

Approaches for identifying areas of particular importance for marine biodiversity

Identifying and conserving areas of particular importance for biodiversity is a fundamental element of the Kunming-Montreal Global Biodiversity Framework (GBF). There are a number of standardised approaches for identifying areas of particular importance for biodiversity in the marine realm: Ecologically or Biologically Significant Marine Areas (EBSAs), Important Marine Mammal Areas (IMMAs), Important Shark and Ray Areas (ISRAs), and Key Biodiversity Areas (KBAs), with a standard for Important Marine Turtle Areas (IMTAs) also nearing completion. This document provides a brief summary of these approaches — highlighting the biodiversity considered, identification process, and outputs — and showcases how they can be used to inform GBF planning. Taken together, these approaches provide crucial data to inform planning towards the GBF, and continuing identification of important marine biodiversity areas should be a priority for CBD Parties. These approaches can feed into, but do not replace, the need for robust conservation planning to inform GBF achievement.



Dolphins in the waters of Kaikōura, New Zealand by Pablo Heimplatz (Unsplash)



A turtle in the waters of Aruba by David Courbit (Unsplash)

The crucial need to identify important marine areas

Identifying and conserving areas of particular importance for biodiversity is a fundamental element of the Kunming-Montreal Global Biodiversity Framework (GBF). While broad actions to improve overall environmental sustainability are also essential, it is critical that Parties identify and map areas of high biodiversity importance. This will help prioritise limited resources for conservation, and enable effective implementation of conservation interventions. This is especially true in the marine realm, where protection lags far behind terrestrial areas, and overall understanding of the distribution and status of known biodiversity is lower than on land. There are also large areas beyond national jurisdiction, where migratory and highly mobile species can be relatively common, or where deepwater species depend on highly vulnerable ecosystems.

There are now a number of approaches for mapping important marine biodiversity areas. These approaches focus on different aspects of biodiversity, utilise a range of different criteria, require different types of evidence and documentation, identify important locations at different scales, and produce outputs that can inform conservation in different ways. Effective planning towards achieving GBF goals and targets requires understanding the range of approaches for mapping important biodiversity areas, how they compare and complement each other, and how their outputs can be utilised to inform planning.

This brief provides a practical summary of approaches for mapping important marine areas, and showcases how they can be used to inform GBF planning. We first review GBF targets to identify those that require identification of important areas. Next, we provide a summary of approaches for mapping important marine areas, assessing their overall objectives, types of biodiversity considered, criteria used, data requirements, and identification process. Finally, we make a series of recommendations for using these approaches to inform GBF planning for marine conservation. We also link to a range of more detailed relevant resources at the end.

BOX 1. Informing GBF planning by identifying important areas

Target 1 — *“Ensure that all areas are under...biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030”* — explicitly calls for bringing the loss of “areas of high biodiversity importance” to zero by 2030. The approaches outlined in this brief can therefore feed directly into spatial planning processes under Target 1.

For **Target 2** — *“Ensure that by 2030 at least 30 percent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration”* — identification of areas of particular importance for biodiversity can guide both the location of restoration efforts and the specific restoration activities undertaken.

Under **Target 3** — *“Ensure and enable that by 2030 at least 30 percent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity... are effectively conserved and managed through...systems of protected areas and other effective area-based conservation measures”* — approaches for identifying important marine biodiversity areas can influence selection of areas of particular importance for biodiversity under this 30% commitment.

For **Target 4** — *“Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species...”* — approaches for identifying areas of particular importance for biodiversity can be used to target urgent management actions to the most important areas for threatened species, or map areas of particular importance for threatened species’ life-history processes (e.g., reproduction).

For **Target 10** — *“Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity,”* — approaches for identifying areas of particular importance for biodiversity can be used to prioritise areas where fisheries management measures can be put in place to minimise interactions of threatened species with harmful fishing gear and where critical marine habitats could be impacted by potentially harmful aquaculture operations.

For **Targets 5–9 and 11–23**, understanding the location of areas of particular importance for biodiversity provides critical contextual information for environmental planning, and has relevance for all targets, especially those related to management/reduction of pressures on biodiversity.

Approaches for identifying important marine areas

There are five major approaches for identifying areas of particular importance for biodiversity in the marine realm. All these approaches use a set of scientific criteria to identify geographically bounded areas of particular importance for biodiversity, recording information on particular species, ecosystems, and threatening processes. Approaches vary in terms of the biodiversity considered, criteria, and identification process, but all can provide useful information for GBF planning. Here, we provide a brief summary of each approach (expanded in Table 1), and later discuss how these approaches can be used to inform national planning towards GBF targets. Figure 1 shows the currently identified areas under each approach.

Ecologically or Biologically Significant Marine Areas (EBSAs) are defined as “special areas in the ocean that serve important purposes, in one way or another, to support the healthy functioning of oceans and the many services that it provides”¹. The description of EBSAs has been led by the Convention on Biological Diversity (CBD) through a series of regional workshops. EBSAs are described on the basis of meeting one or more of seven criteria. The regional workshops bring together scientific, regional, and technical experts to source, discuss, and assess the data available for a particular region of the ocean. The workshop report is agreed by consensus by the workshop participants, and the regional workshop reports are scrutinised by the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) before being submitted to the Conference of Parties (COP). Identified areas may range in size from very small sites to extensive areas covering oceanographic features that are larger than any existing marine protected area (MPA).

Important Marine Mammal Areas (IMMAs) are defined as “discrete portions of habitat, important to marine mammal species, that have the potential to be delineated and managed for conservation”^{2,3}. Areas qualify as IMMAs if they meet one or more of eight criteria or sub-criteria that are meant to capture critical aspects of marine mammal conservation status, biology, ecology, and population structure. The criteria and sub-criteria encompass vulnerability, distribution, abundance, special attributes, and key life cycle activities. For each criterion, substantial evidence must be presented, including published or unpublished data, and final acceptance occurs only after review by an independent panel. IMMAs are supported by an *ad-hoc* Resolution (12.13) adopted by the Parties to the Convention on Migratory Species (CMS).

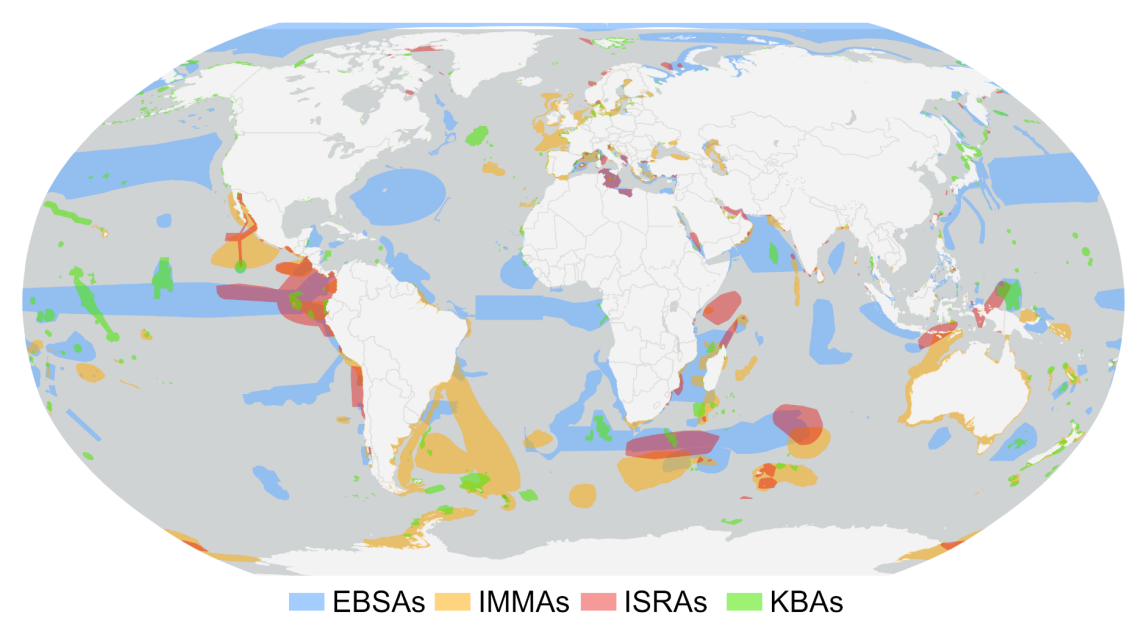


Figure 1. Important marine areas mapped under different approaches as of September 2024.

Important Shark and Ray Areas (ISRAs) are defined as “discrete, three-dimensional portions of habitat, important for one or more shark, ray or chimaera species, that are delineated and have the potential to be managed for conservation”⁴. ISRAs are delineated using a set of four standardised scientific criteria, with seven sub-criteria. The ISRA criteria can be applied to all environments where sharks, rays, and chimaeras occur (marine, estuarine, and freshwater) and consider the diversity of species, their complex behaviours and ecology, and their biological needs. The criteria cover vulnerability, range restriction, life history (reproductive areas, feeding areas, resting areas, movement, and undefined aggregations), and special attributes (distinctiveness, diversity). ISRAs are identified region by region during workshops bringing together contributors from across each region.

To become an ISRA, proposed areas undergo rigorous review by an independent review panel to ensure the criteria are met and supported by robust evidence. ISRAs have been recognised and supported by a Resolution (14.7) and Decisions (14.61 and 14.64) by the Parties to the CMS and the Signatories to the CMS Sharks Memorandum of Understanding (Sharks MOU). ISRAs are now being incorporated into objectives of National Biodiversity Strategies and Action Plans and other regional strategies (e.g., Secretariat of the Pacific Regional Environment Programme [SPREP]).

Key Biodiversity Areas (KBAs) are defined as “sites contributing significantly to the global persistence of biodiversity”⁵. Sites qualify as global KBAs if they meet one or more of 11 criteria, clustered into five higher level categories: threatened biodiversity, geographically restricted biodiversity, ecological integrity, biological processes, and irreplaceability⁵. For each criterion, data showing that quantitative thresholds are met is required for a site to qualify. KBAs encompass and build on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas (IBAs), Alliance for Zero Extinction sites (AZEs, equating to KBAs identified under sub-criterion A1e), and KBAs identified through biodiversity hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Sites identified under these standards are currently recognised as KBAs, along with sites identified using a previous version of the KBA criteria⁶, but these are now being reassessed using the criteria in the Global KBA Standard formally approved by IUCN Council in 2016⁵.

KBAs underpin indicators used by CBD, CMS, Ramsar, United Nations Convention to Combat Desertification (UNCCD), Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), and the United Nations (UN) Sustainable Development Goals, and are also explicitly referenced in various safeguard policies of international financial institutions, and in the strategies of the Global Environment Facility and other donors.

Important Marine Turtle Areas (IMTAs) are defined as “discrete areas within existing marine turtle regional management units that are of particular biological significance for the persistence of marine turtles, and/or where the contributions of marine turtles to traditions and cultures of local people are particularly significant”. Criteria and guidelines for developing IMTAs have been developed to promote IMTAs as a new approach to identify places of biological and cultural significance for marine turtles, although no areas have yet been identified. IMTAs are akin to and complement important areas frameworks for other migratory marine megafauna, and thus should help make spatial marine conservation prioritisation more robust and inclusive.

Table 1. Summary of approaches for identifying important marine biodiversity areas

Approach	Biodiversity considered	Criteria (brief overview)	Identification process	Assessment status
Ecologically or Biologically Significant Marine Areas (EBSAs)	All marine biodiversity and associated processes	Qualitative thresholds on 1) uniqueness or rarity; 2) special importance for life history stages of species; 3) threatened, endangered or declining species and/or habitats; 4) vulnerability, fragility, sensitivity, or slow recovery; 5) biological productivity; 6) biological diversity; 7) naturalness.	Regional workshops bringing scientific, regional, and technical experts together to source, discuss, and assess the data available against EBSA criteria. The regional workshop reports are scrutinised by the CBD SBSTTA before being submitted to COP.	Between 2011 and 2019, 15 regional EBSA workshops assessed 75% of the world's oceans to describe 338 EBSAs ¹ , of which 11% lie entirely within the high seas. Antarctica has not yet been assessed, but EBSAs are likely to keep being updated pending a decision at CBD COP16.
Important Marine Mammal Areas (IMMAs)	All 134 species of cetaceans, pinnipeds, sirenians, sea otters, and polar bears	Qualitative thresholds on 1) species vulnerability; 2) distribution/abundance; 3) key life cycle activities; 4) special attributes.	Regional, expert-led process involving the collation and assessment of evidence against the IMMA selection criteria. Candidate IMMAs are independently reviewed before approval. The process is led by the IUCN Marine Mammal Protected Areas Task Force.	280 IMMAs (23 in the high seas) have been identified across 74.3% of the ocean as of August 2024, increasing to 80% in 2025.
Important Shark and Ray Areas (ISRAs)	All 1,260+ species of sharks, rays, and chimaeras	Qualitative and semi-quantitative thresholds on 1) species vulnerability; 2) range restriction; 3) life history processes; 4) special attributes.	Regional, expert-led process involving the collation and assessment of evidence against the ISRA selection criteria. Candidate ISRAs are independently reviewed before approval. The process is led by the IUCN SSC Shark Specialist Group.	The ISRA process has been applied for the Asia, Central & South American Pacific, Mediterranean and Black Sea, Western Indian Ocean, Polar Waters, and New Zealand and Pacific Islands regions. As of August 2024 date, 410 ISRAs have been identified (17 in the high seas).
Key Biodiversity Areas (KBAs)	All levels of biodiversity (genetic diversity, all macroscopic species, ecosystems)	Quantitative thresholds on 1) threatened species and ecosystems; 2) geographically restricted species and ecosystems; 3) ecological integrity; 4) biological processes; 5) irreplaceability. (Although the criteria for KBAs are broader than those for IBAs, nearly all IBAs also qualify as KBAs. 60% of the species for which marine KBAs have been identified are birds, with most of the remainder comprising plants, mammals, reptiles, fishes, and invertebrates).	Identified nationally, typically through KBA National Coordination Groups that bring together representatives from the government, NGOs, academia, Indigenous Peoples groups and other stakeholders, although anyone can propose a KBA. Marine KBAs in areas beyond national jurisdiction are typically identified through regional or global processes. KBAs are independently reviewed before validation and confirmation by the KBA Secretariat. The process is led nationally, but overseen by the KBA Secretariat and supported by the KBA Partnership of 13 international conservation organisations.	16,551 KBAs identified across all countries worldwide, including 3,676 marine KBAs (63 in the high seas). These include IBAs and sites identified under previous versions of the KBA criteria that have not yet been reassessed against the Global KBA Standard.
Important Marine Turtle Areas (IMTAs)	All 7 species of marine turtles	Areas must first be identified as biologically or culturally significant, and then meet criteria relating to one of the below: 1) relative importance to the population; 2) species or populations of particular concern; 3) aggregations or congregations; 4) distinctiveness; 5) diversity.	IMTAs will be identified through a two-step process. First, a candidate area must be biologically or culturally significant. Second, the area will be evaluated against several criteria to demonstrate its disproportionate importance to a given region. The process will be led by the IUCN SSC Marine Turtle Specialist Group.	No areas identified yet

Comparing approaches

While all approaches outlined above aim to identify sites or areas of particular importance for marine biodiversity, effective planning for GBF implementation will require understanding the broad similarities and differences amongst approaches and determining when and how each is most useful for a given planning context.

One of the major differences between approaches is the elements of biodiversity they consider.

KBAs and EBSAs are focused on biodiversity in a broad sense, considering all species and ecosystems, as well as biological processes, ecological integrity, and irreplaceability. Other approaches (IMMAs, ISRAs, IMTAs) are designed for particular groups of species, with identification methods tailored specifically to the biological characteristics and data availability of those species groups. These approaches emerged partly because the data required for applying the quantitative KBA criteria are scarce for many marine species, and partly due to the need to prioritise the identification of areas important for key life history processes.

Approaches also vary in the process and data required for identification. KBAs are generally identified through nationally driven processes, normally through formation of a KBA National Coordination Group that leads data compilation and analysis to determine site qualification through the assessment of quantitative thresholds. While KBAs have been identified in all countries worldwide, efforts are ongoing to apply the Global KBA Standard⁵ to those that were identified under AZE, IBA, and previous versions of the KBA criteria. To date, certain KBA criteria (relating to ecosystems and ecological integrity) have not yet been widely applied, and thus further identification efforts are necessary in many places. EBSAs, IMMAs, and ISRAs are identified through expert-driven regional processes that bring together the best available knowledge and data to assess areas against selection criteria. IMTAs will follow a similar process when identification begins. Importantly, these latter approaches do not include strict quantitative thresholds, for which data availability may be more challenging for some marine species. Nonetheless, some IMMAs and ISRAs are also KBAs, and additional sites (along with IMTAs as they are identified) will likely qualify as regional KBAs once guidelines for applying the Global KBA Standard at regional levels are developed. In some cases, IMMAs and ISRAs also allow for the applicability of the vulnerability criterion to species that are threatened at a regional (rather than global) scale.

Potential management interventions that can be used to conserve important areas also vary across approaches. These approaches identify sites or areas that are relevant to management, but consideration needs to be given to the scale of the areas identified, and the species, their sensitivity, and threats, to determine the appropriate management needs for the area. All approaches identify sites or areas with a variety of sizes. However, unlike KBAs, currently identified EBSAs, IMMAs, and ISRAs also include some very large areas that cover multiple jurisdictions or large portions of the high seas (Figure 1). Such large, multi-jurisdiction areas are not intended to be designated or recognised as strictly protected areas or Other Effective Area-Based Conservation Measures (OECMs) in their entirety. Nonetheless, identification of large areas of importance can inform application of sustainable management practices for industries such as fishing (e.g., seasonal management, bycatch mitigation measures), shipping (e.g., designations of Particularly Sensitive Sea Areas by the International Maritime Organization), resource extraction (e.g., deep sea exploration or mining), or other species-/guild-specific policy measures. In general, KBAs identify smaller sites that are restricted to specific locations where data are available to confirm the location of particular species, ecosystems, or areas of high ecological integrity, although a small number are larger than 100,000 km². KBAs are also required to be actually or potentially manageable as a unit, meaning they either fit within existing jurisdictional management units such as protected areas, fisheries management zones etc., or are at a scale appropriate for designation/recognition of such units. ISRAs are also required to be manageable as a unit but will allow for delineated areas to be larger in scale where needed to ensure important life-history processes are captured within the boundaries of each area.

Informing GBF planning

All of the identified approaches have utility for informing GBF planning and implementation, and here we discuss how they can be applied to specific goals and targets of the GBF. It should be noted that the CBD Ad Hoc Technical Expert Group on the monitoring framework has recommended that the headline indicator for Target 3 (coverage of protected areas and OECMs) is disaggregated by “areas of particular importance for biodiversity”, with KBAs providing the data to achieve this. Importantly, however, all approaches identified here have utility for informing GBF planning.

Under Target 1, all approaches have utility for identifying areas of high biodiversity importance as part of biodiversity-inclusive marine spatial planning processes. Most approaches identify some small sites with direct management potential, and some also identify larger areas for which broader sustainable management practices would be more suitable (e.g., EBSAs, IMMAs, ISRAs). Importantly, KBAs and EBSAs are the only approaches that explicitly include criteria to identify areas based on ecosystems and high ecological integrity/naturalness, and so conducting assessments under these criteria should be a priority for all countries. Similarly, IMTAs are the only approach which includes criteria on cultural importance, and so will be helpful to ensure planning identifies areas of importance for Indigenous Peoples and local communities. It will also be important to recognise the value of approaches for informing broader-scale conservation (e.g., through engagement with regional fisheries bodies or through designation of high-seas MPAs). High seas conservation planning can be informed by all approaches. It is worth noting that the highly mobile marine megafauna can act as “umbrella” and “flagship” species that can motivate protection of large areas (as identified by IMMAs and ISRAs) with conservation benefits for the whole ecosystem.

Under Target 2, the approaches summarised here can inform selection of priority areas for ecological restoration. As well as identifying important areas for potential restoration, these approaches can also provide valuable information on key species, ecosystems, biological processes, and threats to biodiversity, helping inform the design of ecologically appropriate restoration actions to reduce threats and facilitate life-history needs (e.g., feeding and breeding areas). Understanding the distribution, ecological characteristics, and threats facing coastal ecosystems will likely be crucial for robust restoration planning, and much of these data can be obtained from Red List of Ecosystems assessments⁷, which should be an ongoing priority for CBD Parties.

Under Target 3, all approaches can be used to varying degrees to inform design and expansion of MPAs and recognition of OECMs towards 30% coverage of the ocean. Some areas may be directly targeted for protection efforts, especially those that are small enough to be managed as a single unit, and so can feed directly into planning for MPA/OECM design and expansion. For example, governments are already using the coverage of KBAs by protected areas and OECMs for monitoring progress towards Sustainable Development Goal 14 and CBD targets, and this is expected under Target 3 too, as CBD National Report templates will be pre-populated with these data. Similarly, some governments are using ISRAs to expand current MPAs designated for sharks based on newly available information.

Some larger EBSAs, IMMAs, and ISRAs are too extensive to be suitable for designation as MPAs or management through OECMs. However, they can be used to focus efforts for further work to identify individual sites for designation as protected areas or recognition as OECMs to achieve Target 3. Identification of important biodiversity areas under Target 3 should encompass all biodiversity. It is also essential that nations consider the key principles of conservation planning, aiming to achieve comprehensive, adequate, representative, and efficient networks of MPAs/OECMs^{8,9}. As such, the approaches discussed here inform, but do not replace, the need for robust conservation planning.

Under Target 4, approaches can directly inform both site-based conservation efforts and broader management strategies to reduce species extinction, maintain genetic diversity, and reduce human–wildlife conflict. For many threatened species, site-scale conservation is the highest priority in the immediate future. The approaches described here can help to focus efforts on implementing urgent management actions for threatened species at the most important sites for the species, typically through management of protected areas or OECMs. They may also inform broader-scale responses required (e.g., through regulation of activities like fishing and shipping, or policies to minimise pollution).

Under **Target 10**, approaches can be used to inform policies on which areas need to be prioritised for management to reduce the negative effect of exploitation on biodiversity. Some identified areas might be impacted by Illegal, Unreported, and Unregulated (IUU) fishing or fishing that might still be occurring in MPAs. The approaches discussed here, particularly IMMAs and ISRAs, can highlight where measures can be used to reduce interactions with fisheries. These can include closed areas and/or seasonal closures where and when risk of incidental catch is particularly high; technological measures such as Bycatch Reduction Devices (BRDs), deployment of longline hooks at depth (to reduce bycatch of seabirds), and locations for acoustic monitors for cetacean sounds (e.g., to inform shipping and underwater noise management) and sonic deflectors (to reduce bycatch of cetaceans) can support these efforts. They may also inform improvements for monitoring, compliance, and surveillance (e.g., through improved resource allocation) which, in the long term, also allows for the assessment of past, current, and future fishing activity impacts.

These approaches should also be considered when planning for all GBF Targets, as they can provide critical contextual information. For example, under **Targets 5 and 9** — which focus on harvesting of wild species — approaches can be used to identify particular species or areas of concern to be prioritised for improved fisheries management. Under **Target 7** — which aims to reduce pollution levels — approaches can be used to identify priority areas for establishment of pollution-reduction activities. Under **Target 11**, approaches can be used to identify priority areas for maintenance and restoration of ecosystem services while also delivering biodiversity benefits. For all GBF targets, information on areas of particular importance for marine biodiversity should be considered throughout the planning and implementation of activities, even if they will not directly occur within these areas.

Recommendations

- **Implementing many of the GBF targets requires an understanding of the location of “areas of particular importance for biodiversity”.** Well-established approaches exist for identifying such areas, and data are freely available for each country worldwide to feed into national plans and conservation planning processes.
- **GBF planning will greatly benefit from considering EBSAs, KBAs, and taxon-specific approaches (IMMAs, ISRAs, IMTAs) where useful and applicable.** These approaches, taken together, provide critical information on important areas for a range of taxa. While KBAs are already being used by governments and Multilateral Environmental Agreements to track progress towards the GBF and other goals and targets, ongoing identification of IMMAs, ISRAs, and (in due course) IMTAs will be crucial to identify additional areas of importance using different criteria.
- **Continuing identification of important marine biodiversity areas should be a priority for CBD Parties.** This could include formation of KBA National Coordination Groups, and support for processes to identify EBSAs, IMMAs, ISRAs, and IMTAs. Together, these approaches are crucial for identifying sites and areas of global importance across the full spectrum of biodiversity, and outputs can feed directly into GBF planning for multiple goals and targets.
- **These approaches do not replace the need for robust conservation planning¹⁰.** Biodiversity-inclusive spatial planning, conducted as part of Target 1, will provide fundamental information required to inform actions under the GBF as a whole. The approaches outlined here will feed into spatial planning analyses that apply the conservation planning principles of complementarity, adequacy, representation, and efficiency. Detailed guidance on biodiversity-inclusive spatial planning can be found in an IUCN WCPA Issues Paper [here](#)¹¹.
- **Important areas for marine biodiversity should be considered in planning across all GBF Goals and Targets.** While the approaches discussed here have direct links to Targets 1–4 and Target 10, they also provide critical contextual information that should be incorporated into planning for Targets 5–23.

- Parties should continue to support high seas conservation efforts and support rapid ratification of the high seas treaty. The approaches here have identified important areas for biodiversity in the high seas, and conserving these areas will be critical for GBF achievement, particularly Goal A and Targets 1, 3, 4, and 10. Engagement with regional fisheries bodies, removal of harmful fisheries subsidies, and creation of high seas MPAs under the UN Agreement on Biodiversity Beyond National Jurisdiction (once it enters into force) will be critical.

Websites

- EBSAs: <https://www.cbd.int/ebsa/>
- KBA sites: <https://www.keybiodiversityareas.org/sites/search>
- IMMAs: <https://www.marinemammalhabitat.org/>
- IBAs marine: <https://maps.birdlife.org/marineibas/>
- ISRAs: <https://sharkrayareas.org/>
- IMTAs: <https://www.iucn-mtsg.org/imtas>



Hammerhead sharks, Yonaguni, Japan
by Masayuki Agawa / Ocean Image Bank

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