



MARINE MAMMAL PROTECTED AREAS TASK FORCE

# Report of the Workshop for the Development of Important Marine Mammal Area (IMMA) Criteria

Convened by the IUCN Joint SSC-WCPA Marine Mammal Protected Areas Task Force and the International Committee on Marine Mammal Protected Areas



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# Report of the Workshop for the Development of Important Marine Mammal Area (IMMA) Criteria

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Workshop organized by Giuseppe Notarbartolo di Sciara and Erich Hoyt as an action of the IUCN Joint SSC-WCPA Marine Mammal Protected Areas Task Force (MMPATF) and the International Committee on Marine Mammal Protected Areas (ICMMPA)

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Photos: Cover, Steller sea lions in Southeast Kamchatka, Russia, Ecologically or Biologically Significant Area (EBSA) (Erich Hoyt, WDC); New Zealand (Hector’s) dolphins (Mike Bossley, WDC); and bottlenose dolphin in the Adelaide estuary, Adelaide Dolphin Sanctuary, South Australia (Mike Bossley, WDC). Page 10-11, Steller sea lions in Southeast Kamchatka, Russia, Ecologically or Biologically Significant Area (EBSA) (Erich Hoyt, WDC). Page 15, Baird’s beaked whales off Bering Island, Russia, in the Commander Islands State Biosphere Reserve (Russian Cetacean Habitat Project, WDC).

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# Acronyms

ABNJ — Areas Beyond National Jurisdiction  
AWI — Animal Welfare Institute  
BIAs — Biologically Important Areas  
BL — BirdLife International  
CBD — Convention on Biological Diversity  
CITES — Convention on International Trade in Endangered Species  
CMS — Convention on Migratory Species  
EBSA — Ecologically or Biologically Significant Area (CBD)  
GOBI — Global Ocean Biodiversity Initiative  
IBA — Important Bird Area (BL)  
ICA — Important Cetacean Area  
ICMMPA — International Committee on Marine Mammal Protected Areas  
IMA — Important Mammal Area  
IMMA — Important Marine Mammal Area (IUCN MMPATF and ICMMPA)  
IMO — International Maritime Organisation  
ISA — International Seabed Authority  
IUCN — International Union for the Conservation of Nature  
KBA — Key Biodiversity Area (IUCN)  
MedPAN — The Mediterranean Protected Areas Network  
MPA — Marine Protected Area  
MM — Marine Mammal  
MMPA — Marine Mammal Protected Area  
MMPATF — Marine Mammal Protected Areas Task Force (IUCN)  
PSSA — Particularly Sensitive Sea Area (IMO)  
RFMO — Regional Fisheries Management Organization  
RSC — Regional Seas Convention (UNEP)  
SSC — Species Survival Commission (IUCN)  
VME — Vulnerable Marine Area  
WCPA — World Commission on Protected Areas (IUCN)  
WDC — Whale and Dolphin Conservation  
WHS — World Heritage Site (UNESCO)

# Workshop Summary

Nineteen people met for a one-day workshop to discuss the various existing sets of area-based marine conservation criteria that might be relevant to identifying sites important for marine mammals, to be called Important Marine Mammal Areas (IMMAs). Workshop participants were sent a background paper setting out these sets of criteria as well as recommendations to consider. A number of presentations were given at the workshop to provide information to contribute to the discussion (see agenda and notes). In particular, the workshop provided an opportunity to discuss and clarify the relationship between Ecologically or Biologically Significant Areas (EBSAs) of the Convention on Biological Diversity (CBD), and Key Biodiversity Areas (KBAs), set up under IUCN, and how IMMAs might fit within these frameworks. Following are the key points of agreement:

- The Marine Mammal Protected Areas Task Force (MMPATF) should start to apply existing suites of criteria specifically to IMMAs as a means to test their utility and to refine or add any additional sub-criteria as may be useful for marine mammals.
- It was acknowledged that the EBSA process under the CBD has been underway since 2005, with the identification of EBSAs commencing in 2011 through a series of regional workshops, resulting in 172 sites by the end of 2013 with additional workshops taking place in early 2014 and the total number of EBSAs expected to reach approximately 300 sites. The EBSA selection process and accompanying criteria, having been agreed by the 193 parties (168 signatories) to the CBD, carry with them substantial global political support. IMMAs will be able to provide important data to support the identification of EBSAs.
- The similarity in objectives between Important Bird Areas (IBAs) and IMMAs, which both focus on wide-ranging species, and the fact that IBAs are considered to be a subset of KBAs, would suggest that IMMAs could fit adjacent to IBAs and other taxa-based sets of criteria such as Important Plant Areas, with KBAs as the global umbrella. However, the criteria for IMMAs will have to be tested against KBAs. This could also provide useful input to the ongoing KBA process, and any criteria not fitting in the KBA framework should be noted.
- EBSAs and KBAs have different but related and overlapping criteria and objectives, developed by, respectively, United Nations and NGO processes. Both contribute to securing protection for marine ecosystems and species, and the findings from one process can inform the other.
- EBSAs can cover small or very large areas. KBAs are finer scale, covering small- to moderate-sized areas. Marine KBAs could be considered as a “shadow” or candidate list of some potential EBSA sites, although, due to their broader criteria, the EBSAs may have a greater geographic extent than the KBAs. EBSA descriptions draw on all available information including KBAs, IBAs, plus other data sets, and would take IMMAs into account, if such designations were available.
- The Workshop participants will endeavour to work with partners including the CBD Secretariat and the IUCN to ensure IMMAs are included in the EBSA and KBA processes. It was noted that engaging with marine mammal specialists and other scientists is critical for the successful implementation of the IMMA concept.
- While the criteria for EBSAs and KBAs differ, in part because of their separate processes and the fact that EBSAs are solely marine while KBAs include terrestrial as well as marine sites, they are similar enough in their objectives to be used in the context of marine mammal spatial conservation. Workshop participants brainstormed additional criteria that could be considered when identifying Important Marine Mammal Areas. These include:
  - Reproductive areas and times;
  - Feeding areas and times;
  - Migration corridors;
  - Smaller or resident populations;

- Abundance estimates and population structure (with consideration of rarity, uniqueness, genetic isolation, irreplaceability, size of populations and temporal aggregations);
- 3-D habitat features;
- Considerations of vulnerability and resilience.

The IUCN Red List categories — including the most common category of “data deficient”, indicating lack of data — will be noted to some effect in the overall testing process of the criteria. Historical or incidental bycatch was also noted as important. Such areas are arguably suitable to be IMMAs because of the numbers of marine mammals being injured or killed which may indicate substantial congregations as well as areas that would benefit the population by identification and potential habitat protection or appropriate threat mitigation.<sup>1</sup>

- The testing of the IMMA criteria coincides well with the goals of various workshop participants who are involved in a global gap analysis of existing and available knowledge about marine mammals relevant to conservation to result in a global, spatially explicit, risk analysis of marine mammals.
- A working group was formed to assist the co-chairs on the next steps including determining, refining and testing of the criteria on some representative marine mammal species in a few sample case study areas. These activities and specific case studies will be linked to upcoming meetings including the International Marine Mammal Protected Areas Conference in Adelaide and the World Parks Congress in Sydney, Australia, both in November 2014.
- Key next steps include:
  - Determining, testing, and refining the draft IMMA criteria as discussed at this workshop and seek peer review;
  - Testing EBSA and KBA criteria frameworks for marine mammals using representative(s) from each major taxonomic group;
  - Determining ways to engage scientists through upcoming meetings;
  - Coordinating between IUCN task forces and involving the IUCN Species Survival Commission (SSC) and relevant specialist groups;
  - Exploring infrastructure for data management;
  - Considering the development of a site-selection decision tree; and
  - Organizing Working Group and MMPATF activities and processes, including connections with partners.

## Workshop Goals and Objectives

We want:

- To determine the best route map toward developing Important Marine Mammal Area (IMMA) criteria, including discussion of various thresholds that might apply to the wide variety of marine mammal species.
- To start to develop draft IMMA criteria, and to think about whether subcriteria with thresholds may be needed for the various kinds of marine mammal species and if possible suggest draft thresholds that can then be tested.
- To outline next steps: possibly refining the thresholds, developing a plan for finalizing the criteria and testing it with some real world situations; some consideration of repository, secretariat or formation of an expert body as a referral body and for implementation; and other considerations.

<sup>1</sup> Lewison, R.L., Crowder, L.B., Wallace, B.P., Moore, J.E., Cox, T., Zydels, R., McDonald, S., DiMatteo, A., Dunn, D.C., Kot, C.Y., Bjorkland, R., Kelez, S., Soykan, C., Stewart, K.R., Sims, M., Boustany, A., Read, A.J., Halpin, P., Nichols, W.J., Safina, C. 2014. Global patterns of marine mammal, seabird, and sea turtle bycatch reveal taxa-specific and cumulative megafauna hotspots, Proceedings of the National Academy of Sciences: 1318960111v1-201318960

## Workshop Agenda

No.	Agenda Item	Sub-item	Leads	Time (min)
1	Opening of meeting	Welcome, election of officers	Giuseppe Notarbartolo di Sciara	5
2	Goal and objectives of the meeting:	1. Determine best route to develop IMMA criteria 2. Develop draft criteria and see if subcriteria with thresholds are needed for various MM species 3. Next steps: e.g. refine thresholds, test criteria, consideration of expert body for implementation.	Erich Hoyt	5
3	Background presentations			
3a		Presentation of MMPATF Working Paper 1: Options for the development of criteria to identify Important Marine Mammal Areas (IMMAs)	Colleen Corrigan	15
3b		Setting up Important Cetacean Areas (ICAs) in British Columbia (slides from Jim Darling)	Colleen Corrigan	3-5
3c		OBIS SEAMAP intro focusing on status of marine mammal data and how it can help IMMAs	Pat Halpin	5
3d		Marine mammal data available to help determine criteria and thresholds which may be set for IMMAs. Considerations re range maps vs density maps	Kristin Kaschner	5
3e		Marine Important Bird Areas (Marine IBAs): What can IMMAs learn from them	Ben Lascelles	5
3f		History of the progress between EBSAs and KBAs and what can IMMAs learn from this	Phil Weaver	5
3g		Marine Key Biodiversity Areas (Marine KBAs): What can IMMAs learn from them	Annabelle Cuttelod	5
3h		EBSAs: What can IMMAs learn from EBSAs and the process for creating them, and how would IMMAs potentially fit into the EBSA process	Jeff Ardron	5
4	Identifying IMMA criteria	Topics to cover	Discussion among all participants chaired by Lorenzo Rojas Bracho	300 (5 hrs)
4a		Functional relationships between KBAs and EBSAs, and potentially between IMMAs and EBSAs		
4b		Adapting existing criteria to IMMAs		
4c		Considerations of thresholds and how to go about them		
4d		Considerations on the need for subcriteria to account for major ecological differences amongst species		
4e		Balancing priorities between global and regional considerations		
4f		Working toward drafting a list of IMMA criteria		
5	Roadmap for the implementation of IMMAs	Next steps: e.g. refine thresholds, test criteria, consideration of expert body for implementation.		
5a		Networking with other organisations (e.g., CBD, IUCN, etc.)		
5b		Placing IMMAs on the map		
6	Recommendations	Discuss recommendations from Working Paper		
7	Conclusions and close of meeting			

# Minutes of the Workshop

The workshop was held from 2 until 8 PM. Giuseppe Notarbartolo di Sciara welcomed the participants to the MedPAN office in Marseille by presenting the MMPATF recently created under IUCN. The present meeting is the first concrete action conducted by the MMPATF. The general goal of the MMPATF is to promote the conservation of marine mammals through spatial approaches in part by helping to provide a global profile and a stronger voice for the MMPA constituency. Erich Hoyt proposed that the workshop be chaired by Lorenzo Rojas Bracho, who kindly accepted. A number of participants offered to take notes, and the task of collating the minutes was undertaken by Colleen Corrigan.

The goals and specific objectives of the meeting were introduced. The key purpose of the meeting was to determine the best route for establishing criteria to identify Important Marine Mammal Areas (IMMAs). The agenda of the meeting was presented and adopted. It began with a series of presentations covering taxon-specific criteria and more general biodiversity criteria in use. Also introduced were methodologies related to the identification of areas of various sizes of interest to marine mammals, followed by a general discussion on the route to follow for establishing marine mammal specific criteria that would be consistent with systems already in place.

## Background Presentations

Seven presentations delivered at the workshop are summarized below.

1. Colleen Corrigan presented a background working paper prepared for the workshop outlining options for the development of criteria to identify IMMAs. The paper was developed and circulated prior to the workshop to inform participants of the different existing criteria that could be used or adapted for identifying IMMAs. These included KBAs, EBSAs, IBAs, ICAs and others. The review consisted of assessing the strengths and limitations associated with each of the criteria suites, and overall recommendations for selecting and testing criteria relevant for IMMAs. Additional suggested steps and considerations for future processes and governance around IMMAs were also presented to help ensure the success of the workshop.
2. Patrick Halpin talked about OBIS-SEAMAP and IMMAs. There are currently 172 described EBSAs and 11% of these use marine mammals as the primary criteria (with many including humpback whales). Three more CBD EBSA workshops are scheduled for 2014. Back calculations of the North Atlantic Right Whale model demonstrate how density data can be used to determine number of specimens (in this case, 362). Biologically Important Areas (BIAs), as used in the US, include similar criteria, as might be useful for IMMAs. The State of the World's Turtles (SWOT) can also provide some useful data for marine species, including worldwide green turtle nesting sites (2011).
3. Kristin Kaschner discussed the status of data available for marine mammals that can be used to help determine IMMA criteria. She hosts a database containing information about the extent of knowledge for global and local marine mammal abundances and occurrence. Currently covering 115 species, it could be used for testing of IMMA criteria and threshold development. She stressed the importance of density considerations in marine mammal spatial planning. Kaschner's work focuses on a global approach to marine mammal science and conservation.
4. Ben Lascelles outlined the success of Important Bird Areas (IBA) and how IMMAs might learn from the process that helped to create them. National processes through the many BirdLife members worldwide are supported by BirdLife International. Consistency and policy uptake are important. Begun in the 1970s, IBAs now number more than 12,000 terrestrial sites in 200 countries. Terrestrial IBAs were applied in the marine realm beginning 5-6 years ago. IBAs have been rebranded as Important Bird and Biodiversity Areas. Criteria should be simple. Sites should form an integrated part of the wider landscape. Restricted range versus wide-ranging species should be taken into consideration. Some behaviours lend themselves to site-based conservation, such as nesting sites, rafting behaviours, foraging and feeding areas. Site-based conservation approaches can't work for all species all the time; some are solitary, some feed at sea, and some are engaged in long distance migration activities. IBAs bring interpreted data (not raw data) to the CBD and other forums. IMMAs would also be a way

to provide interpreted data but for marine mammals. Of course, some broadscale approaches are needed for certain threats. For IMMAs, there would need to be a body to coordinate this and scientists to contribute.

5. Phil Weaver talked about Key Biological Areas advising that criteria for IMMAs should fit under criteria for KBA. IUCN promotes KBAs as umbrella for other criteria. The IUCN digital/ web repository for KBAs is under development and will include EBSAs.
6. Annabelle Cuttelod spoke about lessons to be gained from KBAs towards the defining of IMMA criteria. KBAs are sites of significant genetic, species and ecosystem diversity. Two years consultation resulted in a draft methodology that is open for comment and will be launched at the World Parks Congress in November 2014. A framing workshop in 2012 focused on the aim of KBAs, which follow the CBD definition of biodiversity. IUCN is working on the integration of KBAs with the conservation planning community. KBAs offer a data layer for decision-making. KBAs are only relevant for species needing site-based conservation, not all species. It is necessary to define for which species at which part of their life cycle site-based conservation might be important. Currently, 12,000 IBAs are included in the 20,000 KBA sites. A December 2013 workshop in Rome will look at thresholds for terrestrial, marine and freshwater KBAs. The current process avoids the terms of "vulnerability and irreplaceability" which were part of the original KBA development, as they were understood in different ways by different people and this led to confusion. KBAs need a central repository and access to data, while also including other information for the sites.
7. Jeff Ardron presented the variety of marine spatial conservation tools and criteria systems currently in place under a variety of legal frameworks, from conservation-oriented frameworks, such as the Convention on Biological Diversity (CBD) and the Convention on Migratory Species (CMS), to management-oriented frameworks such as regional fisheries organizations and the International Maritime Organization (IMO). He pointed out the disparity between voluntary measures and binding agreements, noting that most conservation agreements (except CITES) lack the legal authority to implement their conservation mandates fully, and thus must rely upon the sectoral agreements for fishing, shipping, and mining to cooperate in establishing conservation measures, such as MPAs. MPA site criteria overlap but are different from network-level criteria. EBSAs and IMMAs are examples of site-level criteria, but network-level considerations, such as are captured in CBD Decision IX/20 Annex 2, should not be forgotten. IMMAs, since they lack any legal compulsion on their own, will need to be "shopped around" to the CBD, RSCs, RFMOs, IMO, ISA, Ramsar and WHS. There are 172 EBSAs now in the CBD review process, with more coming in 2014; perhaps there will be 300 in all. The level and ambition of this global identification process (performed regionally in the current and continuing series of EBSA workshops) is precedent setting. A significant value of the regional EBSA workshops has been getting institutions and researchers to work together. (Ben Lascelles participated in the workshops and noted that 500 IBAs fall within EBSAs. There are approximately 3000 marine IBAs). EBSAs are relevant and applicable to IMMAs. Thresholds are separate from criteria. There are developed and developing world contrasts with regard to EBSAs, with developing nations much more interested in identifying EBSAs in their national waters, as well as in ABNJ. Ardron suggested that if IMMAs are going to be a subset of KBAs, then both KBAs and IMMAs would be subsets of and feed into EBSAs but may also be able to exist on their own.

## Main Discussion Points

The discussion following the presentations focused on how to develop IMMAs so they are coherent and supportive of pre-existing global classification systems, in particular, the KBAs and EBSAs. It was agreed that this is an opportunity to strengthen and unite the marine mammal scientific community and help inform decisions in various policy arenas.

Lessons learned from the IBA process for identifying bird sites emerged in the workshop discussion, particularly where it was noted that the local level is essential for collecting data and monitoring of populations and sites. The same would be true for marine mammals. IBAs took eight years and thousands of scientists to develop, suggesting



that these processes for developing IMMAs may take some time to set up fully, although it may be possible to shorten the learning curve by considering the IBA process and feeding in directly to the KBA and EBSA processes.

Information about marine mammals is important for a number of issues, such as ship strikes, bycatch and noise. Procedures that should be followed with regard to identifying IMMAs include (1) conducting scientific analyses or syntheses that are necessary to identify core sites, and (2) identifying threats at each site in order to prioritize issues according to highest needs for management. It was agreed that not all threats can be addressed with site-based management, that temporal considerations should also be made, and clear communication across sectors will be important.

Much of the dialogue focused on clarifying the relationship between EBSAs and KBAs so that the means to relate IMMAs to these categories is clear. From the discussion, it was apparent that KBAs, which can be proposed on land as well as in the sea, were normally smaller in size than many EBSAs as their focus is on the management of biodiversity. IMMAs would then fit into the KBA process by identifying species-specific areas of concern, in this case for marine mammals. KBA designation was noted as being more data-demanding than EBSA designation, as there are global, regional, national and even local thresholds in KBAs. IMMAs can help us determine if we are protecting the right places for marine mammals, and look at how we can protect areas beyond those existing spaces.

The rationale for exploring IMMAs to a greater extent includes (1) the specific vulnerability of some marine mammal species, (2) marine mammals can support EBSA identification because they are more easily monitored than most other vertebrate taxa of the pelagic environment, (3) marine mammals as umbrella species ensure that a properly designed conservation plan should be beneficial to the broader ecosystem communities, and (4) marine mammals as flagship species represent powerful political and public levers for the conservation of less popular or well known organisms, communities or habitats. However, it was recognized that the IMMA identification process, to be successful, needs to focus first on the marine mammals themselves.

## Consideration of IMMA Criteria

The group decided it would be useful to apply both EBSA and KBA criteria to some test marine mammal species and populations. As a first step in the workshop, participants listed potential IMMA criteria starting with a list of biologically important area (BIA) criteria, including the first four criteria below, which are used in the NOAA process for supplementing abundance and stock assessments in the US:

1. Reproductive areas and times;
2. Feeding areas and times;
3. Migration corridors;
4. Smaller or resident populations;
5. Additional potential criteria listed were: Abundance estimates and population structure (large population, vulnerability, including social structure and food sources, rarity, uniqueness, genetic isolation) plus irreplaceability, aggregations, 3D habitat features, and sites relevant to past distributions but currently not used.

A useful example of simple, limited criteria are the BirdLife IBAs. IBA criteria calls for the regular presence of globally threatened species, or of congregations of animals at a given threshold (often 1% of total population). However, the available data differ greatly in seabirds versus marine mammals: in seabirds, telemetry and colony data are the most substantial, whereas in marine mammals (especially cetaceans) survey data are predominant (seals, however, are more like seabirds in terms of data availability). In cetaceans, congregations for feeding or even breeding often coincide with oceanographic features. Pods or superpods of dolphins and whales may be tightly grouped. But other congregations of large whales may occur at scales that cannot be properly perceived by observers, making difficult the use of this criterion in designating IMMAs. For instance, blue whales and other large rorquals may be in close touch though far away from each other, communicating with each other over tens to hundreds of kilometres.

## Next Tasks for the MMPATF

- Further refine and test list of IMMA criteria agreed at the workshop.
- Map IMMA criteria against other criteria.
- Test KBA and EBSA criteria frameworks for selected regions and/or marine mammals.
- Explore overlap of IMMAs with IBA sites.
- Review proformas from EBSA workshops and correlation between the criteria.
- In future publications, include case studies supporting IMMAs.
- Engage and motivate marine mammal scientists in the IMMA process, including through the Society of Marine Mammalogy and leverage interest at the International Conference for Marine Mammal Protected Areas in Adelaide, and the World Parks Congress in Sydney, both in November 2014.
- Coordinate between the IUCN task forces and involve the relevant SSC groups.
- Find resources to set up infrastructure to keep and enable access to data (similar to marine turtle data management).
- Establish a working group to further revise IMMA criteria and to consider appropriate potential case studies for testing.

## Further Developments

Following the workshop in October 2013, a number of developments have taken place, as described below.

A small group of workshop participants met to explore further and come to an agreement on the relationship between EBSAs and KBAs. Those present included Phil Weaver, Jeff Ardron, Ben Lascelles, Olivier Hasinger and Annabelle Cuttelod. They discussed the KBA Criteria and Delineation Workshop held in March 2013, as well as several EBSA regional workshops that have been held since, where EBSA delineations covered very large areas in many cases, some including several KBAs (for example, in the Caribbean region).

This group agreed that KBAs could be a shadow list (i.e. a list of potential sites) for EBSAs, though due to their broader criteria, EBSAs could be geographically larger than the KBAs. KBAs include thresholds, while in EBSA identification thresholds are not used. EBSAs have a higher level of political endorsement (through CBD Parties which number 193 including the European Union).

The advantages of this integration are that KBAs:

- Have the potential to identify new sites through the systematic analysis of global datasets;
- Provide information for spatial analysis or management options within an EBSA;
- Are an avenue for scientists to put data forward; and
- Ensure a consistent and repeatable approach and treatment of the data that go forward into the EBSA process.

Thus, Important Bird Areas (IBAs), and potentially IMMAs, should fit under the KBA umbrella, which means that their criteria should be mapped to KBA criteria. KBAs can thus serve as an input in the form of a list of potential sites for all the conventions, including EBSAs, Ramsar sites, World Heritage Sites, and others.

The KBA process has been communicated to the CBD Secretariat through an Information Document<sup>2</sup>, which spells out the contribution of KBAs to EBSAs as follows: “Key Biodiversity Areas provide fundamental information to CBD Parties and others to inform a wide range of decision-makers and help achieve the Aichi Targets, for example: [...] Describing the CBD’s Ecologically or Biologically Significant Marine Areas (EBSAs). (Aichi Target 11).”

<sup>2</sup> From UNEP/CBD/SBSTTA/17/INF/10, Key Biodiversity Areas: identifying areas of particular importance for biodiversity in support of the Aichi Targets.

This subject was further discussed during the Dec. 2013 meeting of IUCN's Marine Conservation Subcommittee in Gland, Switzerland. Participants at the meeting, while fully recognizing the importance of the KBA process, expressed their concern about possible confusion between EBSAs and KBAs, and that the more rigorous KBA process, which may be difficult or impossible to apply given scarcity of data from the marine environment<sup>3 4</sup>, might undermine the former. Concern was voiced that at a time when greater action for the ocean might be obtained from the world's governments through the formal adoption of more EBSAs, a KBA process might be used by some to scale back action, limiting it to areas where we have sufficient data, and ultimately delaying or even derailing EBSA designations.

In conclusion, in terms of criteria to be applied for the establishment of IMMAs, a prudent process might involve the routine application of the EBSA criteria, tailored specifically for marine mammals as shown in Table 1, and at the same time considering the application of KBA criteria whenever the data allow. If the data do not allow, in addition to seeking EBSA status, IMMAs could seek to qualify for a sort of proposed or draft KBA status, pending the reaching of a sufficient level of data richness.

## Workshop Participants

Surname	Name	Email Address	Expertise/Organization
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<sup>3</sup> Kot C.Y., Fujioka E., Hazen L.J., Best B.D., Read A.J., Halpin P.N. 2010. Spatio-temporal gap analysis of OBIS-SEAMAP Project data: assessment and way forward. PloS ONE 5(9): e12990. doi:10.1371/journal.pone.0012990

<sup>4</sup> Kaschner K., Quick N.J., Jewell R., Williams R., Harris C.M. 2012. Global coverage of cetacean line-transect surveys: status quo, data gaps and future challenges. PloS ONE 7(9): e44075. doi:10.1371/journal.pone.0044075



Table 1. The Application of EBSA and/or KBA criteria to IMMAs

To be applied routinely to marine mammals to identify IMMAs	To be applied to marine mammals to identify IMMAs with thresholds, if data allow
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EBSA criteria	KBA criteria	
<b>1. Uniqueness or rarity</b> Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic marine mammal species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features	<b>A.</b> Sites contributing significantly to the global persistence of <b>threatened</b> marine mammal biodiversity	(A1) Marine mammal taxa that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of extinction is formally assessed; or nationally/regionally endemic marine mammal taxa that have not been formally globally assessed but have been nationally/regionally assessed as threatened; <b>OR</b> (A2) Ecosystems relevant to marine mammals that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of collapse is formally assessed.
	<b>B.</b> Sites contributing significantly to the global persistence of <b>geographically restricted</b> marine mammal biodiversity	(B1) Marine mammal species with ranges that are permanently or periodically geographically restricted, or highly clumped populations, or which occur at few sites; <b>OR</b> , (B2) Assemblages of marine mammal species with geographically restricted ranges in centres of endemism or genetic distinctness; <b>OR</b> , (B3) Ecosystems relevant to marine mammals with geographically restricted distributions or which occur at few sites.

EBSA	KBA	
<b>2. Special importance for life history stages of species</b> Areas that are required for a marine mammal population to survive and thrive.	<b>B.</b> Sites contributing significantly to the global persistence of <b>geographically restricted</b> marine mammal biodiversity	(B1) Marine mammal species with ranges that are permanently or periodically geographically restricted, or highly clumped populations, or which occur at few sites; <b>OR</b> , (B2) Assemblages of marine mammal species with geographically restricted ranges in centres of endemism or genetic distinctness; <b>OR</b> , (B3) Ecosystems relevant to marine mammals with geographically restricted distributions or which occur at few sites.
	<b>D.</b> Sites contributing significantly to the global persistence of <b>outstanding biological processes</b> relevant to marine mammals	(D1) Evolutionary processes of exceptional importance in maintaining marine mammal biodiversity or driving rapid diversification; <b>OR</b> , (D2) Marine mammal species at key stages in their life-cycles, such as those which are migratory or congregatory, as indicated by high relative abundance; <b>OR</b> , (D3) Ecological processes of exceptional importance in maintaining marine mammal biodiversity.

EBSA	KBA	
<b>3. Importance for threatened, endangered or declining species and/or habitats</b> Areas containing habitat for the survival and recovery of endangered, threatened, declining marine mammal taxa or area with significant assemblages of such taxa.	<b>A.</b> Sites contributing significantly to the global persistence of <b>threatened</b> marine mammal biodiversity	(A1) Marine mammal taxa that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of extinction is formally assessed; or nationally/regionally endemic marine mammal taxa that have not been formally globally assessed but have been nationally/regionally assessed as threatened; <b>OR</b> (A2) Ecosystems relevant to marine mammals that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of collapse is formally assessed.

EBSA	KBA	
<b>4. Vulnerability, fragility, sensitivity, or slow recovery</b> Areas that contain a relatively high proportion of sensitive habitats, biotopes or marine mammal taxa that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	<b>A.</b> Sites contributing significantly to the global persistence of <b>threatened</b> marine mammal biodiversity	(A1) Marine mammal taxa that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of extinction is formally assessed; or nationally/regionally endemic marine mammal taxa that have not been formally globally assessed but have been nationally/regionally assessed as threatened; <b>OR</b> (A2) Ecosystems relevant to marine mammals that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of collapse is formally assessed.
	<b>B.</b> Sites contributing significantly to the global persistence of <b>geographically restricted</b> marine mammal biodiversity	(B1) Marine mammal species with ranges that are permanently or periodically geographically restricted, or highly clumped populations, or which occur at few sites; <b>OR</b> , (B2) Assemblages of marine mammal species with geographically restricted ranges in centres of endemism or genetic distinctness; <b>OR</b> , (B3) Ecosystems relevant to marine mammals with geographically restricted distributions or which occur at few sites.

EBSA	KBA	
<b>5. Biological productivity</b> Areas containing marine mammal species, populations or communities with comparatively higher natural biological productivity.	<b>D.</b> Sites contributing significantly to the global persistence of <b>outstanding biological processes</b> relevant to marine mammals	(D1) Evolutionary processes of exceptional importance in maintaining marine mammal biodiversity or driving rapid diversification; <b>OR</b> , (D2) Marine mammal species at key stages in their life-cycles, such as those which are migratory or congregatory, as indicated by high relative abundance; <b>OR</b> , (D3) Ecological processes of exceptional importance in maintaining marine mammal biodiversity.

EBSA	KBA	
<b>6. Biological diversity</b> Areas contains comparatively higher diversity of ecosystems, habitats, communities, or marine mammal species, or has higher genetic diversity.	<b>A.</b> Sites contributing significantly to the global persistence of <b>threatened</b> marine mammal biodiversity	(A1) Marine mammal taxa that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of extinction is formally assessed; or nationally/regionally endemic marine mammal taxa that have not been formally globally assessed but have been nationally/regionally assessed as threatened; <b>OR</b> (A2) Ecosystems relevant to marine mammals that are formally assessed as globally threatened or expected to be classified as globally threatened once their risk of collapse is formally assessed.
	<b>B.</b> Sites contributing significantly to the global persistence of <b>geographically restricted</b> marine mammal biodiversity	(B1) Marine mammal species with ranges that are permanently or periodically geographically restricted, or highly clumped populations, or which occur at few sites; <b>OR</b> , (B2) Assemblages of marine mammal species with geographically restricted ranges in centres of endemism or genetic distinctness; <b>OR</b> , (B3) Ecosystems relevant to marine mammals with geographically restricted distributions or which occur at few sites.
	<b>C.</b> Sites contributing significantly to the global persistence of biodiversity through their <b>outstanding ecological integrity</b> relevant to marine mammals	(C1) Intact marine mammal species assemblages, comprising the composition and abundance of native species and their interactions, within the bounds of natural ranges of variation; <b>OR</b> , (C2) The most outstanding places, within biogeographic regions, of (a) relatively intact regionally distinct marine mammal species assemblages with high contextual species richness; <b>OR</b> , (b) relatively intact regionally distinct, contiguous areas of ecosystem and habitat diversity relevant to marine mammals.
	<b>D.</b> Sites contributing significantly to the global persistence of <b>outstanding biological processes</b> relevant to marine mammals	(D1) Evolutionary processes of exceptional importance in maintaining marine mammal biodiversity or driving rapid diversification; <b>OR</b> , (D2) Marine mammal species at key stages in their life-cycles, such as those which are migratory or congregatory, as indicated by high relative abundance; <b>OR</b> , (D3) Ecological processes of exceptional importance in maintaining marine mammal biodiversity.

EBSA	KBA	
<b>7. Naturalness</b> Areas with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation, and host relatively pristine marine mammal taxa.	<b>C.</b> Sites contributing significantly to the global persistence of biodiversity through their <b>outstanding ecological integrity</b> relevant to marine mammals	(C1) Intact marine mammal species assemblages, comprising the composition and abundance of native species and their interactions, within the bounds of natural ranges of variation; <b>OR</b> , (C2) The most outstanding places, within biogeographic regions, of (a) relatively intact regionally distinct marine mammal species assemblages with high contextual species richness; <b>OR</b> , (b) relatively intact regionally distinct, contiguous areas of ecosystem and habitat diversity relevant to marine mammals.

# **Report of the Workshop for the Development of Important Marine Mammal Area (IMMA) Criteria**

Convened by the IUCN Joint SSC-WCPA Marine Mammal Protected Areas Task Force  
and the International Committee on Marine Mammal Protected Areas