

### Chapter 2

## The Danube River

Authors: Anika Fischer, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**1 Introduction**

The Danube River is the second longest river in Europe and the longest in Central Europe. It originates in the Black Forest in Germany and flows through 10 countries, eventually emptying into the Black Sea. The Danube River basin covers an area of approximately 800,000 km<sup>2</sup> and has a population of approximately 150 million people. The river is a major source of water for drinking, agriculture, and industry. It is also a major transport route for goods and people. The Danube River is a complex system with many different uses and challenges. This chapter provides an overview of the river and its management.

**2 Geographic location**

The Danube River basin covers an area of approximately 800,000 km<sup>2</sup> and has a population of approximately 150 million people. The river is a major source of water for drinking, agriculture, and industry. It is also a major transport route for goods and people. The Danube River is a complex system with many different uses and challenges. This chapter provides an overview of the river and its management.

### Run-of-the-rivers? A global review of run-of-the-river dams

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

The construction of a run-of-river dam is a controversial issue because of its potential impacts on the river ecosystem. Run-of-river dams are designed to generate electricity while allowing the river to flow through the dam. This chapter reviews the global status of run-of-river dams and their impacts on the river ecosystem.

### Basic and Applied Ecology

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This chapter discusses the basic and applied aspects of ecology. It covers topics such as population dynamics, community ecology, and conservation biology. The chapter also includes a section on the application of ecological principles in management and policy.

### Spatiotemporal changes in river network connectivity in the Nitra Basin due to hydro-power dams

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines the spatiotemporal changes in river network connectivity in the Nitra Basin due to the construction of hydro-power dams. The study uses a combination of field observations and modeling to assess the impacts of dams on river connectivity and ecosystem health.

### ECOGRAPHY

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This journal article discusses the importance of ecological data in modeling and policy-making. It highlights the need for accurate and reliable data to support decision-making in environmental management.

### Aquatic invertebrates: examining the phyletic associations between Oligochaeta, Simuliidae and mayfly (Ephemeroptera, Hydropsychidae, Trichoptera) larvae in Korymbosus (Ephemeroptera)

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines the phyletic associations between Oligochaeta, Simuliidae, and mayfly larvae in the Korymbosus river. The study uses molecular techniques to identify relationships between different taxa and their environmental preferences.

### Freshwater restoration effects on biodiversity and ecosystem services: a Delphi survey

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study uses a Delphi survey to assess the effects of freshwater restoration on biodiversity and ecosystem services. The survey involves experts in the field who provide their views on the benefits and challenges of restoration projects.

### Macrobenthic invertebrates (De Haan, 1849) continues to expand in the Danube: first records in Germany and Hungary

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study reports the first records of macrobenthic invertebrates in Germany and Hungary. The study provides detailed information on the species and their distribution in the Danube River basin.

### The sediments of the Danube River

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines the sediments of the Danube River and their composition. The study discusses the sources of sediment and its impact on the river ecosystem and water quality.

### The key role of floodplains in nature conservation: How to improve the current status of biodiversity?

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study discusses the key role of floodplains in nature conservation and how to improve their current status of biodiversity. The study provides recommendations for management and policy-making.

### Toward a sustainability approach for the socioecological system of the Danube River Basin and the Western Black Sea region

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study proposes a sustainability approach for the socioecological system of the Danube River Basin and the Western Black Sea region. The study considers the interactions between the environment, society, and the economy.

### Ecosystem services along the Danube River and its floodplains: Uses, assessments, and their potential for policies and management

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study assesses the ecosystem services along the Danube River and its floodplains. The study identifies the uses of these services and their potential for policy-making and management.

### Influence of network connectivity on benthic and algal communities in a Danube floodplain system (Austria)

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines the influence of network connectivity on benthic and algal communities in a Danube floodplain system. The study uses field observations and modeling to assess the impacts of connectivity on community structure and function.

### Responses of Oligochaeta and Chironomidae to restoration of connectivity in a river-floodplain stretch of the Upper Danube River

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines the responses of Oligochaeta and Chironomidae to the restoration of connectivity in a river-floodplain stretch of the Upper Danube River. The study provides detailed information on the species and their distribution in the restored area.

### Tropical Wetlands as Nature-Based Solutions to Remove Nutrient and Organic Inputs from Stormwater Discharge and Wastewater Effluent in Urban Environments

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study discusses the use of tropical wetlands as nature-based solutions to remove nutrient and organic inputs from stormwater discharge and wastewater effluent in urban environments. The study provides recommendations for design and implementation.

### River Restoration Units: Riverscape Units for European Freshwater Ecosystem Management

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study introduces the concept of River Restoration Units (RRUs) for European freshwater ecosystem management. The study provides a framework for the design and implementation of RRUs.

### Hydrological connectivity: a review and emerging strategies for integrating measurement, modeling, and management

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This review discusses hydrological connectivity and emerging strategies for integrating measurement, modeling, and management. The study provides a comprehensive overview of the topic and its applications.

### Carbon storage in riparian sites: A case study from Pöchlarn (Austria)

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study examines carbon storage in riparian sites in Pöchlarn, Austria. The study provides detailed information on the carbon stocks and their dynamics in the riparian zone.

### Ecological Indicators

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study discusses ecological indicators and their use in monitoring and assessing ecosystem health. The study provides a list of indicators and their applications.

### Drivers of macroalgal dynamics in river-floodplain fish: A path modeling approach

Authors: Ingrid Hubscher, Peter Bauer, Anja Egger, Ingrid Hubscher, Thomas Fuchs, and Paul Hübner

**Abstract**

This study uses a path modeling approach to identify the drivers of macroalgal dynamics in river-floodplain fish. The study provides a detailed analysis of the relationships between different factors.