



# Guidelines for applying the IUCN protected area management categories to marine protected areas

Jon Day, Nigel Dudley, Marc Hockings, Glen Holmes, Dan Laffoley, Sue Stolton, Sue Wells and Lauren Wenzel

Second edition



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## IUCN PROTECTED AREA DEFINITION, MANAGEMENT CATEGORIES AND GOVERNANCE TYPES

IUCN defines a protected area as:

**A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.**

The definition is expanded by six management categories (one with a sub-division), summarized below.

**Ia Strict nature reserve:** Strictly protected for biodiversity and also possibly geological/ geomorphological features, where human visitation, use and impacts are controlled and limited to ensure protection of the conservation values

**Ib Wilderness area:** Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, protected and managed to preserve their natural condition

**II National park:** Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities

**III Natural monument or feature:** Areas set aside to protect a specific natural monument, which can be a landform, sea mount, marine cavern, geological feature such as a cave, or a living feature such as an ancient grove

**IV Habitat/species management area:** Areas to protect particular species or habitats, where management reflects this priority. Many will need regular, active interventions to meet the needs of particular species or habitats, but this is not a requirement of the category

**V Protected landscape or seascape:** Where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values

**VI Protected areas with sustainable use of natural resources:** Areas which conserve ecosystems, together with associated cultural values and traditional natural resource management systems. Generally large, mainly in a natural condition, with a proportion under sustainable natural resource management and where low-level non-industrial natural resource use compatible with nature conservation is seen as one of the main aims

The category should be based around the primary management objective(s), which should apply to at least three-quarters of the protected area – the 75 per cent rule.

The management categories are applied with a typology of governance types – a description of who holds authority and responsibility for the protected area. IUCN defines four governance types.

**Governance by government:** Federal or national ministry/agency in charge; sub-national ministry/agency in charge; government-delegated management (e.g. to NGO)

**Shared governance:** Collaborative management (various degrees of influence); joint management (pluralist management board; transboundary management (various levels across international borders)

**Private governance:** By individual owner; by non-profit organisations (NGOs, universities, cooperatives); by for-profit organisations (individuals or corporate)

**Governance by indigenous peoples and local communities:** Indigenous peoples' conserved areas and territories; community conserved areas – declared and run by local communities

For more information on the IUCN definition, categories and governance types see Dudley (2008). *Guidelines for applying protected area management categories*, which can be downloaded at: [www.iucn.org/pa\\_categories](http://www.iucn.org/pa_categories)

For more on governance types, see Borrini-Feyerabend, et al., (2013). *Governance of protected areas: from understanding to action*, which can be downloaded at: <https://portals.iucn.org/library/node/29138>

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The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN or other participating organisations, concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views expressed in this publication reflect the IUCN global standard applying to [MPAs](#)

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The primary purpose of these supplementary guidelines is to increase the accuracy and consistency of assignment and reporting of the IUCN categories when applied to marine and coastal protected areas. To avoid unnecessary duplication of text, these supplemental guidelines therefore must be read in association with [Guidelines for Applying Protected Area Management Categories](#) (referred to as the [2008 Guidelines](#) throughout this document).

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Available from: IUCN, International Union for Conservation of Nature  
Global Protected Areas Programme  
Rue Mauverney 28  
1196 Gland  
Switzerland  
Tel +41 22 999 0000  
Fax +41 22 999 0002  
[www.iucn.org/resources/publications](http://www.iucn.org/resources/publications)

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Coral reefs on the west coast of New Caledonia in the marine World Heritage property.

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# Preamble

In 1996, the World Conservation Congress in Montreal recommended (Resolution 1.37) *inter alia* that the IUCN World Commission on Protected Areas (WCPA) should “develop guidance on the application of the IUCN Guidelines for Protected Area Management Categories in the marine environment”. This was supported by several similar recommendations over the following years.<sup>1,2</sup> In 2007, a discussion paper<sup>3</sup> was presented at the WCPA Marine Summit in Washington DC reiterating the need for further guidance. Prior to the publication in 2008 of the revised IUCN-WCPA’s [Guidelines for Applying Protected Area Management Categories](#) (referred to as the [2008 Guidelines](#) throughout this document),<sup>4</sup> a meeting was held in Almeria, Spain, at which the need for additional marine guidance was again repeated.<sup>5</sup>

The development of the supplementary guidelines started in 2010 with an online survey to highlight issues where more guidance was needed. Subsequently, a small working group met in Townsville, Australia, to develop a preliminary draft. This was circulated to WCPA members for wider input. In addition, the draft guidelines were field-tested in the Maldives<sup>6</sup> and the Republic of Korea<sup>7</sup>, before being published in 2012.

A second edition of the marine supplementary guidelines has now been prepared. Work on this started at a meeting on marine protected areas (MPAs) and categories hosted by the Pew Charitable Trusts in Washington, in January 2018, and organised by the WCPA Marine Theme. This was in part a response to evidence of the widespread incorrect application of the categories to MPAs. Marine management and sustainable fisheries management are critical elements of good oceans management, but are not the same as protected areas management, where the primary focus is conservation of nature. In addition, several resolutions at IUCN World Conservation Congresses, passed since the [2008 Guidelines](#) were published, describe IUCN guidance on acceptable practice in MPA management. Where these resolutions make a material difference to application and use of the categories in MPAs, this has been indicated.

Further work is underway to develop more specific guidance for the improved application of the IUCN categories to MPAs. In addition, IUCN resolutions relevant to this guidance are proposed for discussion at the 2020 World Conservation Congress. Further updates of this guidance will be prepared to reflect any relevant approved motions and will be available at [IUCN-WCPA Marine](#).

These guidelines are accurate as of October 2019. The examples used to illustrate the different categories may be updated from time to time to reflect new MPAs and/or changes in management; please refer to [IUCN-WCPA Marine](#) for any updates.

<sup>1</sup> Kelleher, G. and Recchia, C. (1998). ‘Editorial – lessons from marine protected areas around the world’. *Parks* 8 (2), Gland, Switzerland: IUCN. [http://parksjournal.com/wp-content/uploads/2017/06/parks\\_8\\_2.pdf](http://parksjournal.com/wp-content/uploads/2017/06/parks_8_2.pdf)

<sup>2</sup> Wells, S. and Day, J. (2004). ‘Application of the IUCN protected area management categories in the marine environment’. *Parks* 14 (3), Gland, Switzerland: IUCN. [http://parksjournal.com/wp-content/uploads/2017/06/14\\_3lowres.pdf](http://parksjournal.com/wp-content/uploads/2017/06/14_3lowres.pdf)

<sup>3</sup> Laffoley, D., Day, J., Wood, L. and Barr, B. (2007). ‘IUCN Categories – Their Application in Marine Protected Areas’, Discussion paper presented at WCPA Marine Summit, Washington DC, April 2007.

<sup>4</sup> Dudley, N. (ed.) (2008). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN. <https://portals.iucn.org/library/node/9243>

<sup>5</sup> Laffoley, D., Day, J., Wood, L. and Barr, B. (2008). ‘Marine Protected Areas’. In: Dudley, N. and Stolton, S. (eds.) (2008). *Defining protected areas: an international conference in Almeria, Spain*. Gland, Switzerland: IUCN. 220 pp <https://portals.iucn.org/library/node/10127>

<sup>6</sup> MWSRP (2011). *Guidelines for applying the IUCN Marine Protected Area Management Categories to Marine Protected Areas: a field testing report by the Maldives Whale Shark Research Programme (MWSRP)*. Unpublished Report, September 2011. 5pp

<sup>7</sup> Stolton, S., Shadie, P. and Hag Young Heo (2011). *Case study South Korea – Marine Categories*. Unpublished report. 5pp.

- The primary purpose of these supplementary guidelines is to increase the accuracy and consistency of assignment and reporting of the IUCN categories when applied to marine and coastal protected areas.
- To avoid unnecessary duplication of text, these supplemental guidelines therefore must be read in association with the [2008 Guidelines](#).
- The text identifies where cross-referencing is required to the 2008 Guidelines.
- The MPA examples used to illustrate these supplementary guidelines are according to their management in October 2019 and are for illustrative purposes only. Management conditions can change due in particular to decreases or increases in budget or changes in prevailing ecological conditions, and IUCN reserves the right at short notice to change examples used to illustrate this guidance as it sees fit to best illustrate the points being made.

# At a glance

IUCN has developed a set of guidelines that define a protected area and categorise protected areas through six management types and four governance types (Dudley, 2008)<sup>8</sup>. The guidelines were passed through resolution by IUCN members at the 2012 World Conservation Congress, and are thus now official policy for IUCN. These supplementary guidelines provide additional advice on using the IUCN guidance in marine protected areas (MPAs).

To qualify for one or more of the IUCN categories, a site must meet the IUCN definition of a protected area, as given in the [2008 Guidelines](#):

***“A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”***

By definition therefore only those sites where the **main goal or outcome is conserving nature** should be considered MPAs. It should be noted in so doing that this will include sites with other goals as well, at the same level, such as cultural or spiritual, but in the case of conflict nature conservation has to be the priority. It also follows from the definition that unsustainable extractive activities, particularly those on the industrial scale, temporary management measures, single species protections, or bans on damaging gear will not lead to the long-term conservation of the whole ecosystem and therefore do not qualify as MPAs

The appropriate IUCN category is assigned based on the primary stated management objective of the MPA (which must apply to at least 75% of the MPA – see section 5.1), or a zone within an MPA (the zone must be clearly mapped, recognised by legal or other effective means, and have distinct and unambiguous management aims that can be assigned to a particular protected area category – see section 5.4). The primary objectives of each IUCN category are listed below as described in the [2008 Guidelines](#). A more detailed explanation is presented in section 4 of this document and in the [2008 Guidelines](#).

In addition, IUCN recommends that an MPA should seek to meet the following [standards](#): 1) conservation focus with nature as the priority, 2) defined goals and objectives which reflect these values, 3) suitable size, location and design that will enable conservation of values, 4) defined and agreed upon boundary, 5) management plan or equivalent, which addresses the needs for conservation of the site’s major values and achievement of its social and economic goals and objectives, and 6) resources and capacity to implement.

There are a number of other area-based measures, such as fishery management areas, that can be confused with MPAs. The key difference between MPAs and other area-based measures is that, whatever form the MPAs take, the primary focus is the conservation of biodiversity. Area-based measures where the primary goals are something else, such as sustainable fishing, do not qualify as an MPA. If fishing or other extractive activities are compatible with an MPA’s objective(s) and are permitted within the MPA, they must have a low ecological impact, be sustainable, be well managed as part of an integrated approach to management, and fit within the definition and category of an IUCN protected area. Any industrial activities and infrastructural developments (e.g. mining, industrial fishing, oil and gas extraction) are not compatible with MPAs and should be excluded from such areas if they are to be considered as MPAs.

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<sup>8</sup> Dudley, N. (ed.) (2008). [Guidelines for Applying Protected Area Management Categories](#). Gland, Switzerland: IUCN



Table 1: Definition and primary objectives of IUCN protected area categories

IUCN category	Definition	Primary objective	Permitted activities	Prohibited activities
<b>Ia</b>	<i>Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/ geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.</i>	To conserve regionally, nationally or globally outstanding ecosystems, species (occurrences or aggregations) and/or geodiversity features: these attributes will have been formed mostly or entirely by non-human forces and will be degraded or destroyed when subjected to all but very light human impact.	Scientific research involving collection may be permitted if that collection cannot be conducted elsewhere and if the collection activity is minimised to that which is absolutely necessary to achieve the scientific goals of the study. Extraction to control invasive species is also permitted in some category Ia MPAs.	Removal of species or modification, extraction or collection of resources (e.g. through any form of fishing, harvesting, dredging) is considered to be incompatible with this category. Anchoring, which can damage bottom habitat, should not be permitted. If necessary for research, mooring buoys may be an alternative
<b>Ib</b>	<i>Category Ib protected areas are usually large, unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.</i>	To protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate, so that current and future generations have the opportunity to experience such areas.	Same as Ia and in some circumstances, sustainable resource use by indigenous people to conserve their traditional, spiritual and cultural values, provided this is done in accordance with cultural tradition.	As with Category Ia, removal of species or modification, extraction or collection of resources (e.g. through fishing, harvesting or dredging) is not considered compatible with this category.
<b>II</b>	<i>Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.</i>	To protect natural biodiversity along with its underlying ecological structure and supporting environmental processes, and to promote education and recreation.	As with category Ib. This category should also provide for visitation, non-extractive recreational activities and nature tourism (e.g. snorkelling, diving, swimming, boating, etc.) and approved research, provided that research cannot be done elsewhere (see p. 23 for more details).	Extractive use (of living or dead material) is not considered consistent with the objectives of category II (e.g. all types of fishing, including recreational, are not compatible), other than for approved research which cannot be done elsewhere
<b>III</b>	<i>Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine caverns, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.</i>	To protect specific outstanding natural features and their associated biodiversity and habitats.	Same as category II.	Extractive use (of living or dead material) is not considered consistent with the objectives of category III (e.g. all types of fishing, including recreational, are not compatible), other than for approved research which cannot be done elsewhere. All other activities which have the potential to impact the specific natural monument (e.g. aquaculture, waste discharge, habitation, etc) are also prohibited.

IUCN category	Definition	Primary objective	Permitted activities	Prohibited activities
IV	<p><i>Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.</i></p>	<p>To maintain, conserve and restore species and habitats.</p>	<p>Unlike categories Ia – III, within category IV MPAs extractive research is permitted, as is renewable energy generation and restoration/enhancement for other reasons (e.g. beach replenishment, fish aggregation, artificial reefs). Long-term and sustainable local fishing practices, small-scale aquaculture and works (e.g. harbours, ports, dredging) are all permitted so long as the activity can be managed in such a way that it is compatible with the MPA's objectives.</p>	<p>Industrial fishing, industrial-scale aquaculture, untreated waste discharge, mining and habitation not permitted.</p>
V	<p><i>Category V protected areas are where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.</i></p>	<p>To protect and sustain important landscapes/ seascapes and the associated nature conservation and other values created by interactions with humans through traditional management practices.</p>	<p>Local communities living within and sustainably using the seascape is allowed, and long-term and sustainable local fishing practices or small-scale aquaculture are permitted. However, the primary objective of the area remains the sustainable interaction of people and nature over time. Works (e.g. harbours, ports, dredging) may also be permitted, provided they or any associated activities (e.g. waste discharge, sea dumping) do not cause adverse impacts on the ecological, biological, cultural or scenic values of the area.</p>	<p>Industrial fishing, industrial-scale aquaculture, untreated waste discharge and mining not permitted.</p>
VI	<p><i>Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in natural condition, where a proportion is under sustainable natural resource management and where low-level non industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.</i></p>	<p>To protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.</p>	<p>Long-term and sustainable local fishing practices, small-scale aquaculture and small-scale sustainable collection of some species (e.g. food species, ornamental coral or shells) are permitted. Works (e.g. harbours, ports, dredging) may also be permitted, provided they or any associated activities (e.g. waste discharge, sea dumping) do not cause adverse impacts on the ecological, biological, cultural or scenic values of the area.</p>	<p>Industrial fishing, industrial-scale aquaculture, untreated waste discharge, mining and habitation not permitted.</p>

Spatial areas which may incidentally deliver nature conservation but **DO NOT HAVE STATED** nature conservation objectives should **NOT** automatically be classified as MPAs. Such areas include:

- Fishery management areas with no **wider stated conservation aims**
- Community areas managed **primarily** for sustainable extraction of marine products (e.g. coral, fish, shells, etc.)
- Marine and coastal management systems managed **primarily** for tourism, which also include areas of conservation interest
- Wind farms and oil platforms that **incidentally** help to build up biodiversity around underwater structures and by excluding fishing and other vessels
- Marine and coastal areas **set aside for other purposes** but which also have conservation benefit: military training areas or their buffer areas (e.g. exclusion zones); disaster mitigation (e.g. coastal defences that also harbour significant biodiversity); communications cable or pipeline protection areas; shipping lanes, etc.
- Large areas (e.g. regions, provinces, countries) where certain species are protected by law **across the entire region**

Any of the above management approaches **could** be classified as an MPA if instead they had a primary stated aim to deliver nature conservation and where there is a conflict nature conservation prevails. Some, but not all, of these areas may in the future be classified as Other Effective Area-Based Conservation Measures (OECMs), a new designation that covers areas with significant nature conservation value in practice, but which may not have nature conservation as a primary objective, and yet contribute to the objectives of an MPA network. Advice on OECMs is [available](#) separately to this guidance, which focuses solely on MPA aspects.

In general, IUCN argues for both terrestrial and marine protected area systems to include a mixture of categories, including especially stricter categories (no-take MPAs, also sometimes called marine reserves). Currently, no-take MPAs are a very small fraction of the total MPA estate. This proportion needs to be considerably increased to provide additional conservation benefits.

Some MPAs also include small areas or zones where public entry is prohibited and therefore are unaffected by direct human uses. If deemed to be part of an MPA, these areas are generally considered as being Cat Ia and play a significant role as scientific baselines or reference sites for monitoring change without human interference; this is becoming increasingly important as impacts of climate change become more apparent.

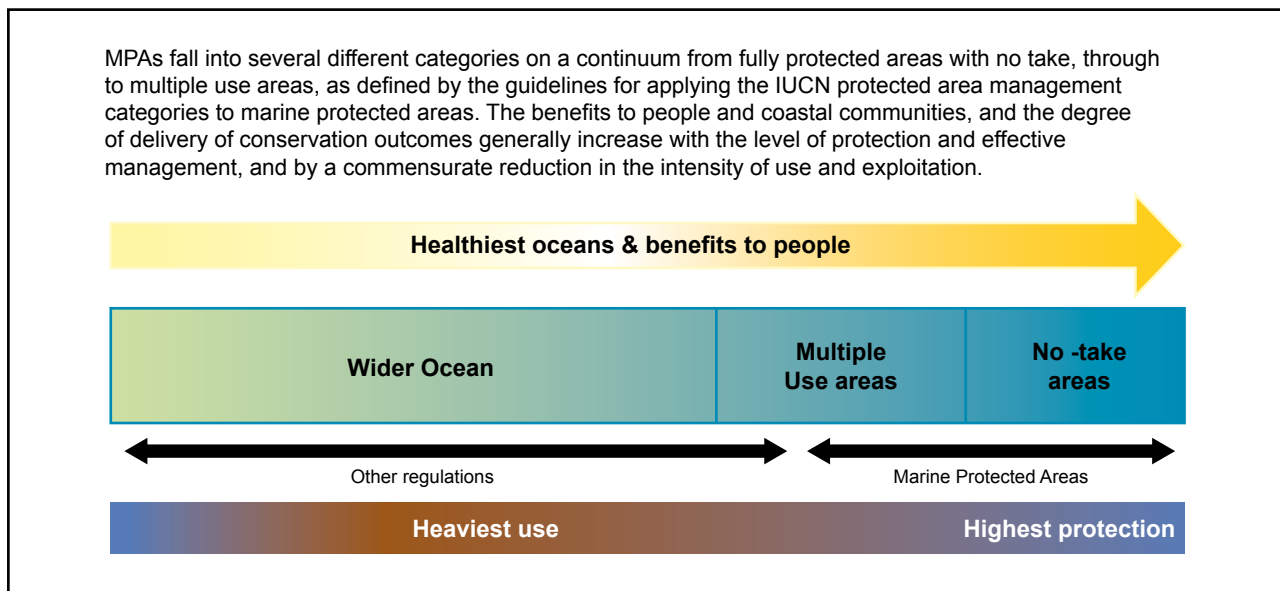


Figure 1: Marine protected areas within wider ocean governance

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## Key contributors:

- Jon Day, previously Great Barrier Reef Marine Park Authority; now ARC Centre for Coral Reef Studies, James Cook University
- Nigel Dudley, Equilibrium Research
- Marc Hockings, University of Queensland
- Glen Holmes, The Pew Charitable Trust
- Dan Laffoley, IUCN WCPA Thematic Vice-Chair for the Marine Biome
- Sue Stolton, Equilibrium Research
- Sue Wells, Consultant
- Lauren Wenzel, National Oceanic and Atmospheric Administration

## Researchers and reviewers for 1<sup>st</sup> Edition:

- Jen Ashworth, Principal Specialist Marine & Coastal Evidence, Natural England
- Brad Barr, Senior Policy Advisor, Office of the Director NOAA/Office of National Marine Sanctuaries
- Juan E. Bezaury Creel, Representante en México y Director Asociado de Política Ambiental – Latinoamérica, The Nature Conservancy
- Charlton Clark, Temperate Marine Conservation, Department of Sustainability, Environment, Water, Population and Communities
- Colleen Corrigan, Senior Programme Officer, Protected Areas, United Nations Environment Programme- World Conservation Monitoring Centre
- Roger Crofts, World Commission on Protected Areas
- Mimi D'Orio, NOAA
- Alistair Gammell, UK
- Susan Gubbay
- Heo Hag-Young, Research Fellow, Regional Biodiversity Conservation Programme, IUCN Asia Regional Office
- Ricardo Haroun, Center of Biodiversity and Environmental Management, University of Las Palmas de Gran Canaria
- Kohei Hibino, Japan Wildlife Research Center
- Stacy Jupiter, Fiji Country Program Director, Wildlife Conservation Society
- Graeme Kelleher, Australia
- Richard Kenchington, Australia
- Carole Martinez, French MPA Agency
- Aya Mizumura, University of Queensland
- Jay Nelson, Pew Environment Group

- Victor Nita, National Institute for Marine Research and Development, Romania
- Gisela Paredes Leguizamón, Programa de Áreas Protegidas, UICN SUR
- Allen Putney, WCPA Thematic Vice Chair for World Heritage
- Richard Rees, Managing Director, Maldives Whale Shark Research Programme
- Mark D. Spalding, Senior Marine Scientist, Global Marine Team, TNC and Conservation Science Group, Department of Zoology, University of Cambridge
- Isabelle Turcotte, Habitat Conservation Analyst, Landscapes and Protected Areas Policy and Planning Section, Canadian Wildlife Service, Environment Canada
- Rob Vanderkam, Geospatial Information Manager, Habitat Conservation Section, Canadian Wildlife Service, Environment Canada
- Trevor Ward, Marine and Fisheries Ecologist
- Louisa Wood, Head of Marine Programme, United Nations Environment Programme-World Conservation Monitoring Centre
- Kim Wright, Manager, Marine Planning & Protected Areas Campaign, Living Oceans Society, Vancouver
- Imogen Zethoven, Director, Coral Sea Campaign, Global Ocean Legacy, Pew Environment Group, Australia

## Reviewers for 2<sup>nd</sup> Edition:

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# 1. Introduction

## 1.1 Why are supplementary guidelines needed for MPAs?

The IUCN categories are applicable to all types of protected areas, whether terrestrial or marine. The 2008 [Guidelines for Applying Protected Area Management Categories](#) (hereafter referred to as the [2008 Guidelines](#)) provide considerable detail on the use and application of the categories, including for marine protected areas (MPAs). Specific sections of the [2008 Guidelines](#) are referred to throughout these supplementary guidelines, and the section in the [2008 Guidelines](#) that deals with MPAs can be found on pages 55–58.

However, with the smaller number of MPAs compared with terrestrial protected areas, there is less experience and understanding of applying the categories to MPAs. Application of the categories to MPAs has often been inaccurate and inconsistent. For example, it is considered (Wood, pers. comm., 2012) that, of those MPAs that have been categorised, about 50% have been wrongly allocated because the name of the MPA (e.g. National Park, Sanctuary, etc.) has been used to determine the category, rather than the management objectives that the MPA was established to achieve. Confusion has also arisen when sites have been incorrectly assigned on the basis of activities that occur rather than by using the stated management objectives. Where protected areas include both land and sea, the objectives for the marine component of the protected area are often not considered when assigning the site's category. Finally, since 2008 several World Conservation Congress resolutions have changed IUCN policy regarding protected areas, and these are also noted in this supplementary guidance.

These supplementary marine guidelines are thus aimed at ensuring that the IUCN categories can be effectively applied to all types of MPAs as well as to any marine components of adjoining terrestrial protected areas, provided a site meets the IUCN definition of a protected area. Inconsistencies in the application of, and reporting on, the categories reduce the efficacy and use of the system as a global classification scheme. These supplementary guidelines should increase the accuracy and consistency of both assignment and reporting. The categories are recognised by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas, and as such are increasingly being incorporated into government legislation. Further information on these international conservation initiatives is given in Chapter 7 of the [2008 Guidelines](#).

## 1.2 Who are the supplementary guidelines for?

These supplementary guidelines are intended primarily for policy makers, decision makers, senior managers, agencies and other institutions involved in the establishment and management of MPAs. The guidelines are less likely to be of direct relevance to MPA managers in their day-to-day work. However, it is useful for MPA managers to understand the categories, as the category to which an MPA has been assigned can help a manager guide planning and implementation towards management objectives. The supplementary guidelines will also be useful to those involved in collecting, analysing and reporting data on MPAs, and to those interested in tracking progress in marine conservation.

Where MPAs are administered by fisheries agencies, the guidelines may be particularly useful as such departments do not always have a good knowledge of the IUCN categories system. They also may not have a close relationship with the main national agency responsible for terrestrial protected areas, which usually has responsibility for national reporting. In these cases, it is particularly important that fishery agency officials, policy makers, and those agencies and institutions involved in MPA management read the [2008 Guidelines](#) before using these supplementary guidelines to ensure that the basic principles of the category system are understood.

## 1.3 How to use these guidelines

The primary guidance to assigning categories is the [2008 Guidelines](#), which provide more detail on the general principles than is given here. These supplementary guidelines should thus be used in conjunction with the [2008 Guidelines](#) and must not be considered a stand-alone document. These supplementary guidelines provide specific information and examples that will help with the application of the categories to MPAs. IUCN WCPA has also produced more detailed information about the process for assigning the IUCN definition, categories and governance types in the form of [IUCN/WCPA standards on the process for recognising protected areas and assigning management categories and governance types](#).

Both the [2008 Guidelines](#) and the supplementary guidelines are technical advice from IUCN and set out rules and advice to help countries, regions and the world to make consistent decisions about protected area definition and categorisation. Decisions about what is or is not a protected area are normally the responsibility of national governments, or, in the case of designations such as Natura 2000 and World Heritage Sites, committees made up of more than one government established under international agreements. Countries and such international bodies are therefore asked to respect and follow this guidance, in order to improve our

understanding of what is being achieved in protected areas around the world, and to maintain the value of the categories as a global categorisation system.

The supplementary guidelines also provide examples of MPAs from around the world to illustrate many of the points made. Where possible, hyperlinks have been provided to

websites giving further information about each example.

These supplementary guidelines also include a summary of the main elements of the full [2008 Guidelines](#), including the primary objectives of each category (for each topic, references to relevant page numbers in the printed/PDF version of the [2008 Guidelines](#) are also provided).

## 2. What is a marine protected area?

### 2.1 The definition of a marine protected area

In applying the categories system, the first step is to determine whether or not the site meets IUCN's definition of a protected area as given in the [2008 Guidelines](#) (Chapter 2, page 8) which states:

*A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values*

If a marine area does not meet this definition, then it cannot be considered an MPA.

A detailed explanation of the definition is provided in the [2008 Guidelines](#) (Chapter 2, pages 8–9). This is summarised in Table 2 below, with a discussion of issues to consider when applying the definition to the marine environment and some examples to illustrate the definition.

The MPA examples provided throughout these guidelines are appropriate for illustrative purposes as of October 2019, being the publication date of these guidelines; however, some may not maintain their relevance over time.

Table 2: Explanation of protected area definition

Phrase	Explanation provided in the 2008 Guidelines	Discussion and example of application in the marine realm
<b>Clearly defined</b>	<i>Clearly defined implies a spatially defined area with agreed and demarcated borders. These borders can sometimes be defined by physical features that move over time (e.g. river banks) or by management actions (e.g. agreed no-take zones).</i>	<p>This implies that MPAs must be mapped and have boundaries that are legally defined. However, while some MPAs can be clearly defined (e.g. an entire bay bounded by headlands), for others it may be difficult to mark the boundaries, especially if the MPA is offshore. Even boundaries on the landward side, where tide levels can be used (e.g. Low Water Mark), can be difficult to establish (see Box 1). Increasingly, MPA or zone boundaries are defined by high resolution latitude and longitude coordinates, as determined by Global Positioning System (GPS) instruments.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>The US National Marine Sanctuary System identifies sanctuaries legislated under the <a href="#">National Marine Sanctuaries Act</a> with boundaries defined in a series of associated <a href="#">maps</a>.</li> </ul>
<b>Geographical space</b>	<i>Includes land, inland water, marine and coastal areas or a combination of two or more of these. 'Space' has three dimensions, e.g. as when the airspace above a protected area is protected from low-flying aircraft or in marine protected areas when a certain water depth is protected or the seabed is protected but water above is not: conversely subsurface areas sometimes are not protected (e.g. are open for mining).</i>	<p>All protected areas exist in three dimensions, but the vertical dimension in MPAs is often a substantial management consideration. In MPAs, management may need to address the airspace above the sea surface, the water surface, the water column (or parts of it), the seabed and the sub-seabed, or just one or a combination of two or more of these elements. For example, some MPAs protect just the seabed/benthos and not the water column above. It is therefore important that an MPA has a clear description of the dimensions that are actually protected. Vertical zoning can be problematic because many of these elements have strong ecological interactions. In consequence, IUCN has a strong presumption against vertical zoning of MPAs (see also section 5.5).</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>In Australia's Great Barrier Reef Marine Park (GBRMP), the boundary is clearly defined by legal <a href="#">proclamation</a>. The zones in the GBRMP are legally defined in the statutory <a href="#">Zoning Plan</a>. The MPA goes to a depth of 1000 metres below the seabed and a height of 915 metres (airspace) above the surface of the water.</li> </ul>

Phrase	Explanation provided in the 2008 Guidelines	Discussion and example of application in the marine realm
<b>Recognised</b>	<i>Implies that protection can include a range of governance types declared by people as well as those identified by the state, but that such sites should be recognised in some way (in particular through listing on the World Database on Protected Areas – WDPA).</i>	<b>Example:</b> <ul style="list-style-type: none"> <li>The Government of Canada and the Council of the Haida Nation co-manage <a href="#">Gwaii Haanas National Park Reserve and Haida Heritage Site</a>, and the Gwaii Haanas National Marine Conservation Area Reserve off the Pacific coast of Canada.</li> </ul>
<b>Dedicated</b>	<i>Implies specific binding commitment to conservation in the long term, through e.g.:</i> <ul style="list-style-type: none"> <li>International conventions and agreements</li> <li>National, provincial and local law</li> <li>Customary law</li> <li>Covenants of NGOs</li> <li>Private trusts and company policies</li> <li>Certification schemes.</li> </ul>	<b>Example:</b> <ul style="list-style-type: none"> <li>The Galápagos Marine Reserve is designated under national law and is also an integral part of the Galápagos Islands <a href="#">World Heritage site</a>.</li> </ul>
<b>Managed</b>	<i>Assumes some active steps to conserve the natural (and possibly other) values for which the protected area was established; note that ‘managed’ can include a decision to leave the area untouched if this is the best conservation strategy.</i>	The requirement that a site is managed applies to both marine and terrestrial situations. As on land, many types of MPA management are possible. <b>Examples:</b> <ul style="list-style-type: none"> <li><a href="#">Bonaire National Marine Park</a> in the Netherlands Antilles has clearly defined <a href="#">regulations</a> that apply to all users of the park.</li> <li><a href="#">ProtectedSeas.net</a> provides boundary data and regulations for marine protected areas and other managed areas.</li> </ul>
<b>Legal or other effective means</b>	<i>Means that protected areas must either be gazetted (that is, recognised under statutory civil law), recognised through an international convention or agreement, or else managed through other effective, but non-gazetted, means, such as through recognised traditional rules under which community-conserved areas operate or the policies of established non-governmental organisations.</i>	As for terrestrial protected areas, ‘effective means’ include agreements with indigenous peoples groups; <b>Example:</b> <ul style="list-style-type: none"> <li><a href="#">Dhimurru</a> Indigenous Protected Area, an area of land and sea in the Northern Territory of Australia, on the Gulf of Carpentaria, is run by the Dhimurru Land Management Aboriginal Corporation which works with the <a href="#">Traditional Owners</a> to manage the protected area.</li> </ul>
<b>... to achieve</b>	<i>Implies some level of effectiveness – a new element that was not present in the 1994 definition but which has been strongly requested by many protected area managers and others. Although the category will still be determined by objective, management effectiveness will progressively be recorded on the WDPA and over time will become an important contributory criterion in identification and recognition of protected areas.</i>	As for terrestrial protected areas, this implies some level of effectiveness and therefore requires that the MPA is subject to monitoring, evaluation and reporting. One way to address this is by meeting certain agreed management standards, such as those of the IUCN <a href="#">Green List</a> . <b>Example:</b> <ul style="list-style-type: none"> <li>An assessment of the <a href="#">Tortugas Ecological Reserve</a>, part of the Florida Keys National Marine Sanctuary, found that this no-take area was meeting its objectives, benefiting both fish populations and recreational and commercial fishers.</li> </ul>

Phrase	Explanation provided in the 2008 Guidelines	Discussion and example of application in the marine realm
<b>Long-term</b>	<i>Protected areas should be managed in perpetuity and not as short-term or a temporary management strategy.</i>	<p>As with terrestrial protected areas, <a href="#">long-term protection</a> (over timescales of human generations) is necessary for effective marine conservation. Seasonal closures of an area for a specific purpose (such as fish spawning, whale breeding, etc.), in the absence of any additional biodiversity protection and any primary nature conservation objective are not considered to be MPAs. Seasonal protection of certain species or habitats may be a useful component of management in an MPA.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>The <a href="#">Cockle Bay</a> Shellfish Seasonal Closure area in New Zealand is NOT an MPA as it is only in force for the months of October to April when collection of shellfish is banned.</li> <li>In the Marine Mammal Protection Zone of the <a href="#">Great Australian Bight Marine</a> Park (Commonwealth Waters) the use of vessels is prohibited 1 May – 31 October each year to protect an important calving and breeding area for Southern Right Whales.</li> </ul>
<b>Conservation</b>	<i>In the context of this definition, conservation refers to the in situ maintenance of ecosystems and natural and semi-natural habitats and of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.</i>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>Ecological Reserves in the <a href="#">Florida Keys</a> National Marine Sanctuary in the United States are designed to provide natural spawning and nursery areas for the replenishment and genetic protection of marine life and aim to protect and preserve all habitats and species found throughout the Sanctuary.</li> <li>The protection of at least 20% of all <a href="#">30 reef</a> and <a href="#">40 non-reef</a> bioregions within the Great Barrier Reef Marine Park provides in situ protection of representative examples of all species and ecosystem processes.</li> </ul>
<b>Nature</b>	<i>In this context nature always refers to biodiversity, at genetic, species and ecosystem level, and often also refers to geodiversity, landform and broader natural values.</i>	<p>All protected areas, whether terrestrial or marine should aim to protect all the features of conservation importance within their boundaries.</p> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>The overall statutory objective of the <a href="#">Great Barrier Reef Marine Park</a> is to provide for the long-term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region (see section 2A(1)).</li> <li>The primary statutory objective of the <a href="#">Alaska Maritime National Wildlife Refuge</a> is the conservation of animals and habitats in their natural biodiversity.</li> </ul>
<b>Associated ecosystem services</b>	<i>Means here ecosystem services that are related to but do not interfere with the aim of nature conservation. These can include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits.</i>	<p>MPAs provide a wide range of ecosystem services:</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>Cultural ecosystem services: The MPA network in <a href="#">Belize</a> has been estimated to contribute nearly US\$20 million annually in reef-related visitor expenditure.</li> <li>Regulating ecosystem services, for example seagrass meadows, mangroves and tidal wetlands as <a href="#">carbon sinks</a>: MPAs initially designated by the Malta Environment and Planning Authority aimed to protect Malta's Posidonia (seagrass) beds, a Natura 2000 priority habitat type for European waters.</li> </ul> <p>Areas set up for wave/wind power are generally NOT MPAs (see section 2.3).</p>
<b>Cultural values</b>	<p><i>Includes those that do not interfere with the conservation outcome (all cultural values in a protected area should meet this criterion), including in particular:</i></p> <ul style="list-style-type: none"> <li><i>Those that contribute to conservation outcomes (e.g. traditional management practices on which key species have become reliant)</i></li> <li><i>Those that are themselves under threat.</i></li> </ul>	<p>Areas set aside for cultural values are only protected areas under the IUCN definition if they have nature conservation as a primary aim. However, many MPAs contain sacred sites or have significant cultural and heritage value, and understanding of this is important.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li><a href="#">Nosy Ve</a>, an island in southern Madagascar protected under a local 'dina' agreement is both a sacred site and an area important for corals and as a tropicbird nesting colony.</li> <li><a href="#">Papahānaumokuākea</a> Marine National Monument in the North West Hawaiian Islands is important for Native Hawaiians at genealogical, cultural and spiritual levels. It is also a World Heritage property designated because its natural and cultural values are considered to be universally outstanding</li> </ul>



### Box 1: Boundaries of MPAs

There are a number of issues to consider when determining the boundaries of an MPA. On the landward side, it is important to make it very clear as to exactly what boundary is being used; for example 'Mean Low Water' is a different boundary from that of 'Lowest Astronomical Tide'. Wherever possible highest astronomical tide or high water mark should be used (highest astronomical tide generally suits areas with large tidal ranges, whereas high water mark suits small tidal ranges). Both low water and high water marks can result in boundaries that are difficult in legal and administrative terms because:

- The low water mark is usually covered by water. It is thus difficult to inform the public of its precise location, and therefore to enforce; in addition, low water mark moves with erosion and accretion and is often not marked on charts or defined in any publically available way.
- Boundaries based on high water mark may cause problems as, for example, what may appear to be relatively stable 'lines' can also be influenced by erosion and accretion. Also established rights of use often reflect terrestrial ownership of the adjacent land.
- In rivers, estuaries or narrow bays, there are no clear principles for defining low or high water and it may be unclear as to which bays and channels are part of an MPA, and which may be regarded as 'internal waters'.
- The National Oceanic and Atmospheric Administration in the United States has published [technical guidance](#) on how to establish MPA boundaries.

## 2.2 Principles associated with the use of the protected area definition and IUCN category

The [2008 Guidelines](#) (Chapter 2, page 10) include the following principles (emphasis has been added to the most fundamental points) to help decide whether an area meets the definition of a protected area and what category it should be assigned to:

- For IUCN, only those areas where the main objective is conserving nature can be considered protected areas; this can include many areas with other goals as well, at the same level, but in the case of conflict, ***nature conservation will be the priority***
- Protected areas must prevent, or eliminate where necessary, any exploitation or management practice that will be harmful to the objectives of designation
- ***The choice of category should be based on the primary objective(s) stated for each protected area or legally-defined zone within a protected area***
- The system is not intended to be hierarchical
- All categories make a contribution to conservation but objectives must be chosen with respect to the particular situation; not all categories are equally useful in every situation

- Any category can exist under any governance type and vice versa
- A diversity of management approaches is desirable and should be encouraged, as it reflects the many ways in which communities around the world have expressed the universal value of the protected area concept
- The category should be changed if assessment shows that the stated, long-term management objectives do not match those of the category assigned
- However, the category is not a reflection of management effectiveness
- Protected areas should usually aim to maintain or, ideally, increase the degree of naturalness of the ecosystem being protected
- The definition and categories of protected areas should not be used as an excuse for dispossessing people of their land or sea territory.

## 2.3 When is a marine area that may achieve conservation outcomes not an MPA?

A protected area as defined by IUCN describes a precise set of management approaches with limits, and must have nature conservation as a primary rather than a secondary aim, as explained above. There are, however, many managed areas that protect biodiversity, either indirectly, incidentally or fortuitously. Indeed, it is a principle of the Convention on Biological Diversity's 'ecosystem approach' that all land and water management should contribute to conservation, and as a result the distinction between what is and what is not a protected area is sometimes unclear. However, many managed areas do not necessarily fulfil the IUCN definition of a protected area. This is particularly the case in the marine environment where there is a long history of spatial fisheries management and a growing interest in spatial planning and spatial management of other activities that often have no stated aim or interest in nature conservation – it is just an incidental or apparent link. Understanding the IUCN protected area definition is thus critically important. Areas subject to some form of management **could** be MPAs or parts of MPAs in some cases, but MPA status should not be assumed and decisions must be made on a case-by-case basis, the essential criterion being **whether nature conservation is the primary objective**. The following types of management area are typically **not** MPAs:

- Fishery management areas focused **primarily** on sustainable extraction (see section 2.3.1 for more detailed discussion)
- Community areas managed primarily for sustainable extraction of marine products, such as coral, fish, shells (these are discussed below in section 2.3.2 on indigenous and community conserved areas)
- Areas where environmentally damaging industrial activities and/or infrastructural developments associated with those industries (e.g. mining, industrial fishing, oil and gas extraction) take place, irrespective of whether those activities are located in, adjacent to, or otherwise negatively affect, any protected area.

## Box 2: Offshore waters within and beyond national jurisdiction

- Offshore waters are generally considered to be those that lie beyond a country's territorial seas, i.e. beyond 12 nautical miles from shore in most cases. They include the major part of all Exclusive Economic Zones (EEZs – waters under national jurisdiction to 200 nautical miles), as well as the high seas and seabed beyond the limit of national jurisdiction. For MPAs in offshore waters, designation should follow the [2008 Guidelines](#) as for any protected area. Thus, a site in offshore waters including the so-called High Seas may be considered as an MPA provided it meets the definition of an MPA, so that it: a) is conservation-focused with nature as the priority, (b) is recognised by legal or other effective means, (c) has defined goals and objectives which reflect its conservation values, (d) is of a suitable size, location and design that will enable conservation of the values, (e) has a defined and agreed upon boundary, (f) has distinct and unambiguous management aims that can be assigned to a particular protected area category, and (g) has or will have a management plan or equivalent, which addresses the needs for conservation of the site's major values and achievement of its goals and objectives'.

### Examples:

- The [South Orkney Islands Southern Shelf Marine Protected Area](#) was the first wholly high seas MPA to be designated under the Convention on the Conservation of Antarctic Marine Living Resources with specific management aims and a responsible management body: the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).
- In 2010, [six MPAs](#) were declared in the North-East Atlantic under the OSPAR Convention as a network of high seas MPAs designed to protect high seas ecosystems.

- Marine and coastal management systems managed primarily for tourism, even where these also include areas of conservation interest
- Wind farms and oil platforms that incidentally help to build up biodiversity around underwater structures by excluding fishing and other vessels
- Marine and coastal areas set aside for other purposes but which have an indirect conservation benefit: military training areas or their buffer areas (e.g. exclusion zones); disaster mitigation (e.g. coastal defences that also harbour significant biodiversity); communications cable and pipeline protection areas; shipping lanes, etc.
- Large areas (e.g. regions, provinces, countries) where certain species are protected by law across the entire region.

Some, but by no means all of these areas may in time be identified as Other Effective Area-Based Conservation Measures (OECMs), a new designation arising from wording in the CBD's 2010 Aichi Biodiversity Targets. OECMs cover certain areas outside protected areas that achieve effective conservation, even if nature conservation is not their primary management objective. Like protected areas, they have a precise definition and accompanying set of [criteria](#).

### 2.3.1. Fishery management areas

Temporary or permanent fishing closures that are established primarily to help build up and maintain reserve stocks for fishing in the future, and have no wider conservation aims or achievements are not considered to be MPAs. For example, Norway, Iceland and the Faroe Islands (Denmark) close areas to fishing at short notice if the percentage of juveniles or by-catch goes above a certain number. These areas do **not** qualify as MPAs. IUCN's advice is that areas set aside purely to maintain fishing stocks, particularly on a temporary basis, should not be considered to be protected areas even though they may well reflect good fishery management. For such sites to meet IUCN's definition of a protected area, managers would need to address the overall health and diversity of the ecosystem and have a stated primary aim to this effect.

Such areas, however, may be important *components* of the management of an MPA if the area as a whole has a primary aim of nature conservation. For example, seasonal closures of fish spawning aggregation areas or pelagic migratory routes, at specific and predictable times of year for certain species when they are extremely vulnerable, may be essential to the effective management of an MPA.

Examples of MPAs with seasonally closed zones:

- Within the Great Barrier Reef Marine Park, Australia, there are [seasonal closures](#) to all reef fish fishing for specific periods at certain times of the year.
- The Galapagos Marine Reserve utilises a range of [fisheries management](#) tools, including seasonal fishing closures.

Examples where management of fishing is essential to nature protection throughout the site:

- [Eastport Marine Protected Areas](#) in Canada consist of two MPAs (Duck Island and Round Island, both of which are no-take areas) within the 400 km<sup>2</sup> Eastport Peninsula Lobster Management Area; the larger management area is open to commercial exploitation of lobsters according to the fisheries management regime in place and is not itself an MPA, and the two no-take areas, each of which meets the definition of a protected area, play a key role in the lobster's management.
- [Belize](#) has eleven multi-species fish spawning aggregation sites that are closed to fishing permanently through marine reserves that restrict all fishing.

### 2.3.2 Indigenous Peoples and Community Conserved Territories and Areas (ICCAs)

Indigenous Peoples and Community Conserved Territories and Areas (ICCA) are defined by IUCN as: "natural and/or modified ecosystems containing significant biodiversity values, ecological functions and benefits, and cultural values voluntarily conserved by indigenous peoples and local communities both sedentary and mobile – through customary laws or other effective means". Determining when an ICCA is also a protected area, and therefore eligible for listing on the WDPA, is more complex than for some other protected area governance types (see [2008 Guidelines](#), Chapter 3, pages 28–31) and has two stages:

1. **Agreement by the indigenous people or community involved:** no community-managed site should be identified as a protected area or listed on the WDPA without express consent by the community. Recognition and listing can bring benefits but also costs, such as increased exposure.
2. **Alignment with the IUCN definition of a protected area:** the 2008 definition of a protected area stipulates that for a site to be a protected area priority must be given to nature conservation; other values present may be of similar importance, but in the event of conflict between values, nature conservation must be considered the most important. As is the case with other governance types, community areas managed primarily for sustainable extraction of marine products would not be considered protected areas according to the IUCN definition unless nature conservation is the primary stated objective of the management regime.

Many ICCAs have been established by coastal communities in marine ecosystems. The [ICCA Registry website](#) is an online information portal and secure database, developed by the UN Environment World Conservation Monitoring Centre with support by United Nations Development Program's GEF Small Grants Programme, that documents indigenous and community conservation areas including in the marine environment. It aims to increase awareness of the biodiversity values of areas managed by communities, and provide a wide range of information. Advice on reporting ICCAs is contained in the [ICCA Registry Manual](#). Additional information is available through the [ICCA Consortium](#), and the primary reference for determining whether a marine community conservation area is an MPA should be the [2008 Guidelines](#).

### 2.3.3 Mining and industrial activity

Since the 2016 World Conservation Congress, IUCN now considers that large-scale industrial activities, such as mining and fossil fuel extraction, are inappropriate in all categories of protected areas including MPAs. [WCC-2016-Rec-102](#) (see pages 224-226 for the specific recommendation).

***“... CALLS ON governments to prohibit environmentally damaging industrial activities and infrastructure development in all IUCN categories of protected area, and to take measures to ensure that all activities are compatible with the conservation objectives of these areas, through appropriate, transparent and rigorous pre-emptive appraisal processes, such as international best practice environmental and social impact assessments, strategic environmental assessments, and appropriate regulation.”***

## 2.4 Governance

The IUCN protected area definition and management categories are neutral about type of ownership or management authority. With respect to who holds decision-making and management authority and responsibility about protected areas, IUCN distinguishes four broad protected area governance types (governance by governments, shared governance, private governance and governance by Indigenous people and local communities), which are defined and described in the [2008 Guidelines](#), with definitions of each governance type, in Chapter 3 of the 2008 Guidelines (pages 25 to 32). All combinations of protected area categories and governance types are possible in an MPA. IUCN suggests that the governance type of a protected area be identified and recorded at the same time as its category in national environmental statistics and accounting systems and in protected areas databases. Protected area governance is described in detail in Borrini-Feyerabend et al., 2012<sup>9</sup>.

<sup>9</sup> Borrini-Feyerabend, G., Dudley, N., Lassen, B., Pathak, N. and Sandwith, T. (2012). *Governance of Protected Areas: from understanding to action*. Best Practice Guidelines number 20. IUCN, GIZ and ICCA Consortium. <https://portals.iucn.org/library/node/29138>

### 3. Characteristics of the marine environment that affect protected area designation and IUCN category application

The marine environment has particular characteristics that are often absent or relatively uncommon on land. As a result, MPAs present management challenges that may need different

approaches to those used for protected areas in terrestrial environments. These are described in Table 3.

**Table 3: Characteristics of the marine environment that affect protected areas**

Characteristic	How does this characteristic affect MPAs?
<b>Multi-dimensional environment</b>	MPAs are designated in a fluid multi-dimensional environment. As a result, in some cases different management may be needed at different depths. In some MPAs vertical zoning has been used to achieve this. In other MPAs, there may be no vertical zoning, but the management put in place may nevertheless vary with depth. IUCN does not recommend the use of vertical zoning, as there is increasing evidence of strong linkages between benthic and pelagic components of the ecosystem (see Section 5.5 below). Moreover, vertically tiered management is particularly difficult, if not impossible, to effectively police and enforce. Given levels of connectivity between the overlying water column and the seabed, some MPAs are declared including a specified depth into the seabed; similarly, given linkages between the water surface and the overlying airspace, some MPAs also formally include a specified height of airspace to allow regulatory controls (e.g. for seabirds or to regulate low-flying aircraft).
<b>Lack of clear tenure or ownership</b>	<p>Tenure and ownership in the marine environment is often different from on land, where there is usually clear public or private ownership.</p> <p>Under the United Nations Convention on the Law of the Sea (UNCLOS), nations have the right to use their Exclusive Economic Zones (EEZs), which extend from shore out to 200 nautical miles, and to establish management regimes such as MPAs. However, within an EEZ, there is generally no individual ownership of either the seabed or water column and the EEZ may often be used and accessed by all those belonging to the nation concerned. There are some exceptions, generally in inshore areas. For example, in the UK, the Crown Estate owns about 50% of the foreshore (i.e. tidal land between Mean High Water and Mean Low Water) as well as most of the seabed from Mean Low Water out to 12 nautical miles (i.e. the territorial sea); and in many countries, coastal communities may own or have tenure and rights over certain marine areas or resources, as in Fiji where local communities have customary rights over traditional fishing grounds known as 'qoliqoli'.</p> <p>Outside the EEZs, i.e. on the High Seas, the oceans are invariably considered to be 'commons' which may be used and accessed by all nations. MPAs can represent a legitimate restriction on such rights under the UNCLOS or Regional Sea Agreements, according to provisions of the Convention on Biological Diversity (CBD) or Regional Fisheries Agencies (see also Box 2). New provisions for MPAs on the High Seas are being considered by the United Nations.</p>
<b>Multiple jurisdictions</b>	Often the water column, seabed, sea life and foreshore are managed by different jurisdictions or government agencies, which may create difficulties for designation and/or management.
<b>Boundary demarcation</b>	It is often difficult to know where the boundary of an MPA is, both seawards (where electronic charts, a Global Positioning System (GPS) or similar technology are usually required), and on the landward side where boundaries based on high and low water marks may be difficult to locate in the field or may be only loosely defined (see discussion in Section 2.1). In a few cases, vertical zoning has been attempted, and horizontal boundaries have been established at certain depths if an MPA does not extend to either the sea surface (such as a protected area for a seamount) or to the seabed. However, such boundaries are difficult if not impossible to identify and enforce, and therefore effective and practical compliance is extremely difficult, if not impossible (see section 5.5). This is among the reasons why IUCN has a strong presumption against vertical zoning.
<b>Difficulties in enforcement and management</b>	Restricting entry to, and activities in, an MPA is often more difficult than for terrestrial protected areas (and often impossible) as there are usually multiple possible access points, the site may be remote and thus difficult and expensive to patrol, and under international law, rights of 'innocent passage' are afforded to all vessels. While controlling activities in the marine environment is more difficult than on land, modern satellite technology is making it easier.

Characteristic	How does this characteristic affect MPAs?
<p><b>Lack of visibility of features being protected</b></p>	<p>Being unable to see sub-tidal features poses particular problems in terms of management and enforcement. Illegal or unregulated activities may damage features within an MPA without anyone knowing, unless appropriate monitoring or surveillance is undertaken (and this may be expensive, requiring SCUBA diving, or if the MPA is very deep, a remote underwater vehicle or other means of monitoring).</p>
<p><b>Connectivity between ecosystems and habitats</b></p>	<p>The scale over which marine connectivity occurs can be very large. Connectivity is critical for the movement of species and material across and through the marine environment; it includes such processes as nutrient flows, migration, larval dispersal and gene flows, and is fundamental for all aspects of the marine environment. Since the extent of connectivity may be critical to the health of an MPA, sufficiently large areas must be considered to ensure adequate protection of ecosystem values. Problems of restricted connectivity are increasingly recognised in marine ecosystems.</p> <p>MPAs are also subject to surrounding and ‘downstream’ influences due to tides and currents. These are generally outside the control of the manager or management agency. Although similar to the situation of airborne or wind-borne impacts on terrestrial protected areas, MPAs are perhaps more consistently subject to such influences. This illustrates the need for MPA networks and interagency and international partnerships to take account of and where possible manage for regional and global-scale influences.</p>

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Mangroves and other coastal habitats that frequently occur in MPAs trap considerable amounts of ‘blue carbon’ and help mitigate climate change alongside a host of other ecosystem services.

## 4. The IUCN protected area management categories as applied to MPAs

The [2008 Guidelines](#) give a full description of each of the six categories of protected area management (Chapter 2, pages 12–23) and Table 9 (Chapter 6, pages 57–58) provides notes on applying the categories to MPAs. This section expands on this information and provides additional notes and examples to improve understanding of how categories can be applied to MPAs.

As outlined in one of the key principles (section 2.2 above), the choice of category relates to the primary stated objective(s) of the protected area. Categories may be assigned to a whole MPA or a separate zone within a multiple-zone MPA, if this is defined in law (see section 5.3 below). One problem that is difficult for category assignment in both marine and terrestrial protected areas is the frequent lack of clarity in the wording of the objectives of a protected area. Many MPAs have multiple objectives, having been set up with tourism or fisheries benefits, as well as biodiversity protection, in mind, and thus a primary objective may not be clearly identified. Nevertheless, the examples of the application of the categories to the MPAs cited below, and the national initiatives in a number of countries (e.g. Australia, Belize) to assign categories to all components of the MPA system, demonstrate that the categories can apply in the marine environment once they are well understood.

As with terrestrial protected areas, IUCN categories **are independent of the names of an MPA** (see [2008 Guidelines](#), page 11). This is important to understand, given the wide variability in typology of MPAs both between countries and within a single country: for example, marine park, marine reserve, closed area, marine sanctuary, MACPAs/MCPAs (marine and coastal protected areas), nature reserve, ecological reserve, replenishment reserve, marine management area, coastal preserve, area of conservation concern, sensitive sea area, biosphere reserve, ‘no-take area’, coastal park, national marine park, marine conservation area, marine wilderness area. In addition to the wide range of names, the same name or title for an MPA may mean different things in different countries. For example, in Kenya ‘marine reserves’ have a multiple use approach while in neighbouring Tanzania ‘marine reserves’ are strictly no-take. Depending on where you are in the world, the term ‘sanctuary’ takes on different meanings; in the US context, a sanctuary is usually a multiple-use MPA designated under the jurisdiction of the National Marine Sanctuary Program where fishing is allowed in most places. In the United Kingdom, a sanctuary is often used to refer to a strictly protected marine reserve in which all extractive uses are prohibited.

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Galapagos fur seals are typically found on the rocky shores of the western islands of the Galapagos Archipelago.

## Category Ia

Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and/or limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Primary objective

- To conserve regionally, nationally or globally outstanding ecosystems, species (occurrences or aggregations) and/or geodiversity features: these attributes will have been formed mostly or entirely by non-human forces and will be degraded or destroyed when subjected to all but very light human impact.

Other possible objectives which may apply in a category Ia

- To preserve ecosystems, species and geodiversity features in a state as undisturbed by recent human activity as possible;
- To secure examples of the natural environment for scientific studies, environmental monitoring and education, including baseline areas from which all avoidable access is excluded;
- To minimise disturbance through careful planning and implementation of research and other approved activities;
- To conserve cultural and spiritual values associated with nature.

### Notes relating to use of category Ia in MPAs

- Category Ia areas should usually be 'cores' surrounded by other suitably protected zones or areas (i.e. the area surrounding the category Ia area should also be protected in such a way that it complements and ensures the protection of the biodiversity of the core category Ia area). Thus, for category Ia MPAs or zones, the use of the surrounding waters, marine connectivity and particularly 'up-current' influences, should be assessed and appropriately managed.
- Category Ia can also be 'reference areas' or 'scientific baselines' against which the impacts of other activities or drivers can be assessed. For example, no-go areas are invaluable to assist in the assessment of the impacts of climate change on the marine environment without other confounding influences.
- Although not specifically stated in the [2008 Guidelines](#) (since categories are assigned according to objective, not activity restrictions), removal of species or modification, extraction or collection of resources (e.g. through any form of fishing, harvesting or dredging) is considered to be incompatible with this category (see section 5). However, there are limited exceptions: scientific research involving collection may be permitted if that collection cannot be conducted elsewhere and if the collection activity is minimised to that which is absolutely necessary to achieve the scientific goals of the study. Extraction to control invasive species is also permitted in some category Ia MPAs.

### Examples:

#### MPAs

- Big Creek State Marine Reserve (SMR) – USA. This State Marine Reserve is one of central California's oldest MPAs and was established in 1994. It was expanded to 22 km<sup>2</sup> in 2007 pursuant to the Marine Life Protection Act and now includes deep water habitat deeper than 100m. Today it is managed by the Californian Department of Parks and Recreation and the taking of any marine resources is prohibited. The reserve has been closed to all fishing since 1994 and since it was established, few violations have occurred. Diving and research both require approval.
- Most of the **state marine reserves** which form part of [California's coastal MPA network](#) are category Ia MPAs. In these areas, it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource, except under a specific authorization for research, restoration, or monitoring purposes.

#### Zones within MPAs

- [Preservation Zones](#) in the Great Barrier Reef Marine Park are intended as 'no-go' scientific baselines or undisturbed areas against which the impacts of other activities or drivers can be assessed. All activities in the zone require a permit and research is only allowed if it cannot be reasonably conducted elsewhere in the Marine Park, and is relevant to, and a priority for, management of the Marine Park.

## Category Ib

Usually large<sup>10</sup> unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Primary objective

- To protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate, so that current and future generations have the opportunity to experience such areas.

Other possible objectives which may apply in a category Ib

- To provide for public access at levels and of a type which will maintain the wilderness qualities of the area for present and future generations;
- To enable indigenous communities to maintain their traditional wilderness-based lifestyle and customs, living at low density and using the available resources in ways compatible with the conservation objectives;
- To protect the relevant cultural and spiritual values and non-material benefits to indigenous or non-indigenous populations, such as solitude, respect for sacred sites, respect for ancestors, etc.;
- To allow for low-impact minimally invasive educational and scientific research activities, when such activities cannot be conducted outside the wilderness area.

<sup>10</sup> Size is less often a useful guide for categories in the marine environment; MPAs of all categories may be large; and category Ib MPAs may be smaller than category Ia MPAs.

## Notes relating to use of category Ib in MPAs

- In the [2008 Guidelines](#), category Ib is called a 'wilderness area' but the concept of 'wilderness' is more difficult to apply to the marine environment than to land. It is also complex because in many countries it is a specific legal designation, while in others, it is a more general description. Provided a marine area is relatively undisturbed and free from human influences, qualities such as 'solitude', 'quiet appreciation' or 'experiencing natural areas that retain wilderness qualities' can be achieved by diving beneath the surface. Thus category Ib areas in the marine environment should be sites of relatively undisturbed seascape, significantly free of human disturbance (e.g. direct or indirect impacts, underwater noise, light pollution, etc.), works or facilities and capable of remaining so through effective management.
- As with category Ia, removal of species and modification, extraction or collection of resources (e.g. through any form of fishing, harvesting or dredging) is not considered compatible with this category (see section 5). Exceptions are: (a) as with category Ia, collection for scientific research if that collection cannot be conducted elsewhere; (b) for invasive species control; and (c) unlike category Ia, in some circumstances, sustainable resource use by Indigenous people to conserve their traditional spiritual and cultural values, provided this is done in accordance with cultural tradition.

### Examples:

#### MPAs

- Akpait National Wildlife Area (NWA) – Canada. Akpait National Wildlife Area (NWA) was designated in 2010 on the northeast tip of the Cumberland Peninsula of Baffin Island, Nunavut. It is managed by the Canadian Wildlife Service in partnership with the Sululiit Area Co-management Committee of Qikiqtarjuaq, Nunavut. Access to Akpait NWA is restricted except for Nunavut beneficiaries. For all non-beneficiaries, a permit must be obtained to either access or conduct any type of activity in the NWA. The NWA comprises a significant marine portion supporting numerous seabirds, including one of Canada's largest colonies of Thick-billed Murre, (Akpait is the Inuktitut word for 'murre'). The NWA also has breeding sites for Northern Fulmars and Black-legged Kittiwakes, and provides habitat for polar bear, walrus and several seal species.
- Given the definition of category Ib, the recognition of Akpait NWA as category Ib could be compromised if there are increases in cruise shipping in the NWA. However, access by cruise ships is strictly controlled and the Area Co-Management Committee must approve applications for permits. Furthermore, if hydrocarbon exploration or development were to occur, the areas proposed for mineral or hydrocarbon exploration would no longer meet the overall protection standards defined for MPAs in Canada and would need to be excluded from the World Database on Protected Areas (WDPA) as a result. However, the Regulations governing the NWA prohibit the carrying out of industrial activities.

#### Zones within MPAs

- Glacier Bay National Park and Preserve in southeast Alaska covers an area of 13,300 km<sup>2</sup> of land and sea; some 13% of Glacier Bay's waters are designated

marine wilderness, and therefore are essentially without permanent improvements or evidence of modern human occupation. Areas within the Park that equate to category Ib include six inlets where only non-motorised watercraft are allowed; critical wildlife areas (with closures, some year-round) and areas where specific noise restrictions are enforced.

## Category II

- Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.
- These are effectively 'no-take' areas with the only form of take allowed for (a) scientific research if that research cannot be conducted elsewhere; (b) for invasive species control; and (c) in some circumstances, sustainable resource use by indigenous people to conserve their traditional spiritual and cultural values, provided this is done in accordance with cultural tradition.

### Primary objective

- To protect natural biodiversity along with its underlying ecological structure and supporting environmental processes, and to promote education and recreation.

### Other possible objectives which may apply in a category II

- To manage the area in order to perpetuate, in as natural a state as possible, representative examples of physiographic regions, biotic communities, genetic resources and unimpaired natural processes;
- To maintain viable and ecologically functional populations and assemblages of native species at densities sufficient to conserve ecosystem integrity and resilience in the long term;
- To contribute in particular to conservation of wide-ranging species, regional ecological processes and migration routes;
- To manage visitor use for inspirational, educational, cultural and recreational purposes at a level which will not cause significant biological or ecological degradation to the natural resources;
- To take into account the needs of indigenous people and local communities, including subsistence resource use, in so far as these will not adversely affect the primary management objective;
- To contribute to local economies through tourism.



## Notes relating to use of category II in MPAs

- Category II areas should be managed for 'ecosystem protection', but should also provide for visitation, non-extractive recreational activities and nature tourism (e.g. snorkelling, diving, swimming, boating, etc.) and research.
- Extractive use (of living or dead material) is not considered consistent with the objectives of category II because such activities (particularly fishing), even if undertaken at low levels, are recognised as causing ecological draw-down on one of more components of the overall food web, which is incompatible with ecosystem protection. However, as with category Ib, in some circumstances, extraction for research, invasive species control and sustainable resource use by Indigenous people to conserve their traditional spiritual and cultural values are permitted, provided this is monitored and managed in such a way that it does not cause ecological draw-down.

### Examples:

#### MPAs

- In the Republic of Korea, [Hallyeohaesang National Park](#) (76% of which is marine) and most of [Dadohaehaesang National Park](#) (80% of which is marine) are assigned to category II. The National Parks were previously assigned to category V as their main purpose was scenery protection; however priorities under the National Parks Act have changed and national parks are now considered "regions worthy of representing the natural ecosystem, nature and cultural scenery" (Shadie et al., 2012)<sup>11</sup>. The southernmost group of islands, Baekdo Islands, within Dadohaehaesang National Park are more strictly protected and are being assigned to category Ia.

#### Zones within MPAs

- In recent years, many large MPAs have been declared comprising a spectrum of zones including one or more category II zones; examples include [Galapagos Marine Reserve](#) (Ecuador); [Moreton Bay Marine Park](#) (Australia) and [Bonaire National Marine Park](#) (Dutch Caribbean).
- The Marine National Park Zones (known as [green zones](#)) within the Great Barrier Reef Marine Park in Australia are no-take areas assigned to category II (see section 5.4).

<sup>11</sup> Shadie, P., Young Heo, H., Stolton, S. and Dudley, N. (2012). *Protected Area Management Categories and Korea: Experience to date and future directions*. Gland, Switzerland and Seoul, Republic of Korea: IUCN and KNPS

## Category III

Set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living component such as a specific coralline feature. They are generally quite small protected areas and often have high visitor value.

### Primary objective

- To protect specific outstanding natural features and their associated biodiversity and habitats.

### Other possible objectives which may apply in a category III

- To provide biodiversity protection in landscapes or seascapes that have otherwise undergone major changes;
- To protect specific natural sites with spiritual and/or cultural values where these also have biodiversity values;
- To conserve traditional spiritual and cultural values of the site.

## Notes relating to use of category III in MPAs

- Category III applies to MPAs designed to protect specific features such as: sea mounts or shipwrecks which have become aggregation sites for biodiversity and have important conservation value; key aggregation areas for iconic species; or other marine features which may have cultural or recreational value to particular groups, including flooded historical/archaeological landscapes.
- Extractive use (of living or dead material) is not considered consistent with the objectives of category III, other than extraction for research, invasive species control, and sustainable resource use by indigenous people to conserve their traditional spiritual and cultural values, which may be compatible, provided this is done in accordance with cultural tradition (see section 5).

### Examples:

#### MPAs

- [Truk \(Chuuk\) Lagoon](#) Underwater Fleet, in Micronesia is a historic shipwreck site supporting outstanding biodiversity.
- [Blue Hole Natural Monument](#) – Belize. This huge marine sinkhole is in the centre of Lighthouse Reef, 70 km from the mainland and Belize City. It is the world's largest natural formation of its kind, circular in shape (318 m across and 124 m deep) and is a world class diving destination. A variety of marine life occurs there including reef sharks, black tip sharks, nurse sharks, and giant groupers. The monument is small (4.1 km<sup>2</sup>) and is part of the much larger Belize Barrier Reef Reserve System, a World Heritage property. It is co-managed by the Belize Audubon Society and the Belize Fisheries Department (within the Ministry of Fisheries, Forestry and Sustainable Development).

## Category IV

Aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

Primary objective

- To maintain, conserve and restore species and habitats.

Other possible objectives which may apply in a category IV

- To protect vegetation patterns or other biological features through traditional management approaches;
- To protect fragments of habitats as components of landscape or seascape-scale conservation strategies;
- To develop public education and appreciation of the species and/or habitats concerned;
- To provide a means by which the urban residents may obtain regular contact with nature.

### Notes relating to use of category IV in MPAs

- Category IV is aimed at protection of particular stated species or habitats, often with active management intervention. MPAs or zones aimed at particular species or groups can be classified as category IV, e.g. seabird, turtle or shark sanctuaries. Zones within an MPA that have seasonal protection, such as turtle nesting beaches that are protected during the breeding season, might also qualify as category IV.

#### Examples:

##### MPAs

- Isla Chañaral Marine Reserve – Chile. Located 6 km offshore from the northern central Chilean coast, this small MPA includes the second biggest Humboldt penguin colony in the world. Together with the terrestrial portion of two other islands (Isla Choros and Isla Damas), they comprise the larger Humboldt Penguin National Reserve that has 80% of the Humboldt penguin world population. Due to the presence of bottlenose dolphins residing in the reserve, there was a strong increase in tourist activities, mainly in recent years. However, local fishermen have reported the absence of dolphins which may be connected to these largely unregulated activities. Instead, Blue and Humpback Whales are present between November- March each year and the reserve also has important populations of sea lions, sea otters and several endangered sea birds, such as diving petrels, cormorants and Peruvian boobies.
- The [Yama Veche 2 Mai](#) (Acvatoriul Litoral Marin) Scientific Reserve, Romania. This Natura 2000 site is aimed at achieving a good conservation status for a number of habitats listed on the EU Habitats Directive, as well as a number of marine mammal species listed in Annex II of the Habitats Directive (Nita, pers. comm., 2012).

- [Alaska Maritime Nation Wildlife Refuge](#) is assigned category IV. This site was established to conserve marine mammals, seabirds and other migratory birds, and the marine resources upon which they rely.

#### Zones of MPAs

- Montague Island Habitat Protection Zone is a category IV protected area within the larger [Bateman's Marine Park](#) in New South Wales, Australia, designed to protect Grey Nurse Shark (*Carcharias taurus*) critical habitat.

## Category V

Places where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value; and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

Primary objective

- To protect and sustain important landscapes/seascapes and the associated nature conservation and other values created by interactions with humans through traditional management practices.

Other possible objectives which may apply in a category V

- To maintain a balanced interaction of nature and culture through the protection of landscape and/or seascape and associated traditional management approaches, societies, cultures and spiritual values;
- To contribute to broad-scale conservation by maintaining species associated with cultural landscapes and/or by providing conservation opportunities in heavily used landscapes;
- To provide opportunities for enjoyment, well-being and socio-economic activity through recreation and tourism;
- To provide natural products and environmental services;
- To provide a framework to underpin active involvement by the community in the management of valued landscapes or seascapes and the natural and cultural heritage that they contain;
- To encourage the conservation of aquatic biodiversity;
- To act as models of sustainability so that lessons can be learnt for wider application.

### Notes relating to use of category V in MPAs

- Category V was originally developed to protect landscapes, a concept that is more difficult to apply in the marine environment although the idea of protecting seascapes is gaining currency.
- In a marine situation, category V would apply to areas where local communities live within and sustainably use the seascape (see section 5), but where the primary objectives of the areas are nevertheless nature conservation protection.

#### Examples:

##### MPAs

- Point Arena State Marine Conservation Area (SMCA) – USA. This 17.4 km<sup>2</sup> offshore area prohibits the take of all living marine resources, except commercial and recreational salmon trolling. A major upwelling zone serves as an important source of nutrients for fish and wildlife, and grey whales, humpback and blue whales regularly migrate past. The SMCA adjoins a coastal state marine reserve and is part of a state-wide network of MPAs along California's coastline designed by local divers, fishers, conservationists, and scientists to preserve sensitive sea life and habitats while enhancing recreation, study and education opportunities. The SMCA was adopted by the California Department of Fish and Wildlife in 2010 as part of the Marine Life Protection Act Initiative.
- [Apo Island](#), in the Philippines, mixes traditional use of marine resources with ecotourism, generating revenue for communities.
- [Chumbe Reef Sanctuary](#) is a privately managed marine park at [Chumbe Island](#), Zanzibar with the primary objective to preserve and develop the rich biodiversity of the coral. A successful ecotourism project since 1998, Chumbe is today the first financially self-sustaining MPA in Africa.

## Category VI

Areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

#### Primary objective

- To protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.

#### Other possible objectives which may apply in a category VI

- To promote low-level and sustainable use of natural resources, considering ecological, economic and social dimensions;
- To promote social and economic benefits to local communities where relevant; whilst conserving biodiversity;
- To facilitate inter-generational security for local communities' livelihoods – therefore ensuring that such livelihoods are sustainable;

### Notes relating to use of category VI in MPAs

- MPAs aimed at maintaining predominantly natural habitats but allowing sustainable collection of some species (e.g. food species, ornamental coral or shells), can be assigned to category VI.
- Determining whether an area is a fisheries management area or an MPA depends on whether or not the primary management objective is long-term nature conservation, as required in an MPA. Careful consideration needs to be given as to whether activities such as some types of sustainable local fishing practices should be permitted in regard to their inherent sustainability, and their consistence with the objectives of this category (see Section 5.4 below). As with all other category types, industrial scale activities are not compatible with MPAs or any IUCN protected area.

#### Examples:

##### MPAs

- Cook Islands Marine Park (Marae Moana) - Cook Islands. The *Marae Moana* Act was passed in July 2017 creating the world's largest multiple-use MPA at that time. Covering the Cook Islands' entire EEZ (1.97 million km<sup>2</sup>), the area includes remote atolls, high volcanic islands and seamounts hosting rich marine biodiversity including 136 species of coral, 600+ species of fish, 21 species of cetaceans (whales and dolphins), 3 threatened species of turtles, as well as manta ray, tuna and reef shark species. Fifteen areas that specifically prohibit large-scale commercial fishing or seabed mineral activities already exist, extending 50 nautical miles from each of the 15 Cook Islands. Other zones will be drawn up in a National Maraе Moana Spatial Plan covering the waters between 12 nm - 200 nm of the Cook Islands ocean territory and including all marine waters of Suvarrow National Park. These zones will be determined by the economic, cultural, social and environmental wants and needs of the locals under the governance of the Maraе Moana Council and its Technical Advisory Group. Given IUCN Resolution ([WCC-2016-Rec102-EN](#)) approved at the 2016 World Conservation Congress in Hawai'i, if seabed mineral mining is approved in any specific areas, then those specific areas will no longer be considered by IUCN to be part of the MPA (*note, no such areas have yet been determined*).
- Australia's [South-east Marine Reserves Network](#) consists of 14 Commonwealth Marine Reserves designed to protect representative examples of seafloor features and associated habitats in this biogeographical region. Each reserve has been assigned to different IUCN categories according to their objectives and zoning; eleven parts of these reserves have been assigned as category VI; for example: the [East Gippsland Commonwealth Marine Reserve](#) is entirely a Multiple Use Zone (IUCN category VI).
- **Zones within MPAs**
- The [Habitat Protection Zone](#) (dark blue zone) in the Great Barrier Reef Marine Park is category VI (see section 5.4).

## 5. Applying the categories to different zones in an MPA

### 5.1. Applying a category to an entire MPA

In many cases, as with terrestrial protected areas, an MPA will have a primary stated aim of nature conservation with a set of objectives that will allow the site in its entirety to be assigned to an IUCN protected area management category. This is the preferred approach, particularly where a site is small. However, since many large MPAs have zones with different objectives, it is possible to assign individual zones to different categories as described in section 5.4 below.

In some exceptional cases, there may be small areas of a protected area allocated to uses that might not be compatible with the primary objective of the protected area, but which are clearly essential or unavoidable. Examples include appropriate tourist accommodation in large protected areas; or the habitation of people whose livelihoods depend on the area.

In such cases, when assigning a category, the primary objective of the protected area should apply to at least three-quarters of the protected area. Known as the '75% rule', as explained in the [2008 Guidelines](#) (chapter 4, page 35), this means that the remaining 25% of land or water within a protected area can be managed for other essential purposes so long as **these uses are compatible with the definition of a protected area and the management category it is being assigned to.**

Examples of MPAs where this applies include:

- Habitation by the Moken (Sea Gypsies) in the Mu Koh Surin Marine National Park, Thailand (category II) (Sudara and Yeemin, 2011)<sup>12</sup>.
- The [Kosi Bay Nature Reserve](#), a coastal/brackish protected area which is part of the much larger iSimangaliso Wetland Park in KwaZulu Natal, South Africa; within the Nature Reserve only the local Thonga people may harvest intertidal invertebrates and this is also permitted in the marine reserve of [El Hierro Mar de Las Calmas](#), the Canary Islands (part of Spain), both of which are otherwise strictly protected.

The 75% rule is not an excuse, for example, to allow widespread low level artisanal fishing within the core category I – III area itself. All living parts are inter-related within a marine ecosystem, and closure of an area to extraction of all fish or living resources means just that – it is the core principle for category I – III MPAs as the no-take of mammals, birds and vegetation is for terrestrial category I – III protected areas.

### 5.2. Combined or adjoining terrestrial and marine protected areas

A separate determination of the relevant IUCN category may be appropriate where a predominantly terrestrial protected area includes a marine component. In such cases, the two components should not necessarily be reported as two separate protected areas (e.g. an MPA and a terrestrial protected area). The 75% rule may be appropriate in determining the appropriate category for reporting purposes, if the terrestrial component is at least 75% of the total area. If, however, legislation is in place requiring distinct management arrangements for the marine area, it may be appropriate to consider the marine portion of the site as an MPA in its own right.

### 5.3 'Nested sites'

One or more protected areas are sometimes 'nested' within another protected area with a different category. The most common model is a large, less strictly protected area (e.g. a category V or VI protected area) containing smaller, more strictly protected areas (e.g. category III or IV protected areas) which have different objectives. In such cases, distinct **protected areas nested within larger protected areas** can have their own category. Essentially this situation is a variation on zoning, but in this case each 'zone' meets the status of an MPA itself.

An example of this is the [Channel Islands National Marine Sanctuary](#), USA, with 11 Marine Reserves within it.

### 5.4. Applying the categories to zones within an MPA

As explained in the 2008 Guidelines (Chapter 4, pages 36–38), categorisation of different zones within a protected area is allowed provided three specific requirements are met:

- (a) the zones are clearly mapped;
- (b) the zones are recognised by legal or other effective means in the long term; and
- (c) each zone has distinct and unambiguous management aims that can be assigned to a particular protected area category.

Separate categorisation of zones is thus possible when primary legislation allows or requires for the description and delineates zones within a protected area, but not when primary legislation simply allows for the concept of zoning through, for example, a subsequent management planning process. Figure 2 in the [2008 Guidelines](#) (page 38) gives a decision tree for deciding if a zone is suitable for having its own category. IUCN considers that in some cases it may not be necessary to assign different categories to zones in protected areas, but it may be appropriate in large marine protected areas where individual zones are almost protected areas in

<sup>12</sup> Sudara, S. and Yeemin, T. (2011). Demonstration Site Baseline Assessment Report: Mu Koh Surin Marine National Park, Thailand. Unpublished case study for ICRAN.

their own right (provided the zones meet the three requirements mentioned above).

Many MPAs are zoned because of their multiple use nature, with each zone type having different objectives and restrictions (some allowing greater use and removal of resources than others). Many Australian MPAs have been zoned. One of the first was the Great Barrier Reef Marine Park (GBRMP), with zoning initially applied in various sections of the park in the 1980s to 1990s. The initial zoning has been periodically reviewed and updated, and since 2004 the entire GBRMP has been covered by a single amalgamated [Zoning Plan](#). Zoning schemes subsequently implemented by other jurisdictions in Australia

(e.g. for Queensland (State) Marine Parks and the federal marine reserve network) have used the broad zoning framework developed for the GBRMP, but have modified this to suit their own situations. In all cases, the zones have a statutory basis and meet the criteria of the various IUCN categories.

The GBRMP is a single very large MPA covering 344,400 km<sup>2</sup> on the north east coast of Australia, in which a wide range of commercial and recreational activities and uses are allowed, including various forms of fishing and collecting. However, mining and drilling for oil are prohibited throughout the Park. The zones are assigned to different categories as shown in Table 4.

**Table 4: Zone types within the Great Barrier Reef Marine Park<sup>13</sup>**

Zone Name	Equivalent IUCN category	Statutory Objectives for each Zone	Area (km <sup>2</sup> )	% of GBRMP
<b>Preservation Zone</b>	<b>Ia</b>	to provide for the preservation of the natural integrity and values of areas of the Marine Park, generally undisturbed by human activities.	<b>710</b>	<b>&lt;1</b>
<b>Scientific Research Zone</b>	<b>Ia</b>	(a) to provide for the protection of the natural integrity and values of areas of the Marine Park, generally free from extractive activities; and (b) subject to the objective mentioned in paragraph (a), to provide opportunities for scientific research to be undertaken in relatively undisturbed areas.	<b>155</b>	<b>&lt;1</b>
<b>Commonwealth Islands</b>	<b>II</b>	(a) to provide for the conservation of areas of the Marine Park above the low water mark; and (b) to provide for use of the zone by the Commonwealth; and (c) subject to the objective mentioned in paragraph (a), to provide for facilities and uses consistent with the values of the area.	<b>185</b>	<b>&lt;1</b>
<b>Marine National Park Zone</b>	<b>II</b>	(a) to provide for the protection of the natural integrity and values of areas of the Marine Park, generally free from extractive activities; and (b) subject to the objective mentioned in paragraph (a), to provide opportunities for certain activities, including the presentation of the values of the Marine Park, to be undertaken in relatively undisturbed areas.	<b>114,530</b>	<b>33</b>
<b>Buffer Zone</b>	<b>IV</b>	(a) to provide for the protection of the natural integrity and values of areas of the Marine Park, generally free from extractive activities; and (b) subject to the objective mentioned in paragraph (a), to provide opportunities for: (i) certain activities, including the presentation of the values of the Marine Park, to be undertaken in relatively undisturbed areas; and (ii) trolling for pelagic species.	<b>9,880</b>	<b>3</b>
<b>Conservation Park Zone</b>	<b>IV</b>	(a) to provide for the conservation of areas of the Marine Park; and (b) subject to the objective mentioned in paragraph (a), to provide opportunities for reasonable use and enjoyment, including limited extractive use.	<b>5,160</b>	<b>2</b>
<b>Habitat Protection Zone</b>	<b>VI</b>	(a) to provide for the conservation of areas of the Marine Park through the protection and management of sensitive habitats, generally free from potentially damaging activities; and (b) subject to the objective mentioned in paragraph (a), to provide opportunities for reasonable use.	<b>97,250</b>	<b>28</b>
<b>General Use Zone</b>	<b>VI</b>	to provide for the conservation of areas of the Marine Park, while providing opportunities for reasonable use.	<b>116,530</b>	<b>34</b>
<b>Total</b>			<b>344,400</b>	<b>100</b>

<sup>13</sup> The GBRMP does not include State islands, intertidal waters, Queensland internal waters, or port areas.

The statutory [Zoning Plan](#) for the GBRMP provides details on what, and where, specific activities are allowed, and which activities require a permit. Within each zone type, certain activities are allowed 'as-of-right' (that is, no permit is required, but users must comply with any legislative requirements in force), some specified activities can only be carried out with a permit, and some activities are prohibited. All the zones are mapped using latitude/longitude coordinates, recognised in law, and, as shown in Table 4, have unambiguous objectives that mean they can each be assigned to an IUCN category.

### 5.5. Vertical zoning

In a very few cases, parts of the water column within MPAs have been formally vertically zoned, to take account of the three-dimensional nature of the marine environment. Thus a zone may be distinguished for part of the water column with a different management regime from that of the seafloor: benthic fishing is usually prohibited in the zone that includes the seabed, but pelagic fishing may still be allowed in the water column.

IUCN is opposed to the use of vertical zoning. It often does not make ecological sense, as interactions between benthic and pelagic systems and species are not yet fully known, and surface or mid-water fisheries may in fact impact the benthic communities below. Evidence of ecological linkages between seabed and open water habitats have been reviewed by O'Leary & Roberts (2018)<sup>14</sup>, particularly those facilitated by

ocean megafauna and mesopelagic fish that are, or could be, seriously impacted by exploitation.

Furthermore, enforcing vertical zoning is extremely difficult if not legally impossible (see also section 7 for concerns that vertical zoning can also result in double-counting when reporting).

The three-dimensional nature of the marine environment can nevertheless be recognised by designating a single zone that clearly stipulates what can and cannot occur in each realm – pelagic and benthic. For example, the Habitat Protection Zone in the Great Barrier Reef Marine Park in Australia is designed to protect sensitive benthic habitats from any damaging activities such as trawling but allows other types of fishing (e.g. trolling, line fishing, netting) to occur in the overlying waters. However, the benthic and pelagic habitats are not categorised separately, even though the importance of managing different parts of the marine environment is recognised through an integrated approach. Similarly, the GBRMP Buffer Zone (category IV) allows for trolling of pelagic fish only, and prohibits all other fishing thus protecting the seafloor habitats and associated species, but there is also no vertical zoning.

<sup>14</sup> O'Leary, B. C., & Roberts, C. M. (2018). Ecological connectivity across ocean depths: implications for protected area design. *Global ecology and conservation*, 15, e00431. <https://www.sciencedirect.com/science/article/pii/S2351989418301021>



MPAs provide safe havens for species of particular conservation concern, such as this solitary Sunset Star Coral *Leptopsammia pruvoti* in the Isles of Scilly Special Area of Conservation.

## 6. Relationship between the categories and different activities

Fishing and extraction of wild living resources is still very widespread in the marine environment, and more so than on land (marine fisheries are the last wild commercial ‘harvest’ in the world). Many people still make their living from the exploitation of wild marine resources, and rely on these resources for food. As a result, the conflict between fishing and MPAs tends to be a much greater issue than that of extraction of living resources in terrestrial protected areas.

In the conservation community, there is a general understanding that the more highly protected areas (categories I – III) should be closed to extraction, and as a result these categories have become associated with no-take areas. However, there are others who feel that limited extraction (whether for research or traditional use) carried out under appropriate management can still result in the objectives of a highly protected MPA being achieved.

**Table 5: Matrix of marine activities that may be appropriate for each IUCN management category**

Activities	Ia	Ib	II	III	IV	V	VI
Research: non-extractive	Y*	Y	Y	Y	Y	Y	Y
Non-extractive traditional use	Y*	Y	Y	Y	Y	Y	Y
Restoration/enhancement for conservation (e.g. invasive species control, coral reintroduction)	Y	Y	Y	Y	Y	Y	Y
Traditional fishing/collection in accordance with cultural tradition and use	N	Y*	Y	Y	Y	Y	Y
Non-extractive recreation (e.g. diving)	N	Y	Y	Y	Y	Y	Y
Large scale high intensity tourism	N	N	Y	Y	Y	Y	Y
Shipping (except as may be unavoidable under international maritime law)	N	N	N*	N*	Y	Y	Y
Research: extractive	N*	N*	N*	N*	Y	Y	Y
Renewable energy generation	N	N	N	N	Y	Y	Y
Restoration/enhancement for other reasons (e.g. beach replenishment, fish aggregation, artificial reefs)	N	N	N*	N*	Y	Y	Y
Fishing/collection: recreational (sustainable)	N	N	N	N	*	Y	Y
Fishing/collection: local fishing (sustainable)	N	N	N	N	*	Y	Y
Industrial fishing, industrial-scale aquaculture	N	N	N	N	N	N	N
Aquaculture – small-scale	N	N	N	N	*	Y	Y
Works (e.g. harbours, ports, dredging)	N	N	N	N	*	Y	Y
Untreated waste discharge	N	N	N	N	N	N*	N*
Mining, oil and gas extraction (seafloor as well as sub-seafloor)	N	N	N	N	N	N	N
Habitation	N	N	N	N	N	Y	N

**Key:**

No	N
Generally no, a strong prerogative against unless special circumstances apply	N*
Yes	Y
Yes because no alternative exists, but special approval is essential	Y*
Variable; depends on whether this activity can be managed in such a way that it is compatible with the MPA's objectives	*

As a result of this extensive debate (for example, Fitzsimons, 2011; Robb et al., 2011; Costello and Ballantine, 2015<sup>15</sup>), some people may forget that categories are not applied to protected areas according to management regimes (and therefore the activities that occur), but rather according to the stated objectives of the MPA. For IUCN, the key point is that all activities allowed within a protected area must be compatible with its stated conservation management objectives regardless of the IUCN category. The issue of whether an area is no-take should not be the driving factor during the assignment process, as strict regulation of exploitation is a management action that then must follow on from this particular objective.

Table 5 provides generic guidance to illustrate the broad relationship and acceptability or otherwise between activities and the different categories. Such an exercise has not been undertaken for terrestrial protected areas, and this issue is not addressed in detail in the [2008 Guidelines](#). **This table should NOT be used as the basis for assigning categories, which MUST be based on the stated nature conservation objectives for the MPA.**

## 6.1 Sustainable local fishing and recreational fishing and collection of living resources

Recreational and sustainable local fishing practices may be incompatible with the objectives of an MPA. Fisheries that are adequately managed to provide long-term exploitation do not necessarily comply with ecological standards for nature conservation, in that, for example, they may have indirect trophic impacts. For a fishery management area to meet the definition of an MPA, it would need to have nature conservation as a primary objective, and be managed in accordance with that objective (e.g. contributing to the maintenance of ecologically appropriate metrics, such as population structures). Many research studies have shown the significance of no-take reserves both for biodiversity conservation and fisheries management (e.g. Gaines et al., 2010; McCook et al., 2010; Lubchenko and Gorud-Colvert, 2015)<sup>16</sup>.

Since recreational and sustainable local fishing always has some level of ecological impact, these activities are considered inconsistent with the objectives of MPAs in categories Ia, Ib and II, and frequently III. However, use of MPAs in categories Ib and II by indigenous people for traditional spiritual and cultural values and for sustainable resource use may be acceptable if carried out in accordance with cultural traditions and subject to a formal agreement guiding these activities.

Recreational fishing is usually considered inappropriate in categories Ia and Ib, II and III MPAs. Many recreational fishers use 'catch and release' which is considered by some to be non-extractive. However, catch and release has ecological impacts (e.g. post-catch mortality) and is also not considered to be an appropriate activity in category I to III MPAs. In general, recreational fishing in MPAs should be regarded in the same way as recreational hunting in terrestrial protected areas.

Category II protected areas are established to "protect natural biodiversity... and supporting environmental processes", so some people maintain that all types of recreational activities including recreational fishing should be allowed. Taking freshwater fish from rivers and streams on a subsistence and low-level sporting basis in category II terrestrial parks may be allowed provided this is not done throughout the entire protected area (the 75% rule is applied), as it has less overall impact. In MPAs, as explained above, extractive forms of recreation (e.g. fishing, souvenir collection, etc.) can have damaging consequences. Closure to recreational and sustainable local fishing should therefore be seen as critical to category II MPAs in the same way as closure to hunting of mammals and birds and harvesting of vegetation is for terrestrial category II protected areas, since fish, invertebrates and algae are all inter-related components of the marine ecosystem.

Category III MPAs should also be closed to recreational and local fishing.

Whether or not sustainable fishing is allowed in a category IV MPA or zone will depend on its objectives. In some circumstances, fishing/collecting may be permissible where the resource use does not compromise the ecological/species management objectives of the site. Large-scale intensive (aka industrial) fishing is not compatible with any of the management categories and should not occur in or adjacent to MPAs.

Category V or VI MPAs or zones may allow sustainable local or recreational fishing/collecting, consistent with the objectives of the MPA. Table 6 summarises the general guidance on the relationship between fishing/collection of living resources and the categories.

<sup>15</sup> Fitzsimons, J. (2011). 'Mislabelling marine protected areas and why it matters—a case study of Australia'. *Conservation Letters* 4: 340–345. <https://doi.org/10.1111/j.1755-263X.2011.00186.x>  
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<sup>16</sup> Gaines, S.D., White, C., Carr, M.H. and Palumbi, S. (2010). 'Designing marine reserve networks for both conservation and fisheries management'. *Proceedings of the National Academy of Sciences of the United States of America* 107: 18286–18293. <https://doi.org/10.1073/pnas.0906473107>  
McCook, L.J., Ayling, T., Cappo, M., Choat, J.H., Evans, R.D., De Freitas, D.M., Heupel, M., Hughes, T.P., Jones, G.P., Mapstone, B. and Marsh, H. (2010). 'Adaptive management of the Great Barrier Reef: a globally significant demonstration of the benefits of networks of marine reserves'. *Proceedings of the National Academy of Sciences* 107 (43): 18278–18285. <https://doi.org/10.1073/pnas.0909335107>  
Lubchenko, J. and Gorud-Colvert, K. (2015). 'Making waves: The science and politics of ocean protection'. *Science* 350: 382–383. <https://doi.org/10.1126/science.aad5443>



**Table 6: Compatibility of fishing/collecting activities in different management categories**

IUCN category	Local fishing/ collecting	Recreational fishing/ collecting	Traditional fishing/ collecting	Industrial-scale fishing	Collection for research
Ia	No	No	No	No	No*
Ib	No	No	Yes**	No	Yes
II	No	No	Yes**	No	Yes
III	No	No	Yes**	No	Yes
IV	Variable#	Variable#	Yes	No	Yes
V	Yes#	Yes	Yes	No	Yes
VI	Yes#	Yes	Yes	No	Yes

**Key:**

*	any extractive use of category Ia MPAs should be prohibited with possible exceptions for scientific research which cannot be done anywhere else.
**	in category Ib MPAs traditional fishing/collecting should be limited to an agreed sustainable quota for traditional, ceremonial or subsistence purposes, but not for purposes of commercial sale or trade.
#	whether fishing or collecting is or is not permitted will depend on the specific objectives of the MPA.

**6.2 Mining** (including oil and gas and most sand and gravel extraction) – see also section 2.3.3

Mining is unsustainable because it involves extraction of a finite resource. In addition, as in the case of gravel extraction, it may have a long-term adverse effect on the benthos, and so would not be appropriate in an MPA. In accordance with IUCN policy on mining in protected areas, agreed by [Resolution](#) at the 2016 World Conservation Congress, these activities should not be permitted in any category of MPAs. For example, the Great Barrier Reef Marine Park Act 1975 specifically prohibits all mining operations or geological storage operations within the boundaries of the Great Barrier Reef Region<sup>17</sup>.

<sup>17</sup> See sections 38AA and 38AB in the legislation (<https://www.legislation.gov.au/Details/C2017C00279>)

## 7. Reporting to the World Database on Protected Areas and the UN List of Protected Areas

Once an IUCN category and governance type is assigned, the information should be reported to the UN Environment World Conservation Monitoring Centre (UNEP-WCMC), so that information can be included in the [World Database on Protected Areas](#) (WDPA) and the [UN List of Protected Areas](#). The WDPA is a joint product of UN Environment and IUCN, prepared by UNEP-WCMC and IUCN WCPA working with governments, the Secretariats of MEAs (Multilateral Environmental Agreements) and collaborating NGOs. It provides an informative and accessible platform for spatial analysis and exploration of the global distribution and status of global terrestrial and marine protected area coverage.

In order to construct a current and comprehensive record of marine protected areas, data are compiled from over 600 official providers, ranging from governments, non-governmental organisations to landowners and local communities.

Once received, the data are processed by WCMC in order to quality check and format it to the WDPA schema and to track potential changes within the database over time. Updates occur monthly, with their contents and highlights [summarised in an online release](#).

Data are accepted if the following four conditions are met:

1. The area submitted meets the IUCN definition standard of protected areas
2. Data are in a spatial format from GIS with descriptive attributes attached
3. The source information is provided by the data provider
4. A 'data contributor agreement' is signed outlining clearly the basis on which the data is being shared.

The current mechanism for reporting is outlined in the WDPA [manual](#).

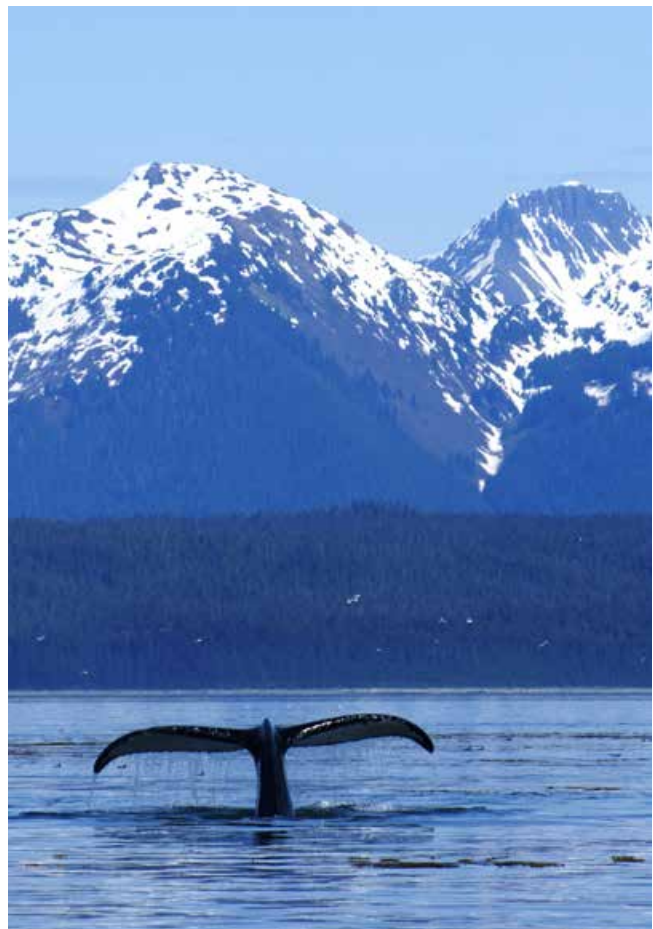
### 7.1 Reporting multiple categories within a protected area

The reporting of categories for protected areas where different zones have different categories (such as the Great Barrier Reef) is described in the [2008 Guidelines](#) (Chapter 4, pages 36–37) and in section 5.4 above. In the context of MPAs, two situations are worth further discussion:

- When reporting '**nested**' protected areas it is important to ensure spatial data is correct to avoid double counting, and so that databases do not overstate the amount of land or sea that has been designated. For example, the Great Barrier Reef Marine Park is sometimes reported as being category VI overall, but within this broad area several other categories are also recognised, Ia, II, IV and VI,

(see examples given in previous sections). In the case of the [Macquarie Island Commonwealth Marine Reserve](#) (category IV), over one third of the reserve (58,000 km<sup>2</sup> out of a total of 162,000 km<sup>2</sup>) is designated IUCN category Ia Highly Protected Zone.

- **Vertical zonation** can result in double counting when reporting on the IUCN categories. IUCN's current advice is that MPAs with vertical zoning should be reported according to the **least** restrictive category that has been applied within the site due to IUCN's serious concerns with compliance and enforcement and strong presumption against the use of vertical zoning. For example, if the benthic system is strictly protected and the pelagic area is open to managed resource use compatible with category VI, the whole area should be assigned a category VI. Thus [Huon Commonwealth Marine Reserve](#) should be **reported** as IV even though the seabed is **categorised** as Ia.



Humpback whale in Glacier Bay National Park, Alaska

© NPS Photo/Glacier Bay

# Editor biographies



**Jon Day's** career commenced in terrestrial parks, but he subsequently spent 28 years planning and managing the Great Barrier Reef, including 16 years as one of the Great Barrier Marine Park Authority (GBRMPA) Directors. Jon's responsibilities as a Director included conservation, heritage (particularly world heritage), the Reef rezoning, Indigenous partnerships and commencing the first Outlook Report. Jon is currently undertaking a post-career PhD in the ARC Center for Coral Reef Studies in Townsville, Australia.



**Nigel Dudley** is Vice Chair for natural solutions for the IUCN World Commission on Protected Areas. He is a consultant, working particularly on issues relating to protected areas and broadscale approaches to conservation, working all over the world.



**Marc Hockings** is Emeritus Professor in the School of Earth and Environmental Sciences at the University of Queensland. He is Vice Chair for Science and Management of the IUCN World Commission on Protected Areas. Marc was the principal author of the IUCN's best practice guidelines on evaluation of management effectiveness of protected areas and is the WCPA lead in the development of an IUCN Green List of Protected and Conserved Areas. He is an honorary Fellow at the UNEP World Conservation Monitoring Centre in Cambridge, UK and is Managing Editor of the IUCN journal PARKS.



**Glen Holmes** is a marine ecologist who has been working in the environmental field for over 20 years. After initially training as a chemical engineer and working with environmental problems associated with both agriculture and industry, he completed his marine ecology PhD in 2009. Currently working for The Pew Charitable Trusts, Glen previously worked as an independent environmental advisor on marine and coastal ecosystem issues. He also coordinated and lectured courses in environmental management at The University of Queensland.



**Dan Laffoley** is thematic Marine Vice Chair for the IUCN World Commission on Protected Areas, and Senior Advisor on Marine Science and Conservation in the Global Marine and Polar Programme of IUCN. For over 30 years Dan has been responsible for the creation of many global, European and UK public and private sector partnerships, alliances and frameworks that underpin modern-day marine conservation.



**Sue Stolton** works on issues relating to protected areas, including the assessment of management effectiveness, understanding the wider values and benefits that protected areas provide and the development and use of the IUCN management categories. Sue established Equilibrium Research in partnership with Nigel Dudley in 1991. Sue is Vice Chair of the WCPA specialist group on privately protected areas and nature stewardship.



**Sue Wells** Co Chairs the IUCN WCPA-Marine Working Group on the Green List and MPA Management Effectiveness Task Force. She has worked for a number of conservation organisations including IUCN, and is now a consultant, with a particular interest building capacity for MPA management.



**Lauren Wenzel** is a member of the IUCN World Commission on Protected Areas and is Director of National Oceanic and Atmospheric Administration (NOAA) and its National Marine Protected Areas Center. Her work focuses on connecting and strengthening the marine and coastal protected area programs through capacity building, information and tools, and communication and engaging stakeholders.



INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE

WORLD HEADQUARTERS  
Rue Mauverney 28  
1196, Gland, Switzerland  
Tél: +41 22 999 0000  
Fax: +41 22 999 0002  
[www.iucn.org](http://www.iucn.org)



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