Interreg

Danube Transnational Programme

DanubeSediment

Sediment – Foundation for a Living Danube

What is sediment?

Sediment is all the material that rivers and streams transport. Its size can vary: sediments in the mountains have a size of up to 20 cm, while the downstream river carries fine sands of about 0.1 mm. The Danube and its tributaries, for example Lech, Isar and Inn, also carry sediments from their source in the Alps to the estuary in the Black Sea.

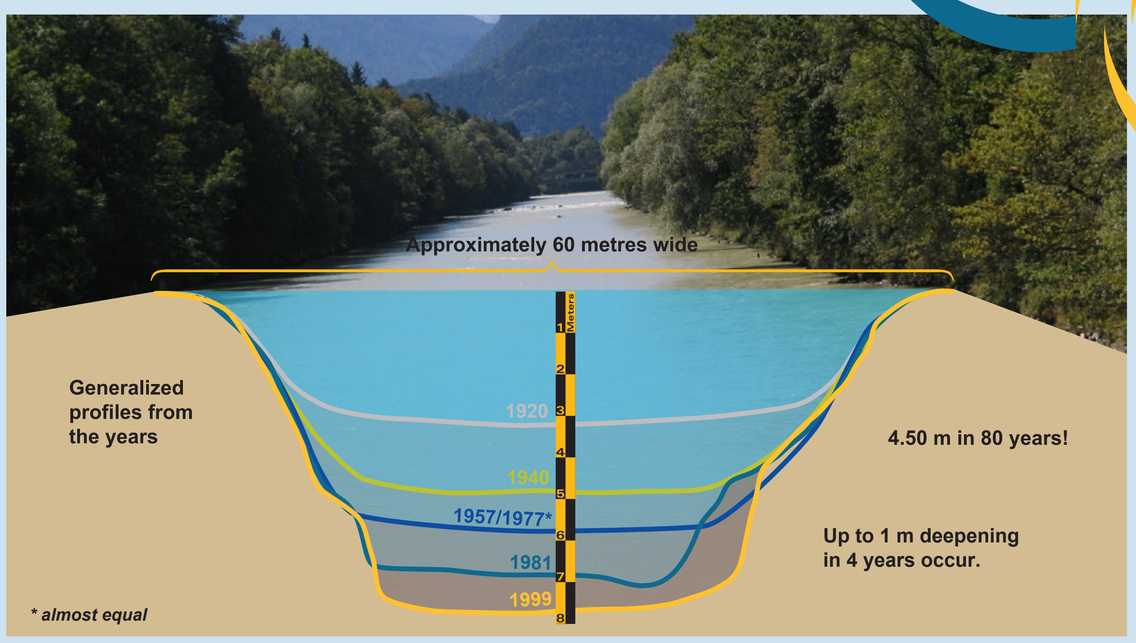
Why is sediment so important for the Danube?

As the second longest river in Europe, the Danube flows through ten countries over a distance of 2.857 kilometres. Over the centuries, humans have altered the Danube and its tributaries. At many locations, the river has been straightened and small weirs and big hydropower dams were built. These changes have an impact on the sediment in the river.

The weirs and dams act as barriers. Since they slow down the flow of the water, sediments can settle in front of the barrier. After the dam, this sediment is missing and the river deepens. The faster the water flows, for example during floods, the stronger it deepens. In the long term, this can also lower the surrounding groundwater level.

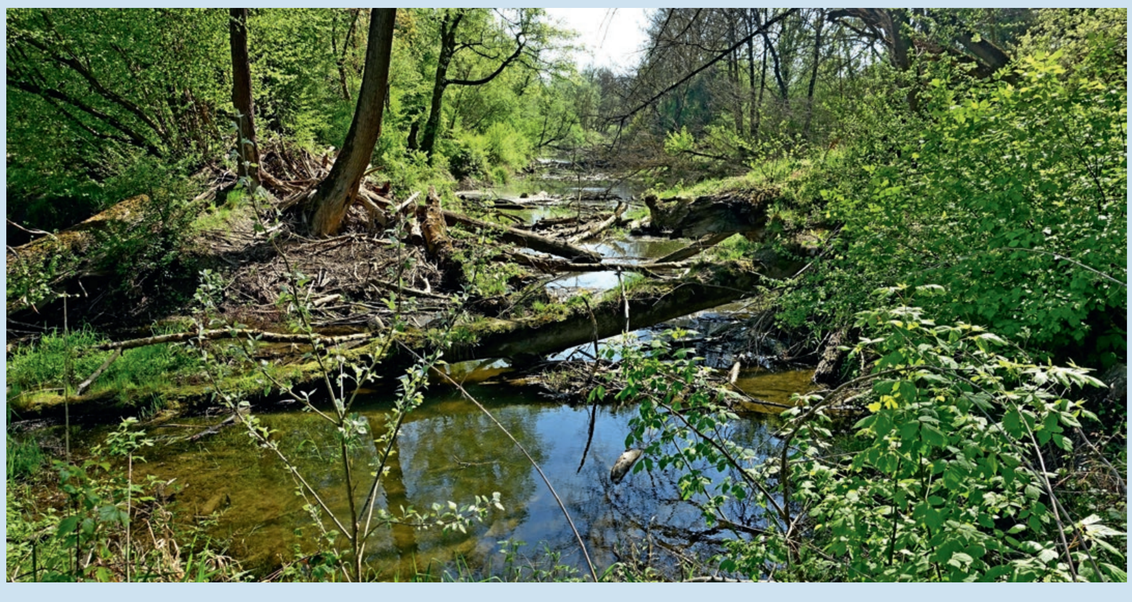
This can lead to higher costs and more work to provide drinking water. Adjacent floodplain forests and meadows can dry out. In the river, sand and gravel banks can disappear. This threatens important habitats for rare plants and animals and reduces recreational opportunities.

Top photos: Examples for different sediments in the river: bedload in alpine rivers (left), gravel bed on the middle Danube (right)



Within 80 years (1920 to 1999), the Saalach River has deepened by up to 4.50 metres. Reasons are river regulation and the retention of sediments at the hydropower plant Kibling.

Hydropower dams are barriers for sediment.



Floodplains are an important habitat for rare animals and plants.

Sediment photos: alpine river - Dominicus Johannes Bergsma, Wikimedia Commons; middle Danube - Szeder László, Wikimedia Commons; Saalach illustration: WWA-Traunstein; Hydropower dam - Ţetcu Mircea Rareş, Wikimedia Commons; Floodplains - L.Speiltz, Wikimedia Commons

The project is co-funded by the European Union.
Overall budget: 3.56 Million Euro
EFRE Fonds: 2.83 Million Euro
IPA Fonds: 0.2 Million Euro

www.interreg-danube.eu/danubesediment

Interreg
Danube Transnational Programme
DanubeSediment

International Cooperation: Sediment in the Danube

Sediment balance of the Danube

Since 2017, fourteen partners from nine countries have been working together in the DanubeSediment project. They want to get a deeper understanding of sediment dynamics in the river. Therefore, the project team collected data on how much sediment the Danube transports. They compared the sediment load from before the hydropower dams were built with data from today.

First results show that only half the amount of sediment arrives in the Black Sea nowadays. To understand sediment transport in the entire Danube River Basin, the project recommends more frequent and standardised measurements along the river.

Developing common recommendations

Historically, humans have strongly altered the Danube, especially for navigation, flood protection and hydropower. To improve the sediment transport of the river and the situation for humans and nature, sustainable sediment management is necessary all along the Danube.

Therefore, the DanubeSediment project collects good practice measures. They evaluate them together with relevant institutions and interested parties working in sediment management in all partner countries. Their recommendations will be available in a guidance document for policy-makers and a handbook for practitioners.

Top photo: Fine sediment settles in the Danube Delta and forms islands that offer important habitats for birds.

Sediment measurements on the German Danube: Samples are analysed in the on-board-laboratory.

Relevant stakeholders and project partners discuss recommendations.

The Isar transports sediments into the Danube, which settle on gravel banks.

Photos: pelicans - Maxim Jakowlew, Wikimedia Commons; Laboratory - Christoph Mayer, LfU; Workshop scene - Barbara Keri, BME; confluence of Isar and Danube - www.agroluft.de

The project is co-funded by the European Union.
Overall budget: 3.56 Million Euro
EFRE Fonds: 2.83 Million Euro
IPA Fonds: 0.2 Million Euro

www.interreg-danube.eu/danubesediment