Important Marine Mammal Area Regional Workshop for the Extended Southern Ocean

Brest, France, 15-19 October 2018

REPORT OF THE FOURTH IMMA WORKSHOP

Contents

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

Citation: IUCN Marine Mammal Protected Areas Task Force, 2020. Final Report of the Fourth IMMA Workshop: Important Marine Mammal Area Regional Workshop for Extended Southern Ocean, Brest, France, 15-19 October 2018.

Executive summary[1]

From 15-19 October 2018, the IUCN Marine Mammal Protected Areas Task Force (the "Task Force") conducted the fourth Important Marine Mammal Area workshop in Brest, France, focusing on the Southern Ocean from Antarctica extending to the subantarctic islands in the Atlantic, Indian and Pacific oceans. Supported mainly by the Agence française pour la biodiversité (French Biodiversity Agency; which became Office Français de la Biodiversité, or OFB, in Jan. 2020) through the IUCN Global Marine and Polar Programme, the Task Force engaged twenty marine mammal scientists and two observers from eleven countries (see Annex I). Together they identified and mapped a total of 15 candidate Important Marine Mammal Areas (cIMMAs), accompanied by concise profiles, proposing boundaries and detailing how each proposal met one or more of the eight IMMA criteria and sub-criteria. In addition, five areas of interest (AoI) were tentatively retained as potential future cIMMAs pending further research and consideration. A further four AoI were deferred for a future workshop as they were outside the region's boundaries.

The review process initially resulted in 17 potential IMMAs being identified, some requiring substantial changes. After further consultation with the points of contact and the reviewers, as well as discussion within the IMMA Secretariat, several IMMAs were split up and others were joined together. Finally, it was decided that 13 IMMAs would go forward with 1 area remaining as a candidate IMMA (cIMMA) and 7 areas reverting or going forward as AoI (see the list below and in Annexes V and VI).

Sites include habitats for humpback, minke, blue, southern right and fin whales, as well as crabeater, leopard, Weddell, Ross, southern fur and southern elephant seals, New Zealand sea lions and several killer whale ecotypes.

A number of points emerged from the plenary discussions regarding the use of the IMMA tool in the Southern Ocean, including the following:

• The Southern Ocean region has a marine protected area (MPA) designation process through the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Thus, it is important to stress that IMMAs are designed to be a

---

[1] This summary covers the work of the IMMA Regional Workshop for the Extended Southern Ocean, held in Brest, France, in October 2018, as well as subsequent review from the independent Review Panel with the accepted tally of IMMAs and AoI reported in Annexes V and VI.

helpful marine mammal layer, not proposed MPAs or areas burdened by a pre-determined agenda. However, CCAMLR management specifically excludes seals and whales, which are the subject of other conventions – namely, the Convention for the Conservation of Antarctic Seals (CCAS) and the International Convention for the Regulation of Whaling (implemented by the International Whaling Commission, IWC), although there is some consideration of whales and seals with CCAMLR's focus on ecosystem management.

• The Extended Southern Ocean Region, covering the Antarctic and surrounding ice and waters including the subantarctic islands, plays host to the richest marine mammal feeding grounds in the world. Still, it was recognized that there are substantial data gaps for marine mammals across this vast region — partly due to the challenges of logistics and funding and the comparatively limited window for study of some species. The full list of marine mammal species included in the region's IMMAs are available as part of the IMMA e-Atlas documentation.

• A regional Task Force group was set up to further the work of the Extended Southern Ocean IMMA workshop. The coordinator is Susan Gallon (formerly from the French Biodiversity Agency, now Scientific Officer for the Mediterranean Protected Areas Network called MedPAN).

Additional funding support for the final stages of reporting of the workshop and e-Atlas came from Fondation Prince Albert II de Monaco, OceanCare, Animal Welfare Institute (AWI) and the Natural Resources Defense Council (NRDC).

The Extended Southern Ocean workshop results follow the Task Force IMMA regional workshops, which have been completed in the Mediterranean, Pacific Islands, North East Indian Ocean and South East Asian Seas, and Western Indian Ocean and Arabian Seas (2016-2019). The Task Force has adopted as its mandate the mapping of habitats for the 130 species of marine mammals—cetaceans, pinnipeds, sirenians, otters and the polar bear—across the world's oceans. Important Marine Mammal Areas—IMMAs—are defined as discrete portions of habitat, important to marine mammal species. These areas have the potential to be delineated and managed for conservation. They are not marine protected areas but layers that can be used in spatial planning or other area-based management tools. IMMA workshops through the GOBI-IKI programme still to be completed include Australia-New Zealand and South East Indian Ocean (completion, 2020) and the South East Tropical and Temperate Pacific Ocean (completion, 2021).

The 13 new IMMAs, 1 cIMMA and 7 areas gaining AoI status are listed below:

Important Marine Mammal Areas (IMMAs)

1. Amsterdam Island, Saint Paul and Associated Waters IMMA
2. Scott Islands and Iselin Bank IMMA
3. Bouvetøya and Surrounding Waters IMMA
4. Gough Island and Adjacent Waters IMMA
5. Heard Island, Kerguelen and Surrounding Waters IMMA
6. Ross Sea Ecosystem IMMA
7. Scotia Arc IMMA
8. South Georgia IMMA
9. Prince Edward Islands and Western Oceanic Waters IMMA
10. Crozet Islands IMMA
11. New Zealand Subantarctic Islands IMMA
12. Macquarie Island and Ridge IMMA
13. Western Antarctic Peninsula and Islands IMMA

Candidate IMMA (cIMMA)

1. Circumpolar Southern Ocean Seasonal Ice Edge Extent cIMMA

Areas of Interest (AoI)

1. South of South Georgia AoI
2. East of South Sandwich Islands AoI
3. Drake Passage AoI
4. Filchner Trough AoI
5. Antipodes Islands AoI
6. Balleny Islands AoI
7. Ice Edge Extent South of the South Pacific AoI

In future, the cIMMA and these AoI will be useful to highlight reference areas for further marine mammal research and monitoring to help build an evidence base on which new cIMMAs may be proposed for IMMA status. The Extended Southern Ocean map is shown in Fig. 1 and the latest version of the IMMA e-Atlas including the Extended Southern Ocean is in Fig. 1a.
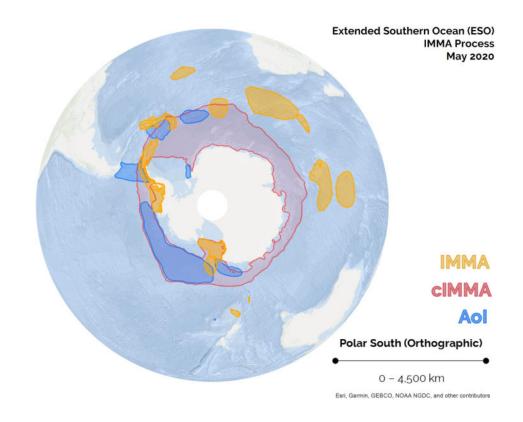
Extended Southern Ocean (ESO)
IMMA Process
May 2020

IMMA
cIMMA
AoI

Polar South (Orthographic)

0 – 4,500 km

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Fig. 1 Geographic location of the 13 IMMAs, 1 cIMMA and 7 AoI identified in the Extended Southern Ocean Region.

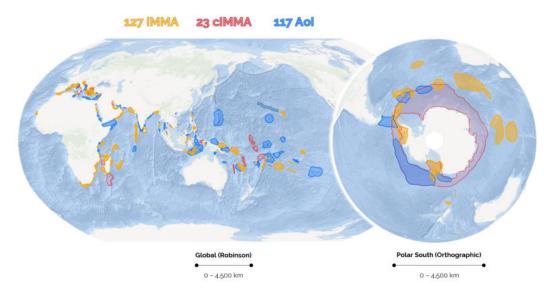**127 IMMA   23 cIMMA   117 AoI**

Global (Robinson)

0 – 4,500 km

Polar South (Orthographic)

0 – 4,500 km

Fig. 1a. Latest version of the IMMA e-Atlas, including the Extended Southern Ocean (July 2020)

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 political and socio-economic concerns, will provide valuable input about marine mammals and their habitats, which will contribute to existing national and international conservation initiatives. The application or implementation process is separate from the identification process.

IMMAs are an advisory, expert-based classification. With no designation process or legal standing as MPAs, they are instead 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 may become an effective way of building 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 will support 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 will also support the creation of Key Biodiversity Areas

---

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)

(KBAs) 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 to whales and increasing noise in the ocean.

For the period 2016-2021, the Task Force has staged regional expert workshops to focus on 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 Waters and South East Indian Ocean (early 2020), and the South East Tropical and Temperate Pacific Ocean (late 2020). The Extended Southern Ocean IMMA Regional Workshop was a separate though complementary initiative funded by the French Biodiversity Agency through the IUCN Global Marine and Polar Programme.

Purpose of the IMMA Regional Workshop

The aim of the Extended Southern Ocean IMMA Regional Workshop 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 in the Southern Ocean. 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 (see pp. 10-11). This IMMA Regional Workshop also aimed to assist in providing strategic direction and conservation priorities to the further development of area-based marine mammal and biodiversity conservation.

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

The general outline of the workshop programme consisted of:

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

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

- multiple working group sessions to select and document the cIMMAs to go forward on a subregional basis which also accounts for species.

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

STAGE 1 – Nomination of initial areas of interest (AoI): AoI proposed by experts via a dedicated online system (SeaSketch or other methods) were summarized in the Areas of Interest (AoI) report. This document was provided to the regional experts in order to evaluate the submitted AoI, along with existing marine mammal place-based conservation measures. Participants attending the workshop were also encouraged by the IMMA Coordinator to submit additional AoI by the end of the first day.

STAGE 2 – Development of cIMMAs: participants were 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, and only then can they have the chance to graduate to cIMMAs.

There are 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 Aquamaps models presented in the Global Reference Points and Niche Model Baseline Indicators in the AoI report) was calculated and adopted as the threshold to define the Sub-criterion Dii diversity.

STAGE 3 – Final review and IMMA status qualification: an independent panel chaired by Randall R. Reeves, IUCN Cetacean Specialist Group Chair, and including Kit Kovacs and Robert L. Brownell, Jr., reviewed the cIMMAs and decided whether they can be accepted as IMMAs, proposing alteration as needed and possibly requiring further evidence from supporting data.

Fig. 2. Participants of the 4th IMMA Regional Workshop in Brest, France

Report of the Workshop

Day 1, 15 October 2018

Welcoming Addresses

At the formal opening of the workshop, **Erich Hoyt**, co-chair of the IUCN Marine Mammal Protected Areas Task Force, welcomed the participants with a special thanks to the French Biodiversity Agency and the IUCN Global Marine and Polar Programme (Fig. 2).

Hoyt emphasized the contrast between this fourth IMMA regional workshop and the previous three. This region, though vast, has had considerable research compared to the Pacific Islands, and it is the first region the Task Force is considering that is largely high seas. That is particularly timely in view of the current discussions in New York as part of the UN Biodiversity Beyond National Jurisdiction (BBNJ) process, and the various side meetings going on which focus on strategies to formulate what will be a legally binding BBNJ agreement.

As Hoyt explained, the idea for the important marine mammal area, or IMMA, originated because of the awareness that the existing MPAs for marine mammals were small and highly coastal and the processes to identify pelagic and high seas areas, for example with the CBD Ecologically or Biologically Significant Area (EBSA) process, were largely unable to incorporate marine mammal data. BirdLife International had a successful programme to identify Important Bird and Biodiversity Areas, IBAs, through a standardized process. It was clear that something similar needed to be done for marine mammals to plug the data gaps, make the data, or expert analysis of the data, accessible in a standardized way, and to thus ensure that marine mammals were being considered in these global processes.

Hoyt described how he had worked with Notarbartolo di Sciara on identifying "critical habitats" for proposed MPAs in the CMS ACCOBAMS region. In 2007, they joined with a larger group of marine mammal researchers and MPA managers from Brazil, France, Australia, Argentina, among other countries, and various mainly sanctuary managers and researchers from NOAA in the US. They formed the International Committee on Marine Mammal Protected Areas and began organizing the first conference in 2009 in Maui, Hawaii. Subsequent conferences in Martinique and Australia led to the idea of setting up an IUCN Task Force to try to implement marine mammal protected area initiatives in a more formal way.

At the third International Marine Protected Areas Congress (IMPAC3) in Marseille in October 2013, the Task Force was launched and a workshop was held to scope the IMMA criteria process. It was decided that the criteria for IMMAs should be modelled after and aligned as closely as possible with criteria for EBSAs, KBAs, and IBAs. This alignment was negotiated at subsequent conferences and workshops (e.g., the third International Conference on Marine Mammal Protected Areas held in Australia in 2014, and the IUCN Leaders meeting in Abu Dhabi, UAE, in 2015) and as part of an extensive scientific and public review.

At the end of Hoyt's presentation, he introduced the remaining speakers for the morning starting with Task Force co-chair Giuseppe Notarbartolo di Sciara who would talk more about the Task Force process of creating IMMAs and give an overview of its work. Hoyt said that then the group would hear from Cyrille Barnerias from the French Biodiversity Agency, Aurélie Spadone from IUCN Global Marine and Polar Programme, and that their presentations would be followed by participant introductions. Then, after the coffee break, Michael Tetley, the IMMA technical coordinator would introduce the documents and outline the process we would go through over the next week.

In the first of these presentations, **Giuseppe Notarbartolo di Sciara** talked about contributing to place-based marine mammal conservation through IMMAs. He emphasized that the Task Force was not just trying to do something for marine mammals, but that this was something valuable for place-based conservation in the ocean. Marine mammals are particularly suitable to receive our attention as they are top marine predators, good umbrella and indicator species, highly visible ambassadors and vulnerable to human activities. The goal was to provide a user-friendly tool for decision-makers, harnessing support from the scientific community.

Notarbartolo di Sciara reminded the audience of the definition of IMMAs, and stressed that they are not MPAs, not identified on the basis of management considerations. He said that identifying IMMAs was an evidence-driven, purely biocentric process based on scientific criteria and the best available science.

The conservation and management initiatives that can use IMMAs include EBSAs (CBD), marine spatial planning (MSP), existing and planned MPAs, and Particularly Sensitive Sea Areas (PSSAs) from the International Maritime Organisation (IMO) and other shipping directives, and Key Biodiversity Areas (KBAs) according to the IUCN standard. He noted the adoption of CMS Resolution 12.13, in 2017, acknowledging IMMAs and requesting parties and range states to help in the identification of IMMAs.

Notarbartolo di Sciara talked about the three-stage process for becoming an IMMA, starting with Areas of Interest (AoI) that then become candidate IMMAs (cIMMAs) at the workshops and are sent for peer-review before becoming IMMAs. So far, about two thirds of the areas proposed are passed by peer review. The Task Force website (marinemammalhabitat.org) has the IMMAs and AoI displayed on an e-Atlas, and anyone can download a pdf with detailed descriptions of each IMMA, along with shapefiles.

Then he showed the map detailing the current IMMA identification programme that is moving across the southern hemisphere with three years left in the process. He highlighted that the overarching aim of the IMMA process is to provide a user-friendly tool for decision-makers that is common to science and management.

After Notarbartolo di Sciara, **Cyrille Barnerias**, Head of European & International Affairs Department, French Biodiversity Agency, spoke about the 2-year-old organization which merged four public agencies including the French Agency for Marine Protected Areas (Note that, as of Jan. 2020, the French Biodiversity Agency's name in French changed to Office Français de la Biodiversité, or OFB). France is determined to put biodiversity concerns on to the same level as climate. As such, IMMAs are important as a spatial planning layer to protect marine mammals and biodiversity at large. Barnerias talked about the work of the Agency including its commitment to research as evidenced by the REMMOA programme (REcensement des Mammifères marins et autre Mégafaune pélagique par Observation Aérienne) which had surveyed marine mammals, turtles and seabirds in the French EEZs in the Atlantic, Caribbean, South Pacific and Indian oceans, and would be continuing to make these surveys in future years.

Finally, **Aurélie Spadone,** Senior Programme Officer from the IUCN Global Marine and Polar Programme, presented a PowerPoint to talk about the global role of IUCN since its founding 70 years ago, giving an overview of the various commissions with a spotlight on the high profile Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA), one and sometimes both of which Task Force members belong to. The SSC is responsible for the Red List, and features the various specialist groups, including groups for cetaceans, pinnipeds, sirenians, otters and the polar bear, among many other non-marine mammal groups. The WCPA, on the other hand, deals with species' habitats. The IUCN body of expertise through these and other commissions amounts to 10,000 experts—an extraordinary resource for conservation. The IUCN Global Marine and Polar Programme had served as the first coordinator of GOBI. IUCN is

cooperating in the preparation of the new instrument to protect biodiversity on the high seas (BBNJ), and Spadone noted that the IMMA process helps to achieve high seas objectives including the coordination of high seas workshops. The work of IUCN would be on display at its next organization-wide World Conservation Congress, hosted by France in Marseilles.

The participants then introduced themselves and spoke about their background and affiliations (Annex I). The coffee break afforded the chance to take the group picture (Fig. 2).

After coffee break, **Michael J. Tetley,** IMMA Coordinator and technical organizer for the workshop, explained the week's agenda and meeting guidelines and informed workshop participants of available resources (also available on a USB stick) including:

- the Inventory of Knowledge (IoK) document for the Extended Southern Ocean Region,
- the Guidance documentation for the IMMA selection criteria and process (IUCN Marine Mammal Protected Areas Task Force, 2018),
- the Areas of Interest (AoI) and candidate IMMA submission review templates (in Microsoft Word format), and
- the Areas of Interest (AoI) document for the workshop region.

Tetley went over the documents available to participants. He discussed the data assessment forms (DAFs) providing an overview of the relative level of knowledge available in the subregions, the species that can be found, and relevant data sources. He stressed that the IMMA proposals had to be carefully based on the selection criteria. For the diversity criterion (Dii), however, a guideline number was calculated which was related to the relative richness of the Extended Southern Ocean Region. It was proposed that evidence for Dii would require five species in an AoI, while 10 or more species would automatically pass the diversity criterion.

As the workshop contained a technical mapping element, it was advised that workshop participants should be able to access and edit common geospatial data, such as ESRI shapefiles (.shp) and Keyhole Markup Language (.kml).

The following two free access software mapping programs were recommended:

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

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

Tetley talked in greater detail about the three-stage process of moving from AoI to candidate IMMA and finally, after review, to becoming an IMMA. He walked the group through the newly simplified cIMMA forms and noted that a point of contact was needed for each cIMMA, although no one would be the sole author of a cIMMA. Instead, the group are in effect co-authors. He pointed out that unpublished information or papers in press could be accepted to support cIMMA nomination.

Tetley drew attention to the IMMA Guidance document which outlines detailed application details for the IMMA criteria. He explained ranking scenarios for data ranging from spatially stable features supported by direct evidence to not spatially fixed and relying on modelled evidence.

The full ranking for data, from best to weakest, and its value is as follows:

• Features that are spatially stable and have been directly observed
• Modelled evidence
• Dynamic features – not spatially fixed (fronts/ice edge) but have been directly observed
• Modelled dynamic features

Tetley then talked about primary and secondary currencies of information to fulfill the IMMA criteria, ranked in order of suitability for IMMA classification. Primary currencies include:

• Abundance data
• Sightings / tracking
• Probability of occurrence
• Area occupancy
• Suitable habitat
• Range

Secondary currencies are:
• Life cycle behaviors
• Distinctiveness (separation)
• Indices of diversity

Tetley then gave a brief tutorial on drawing envelope boundaries to form a cIMMA proposal and discussed "lumping" as opposed to "splitting" when two or more AoI overlap or are close to each other. He reminded participants to account for the three-dimensional nature of the marine environment; when describing an area, participants should specify how much of the water column is being used and its importance to the species. Much more detail is available in the IMMA Guidance document. Finally, he discussed the need to adopt consistent wording for the terms population, subpopulation, distinct population segment, population segment, community and group. Tetley reminded participants that, in addition to the focal species for which there is applicable criteria, they should list all the species known to an area as secondary species.

A plenary question and answer period was then opened. Spadone asked when the IMMAs in a given region would be re-evaluated with new ones potentially created. Tetley said that, as the process is currently envisioned, it is on a 10-year cycle, but that AoI can be proposed by anyone and that the regional group coordinators can help to elevate concerns about AoI. Normally, a new IMMA workshop is needed to carry on with the consistent process. There may however be special cases that call for an "extraordinary" workshop to fill urgent gaps such as happened earlier this year with the Extraordinary Monk Seal Workshop held in La Spezia, Italy.

Additional questions by Spadone and Yan Ropert-Coudert provided the opportunity to discuss dynamic or seasonal IMMAs and the challenge of dealing with boundaries and the movements of species in and out of the region. Tetley noted that the individual IMMAs would have specifications as to how and when the species use the area. This led to a larger discussion about boundaries not just for cIMMAs but for subregions and the entire Extended Southern Ocean Region. Ropert-Coudert was concerned about the boundaries giving longitudinal separation but not latitudinal which relates to the frontal systems that govern Southern Ocean biodiversity. The boundaries were not encapsulating the continental shelf of Antarctica. Tetley clarified that the division of the Extended Southern Ocean into eight subregions did not in any way limit the identification of IMMAs that might spill across subregions (Fig. 3). Those "boundaries" were provided mainly for the convenience of dividing up the areas under consideration in the preparation for the workshop and then by participants at the workshop. The outer boundaries of the Extended Southern Ocean were designed to fit with the boundaries selected for previous and planned IMMA workshops. However, as IMMAs are biocentric spatially, they may be identified as spilling into other regions, too. Many

of the Antarctic marine mammals of course migrate to areas outside the region. Tetley said that there was nothing stopping us identifying AoI with known migrating populations but that, unless the areas were along the outer boundaries they would probably be best kept as AoI and reserved for future workshops in terms of making cIMMAs. Part of the consideration would be whether the body of experts at the Extended Southern Ocean workshop felt confident that their expertise would be comprehensive outside as well as within the region. In most cases, therefore, additional researchers joining a future workshop would need to be included in the decisions.

[i] Scotia Arc and Weddell Sea
[ii] Bouvet Maud
[iii] Sub-Antarctic Islands and Indian Ocean Transition Zone
[iv] Eastern Antarctica
[v] Ross Sea
[vi] Amundsen - Bellingshausen
[vii] Sub-Antarctic Islands and Pacific Ocean Transition Zone
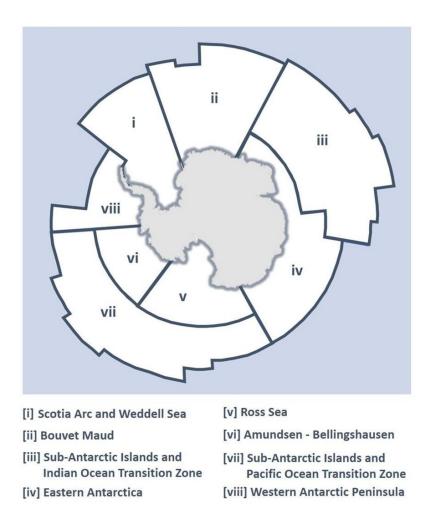[viii] Western Antarctic Peninsula

Fig. 3. Initial divisions of the Extended Southern Ocean region for the workshop

After lunch, Hoyt and Notarbartolo di Sciara agreed to act as co-chairs of the workshop and the agenda was formally adopted. The plenary then continued with Tetley showing a map of the 42 AoI to be considered for cIMMA nomination. These included some EBSAs and MPAs as well as identified areas in the region called Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMAs), which contain marine mammal habitat. However, he noted that many of these designations are not biocentric in their design and although all had some marine mammal presence, the areas were set aside for various reasons. He noted that other AoI could still be submitted but those intending to be proposed as cIMMAs would need to come in the first two days of the workshop. The AoI were sorted into the eight subregions with some AoI overlapping subregions and others overlapping adjacent regions in the Indian and Pacific oceans. Tetley said that some AoI might be reserved for later consideration if they were completely outside the region and others might be removed from consideration if they did not contain marine mammal habitats. Tetley pointed out that a number of AoI overlapped each other (e.g., parts of EBSAs and/or MPAs that overlapped parts of the AoI expert submissions) and suggested that these might be priority areas to discuss and starting points for the process of working toward cIMMAs. In terms of the number of AoI submissions, two hot spots were noted — the West Antarctic Peninsula and the Ross Sea. There were at least five warm spots, and it was generally felt by the group that the AoI were broadly representative of the known marine mammal habitats in the region.

In the discussion period, Ryan Reisinger pointed to the availability of tracking data work with maps of more than 4000 tracks for various species. These are 90th percentile polygons and are not designed to be AoI but they could be rejigged. There were predictions from models that could also be useful. He agreed to prepare the data in a form that could be accessed for reference during the workshop. Iain Staniland noted that the South Georgia populations swamp the data presentations and that it's important to note that the other subantarctic islands may also be significant in terms of the IMMA diversity criterion. Mary-Ann Lea noted the need to split the focus on central place foragers (CPFs) and those species that range widely to feed, such as southern elephant seals; their habitat will be much harder to characterize. Generally, non CPFs lack data.

Hoyt asked the group if they were happy with the IMMA diversity (Dii) criterion metric of at least five species to consider using that criterion, while 10 or more species would

almost guarantee success in achieving the diversity criterion. The group agreed that these were reasonable levels.

Before breaking for a document-reading period followed by dinner, Tetley proposed on the basis of the distribution of AoI that the eight subregions (Fig. 3) be reconfigured and combined to form five subregions (Fig. 4). Tetley showed the proposed divisions suggesting that the group could divide into three parts, one to consider the AoI-heavy subregions 1 and 8, and the others to divide the remaining areas. This was considered a productive way to start the examination of AoI leading to cIMMA proposals, by determining which species in the given areas could meet the criteria. In previous workshops a separate one-day process also considered the AoI by species. In the process of covering each subregion, of course, the relevant species would be considered and therefore it was decided to jump over this as a formal step, including it only as needed in the process of examining each AoI. As the Day One discussions concluded and the reading period began, a sign-up board was provided for Day Two so participants could join one of three tables to consider the AoI for the five subregions under consideration.

Day 2, 16 October 2018

Overnight, the number of AoI swelled from 42 to 49, to fill gaps recognized by participants as they considered the originally proposed AoI. Tetley presented the initial map with 49 rough AoI including these new submissions. He announced the new division of the overall region into 5 subregions to accommodate the numbers of AoI and the work planned. Fig. 4 shows a few amendments to Fig. 3 which was originally envisioned as a plausible division into subregions.

Before starting the day's work, Tetley explained the process of dividing the group into three tables based on the signups at the end of Day One and the Fig. 3 revision. With each group would be one or two members of the secretariat working with them as facilitators to help with the refinement process of considering each AoI on the list in turn. The three groups would then be charged with evaluating the AoI for their subregion against the criteria and deciding which ones would go through as cIMMAs to be proposed to the wider group, which ones would be put forward as AoI and which ones would be removed. Some would need to be reshaped, combined or split up. The ones that were partly outside the subregion could be handled in various ways as discussed on Day One. If the AoI was contiguous and mostly in the subregion, it could be considered as part of the subregion. Otherwise it would go into Annex X to be

considered at future workshops as a possible cIMMA or AoI proposal. Meanwhile, it would remain as an AoI outside the e-Atlas. A recommendation was made to notify regional coordinators in existing IMMA-adjoining regions of any AoI that fell in to these categories.

Fig. 4. New division into 5 subregions to accommodate the numbers of AoI

Breakout Group 1 was charged with Subregion 1 covering both sides of the Antarctic Peninsula, including the Weddell Sea and Scotia Arc. They would work all day to sort through the AoI in this region which had the most AoI.

Breakout Group 2 would consider Subregion 2 in the morning and then move to the ice edge to cover Subregion 4 in the afternoon.

Breakout Group 3 focused on Subregion 3, the Ross Sea in the morning, or as long as would be needed, followed by the adjacent Subregion 5, although noting that there were few submissions from this area.

Further details about the three breakout groups are shown in Table 1.

Several participants worked on obtaining additional useful PDFs and adding layers for various species. A layer was added to show the maximum extent of the ice month by month, and averaged over a period of years. Efforts were made to contact researchers outside the region, e.g. Rochelle Constantine regarding feeding humpbacks in the revised Subregion 5, and Ken Findlay for blue whales and humpback whales in the revised Subregions 2 and 4, for their evaluations and access to data sets that could be used in various existing and possible additional AoI.

Table 1. Breakout Groups – subregions and group facilitators

Original subregion	Revised subregion	Breakout group	Group facilitator
[I] Scotia Arc and Weddell Sea (SAWS)	1	1	Connor Bamford
[II] Bouvet Maude (BOMA)	2	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[III] Subantarctic Islands and Indian Ocean Transition Zone (SIIO)	2	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[IV] Eastern Antarctic (EAAN)	4	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[V] Ross Sea (ROSE)	3	3	Simone Panigada and Margherita Zanardelli
[VI] Amundsen-Bellingshausen (AMBE)	5	3	Simone Panigada and Margherita Zanardelli
[VII] Subantarctic Islands and Pacific Ocean Transition Zone (SIPO)	3, 5	3	Simone Panigada and Margherita Zanardelli
[VIII] Western Antarctic Peninsula (WEAP)	1	1	Connor Bamford
Ice shelf	3, 4, 5	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara

As the participants worked on their respective AoI, Breakout Group 2 suggested that an Ice shelf AoI be nominated as a cIMMA that would cover subregions 3, 4 and 5 and dovetail with work being done in subregions 1 and 3, making in effect a circumpolar cIMMA. This is a dynamic area, as the ice edge changes throughout the year, but it is the single most important feature of the region, attracting huge numbers of marine mammal species from the pinnipeds breeding on the ice to the pinnipeds and cetaceans feeding all along the edge of the ice. The group agreed that based on the abundant tracking data and other evidence that the area on and around the ice shelf should be proposed as a large cIMMA. At the end of Day 2, the subregions reported the AoI that were to be nominated as cIMMAs as well as those due to remain as AoI, or to be removed from any status. These were all presented to Tetley to tabulate them for the following day's work.

Day 3, 17 October 2018

In plenary, Tetley gave a short introduction about the boundary drawing and other pointers to encourage the work on filling out the cIMMA nomination forms. He went through the cIMMA form giving details on how to fill them out, including the important points of documenting the criteria used.

First to be discussed was how to draw the boundaries for the ice shelf cIMMA. Noting that things may also be changing due to global warming, Tetley felt it was important to consider how to proceed on the boundary drawing. Should it be average minimum coverage or extreme values? Would it be continuous around the Antarctic continent or have holes? Nico De Bruyn said that the problem was that it was too dynamic to justify individual areas, so it would be better to do it all. Tetley reminded them that the proposal needed to connect the species to what they are foraging on—the nutritional base that is the driver of the system and the reason the animals are there. The criteria would thus be foraging, Cii, but would also be breeding, Ci, as the pinniped breed on the ice. But can such a large area be delineated for the purpose of area-based management? Certainly, an IMMA would highlight its overall importance which could be picked up by species-based management plans.

Notarbartolo di Sciara was concerned about presenting such a huge IMMA. It would be more on the scale of some of the large EBSAs. Yet he said that if the group, as scientists, was recommending this, then that was all right. Ropert-Coudert said they do have data

to show circumpolar distribution but admitted that the habitat is not uniformly distributed, although they didn't know enough to pick out certain areas. Dan Costa said that it was hard to extrapolate tracking data to population-level data. Ropert-Coudert recommended that the area should go to the edge of the continent for foraging habitat, and that the two-decadal average should be used for the ice extent. Ropert-Coudert agreed to take the lead in drafting the circumpolar ice edge cIMMA based on extending from the continent to a band around the ice edge. Tetley remarked that, in order to make the review panel comfortable with this idea, it would be necessary to show the month-by-month position of the ice over time complete with data showing where the animals are each month. Costa said that the ice concentration varies and the best that can be said is that it's a gradient. He remarked that not enough was known to predict the precise distribution of animals in view of changing ice. Tetley said as long as the group presents the information and the caveats, the reviewers should be comfortable.

Costa asked about the Ross Sea and whether it should be distinct from the ice-edge cIMMA proposal, as well as the Weddell Sea and the west side of the Antarctic peninsula where there is substantial data on various species. Tetley said that the group should continue to spotlight these known important areas for various killer whale ecotypes and other species; it didn't matter if there were overlap between the other species proposals and the large Ice edge cIMMA proposal.

Tetley then gave an update on the provisional list of cIMMAs and briefly pointed to the work ahead for the three groups. He went from table to table to discuss each polygon in turn, and in some cases started to help with mapping.

After coffee break, the remainder of day 3 was devoted to filling out the cIMMA forms for nomination and to refining the boundaries, drawing the maps with the assistance of Tetley, Bamford and Notarbartolo di Sciara. Everyone worked hard, with many exchanging drafts of their cIMMA descriptions so that others could comment.

In the recognized gap of Subregion 5, consisting of the Australia-New Zealand subantarctic, Constantine remotely prepared and submitted a proposal for a cIMMA related to her Oceania humpback whale work. However, the Australia-New Zealand area of the subantarctic and Antarctic would be largely postponed to be dealt with as part of the Australia-New Zealand IMMA workshop planned for 2020.

Regarding the cone of South America, Luciano Dalla Rosa pointed out that they had lots of tracking data for migratory areas from the Antarctic to South America. Tetley said

that these could also be dealt with in future IMMA workshops in the South East Pacific (planned for late 2020) and the South West Atlantic (as yet unscheduled) but any AoI that could be identified now in these regions would be valuable to keep for consideration in future workshops.

At the end of the day plenary, Tetley showed the draft cIMMA list with 16 cIMMAs and 8 AoI as follows:

Breakout Area 1

1. Western Antarctic Peninsula + South Orkney (South Orkney Island to Marguerite Bay) cIMMA (Central Place Foragers), South Shetland and Elephant cIMMA (Central Place Foraging Antarctic fur seals) + Zoned + cetaceans (baleen whales + killer whales)

2. Elephant Island and King George Island cIMMA (land-based, elephant seal)

3. South Georgia, Shag Rocks, and South Sandwich Islands Shelf and Slope cIMMA (cetaceans – baleen whales)

4. South Georgia (land-based breeding for southern elephant seals and Antarctic fur seals)

5. South Georgia (Central Place Foraging Area for Antarctic fur seals)

Breakout Area 2

6. Gough Island cIMMA (+ Breeding Subarea)

7. Bouvet Island cIMMA (+ Breeding Subarea)

8. Prince Edward Island Crozet Complex (+ 2 Breeding Subareas)

9. Heard Island and Kerguelen Complex (+ 2 Breeding Subareas)

10. Amsterdam Island St. Paul Complex (+ 2 Breeding Subareas)

Breakout Area 3

11. Campbell Island cIMMA [extended]

12. Auckland Island [extended]

13. Ross Sea Ecosystem cIMMA [including Joides Basin and North-West White Island ASPA] + possible Inclusion of cIMMA for Balleny Islands [based of Ross Sea's AoI]

14. Extended Macquarie Island [includes both AoI and northward extension]

Breakout Area 4

No areas – to be considered later (Australia-New Zealand workshop)

Breakout Area 5

15. Possible humpback whale cIMMA (from Rochelle Constantine)

Trans-Region Area

16. Circumpolar Ice Edge cIMMA

AREAS OF INTEREST (AoI)

Breakout Area 1

1. Southern Right Whale South of South Georgia ARS AoI

2. Humpback Whale East of South Sandwich ARS AoI

3. Subantarctic Ecoregion AoI

4. Patagonian Shelf AoI [to be considered in future IMMA Regional Workshop for the South West Atlantic Ocean]

5. Southern Fjords and Humboldt AoI [to be considered in future IMMA Regional Workshop for the South East Tropical and Temperate Pacific Ocean (2020)]

6. Burdwood Bank / Namuncurá AoI [to be considered in future IMMA Regional Workshop for the South West Atlantic Ocean]

Breakout Area 2

No areas.

Breakout Area 3

7. Antipodes Island AoI

8. Chatham Rise AoI [to be considered in IMMA Regional Workshop for Australia-New Zealand waters and South East Indian Ocean (2020)]

Everyone was thanked and invited to join in the evening meal. The facilitators were asked to report on progress and help remind everyone to try to finish as much as possible the following day so that the workshop could have part of Day 5 for discussion.

Day 4, 18 October 2018

Opening up the penultimate day, Tetley showed the map to chart the group's progress. He reminded the experts that the cIMMA forms could be put into Dropbox or on a stick. Both Tetley and Bamford moved around the room to work with individual participants to refine the maps and capture the best possible proposal for each cIMMA. After the group spent the morning drafting and mapping, Hoyt opened a plenary session in the afternoon to talk more about the process of gaining attention for IMMAs from the Extended Southern Ocean region within the CCAMLR process. The discussion was prescient as Lea was due to leave the meeting in the middle of the following (final) day to attend the annual CCAMLR meetings in Hobart. Costa suggested the preparation of a CCAMLR working paper but it emerged in the subsequent discussion that it was too late for the 2018 meeting and would need to be submitted early for the October 2019 or October 2020 meeting. Ropert-Coudert had submitted a penguin working group paper through WWF-UK; something like that might work for introducing the IMMAs to CCAMLR. Notarbartolo di Sciara wondered if we could communicate the outputs from our workshop through a news release and simple map, just to give a heads-up to CCAMLR and others. Spadone noted the importance of communicating to the NGOs involved in the Southern Ocean, both about the IMMA process and the outcomes. This might be done through the Antarctic and Southern Ocean Coalition (ASOC) which represents many NGOs. Costa noted that getting a larger community review or input into the IMMA process would be valuable when it came to implementation. Notarbartolo di Sciara noted the interconnectedness of the Southern Ocean with regions outside the Southern Ocean and CCAMLR's remit. Treating the Southern Ocean as an independent, separate entity may make sense politically but not biologically.

Ropert-Coudet counseled against releasing too much information now before it has been substantiated and reviewed.

Staniland pointed out that CCAMLR doesn't consider marine mammals other than pinnipeds and that whales are in fact considered an IWC matter. However, in recent years, CCAMLR has had a shift toward an ecosystem approach and that could mean more interest in IMMAs even those identified for whales. Tetley said that maybe in future there could be a joint IWC-CCAMLR-IMMA implementation workshop. Notarbartolo di Sciara pointed out that it was not the IMMA Secretariat and the present IMMA Workshop's role to push the transition from science to management, although the Task Force would be trying to facilitate this transition in future.

Staniland noted that there is a spatial planning working group subsection of the Ecosystem Monitoring and Management (EMM) group and that Susie Grant from the British Antarctic Survey (BAS) chaired this in 2018, and that WWF UK had been supportive of the penguin working group paper[5]. However, Staniland's suggestion was to follow the scientific instead of the NGO pathway approach to CCAMLR through a working group. Staniland point out that the key message to get across to CCAMLR was what IMMAs are, that it's a purely scientific, biological, expert-informed, criteria-based tool. It is important to stress that these are not MPAs, nor are they MPA proposals. Panigada could see the value in having a CCAMLR working paper to present IMMAs as tools to outline their role and what has been done to date in the Southern Ocean and around the world.

Participants carried on until 19.00, trying to finish their cIMMA proposals, before the dinner arrangements.

Day 5, 19 October 2018

Tetley opened the plenary announcing that 15 cIMMAs were in the final stages of submission. This was a comparatively small number, but it was felt that these were solid proposals representing the region and that they would do well when they went for review. In addition, 5 AoI were identified as part of this effort, but were not considered robust enough to go forward as cIMMA. Tetley showed the cIMMA and AoI on the map. He explained that a number of areas just outside the region were being deferred to future workshops for consideration. In appreciation of everyone's joint efforts, there

---

[5] Working Group on Ecosystem Monitoring and Management, WG-EMM-17, Buenos Aires, Argentina, 10 Jul 2017 to 14 Jul 2017.

was clapping and a general sense of satisfaction in the room. Those who were still refining their submissions were encouraged to continue through the day.

Tetley then turned over the workshop to the co-chairs Hoyt and Notarbartolo di Sciara. Hoyt opened the discussion session by asking about the knowledge gaps for marine mammals in the Extended Southern Ocean region. Costa said that population status data for species is a particular area where there needs to be further work. Susan Gallon pointed out that there are gaps even for species that are perceived as well studied, e.g., Antarctic fur seal. Costa said that the main issue is that researchers haven't gone to the remoter colonies and there's significant bias in the Southern Ocean towards regions where there are scientific bases on the continent. Dolphins and beaked whales are particularly difficult to study as they are offshore. Increasing the effort towards tracking/field work focused on cetaceans could be productive. Acoustic approaches could target low frequency ranges for the baleen whales.

Reisinger noted that it could be valuable to have another set of large-scale studies, as it's rather difficult to piece together smaller studies. Manuela Bassoi said the IDCR/SOWER type cruises could be replicated not necessarily covering the entire circumpolar region, but on a large scale. Spadone noted funding from the French government to build a polar research ship and have it ready in 2020. Dalla Rosa said that the Scripps Institution of Oceanography is planning to target the research of beaked whales in future. Hoyt pointed out that with the BBNJ process with the data gaps on the high seas there might be things to learn from the Southern Ocean, as that is the region of the world where the most work has been done on the high seas. There were no immediate suggestions for how to increase high seas research. However, later it was mentioned that the high seas data gap might be filled partly through a special focus on beaked whales as well as by focusing on the thousands of seamounts at least to be able to identify areas as AoI that might stimulate more research and by promoting modelling as a tool. In future, there could be an Extraordinary IMMA Workshop to fulfill the Task Force mandate to provide a scientific marine mammal layer that includes the high seas. Such a beaked whale and seamount workshop focusing on the high seas could form part of the World Marine Mammal Conference in Barcelona in December 2019, or occur before the end of the GOBI-IKI work in 2021, or it could become part of the proposed GOBI-IKI follow-up work.

Notarbartolo di Sciara asked if a mechanism existed to collate information to inform research agencies when data gaps are being filled. Does SCAR have a role in that?

Reisinger said that consulting the expert groups on birds and marine mammals would be a good place to start. Cetaceans are under-represented generally, so there is a proposal now to generate a new working group. Costa remarked that SCAR is an organizing body with multiple efforts; the Expert Group on Birds and Marine Mammals (EG-BAMM), a subsidiary to SCAR, can propose large-scale international programs. EG-BAMM has pioneered large-scale initiatives before but requires people to take the initiative and push the agenda. Cetaceans are lagging behind as EG-BAMM originally didn't include cetaceans in their remit — they were under the IWC's realm. Now that the IWC isn't working on this anymore, there should be more progress towards the unification of the marine mammal community in the Southern Ocean. Mōnica Mülbert said that SCAR scientists have to work out how they fit within the SCAR framework, and how their projects can target specific areas efficiently. A move towards cetaceans would have to be considered under CCAMLR rather than just through IWC. Bassoi sent a database describing Antarctic cetacean work to Tetley. She said that it would be good to identify how to connect the IMMAs and drive the formation of a cetacean subgroup within EG-BAMM. It is also important to consider the IWC Southern Ocean Research Partnership (IWC-SORP) that was established in 2009 through the IWC as an integrated, collaborative consortium for cetacean research. However, it was suggested that the SORP data weren't passed on to the scientists, despite this being scientist-led. However, the findings are passed along through MARMAN.

Gallon mentioned the possible future focus of the new Ross Sea MPA, created last year. There is a definite need for a monitoring program for the 7-year review of the Ross Sea MPA. New Zealand is planning to undertake cetacean research in the Ross Sea.

Mülbert also mentioned the MEASO programme (Marine Ecosystem Assessment of the Southern Ocean) and that it was worth contacting.

Next Hoyt opened a discussion on **threats** specific to the region, e.g. tourism. In spite of the contribution from tourism to research in some cases, are there specific negative threats that should be noted?

Costa said that the International Association of Antarctic Tour Operators (IAATO) is a member organization founded in 1991 to advocate and promote the practice of safe and environmentally responsible private-sector travel to the Antarctic. With more than 100 operator members, IAATO is self-regulating. It offers some opportunities for research.

Costa noted that tourism to Antarctica in general is well monitored but it's arguable whether it is well regulated. It has increased dramatically over the years. Mainly it focuses on the Antarctic Peninsula.

Costa said also that climate change was the pervasive issue. Species that have ice association will be affected, as the changes to the ice edge habitat will present critical challenges.

Reisinger noted that with fisheries management, krill extraction is worth flagging as a feature that we need to keep an eye on. Notarbartolo di Sciara pressed on whether there is a real issue with krill depletion. Reisinger answered that there will be an issue if the fishing goes unchecked. Regarding specific competition between krill and predators, Gallon said that several countries are fishing for the sake of maintaining future access to fishing in the Southern Ocean. It's not necessarily because they have a use for the catch now. Also, the Omega-3 supplement market could increase demand for krill.

De Bruyn noted that many research groups have internal species identification catalogues, but where to go to find these is relatively unknown. Collating data isn't necessarily needed, but a source guide listing the catalogues would be helpful.

The CCAMLR convention follows a threshold approach with regard to fisheries. Several people agreed that CCAMLR is probably the best management body on the planet, and, though it could be better, it does follow a scientific and precautionary approach.

Costa said there is concern that localized fisheries could put undue pressure on local predator populations. Dalla Rosa added that we don't have the knowledge at the moment to say that competition doesn't exist and that fishing has a limited impact on predators, with the exception of the significant issues in the toothfish fisheries. Therefore, thresholds can't be lifted and the region can't be opened to wholesale fishing; the precautionary approach has to be maintained.

Reisinger said that, in terms of bycatch, longlining is the main issue in the Southern Ocean.

Several in the group wondered if threats should be included in the candidate IMMA submissions. Tetley replied that the presence of threats cannot be used to define or support the application for an IMMA, that the process is biocentric. When threats have been included, the reviewers have commented that they were unnecessary for the

assessment of a cIMMA. However, once the cIMMAs have been approved, threats should be identified in the fact sheets that are available as PDFs on the e-Atlas.

In the subsequent wider discussion, Bassoi asked what would the IMMA jurisdiction look like under the Antarctic Treaty System, as opposed to within an EEZ? Costa said that there is political will under SCAR and CCAMLR to implement more MPAs on the high seas. There might be merit and potential for IMMAs to be adopted as part of a multinational, ocean-basin-scale management authority. Hoyt explained that part of the IMMA mandate was to show three demonstrations on how IMMAs could be implemented in different regions. Spadone noted the specific BBNJ challenge to make a legally binding agreement to help protect high seas biodiversity. What will the relationship look like between the legally binding instrument and the identified regions? IMMAs can be used as a layer in the discussion of MPAs based on their scientific merit.

Hoyt and Notarbartolo di Sciara then introduced the idea of **forming a regional task force group and regional coordinator** for the Extended Southern Ocean region—part of the legacy of every regional IMMA workshop. Notarbartolo di Sciara described the role of the regional group and coordinator. A specific goal should be to coordinate with the IMMA Secretariat to keep the regional members updated on IMMAs in the region and worldwide, as well as to push ahead with encouraging NGOs, governments and international organizations such as CCAMLR. It should also be part of the role of the regional group to keep note of the species, ecosystems and issues in the region over time between workshops, in the lead-up to the next IMMA workshop for that region and other meeting opportunities as they present themselves. The coordinator needs to get the momentum going and then help to maintain it.

Notarbartolo di Sciara added that the regional group could share responsibility for handling AoI submissions and helping to keep track of them and to help ensure they are as good as they can be before the next workshop. The coordinator would produce a yearly report to provide an update on the region that can be fed into the Task Force co-chair reports to the IUCN Species Survival Commission and the World Commission on Protected Areas, among other outputs. In time, there may be funds for the coordinator to organize more activities. The coordinator(s) for each region would be invited to meet with other regional group coordinators, Task Force co-chairs and other Task Force members for strategy meetings at the triennial International Conference on Marine Mammal Protected Areas (ICMMPA). This would help build links between the various regions. The coordinator also is accepted into the Task Force and the IUCN World

Commission on Protected Areas (WCPA). Susan Gallon agreed to coordinate the regional group for the Extended Southern Ocean.

Notarbartolo di Sciara concluded the discussion by saying that the Task Force sees the goal of implementing the IMMAs but doesn't yet know how exactly to achieve that. Setting up the regional groups and coordinators is a first step. On behalf of the Task Force and the IMMA Secretariat, he welcomed further ideas from the group on how to proceed with the implementation of IMMAs.

Hoyt then thanked everyone who helped at the meeting with special recognition for the participants, the IMMA Secretariat including Margherita Zanardelli, Simone Panigada and Connor Bamford, and especially Michael Tetley for his technical expertise in the organisation and for running the core activities of the workshop, day by day. Special thanks were given to Susan Gallon for her assistance in preparing the meeting and suggesting those to be invited, as well as to Aurélie Spadone for facilitation through IUCN. Finally, Phénia Marras-Ait Razouk, François Simard and Christophe Lefebvre were also thanked. The spirit of camaraderie and fun was evident throughout the meeting and was inspirational—a tribute to the Antarctic and subantarctic researchers. The arrangements were then provided for dinner and entertainment with suggestions for shopping and other essentials before most people were due to leave the following day.

Annexes

Annex I – List of participants

Regional experts

Jorge ACEVEDO RAMÍREZ
Fundación CEQUA
Av. España 184
Punta Arenas, Chile

Manuela BASSOI
SCAR/EGBAMM member
Researcher associate
Laboratory of Marine Megafauna Ecology and Conservation (EcoMega)
Oceanographic Institute, University of Rio Grande (FURG), Rio Grande, RS, Brazil
Laboratory of Bioacoustics (LaB) www.LaB.bio.br, Biosciences Center
Federal University of Rio Grande do Norte (UFRN)
Natal, RN, Brazil

Daniel P. COSTA
Distinguished Professor
Dept. of Ecology & Evolutionary Biology
CBB-130 McAllister Way
University of California
Santa Cruz, CA 95060, USA

Cedric COTTÉ
Muséum National d'Histoire Naturelle
L'OCEAN-IPSL, Université Pierre et Marie Curie, 4 pl Jussieu
75252 Paris cedex 5, France

Luciano DALLA ROSA
Instituto de Oceanografia
Universidade Federal do Rio Grande - FURG
Av. Itália km. 8 s/n, Campus Carreiros
Rio Grande, RS 96203-000, Brazil

P.J.N. (Nico) de BRUYN
Associate Professor
Mammal Research Institute
Department of Zoology & Entomology
University of Pretoria
Pretoria, South Africa

Susan GALLON
Formerly, Project Officer, EO4Wildlife Project
Marine Environment Department
Agence française pour la biodiversité
As of 2019, Scientific Officer, MedPAN Association
Marseille, France

Helena HERR
Centrum fur Naturkunde - CeNak - Center of Natural History
Martin Luther King-Platz 3 / Room 243b
20146 Hamburg, Germany

Mary-Ann LEA
Associate Professor Marine/Polar Predator Ecology
Institute for Marine and Antarctic Studies (IMAS)
College of Sciences and Engineering, University of Tasmania
IMAS Waterfront Building, 20 Castray Esplanade
Battery Point, TAS 7004, Australia

Mōnica M. C. MÜLBERT
PPGOB, Instituto de Oceanografia
Universidade Federal do Rio Grande - FURG
& Adjunct Researcher
Institute for Marine and Antarctic Studies, UTAS
Hobart, TAS, Australia

Malcolm O'TOOLE
CNES Post-doctoral Research Fellow
Laboratoire d'Oceanographie et du Climat (LOCEAN-IPSL)
Université Pierre et Marie Curie, Tour 45-55, 4ème étage
4 place Jussieu, BP 100
75252 Paris cedex 05, France

Ryan REISINGER
FRB CESAB Post-doctoral Research Fellow
Centre d'Etudes Biologique de Chizé
CNRS UMR 7372 - Université La Rochelle
79360 Villiers-en-Bois, France

Yan ROPERT-COUDERT
Director of Research at CNRS
SCAR: Chief Officer of Life Sciences, Secretary of EGBAMM
Centre d'Etudes Biologiques de Chizé
CNRS UMR 7372 - Université La Rochelle

79360 Villiers-en-Bois, France

Iain STANILAND
British Antarctic Survey
High Cross, Madingley Road
Cambridge CB3 0ET, United Kingdom

Observers

Cyril BARNERIAS
Head of the European and International Affairs Team
Department for National, European and International Strategies
Directorate for Public Policies Support
Agence française pour la biodiversité
France

Aurélie SPADONE
Marine Programme Officer
Global Marine and Polar Programme
IUCN (International Union for Conservation of Nature)
28 rue Mauverney
CH-1196 Gland, Switzerland

IMMA Secretariat

Erich HOYT
IUCN Marine Mammal Protected Areas Task Force
Whale and Dolphin Conservation
38, St Paul St.
Chippenham, Wiltshire SN15 1LJ, United Kingdom

Giuseppe NOTARBARTOLO DI SCIARA
IUCN Marine Mammal Protected Areas Task Force
Tethys Research Institute
Viale G.B. Gadio 2
20121, Milano, Italy

Simone PANIGADA
IUCN Marine Mammal Protected Areas Task Force
President of the Tethys Research Institute
Viale G.B. Gadio 2
20121, Milano, Italy

Michael James TETLEY

IMMA Coordinator
IUCN Marine Mammal Protected Areas Task Force
Isle of Mull, United Kingdom

Connor BAMFORD
PhD Candidate
British Antarctic Survey
High Cross, Madingley Road
Cambridge CB3 0ET, United Kingdom

Margherita ZANARDELLI
Tethys Research Institute
Viale G.B. Gadio 2
20121, Milano, Italy

Annex II – Workshop agenda

Day 0: 14 October 2018

19:30 – 22:00 Icebreaker reception and welcome dinner

Day 1: 15 October 2018

09:00 – 10:30 Introduction to the IMMA Extended Southern Ocean Region Workshop

- Welcoming addresses

  Presentation by Erich Hoyt, Co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force

  Presentation by Giuseppe Notarbartolo di Sciara, Co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force

  Presentation by Cyrille Barnerias, Head of European & International Affairs Department, French Biodiversity Agency

  Presentation by Aurélie Spadone, Senior Programme Officer, IUCN Global Marine and Polar Programme

- Participant introductions, explanation of the programme

- Adoption of agenda and selection of Workshop Chair

10:30 – 11:00 Coffee break

11:00 – 12:30 Introduction to Important Marine Mammal Areas

- IMMA Selection Criteria, Identification Process and Inventory of Knowledge (IoK) for the Extended Southern Ocean Region

  Presentation by Michael Tetley, IMMA Programme Coordinator, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force

- Question and answer session

12:30 – 14:00 Lunch

14:00 – 15:30 Areas of Interest (AoI) and assignment of working groups

- Collated AoI for the Extended Southern Ocean Region

  Presentation by Michael Tetley, IMMA Programme Coordinator, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force

- PLENARY discussion on candidate IMMA (cIMMA) options and agreement of AoI list for cIMMA investigation
- Assignment of cIMMA working groups and group facilitators

15:30 – 16:00 Coffee break

16:00 – 17:30 Reading session

19:30 – 22:00 Informal dinner

Day 2: 16 October 2018

08:30 – 9:00   Breakout group facilitators meeting

9:00 – 10:30   Collation of final AoI and cIMMA Group Assignments

10:30 – 11:00 Coffee break

11:00 – 12:30 BREAKOUT GROUPS SESSION 1

12:30 – 14:00 Lunch

14:00 – 15:30 BREAKOUT GROUPS SESSION 2

15:30 – 16:00 Coffee break

16:00 – 17:30 Assessment of cIMMA list (subregion summary)

19:30 – 22:00 Informal dinner

Day 3: 17 October 2018

09:00 – 10:30 BREAKOUT GROUPS SESSION 3

10:30 – 11:00 Coffee break

11:00 – 12:30 Assessment of cIMMA list (subregion summary)

12:30 – 14:00 Lunch

14:00 – 16:00 DRAFTING SESSION 1 – cIMMA Standard Submission Forms

16:00 – 16:30 Coffee break

16:30 – 17:30 Review of cIMMA drafting progress

19:30 – 22:00 Informal dinner

Day 4: 18 October 2018

09:00 – 12:30 DRAFTING SESSION 2 – cIMMA Standard Submission Forms (including coffee served between 10:30 – 11:00)

12:30 – 14:00 Lunch

14:00 – 16:30 DRAFTING SESSION 3 – cIMMA Standard Submission Forms (including coffee served between 15:30 – 16:00)

16:30 – 17:30 Review of cIMMA drafting progress

19:30 – 22:00 Informal dinner

Day 5: 19 October 2018

09:00 – 10:30 DRAFTING SESSION 4 – cIMMA Standard Submission Forms

10:30 – 11:00 Coffee break

11:00 – 12:30 Agreed cIMMA list and next steps for review

- PLENARY discussion
- Agreement on final cIMMA for review and final AoI list
- Formal Submission of cIMMA standard forms (extendable on to workshop close)

12:30 – 14:00 Lunch

14:00 – 15:00 Discussion on the **knowledge gaps** for marine mammals in the Extended Southern Ocean Region

Discussion on the **conservation concerns** for Marine Mammals in the Extended Southern Ocean Region

- PLENARY Discussion and Recommendations

15:00 – 15:30 Discussion on the formation of a Regional Task Force Group for the Extended Southern Ocean Region

- PLENARY feedback and nomination of the Regional Task Force Group Coordinator

15:30 – 16:00 Coffee break

16:00 – 18:00 Recommendations for the effective use of IMMAs in the Extended Southern Ocean Region (Implementation): What are the main management issues and concerns?

- Summary of conservation concerns and recommendations by the workshop participants
- Final round-up by workshop organizers and Task Force Co-Chair(s)
- Workshop closes

20:00 – 23:00 Celebratory dinner and drinks

Annex III – Summaries of introductory presentations

ERICH HOYT, Co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, and Research Fellow, Whale and Dolphin Conservation

Welcome everyone — colleagues and friends, we are privileged to be here and honoured to be able to work with you.

This is the fourth full regional workshop on important marine mammal areas, IMMAs, and a stark contrast to the previous three. The first workshop in the Mediterranean featured largely threatened marine mammals in a comparatively small area of the world, which has for example 30% of the ship traffic on 1% of the surface area. The second workshop in the Pacific Islands was an absolutely vast area that was relatively data poor; the third region, the North East Indian Ocean and South East Asian Seas is probably the richest area in the world for marine mammals and other species and we had far more AoI and IMMAs than in other areas. And now we find ourselves in the great Southern Ocean.

The Extended Southern Ocean is the first IMMA workshop to focus on areas beyond national jurisdiction (ABNJ) as well as the High Seas, and thus it is particularly timely in terms of the discussions going on in New York and elsewhere to try to come up with a legally binding agreement for the high seas. Still, we recognize of course that the Southern Ocean is a special case.

How can our efforts here help the Southern Ocean? Why are IMMAs needed? Why might they be valuable in view of the work in CCAMLR and by SCAR?

As Mike Tetley will explain in greater detail, IMMAs provide a worldwide standard for handling and presenting marine mammal spatial data and carry the peer review of the IUCN Cetacean Specialist Group chair and others. Therefore, IMMAs may help areas within the CCAMLR region to achieve a higher profile.

I want to give you a brief potted history of IMMAs. This goes back to a number of things. I first became aware of the need for a tool like this while I was putting together a book *Marine Protected Areas for Whales, Dolphins and Porpoises* published in 2004 (and in an expanded, revised 2nd edition in 2011) that tried to separate out the few hundred marine mammal habitats included in MPAs proposed or existing worldwide. I began realising that there wasn't very much being protected outside of the thin ribbon of coastline.

And then looking at the CBD EBSA effort, I realized that they were making EBSAs without whales and dolphins for the most part but that the bird people with their Important Bird and Biodiversity Areas, the IBAs, were way ahead of us. Fortunately, we found money through Whale and Dolphin Conservation, WDC, the NGO I work for, to start sending Mike Tetley to the EBSA workshops as well as getting my colleagues from Russia to participate.

A few years before this, however, Task Force co-chair Giuseppe Notarbartolo di Sciara and I had worked together on a number of projects including the effort to get "cetacean critical habitats" defined and identified in the Mediterranean as part of ACCOBAMS.

So Giuseppe and I with others largely from NOAA set up the International Committee on Marine Mammal Protected Areas and helped program and arrange conferences beginning in 2009 out of which grew the idea of setting up an IUCN Marine Mammal Protected Areas Task Force to take our work to international conventions and governments. At the same time, a number of people including Mike Tetley, Kristin Kaschner and Rob Williams, and helped by Randy Reeves, were trying to get a handle on working within a region (variously in the Caribbean, North East Pacific, Eastern Tropical Pacific) and figuring out where were the important habitat areas. And then through meeting Jim Darling, Rob Butler and colleagues in British Columbia, I saw their frustration with the Canadian government in terms of recognizing whale habitat and making MPAs for whales and understood why they wanted to invent a tool to put important cetacean areas on a map, which they were starting to call ICAs. They did this with little fanfare, but made a website to display the result publicly.

Out of all this finally came the idea that we needed an internationally accepted, standardised, peer-reviewed process for getting widely disparate data on marine mammals into something that could be used as a conservation tool that would have an international stamp of approval. So Giuseppe, Mike Tetley and I started contacting key people and going to meetings with BirdLife International and the World Conservation Monitoring Centre, the Convention on Migratory Species, Convention on Biological Diversity, and the International Whaling Commission, and attending various conferences to try to see how we could push this initiative forward.

At the IMPAC 3 meeting in Marseille, we had a criteria workshop and formally started the Task Force in 2013. There followed two years of scientific and public consultation to refine the criteria. We had various small grants but then, two years ago, working with the Global Ocean Biodiversity Initiative, we secured five-year funding through the

German government International Climate Initiative (GOBI-IKI) as one of seven related work packages, to map the southern hemisphere in the Indian and Pacific oceans. And we're approaching the halfway point of that process now.

Giuseppe Notarbartolo di Sciara will take up the story from here to tell you about our IMMA workshop process.

GIUSEPPE NOTARBARTOLO DI SCIARA, Co-chair, IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, and Founder, Tethys Research Institute

I'm going to talk about contributing to place-based marine mammal conservation through IMMAs.

The Task Force is not just trying to do something for marine mammals; our efforts here are valuable for place-based conservation in the ocean. However, marine mammals are particularly suitable to receive our attention as they are top marine predators, good umbrella and indicator species, highly visible ambassadors and vulnerable to human activities. The goal is to provide a user-friendly tool for decision-makers, harnessing support from the scientific community.

Important Marine Mammal Areas (IMMAs) are a place-based conservation tool identifying "discrete portions of habitat, important for one or more marine mammal species, that have the potential to be delineated and managed for conservation".

IMMAs are NOT marine protected areas, and are NOT identified on the basis of management considerations.

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

The criteria are classed into four categories consisting of eight criteria or sub-criteria (pp. 10-11). Only one criterion needs to be met to be proposed as an IMMA, though in practice most successful IMMAs have resulted from at least two criteria or sub-criteria.

The conservation and management initiatives that can use IMMAs include EBSAs (CBD), marine spatial planning (MSP), existing and planned MPAs, IMO PSSAs and other shipping directives, key biodiversity areas (KBAs) according to the IUCN standard. CMS Resolution 12.13, passed in 2017, acknowledges IMMAs and requests parties and range states to help identify candidate IMMAs.

IMMAs themselves are not MPAs and we realize that most of the marine mammal MPAs have been designed partly along political lines. IMMAs could be a truth serum, as it were, showing the true habitat locations, indicating the need for expansion or greater core area protection within an MPA, or extension of an MPA network. IMMAs could also serve as a base layer, along with IBA bird layers, and other available data for designing MPAs from scratch to achieve a wide variety of purposes.

The process for IMMA identification has three stages. First there is data collection and collation of information to indicate areas of suitable evidence. In this Stage 1, Areas of Interest (AoI) are identified. In Stage 2, candidate IMMAs (cIMMAs) are regionally proposed and accepted by expert workshops which leads to new analyses of the data. Finally, in Stage 3, the cIMMAs are peer reviewed and if the scientific supporting information is robust and the criteria were applied correctly, they are accepted by an expert panel. Those accepted become IMMAs, others may stay temporarily as cIMMAs pending more information and clarification. Still others revert to AoI with a recognition that there is simply not enough data to meet at least one criterion.

About a third of the areas proposed were not passed by peer review. The Task Force website (marinemammalhabitat.org) has the IMMAs and AoI displayed on an e-Atlas, and you can download a pdf with detailed descriptions of each IMMA, along with shapefiles.

Marine conservation and management initiatives which can utilise products of the IMMA process include:
- Convention on Biological Diversity Ecologically or Biologically Significant Areas (EBSAs);
- Marine spatial planning (MSP) and the planning of any human activity at sea that can have negative impact on marine mammal status (e.g., shipping, fishing, industrial and scientific exploration);
- the establishment of marine protected areas (MPAs);
- International Maritime Organisation's Particularly Sensitive Sea Areas (PSSAs) and other designations; and
- Key Biodiversity Areas (KBAs) identified via the IUCN Standard.

IMMA criteria have been designed in order to accommodate the need for streamlining between IMMAs and other related conservation initiatives including EBSAs, KBAs and IBAs.

With Resolution 12.13 (2017) the CMS acknowledged the IMMA criteria and process, requested Parties and invites Range States to identify specific areas where the identification of IMMAs could be beneficial, and invited the CBD, the IMO and IUCN to consider IMMAs as useful contributions for the determination of EBSAs, PSSAs and KBAs.

And this is where we stand with the current IMMA Programme of Work (2016-2021) (see Fig. 5). The first IMMA Workshop was held in Chania, Greece, for the Mediterranean Sea in 2016. In 2017, the Pacific Islands Region Workshop was organized in Samoa. In 2018, we convened the North East Indian Ocean and South East Asian Seas workshop in Kota Kinabalu, Malaysia, on Borneo as well as this workshop in Brest, France. In 2019, we will have the Western Indian Ocean and Arabian Seas IMMA Workshop in Oman, followed by Australia-New Zealand waters and the South East Indian Ocean in early 2020 and the South East Tropical and Temperate Pacific Ocean in late 2020.
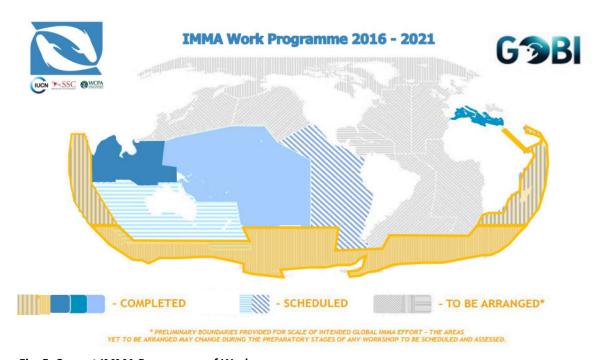

Fig. 5. Current IMMA Programme of Work

Annex IV – List of subregions and group facilitators

A decision was made to focus on subregions due to the large number of AoI. In previous workshops a separate one-day process also considered the AoI by species. In the process of considering subregions, of course the relevant species were considered one by one (see Fig. 4 for map).

BREAKOUT GROUPS – Subregions

Original subregion	Revised subregion	Breakout group	Group facilitator
[I] Scotia Arc and Weddell Sea (SAWS)	1	1	Connor Bamford
[II] Bouvet Maude (BOMA)	2	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[III] Subantarctic Islands and Indian Ocean Transition Zone (SIIO)	2	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[IV] Eastern Antarctic (EAAN)	4	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara
[V] Ross Sea (ROSE)	3	3	Simone Panigada and Margherita Zanardelli
[VI] Amundsen-Bellingshausen (AMBE)	5	3	Simone Panigada and Margherita Zanardelli
[VII] Subantarctic Islands and Pacific Ocean Transition Zone (SIPO)	3, 5	3	Simone Panigada and Margherita Zanardelli
[VIII] Western Antarctic Peninsula (WEAP)	1	1	Connor Bamford
Ice shelf	3, 4, 5	2	Erich Hoyt and Giuseppe Notarbartolo di Sciara

Annex V – List of accepted IMMAs

Some 15 candidate Important Marine Mammal Areas (cIMMAs) were identified by the experts attending the IMMA Regional Workshop for the Extended Southern Ocean. These comprised standard submissions for IMMA status to the independent review panel; the reviewers recommended that several areas be split up into more than one cIMMA and other areas be joined together. In total, 17 areas were considered as potential IMMAs and after correspondence with points of contact, some were joined into one IMMA (e.g., Campbell Island and Auckland Islands), and the final list was refined to 13 IMMAs. In the end, one cIMMA was retained as a cIMMA, while five others gained AoI status, joining 2 others going forward from the workshop, with the recognition that these areas would be monitored and that additional research could contribute to them becoming IMMAs at a future IMMA expert workshop. Thus there are 7 AoI listed in Annex VI. A summary of the supporting rationale is available via the Task Force website (marinemammalhabitat.org).

The titles of the 13 IMMAs are as follows:

1. Amsterdam Island, Saint Paul and Associated Waters IMMA
2. Scott Islands and Iselin Bank IMMA
3. Bouvetøya and Surrounding Waters IMMA
4. Gough Island and Adjacent Waters IMMA
5. Heard Island, Kerguelen and Surrounding Waters IMMA
6. Ross Sea Ecosystem IMMA
7. Scotia Arc IMMA
8. South Georgia IMMA
9. Prince Edward Islands and Western Oceanic Waters IMMA
10. Crozet Islands IMMA
11. New Zealand Subantarctic Islands IMMA
12. Macquarie Island and Ridge IMMA
13. Western Antarctic Peninsula and Islands IMMA

The title of the one cIMMA remaining is:

1. Circumpolar Southern Ocean Seasonal Ice Edge Extent cIMMA

These 13 IMMA, along with the one cIMMA, are shown on the online IMMA e-Atlas as well as in Fig. 1.

Annex VI – List of AoI for future consideration

After consideration of 42 Areas of Interest (AoI) summarized in the AoI report at the workshop, with some further areas added during the workshop, submission forms were then prepared for 15 candidate IMMAs (cIMMAs). Some AoI were dismissed as overlapping, duplicative or irrelevant, while other AoI resulted from failing the review, joining two others going forward from the workshop. 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 IMMA candidates during future iterations of the IMMA identification process and the regional expert workshops. The AoI listed below, along with any supporting rationale, will be highlighted in the future on the Task Force website (marinemammalhabitat.org) and in other Task Force publications:

The titles of the 7 AoI approved for the e-Atlas:

1. South of South Georgia AoI
2. East of South Sandwich Islands AoI
3. Drake Passage AoI
4. Filchner Trough AoI
5. Antipodes Islands AoI
6. Balleny Islands AoI
7. Ice Edge Extent South of the South Pacific AoI

These AoI, along with the IMMAs and cIMMA, are shown on the online IMMA e-Atlas as well as in Fig. 1.

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

Preparatory to the Extended Southern Ocean 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 is then used at the workshop to help 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/Sub-population 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 VIII – Template for cIMMA submission form

Below is the simplified cIMMA submission form used in the Extended Southern Ocean Workshop. Following this form is a more detailed list of points that has 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/Sub-population 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]

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 Dii – 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 km2. 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 Di – 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 IX – Whaling and other historical data and IMMAs

Historical whaling data can be useful for establishing AoI as well as contributing to cIMMA proposals. In the Pacific Islands and North East Indian Ocean and South East Asian Seas regions, whaling data provided input for the EBSA determinations, and therefore had a role in identifying AoI which helped lead to the cIMMAs in that region. In the Extended Southern Ocean region, whaling and other historical data may have value in confirming the long-term viability of an area where marine mammals continue to be found, as well as offer some guidance for identifying present-day areas.

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, the Task Force intends to explore in greater detail the value of historical data to IMMAs.

Annex X – AoI identified outside the Extended Southern Ocean Region for consideration at future workshops

The AoI listed below, and any supporting rationale from the Extended Southern Ocean IMMA Workshop, will be used in future workshops to select cIMMA proposals. The titles of the AoI reserved for further discussion are listed below:

South East Tropical and Temperate Pacific Ocean (2020)
• Southern Fjords and Humboldt AoI

Australia-New Zealand and South East Indian Ocean (2020)
• Chatham Rise AoI

South West Atlantic Ocean (no date)
• Patagonian Shelf AoI
• Burdwood Bank / Namuncurá AoI

Acronyms

ABNJ	Area Beyond National Jurisdiction
AFB	Agence française pour la biodiversité (French Biodiversity Agency); since Jan. 2020: Office français de la biodiversité (OFB)
AoI	Area(s) of Interest
ARS	area of restricted search
ASMA	Antarctic Specially Managed Area
ASPA	Antarctic Specially Protected Area
BAS	British Antarctic Survey
BBNJ	Biodiversity Beyond National Jurisdiction (UN)
BIA	biologically important area (US and Australia)
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCAS	Convention for the Conservation of Antarctic Seals
cIMMA	Candidate Important Marine Mammal Area
IWC	International Whaling Commission
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 (often in lower case)
EG-BAMM	Expert Group on Birds and Marine Mammals (part of SCAR)
EN	Endangered (IUCN RedList)
GOBI-IKI	Global Ocean Biodiversity Initiative's project supported by the International Climate Initiative (Germany)
IAATO	International Association of Antarctic Tour Operators
IBA	important bird and biodiversity area
IBAT	International Biodiversity Assessment Tool
ICMMPA	International Conference on Marine Mammal Protected Areas
ICoMMPA	International Committee on Marine Mammal Protected Areas
IDCR	International Decade of Cetacean Research (IWC strategy to encourage research in Antarctic region as a whole)
IMMA	Important Marine Mammal Area
IMPAC	International MPA Congress
IoK	Inventory of knowledge (for the IMMA process)
IUCN	International Union for Conservation of Nature
IWC	International Whaling Commission
IWC-SORP	IWC Southern Ocean Research Partnership (a research programme and fund)
KBA	Key Biodiversity Area
LC	Least Concern (IUCN RedList)

MarMam	Public email list Marine Mammals Research and Conservation Discussion
MedPAN	Mediterranean Protected Areas Network
MEASO	Marine Ecosystem Assessment of the Southern Ocean
MiCO	Migratory Connectivity in the Ocean
MM	marine mammal
MMPA	marine mammal protected area
MMPATF	Marine Mammal Protected Area Task Force
MPA	marine protected area
MSP	marine spatial planning
NT	Near Threatened (IUCN RedList)
OFB	Office français de la biodiversité
REMMOA	REcensement des Mammifères marins et autre Mégafaune pélagique par Observation Aérienne
SAC	Special Area of Conservation (EU Habitats & Species Directive)
SCAR	The Scientific Committee on Antarctic Research
SORP	Southern Ocean Research Partnership
SOWER	Southern Ocean Whale and Ecosystem Research Programme
SSC	Species Survival Commission (of the IUCN)
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	Worldwide Fund for Nature