



# Water Transfer Danube – Main/Rhine

Bavaria in general is rich in water. The water supply is, however, marked by heavy regional differences. While the southern part, especially the mountains, receive plenty of rain and snowfall, the northern part of Bavaria at times suffers from a lack of water. The densely populated and industrialized areas around Nürnberg and Würzburg draw heavily on the natural water supply.

With the decision of the Bavarian State Parliament on the 16th of July 1970, the Bavarian Government was ordered to reduce water-related obstacles in northern Bavaria. The goal was to transfer surplus-water from the Danube-area into the Main-Rhine-area across the main European watershed.

## Construction and operation

As a result of the decision of the Bavarian State Parliament, a special "State Office for Reservoir Construction" (Talsperren-Neubauamt Nürnberg) was founded in 1971. After completing the project, it became part of the State Water Office in Ansbach (Wasserwirtschaftsamt Ansbach) that now operates the transfer-system from its central operations management in Gunzenhausen.

Total investment-costs of the transfer-system were 450 million Euro.

## Aims of the water-transfer-system

The water transfer ensures a more balanced run-off in the rivers in northern Bavaria and supports the regional economy.

Increasing the run-off in the rivers Rednitz, Regnitz and Main during dry periods in the summer and fall improves the quality of water.

The reservoirs Altmühlsee and Brombachsee store floodwater from the river Altmühl, such reducing flood damage in the Altmühl-valley.

With the new reservoirs, a beautiful lake area was created south of Nürnberg, attracting large crowds of day-use-visitors and tourists alike.

## Function of the water transfer

During dry periods the natural run-off in the river Regnitz in Nürnberg can be as low as 10 m<sup>3</sup>/s. Additional water from the transfer-system now ensures a minimum flow of 27 m<sup>3</sup>/s.

The water is transferred along two separate ways: With the help of pumps the Rhine-Main-shipping-canal is being used to transport water from the Danube into the Rothsee reservoir. From there, an average of 125 million m<sup>3</sup> per year are being released into the rivers below according to demand.

The reservoir Altmühlsee catches floodwater from the river Altmühl. Through a connecting canal it flows into the Brombachsee reservoir for storage. About 25 million m<sup>3</sup> per year are being released from the Brombachsee into the rivers below.



Nature conservancy area Grafenmühle at the Large Brombachsee



Look-out on the bird island in the Altmühlsee



Absberg Beach at the Small Brombachsee

## Ecological aspects

Building the reservoirs and adapting the rivers below, great effort was taken to fit the new bodies of water into the surrounding landscape. More than a quarter of the land used for the project was declared as ecological zones that are strictly protected. The largest one is a newly created shallow-water and island zone within the Altmühlsee reservoir. It covers an area of over 2 km<sup>2</sup> and serves as a replacement for the lost wetland at the reservoir's construction. It alone is home for 230 different species of birds.

## Tourism

All of the reservoirs are equipped with a variety of recreational facilities and offer ideal conditions for swimming, sailing, canoeing, wind-surfing, fishing, hiking, bike-riding, bird-watching, ice-skating, ...

The reservoirs, including shore lines and ecological areas are public property. More than 80 km of roads and trails around the reservoirs and along the rivers are open to pedestrians and bikers.

To ensure the best possible water quality, extensive sewer-systems and state-of-the-art waste-water-treatment plants were installed in the area.

|  | Altmühlsee | Small Brombachsee | Igelsbachsee | Large Brombachsee | Rothsee small reservoir | Rothsee main reservoir |
|--|------------|-------------------|--------------|-------------------|-------------------------|------------------------|
| Storage volume [mill. m <sup>3</sup> ] | 13.8       | 12.9              | 4.4          | 136.6             | 1.5                     | 10.0                   |
| Water area [km <sup>2</sup> ]          | 4.5        | 2.5               | 0.9          | 8.7               | 0.5                     | 1.6                    |
| Greatest length [km]                   | 3.5        | 2.5               | 2.2          | 5.1               | 1.8                     | 1.8                    |
| Greatest width [km]                    | 1.5        | 1.0               | 0.4          | 2.0               | 0.3                     | 1.5                    |
| Dam length [km]                        | 12.5       | 1.1               | 0.6          | 1.7               | 0.5                     | 1.7                    |
| Dam height [m]                         | 5.5        | 15.5              | 14.0         | 36.0              | 11.2                    | 16.2                   |
| Dam volume [mill. m <sup>3</sup> ]     | 1.8        | 0.35              | 0.35         | 3.5               | 0.2                     | 0.8                    |
| Length of shores [km]                  | 12.5       | 8.5               | 6.5          | 175               | 5.2                     | 6.7                    |
| Water depth [m]                        | 2.5        | 13.4              | 11.5         | 32.5              | 8.5                     | 15.4                   |
| Costs [mill. €]                        | 55.0       | 40.0              | 16.0         | 105.0             | 20.0                    | 38.0                   |
| Construction period                    | 1976/85    | 1975/85           | 1979/85      | 1983/99           | 1985/90                 | 1985/92                |

**Publisher:** State Water Office Ansbach  
an authority within the Operational Division of the Bavarian State Ministry for Land Development and Environmental Questions  
Dürnrerstraße 2 · D-91522 Ansbach

**Internet:** www.wwa-an.bayern.de  
**Creation:** Katja Prechtl Design, k.prechtl@web.de  
**Print:** Freimund Druckerei, horn@freimund-druckerei.de  
May 2007  
© State Water Office Ansbach, all rights reserved

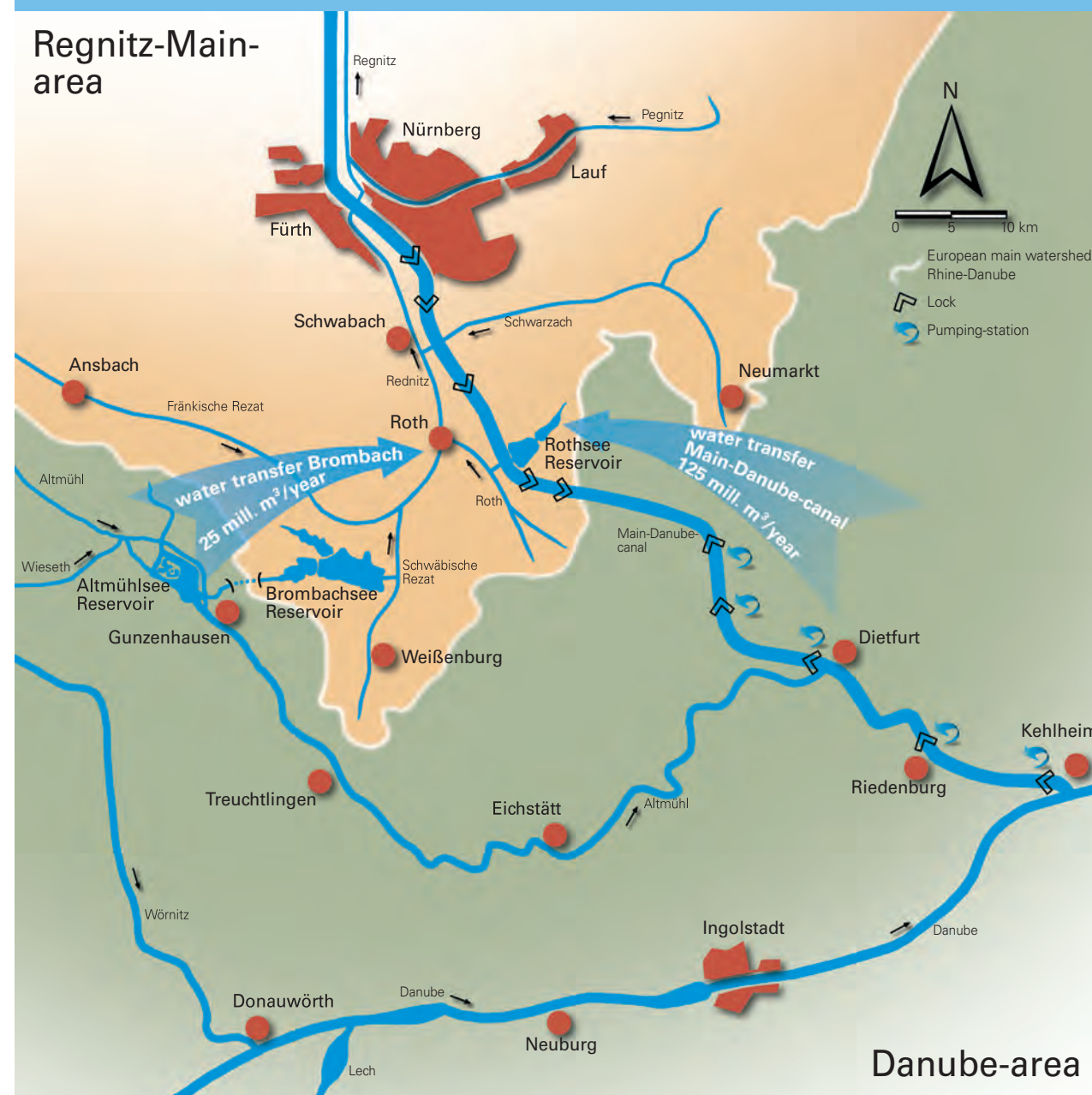
Printed on 100% recyclingpaper. Reprint and reproduction only with authorisation of the publisher.

**Operations Management**  
Seestraße 15  
D-91710 Gunzenhausen  
Tel.: +49 (0) 9831/6777-0  
Fax: +49 (0) 9831/6777-90  
poststelle@wwa-an.bayern.de

**Office Brombachsee**  
Mandelsmühle 1  
D-91785 Pleinfeld  
Tel.: +49 (0) 9144/9211-0  
Fax: +49 (0) 9144/9211-90

# Water Transfer Danube – Main/Rhine

## Regnitz-Main-area



## Danube-area





**Legend**

- Facilities of the transfer-system
- European Watershed
- Nature conservancy area (NSG)
- Tourist cruises

Scale: 0 1 km 2 km

North Arrow