

E.80

70 =

Ē.60

E.40

30 =

E 70

applicable from July 2017



... an important topic for Contargo and its customers. Here you will find the necessary information.

## LOW WATER – HIGH PRIORITY 🖒

The summer of 2015 and the whole of 2016 broke records in many regions of Germany: long periods of hot weather combined with low rainfall resulted in low water levels in German rivers. On many stretches of the Elbe navigation stopped completely – in August, normal navigation was only possible between the estuary and the Port of Hamburg. The Rhine and the Danube could only be navigated by barges shipping reduced cargoes. Thus the situation developed which is known in the logistics sector as a low water period.

### SUMMER OF THE CENTURY

After 2003, 2015 has already given the 21st century its second "summer of the century" statistically speaking. 2016 was the hottest year since weather records commenced in 1880. 14 out of the 15 warmest years on record have been in the 21st century. Climatologists expect that the trend towards extreme dry weather and high temperatures in summer will continue due to progressive global warming. Observations of glacier melt in Switzerland suggest that changes in the Rhine up to 2085 will be relatively moderate compared to other river systems.

### YOUR UNDERSTANDING – OUR THANKS

Over the last few months Contargo, too, has had to confront the theme of Low Water. We should like to take this opportunity to thank you for your understanding and support during this time. In the following pages we have put together for you a few items of information to make it easier to understand the interrelations and the terms used in connection with Low Water.

### A COMPARISON OF THE WATER LEVELS

Development of average values for the Kaub, Duisburg and Emmerich (2003 to 2017)

Water levels along the Rhine are subject to seasonal fluctuations. These only **3 most important gauges on the Rhine:** interfere with free navigation on a very few days in the year. Viewed in the long term, average water levels lie within a normal range for inland navigation.

### ►KAUB



### Kaub Gauge

For the gauge in Kaub, 2016 was a normal year. On 81 days (22%) the gauge level went below 150 cm, meaning there was low water. Only on 23 days (6%) was there extreme low water, with a gauge level below 80 cm. At 236 cm, the value for the whole year was in fact 19 cm above the average annual value of 217 cm (2003-2017). So far, 2017 (up to 26.05.2017) lies within the average, with levels below 150 cm on 39 days (27%). By contrast, in the record years of 2003 and 2011 there was low water on 190 days (52%) and 180 days (49%) respectively.

### DUISBURG-RUHRORT



### Duisburg-Ruhrort Gauge

Very good levels were recorded at the Duisburg-Ruhrort gauge in 2016. The average water level of 428 cm for that year was 17 cm higher than the average annual value of 411 cm (2003 to 2017). Compared to the previous year, the number of days with a gauge level above 270 cm was up by 6% to 78% (285 days). In 2017 there has already been low water with gauge levels below 270 cm on 44 days out of 146 (30%) (figures up to 26.05.2017), but this is nothing like 2003 (119 days) or 2011 (107 days). Extreme low water, with gauge levels below 180 cm, was last recorded in 2003.

# SAFE LOADS FOR BARGES

In order to ensure that barges carry an optimum load which is also safe, present water levels along the route need be known before loading takes place. For this purpose, measuring stations (gauges) have been installed along the Rhine and its tributaries. However, the zero gauge measurement does not lie at the riverbed. Thus the daily gauge value for a location is simply a reference value which applies for that location. The real minimum depth of the navigation channel can be obtained using two reference constants: the "Equivalent Water Level" (GIW) and the ideal minimum depth of navigation channel for the relevant section of the Rhine.



Picture: Rheinebene / Kaul



INFOGRAPHIC: © CONTARGO 2017

### RGO 2017

05

### DETERMINING A BARGE'S CARRYING CAPACITY

The amount an inland vessel can carry depends on two factors:



is possible.

### HOW MANY VESSELS ARE NEEDED?

#### NUMBER OF VESSELS NEEDED TO TRANSPORT THE SAME TONNAGE Down to a Kaub gauge measurement of about 250 cm– 260 cm, container vessels

Down to a Kaub gauge measurement of about 250 cm– 260 cm, container vessels can be loaded to full capacity. Below this level, the maximum load decreases continuously. With a Kaub gauge measurement of 135 cm, a large motor vessel 135 m long with a capacity of 500 TEU can only be laden to half capacity. This means that two ships instead of one have to be used to transport the same volume of goods. With a Kaub measurement of 75 cm, four ships are required. If the water level sinks just another 20 cm, at least six ships have to be loaded to carry the same amount of goods.



# INCREASED COSTS DUE TO LOW WATER

The reduced loading capacity of ships means that additional shipping space has to be chartered on the market, resulting in a disproportionate rise in costs as the water level falls. In long periods of low water, there may also be a scarcity of the free shipping space available on the market, leading to a further rise in costs.





### THE 3 IMPORTANT GAUGES

The basis taken for the gauge level: Gauge measurement at 5:00 a.m. (CET) according to ELWIS (Elektronisches Wasserstrassen-Informationssystem: www.elwis.de), which we publish daily on our website (www.contargo.net). The applicable date is the actual day of departure of the barge. Downstream: departure at the inland terminal / Upstream: departure at the seaport.





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\* At gauge levels of 80 cm and below in Kaub, 180 cm and below in Duisburg-Ruhrort and 30 cm and below in Emmerich, we no longer have an obligation to transport.

Rotterdam

# IMPRESSUM §

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