

The Danube at Low Flow: Facts, Context and Actions

At a glance: What is happening?

The Danube is experiencing exceptionally low water levels across large parts of its course. An assessment prepared by the International Association for Danube Research (IAD) underscores the severity of the situation - in the context of abstract analyses from scientific contributions of 46th IAD Conference.

96% of assessed Danube River sections are experiencing low flows, while 80% are approaching record-low conditions, is highlighted in Figure 1.

What does this tell us?

Low water is not simply a local problem visible at one gauge. It reflects the availability, movement, retention and use of water across the **entire Danube River Basin**, as well as ecosystem degradation, creating favourable conditions for invasive alien species and contributing to declining aquatic and wetland biodiversity.

What is the central question?

How much water is available across the basin, when does it become available, where is it retained or used, and how can the basin better cope with periods of scarcity?

What does the IAD propose?

A basin-wide approach combining water retention, river and floodplain restoration, improved sediment management, reduced pollution pressures, better monitoring and forecasting, coordinated water use and stronger transnational, basin-wide cooperation.

1. How low is the Danube?

Figure 1 shows that the current low-flow situation extends across large parts of the Danube system, with July 2026 flows compared against historical July conditions during the 1981–2010 reference period:

- **96%** of Danube River sections are experiencing low flows.
- **80%** are approaching record-low conditions.
- The situation affects the river system from the **upper reaches and tributaries to the Lower Danube and Danube Delta**.

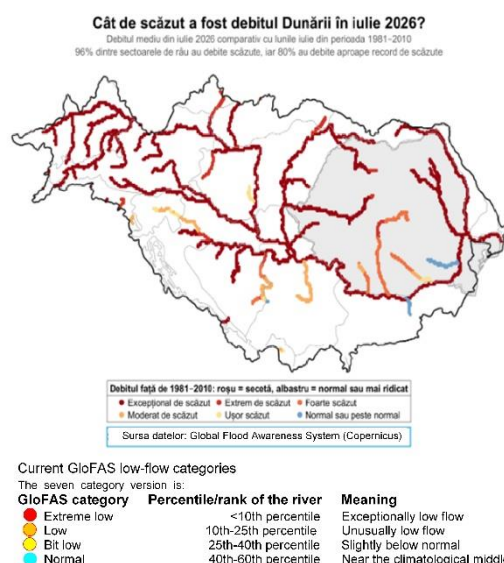


Figure 1: How low was the Danube's discharge in July 2026?

The figure compares average July 2026 discharge with July flows recorded during 1981–2010. The six scale colouring scale indicates water courses from exceptional low flow (red) to near climatological middle flow (blue).

Courtesy: Dr. Monica Ionita, AWI Bremerhaven, Germany.

2. Why is low water a basin-wide issue?

A river's water level at a particular location is the result of processes taking place throughout its upstream catchment.

Water availability is influenced by:

- precipitation and its seasonal distribution;
- water retained in soils, wetlands, floodplains and landscapes;
- groundwater and surface-water interactions;
- water use by agriculture and other sectors;
- river morphology and sediment processes;
- connections between rivers, floodplains and wetlands;
- pollution and other pressures degrading aquatic ecosystems and biodiversity, and favouring the establishment and spread of invasive species;
- and the ability to monitor, forecast and coordinate water resources.

The IAD therefore argues that low water should not be treated solely as a **navigation problem, drought problem, agricultural problem or ecological problem**. It is a **Danube River Basin problem** requiring an integrated response.

3. What makes the Danube River Basin resilient to water scarcity?

Resilience to water scarcity has many facets - and requires action across the entire Danube River Basin, involving cooperation across countries:

- **retain water in the landscape when water is abundant;**
- maintain connections between **rivers, floodplains and wetlands**, recognizing them as **connected habitats**, and give these **ecosystems** sufficient space to adapt;
- manage **groundwater and surface water together**;
- allow river morphology and **sediment processes** to function;
- **reduce pollution** and other pressures;
- **coordinate water uses** across sectors;
- **improve hydrological** monitoring and **forecasting**;
- and enable countries to cooperate before water scarcity becomes a source of conflict.

The objective is therefore **not simply to get more water into the river channel**. It is to improve the capacity of the whole basin to retain and to enable managing water, so that rivers and ecosystems can better withstand periods of scarcity.

4. What actions does the IAD propose?

Water retention

- **Retain more water in the landscape** when it is available, particularly during periods of surplus. This includes active, landscape-scale water retention across the Danube Basin, especially during seasonal periods when water is abundant.

Danube River and floodplain restoration

- **Reconnect tributary rivers with floodplains and wetlands** and maintain connected aquatic habitats, reconnect floodplains to the main channel of the Danube both to secure water supply to these areas and to create space for expected higher river floods.

- **Restore river morphology and, where appropriate, re-meander rivers** so that natural river and sediment processes can function.

Sediment management

- **Improve sediment management**, particularly where river beds have become too deep and rivers increasingly function as drainage canals. The IAD also calls for avoiding unnecessary summer dredging, which can increase turbidity, potentially contribute to fish kills and further alter river processes.

Water quality

- **Reduce wastewater, pollutants, heat and other pressures** entering the Danube and its tributaries. Keeping the river clean is part of maintaining its ecological resilience during periods of low flow.

Water use

- **Keep Danube water in the Danube** by avoiding inefficient uses of Danube water, including inefficient sprinkler-type agricultural irrigation. Water uses should be coordinated across sectors and across the basin.

Restoration at scale

- **Scale up successful local restoration projects** so that restoration covers a significant fraction of the Danube Basin. The IAD also calls for **harmonising the pace of restoration between EU Member States and candidate countries** in the Danube Basin.

Monitoring and forecasting

- **Improve hydrological monitoring and forecasting** to provide better information for water management and early action.

Cooperation and governance

- **Promote evidence-based, integrative water management with stakeholder involvement** and strengthen cooperation across the Danube Basin. The aim is to address water scarcity before it becomes a source of conflict. No country can address low water alone; the Danube requires coordinated action across borders.

5. What is the scientific basis?

The recommendations draw on scientific contributions presented at the **46th IAD Conference 2026**, held in Baja, Hungary, from **10–13 August 2026**.

The overarching theme was:

“The Socio-Ecological Future of the Danube: Integrating Riverine and Terrestrial Systems for a Sustainable Danube.” The conference addressed the links between riverine and terrestrial systems through research on:

- anthropogenic changes;
- aquatic species and habitat monitoring;
- protected areas and biodiversity conservation;
- climate-change impacts;
- integrated water management.

The conference programme brought together researchers and practitioners working across different parts of the Danube Basin. The conference was organised by the International Association for Danube Research together with the Faculty of Water Sciences of the Ludovika University of Public Service in Baja.

The **2026 Book of Abstracts** ([DOI 10.36250/01379](https://doi.org/10.36250/01379)) is published by Ludovika University Press and is available through the Repository of the Academy's Library.

6. Selected scientific contributions behind the background document

The following selected contributions from the Book of Abstracts are particularly relevant to the issues addressed in this background document:

1. Nagavciuc, V. & Ionita, M. - *From Tree Rings to Gauging Stations: A 250-year Perspective on Lower Danube Streamflow Variability and Its Large-Scale Drivers.*
2. Kozma, Z. et al. - *Scenario Modelling of Future Water Balance in a Transboundary Basin: Potential and Limitations from the Tisza Pilot Basin within the Danube Water Balance Project.*
3. Honti, M. - *New Challenges of River and Landscape Management in the Middle Danube Basin.*
4. Nguyễn, V.Đ.T. et al. - *Hydrological Connectivity Mediates Water Quality and Deep-Water Anoxia in Tisza River Oxbow Lakes.*
5. Bürgés, J. et al. - *Lateral Hydrological Connectivity is the Main Driver of Macroinvertebrate Communities in a Natural Floodplain along the Danube River.*
6. Pöppl, R. & Recinos, S. - *Modelling Long-Term Riverscape Evolution in the Danube Floodplain National Park (Austria) – Effects of Internal and External Perturbations.*
7. Zsuffa, I. - *Revitalisation of the Danube Main Channel in the Szigetköz.*
8. Kováč, V. - *A Bitter-Sweet Story of the Old Main Channel of the Danube.*
9. Hupalo, O. et al. - *The Kilia Delta of the Danube River as a Key Transit Zone for Migratory Fish Species.*
10. Feng, K. et al. - *Hydrological Connectivity Governs Functional Trait Patterns and Metacommunity Assembly in Danube River–Floodplain Fish Communities.*
11. Adamescu, M. et al. - *The Danube Restoration Hub: A Digital-Twin Decision-Support Environment for Wetland Reconstruction in the Danube Basin.*
12. Kovács, Á. & Missamou, R.A. - *From Early Warning to Water Diplomacy: Preventing Water Allocation Conflicts in the Danube Basin.*
13. Erős, T. - *Conservation and Restoration Planning for Freshwater Biodiversity in the Danube Basin within and beyond Protected Areas.*

7. Key facts about the 46th IAD Conference

Conference: 46th IAD Conference 2026

Location: Baja, Hungary

Dates: 10–13 August 2026

Theme: *The Socio-Ecological Future of the Danube: Integrating Riverine and Terrestrial Systems for a Sustainable Danube*

Focus: The relationship between riverine and terrestrial systems and integrated approaches to a sustainable Danube.

The conference was held at the Faculty of Water Sciences of the Ludovika University of Public Service. The event also marked the **70th anniversary of the IAD**, which was established in 1956.

8. One-sentence summary

The IAD's central message is that **low water in the Danube cannot be addressed at the river channel alone**: The basin must retain water when it is abundant, restore connections between rivers and the surrounding landscape across the Danube River Basin, strengthen our understanding of the role of healthy floodplain ecosystems, use water more carefully, improve knowledge and forecasting, and manage this shared resource cooperatively across national borders.



Source

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Photogallery: Exceptionally low water levels, Danube-Drau (Duna-Dráva) National Park, Hungary



Photos 1 and 2: Danube main course at low water levels near Baja (1, left); field excursion to Danube-Drau (Duna-Dráva) National Park during the 46th IAD Conference (2, right). Both photos were taken in Hungary during the conference, the same is for all other photos here.



Photos 3 and 4: Danube-Drau (Duna-Dráva) National Park, floodplain side channels reduced to a narrow flow of only a few centimetres (3, left); floodplain forest with drying floodplain ponds and small water bodies (4, right).



Photos 5–7: Aquatic biota cannot escape the drying of floodplain side channels, including both native and invasive species. Native wild common carp (*Cyprinus carpio*) and invasive fish North American black bullhead (*Ameiurus melas*) (5, left); detail of this invasive fish (6, centre); invasive Chinese pond mussel (*Sinanodonta woodiana*) (7, right). Native aquatic plants include European water chestnut (*Trapa natans*) (5, left) and floating fern (*Salvinia natans*) (6, centre); both are shown dried out in Photo 7. All photos Danube-Drau (Duna-Dráva) National Park.



Photos 8 and 9: Drought in the Danube River and floodplain forests of Danube-Drau (Duna-Dráva) National Park not only reduces habitat for aquatic biota, but also has serious implications for human activities that are closely linked to local traditions and ways of life, including fishing.



Photos 10–13: Signs of drought stress, of „early autumn“ in summertime, floodplain forest trees (10, top left). On sites with higher soil moisture, white poplar (*Populus alba*), a natural component of softwood floodplain forests, can still persist (11, top right). Drooping leaves of dogwood (*Cornus* spp.) in the foreground clearly indicate water stress in the floodplain forest; a plantation of black walnut (*Juglans nigra*) is visible in the background (12, bottom left). Climate-resilient planting of black walnut (*J. nigra*) is part of climate adaptation, but cannot replace the natural softwood floodplain forest ecosystem (13, bottom right). All photos Danube-Drau (Duna-Dráva) National Park, Hungary.

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