany Canyon Region IMMA
2. Australian East Coast Migration Corridor IMMA
3. Central and Western Torres Strait IMMA
4. Central West Coast, North Island IMMA
5. Dampier Archipelago IMMA
6. Eastern Indian Ocean Blue Whale Migratory Route IMMA
7. Geographe Bay to Eucla Shelf and Coastal Waters IMMA
8. Gourdon Bay to Bigge Island IMMA
9. Great Barrier Ribbon Reefs and Outer Shelf IMMA
10. Hervey Bay and Great Sandy Strait IMMA

11. Hikurangi Trench IMMA

12. Hinchinbrook to Round Hill IMMA

13. Houtman Abrolhos to Rottnest Shelf Waters IMMA

14. Kaikōura IMMA

15. Mapoon to Aurukun IMMA

16. Marlborough Sounds and Cook Strait IMMA

17. Moreton Bay IMMA

18. Ningaloo Reef to Montebello Islands IMMA

19. Northwestern Australian Coastal Waters and Inlets IMMA

20. Northern Great Barrier Reef IMMA

21. Rakiura Stewart Island and Te Ara a Kiwa IMMA

22. Rangitāhua Kermadec IMMA

23. Shark Bay IMMA

24. South Australian Gulfs and Adjacent Waters IMMA

25. Southeast Australian and Tasmanian Shelf Waters IMMA

26. South Taranaki Bight IMMA

27. **Southern Australian Coastal and Shelf Region IMMA**

28. Southern Great Barrier Reef Lagoon and Coast IMMA

29. Southern Gulf of Carpentaria IMMA

30. Tikapa Moana Te Moananui ā Toi Hauraki IMMA

31. Western Australian Humpback Whale Migration Route IMMA

Candidate IMMAs (cIMMAs)

1. East Coast, South Island cIMMA

2. Northern Territory cIMMA

Areas of Interest (AoI)

1. Christmas Island AoI

2. Cocos Keeling Islands AoI

3. Exmouth and Wallaby Plateaux Offshore West Australia AoI

4. Fiordland AoI

5. Northland - Three Kings AoI

6. Perth Bunbury Coastal Network AoI

7. Rekohu - Chatham Rise AoI

8. West Coast South Island AoI

9. Northwest Australian Shelf Seamounts AoI

10. Southeast South Island Slope and Canyon AoI

11. Southern Australian Slope and Canyon System AoI

12. Subtropical Convergence Zone AoI

13. Western Chatham Rise AoI

Fig. 3. Participants of the Sixth IMMA Workshop in Perth, Western Australia.

Acknowledgments

INTRODUCTION AND BACKGROUND

The IUCN Marine Mammal Protected Areas Task Force[2] and the IMMA Initiative

The Important Marine Mammal Area (IMMA) initiative, developed by the IUCN Joint SSC[3]/WCPA[4] Marine Mammal Protected Areas Task Force (the "Task Force"), is modelled on the successful example of the BirdLife International process for determining Important Bird and Biodiversity Areas (IBAs). The intention is that the identification of IMMAs through a consistent expert process, independent of any political and socio-economic concerns, will provide valuable inputs about marine mammals and their habitat, which will contribute to existing national and international conservation initiatives. Yet, the application or implementation process is separate from and occurs later than the identification process.

IMMAs are an advisory, expert-based classification. They have no legal standing as MPAs but are intended to be used in conservation planning by a variety of stakeholders, including *inter alia*, governments, intergovernmental organisations, conservation groups, and the general public. In application, IMMAs may merit specific place-based protection and/or monitoring and, in some cases, reveal additional zoning opportunities within existing MPAs. By pointing to the presence of marine areas of particular ecological value, IMMAs can serve the function of promoting the conservation of a much wider spectrum of species, biodiversity and ecosystems, well beyond the specific scope of conserving marine mammals.

The identification of IMMAs can also help to spotlight marine areas valuable in terms of biodiversity during the process of marine spatial planning (MSP). IMMAs are already starting to build institutional capacity at the international and national levels, to make substantial contributions to the global marine conservation agenda. Marine mammals are indicators of ocean ecosystem health and thus, the identification of IMMAs supports the Convention on Biological Diversity (CBD) marine portfolio of Ecologically or Biologically Significant Areas (EBSAs). EBSAs aim to provide a basis for promoting awareness of marine biodiversity, leading to conservation in specific areas of the world's oceans. IMMAs are also supporting the creation of Key Biodiversity Areas (KBAs)

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[2] IUCN SSC/WCPA Marine Mammal Protected Areas Task Force (https://www.marinemammalhabitat.org/)
[3] Species Survival Commission (www.iucn.org/theme/species/about/species-survival-commission)
[4] World Commission on Protected Areas (https://www.iucn.org/theme/protected-areas/wcpa)

identified through the IUCN KBA Identification Standard. Finally, IMMAs can contribute to the designation of International Maritime Organisation (IMO) Particularly Sensitive Sea Areas (PSSAs) and other shipping directives related to the threat of ship-strikes of whales and increasing noise in the ocean.

For the period 2016-2021, the Task Force has launched a process to apply criteria to identify a worldwide network of IMMAs and to enhance the prospects for their protection. Regional expert workshops have been focusing on seven large marine regions, beginning with the Mediterranean (October 2016), funded by the MAVA Foundation, followed by five workshops in the southern hemisphere funded by the German International Climate Initiative (IKI) through the Global Ocean Biodiversity Initiative (GOBI): Pacific Islands (March 2017), North East Indian Ocean and South East Asian Seas (March 2018), Western Indian Ocean and Arabian Seas (March 2019), Australia-New Zealand and South East Indian Ocean (February 2020), and finally the South East Tropical and Temperate Pacific Ocean (date to be defined). An additional workshop covering the Extended Southern Ocean (October 2018) has been funded by the French Agency for Biodiversity through the IUCN Global Marine and Polar Programme. Supplemental funding for the various workshops was initially provided by the Eulabor Institute and then by Whale and Dolphin Conservation (WDC), with administrative support from Tethys Research Institute.

Purpose of the IMMA Regional Workshop

The aim of the IMMA Regional Workshop for Australia-New Zealand and South East Indian Ocean was to identify and delineate discrete habitat areas — important for one or more marine mammal species — that have the potential to be managed for conservation. This was achieved through an expert-based process utilizing specially created selection criteria devised by the Task Force, in consultation with the marine mammal science and conservation community. IMMA Regional Workshops also assist in providing strategic direction and conservation priorities to the development of area-based marine mammal and biodiversity conservation. Through the participation of IMMA regional coordinators, this leads to recommendations on how to address conservation concerns through the implementation of IMMAs using appropriate conservation tools.

Summary of the process of the IMMA Regional Workshop and Follow-up

The general outline of the workshop programme consisted of:

- a plenary session to introduce the IMMA selection criteria, present the submitted AoI, select the subregion group facilitators, and discuss the proposed cIMMAs;

- a reading session of the IMMA documents including an IMMA Guidance Document, Inventory of Knowledge, and a list of the Areas of Interest (AoI) submitted in advance of the meeting by experts;

- multiple working group sessions to select and document the cIMMAs to go forward on a subregional basis; and

- a closing plenary to adopt the results of the workshop, to select one or more Task Force regional coordinators, and to discuss eventual conservation implications of the workshop results.

The Workshop is part of a three-stage process that works toward producing the final IMMAs:

STAGE 1 – Nomination of initial Areas of Interest (AoI): AoI are proposed by experts in the weeks before the meeting, via a dedicated online system (SeaSketch) or through completion of the available AoI forms, and are then summarized in the AoI report. This document is provided to regional experts in order to evaluate the submitted AoI, along with existing marine mammal place-based conservation measures. Participants attending the workshop are also encouraged by the IMMA Secretariat to submit additional AoI by the end of the first day.

STAGE 2 – Development of cIMMAs: participants are invited to use their regional knowledge to develop cIMMAs, based upon their review of AoI submitted in advance or proposed during the workshop. Candidate areas must start out as AoI first, and only then, after group discussion, do they have the chance to graduate to cIMMAs.

There are four categories of main criteria and eight criteria or sub-criteria, at least one of which must be met in order to propose a cIMMA:

Criterion A – Species or Population Vulnerability (based on the IUCN Red List Status)

Criterion B – Distribution and Abundance

Sub-criterion B(i) – Small and Resident Populations: Areas supporting at least one resident population, containing an important proportion of that species or population, that are occupied consistently.

Sub-criterion B(ii) – Aggregations: Areas with underlying qualities that support important concentrations of a species or population.

Criterion C – Key Life Cycle Activities: Areas containing habitat important for the survival and recovery of threatened and declining species.

Sub-criterion C(i) – Reproductive Areas: Areas that are important for a species or population to mate, give birth, and/or care for young until weaning.

Sub-criterion C(ii) – Feeding Areas: Areas and conditions that provide an important nutritional base on which a species or population depends.

Sub-criterion C(iii) – Migration Routes: 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.

Criterion D – Special Attributes

Sub-criterion D(i) – Distinctiveness: Areas which sustain populations with important genetic, behavioural or ecologically distinctive characteristics.

Sub-criterion D(ii) – Diversity: Areas containing habitat that supports an important diversity of marine mammal species.

For Sub-criterion Dii, the overall average species richness for the region and IMMA subregions (based on the species richness considered via the knowledge assessment in the Inventory of Knowledge report) is provided as a baseline for participants to consider suitable AoI for which to develop rationales for cIMMAs using the Dii criterion.

STAGE 3 – Final review and IMMA status qualification: an independent panel chaired by Randall R. Reeves, IUCN Cetacean Specialist Group Chair, reviews the cIMMAs and decides whether they can be accepted as IMMAs.

Workshop Facilities

To aid in the efficient running of the workshop, participants are provided with a number of resources. These include the following:

- guidance documentation of the IMMA selection criteria and process,
- the Inventory of Knowledge (IoK) Document for the workshop region,
- the Areas of Interest (AoI) Report of submissions and existing sites in the workshop region,
- the IMMA SeaSketch facility,
- on hand instruction on the use of QGIS, and Google Earth, and
- the candidate IMMA submission review template (in Microsoft Word format).

The IMMA Secretariat has created a joint Dropbox space for the workshop, in which the above materials are shared and made available for download before the workshop. Additional useful data are also made available on the shared Dropbox.

As these workshops contain a technical mapping element, workshop participants are advised to find means to access and edit common geospatial data, e.g. Shapefiles (.shp) and Keyhole Markup Language (.kml).

The following two free access mapping programs are recommended for use:

QGIS: https://www.qgis.org/en/site/forusers/download.html

Google Earth: http://www.google.co.uk/earth/download/ge/agree.html

IMMA Workshop Day 1, 10 February 2020

WELCOMING ADDRESSES FOR THE IMMA AUSTRALIA-NEW ZEALAND AND SOUTH EAST INDIAN OCEAN REGION WORKSHOP

Giuseppe Notarbartolo di Sciara, co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, welcomed the group to Perth and thanked them for coming. He conveyed his excitement about our work in this fascinating biodiverse region of the world's oceans. He outlined the programme for the morning, beginning with a talk from Task Force co-chair, Erich Hoyt. He noted the aboriginal owners of this land, and encouraged the workshop participants to recognize and incorporate traditional ecological knowledge in their assessments of areas to go forward as candidate IMMAs.

Erich Hoyt, co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force**,** talked about how IMMAs came about — everything that has led up to this Sixth IMMA Regional Workshop. In the early 2000s, there was a growing recognition that marine mammals were being missed out in various conservation planning processes. This awareness came through the International Committee on Marine Mammal Protected Areas (ICMMPA) which was formed in 2008 and had its first conference in 2009, as well as through Hoyt's book *Marine Protected Areas for Whales, Dolphins and Porpoises* (2nd ed., 2011) and Michael Tetley and Hoyt's experience bringing marine mammal data to various Convention on Biological Diversity EBSA workshops.

There was no systematic process for presenting marine mammal data at the CBD EBSA workshops or at other international meetings. Much of the data was unpublished. There was a realization in the ICMMPA and in the Task Force when it was founded in 2013, that many MPAs were designated for political or socioeconomic reasons without ecological boundaries and not based on marine mammal habitat considerations. There was a need to highlight important marine mammal habitat based on science first and then to move forward with efforts to try to protect that habitat through spatial and other measures and through monitoring in the future.

Hoyt showed the maps illustrating how the Mediterranean in 2016 was the first workshop, followed by the Pacific Islands in 2017, the North East Indian Ocean and South East Asian Seas in 2018, and the Western Indian Ocean and Arabian Seas in 2019.

Following this Australia-New Zealand and South East Indian Ocean workshop in 2020, the next workshop is already being planned for 2020-21 to examine marine mammal habitats and propose candidate IMMAs all along the Pacific coast of Latin America, from the southern tip of Chile to the northern border of Mexico. In 2018, outside of the GOBI-IKI process, there was a workshop to identify IMMAs in the Extended Southern Ocean. By late 2021 the Task Force looks forward to the e-Atlas map which will include IMMAs from most of the southern hemisphere plus the Mediterranean. At that point, ten more regions will remain to complete the global ocean picture.

Hoyt gave more details about how each workshop follows a predefined process developed in consultation with regional marine mammal science and conservation communities, to identify candidate IMMAs 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 them and final approval is given to approximately 70% of them. Those close to passing review but short of information stay as candidate IMMAs, while others requiring more data to support the choice of criteria revert to AoI. These AoI go on the e-Atlas along with the cIMMAs and IMMAs.

Next, **Giuseppe Notarbartolo di Sciara** continued the talk on the Task Force work. He recalled the 3rd International Marine Protected Areas Congress (IMPAC 3) in Marseille in 2013 where the IUCN with ICMMPA gave birth to the Task Force and a workshop was held to devise IMMA criteria. The purpose of IMMAs was to develop a place-based conservation tool identifying discrete potions of habitat, important for one or more marine mammal species, that have the potential to be delineated and managed for conservation. Notarbartolo di Sciara explained that the identification of IMMAs is a scientific product generated by the best available science. IMMAs come from an evidence-driven, purely biocentric process based on the application of scientific criteria. IMMAs are not created in a vacuum; there are many processes and organisations that can use them. Other initiatives including CBD EBSAs, MSP, MPAs, IMO PSSAs and KBAs can utilize products of the IMMA process. A very significant step was made when the Convention on Migratory Species (CMS) adopted a resolution recognizing the IMMAs, which has put them into the global arena. At the 2017 CMS COP, Resolution 12.13 established that IMMAs can promote ecological networks and connectivity, and acknowledging the IMMA criteria and process, requested Parties and inviting Range States to identify specific areas where the identification of IMMAs could be beneficial. The resolution also invited the CBD, IMO and IUCN to consider IMMAs as useful contributions for the determination of EBSAs, PSSAs and KBAs. Notarbartolo di Sciara

presented the total numbers of IMMAs, cIMMAs and AoI, maximum and minimum size and gave accounts of the species that have been included to date.

Notarbartolo di Sciara then asked participants to introduce themselves and explained that this would be followed by a presentation on Australia's biologically important areas, the BIAs.

The agenda was briefly presented and adopted, and Hoyt and Notarbartolo di Sciara agreed to co-chair the workshop. Notarbartolo di Sciara introduced **Sylvana Maas**, Migratory Species Section, Biodiversity Conservation Division, Department of Agriculture, Water and the Environment, who gave a presentation on the BIAs for marine mammals in Australia. Many of the AoI identified by the group referenced the work of the Australian government to identify BIAs.

Maas explained that she was here as an observer with the hope of being able to integrate the IMMA results into the Australian government regulatory framework around BIAs and the policy for MPAs. She hoped that the data and background information generated to identify IMMAs could be used to update existing BIAs and create new BIAs for marine mammal species.

Maas talked about BIAs, how they are identified through expert scientific knowledge including published and unpublished literature, and how they are used. BIAs are spatially defined areas where aggregations of a regionally significant species are known or likely to occur and where they display biologically important behaviours such as breeding, foraging, aggregation or migration. They are classified by the behaviour occurring in an area, but they are not criteria-based. They were first identified in Australia in 2006 during the development of marine bioregional plans. Since then, BIAs have occasionally been updated when new information became available, usually during the development of recovery plans for threatened species.

BIAs are identified using expert scientific knowledge about a high conservation value species and its distribution and behaviour in a region. BIA maps are produced using expert opinion as well as published and unpublished literature and then this information is subject to an independent review.

BIAs and their accompanying metadata provide information useful to decision makers and marine estate managers to ensure that these areas are well managed. Combined

with documents such as the Marine Bioregional Plans and Recovery Plans, BIAs can guide appropriate management and environmental assessment of an area.

Marine Bioregional plans have legislative authority under the EPBC Act and require consideration from the Minister when assessing proposals for marine-based industry and development. BIAs link to the species recovery plans (e.g., the blue whale recovery plan states that anthropogenic noise must not cause blue whales to be displaced from a foraging BIA). Maas reported that IMMAs will be used to update BIAs in the EPBC Act Conservation Values Atlas Australia as well as reported to the Australian Government so that they can understand the criteria and process for assigning IMMAs.

The next presentation was by **Simone Panigada** from the IMMA Secretariat (Introduction to Important Marine Mammal Areas: IMMA Selection Criteria, Identification Process and Inventory of Knowledge for the Australia-New Zealand and South East Indian Ocean Region) who outlined the criteria and the process for applying the criteria to create candidate IMMAs. Different currencies of information could be used to support the proposal, but in every case the focus was on the habitat.

Panigada resumed speaking after the coffee break. He displayed the "ground zero" world ocean map that was produced by Hoyt revealing the various spatial tools, including MPAs, EBSAs, Particularly Sensitive Sea Areas (PSSAs) of the International Maritime Organisation (IMO) whose boundaries were based to varying degrees on political and socioeconomic considerations whereas IMMAs have adopted an expert-based biocentric identification process in open consultation with the wider marine mammal knowledge community and subject to independent peer review.

Panigada showed how this workshop would fill a major geographic gap in the current IMMA process. He outlined the eight criteria and sub-criteria and how they were aligned with EBSAs, KBAs, BIAs and Cetacean Critical Habitat under the ACCOBAMS framework. More than 1000 experts were engaged during the development of the IMMA criteria. The workshop participants must check whether the information they have fulfils the criteria and the detailed description of that criteria.

In terms of mapping against the criteria selected, the University of Santa Barbara online SeaSketch tool allows users to draft candidate IMMAs, or Google Earth or Q-GIS. It is important to remember that the ocean is a three-dimensional space and therefore the depth that is used by the target species should be considered. Panigada next gave guidance on definitions of population, subpopulation and distinct geographic

populations, population segment, community and group. In terms of species, subspecies and special population names, the Society for Marine Mammalogy list was to be followed (https://www.marinemammalscience.org/species-information/list-marine-mammal-species-subspecies/). Panigada and the IMMA Secretariat agreed that guidance on taxonomic issues could be added to the IMMA Guidance document.

Panigada opened the plenary to questions. He emphasized that only one criterion was needed to classify an IMMA and that the qualifying scenario gave a precise interpretation, and examples were also provided in the Guidance document. Participants should only use criteria for which there is strong information. It is better to focus on one or a small number of criteria for which justifications are strong than to spend time trying to justify additional criteria for which evidence is weak.

For this region, based on the overall regional diversity, Panigada said that, according to a diversity algorithm derived from key biodiversity areas, if there are nine species or more it can be considered enough for a candidate IMMA to meet the criterion Dii diversity; if there are 15 or more species, that would be considered exceptional and would certainly pass review. Thus, on the cIMMA form that will be filled out later in the workshop, if the number of primary and secondary species exceeds 9, then the cIMMA can be proposed under the criterion for Diversity. In that case, the relevant secondary species are moved up to occupy the initial species table in the form. However, Hoyt stressed that it was not enough just to have 9 or 15 species in an area to pass the criterion Dii—data must clearly indicate that the habitat was *supporting* that diversity.

During the review process, splitting and joining of cIMMAs may occur several times. The advice is to avoid creating super IMMAs that cover everything, but instead to draw the lines to encompass the habitat that satisfies the criteria.

After the initial questions, Panigada continued the presentation, focusing on the Inventory of Knowledge, followed by more questions.

Helene Marsh raised an issue about the relationship of jurisdictions to IMMAs. As a former reviewer of IMMAs, she had found that cIMMAs were stopping at political borders, and thus jurisdictions were seen as an issue when defining IMMAs. IMMA co-chairs Notarbartolo di Sciara and Hoyt reiterated that this process should occur without relevance to jurisdictions, although noting that problems can arise simply if researchers' data stopped at national borders. The aim of IMMAs is to identify important areas for

marine mammals, regardless of non-ecologically relevant or arbitrary (e.g., political) boundaries.

A discussion then ensued on the terminology around population and subpopulation. Brownell confirmed that subpopulations were only accepted by the IMMA review committee if the subpopulation was already recognised under the IUCN. Further, Brownell suggested that all secondary species in an area should be listed in the cIMMA proposal, to promote consistency across IMMA submissions. Notarbartolo di Sciara said there are many species that may have occupied an area historically or as vagrants, but are not regularly present in the area. These should not be listed as secondary species. Charlton suggested that the identification of primary and secondary species should use the Australian EPBC Act Protected Matters Search Tool which documents the presence of a species in an area under specified criteria for presence and behaviour, i.e. species likely to occur and species that might occur. It was suggested that the terminology used for IMMAs should be consistent with the EPBC Act which is regulation in Australia. The process could also be used to suggest updates to the EPBC Protected Matters Search Tool. The group, including Marsh and Maas, agreed that this was a good idea. The relevant link was distributed by email: https://www.environment.gov.au/epbc/protected-matters-search-tool.

Anton van Helden raised the issue that data deficiency should not lead to generalizations about species occupancy when little is known about a particular population. For example, beaked whales generally get classified as occupying deep water environments, however they sometimes visit or stay in shallow water environments and this should not be overlooked. Caterina Lanfredi confirmed that of course we will use the best available evidence and science to inform the identification of an IMMA.

Van Helden then asked for clarification on IUCN classifications, suggesting that data deficient implies that a species is threatened. Charlotte Boyd explained the IUCN process in which there is no discrimination of status due to data deficiency and that the assessment of status is based on available data — i.e., data deficient doesn't mean threatened. Van Helden expressed concern about data deficient species that they were falling off the radar due to lack of scientific evidence. A later question from Kelly Waples concerned whether Near Threatened status would meet Criterion A. Hoyt clarified that Criterion A is restricted to Vulnerable, Endangered and Critically Endangered species on the IUCN Red List. The IUCN Red List is the determining factor for Criterion A, although

comparable national categories can sometimes be used, e.g., the U.S. and Canadian governments have awarded Endangered species status to the Southern Resident killer whale community and the status should be utilized in consideration of a future cIMMA — even though killer whales remain Data Deficient on the IUCN list.

Mike Noad queried the criteria for IMMA establishment noting that if the presence of 9 species classified an area as an IMMA based on diversity, then the whole of Australia and New Zealand would qualify. Panigada and Lanfredi noted that it had to be 9 species in each specific cIMMA that supported diversity. Panigada also noted that the criteria thresholds are a guide for assessment and implementation, but not a guarantee for IMMA approval from the review panel.

Golo Maurer from BirdLife Australia, Secretary to Australia's Key Biodiversity Area National Coordination Group, queried as to whether management boundaries are considered in the process of implementing IMMAs. In this way, if so, IMMAs could complement existing management areas and confer a greater conservation value. Panigada explained that the IMMA process is about identifying biocentric areas of importance. Hoyt agreed but said he also supported the consideration of existing MPAs and management boundaries as a starting point to determine areas of interest and candidate IMMAs, as well as implementation of IMMAs that contain or overlap MPA habitat, and thus are able to inform management as to zoning or expansion of the MPA or new provisions for management plans.

Hoyt brought up the idea of the value of areas of interest (AoI) to stimulate research and attention by government. Data deficiency may prevent areas from being classified as IMMAs, but it is valuable to put things forward as AoI from the workshop even if they don't begin to satisfy criteria. The IMMA Guidance document doesn't explain this. Rochelle Constantine also encouraged the development of AoI specifically as triggers for government to fill data gaps. For example, in the Pacific Islands IMMA region, putting AoI on the map was successful in highlighting the need for more research. Without the AoI, Notarbartolo di Sciara noted that it is difficult to discriminate between areas with little data from those of low importance for marine mammals and associated biodiversity. He emboldened the group to improve on the process for identifying useful AoI — for example on the high seas — that could be stimuli for future work and serve to discriminate from the areas with low importance.

Related to the above, Benjamin Kahn highlighted the inherent risk in identifying IMMAs as well as AoI with the implication that areas outside the described IMMA or AoI are

considered unimportant when they are only data deficient. Hoyt noted that the Task Force was well aware of this dilemma and data gaps can be noted in the report. Partly in response, Lanfredi encouraged the group to use historical and modelling data to help inform assessments and identify data gaps.

Chandra Salgado Kent informed the group that the EPBC Act is currently under review and that there is an opportunity to communicate gaps into the review process of the EPBC Act. Maas explained that it is up to the individual assessors of EIAs as to the tools that are used to inform assessment. The group agreed that we should encourage facilitation of conversations between scientists and government to inform them of IMMAs and AoI and other available tools to help fill gaps in knowledge.

Areas of Interest (AoI) and Assignment of Working Groups for the Australia-New Zealand and South East Indian Ocean Region

After lunch, Panigada continued in plenary to talk about the division of the region into 8 subregions (see Table 1, Fig. 4). This designation is based on the Longhurst Marine Provinces and WWF marine ecoregions of the world (MEOW). There are only 8 subregions included here as a ninth, usually considered in this region, was covered in the Extended Southern Ocean IMMA workshop.

Panigada explained the process of compiling the Inventory of Knowledge (IoK) document. As part of a data appraisal process in the months before the workshop, various experts, including those in the room, were asked to summarize the level of knowledge in each area. They were to determine whether there were low, moderate or high levels of information for each area and to give a rating for the amount of information available for each species. Recommendations for evaluating the level of knowledge are defined in the document. Generally, only areas where repeated dedicated cetacean surveys have been conducted are considered high.

As summarized in the IoK document, there is a difference in the perception of knowledge in different areas by different people. Much of the information in OBIS data for this region is from historical whaling records except for recent data on humpback whales. Panigada summarized the compiled datasets that we have available for our assessment process. The IoK includes a list of experts. After the workshop, this document will not be updated or changed. It is essentially a tool for the workshop process to identify candidate IMMAs.
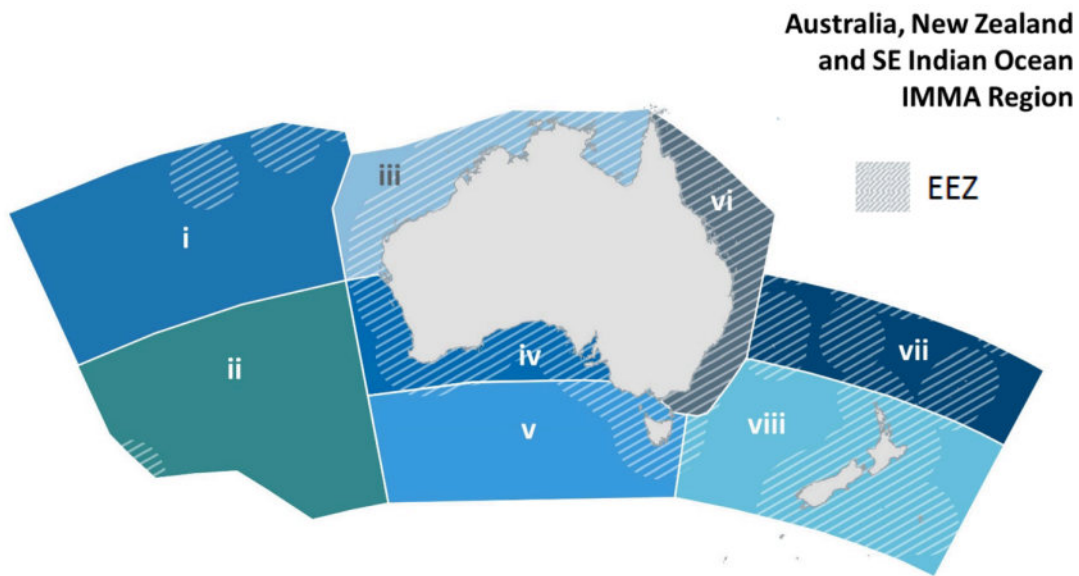
Fig. 4. IMMA workshop subregions used to assist participants with the collation of information relevant to marine mammals for the identification of candidate IMMAs in Australia - New Zealand and the South East Indian Ocean Region include [i] Central East Indian Ocean (CEIO), [ii] South East Indian Ocean (SEIO), [iii] North West Australia (NWA), [iv] South West Australia (SWA), [v] Tasmania (TA), [vi] Eastern Australia (EA), [vii] North of New Zealand water (NNZ), [viii] New Zealand (NZ). The aggregated Exclusive Economic Zone (EEZ) for the Australia - New Zealand and the South East Indian Ocean Region is shown by the hatched lines.

Next **Caterina Lanfredi**, from the IMMA Secretariat, turned to the Areas of Interest (AoI) document. This featured all the collated submissions to be considered as potential candidates for IMMAs from the Australia-New Zealand and South East Indian Ocean Region. It came from information that the participants and others submitted for consideration about each AoI, plus the background information available on EBSAs and the database on protected areas with marine mammals for this region. The AoI document thus contained 50 expert submissions, plus EBSAs that list marine mammals as a feature, BIAs from Australia, and MPAs listed in the World Database on Protected Areas (WDPA) and assessed by Hoyt as having marine mammals in the cetacean protected habitat database (cetaceanhabitat.org). This was more than 400 AoI—a record number among the six IMMA workshops to date; however, the decision was made, based on the recommendation by Mike Tetley, who had prepared the AoI, to focus on the 50 participant AoI and to use the others as references (Fig. 5).

The AoI, in terms of geographic spread, were well distributed except for the more pelagic subregions in the southeast Indian Ocean (subregions I and II) and Pacific Ocean

(subregion VII). AoI overlaps were considerable. The number of AoI did drop once those overlaps were resolved.
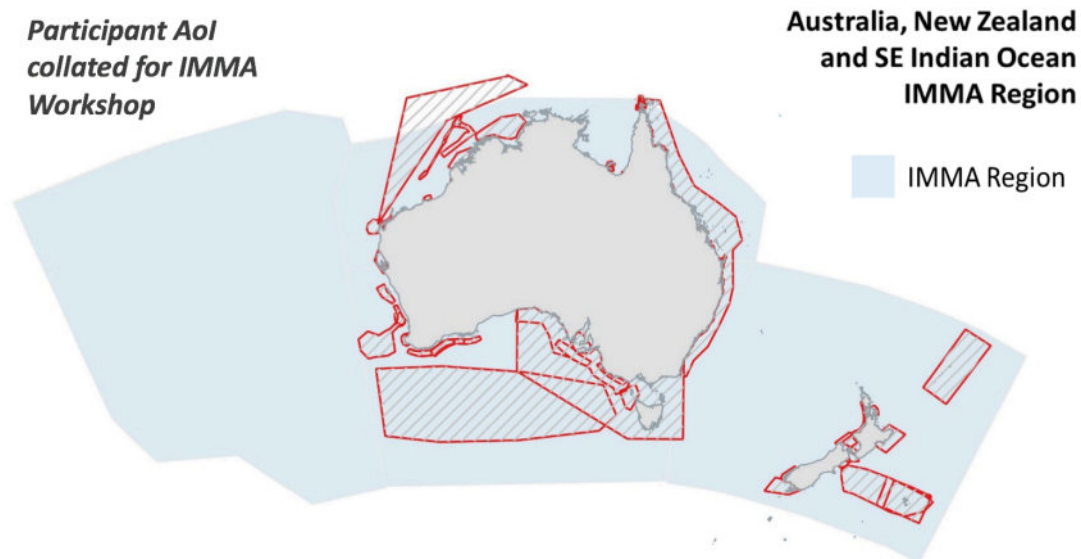
Fig. 5. The workshop starting point was the 50 participant areas of interest (AoI). Several more were added on the first and second day, although some went straight to candidate IMMA (cIMMA) proposals.

Panigada advised participants that it was not too late to submit new AoI on day one of the workshop. They could then be discussed the next day when we break into subregions and start to work on them. Indeed, by the end of the day, there were several additional expert submissions, expanding the AoI number to 53.

Lanfredi next displayed the map of the region and discussed rearranging the subregions into five (see Fig. 6 and Table 1), rather than the full eight divisions. Thus, some areas with only a few AoI would be combined with others, and this could streamline the process of dividing the group to go through them all. Panigada explained that, in the process of examining each AoI, some would most likely be merged; some will be deferred for later consideration. Also, some of the boundaries overlapped. For those that were originally EBSAs, if marine mammals were a significant feature behind their designation, then there will be background information available that can be captured for the cIMMA template.

Panigada then outlined the division of the region into "expert tables" that would enable participants to work together to discuss and prepare the candidate IMMAs. Each of the

5 tables would have coordinators as well as someone responsible for helping to draw the maps and collect the cIMMAs to give to Lanfredi. Technical assistance would be available.

There was a comment about Areas 1 and 2 not being included based on lack of data. The group suggested that this should be captured in the report and highlighted as a data gap and that absence of AoI and cIMMA did not indicate that there was a complete absence of marine mammals. However, it emerged that Kahn had access to data, based on historically important sperm whale areas and other data, as well as information on local populations of dolphins around Christmas Island and the Cocos (Keeling) Islands. Thus, there could be at least one AoI and possibly more in Areas 1 and 2 which were being turned into Group A.

The participants raised questions about the division of the groups for Australia and New Zealand based on Longhurst Marine Provinces and MEOW marine biogeographies (Fig. 4). These were therefore redone along the lines of Fig. 6 which everyone endorsed after some deliberation and further adjustments.
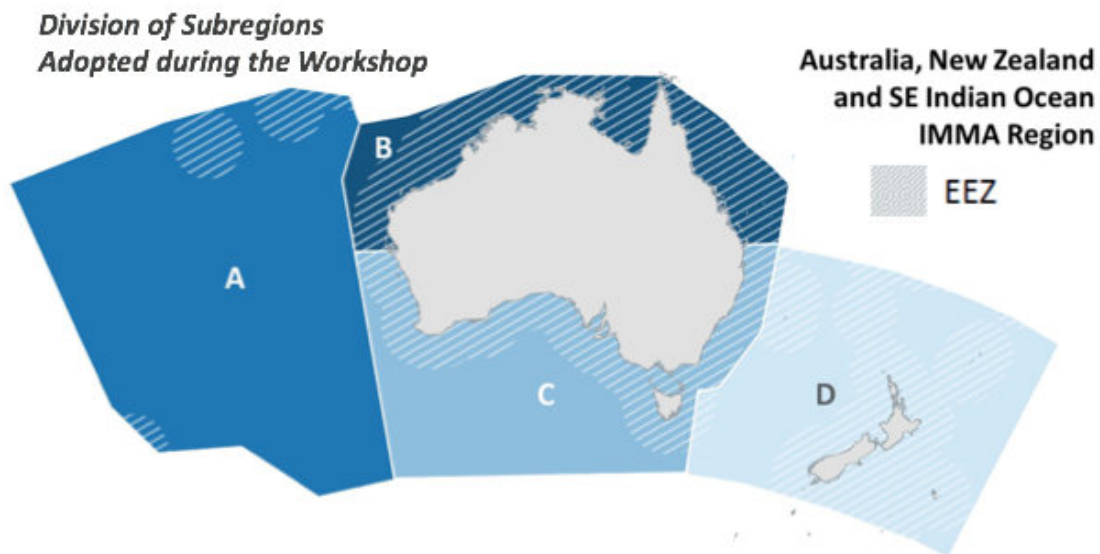
Fig. 6. The IMMA subregions were combined and rearranged in some cases to fit the expertise of the participants and the number of AoI submissions from each area. Each subregion was considered by breakout groups arranged into five tables in the room with Group B split into two subgroups, northeast and northwest.

Table 1. Subregions for each breakout group and the group coordinators and GIS persons available

Breakout group (Table) number	Original subregion	Group coordinator/ facilitator	Advisor on call	GIS Technical
A	i, ii (and part of iii, iv)	Benjamin Kahn	Bob Brownell, Erich Hoyt	Caterina Lanfredi
B (northwest)	iii	Helene Marsh/ Chandra Salgado Kent	Giuseppe Notarbartolo di Sciara, Erich Hoyt	Caterina Lanfredi assisted by Julian A. Tyne
B (northeast)	vi	Helene Marsh/ Guido Parra	Giuseppe Notarbartolo di Sciara, Erich Hoyt	Caterina Lanfredi assisted by Daniele Cagnazzi
C	iv, v, vi	Chandra Salgado Kent	Bob Brownell, Erich Hoyt	Caterina Lanfredi assisted by Joshua Reed
D	vii, viii	Rochelle Constantine	Simone Panigada, Bob Brownell	Caterina Lanfredi

Code:
[i] Central East Indian Ocean (CEIO)
[ii] South East Indian Ocean (SEIO)
[iii] North West Australia (NWA)
[iv] South West Australia (SWA)
[v] Tasmania (TA)
[vi] Eastern Australia (EA)
[vii] North of New Zealand waters (NNZ)
[viii] New Zealand (NZ)

Before the afternoon coffee break, Panigada said that participants could have the choice of carrying on in the meeting room or elsewhere with a 3.5 hour reading session before dinner.

IMMA Workshop Day 2, 11 February 2020

Before plenary and breakout sessions, the IMMA Secretariat led by the co-chairs met with coordinators for the three main subregions — Marsh (Group B subregion), Salgado Kent (C) and Constantine (D) — and then separately with Kahn for Group A subregion. They equipped the individual groups with the AoI master list and the coordinator

question list, with the mission to come up with the rough areas to go forward with the names of the cIMMA and AoI, species, and points of contact.

Notarbartolo di Sciara highlighted again the importance of recording Traditional Ecological Knowledge (TEK) about species and habitats to inform the cIMMA proposals. This point had been the subject of discussion with knowledgeable colleagues well ahead of the workshop, and the decision was taken to strive to include TEK elements in the formulation of cIMMA templates, if available and relevant, based on the judgment of the concerned workshop participants. In addition, participants are encouraged to use traditional names in the IMMA titles, but only if they are already in existence and would not create issues between indigenous groups. Several participants noted the need for caution unless the name was already well established.

Marsh asked how IMMAs deal with migratory corridors. Lanfredi explained that a migratory corridor can be included as an IMMA if the data exist, but Constantine explained that for the Pacific Islands, the migratory corridors were not included as IMMAs because the migration paths were wide ranging and only roughly defined in terms of establishing a migratory corridor. By contrast, Hoyt said, the gray whale migration along the west coast of North America and the humpback whale migration on the east coast of Australia have many data points and would make good cIMMAs. Indeed, IMMAs were identified along the southeastern coast of Africa based on humpback whale migratory corridors. With some baleen whale migrations, a corridor could be a separate IMMA from a feeding or breeding IMMA at one or other end of the corridor.

Noad queried the approach for migratory connectivity between transboundary regions adjoining the Australia-New Zealand and South East Indian Ocean IMMA region, and whether it can be one IMMA. The answer was yes and the key thing is to capture the connective corridors between different IMMA regions.

The IMMA Secretariat then emphasized that groups shouldn't worry if there were overlaps of migration corridors extending into other regions or even with other IMMAs. It can be captured in the text of the cIMMA submission to the reviewers — for example, with the humpback, blue and other migrations that extend from the IMMA regions of Australia-New Zealand and South East Indian Ocean to the Extended Southern Ocean Region or the North East Indian Ocean and South East Asian Seas. These humpback, blue and other migration corridors from other regions and subregions should be joined up into a single IMMA. There was the opportunity to do this in Perth with the participants

present as well as through access to the shapefiles from the adjoining regions to the north and south of Australia-New Zealand and South East Indian Ocean.

There was a lot of discussion about the ideal size for cIMMA proposals, and whether to lump or split when there were multiple areas along a coastline with the same species meeting the same criteria. One option that has been used in other regions and can be defended is to have a large area with multiple zones marked with the key habitats. The safest thing, however, is to make individual IMMAs especially if the areas are some distance apart and there is no genetic exchange between them.

The breakout groups then formed for the day with the mission to go through their subregions, decide which AoI they want to keep, which are to be joined or separated, and the species for each. The groups worked hard through the day, going through every AoI and filling out the spreadsheet with a checklist of things to consider. The goal was to come up with what could be a tentative cIMMA list by the end of the day 2 or beginning of day 3. The questions, focused by the facilitators were as follows:

1. Is the AoI important for the species/area when compared to the IMMA selection criteria?

2. Is there information or data to be able to create a boundary around the species/area for a cIMMA?

3. Could the AoI species/area be combined with other AoI for different species to create a multi-species cIMMA?

4. If the AoI is not suitable for meeting the IMMA Selection Criteria, could the species/area be used to meet the IMMA selection Criterion Dii on Diversity when combined with other overlapping AoI for different species?

5. If the AoI for the species/area is not suitable as a cIMMA, and cannot be used to support another cIMMA for a different species/area, should the AoI for the species be either Option I – kept as an AoI to inform a future process or Option II – not considered as an AoI on the IMMA e-Atlas?

Through the rest of the day, while Group D (New Zealand) met in a separate room, Marsh took the lead in managing the discussions about which AoI would be going forward to cIMMA proposals in the subregions covered by Group B. She divided "B" into two parts, northeast and northwest, and the two groups met at separate tables,

completing their work near the end of the day. Some participants moved back and forth between the two groups.

Following the afternoon coffee break, Group C met to begin the work of sorting out their AoI submissions. Again, people from Group B also participated because of the overlapping species and ecosystems. By the end of the day, some of the groups had their list but others were still struggling to finalize things such as Group C.

IMMA Workshop Day 3, 12 February 2020

Hoyt opened the plenary, asking for status updates from all the groups covering every subregion. It was time for each group to finalize the names for proposed cIMMAs. Names should be descriptive of the place, said Hoyt, and not confused with another name. Ideally names would not be too long but long enough to cover the description. Usually species names were not used in the cIMMA name with the exception of cIMMAs describing migrations and a few others describing habitats specific to one species. After the review, the names would have IMMA, cIMMA or AoI after the name.

First, Hoyt asked Marsh to report on Group B's subregions. She in turn asked Guido Parra to present the northeastern portion of B and called upon Salgado Kent for B northwest. Parra's group had a total of 15 submissions to review and these were converted into 17 cIMMAs. Several submissions that covered the entire east coast were considered impractical. Salgado Kent's group, after discussions, came up with 7 cIMMAs and 3 AoI (later converted to cIMMA submissions). Marsh noted the need to further discuss the concept of networks and how to consider migratory and connective habitat.

Then Constantine reported on Group D (New Zealand subregion), with 11 cIMMA proposals and 1 AoI.

Group C had made some headway yesterday in discussing their subregion and they were now pushing ahead with that. Group C's slower progress was partly because participants had also contributed to other groups. Salgado Kent, who was also coordinating Group B (northwest), agreed to present her Group C subregion by noon on the following day, although this was late and efforts would need to be made to work hard to finish the cIMMA proposals in time.

Finally, Group A was reported by Kahn, with the original proposal being one AoI based on limited knowledge but with hopes to make at least one cIMMA. This in itself was an

advance because at the beginning of the workshop there were no areas proposed for this offshore region. Three cIMMA proposals were put forward, two for dolphins around the Cocos (Keeling) Islands and Christmas Island, and the other a large area partly in the high seas defined by the "New Holland sperm whaling ground". Part of the reason for doing three cIMMA proposals instead of AoI was so that the areas would be reviewed. With AoI, there is no review. Still, if the review fails, a cIMMA may still go forward as an AoI but will have specific notes regarding what may be needed in future to pass review.

For each group, the numbers of cIMMAs and AoI were reported and the total number from which they had derived. Some proposals had polygons but they were not finalised and for now the focus was on the names. With the detailed discussions around each subregion, it became clear that Australia and New Zealand both have long data series going back to the 1970s. The marine mammal populations, thus, are well studied, including some 30,000 humpback whales that traverse the migratory corridors off the east coast; some of the healthiest populations of dugong in many locations; dwarf minke whales off north east Australia; Hector's and Maui dolphins around New Zealand; southern right, blue and pygmy blue whales in various locations; the Indo-Pacific and common bottlenose dolphin, and the newly described dolphins, the Australian humpback and snubfin dolphin.

There were disagreements regarding one area in New Zealand, as well as a general question related to several areas in Australia and New Zealand about whether to identify somewhat continuous areas as one cIMMA or to divide it into several cIMMA submissions. This applied to dolphin habitats as well as whale habitats. The answer in discussion was that this issue had already arisen with spinner dolphins off Hawaii at the Pacific Islands workshop. The solution was to make one IMMA with non-contiguous polygons showing the key areas for various island populations and their resting spots. Similar solutions were presented for New Zealand dolphin areas. The consensus was to make a single area with several polygons into a single cIMMA, in short, a network, as they do not have continuous distribution.

Discussion ensued on the size of IMMAs and AoI. Panigada said that AoI are often broader areas because of the unknowns compared to cIMMA proposals which focus on discrete areas containing habitat for marine mammals. It would dilute the importance by making an area too large. His comments were in reference to a proposal for Hector's and Maui dolphins covering large portions of New Zealand. Liz Slooten stressed the importance of an area for geographic connectivity covering the home range for these

endemic dolphins. Distribution maps were displayed showing sighting across much of the North Island and South Island, but with some gaps. Slooten questioned whether we wanted to create IMMAs for broad representative habitats with multiple species, or small portions of habitat that are critical for species. Notarbartolo di Sciara replied that IMMAs should focus on the essential part of the habitat and not the whole species' or population's range. Van Helden said that IMMAs are just one management tool; there are others. Notarbartolo di Sciara, however, reminded the group that, in fact, IMMAs are not a management tool but inform management tools, such as marine protected areas or zoning.

Constantine remarked that the situation in New Zealand seemed to be similar to parts of Australia in terms of whether to implement large scale IMMAs with discontinuous zones, or to make multiple IMMAs. It was suggested that the individual areas within the IMMA should be well documented so that reviewers could consider the option of splitting the IMMA if they determined that this was the best approach. Brownell pointed out that this was a common issue in other regions, and again it was recalled that Hawaiian monk seals were grouped in several large IMMAs covering multiple areas for monk seals and, in some cases, other dolphin and whale species. Van Helden said that the discrete cIMMAs were identified with primary species for endemics but when the proposed cIMMA is large, it becomes more about regional significance for multiple species. Panigada recommended that discrete IMMAs be developed for endemic species when they are not already covered under broader IMMAs. In the case of New Zealand, much of the Hector's dolphin habitat is covered under larger IMMAs, but other IMMAs could be created in the two areas where the highest distribution has been noted to complement the larger areas. Marsh explained that the Australian cIMMAs encompass primary habitat for endemic inshore dolphins covered under several separate proposals; they're not continuous, but this approach would be consistent with New Zealand.

Lanfredi agreed that the two new cIMMAs for Hector's dolphins in New Zealand made sense. She stressed the need to be consistent and to link the proposal to the layers and the master spreadsheet. Salgado Kent also noted that they had proposed a single IMMA with a network of discrete areas. The group agreed that the network approach with one cIMMA having multiple polygons with discrete important habitats made sense. Notarbartolo di Sciara said this approach also made sense for the number of cIMMA proposals that had to be prepared now in the next two days. He also highlighted that long and detailed descriptions for each cIMMA were not that useful to the process and took too much time. Instead the most important thing is to have only a short summary

and then to focus on defending the criterion or criteria chosen with solid references or data. This will be the most important for reviewers.

For the rest of the day, participants stayed in the breakout groups and worked on their cIMMA submissions.

IMMA Workshop Day 4, 13 February 2020

Day 4 began with a short plenary to encourage everyone to continue working on their cIMMA proposals, and to announce that there would be a longer plenary at 12 to introduce two presentations from the group and to finalize the cIMMA list from Group C.

At noon, Notarbartolo di Sciara introduced **Daniel Dunn**, who is part of a GOBI-IKI sister project of the IMMA work focused on Migratory Connectivity in the Ocean which uses the acronym MiCO. As an observer at the workshop, he contributed his knowledge about seabirds as well as migratory connectivity which includes marine mammals.

Dunn explained in his talk how ocean basin-scale migrations of sea turtles, marine mammals, seabirds and fish expose them to multiple stressors as well as multiple governance regimes. Understanding how migratory species use and connect the oceans is crucial for their conservation. While the amount of data describing migratory movements is growing exponentially, the results of these studies remain buried in scientific literature and are only communicated via direct contact with the authors. This bottleneck in the delivery of critical ecological knowledge is inhibiting efforts to conserve migratory species, constraining area-based planning processes and limiting the utility of environmental impact assessments.

To address the bottleneck, a consortium of over 50 organizations developed the Migratory Connectivity in the Ocean (MiCO) System. Like the IMMAs, the system represents a step-change: a move from aggregating raw data which requires time and capacity to analyse, to aggregating actionable knowledge which can be readily incorporated into management, policy and industry processes. In this sense, and through mutual funding sources (GOBI-IKI), MiCO is linked to efforts to identify Important Marine Mammal Areas. Both MiCO and IMMAs provide a hands-on knowledge product that industry, government, conservation and stakeholders can readily use. This novel approach has generated information on area-use and

connectivity for dozens of species (see mico.eco/system) and contributed to the work of Regional Seas Organizations, the FAO and UNEP, informed negotiations over a new High Seas treaty, and was recently recognized by the Convention on Migratory Species.

The critical components of MiCO relevant to the marine mammal research community are that it:

- aggregates knowledge to provide data products, not data (similar to IMMAs);
- does not disseminate contributor data;
- provides freely available, standardized, summary products (i.e., model output);
- tracks product use & reports to contributors;
- is designed to be modular & incorporate multiple sampling methods; and
- is transparent (data, methods, attribution).

MiCO can support efforts at identifying IMMAs in the future by being a knowledge repository for synthesizing connectivity information derived from telemetry, mark-recapture, acoustic, stable isotope and genetic data. MiCO can also complement IMMAs by providing information on how they are connected, potentially the strength of connectivity, and revealing a broader picture of the distribution of the migratory cycle stages for marine mammals.

Notarbartolo di Sciara explained that both MiCO and the Task Force working on IMMAs are hoping to respond to the prospect of a high seas biodiversity treaty, but who knows how to make good protected areas if we don't have the science on the high seas to support it. We need a new decade of ocean science to focus on getting high seas data.

Constantine remarked that this is the way forward for the research community to provide data that can help improve conservation outcomes. These processes, like MiCO and IMMAs, encourage data sharing. Dunn explained that MiCO is a global migratory database and provides a way for data to feed directly into policy processes. It is now a preliminary system where each paper is a network and the team are still in the process of streamlining data and aggregating information.

Brownell then asked if more detail is available. Dunn responded and explained the array of data available that was not shown on the first screen.

Then Hoyt introduced **Charlotte Boyd**, Chair of the Key Biodiversity Areas (KBA) Standards and Appeals Committee, who gave an introductory presentation on Key Biodiversity Areas, emphasizing the synergies between KBA identification and the IMMA

workshop process. She talked about thresholds that might be used for shaping cIMMA proposals as well as future KBA proposals with marine mammals.

Boyd reported that KBAs are "sites contributing significantly to the global persistence of biodiversity" (IUCN 2016)[5]. They are identified using criteria designed to capture elements of biodiversity across genetic, species and ecosystem levels in marine, freshwater, terrestrial and subterranean systems.

Like IMMAs, KBAs are intended to inform science-based conservation planning and action. They are used by national governments to support conservation priority-setting, the strategic expansion of protected area networks, and the implementation of international environmental agreements. The World Database on Key Biodiversity Areas (WDKBA)[6] provides information on the location of KBAs and the biodiversity they contain. Conservation funding agencies and KBA partners use this information to guide investment in conservation. The financial sector, including the International Finance Corporation and the Equator Principles banks, apply strict lending conditions to areas meeting the KBA criteria.

The KBA and IMMA criteria for identifying sites important for threatened species, geographically concentrated species, and demographic aggregations are closely aligned. Nevertheless, given that KBAs encompass a broader range of biodiversity, there are several differences in the processes for identifying KBAs and IMMAs. While IMMA identification is based on workshops that bring together marine mammal experts to share data and expert knowledge and build consensus on important sites, KBAs are identified using quantitative thresholds to ensure that KBAs are identified in an objective, repeatable and transparent way across taxa and ecosystems. These thresholds are included as advisory thresholds in the IMMA guidelines, but the IMMA guidelines provide greater flexibility to identify sites that are important for subspecies and subpopulations and for data-limited species. KBAs are focused on the site-scale, where each site is a discrete area of land or water that is actually or potentially manageable as a unit. Given that most marine mammals have broad distributions at the ocean basin scale or beyond, IMMAs are identified through regional workshops, whereas KBAs are identified by national constituencies. National Coordination Groups

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[5] IUCN 2016. A global standard for the identification of Key Biodiversity Areas: version 1.0. Gland: IUCN Global Species Programme, 37pp. [https://portals.iucn.org/library/node/46259]
[6] http://www.keybiodiversityareas.org/home

play an important role in coordinating KBA identification and delineation across taxa and ecosystems.

Many IMMAs will likely also qualify as KBAs. The New Zealand-Australia and South East Indian Ocean IMMA workshop provides a unique opportunity to demonstrate how data and expert knowledge on important sites for marine mammals compiled through the IMMA identification and review process can also serve to inform KBA identification and delineation. National and regional KBA and IMMA coordinators plan to work closely together on this once the New Zealand and Australian IMMAs have been reviewed and confirmed.

Brownell then asked if a single species with multiple populations, e.g., pygmy blue whales, would classify as a KBA in the Southern Ocean? Boyd explained that there are different criteria for a global species assessment compared to site specific criteria.

Notarbartolo di Sciara gave an example of the 60 sperm whales in the eastern Mediterranean. Based on global KBA criteria, these numbers are irrelevant compared to the global sperm whale population, but they are regionally significant. If labelled as "ecologically irrelevant" by the mainstream conservation community, eastern Mediterranean sperm whales are set to lose against economic interests (e.g., shipping, oil-and-gas development) currently posing a threat to their survival, and could soon disappear from the area; this would cause a loss of biodiversity for the area and a range restriction for the species. Regional importance must be incorporated; thus, the significance of sites and distinctiveness can be dangerous because these important sites would get lost.

Boyd agreed a key aspect of KBAs should be to identify KBAs for subpopulations in regions, rather than using the global approach. The criteria are currently focused on global KBAs. Notarbartolo di Sciara concluded that further work is urgently needed to develop regional criteria to avoid disaster.

Noad remarked that culture needs to be considered as well as genetics; the Convention on Migratory Species (CMS) has started a process for this and there is a need to make it consistent in terms of criteria. He also highlighted the need for consistency with terminology as KBAs feed into CMS. Notarbartolo di Sciara (who attended the CMS CoP in India the week after the IMMA Workshop to report not only on IMMAs but also on the conservation relevance of animal culture) agreed that this was important. (Note:

IMMA Criterion Di Distinctiveness recognizes areas which sustain populations with important behavioural as well as genetic or ecologically distinctive characteristics.)

Then Salgado Kent, the coordinator for Group C, gave an update, reporting that her subregion had started with 22 AoI submissions and that after discussion, these turned into 9 cIMMAs and 1 AoI. She went over the list of names which were refined until everyone agreed.

Finally, Zanardelli went through the existing list of cIMMAs and encouraged all submissions to come through as soon as possible, and by Friday midday at the latest (Table 2).

Table 2. Day 4 status report

Breakout group number	Proposed number of cIMMA submissions	Proposed number of AoI nominations
A	2	1
B (NW)	7	1
B (NE)	11	0
C	9	1
D	14	1
Total	43	4

IMMA Workshop Day 5, 14 February 2020

The Day 5 opening plenary by Hoyt charted the progress to date with the coordinators from the four groups reporting on the status of cIMMAs and AoI submissions and the hope to have them completed by noon. Some were waiting on reviews from other participants while others were circulated outside and due to the time difference with eastern Australia and New Zealand, needed finalizing but every region was on track. Group C because of the overlaps with B were not as far along because of the numbers of areas and the fact that the initial discussions could not begin until the NW and NE B areas were completed.

Hoyt announced that the plenary after lunch would show the latest map with all the names and the group would need to agree on the final areas to go through to the reviewers. It might be that some cIMMA proposals were weak and better suited as AoI submissions. This could be discussed with the map in front of us and all the names and then we could make final decisions after lunch.

Hoyt and Notarbartolo di Sciara next advanced the idea of forming a regional Task Force group with a coordinator for the Australia-New Zealand and South East Indian Ocean region. Everyone at the workshop was invited to become part of the regional group and the membership could then be expanded to others who have expertise related to the identification and implementation of IMMAs. The co-chairs also introduced the role of the regional coordinator(s) for this group, and said that before the end of the meeting they were hoping to get volunteers to handle the coordinator role for the Australia-New Zealand and South East Indian Ocean region. It could be one person or several who would share the responsibility and provide regional representation. They went over the various tasks and noted that the Terms of Reference are available on marinemammalhabitat.org.

Besides coordinating the group to further the interests of existing IMMAs, noting changes to those IMMAs and nominating future AoI, the regional coordinators would be asked to provide a summary of marine mammal developments at the end of the year, especially as they related to IMMAs. The regional coordinators are asked to help keep the regional group members updated on IMMAs, as well as to push ahead with encouraging NGOs, civil society and government implementation activities at the local, national and regional level. But it would also be part of the role of the regional group, sparked by the coordinators, to keep note of the species, ecosystems and issues in the region over time and in the lead-up to the next IMMA workshop for that region. Regional IMMA workshops might happen only every 10 years. Hoyt said that in future there could be small salaries for the regional coordinators. He asked for nominations or offers of people to be the coordinators.

The morning began with more drafting but Lanfredi showed briefly the progress of the map and the gaps, and asked for final polygons. There was huge interest in looking at the map and it helped focus attention for the last stage of the workshop. Several proposed cIMMA names were changed for the final time, and Zanardelli changed the names to synch with the spreadsheet and map files.

After lunch, the Task Force co-chairs announced that there would be another hour before plenary. Participants then continued to polish their cIMMA submissions, with the IMMA Secretariat's help in some cases answering questions.

At the final plenary, Hoyt and Notarbartolo di Sciara talked about the process of peer review and that it could be likely 6-8 weeks before the points of contact would hear any

news. Hoyt noted that boundaries might change and some areas would be combined or split; other cIMMAs, might not have enough evidence and would revert to AoI but hopefully not many of them. But the points of contact would be given a chance to consider making recommended amendments.

Then, rather dramatically, Zanardelli, followed by Lanfredi, projected the final results of the workshop on the screen with the rough map showing all the polygons (Table 3; Fig. 7, Fig. 8). Lanfredi showed the map, both before (Fig. 5) and after, revealing how it had been filled up gradually in recent days. In sum, there were 45 candidate IMMAs identified throughout the region, with only one area being retained as an AoI. This was the second highest submission total in the six IMMA regional workshops conducted to date, said Hoyt. The group groaned but then Hoyt said that it was still possible for Australia-New Zealand to come out on top after the review, depending on how many cIMMAs are accepted. An added bonus was announced by Boyd — that 25 of the cIMMAs also might qualify as KBAs.
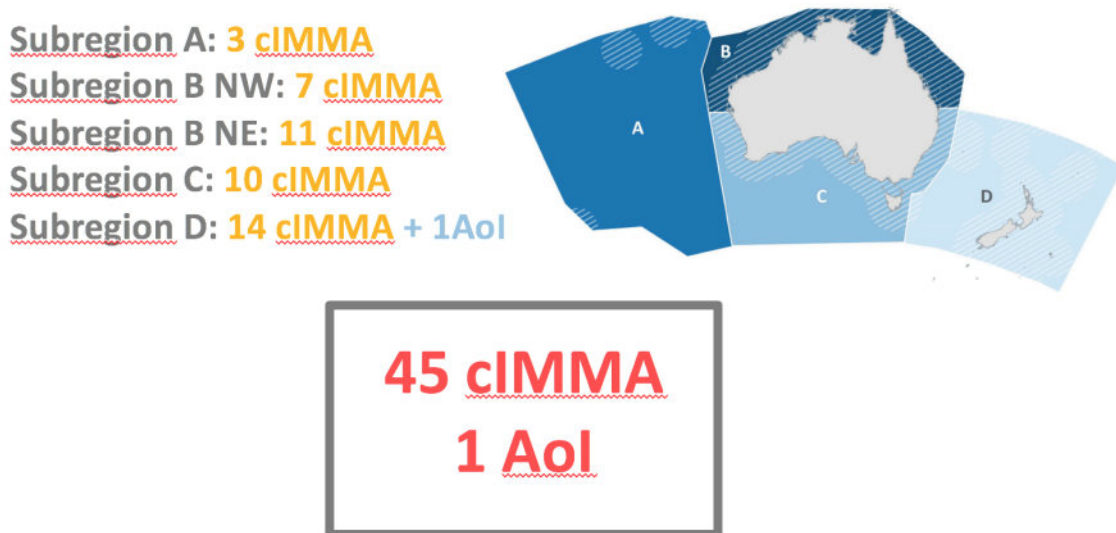
Fig. 7. Final outcome of the Australia-New Zealand and South East Indian Ocean IMMA workshop process in Perth

Table 3. Day 5 final cIMMA and AoI numbers by subregion group

Breakout group number	Proposed number of cIMMA submissions	Proposed number of AoI nominations
A	3	0
B (NW)	7	0
B (NE)	11	0
C	10	0
D	14	1
Total	**45**	**1**
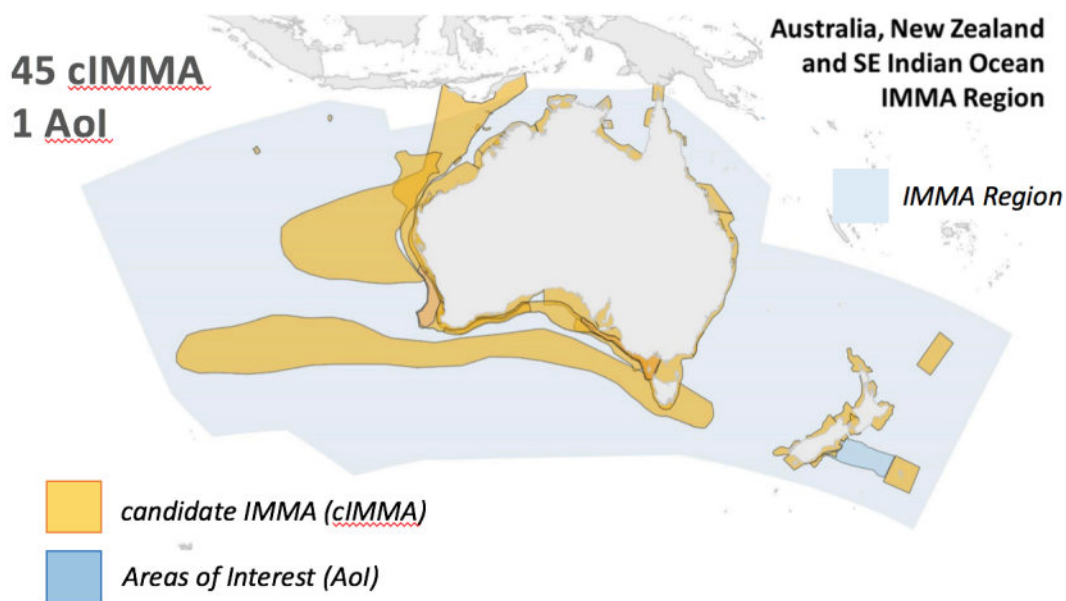
Fig. 8. This summary slide revealed the results of the workshop with a rough map showing the cIMMA and AoI (Note: number of cIMMAs, AoI and boundaries on the maps are all tentative, subject to review and many will change.) The final IMMA map, following the review process, can be viewed as part of the IMMA e-Atlas (https://www.marinemammalhabitat.org/immas/imma-eatlas/) and in Fig. 1.

Hoyt then asked about volunteers for the IMMA regional coordinator role(s). For Australia, Chandra Salgado Kent volunteered while in New Zealand, Simon Childerhouse, who had followed and contributed to the workshop remotely, agreed to stand. Hoyt thanked them and then thanked the whole group for all their work. The audience applauded the IMMA Secretariat team. Hoyt said that what we had all done together was magic — a bit like pulling rabbits out of hats. Referring to participant Anton van Helden, not only a professional magician but beaked whale authority, who had

entertained the group every evening informally as we gathered for dinner, Hoyt said "every workshop should have its own magician."

At the final dinner in an outdoor restaurant located along Perth's Swan River, many participants expressed their appreciation of the well-organized process and some indicated surprise at how it had been both challenging and rewarding. Several commented at how much they had learned by working together with others in their subregion(s) and in their country with whom they rarely had the chance to collaborate with in person.

As the wine and beer flowed and the procession of choice platters continued from the kitchen, we enjoyed the magic tricks and some of us, at least, listened for possible dolphin spouts in the river. Some 20-25 are known to live in the Swan River but they were keeping quiet.

Annex I – List of participants

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Annex II – Workshop agenda

Day 0: 9 February - 2020

19:00 – 22:00 Icebreaker reception and welcome dinner

Day 1: 10 February - 2020

09:00 – 10:30 Introduction to the IMMA Australia-New Zealand and South East Indian

Ocean Region Workshop

- Welcoming addresses
- Presentation by IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force Co-Chairs
- Presentation by Sylvana Maas, Migratory Species Section, Biodiversity Conservation Division, Department of the Environment and Energy on Biologically Important Areas (BIAs) for Marine Mammals in Australia
- Participant introductions
- Adoption of Agenda and Workshop Chairs

10:30 – 11:00 Coffee Break

11:00 – 12:45 Introduction to Important Marine Mammal Areas

- IMMA Selection Criteria, Identification Process, and Inventory of Knowledge (IoK) for the Australia-New Zealand and South East Indian Ocean Region - Presentation by Simone Panigada, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force
- Question and Answer Session

13:00 – 14:00 Lunch [leave room 12:45]

14:15 – 16:30 Areas of Interest (AoI) and Assignment of Working Groups

- Collated AoI for the Australia-New Zealand and South East Indian Ocean Region - Presentation by Caterina Lanfredi, IMMA Secretariat

- PLENARY Discussion on candidate IMMA (cIMMA) options, agreement of AoI list for cIMMA investigation, and Assignment of Working Groups – Simone Panigada

16:30 – 17:00 Coffee Break

17:00 – 19:30 Personal Reading Session

19:30 – 22:00 Informal dinner

Day 2: 11 February - 2020

08:30 – 9:00   Breakout Group Facilitators Pre-Meeting (if needed)

9:00 – 10:30   PLENARY - Collation of final AoI and cIMMA Group Assignments – Caterina Lanfredi

10:30 – 11:00 Coffee Break

11:00 – 12:45 BREAKOUT GROUPS SESSION 1

13:00 – 14:00 Lunch [leave room 12:45]

14:15 – 16:30 BREAKOUT GROUPS SESSION 2

16:30 – 17:00 Coffee Break

17:00 – 18:30 Assessment of cIMMA list (subregion summary) – Workshop chairs

- Group Facilitator Reports
- PLENARY Discussion
- Agreement on preliminary cIMMA list
- Revised AoI list

19:30 – 22:00 Informal dinner

Day 3: 12 February - 2020

09:00 – 10:30 BREAKOUT GROUPS SESSION 3

10:30 – 11:00 Coffee Break

11:00 – 12:45 Assessment of cIMMA list (subregion summary) – Workshop chairs

- Group Facilitator Reports
- PLENARY Discussion
- Agreement on final cIMMA list

- ▪ Revised AoI list

13:00 – 14:00 Lunch [leave room 12:45]

14:15 – 16:30 DRAFTING SESSION 1 – cIMMA standard submission forms

16:30 – 17:00 Coffee Break

17:00 – 18:00 Review of cIMMA drafting progress – Simone Panigada

- ▪ PLENARY Discussion

19:30 – 22:00 Informal dinner

Day 4: 13 February - 2020

09:00 – 12:45 DRAFTING SESSION 2 – cIMMA standard submission forms (including coffee break at 10:30)

13:00 – 14:00 Lunch [leave room 12:45]

14:15 – 16:30 DRAFTING SESSION 3 – cIMMA standard submission forms

16:30 – 17:00 Coffee Break

17:00– 17:30   Review of cIMMA drafting progress – Simone Panigada

- ▪ PLENARY Discussion

19:30 – 22:00 Informal dinner

Day 5: 14 February - 2020

09:00 – 12:45 DRAFTING SESSION 4 – cIMMA standard submission forms (including coffee break at 10:30)

13:00 – 14:00 Lunch [leave room 12:45]

14:15 – 15:30 Agreed cIMMA list and next steps for review – Simone Panigada

- ▪ PLENARY Discussion
- ▪ Agreement on final cIMMA for review
- ▪ Agreement on final revised AoI list
- ▪ Formal submission of cIMMA standard forms (extendable on to workshop close)

15:30 – 16:30 Discussion on the use of IMMAs in the Region to inform efforts for marine mammal place-based conservation - Workshop chairs

IMMAs and regional conventions and agreements — update on CMS, IWC, and other implementation work outside of the region, including discussion of the 3 implementation exercises in Palau, Andamans & Mozambique - Workshop chairs

16:30 – 17:00 Coffee Break

17:00 – 18:30 Conservation concerns in the Region - Workshop chairs

- Summary of recommendations by the workshop participants
- Final round-up by workshop organizers and Task Force Co-Chairs
- Workshop Closes

20:00 – 23:00 Celebratory dinner and drinks

Annex III – List of subregions and group facilitators

Facilitators were assigned to each Breakout Group and asked to lead the group through consideration of the AoI, one by one, determining whether there were overlaps that could be merged, and if the species in each AoI could qualify as a cIMMA based on the criteria. The subregions for each breakout group and the facilitator are listed below (see Fig. 4 and Fig. 6 for original and redefined regional maps).

Breakout group (Table) number	Original subregion	Group coordinator/ facilitator	Advisor on call	GIS Technical
A	i, ii (and part of iii, iv)	Benjamin Kahn	Bob Brownell, Erich Hoyt	Caterina Lanfredi
B (northwest)	iii	Helene Marsh/ Chandra Salgado Kent	Giuseppe Notarbartolo di Sciara, Erich Hoyt	Caterina Lanfredi assisted by Julian A. Tyne
B (northeast)	vi	Helene Marsh/ Guido Parra	Giuseppe Notarbartolo di Sciara, Erich Hoyt	Caterina Lanfredi assisted by Daniele Cagnazzi
C	iv, v, vi	Chandra Salgado Kent	Bob Brownell, Erich Hoyt	Caterina Lanfredi assisted by Joshua Reed
D	vii, viii	Rochelle Constantine	Simone Panigada, Bob Brownell	Caterina Lanfredi

Code:
[i] Central East Indian Ocean (CEIO)
[ii] South East Indian Ocean (SEIO)
[iii] North West Australia (NWA)
[iv] South West Australia (SWA)
[v] Tasmania (TA)
[vi] Eastern Australia (EA)
[vii] North of New Zealand waters (NNZ)
[viii] New Zealand (NZ)

Note: The above is identical to Table 1 in the main text.

Annex IV – List of approved IMMAs and cIMMAs

At the conclusion of the workshop, 45 candidate Important Marine Mammal Areas (cIMMAs) were identified by the experts attending the IMMA Regional Workshop for Australia-New Zealand and the South East Indian Ocean. These were used to compile standard submissions for IMMA status for inspection and potential approval by the independent review panel. It was determined post-workshop that four of the cIMMAs did not have enough information for review and thus they were put forward for AoI status. This left 41 cIMMA submissions. Following review and subsequent revisions in some cases, 31 areas were accepted as IMMAs, and 2 areas stayed as cIMMAs, subject to additional data or clarifications needed to pass review in future. The other cIMMAs reverted to AoI status with the recognition that these areas will be monitored and with additional research could become a cIMMA at a future IMMA expert workshop. The total number of AoI going forward was 13. For IMMAs and cIMMAs, a summary of the supporting rationale is now available on the Task Force website (marinemammalhabitat.org). The titles of the approved IMMAs and cIMMAs are listed below:

Important Marine Mammal Areas (IMMAs) — Australian and New Zealand waters

1. Albany Canyon Region IMMA
2. Australian East Coast Migration Corridor IMMA
3. Central and Western Torres Strait IMMA
4. Central West Coast, North Island IMMA
5. Dampier Archipelago IMMA
6. Eastern Indian Ocean Blue Whale Migratory Route IMMA
7. Geographe Bay to Eucla Shelf and Coastal Waters IMMA
8. Gourdon Bay to Bigge Island IMMA
9. Great Barrier Ribbon Reefs and Outer Shelf IMMA
10. Hervey Bay and Great Sandy Strait IMMA
11. Hikurangi Trench IMMA
12. Hinchinbrook to Round Hill IMMA
13. Houtman Abrolhos to Rottnest Shelf Waters IMMA
14. Kaikōura IMMA
15. Mapoon to Aurukun IMMA
16. Marlborough Sounds and Cook Strait IMMA

17. Moreton Bay IMMA

18. Ningaloo Reef to Montebello Islands IMMA

19. Northwestern Australian Coastal Waters and Inlets IMMA

20. Northern Great Barrier Reef IMMA

21. Rakiura Stewart Island and Te Ara a Kiwa IMMA

22. Rangitāhua Kermadec IMMA

23. Shark Bay IMMA

24. South Australian Gulfs and Adjacent Waters IMMA

25. South Taranaki Bight IMMA

26. Southeast Australian and Tasmanian Shelf Waters IMMA

27. Southern Australian Coastal and Shelf Region IMMA

28. Southern Great Barrier Reef Lagoon and Coast IMMA

29. Southern Gulf of Carpentaria IMMA

30. Tikapa Moana Te Moananui ā Toi Hauraki IMMA

31. Western Australian Humpback Whale Migration Route IMMA

Candidate IMMAs (cIMMAs)

1. East Coast, South Island cIMMA
2. Northern Territory cIMMA

Annex V – List of AoI for future consideration

After consideration of the large number of Areas of Interest (AoI) summarized in the AoI report with some added during the workshop, some were merged or deferred and others went into cIMMA submissions, leaving initially one to be kept as an AoI, later expanded to 5 AoI. Following review and the approval of 31 sites as IMMA and 2 as cIMMA, it was decided that 8 additional sites would have to stay or revert to AoI after the review due to the lack of evidence suitable for IMMA approval. These 13 sites consisted of (1) AoI originally submitted to the Task Force prior to the workshop, (2) those AoI additionally identified by experts over the course of the workshop in light of new information and knowledge presented, and (3) cIMMAs that failed to become IMMAs or to be kept as cIMMAs. The AoI status is valuable in terms of facilitating and focusing future monitoring and research activities on marine mammals in the region. This enhanced activity could provide additional evidence for such AoI to be reconsidered as an IMMA candidate during future iterations of the IMMA identification process and the Regional Expert Workshops. The AoI listed below, and any supporting rationale, will be highlighted in the future on the Task Force website (marinemammalhabitat.org) and in other Task Force publications.

1. Christmas Island AoI
2. Cocos Keeling Islands AoI
3. Exmouth and Wallaby Plateaux Offshore West Australia AoI
4. Fiordland AoI
5. Northland - Three Kings AoI
6. Perth Bunbury Coastal Network AoI
7. Rekohu - Chatham Rise AoI
8. West Coast South Island AoI
9. Northwest Australian Shelf Seamounts AoI
10. Southeast South Island Slope and Canyon AoI
11. Southern Australian Slope and Canyon System AoI
12. Subtropical Convergence Zone AoI
13. Western Chatham Rise AoI

Annex VI – Template for Area of Interest (AoI) submission form

Preparatory to the Perth workshop, the expert participants, members of the public, and the marine mammal and ocean ecosystem communities were asked to fill out an AoI submission form for any areas that they would potentially like to nominate for consideration as candidate IMMAs. This form was then used at the workshop to draft the cIMMA submissions (see Annex VIII).

THE AREA OF INTEREST (AoI) SUBMISSION FORM

AoI Title:
[Brief name that describes the area within the AoI]

Point(s) of Contacts
[Name, Affiliation/Organization, Contact Email]
[Name, Affiliation/Organization, Contact Email]
[Name, Affiliation/Organization, Contact Email]

Abstract
[Brief summary of the AoI description and qualifying selection criteria 250 words maximum]

Summary Table of AoI species

ID	Scientific Name	Common Name	Population/ Subpopulation Name	IUCN Status	IMMA Selection Criteria Met (x)							
					A	Bi	Bii	Ci	Cii	Ciii	Di	Dii

AoI Map
[Simple boundary map of the AoI location]

Description of AoI

[Description and references to supporting information about the AoI location, i.e. country, geographic locality]

[Description and references to supporting information about the marine mammal species occurring within the AoI]

[Description and references to supporting information about why the area meets the IMMA selection criteria and should be considered as a AoI]

References and Other Supporting Information

[Use this space to add any references used in the submission including those citations, books, reports, or links to websites or databases used to support to submission]

Annex VII – Template for cIMMA submission form

At the Perth workshop, a simplified cIMMA submission form was used (see immediately below). Following this form is a more detailed list of points that have been used to assist participants of regional workshops to draft their cIMMA submissions.

THE cIMMA SUBMISSION FORM

cIMMA Title:
[Brief name that describes the area within the cIMMA]

Point(s) of Contacts
[Name, Affiliation/Organization, Contact Email]
[Name, Affiliation/Organization, Contact Email]
[Name, Affiliation/Organization, Contact Email]

Abstract
[Brief summary of the cIMMA description and qualifying selection criteria 250 words maximum]

Summary Table of cIMMA species

ID	Scientific Name	Common Name	Population/ Subpopulation Name	IUCN Status	IMMA Selection Criteria Met (x)							
					A	Bi	Bii	Ci	Cii	Ciii	Di	Dii

cIMMA Map
[Simple boundary map of the cIMMA location]

Description of cIMMA
[Description and references to supporting information about the cIMMA location, i.e. country, geographic locality]

[Description and references to supporting information about the marine mammal species occurring within the cIMMA]

[Description and references to supporting information about why the area meets the IMMA selection criteria and should be considered as a cIMMA]

Criterion A – Species or Population Vulnerability
[Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Bi - Small and Resident Populations
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Bii – Aggregations
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Ci – Reproductive Areas
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Cii – Feeding Areas
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Ciii – Migration Routes
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Di – Distinctiveness
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

Criterion Dii – Diversity
 [Detailed description for meeting the above criterion – only required if the area meets the above criterion]

References and Other Supporting Literature
 [Use this space to add any references used in the submission including those citations, books, reports, or links to websites or databases used to support to submission]

Annex A. Supporting Figures or Maps
 [Use this space to add any figures including those maps, sightings, charts, data tables, or images which support the submission of the cIMMA – please ensure each figure is accompanied by a figure legend / appropriate description of the figure]

Annex B. List of Primary and Secondary Species
Primary Species – rationale for cIMMA proposal

Scientific Name	Common Name of Species	Population / Subpopulation Name	IUCN / other status assessment

Secondary Species – present in areas but not used in the rationale for cIMMA proposal

Scientific Name	Common Name of Species	Population / Subpopulation Name	IUCN / other status assessment

LIST OF POINTS USEFUL FOR THE PREPARATION OF cIMMA SUBMISSIONS

Part 1: cIMMA Description

- Title/Name of the area
- Points of contact for submission (names, affiliations, title, contact details)
- Abstract (100-word summary of the submission)
- Introduction (feature type(s) present, geographic description, depth range, oceanography, general information data reported, availability of models)
- Location (Indicate the geographic location of the area/feature and the underlying rationale for boundary selection. This should include reference to a location map shown on page 11 of this form in the space provided, and the total size of the area in km^2. It should state if the area is within or outside national jurisdiction or straddling both.)
- Description of the species and features which qualify as IMMA (information about the characteristics of the feature to be proposed, e.g. in terms of species, population and underlying physical description (water column feature, benthic feature, or both) and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Part 2: Criterion A – Species or Population Vulnerability

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Criterion A

Part 3: Criterion B - Sub-criterion Bi – Small and Resident Populations

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Bii

Part 4: Criterion B - Sub-criterion Bii – Aggregations

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Bii

Part 5: Criterion C - Sub-criterion Ci – Reproductive Areas

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Ci

Part 6: Criterion C - Sub-criterion Cii – Feeding Areas

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Cii

Part 7: Criterion C - Sub-criterion Ciii – Migration Routes

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Ciii

Part 8: Criterion D - Sub-criterion Di – Distinctiveness

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)

- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Di

Part 9: Criterion D - Sub-criterion Dii – Diversity

- Explanation for cIMMA assessment (including rationale for feature selection and description of feature and condition)
- Declaration of confidence in evidence available (including information on data gathered, gaps in knowledge, reliability, age of information and any known biases)
- Additional notes on the cIMMA submission on Sub-criterion Dii

Part 10: Numerical Threshold Benchmarks

- Complete threshold benchmarks table where appropriate (including estimates of population abundance or percentage of population size)

Part 11: Species Description

- Complete the species list table where appropriate (including IUCN or other source for threatened or declining status information)

- Species condition and future outlook of the proposed area (description of the current condition of the area and species present– are they static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Part 12: Maps and Figures

- Maps and supporting figures (showing the boundary or area of the candidate IMMA and any relevant supplementary contextual information supporting IMMA classification)

Part 13: References

- References (relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to relevant audio/visual material, video, models, etc.)

Annex VIII – Historical data, traditional knowledge and IMMAs

As has been discussed in the past, historical whaling data can be useful for establishing AoI as well as contributing to cIMMA proposals. In the Indian Ocean, as well as in the Pacific Islands region, whaling data provided input for the EBSA determinations, and therefore also had a role in identifying AoI which contributed to the cIMMAs in those regions.

In recent years, the Scientific Committee of the International Whaling Commission (IWC) and associated researchers have helped to organize whaling data and make it accessible in scientific papers and on the IWC database. The two main data sources are a massive compilation of 19th Century whaling records, which plots sightings and catches, as well as the more formal record keeping from the 20th Century whaling industry. In future, it could be useful to explore in greater depth the value of historical data to IMMAs. Whaling, or other historical data, may help confirm the long-term viability of an area where marine mammals continue to be found, rather than as guidance for identifying present-day areas.

In December 2019, a Task Force workshop was held at the World Marine Mammal Conference in Barcelona, Spain, to explore data and AoI triggers for the IMMA identification process. This included discussions regarding IWC historic catch records.

Traditional knowledge can also be used to assist in the identification of IMMAs, both in terms of informing the selection process and validating other data. In areas where marine mammals have been traditionally hunted, it may be possible to compute abundance and population trends. IMMAs are independent of political and socioeconomic factors during the identification stage.

Acronyms

AoI	Area(s) of Interest
BIA	biologically important area (Australia and US)
BMU	Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety
CBD	Convention on Biological Diversity
cIMMA	Candidate Important Marine Mammal Area
CMP	Conservation Management Plan
CMS	Convention on Migratory Species
CR	Critically Endangered (IUCN RedList)
DAF	Data appraisal form (for the IMMA process)
DD	Data Deficient (IUCN RedList)
EBSA	Ecologically or Biologically Significant Area
EN	Endangered (IUCN RedList)
GOBI-IKI	Global Ocean Biodiversity Initiative's project supported by the International Climate Initiative
IBA	important bird and biodiversity area
IBAT	International Biodiversity Assessment Tool
ICMMPA 1-5	International Conference on Marine Mammal Protected Areas series of conferences with ICMMPA 1 being Maui, Hawaii (2009), ICMMPA 2 (Martinique, 2011), ICMMPA 3 (Adelaide, Australia, 2013, ICMMPA 4 (Puerto Vallarta, Mexico, 2016), ICMMPA 5 (Messinia, Greece, 2019)
ICoMMPA	International Committee on Marine Mammal Protected Areas
IMMA	Important Marine Mammal Area
IMO	International Maritime Organisation
IMPAC3	Third International Marine Protected Area Congress (Marseille, 2013)
IoK	Inventory of knowledge (for the IMMA process)
IUCN	International Union for Conservation of Nature
IWC	International Whaling Commission
KBA	Key Biodiversity Area
LC	Least Concern (IUCN RedList)
MiCO	Migratory Connectivity in the Ocean
MM	marine mammal
MMO	marine mammal observer
MMPA	marine mammal protected area
MMPATF	Marine Mammal Protected Area Task Force
MPA	marine protected area
MSP	marine spatial planning
NRDC	Natural Resources Defense Council
NT	Near Threatened (IUCN RedList)
PSSA	Particularly Sensitive Sea Area

SAC	Special Area of Conservation (EU Habitats & Species Directive)
SSC	Species Survival Commission (of the IUCN)
TEK	Traditional Ecological Knowledge
VU	Vulnerable (IUCN RedList)
WCMC	World Conservation Monitoring Centre (within UNEP)
WCPA	World Commission for Protected Areas (of the IUCN)
WDC	Whale and Dolphin Conservation
WWF	World Wildlife Fund / Worldwide Fund for Nature