



Fig. 4

Swimming in the Rhine near Basle used to be unthinkable; today it is a matter of course.



Fig. 5


The «Cloaca Rhine» in the year 1965 – the Rhine leaves Switzerland with visible pollution.

Rhine unpurified and led to the death of practically all living organisms. In response to this accident, Switzerland and Germany decided to jointly establish a measuring station to monitor the Rhine.

### What does the industry think of the RMS?

The RMS sees itself not only as a waterborne radar and alarm centre, but also as a partner of industry; thanks to its proposals, the measurement programme has been expanded. Industrial companies benefit from the measurement results in two ways: If no compounds from production can be detected, it is proven that the operational water protection measures are working. If, on the other hand, such substances are found, this will give the companies an incentive to optimise their processes.

### On behalf of


 Schweizerische Eidgenossenschaft  
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 Landesanstalt für Umwelt  
 Baden-Württemberg

### Contact

Office for Environment and Energy Canton Basle-City  
 Department Environmental Laboratory  
 Phone +41 267 08 84  
 info.auelabor@bs.ch  
 www.bs.ch/rüs

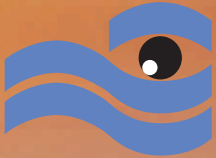
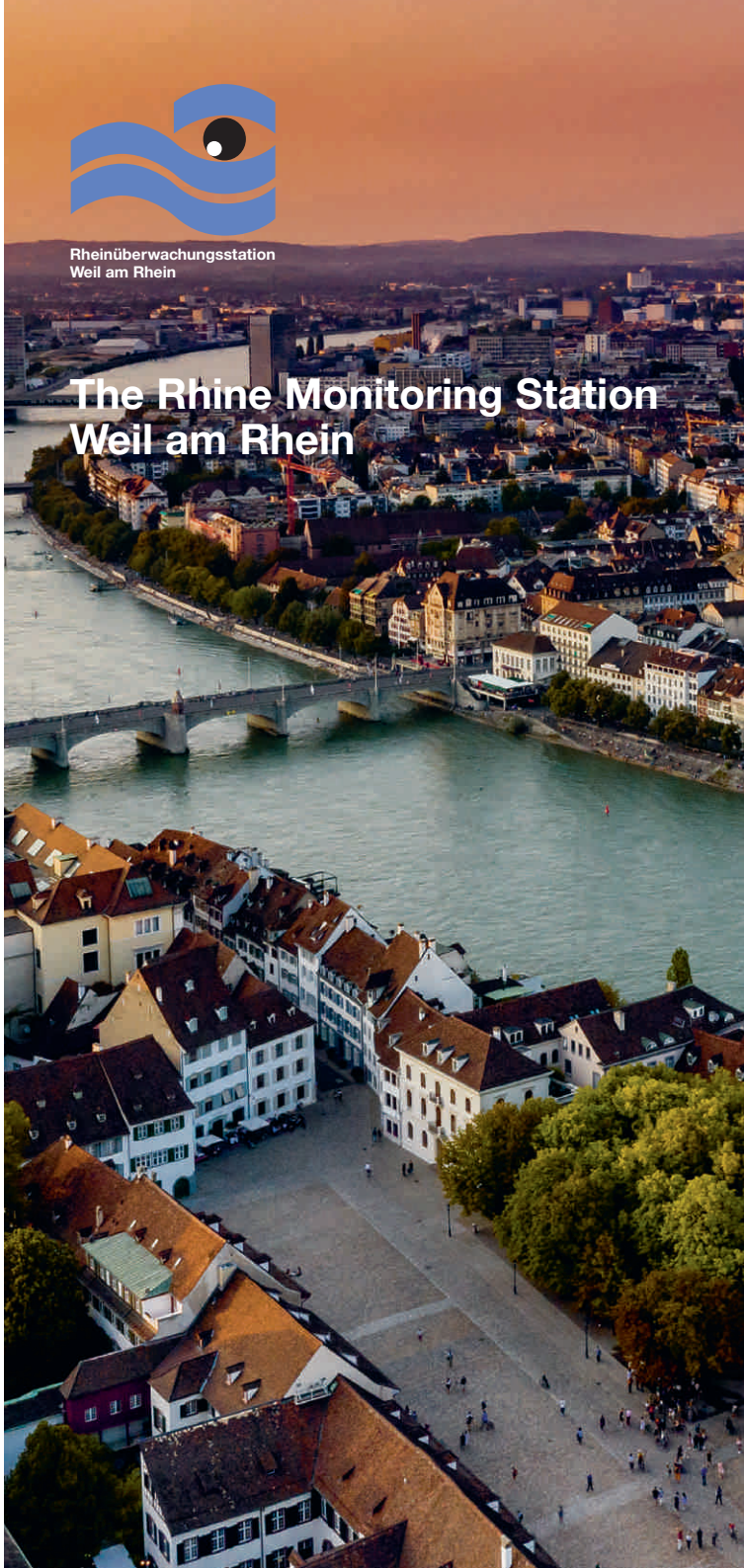
### Guided tours

Would you like to visit the Rhine monitoring station?  
 We offer guided tours for groups by appointment.

### Imprint

Office for Environment and Energy Canton Basle-City  
 www.bs.ch/aeu

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Rheinüberwachungsstation  
 Weil am Rhein

# The Rhine Monitoring Station Weil am Rhein



# Why is the Rhine monitoring station world class?

## Why is the Rhine Monitoring Station (RMS) one of the most modern monitoring stations worldwide?

Probably no other river in the world is as well monitored as the Rhine near Weil. Here, 680 substances are measured with the aid of the latest analysis technologies, more than half of them every day. In addition, a daily search for unknown substances is carried out using specially developed analytical methods (screening). The RMS therefore functions as permanent radar for water pollution. Furthermore, samples are taken daily upstream at different locations and analysed in case of an alarm, to identify the originators of the pollution.

## How does the RMS protect our drinking water?

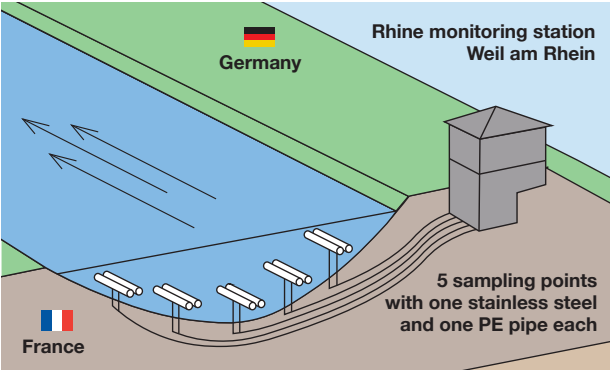
As soon as the measurements indicate that relevant quantities of a pollutant have entered the Rhine, the RMS triggers an alarm. Regionally or, depending on the severity of the contamination, also internationally. The primary purpose of the alarm is to protect the drinking water treatment facilities of the city of Basle and other waterworks located downstream. Around 22 million people obtain their drinking water from the Rhine. But aquatic organisms and their habitats must also be protected. In the event of an alarm, an attempt is made to identify the cause of the pollution as quickly as possible in order to stop its discharge into the Rhine.



Rhine catchment area and location of monitoring stations on the Rhine

## How does the RMS raise environmental awareness?

The continuous perfection of the monitoring of the Rhine water makes it possible today to quickly and reliably locate the originators of pollution. If industrial companies are informed, they can continually improve their wastewater treatment so that, as far as possible, no more water-polluting substances enter the Rhine. Thanks to its leading measurement technology, the RMS is therefore much more than a warning centre. It is also involved in preventive water pollution control. Permanent monitoring of Rhine water quality raises awareness of the fact that water protection must begin at the source. As far as possible, pollutants should not be allowed to ever enter wastewater, and from there possibly into the Rhine.



Sampling over the entire cross section of the Rhine



Building of the Rhine monitoring station directly on the Rhine

## Why does the RMS work in a similar way to a drug detection dog?

The RMS not only sounds the alarm as soon as the concentration of already known substances in its monitoring programme is increased, it also warns in the case of unknown substances. Following the alarm, water samples are taken at specific points by drinking waterworks and by the on-call water protection services of the affected cantons. In addition, reserve samples are taken at the main wastewater treatment plants (WWTP). These samples are analysed promptly in the RMS laboratory and serve to identify the originators of the pollution. For example, in 2013 it was found that the Rhine was polluted with 80 kg of methadone. The heroin substitute had apparently been unintentionally released into the waste water during production and had not been sufficiently degraded in the treatment plant.



Pump cellar of the Rhine monitoring station



Water samples during analysis in the laboratory

## How does the RMS find unknown substances?

For the search for unknown substances, the Swiss Federal Institute for water supply, wastewater treatment and water pollution control (Eawag) developed a computer programme for data evaluation. The daily search for unknown substances only works thanks to this innovative software. It enables a so-called time series analysis, which can be used to determine whether the contamination of the Rhine with a substance suddenly increases. The instrument also generates a hit list of substances with the highest current concentrations in the Rhine. If inexplicably high concentrations of a substance are detected, the RMS immediately triggers an alarm.