



Science for Solutions decade: **HELPING**  
**Hydrology Engaging Local People IN** one **Global** world  
IAHS Scientific Decade 2023-2032  
[IAHS Scientific Decade](#)

**Details of the Working Group – Water for biodiversity in a changing world**

**Describe the work and how your suggested working group will contribute to the goal(s):** (1)

Collaborative Research: The working group will facilitate research collaborations and knowledge sharing among hydrologists, climatologists and ecologists, and other relevant experts from different regions to investigate the complex interactions between hydrological processes and biodiversity dynamics in a changing world. This includes analysing how changes in hydrological patterns influence spatiotemporal biodiversity patterns, habitats, and species composition/interactions.

(2) Data Integration and Sharing: The group aims to align data collection methods and standards for hydrological and biodiversity monitoring, facilitating data exchange across disciplines and integrating datasets at different scales. Focusing on data from diverse regions, the group can uncover common patterns, unique challenges, and shared experiences to develop a holistic understanding of the interlinkages between water resources and biodiversity dynamics under changing conditions. This broad approach contributes to more targeted and region-specific mitigation and adaptation strategies.

(3) Modelling and Risk Assessments: The working group aims to develop integrated modelling frameworks that incorporate hydrological and biodiversity components. These models will allow for the assessment of the impacts of climate change on both hydrological systems and biodiversity, as well as the reciprocal effects between the two. Risk assessments will be conducted to identify vulnerable ecosystems and species in the face of changing hydrological patterns and extreme events.

(4) Policy and Management Recommendations: Based on the research efforts, data integration, and modelling outcomes, the working group can develop scenarios/future pathways and provide policy recommendations and management strategies to support sustainable water resource management practices that also prioritize biodiversity conservation.

**Describe the methods you will use to achieve the goal(s):** (1) Data synthesis and analysis:

Integration of existing hydrological and biodiversity datasets to identify patterns and relationships.

(2) Collaborative method development and modelling: Development of integrated methods, indicators and models that simulate the impacts of hydrological changes on biodiversity and the potential effects of mitigation/adaptation strategies.

(3) Risk assessments: Assessment of the vulnerability of biodiversity to climate-driven hydrological changes and extreme events.

(4) Stakeholder engagement: Collaboration with other groups, conservation organizations, policymakers, and water management agencies to ensure the applicability and uptake of research outcomes.

**Describe the (a) short-term, (b) the long-term and (c) the ultimate results you hope to achieve:**

(1) Short-term results: (1a) Increased awareness and understanding of the interconnectedness between hydrological processes and biodiversity dynamics. (1b) Initial collaborations between hydrologists and ecologists for joint research and data sharing. (1c) Mapping of spatiotemporal scales of existing data sets, while seeking and collaborating with ongoing efforts and initiatives.

(2) Long-term results: (2a) Development of integrated hydrological-biodiversity models, indicators and tools that enable better monitoring, prediction, and management of climate change impacts on both domains. (2b) Enhanced capacity of stakeholders to incorporate biodiversity considerations into water management strategies. (3) Ultimate results: (3a) To establish a comprehensive understanding of the interconnections between hydrological processes and biodiversity dynamics in a changing climate. (3b) To develop integrated approaches that link hydrological and ecological monitoring, modelling, and risk assessments. (3c) To enhance the capacity of IAHS and related stakeholders in incorporating biodiversity considerations into water management and conservation strategies, leading to more resilient ecosystems, enhanced adaptation to changing hydrological patterns, and the protection of biodiversity under a changing climate.

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