



Rhine running red, fish dead – 30th anniversary of the Sandoz blaze

October 31, 2016 | Martina Schürmann
Topics: Pollutants | Ecosystems | Drinking Water

On 1 November 1986, a chemical warehouse at Schweizerhalle near Basel was destroyed by a fire. Aquatic life in the Rhine suffered catastrophic damage as a result of inflows of toxic, red-coloured firefighting water. The readily apparent impacts on river biology – images of dead fish were transmitted worldwide – led to major progress in the areas of chemical water quality monitoring, legal regulations and risk reduction measures in the chemical industry.

The blaze at the Sandoz plant shattered public confidence in the chemical industry's self-inspection regime. Action taken by the authorities as a direct consequence of the disaster included the enactment of the Major Accidents Ordinance (StfV) and the establishment of chemical inspectorates. The anti-pollution efforts of the International Commission for the Protection of the Rhine (ICPR) were substantially intensified. Apart from the immediate damage caused, it can now be concluded, 30 years later, that the accident had positive effects overall from the viewpoint of water protection.

In 1986, Eawag experts were closely involved in efforts to analyse the chemical and biological state of the Rhine, and to document the effects of the accident. As they had correctly – although controversially – predicted, the dynamic river system and aquatic populations recovered relatively quickly, i.e. within a few months. This process was promoted by the migration of organisms from the upper reaches, tributaries and side channels and by the rapid cleansing of the contaminated river by floods.

While the risk of a new chemical accident on the scale of the Schweizerhalle disaster has decreased, attention is now being focused on chronic contamination – e.g. from continuous inputs of persistent household and agrochemicals or medicinal products. In recent years Eawag developed a new technique for measuring and analyzing toxic substances in order to be able to identify them at an early

stage. Thanks to a combination of high-resolution mass spectrometry and liquid chromatography, previously unknown substances can now be recorded.

The international Rhine monitoring station in Weil am Rhein, near Basel, established as a result of the chemical accident in 1992, has already been using the new measuring technique successfully for several years. The daily measurements records peaks in pollutants in the Rhine in real time, and, ideally, will also shed light on the identity and origin of the substances. The new measurement and analysis technique has a preventative effect on potential polluters and should now be introduced at other locations along the Rhine.

Groundwater in the vicinity of the accident site is also examined thoroughly, as drinking water pumping stations for the region are located not far away. At a specialist conference on 11 November, specialists from the Basel-Land cantonal government, along with Eawag and other partners, will be reporting on the challenges in the water sector.





Fig. 2: The toxic chemicals from the Sandoz factory ended up in the Rhine via the water used to extinguish the fire, leading to mass mortality of the fish in the river.

Related Files

[Article in Aqua & Gas \(german\)](#) [pdf, 1 MB]

Related Links

30 years on: the Sandoz blaze in Schweizerhalle; Radio SRF from 31.10.2016

Information on the new measurement and analysis technique (department of Environmental Chemistry, Eawag)

Radio play premiere «Falscher Alarm» by Lukas Holliger with original sounds from 1986, Broadcast on Radio SRF on 28.10.2016

The positive consequences of an environmental disaster; NZZ article from 1.11.2006 (Walter Giger, Eawag)

Information published by the Basel-Landschaft Office of Environmental protection, i.a. on groundwater monitoring

Press release of the International Commission on the Protection of the Rhine, from 13.10.2016

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<https://www.eawag.ch/en/info/portal/news/news-archive/archive-detail/rhine-running-red-fish-dead-30th-anniversary-of-the-sandoz-blaze>