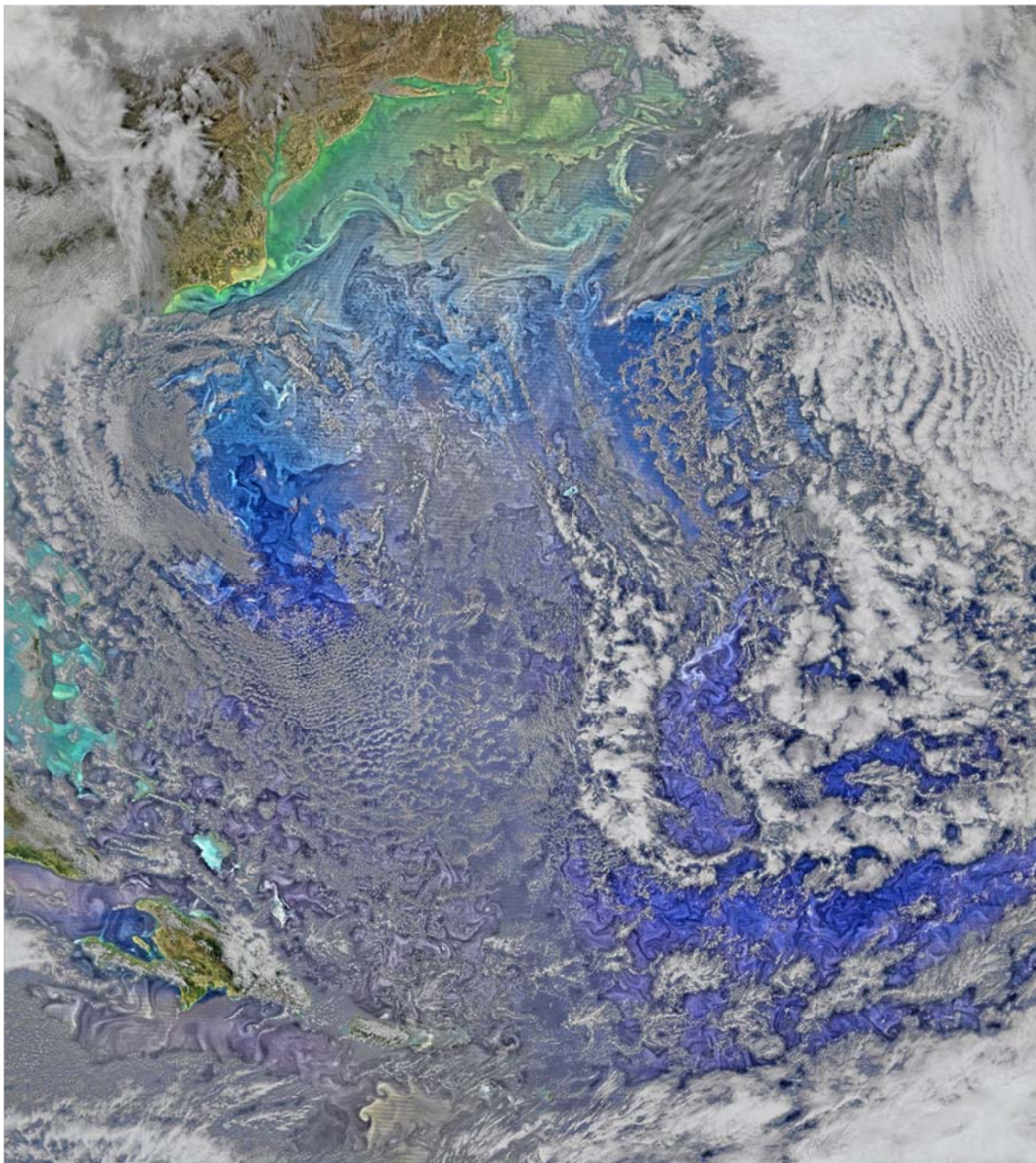




Marine Protected Areas in Areas Beyond National Jurisdiction

Report of the workshop on Marine Protected Areas in Areas Beyond National Jurisdiction, 16 – 17 May, IUCN Headquarters, Gland, Switzerland





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Cover photo: The turbulent high seas of the North Atlantic Ocean.

The Gulf Stream waters flow in somewhat parallel layers, slicing across what is otherwise a fairly turbulent western North Atlantic Ocean in this March 9, 2016 image collected by the Visible Infrared Imaging Radiometer Suite on NASA-NOAA's Suomi NPP satellite. The turbulence — made visible by the pigmented phytoplankton it entrains — extends across the whole North American Basin from Anegada to Bermuda to Cape Cod. Image Credit: NASA/Ocean Biology Processing Group, NASA Goddard Space Flight Center



Acknowledgements

The editors gratefully acknowledge the generous support of *Agence Française pour la Biodiversité*, *Partenariat France-UICN Nature et Développement*, and *Fonds Français pour l'Environnement Mondial* in enabling the workshop to take place. The workshop was led by François Simard, with Dan Laffoley and Hiroko Muraki Gottlieb as co-Rapporteurs and Kristina Gjerde and Christophe Lefebvre as lead discussants.

The experts attending the workshop provided a considerable breadth of expertise and a wide range of perspectives and views to IUCN on all aspects of marine protected areas in areas beyond national jurisdiction. All experts spoke in their personal capacities and under Chatham House rules. Therefore, the key reflections from the workshop contained in this report, which represent the overall reflections of the workshop, should not be taken to represent the views of any individual expert listed in Annex A.

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1. Introduction

This workshop report outlines the results of the workshop entitled *Biodiversity Beyond National Jurisdiction: Area-based Management Tools, including Marine Protected Areas* (Workshop) which took place from 16 – 17 May 2017 at IUCN Headquarters in Gland, Switzerland.

The purpose of the Workshop was for leading science and policy experts to provide guidance to IUCN on area based management tools, including marine protected areas, in the context of consideration of a new implementing treaty (Agreement), pursuant to United Nations General Assembly Resolution 69/292¹ (UNGA Res. 69/292).² Pursuant to UNGA Res. 69/292, the preparatory committee produced a report, adopted by a consensus of the Member States, which provides the draft elements of the Agreement³ to be considered at an intergovernmental conference, which could commence in 2018.

This workshop report provides reflections in the form of various options for the Agreement that Member States could consider, leading up to and during the intergovernmental conference.

2. Issues addressed

The Workshop provided reflections on the following four topics:

1. *Marine protected area/area based management tool criteria*
2. *Building a coherent network of MPAs and other measures to secure in-situ conservation of biodiversity beyond national jurisdiction*
3. *Nature and shape of the Scientific/Technical Committee*
4. *Role and competencies of the Scientific/Technical Committee*

Each topic provides possible options, accompanied by supporting rationale.

3. Key definitions and concepts

The discussions during the Workshop included the participants' efforts to develop a common understanding of certain key terms. Such terms and information about the terms are provided below.

- **Marine Protected Area (MPA):** IUCN's definition of an MPA is "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective

¹ Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/187/55/PDF/N1518755.pdf?OpenElement>

² The agenda of the workshop is available at Annex A.

³ An advance unedited version is available at: http://www.un.org/Depts/los/biodiversity/prepcom_files/Procedural_report_of_BBNJ_PrepCom.pdf

means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.”⁴

- **MPA categories:** There could be several categories of MPAs with varying levels of protection to meet **nature conservation objectives**, ranging from a strictly protected marine reserve to a marine area managed to achieve a specific conservation objective.⁵
- **An MPA system or network:** An MPA system or network is a “collection of individual MPAs operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone.”⁶
- **Role of networks:** A comprehensive, adequate and representative system of MPA networks can provide protection for all major ecosystem components in conjunction with their characteristic habitats and species at an appropriate scale within and across each bioregion. Such networks should have adequate levels of management to ensure ecological viability and integrity, address the full range of human activities, and be sufficiently duplicative so that a single event, such as an oil spill, would not eradicate ecological and biological diversity.⁷
- **Marine Spatial Planning (MSP):** An MSP could support multi-sectoral coordination to enable integrated ecosystem-based management. While MSP may be more challenging to implement in ABNJ, it may have many benefits if applied in a few priority sites. For example, to develop a management plan for an MPA, it may be necessary to coordinate with existing and future activities in the surrounding area. Planning may also be helpful to avoid conflicts of uses in areas subject to multiple activities, such as deep-sea bottom fishing, cable laying and seabed mining. MSP could enable actors to conduct activities with due regard for other activities and interests.⁸
- **MPAs and other area-based management tools (ABMTs):** There are various types of ABMTs. MPAs are a type of ABMT, but not all ABMTs are MPAs. ABMTs represent broader concepts that include both sectoral management tools such as Vulnerable Marine Ecosystems (VMEs) or Particularly Sensitive Sea Areas (PSSAs) and comprehensive tools such as MPAs and MSP. The term “other effective conservation measures” (OECMs) as

⁴ Day J., Dudley N., Hockings M., Holmes G., Laffoley D., Stolton S. & S. Wells, 2012. Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas. Gland, Switzerland: IUCN. 36pp https://www.iucn.org/sites/dev/files/import/downloads/iucn_categoriesamp_eng.pdf)

⁵ Id.

⁶ WCPA/IUCN (World Commission on Protected Areas/International Union for the Conservation of Nature). 2007. Establishing networks of marine protected areas: a guide for developing national and regional capacity for building MPA networks. Gland, Switzerland: WCPA/IUCN. Non-technical summary report

⁷ Laffoley, D. d’A., (ed.) 2008. Towards Networks of Marine Protected Areas. The MPA Plan of Action for IUCN’s World Commission on Protected Areas. IUCN WCPA, Gland, Switzerland. 28 pp. <http://www.protectplanetocean.org/resources/docs/PlanofAction.pdf>; see also Establishing Marine Protected Areas Networks: Making it happen. A guide for developing national and regional capacity for building MPA networks. <https://www.cbd.int/doc/pa/tools/Establishing%20Marine%20Protected%20Area%20Networks.pdf>

⁸ Ehler, Charles, and Fanny Douvère. Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO. 2009 (English). <http://unesdoc.unesco.org/images/0018/001865/186559e.pdf>

referred to in the Convention on Biodiversity (CBD) Aichi Target 11 should only be used when the measure provides similar long-term protection as an MPA, but without formal designation.

- **Integrated application of existing and new tools:** To achieve the long term *in situ* conservation of marine biological diversity in ABNJ, an integrated application of various measures, such as a network of MPAs and other measures in the context of a wider sustainability framework would be needed. The Agreement could play a significant role in providing the framework and the mechanism in that regard. In addition to MPAs, various tools are available to achieve the objective of long term *in situ* conservation of marine biological diversity in ABNJ, including sectoral area-based management tools, environmental impact assessments and associated measures to prevent significant adverse impacts and wider MSP.

4. Four major reflections from the workshop

Four major reflections were made during the two days of discussions at the workshop:

1. MPA/ABMT criteria
2. Building a coherent network of MPAs and other measures to secure *in-situ* conservation of biodiversity beyond national jurisdiction
3. Nature and shape of the Scientific/Technical Committee
4. Role and competencies of the Scientific/Technical Committee

This section provides possible options for each topic, accompanied by supporting rationale.

4.1 MPA/ABMT criteria

- The CBD criteria for ecologically or biologically significant areas (EBSA), as adopted/endorsed by the CBD Decision/IX/20 (Annex I)⁹, provide a solid basis for the criteria for MPAs and other ABMTs. Such criteria could be *augmented* by experience gained in areas beyond national jurisdiction (ABNJ) from their application, notably, through the CBD EBSA process as well as by criteria applied in other agreements.

Rationale: The CBD EBSA criteria reflect a wealth of experience in describing priorities for areas in need of higher levels of protection. The EBSA criteria themselves were based on an analysis and synthesizing suites of criteria in use at the time and were thought to be state of the art. But the EBSA criteria are

⁹ See Annex b for the CBD list of scientific criteria for describing ecologically or biologically significant areas

indicative and not exhaustive. There is room to expand the list of criteria based on experience and values in other agreements and regions.

- The Agreement provides an *opportunity to embrace criteria from a wide range of values*, based on experience, including representativity and social/economic importance as well as scientific, cultural and educational significance as are reflected in the International Maritime Organization (IMO)'s criteria for PSSAs.¹⁰

Rationale: Socio/economic, scientific, cultural and educational values are important considerations for conservation and sustainable use of ABNJ.

- The Agreement provides an opportunity to embrace a wider range of objectives for MPAs and MPA networks, including:
 - i. connectivity;
 - ii. protection of areas to maintain reliance to climate change;
 - iii. protection of sites which themselves exhibit important genetic variations to adapt to the effects of climate change; and
 - iv. establishment of long term monitoring stations.¹¹

Rationale: Marine areas in the 21st century continue to be faced with the threats of overfishing, destructive forms of fishing, pollution, and habitat degradation. Further, the ocean faces climate-change impacts that can adversely affect marine environments, such as increasing ocean warming, sea-level rise, ocean deoxygenation and acidification. Proactive protective measures based on dedicated research and monitoring programs will become increasingly necessary to enhance our ability to effectively understand, predict and most importantly, timely respond to potential degradation of the marine ecological and biodiversity before it is too late for effective action.¹²

- A Scientific/Technical Body could be given a role in *validating the recommended set of criteria for multi-sectoral MPAs* pursuant to the Agreement.

Rationale: A Scientific/Technical Body's scientific and technical expertise focused on conservation of marine biodiversity in ABNJ, including consideration of cumulative impacts and global scale conservation priorities, could fill a major gap in the current constellation of scientific/technical advisory bodies that lack the mandate,

¹⁰ See Annex c for the list of criteria applied by the IMO for identifying PSSAs.

¹¹ See Annex d for the objectives listed in the 'General Framework for the establishment of CCAMLR MPAs 'CONSERVATION MEASURE 91-04 (2011) General framework for the establishment of CCAMLR Marine Protected Areas

¹² The report, [Explaining ocean warming: Causes, scale, effects and consequences](#), reviews the effects of ocean warming on species, ecosystems and on the benefits oceans provide to humans. Compiled by 80 scientists from 12 countries, it highlights detectable scientific evidence of impacts on marine life, from microorganisms to mammals, which are likely to increase significantly even under a low emissions scenario. Links [Full report - Explaining ocean warming: Causes, scale, effects and consequences](#)
[Executive Summary - Ocean Warming Report](#)

knowledge, skills, or resources in validating the recommended set of criteria for *multi-sectoral* MPAs.

4.2 Building a coherent network of MPAs and other measures to secure in-situ conservation of biodiversity beyond national jurisdiction

- MPAs networks are the foundation for *in situ* conservation of biodiversity but need to be complemented by a sea of sustainability. A *living long-term strategic plan* (Strategic Plan) focused on developing a coherent global system of MPAs in ABNJ and other measures could provide guidance on the overall conservation process. A Scientific/Technical Body could have a role to play in helping shape the Strategic Plan.

Rationale: A Strategic Plan could lay out science-based global priorities for creating a coherent, representative and integrated system of protected areas, embracing all major habitats and seascape types. A Strategic Plan should take into account global and regional features, conditions and stressors in designing a system that includes both representative and significant areas.

- It would be preferable to have a *two-step process* in a Strategic Plan. The document should be designed so that priorities can be defined and actions can be amplified, while remaining flexible for the strategies to evolve as science and the ecology/biodiversity of the ocean change.
 - i. *First stage:* Make use of existing measures and information, including existing ABMT actions by Regional Seas Convention, VMEs, APEIs, PSSAs, and other available information (e.g EBSA and World Heritage Convention processes).
 - ii. *Second stage:* Set a long-term strategy to build a comprehensive, representative network of MPAs and other measures to secure the overall objective of the Agreement.

Rationale: We do not need to start from scratch as significant work has already been done in some areas and time is of the essence for conservation of biological/ecological diversity of ABNJ. Coherent networks of MPAs can be built effectively and efficiently by incorporating existing knowledge and existing conservation measures, while the scientific work of describing and building a coherent network at the global scale unfolds. Concurrently, nominations for MPAs should be sought from groups of States or existing regional and sectoral processes. An evolving Strategic Plan would also enable more effective and efficient coordination of sectoral measures as it would provide a common scientific basis for identifying priorities for protection and targeted management of ABNJ.

4.3 Nature and shape of the Scientific/Technical Body

- There is great value in exploring the *role, responsibility, composition and governance* of a Scientific/Technical Body in the context of an overarching decision-making body (e.g. Conference of the Parties), to provide scientific/technical advice where requested, *inter alia*:
 - i. Global standards, guidelines, principles and objectives for conservation and management with respect to impacts on marine biodiversity in ABNJ; the identification and scientific validation of multi-sectoral MPAs, defining conservation and management goals, and advising on scientific aspects of impact assessments, etc.
 - ii. The Scientific/Technical Body could be:
 1. A new *ad hoc* body;
 2. Be drawn from existing bodies;
 3. Based on an existing body; or
 4. Hybrid body consisting of experts but drawing in representatives of other bodies.

Rationale: There are multiple models that could be drawn upon to consider the development of a Scientific/Technical Body. Useful examples for inspiration include:

- The United Nations Framework Convention on Climate Change (The [Subsidiary Body of Scientific and Technological Advice](#) as well as the independent [Intergovernmental Panel on Climate Change](#);
- CBD (a formal Subsidiary Body on Scientific Technical and Technology Advice¹³);
- Intergovernmental Oceanographic Commission¹⁴ (a dedicated body with other responsibilities);
- World Heritage Convention¹⁵ (permanent advisory role for IUCN and International Commission on Monuments and Sites¹⁶);
- International Council for Exploration of the Seas¹⁷ (advises both the Oslo Paris Commission¹⁸); and
- North East Atlantic Fisheries Commission.¹⁹

¹³ <https://www.cbd.int/sbstta/>

¹⁴ <http://www.ioc-unesco.org>

¹⁵ <http://whc.unesco.org/en/convention/>

¹⁶ <http://www.icomos.org/en/>

¹⁷ <http://www.ices.dk/Pages/default.aspx>

¹⁸ <https://www.ospar.org>

¹⁹ <https://www.neafc.org>

4.4 Structure, composition, role and skills/competencies of the Scientific/Technical Body

- **Structure and composition:** A *flexible* structure and composition rather than a rigid approach, potentially involving a small standing Scientific/Technical Body, with a mandate to *call in extra experts or expert panels* to give depths to advice when required, depending on the topics under consideration may be preferable.

Rationale: Ecosystem based management will require substantially greater scientific input than sectoral management. A core group of experts may need to supplement its knowledge by reaching out to experts in the field to ensure that it has access to the best available scientific knowledge as the science—and the ocean—evolve.

- **Role of the Scientific/Technical Body:** The role of the Scientific/Technical Body could focus on *science advisory functions including MPA proposal review, advice on environmental impact assessments and implementation of the ecosystem approach*. It may also have valuable contributions to make to flag any potential *transboundary collaboration* and to advise on *coherent, complementary measure opportunities at a regional scale* to the decision-making body.

Rationale: There are four different levels of analysis to inform the MPA process where scientific input would be required:

1. individual site level (e.g. risk and threats to the site);
2. relative analysis of priority in the region;
3. representativity of the site; and
4. spatial/temporal connectivity issues.

There is increasing complexity in ocean governance that will require sophisticated analysis. The sites are currently considered individually. It is the synthetic analysis that will be necessary for a coherent, comprehensive and an integrated approach to conservation of ABNJ.

- **Skills and competencies** are needed to cover the following elements:
 - **Global standards, guidelines, principles and outcomes** for long-term in-situ conservation measures
 - **Identification** and **scientific validation** of multi-sectoral MPA proposals
 - **Cross-sectoral** scientific and technical issues
 - The science of **cumulative impacts/climate resilience**
 - The science underlying **conservation** and **management objectives**
 - The science underlying the implementation of the **ecosystem approach**

Rationale: As discussed above in a. and b., sophisticated analysis will be needed and the above listed skills and competencies would be necessary to address increasing complexity in ocean governance.

5. Conclusion

This report outlines the results of the workshop which took place from 16 – 17 May 2017 at IUCN Headquarters in Gland, Switzerland.

The purpose of the workshop was for leading science and policy experts to provide guidance to IUCN on area based management tools, including marine protected areas, in the context of consideration of the Agreement.

This report provides reflections in the form of various options for the Agreement that Member States could consider, leading up to and during the intergovernmental conference, which could take place in 2018.

Annex A. Workshop Participants

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Annex B. CBD Decision /IX/20 Annex 1

Annex 1

SCIENTIFIC CRITERIA FOR IDENTIFYING ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS IN NEED OF PROTECTION IN OPEN-OCEAN WATERS AND DEEP-SEA HABITATS ⁴¹

Criteria	Definition	Rationale	Examples	Consideration in application
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features	Irreplaceable Loss would mean the probable permanent disappearance of diversity or a feature, or reduction of the diversity at any level.	<i>Open ocean waters</i> Sargasso Sea, Taylor column, persistent polynyas. <i>Deep-sea habitats</i> endemic communities around submerged atolls; hydrothermal vents; sea mounts; pseudo-abyssal depression	Risk of biased-view of the perceived uniqueness depending on the information availability Scale dependency of features such that unique features at one scale may be typical at another, thus a global and regional perspective must be taken
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.	Various biotic and abiotic conditions coupled with species-specific physiological constraints and preferences tend to make some parts of marine regions more suitable to particular life-stages and functions than other parts.	Area containing: (i) breeding grounds, spawning areas, nursery areas, juvenile habitat or other areas important for life history stages of species; or (ii) habitats of migratory species (feeding, wintering or resting areas, breeding, moulting, migratory routes).	Connectivity between life-history stages and linkages between areas: trophic interactions, physical transport, physical oceanography, life history of species Sources for information include: e.g. remote sensing, satellite tracking, historical catch and by-catch data, vessel monitoring system (VMS) data. Spatial and temporal distribution and/or aggregation of the species.
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.	To ensure the restoration and recovery of such species and habitats.	Areas critical for threatened, endangered or declining species and/or habitats, containing (i) breeding grounds, spawning areas, nursery areas, juvenile habitat or other areas important for life history stages of species; or (ii) habitats of migratory species (feeding, wintering or resting areas, breeding, moulting, migratory routes).	Includes species with very large geographic ranges. In many cases recovery will require reestablishment of the species in areas of its historic range. Sources for information include: e.g. remote sensing, satellite tracking, historical catch and by-catch data, vessel monitoring system (VMS) data.

Criteria	Definition	Rationale	Examples	Consideration in application
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	The criteria indicate the degree of risk that will be incurred if human activities or natural events in the area or component cannot be managed effectively, or are pursued at an unsustainable rate.	<p><i>Vulnerability of species</i> Inferred from the history of how species or populations in other similar areas responded to perturbations. Species of low fecundity, slow growth, long time to sexual maturity, longevity (e.g. sharks, etc). Species with structures providing biogenic habitats, such as deepwater corals, sponges and bryozoans; deep-water species.</p> <p><i>Vulnerability of habitats</i> Ice-covered areas susceptible to ship-based pollution. Ocean acidification can make deep-sea habitats more vulnerable to others, and increase susceptibility to human-induced changes.</p>	Interactions between vulnerability to human impacts and natural events Existing definition emphasizes site specific ideas and requires consideration for highly mobile species Criteria can be used both in its own right and in conjunction with other criteria.
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	Important role in fuelling ecosystems and increasing the growth rates of organisms and their capacity for reproduction	Frontal areas Upwellings Hydrothermal vents Seamounts polynyas	Can be measured as the rate of growth of marine organisms and their populations, either through the fixation of inorganic carbon by photosynthesis, chemosynthesis, or through the ingestion of prey, dissolved organic matter or particulate organic matter Can be inferred from remote-sensed products, e.g., ocean colour or process-based models Time-series fisheries data can be used, but caution is required
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	Important for evolution and maintaining the resilience of marine species and ecosystems	Sea-mounts Fronts and convergence zones Cold coral communities Deep-water sponge communities	Diversity needs to be seen in relation to the surrounding environment Diversity indices are indifferent to species substitutions

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

Annex 11

SCIENTIFIC GUIDANCE FOR SELECTING AREAS TO ESTABLISH A REPRESENTATIVE NETWORK OF MARINE PROTECTED AREAS, INCLUDING IN OPEN OCEAN WATERS AND DEEP-SEA HABITATS ⁴²

Required network properties and components	Definition	Applicable site specific considerations (<i>inter alia</i>)
Ecologically and biologically significant areas	Ecologically and biologically significant areas are geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole, compared to other surrounding areas or areas of similar ecological characteristics, or otherwise meet the criteria as identified in annex I to decision IX/20 .	Uniqueness or rarity Special importance for life history stages of species Importance for threatened, endangered or declining species and/or habitats

Required network properties and components	Definition	Applicable site specific considerations (<i>inter alia</i>)
		Vulnerability, fragility, sensitivity or slow recovery Biological productivity Biological diversity Naturalness
Representativity	Representativity is captured in a network when it consists of areas representing the different biogeographical subdivisions of the global oceans and regional seas that reasonably reflect the full range of ecosystems, including the biotic and habitat diversity of those marine ecosystems.	A full range of examples across a biogeographic habitat, or community classification; relative health of species and communities; relative intactness of habitat(s); naturalness
Connectivity	Connectivity in the design of a network allows for linkages whereby protected sites benefit from larval and/or species exchanges, and functional linkages from other network sites. In a connected network individual sites benefit one another.	Currents; gyres; physical bottlenecks; migration routes; species dispersal; detritus; functional linkages. Isolated sites, such as isolated seamount communities, may also be included.
Replicated ecological features	Replication of ecological features means that more than one site shall contain examples of a given feature in the given biogeographic area. The term “features” means “species, habitats and ecological processes” that naturally occur in the given biogeographic area.	Accounting for uncertainty, natural variation and the possibility of catastrophic events. Features that exhibit less natural variation or are precisely defined may require less replication than features that are inherently highly variable or are only very generally defined.
Adequate and viable sites	Adequate and viable sites indicate that all sites within a network should have size and protection sufficient to ensure the ecological viability and integrity of the feature(s) for which they were selected.	Adequacy and viability will depend on size; shape; buffers; persistence of features; threats; surrounding environment (context); physical constraints; scale of features/processes; spillover/compactness.

Annex III

FOUR INITIAL STEPS TO BE CONSIDERED IN THE DEVELOPMENT OF REPRESENTATIVE NETWORKS OF MARINE PROTECTED AREAS:

1. *Scientific identification of an initial set of ecologically or biologically significant areas.* The criteria in annex I to [decision IX/20](#) should be used, considering the best scientific information available, and applying the precautionary approach. This identification should focus on developing an initial set of sites already recognized for their ecological values, with the understanding that other sites could be added as more information becomes available.
2. *Develop/choose a biogeographic, habitat, and/or community classification system.* This system should reflect the scale of the application and address the key ecological features within the area. This step will entail a separation of at least two realms—pelagic and benthic.
3. *Drawing upon steps 1 and 2 above, iteratively use qualitative and/or quantitative techniques to identify sites to include in a network.* Their selection for consideration of enhanced management should reflect their recognised ecological importance or vulnerability, and address the requirements of ecological coherence through representativity, connectivity, and replication.
4. *Assess the adequacy and viability of the selected sites.* Consideration should be given to their size, shape, boundaries, buffering, and appropriateness of the site-management regime.

Annex C. ECOLOGICAL, SOCIO-ECONOMIC, OR SCIENTIFIC CRITERIA FOR THE IDENTIFICATION OF A PARTICULARLY SENSITIVE SEA AREA

Extract from: A 24/Res.982 Resolution A.982(24) REVISED GUIDELINES FOR THE IDENTIFICATION AND DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS (2005)

4.4 In order to be identified as a PSSA, the area should meet at least one of the criteria listed below and information and supporting documentation should be provided to establish that at least one of the criteria exists throughout the entire proposed area, though the same criterion need not be present throughout the entire area. These criteria can be divided into three categories: ecological criteria; social, cultural, and economic criteria; and scientific and educational criteria.

Ecological criteria

4.4.1 Uniqueness or rarity – An area or ecosystem is unique if it is “the only one of its kind”. Habitats of rare, threatened, or endangered species that occur only in one area are an example. An area or ecosystem is rare if it only occurs in a few locations or has been seriously depleted across its range. An ecosystem may extend beyond country borders, assuming regional or international significance. Nurseries or certain feeding, breeding, or spawning areas may also be rare or unique.

4.4.2 Critical habitat – A sea area that may be essential for the survival, function, or recovery of fish stocks or rare or endangered marine species, or for the support of large marine ecosystems.

4.4.3 Dependency – An area where ecological processes are highly dependent on biotically structured systems (e.g. coral reefs, kelp forests, mangrove forests, seagrass beds). Such ecosystems often have high diversity, which is dependent on the structuring organisms. Dependency also embraces the migratory routes of fish, reptiles, birds, mammals, and invertebrates.

4.4.4 Representativeness – An area that is an outstanding and illustrative example of specific biodiversity, ecosystems, ecological or physiographic processes, or community or habitat types or other natural characteristics.

4.4.5 Diversity – An area that may have an exceptional variety of species or genetic diversity or includes highly varied ecosystems, habitats, and communities.

4.4.6 Productivity – An area that has a particularly high rate of natural biological production. Such productivity is the net result of biological and physical processes which result in an increase in biomass in areas such as oceanic fronts, upwelling areas and some gyres.

4.4.7 Spawning or breeding grounds – An area that may be a critical spawning or breeding ground or nursery area for marine species which may spend the rest of their life-cycle elsewhere, or is recognized as migratory routes for fish, reptiles, birds, mammals, or invertebrates.

4.4.8 Naturalness – An area that has experienced a relative lack of human-induced disturbance or degradation.

4.4.9 Integrity – An area that is a biologically functional unit, an effective, self-sustaining ecological entity.

4.4.10 Fragility – An area that is highly susceptible to degradation by natural events or by the activities of people. Biotic communities associated with coastal habitats may have a low tolerance to changes in environmental conditions, or they may exist close to the limits of their tolerance (e.g., water temperature, salinity, turbidity or depth). Such communities may suffer natural stresses such as storms or other natural conditions (e.g., circulation patterns) that concentrate harmful substances in water or sediments, low flushing rates, and/or oxygen depletion. Additional stress may be caused by human influences such as pollution and changes in salinity. Thus, an area already subject to stress from natural and/or human factors may be in need of special protection from further stress, including that arising from international shipping activities.

4.4.11 Bio-geographic importance – An area that either contains rare biogeographic qualities or is representative of a biogeographic “type” or types, or contains unique or unusual biological, chemical, physical, or geological features.

Social, cultural and economic criteria

4.4.12 Social or economic dependency – An area where the environmental quality and the use of living marine resources are of particular social or economic importance, including fishing, recreation, tourism, and the livelihoods of people who depend on access to the area.

4.4.13 Human dependency – An area that is of particular importance for the support of traditional subsistence or food production activities or for the protection of the cultural resources of the local human populations.

4.4.14 Cultural heritage – An area that is of particular importance because of the presence of significant historical and archaeological sites. Scientific and educational criteria

4.4.15 Research – An area that has high scientific interest. -

4.4.16 Baseline for monitoring studies – An area that provides suitable baseline conditions with regard to biota or environmental characteristics, because it has not had substantial

perturbations or has been in such a state for a long period of time such that it is considered to be in a natural or near-natural condition.

4.4.17 Education – An area that offers an exceptional opportunity to demonstrate particular natural phenomena.

Annex D. 'CONSERVATION MEASURE 91-04 (2011) General framework for the establishment of CCAMLR Marine Protected Areas

<https://www.ccamlr.org/sites/drupal.ccamlr.org/files//91-04.pdf>

2. CCAMLR MPAs shall be established on the basis of the best available scientific evidence, and shall contribute, taking full consideration of Article II of the CAMLR Convention where conservation includes rational use, to the achievement of the following objectives: \

- (i) the protection of representative examples of marine ecosystems, biodiversity and habitats at an appropriate scale to maintain their viability and integrity in the long term;
- (ii) the protection of key ecosystem processes, habitats and species, including populations and life-history stages;
- (iii) the establishment of scientific reference areas for monitoring natural variability and long-term change or for monitoring the effects of harvesting and other human activities on Antarctic marine living resources and on the ecosystems of which they form part;
- (iv) the protection of areas vulnerable to impact by human activities, including unique, rare or highly biodiverse habitats and features;
- (v) the protection of features critical to the function of local ecosystems;
- (vi) the protection of areas to maintain resilience or the ability to adapt to the effects of climate change.