

Marine World Heritage:

Toward a representative, balanced and credible World Heritage List





Introduction

This summary is a preliminary stock-take of major marine gaps on the World Heritage List. It illustrates how an internationally recognized and science-based bio-classification system could allow more systematic and effective guidance toward new nominations in ocean areas. IUCN is currently preparing a Marine Thematic Study that will elaborate on marine gaps on the World Heritage List. The study will be presented at the 37th session of the World Heritage Committee in 2013.

In 1994, the World Heritage Committee launched a **Global Strategy for a representative, balanced¹ and credible² World Heritage List**. The Global Strategy aims at avoiding an overrepresentation of a small selection of regions or categories and ensuring that the World Heritage List reflects the broad diversity of the world's cultural and natural areas of Outstanding Universal Value (OUV). Efforts to encourage nomination of properties from categories and regions currently not or largely underrepresented on the World Heritage List are crucial to implementing the Global Strategy.

To support implementation of the Global Strategy, the **World Heritage Marine Programme** aims at ensuring that all marine sites with OUV are protected effectively and cover **all major marine regions and marine ecosystem types** in a balanced, credible and representative manner.

Successful global representation of exceptional marine features on the World Heritage List requires a thorough understanding of what is covered already and where are other areas of OUV that should be added. Essentially all major marine regions and marine ecosystem types should be represented.

This summary is both an initial stock-take and an identification of a way forward. It asks three simple questions:

- 1 – Do we have “the most outstanding” marine areas?**
- 2 – Do we have a “representative” coverage of marine phenomena?**
- 3 – Where are the major gaps?**

At the heart of these three questions lies a fourth:

- 4 – How can we build a more systematic approach to answering these questions?**

An objective and consistent approach to reviewing progress will add certainty to the answers and enable a more rapid and efficient approach in using the World Heritage Convention for conserving exceptional ocean places.



¹ Balanced refers to “representativity” among bio-geographical regions or events in the history of life (Reference: WHC-96/CONF.202/INF.9)

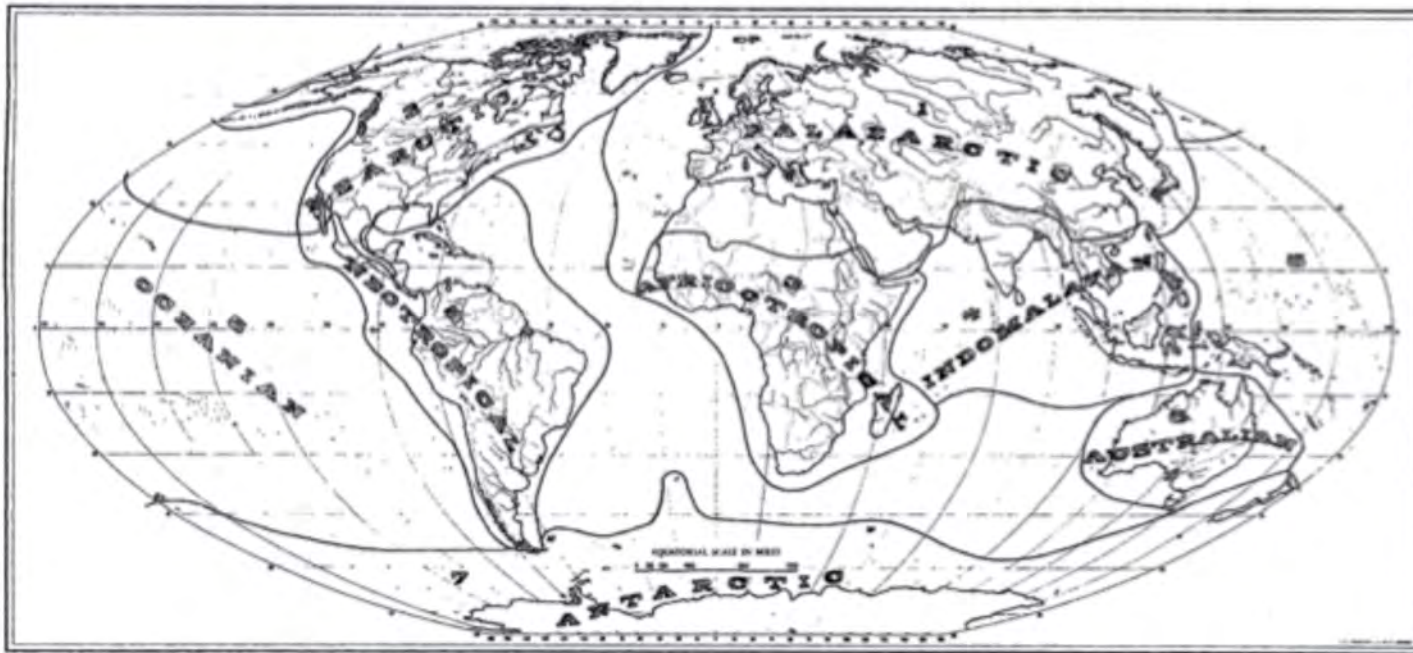
² Credibility of the List concerns not only the number of sites inscribed, but the representativeness of sites from the different regions of the world and stages of the Earth's history, and in particular the quality of management in designated World Heritage sites and the ability to address threats and dangers to bring them back to their normal conditions, if needed (Reference: WHC-96/CONF.202/INF.9)



Describing the natural world

Among the most powerful tools that can help to answer these questions are global maps that enable us to understand the pattern and variation of natural phenomena. A long tradition of such biogeographic mapping exists on land. The great explorer and naturalist Alfred Russell Wallace was one of the first to describe the great realms of life from sub-Saharan Africa to the Neotropics. His visions were converted to practical utility for modern conservation by Udvardy who, in 1974, produced a classification that is used by IUCN and others to look at progress in the efforts to conserve and sustain life on earth.

The lack of such classification for the world's ocean led a group of authors from academic, governmental, intergovernmental and NGO communities to develop a marine equivalent: **the Marine Ecoregions of the World (MEOW)** classification. Their approach builds on existing research and focuses on the continental shelf (from the coastline out to depths of about 200 meters). This area, sometimes referred to as the continental shelf, is where most marine life and productive waters occur but also the place with the greatest interactions between people and nature.



Udvardy, 1976 – Terrestrial realms

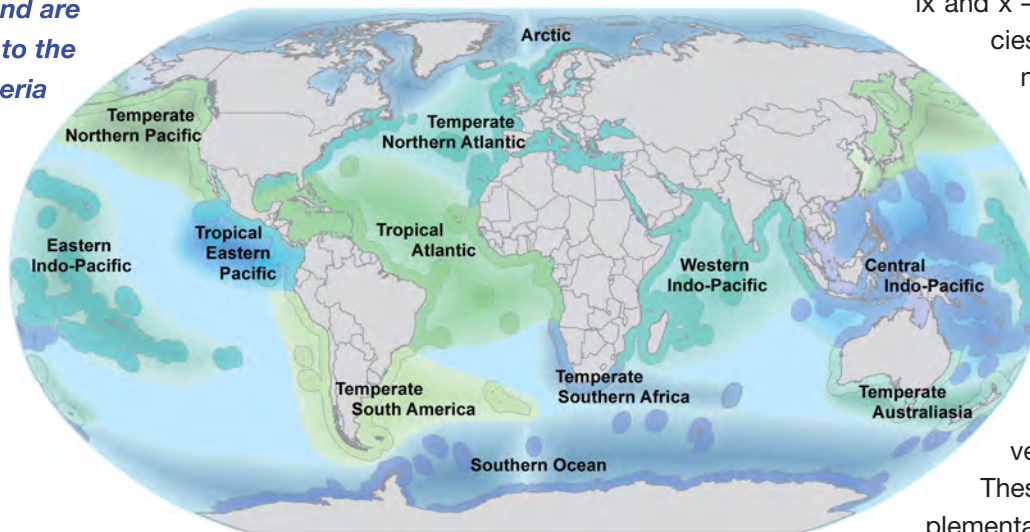




Describing the natural world

The MEOW classification system encompasses many elements of the World Heritage criteria, but most importantly criteria vii, ix and x. Geomorphic and geological processes (criteria viii), while not directly addressed through MEOW, are considered as major drivers in the variation in ocean diversity and are intimately linked to the other natural criteria

The MEOW classification sees the world's near-shore and continental shelf waters through a hierarchy. There are **12 large realms**. Each are richly populated with a vast array of different habitats and **with countless unique organisms, even entire families of plants and animals that are found nowhere else**. These realms have been isolated to varying degrees, even over geological timescales and each is unique. The coral reefs of the Tropical Atlantic Realm bear only a superficial resemblance to those of the Western Indo-Pacific. The salt marshes of Temperate Southern Africa may look like those of the Northern Atlantic but there is barely a species in common.



The 12 nearshore and continental shelf realms that make up the Marine Ecoregions of the World classification

Nested within the 12 realms are **62 provinces**. These are still relatively large areas, often delineated by physical features (enclosed seas, basins). They too are rich in unique biota, but they tend to have a more unified set of habitats. Nested within these provinces are **232 ecoregions**, smaller areas that have more homogenous communities, perhaps lacking distinct or unique species, but operating in some ways as self-contained systems with a subset of habitats, often tightly interconnected.

The primary focus of the MEOW classification is on biological patterns. The realms, provinces and ecoregions have been defined from a rich literature that draws on species and habitat distributions, and on the natural processes that help to shape these patterns. In this way it is clear that the MEOW encapsulates many elements of the World Heritage nomination criteria, but most especially vii, ix and x – natural phenomena, processes, communities, habitats and species. Although not directly centred on criteria viii it is clear that geomorphic and geological processes are major drivers of the variation in diversity and that some level of geomorphic diversity may also be captured in the use of the MEOW classification as a means of stratifying and assessing diversity.

The open ocean and deep water areas of the globe were not classified in the MEOW maps, which consider nearshore and continental shelf waters only. These more remote waters remain poorly understood. However UNESCO's Intergovernmental Oceanographic Commission and others have supported the development of similar classifications for these regions further offshore. These are not considered in this summary, but provide a highly complementary system (see below).



A word about habitats

It is critical to scrutinize more directly the particular habitats contained within existing and proposed marine World Heritage sites. No commonly accepted marine habitat classification exists today but a practical system could be developed relatively easily and provide more systematic guidance for new marine World Heritage nominations in view of a balanced and representative World Heritage List.

With some exceptions World Heritage sites are far smaller than even the 232 ecoregions that are the building blocks of the MEOW system. Analysis illustrates that sites may be quite narrowly targeted toward a specific natural feature, and indeed may have been selected precisely because it is unusual or unique even in its local setting. With this in mind it is important to provide further scrutiny of coverage by looking more directly at the particular habitats contained within existing and proposed sites.

Numerous marine scientists have devised different classifications to describe the world's marine habitats, ranging from the highly simple to vastly complex. There are some commonalities between these, but never complete agreement and no globally accepted habitat classification system has been devised. What is needed for the global analysis of World Heritage coverage is a comprehensive but simple system, readily applied and understandable by public and non-expert audiences.



A systematic approach toward identifying gaps

World Heritage marine sites are found in 11 of the 12 marine and coastal realms with only Temperate Southern Africa lacking any World Heritage marine site representation.

The first step in assessing the coverage and gaps in the present World Heritage marine sites is simply to plot the sites on a map. In addition to the 45 World Heritage marine sites, a further 26 World Heritage sites contain important coastal features and have been taken into account in this analysis to ensure scientific credibility of the results. On a map these sites show a broad spread: they are found in 11 of the 12 marine and coastal realms with only Temperate Southern Africa lacking any World Heritage marine site representation.

many of these provinces with poor representation have a number of remarkable and unique features that could be of Outstanding Universal Value and gain recognition under the World Heritage Convention.

To illustrate this, we have drawn up an illustrative list from some of these unrepresented provinces with the aim of drawing attention to key issues exemplifying how a more rigorous analysis might be carried forward in view of strengthening the credibility, balance and representation of the World Heritage List.

preliminary analysis suggests a number of the provinces from around the world currently lack any World Heritage sites.

Provinces are likely the most useful level of investigating current coverage and gaps. The marine provinces are highly distinctive, often with many unique plants and animals and quite distinct ecological make-up. The map on the following page shows, however, that there is very low representation of World Heritage marine sites at this level – 24 provinces have no World Heritage representation at all, while a further 22 have only one site. Although this summary is not intended to be a comprehensive review or gap analysis, it is clear that



Some of these areas have a number of remarkable and unique features that could be of Outstanding Universal Value and gain recognition under the World Heritage Convention.

The aim with the preliminary list below is both to draw attention to key issues and to exemplify how this form of analysis might be carried forward in view of strengthening the credibility, balance and representation of the World Heritage List.

On the next page are some examples of the 24 MEOW marine provinces currently not covered by the World Heritage Convention, with brief description on some of their unique and exceptional natural features.

The global distribution of all natural and mixed World Heritage sites. Sites in red are those that are formally described as marine, or that contain significant natural marine or coastal features.

A systematic approach toward identifying gaps

The Arctic Realm might be of special interest. Nearly no World Heritage sites exist anywhere along the vast and distinct Arctic coastlines but contain many exceptional marine features.

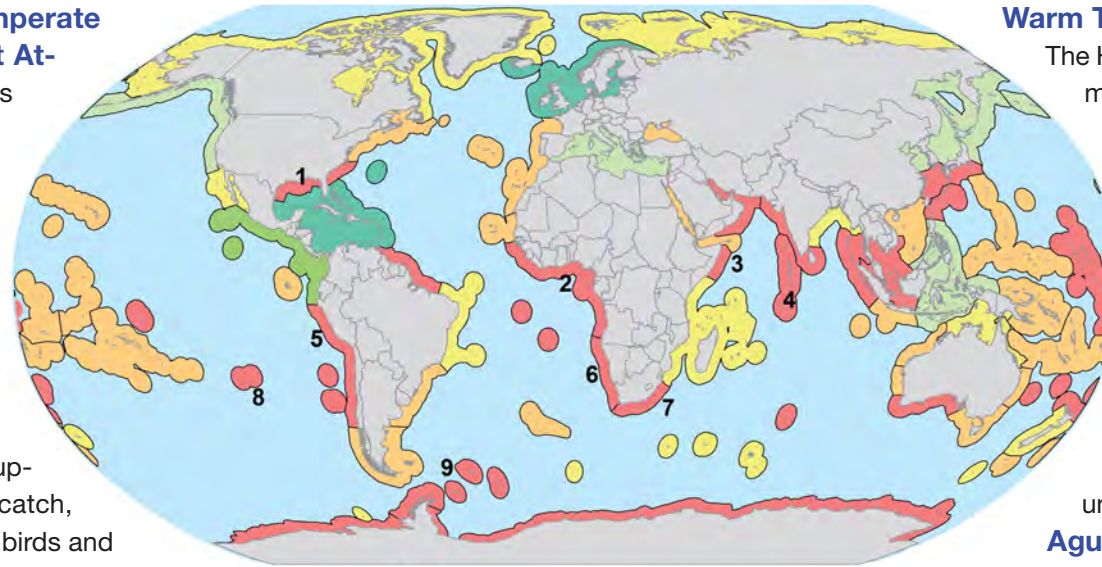
Warm Temperate Northwest Atlantic: This province is dominated by the Humboldt Current, the most productive

marine upwelling in the world, supporting 15% of the global fish catch, and rich coastal communities of birds and marine mammals.

Gulf of Guinea: Hosting some of the largest single mangrove tracts in the world, the Gulf of Guinea Province is also home to intact coastal systems where African savannah and rainforest grade into mangroves, coastal lagoons dunes, turtle nesting beaches and offshore breeding grounds for humpback whales.

Somali/Arabian: This area is the best example in the world where tropical coastal upwelling systems enable seasonal macroalgae to grow alongside coral reef systems in a unique combination

Central Indian Ocean Islands: These include the largest coral atolls in the world and among the only extensive coral reefs in the Western Indo-Pacific realm that remain in good health.



Provinces	
■ No WH representation	■ 3 WH sites
■ 1 WH site	■ 5 WH sites
■ 2 WH sites	■ 7 WH sites

The 62 marine provinces defined under the MEOW classification, annotated by the number of World Heritage marine sites within each region. Note that this map only represents presence of sites, not the proportion of the province covered by these sites, which is highly variable.

Warm Temperate Southeastern Pacific :

The Humboldt Current, the most productive marine upwelling region in the world, supporting 15% of the global fish catch, and rich coastal communities including birds and marine mammals.

Benguela: Nutrient rich upwelling in this province produces highly productive nearshore waters, in stark contrast to the desert margins of the adjacent the Skeleton Coast. In shallow rocky areas there are unique southern kelp communities.

Agulhas: This province hosts the spectacular annual “sardine run” migration with feeding by gannets, penguins, seals, dolphins and sharks

Easter Island: This is one of a series of highly isolated island provinces, including extensive submerged ridges and seamounts, as well as shallow waters, with remarkable levels of endemism (43% of fish and 50% of invertebrates in this area are found nowhere else).

Such areas tell an important story of evolutionary origins and contemporary marine processes.

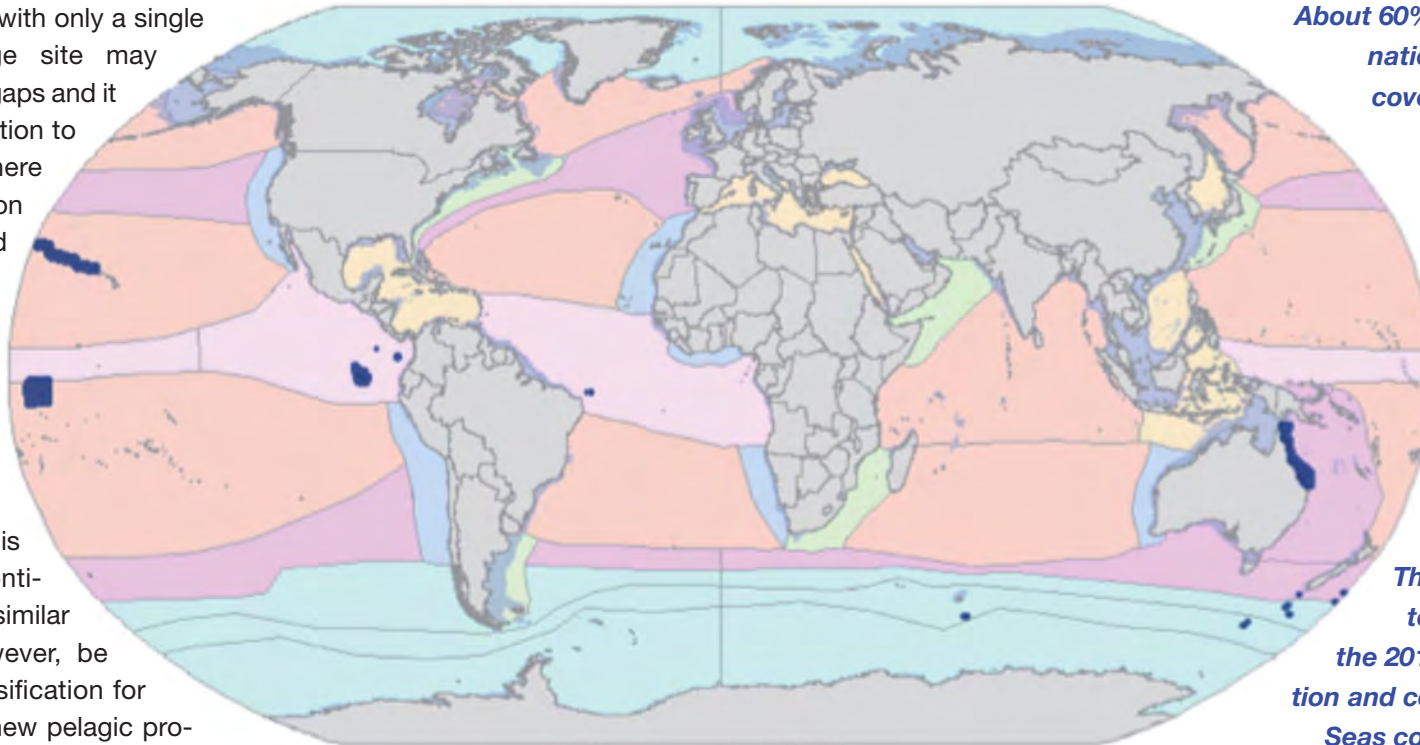
Scotia Sea : This area contains some of the most diverse marine life in the Southern Ocean both on the Antarctic Peninsula and the adjacent island groups.

The entire realm is rich in endemic families of fish life, rich and highly productive bird and marine mammal faunas, entire ecosystems with no parallel elsewhere in the world.



A word about areas beyond national jurisdiction

Even provinces with only a single World Heritage site may contain major gaps and it is worth drawing attention to the Arctic Realm where the MEOW classification has not yet classified distinct provinces. No World Heritage sites exist anywhere along the extensive Canadian, United States of America, or European Arctic coastlines. The focus of this work is on nearshore and continental shelf waters. A similar approach could, however, be used to devise a classification for open seas using the new pelagic provinces of the world classification designed in by UNESCO's Intergovernmental Oceanographic Commission and others. At the present time only seven of the 37 pelagic provinces of the world have any significant marine World Heritage presence.



Pelagic provinces shaded by biomes:
Gyre Eastern boundary current
Equatorial Western boundary current
Polar Semi-enclosed sea
Transitional

Only 10 of the existing World Heritage sites have significant off-shelf marine coverage – Heard and McDonald Islands, Brazilian Atlantic Islands: Fernando de Noronha and Atol das Rocas Reserves, Galápagos Islands, Great Barrier Reef, Cocos Island National Park, Malpelo Fauna and Flora Sanctuary, Macquarie Island, Phoenix Islands Protected Area, New Zealand Sub-Antarctic Islands, Papahānaumokuākea. Background shading shows the pelagic provinces of the world that occur in the deep sea parts of the ocean.

About 60% of the ocean lies beyond national jurisdiction and is not covered under the 1972 World Heritage Convention. The World Heritage Marine Programme, in collaboration with IUCN's Global Ocean Biodiversity Initiative (GOBI), is starting a new initiative that will study application of the concept of Outstanding Universal Value to High Seas areas. This work is done in response to the recommendations of the 2011 Global Strategy Evaluation and could greatly enhance High Seas conservation through global agreements such as the 2002 Convention on Biological Diversity.



Future steps

MEOW is a globally recognized classification system, adopted by the 1971 Ramsar Convention and used as a framework for marine conservation assessment by IUCN and others. Its use by the World Heritage Convention would present a practical, inexpensive approach, allowing comparison with these other assessments.

The Marine Ecoregions of the World (MEOW) classification has been adopted as a global-scale classification for assessing representative coverage of marine and coastal sites by the 1971 Ramsar Convention on Wetlands. This same system has also been used for the assessment and reporting of progress in marine protection by the IUCN. As such, it provides an already proven tool and its use by the World Heritage Convention would present a highly parsimonious approach, allowing comparison with these other assessments. Such adoption should be advisory, rather than mandatory. In parallel it would be valuable to encourage the use of the new classifications for pelagic and deep sea marine environments alongside the MEOW.

More work is needed, but simple synthetic classifications of habitats, geological and geomorphological systems would provide a useful further tool that might be used



alongside the biogeographic analysis to give further strength to review marine gaps on the World Heritage List and provide adequate guidance and support to States Parties.

Any future assessment would benefit not only from a refined and agreed habitat classification, but also further consideration of priorities within such a framework, bearing in mind the considerable variation in abundance of different habitats. Every World Heritage marine site contains a broad mix of habitats, and the presence of the same habitat in multiple sites does not necessarily reflect repetition (any more than “cathedrals” might represent repetition among cultural World Heritage).



Future steps

Representation of marine geological features is challenging because of the lack of systematic guidance at present. A quick review of the World Heritage List illustrated that sea cliffs, dunes and estuaries are well represented, but major upwelling systems and polynyas are not.

A quick overview of the current system suggests that for certain, widely accepted, habitat classes there is already a great divergence of representation. Thus mangroves, coral reefs and saltmarshes are relatively well represented in the network to date (29, 25 and 12 sites respectively) while macroalgae (kelp forest) and shellfish reef habitats are very poorly covered (3 and 2 sites).

Geological diversity (as opposed to biodiversity) presents an even greater challenge, but one that again may be tractable with some further effort. It may be advisable that geological and geomorphological classifications be kept separate. It would be advisable that oceanographic features such as currents and gyres, upwellings, exposure, tidal settings, ice, and thermal patterns might also form part of this approach. It is noteworthy that the existing MEOW classification and indeed most existing marine habitat classifications are strongly influenced by geological and geomorphological features. Oceanic islands and seamounts, semi-enclosed seas, and major embayments are all featured in the MEOW classification, while many habitats are described by their dominant geomorphological features such as, for example, sandy shores, rocky benthos, volcanic vents, reefs, dunes, deltas, lagoons and barrier islands. While these do not provide a comprehensive classification of geodiversity at least some elements may be captured and can already be assessed. Thus, in a rapid review, we can see that sea cliffs, dunes and estuaries are well represented (21, 21, and 15 sites respectively), but major upwelling systems and polynyas are not (2 and zero).



The **MEOW classification could assist States Parties** by providing context for future site nominations. Such framework could, for example, greatly aid States Parties **with the comparison among sites already inscribed on the World Heritage List and facilitate the identification of truly unique ocean features.**

At the same time, States Parties could further refine the framework by building in assessments of habitat, geological and geomorphological diversity as these become available through other marine conservation analysis in respective countries or regions. It would be equally valuable to review existing sites in a more comprehensive manner, and consider the result in view of streamlining Tentative Lists.

Application of a MEOW classification could greatly strengthen the process of identifying new sites of potential Outstanding Universal Value and ultimately lead to a balanced and credible collection of marine sites that fully represents our ocean's World Heritage -- areas for which distinction would be an irreplaceable loss to humanity.



About this publication



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