

# Fourteen recommendations for the protection of freshwater biodiversity beyond 2020

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Bullfrog. Credit: Wikimedia Commons:  
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The year 2020 marks the end of the "UN Decade of Biodiversity."  
However, the UN report published in September shows that none of the

20 Aichi-Biodiversity Targets that were agreed on in 2010 has been achieved in the last ten years. Worldwide, the conservation of biodiversity therefore remains a major challenge—this applies particularly to freshwater ecosystems which so far are not sufficiently taken into account in political processes and regulations. An international research team led by IGB has now issued 14 recommendations for political follow-up agreements on the protection of biological diversity—with special focus on freshwater biodiversity.

Freshwater is a central resource for humans as well as nature. However, living organisms in rivers, lakes and wetlands are exposed to many human-made pressures: climate change, overexploitation, changes and loss of habitats, pollution and the threat of invasive species are leading to a dramatic loss of species and population declines. The 14 recommendations now published for the global protection of freshwater biodiversity are based on current research knowledge and practical experience from European policy and administration.

The updating of two important international frameworks on biodiversity has been prepared: the Convention on Biological Diversity (CBD) and the European Union (EU) Biodiversity Strategy.

"This is an important moment to bring scientific knowledge into the process. Political strategies and decisions must place a stronger focus on the unique ecology of freshwater life and the many threats to it. In previous regulations, the protection of freshwaters has often been treated in an inferior manner; e.g. inland waters are included within land regulations—because they are not marine—because they are aquatic. The latest Living Planet Report shows that the loss of freshwater populations is the most dramatic—a loss of 84 percent between 1970 and 2016," stresses IGB researcher Sonja Jähnig, who lead the study.

## **Recognizing inland waters as a true ecological 'third**

## realm'

For their very first recommendation, hence, the authors argue that freshwaters be considered as a separate, ecological "third realm" alongside land and sea, with special management requirements in future biodiversity agreements. For example, specific targets for [freshwater ecosystems](#) could be included in the Sustainable Development Goals (SDGs) 6 (Clean [water](#) and sanitation), 13 (Climate action), 14 (Life below water) and 15 (Life on land).

The Convention on Biological Diversity (CBD) adopted in 1993 also combines inland waters with terrestrial areas. The CBD Strategic Plan for Biodiversity 2011-2020 included 20 Aichi biodiversity targets. The most important targets for freshwater include: target 5 (Habitat loss halved or reduced), target 8 (Pollution reduced); target 9 (Invasive alien species prevented and controlled); target 11 (Protected areas increased and improved), target 12 (Extinction prevented).

Appropriate freshwater habitat targets should also be set in networks of protected areas, such as the European Natura 2000 network, which aims to protect core breeding and resting sites for rare and threatened species, and some rare natural habitat types.

Furthermore, many important freshwater habitats are overlooked, such as urban and agricultural water bodies. The separate designation of heavily modified water bodies (HMWBs) in the European Water Framework Directive (EU WFD) is a good example of how artificial or heavily human-influenced habitats could also be taken into account.

"Even if results of international conservation efforts have been very sobering so far—we scientists will continue to contribute our expertise to highlight the dramatic loss of freshwater biodiversity and help to mitigate and stop it. The recommendations formulated can help to

improve the political framework for the protection of aquatic biodiversity," emphasizes Sonja Jähnig.

## **This is what the researchers recommend to policy and administration actors**

To recognize that:

- Inland waters are a true ecological "third realm" alongside land and sea
- Freshwater ecosystems provide vital ecosystem services to humans.
- Connectivity should be maintained across different spatio-temporal scales and hydrological dimensions.
- Water bodies are not isolated islands in the landscape, but reflect environmental influences from their surroundings. The catchment area should therefore be the basis of any consideration.
- Freshwater habitats are complex and embedded in and linked to other socio-ecological systems.

Improve monitoring and management:

- In the EU, the geographical distribution of many threatened aquatic species overlap with Natura 2000 protected areas, the Ramsar Convention and other agreements More effective integrated management within these areas would benefit both nature and climate protection.
- The identification of charismatic flagship species is an important step towards raising awareness of the biodiversity crisis in society and politics. Large animals such as river dolphins, hippos and sturgeons are particularly suitable for this purpose.

- Monitoring and management of invasive freshwater species (IAS) must be improved. The European IAS list, for example, is based exclusively on risk assessment, but leaves risk management to the Member States without regional or European coordination. Harmonization between the CBD and EU contracting states is urgently needed.
- Freshwater monitoring programs at national and international level are essential for adaptive management, but would need to be expanded, coordinated and better funded.
- Hydrological and biological data on inland waters should be managed according to the FAIR principles (findable, accessible, interoperable, and reusable) in order to facilitate access to and use of such data. This is essential, for example, to assess the impact of different stressors and management measures.
- Monitoring programs should make use of current research methods and new data sources.
- Strategic planning in river basin management should be promoted to balance the water needs of people and wildlife.

This applies across the board:

- National and local efforts to protect biodiversity in [inland waters](#) should make greater use of existing global information sources, such as the World Conservation Union's (IUCN) Red List.
- Future policy decisions should enhance synergies between Integrated Water Resources Management (IWRM) and freshwater [biodiversity](#) conservation.

**More information:** Charles B. van Rees et al, Safeguarding freshwater life beyond 2020: Recommendations for the new global biodiversity framework from the European experience, *Conservation Letters* (2020). [DOI: 10.1111/conl.12771](https://doi.org/10.1111/conl.12771)

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