

CONSERVING AND RESTORING INLAND WATERS USING KEY BIODIVERSITY AREAS (KBAs)





Photos from top to bottom: *Crocodylus rhombifer* © Coral Aviles;
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Water is essential for life on earth. Inland waters (including wetlands) are crucial for maintaining global biodiversity and provide essential ecosystem services such as clean water, food, flood control, drought mitigation, and carbon sequestration. Recognition of **Key Biodiversity Areas** can ensure that inland waters of particular importance for biodiversity are safeguarded for future generations.



Sachatamia electrops
© Mateo García Mejía

INTRODUCTION

Key Biodiversity Areas (KBAs) are recognised as globally significant sites for the persistence of biodiversity. KBAs provide a scientifically robust and globally standardised framework for mapping areas of particular importance for biodiversity that can then be used to guide conservation actions, including establishment and management of protected areas and other effective area-based conservation measures (OECMs) towards 2030 and beyond.

By identifying KBAs, governments can strategically direct scarce conservation resources to the most important inland waters and wetlands. Additionally,

KBAs enable countries to effectively monitor success and facilitate harmonised reporting under the Convention on Biological Diversity (CBD), the Ramsar Convention on Wetlands, and other Multilateral Environmental Agreements (MEAs).

This briefing highlights how governments can benefit from KBAs in inland waters, from mapping areas of particular importance for freshwater species and ecosystems to mainstreaming KBAs in spatial planning and management. It also provides examples of how countries are identifying and using KBAs.

WHY WE NEED KEY BIODIVERSITY AREAS FOR OUR INLAND WATERS AND WETLANDS

Our inland waters and wetlands are in poor health. Governments have agreed on targets to halt biodiversity loss and restore inland waters to reverse this trend. The Kunming-Montreal Global Biodiversity Framework (KMGBF) sets targets for 2030 to put 100% of the world's inland water areas (including wetlands under integrated **spatial planning** and management (Target 1), to **restore at least 30% of degraded inland water areas** (Target 2) and to effectively **conserve at least 30% of the world's inland water areas** through protected areas and other effective area-based conservation measures (Target 3).

While approximately 17.6% of global land and inland water areas are currently covered by protected and

conserved areas, inland waters are underrepresented compared to terrestrial systems. Conservation and restoration of inland water areas are essential for meeting global commitments to halt biodiversity loss and maintaining indispensable ecosystem services. Decisions by the UN General Assembly, the UN Framework Convention on Climate Change and the Convention on Migratory Species (CMS) have also made it clear: establishing protected and conserved areas as part of a comprehensive ecological network is critical for bolstering resilience and adaptation in the face of climate change.

GLOBAL STANDARD FOR IDENTIFYING IMPORTANT SITES FOR ALL SPECIES AND ECOSYSTEMS



The KBA Programme is managed by 13 leading global conservation organisations, including BirdLife International, the International Union for Conservation of Nature (IUCN), and the Global Environment Facility (GEF). These organisations have united under the KBA Partnership to actively collaborate with governments and MEAs to identify, map, monitor and conserve KBAs **for all species and ecosystems**, as well as areas of high ecological integrity. By using the criteria and quantitative thresholds set out in the

global [KBA Standard](#) to identify sites, KBAs can be compared across countries and regions, making them valuable indicators for tracking progress in protecting biodiversity. As a result, KBAs have become established as a high-level reporting tool – for example, under the monitoring framework of the KMGBF, United Nations' Sustainable Development Goal (SDG) indicators (such as Goal 15 on Life on Land, which includes inland waters), CMS, and in National Biodiversity Strategies and Action Plans (NBSAPs) under the CBD.

HOW KBAS RELATE TO THE RAMSAR CONVENTION ON WETLANDS AND THE IMPLEMENTATION OF THE KMGBF

The identification of inland water and wetland areas of particular importance for biodiversity underpins the success of both Target 3 (the 30x30 target) of the KMGBF and the objectives of the Convention on Wetlands.

- Under the KMGBF, the disaggregated indicator for Target 3 is areas of particular importance for biodiversity, based on KBA coverage by protected areas and OECMs. Ensuring Ramsar Sites are designated in areas of particular importance for biodiversity, such as KBAs, ensures they contribute to the delivery of the KMGBF.
- KBA data can help inform the designation of Ramsar Sites, identifying potential Ramsar criteria such as the location of species populations or ecosystems, as well as support their safeguarding and financing through inclusion in multilateral development bank frameworks and prioritisation by donors such as the GEF.
- For Ramsar sites that cover one or more KBAs, data on the biodiversity elements that trigger KBA status (including spatial data) can inform site management to ensure this globally significant biodiversity is not lost.



WHY INLAND WATER KBAs MATTER

1 Informed Spatial Planning

Phnom Penh, Cambodia © Kelly



- KBAs facilitate identification of high-quality, globally recognised sites via a globally accessible platform that governments can integrate into spatial planning and management processes. Each KBA holds at least one globally significant species' population or ecosystem type, hosts important biological processes, or is a site of outstanding ecological integrity or irreplaceability.
- KBAs should be managed in such a way that the biodiversity elements that trigger KBA status are safeguarded and do not decline. As such they can contribute to balancing nature

conservation with economic activities such as fisheries, agriculture and livestock production, and hydropower; and thereby contribute to achieving Target 1 of the KMGBF and other global targets.

- Understanding the location of areas of particular importance for biodiversity also provides critical contextual information for environmental management, with relevance to KMGBF Targets 5, 9 and 10 (which focus on the sustainable harvest and management of wild species and ecosystems, including in freshwater fisheries).

2 Identify Protected Areas, Other Effective Area-Based Conservation Measures (OECMs) and more



Salar de Surire, Chile © Pierre Doyen

- KBAs serve as a scientifically sound basis for identifying and expanding protected areas, as well as other area designations, such as Wetlands of International Importance under the Ramsar Convention.

- KBAs support the recognition of OECMs by identifying manageable sites that are important for biodiversity, helping governments meet and monitor international targets while respecting local stakeholder interests.

3

Monitoring Progress and International Policy Alignment

Batagur kachuga © Markus Lilje



- KBAs are recognised as a high-level reporting tool for monitoring progress toward global biodiversity conservation goals across terrestrial, freshwater, coastal and marine ecosystems, notably the KMGBF (specifically Targets 1, 2 and 3) and the SDGs (specifically Goals 14 and 15).
- KBAs support governments in setting national targets and actions under MEAs, including NBSAPs under the CBD, the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Convention, the Ramsar Convention on Wetlands, CMS, and other instruments.

4

Guide Nature-Positive Investment and Business Development

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- Multilateral funds and the private sector commonly use KBAs as an objective standard to assess operational footprints and biodiversity risks. KBAs are recognised by the International Finance Corporation's Performance Standard 6 and in the Equator Principles, and form the core of the [Integrated Biodiversity Assessment Tool \(IBAT\)](#).
- KBAs can guide nature-positive growth in economic sectors that depend heavily on inland waters and wetlands. Industries such as fisheries, agriculture, livestock production, and hydropower can use KBA information to minimise environmental impact while meeting corporate sustainability targets.
- Ramsar's [Guidance on including wetlands in National Biodiversity Strategy and Action Plans \(NBSAPs\) to boost biodiversity and halt wetland loss and degradation](#) notes that wetlands are important as a source of food and nutrition for many people around the globe and that the sustainable use and management of wild inland water species should be given specific consideration in NBSAPs to ensure wise use and prevent overexploitation and minimise impacts on non-target species and wetland ecosystems. KBAs can guide where the development of sustainable use practices will be most important for inland water biodiversity.

5 Contribute to Coherent Environmental Assessments

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- KBAs are integrated into environmental screening tools, enabling better-informed Environmental Impact Assessments (EIAs).
- KBAs can strengthen the application of coherent EIAs and Strategic Environmental Assessments (SEAs), which are a widespread mandate across MEAs.

6 Strengthening Biodiversity Funding and Governance

Loxodonta africana © kinajoubert



- Both the GEF and the CEPF are KBA Partners and prioritise funding towards sites that qualify as KBAs. Identifying and mapping KBAs in inland waters can therefore help direct this funding towards these important areas for biodiversity.
- Governments and other stakeholders can use KBA data to develop biodiversity offsets and to secure funding from international donors, including the GEF, development banks and private sector investors committed to biodiversity-friendly development.
- KBA is a “bottom up” planning tool, enhancing collaboration between government agencies, local people, indigenous people, private sector, science, non-governmental organisations (NGOs) and other stakeholders through National Coordination Groups (NCGs).

CALL TO ACTION FOR GOVERNMENTS

Governments have a unique opportunity to leverage KBAs as a strategic tool for nature-positive spatial planning, sustainable development, and international compliance. To maximise the benefits of KBAs, governments should:



- **Commit to updating and expanding KBA assessments** to close the current gaps in geographic coverage across terrestrial, inland water, and coastal and marine areas, and ensure that the most relevant and current biodiversity data is used.



- **Establish and support KBA National Coordination Groups (NCGs)** to collate and harmonise national biodiversity data and enhance multi-sectoral collaboration on site conservation.



- **Integrate KBAs into national and international law and planning** on inland waters conservation, terrestrial spatial planning, and environmental assessments.

By taking these steps, governments can not only meet international biodiversity and inland water targets more effectively, but also ensure that nature-positive economic growth will safeguard our inland water ecosystems for future generations.

WHAT ARE KBA NATIONAL COORDINATION GROUPS?

One of the principles of the KBA Programme is the strong involvement of local experts and stakeholders in the identification and documentation of KBAs. To ensure the coordination and collaboration of national experts representing various taxonomic groups and biodiversity elements it is recommended to establish KBA National Coordination Groups (NCGs) working towards the development of a single, coherent list of KBAs in each country.

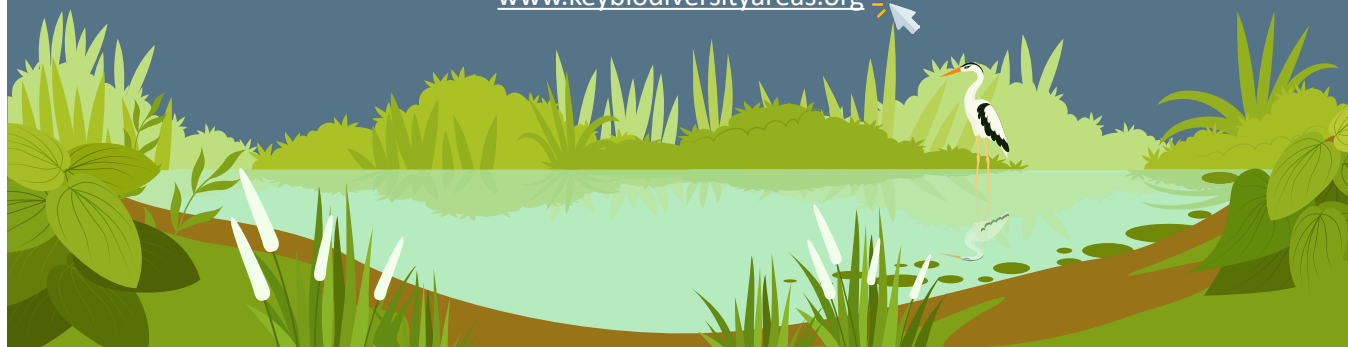
This grassroots, country-led approach can bring together government departments, scientific institutions, the private sector, local communities, indigenous peoples and other

stakeholders to mobilise and harmonise local biodiversity knowledge. The KBA NCG may act as a proposer of KBAs or as a reviewer of proposals made by independent experts in the country. The KBA NCG may also decide to coordinate activities between different stakeholders to promote the conservation and management of KBAs at the national level.

To date, 40+ countries have established NCGs, with broad assessments of KBAs across multiple taxonomic groups completed in Canada, Mozambique, Uganda, and South Africa.

Support for guidance in establishing and managing KBA NCGs, training, and help in KBA identification is available through the KBA Secretariat:

www.keybiodiversityareas.org



EXAMPLES OF WHERE GOVERNMENTS ARE IDENTIFYING AND USING FRESHWATER KBAS

Many countries have identified KBAs for freshwater biodiversity. Here, we give four examples: summarising a multi-country freshwater KBA identification and mapping process; showcasing an example where KBA identification led to Ramsar site designation; highlighting how identification of a site as a KBA can stimulate conservation action for freshwater species outside the protected area network; and illustrating how KBA data can be used in NBSAPs to ensure alignment with the KMGBF.

1 Tropical Andes: Identifying and mapping KBAs for freshwater species¹

The Tropical Andes feature extraordinary diversity and a high degree of endemism of freshwater species. However, to date, conservation prioritisation exercises in the region have focused primarily on terrestrial species. The lack of baseline information on the conservation status and distribution of freshwater species has prevented their inclusion in the identification of priority conservation sites and/or landscapes.

A project to evaluate the conservation status and distribution of freshwater biodiversity in the Tropical Andes identified and mapped 86 freshwater KBAs containing 151 trigger species, confirming the importance of the Tropical Andes in maintaining global freshwater biodiversity.

These freshwater KBAs include 26 Alliance for Zero Extinction (AZE) sites (i.e. sites that hold effectively the entire remaining global population of one or

more Critically Endangered or Endangered species). AZE sites are irreplaceable and must be safeguarded when planning development and infrastructure activities to prevent extinctions.

Thirty-nine of the KBAs were existing KBAs (previously identified for terrestrial species), 22 were existing protected areas, and 25 were newly delineated KBAs. The identification and delineation of these KBAs effectively puts freshwater species on the map, providing fundamental data that will serve as a basis for the development and implementation of necessary site-level conservation actions. Given the Ramsar Convention's efforts to increase site designations to include species other than birds (Criteria 7, 8, and 9), the freshwater KBAs identified in this project for other taxonomic groups (such as fishes and dragonflies) can serve to expand the Ramsar Site network throughout the Tropical Andes.

¹ This case study is adapted and abridged from the following publication: Tognelli, M.F., Lasso, C.A., Bota-Sierra, C.A., Jiménez-Segura, L.F. y Cox, N.A. (Editores). 2016. Estado de Conservación y Distribución de la Biodiversidad de Agua Dulce en los Andes Tropicales. Gland, Suiza, Cambridge, UK y Arlington, USA: UICN. xii + 199 pp.

2 Madagascar: KBA identification as a key step towards Ramsar Site designation

The Nosivolo River was recognised as a KBA in 2004, following two years of research that revealed its importance for the global persistence of freshwater biodiversity. The river hosts 20 freshwater fishes endemic to Madagascar, including four species restricted to the site. A recent reassessment based on the KBA Standard confirmed the Nosivolo River as an AZE site for the Critically Endangered 'zona' (*Rheocles lateralis*) and a global KBA for four other threatened and/or geographically concentrated freshwater fish species.

Since the site was identified as a KBA, conservation organisations in Madagascar have worked closely with local communities to develop conservation strategies and improve livelihoods. These communities have shown a strong commitment to protecting the river,

its fish, and the surrounding watershed. This led to designation of the Nosivolo River as a Ramsar Site in 2010 – the first river in Madagascar to receive this designation – and as a protected area under IUCN Category V in 2015. It was also recognised as a priority site for ecosystem-based adaptation in the 2022 update of the CEPF Ecosystem Profile for Madagascar.

Recognition of the Nosivolo River as a KBA and designation as a Ramsar site and protected area represent key stepping stones towards the conservation of Madagascar's endemic freshwater fish biodiversity. Effective conservation and management of the river's biodiversity, ecosystem functions and services are also essential to the communities of fishers and rice farmers that depend on a healthy river for their livelihoods.

3 Malawi: Safeguarding critical connectivity for migratory freshwater fish

An unprotected 15 km stretch of the Lower Bua River flows from Lake Malawi to the border of Malawi's Nkhotakota Wildlife Reserve (NWR²). This part of the river is vital for conservation of freshwater fish species that migrate to the NWR for spawning. In 2018, the Lower Bua was confirmed as a KBA for two migratory fish species, including the 'mpasa' or 'Lake Salmon' (*Opsaridium microlepis*, VU), which is threatened by overfishing and habitat loss and degradation. A number of conservation projects have since been proposed to assist in the management and restoration of the river. In particular, stimulated by recognition of the Lower Bua as a KBA, efforts are being made to allow migratory fish species to swim upstream into the wildlife reserve for breeding. Additionally, Community Conservation Committees in all villages along the 15 km stretch outside of NWR have been established, mobilising resources to support the

Malawi Department of Fisheries with enforcement against illegal gears and fishing in critical areas.

Elephant Marsh Ramsar Site was recognised as a new global KBA in 2024, with five qualifying species: *Serranochromis robustus*, CR), Malagasy Pond Heron (*Ardeola idae*, EN), Mozambique Tilapia (*Oreochromis mossambicus*, VU), Silver Barb (*Enteromius choloensis*, DD), and African Skimmer (*Rynchops flavirostris*, LC). Elephant Marsh is now the focus of community-based conservation planning with six local Community Conservation Area committees now established. Communities are poised to benefit from livelihood interventions, such as ecotourism and sustainable resource use, with the aim of balancing local livelihood needs with sustainable ecosystem management.

² This case study is adapted and abridged from a longer version: Phiri, T.B. and Tweddle, D. (2019) 'Mpasa and the Lower Bua and Nkhotakota Wildlife Reserve Key Biodiversity Areas' in Sayer, C.A., Palmer-Newton, A.F. and Darwall, W.R.T. (2019). **Conservation priorities for freshwater biodiversity in the Lake Malawi/Nyasa/Niassa Catchment**. Cambridge, UK and Gland, Switzerland: IUCN. xii +214pp.

4 Uganda: Institutionalizing KBAs for the protection of biodiversity inside and outside protected areas

Uganda is actively using KBAs to conserve its freshwater biodiversity by identifying, mapping, and prioritising these areas for conservation investments. The National Fisheries Resources Research Institute (NaFIRRI), alongside IUCN and the Wildlife Conservation Society, are leading the identification of freshwater KBAs for Uganda to ensure adequate protection of threatened freshwater species and ecosystems.

The National Environment Management Authority (NEMA), together with the Ministry of Water and Environment, has adopted the KBA approach to promote conservation of wetlands in Uganda, crucial for protecting threatened species outside protected areas. NEMA is also using KBA data for the National Biodiversity Strategy and Action Plan II (NBSAP II) performance monitoring, to inform policy planning, establish baselines for the plan's implementation

and ensure alignment with the KMGBF. Uganda is committed to aligning its national targets with the KMGBF and has already submitted its national targets, demonstrating a proactive approach to biodiversity conservation. That is why NEMA is updating the NBSAP II to reflect national targets and global commitments by incorporating the KMGBF's targets and strategies aimed at integrating biodiversity conservation across national, sectoral, and local levels.

Uganda has identified more than 50 freshwater KBAs for improved management and protection. The government of Uganda aims to rally key stakeholders (i.e. local governments, private sector companies, individual private landowners, faith-based institutions, and kingdoms) to protect the freshwater KBAs to conserve biodiversity and the environment.



KBA PARTNERS:



CONSERVATION
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