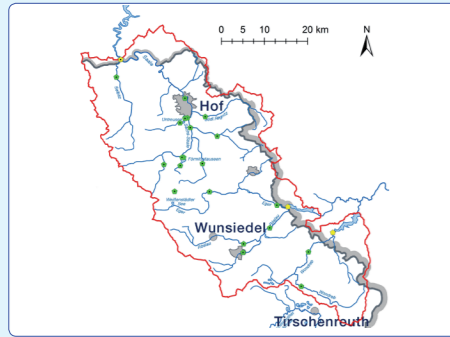


Improvements to the flood forecasting systems

Germany

Water level and rate flow forecasting for the Bavarian part of the Elbe River Basin: As part of a project administered by the River Basin Community Elbe (FGG Elbe), a hydrological flood forecast model with high spatial resolution was created. The handover points on the Czech and Thuringia side also allow for the forecasting of inflow in the local water reservoirs of Bleiloch (partially), Skalka and Jesenice. Since its completion in 2016, the model has been run by the Bavarian Environmental Agency. Flexible passing of the data "downstream" was implemented in the Czech Republic and Thuringia.



The area included in the forecast model and (transferring) water gauging stations (Source: LFU Bayern)

Improvements to the WAVOS model: As a consequence of the 2013 flood, there was an urgent need to optimize, extend and care for the water level forecasting model (WAVOS), which is used for flood forecasting at the German inland section of the Elbe. For this reason, the model was adjusted in terms of topography, structure, software, input data and calibration/validation between 2015 and 2018. A brief overview of the new features is shown below.

- A modification of the model topography taking into account all flood measures in the modelled river basin was implemented by the end of 2018 affecting a flow section of a given watercourse.
- Other inter-river basins and section forecasts were taken into consideration.
- The option to control operations at hydraulic structures (e.g. weirs) was improved.
- Control was considered at the Havel River due to polder filling.
- The impacts of high tide and low tide were considered to be low threshold conditions at the Zollenspieker water gauging station.

Published by:
The International Commission for the Protection of the Elbe River (ICPER)
Internationale Kommission zum Schutz der Elbe (IKSE)
Mezinárodní komise pro ochranu Labe (MKOL)

Postfach 1647/1648 Phone: +49 (0)391 400 03-0
39006 Magdeburg Fax: +49 (0)391 400 03-11
Fürstenwallstraße 20 Email: sekretariat@ikse-mkol.org
39104 Magdeburg Internet: www.ikse-mkol.org

Impressions: 500 copies in English, translation into English: Vit Prošek
1000 copies in German
500 copies in Czech
Print: Harzdruckerei Wernigerode
Max-Planck-Straße 12/14
38855 Wernigerode

ACTIVITIES ON THE INTERNATIONAL LEVEL

ICPER has intensively supported supranational cooperation in the field of flood protection in the Elbe River Basin for more than 20 years, and it has published many publications that are available on its website (www.ikse-mkol.org).



A significant part of its activities is the common assessment of exceptional hydrological situations. In 2014, we published a hydrological assessment of the June 2013 flood in the Elbe River Basin that needed to be considered in the review of preliminary flood risk assessment.

Exceptional hydrological situations also include droughts. That is why a report summarizing the important meteorological and hydrological aspects of 2015 with a period of significantly low water levels was published under the auspices of ICPER in 2017. With respect to the fact that drought has persisted in the Elbe River Basin since 2014 (the situation as of October 2018), this issue will be subject to further analyses.



ICPER held an international workshop in Magdeburg on 10 April 2018 concerning the review of preliminary flood risk assessment and flood hazard maps and flood risk maps in the international Elbe River Basin District. The programme consisted of three segments.

- A review of the results of the preliminary flood risk assessment
- A review of flood hazard maps and flood risk maps as well as map compatibility with the INSPIRE Directive
- Challenges, projects and experiences.

In the first two segments, the current situation concerning work in the Elbe River Basin Member States was presented along with two lectures on the topic of activities of the international commissions for the protection of the rivers Oder and Rhine. In the third segment, approaches to pluvial floods were presented and the possibilities of using data from Sentinel satellites (the Copernicus programme) for flood risk management were discussed.



More than 90 experts from the Czech Republic, Germany, Austria and Poland participated in the workshop, which was focused on the exchange of important information between the relevant authorities in the international Elbe River Basin District (pursuant to Art. 4 (3) and Art. 6 (2) of the Floods Directive).



Photographs: ICPER

OUTLOOK

- The interested public was informed about the current status of the Water Framework Directive and Floods Directive for the Elbe River Basin District at the International Elbe Forum that took place on 9 and 10 April 2019 in Dresden.
- By 22 December 2019, flood hazard maps and flood risk maps expressing the degree of hazard and risks resulting from river (fluvial) floods and floods from the sea shall be reviewed and updated, if necessary, and created for newly defined areas with low, medium or high probability of an occurrence. By 22 March 2020 at the latest, the interactive map application will be updated allowing central access to

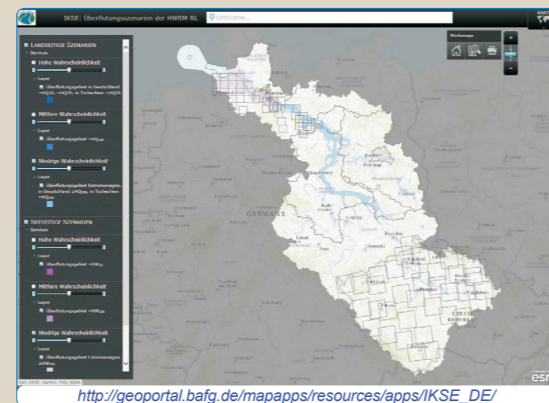
the hazard and risk maps of the Elbe River Basin District. The map shows potential spills in the entire Elbe River Basin, and it allows users to select an area of interest and redirects them to detailed national maps.

When updating Part A of the International Flood Risk Management Plan for the Elbe River Basin District for 2022–2027, particular attention will be paid to the following aspects.

- Non-structural measures (forecast and warning systems)
- A description of significant technical flood measures in connection with the analysis of their effects and effectiveness at the level of the Elbe River Basin District
- The approach to the risk of torrential rainfall and subsequent pluvial floods

Other important dates:

- Publication of the draft of the plan (by 22/12 2020)
- Public consultation (12/2020–06/2021)
- Assessment of the comments concerning the plan, creation of the final version (07/2021–12/2021)
- Publication of the updated plan (by 22/12 2021)



http://geoportal.bafg.de/mapapps/resources/apps/IKSE_DE/

INTERNATIONAL FLOOD RISK MANAGEMENT PLAN FOR THE ELBE RIVER BASIN DISTRICT

The states in the Elbe River Basin, i.e. the Czech Republic, Germany, Austria and Poland, have worked together to compile the International Flood Risk Management Plan for the Elbe River Basin District in accordance with the requirements of the Directive on the Assessment and Management of Flood Risks (2007/60/EC, hereinafter referred to as the "Floods Directive"). The Plan consists of Part A, which summarizes the information on an international level, and Part B, in which each Member State provides information about the situation in their country. The International Commission for the Protection of the Elbe River (ICPER) was entrusted with the coordination. Part A of the International Plan has been available on the ICPER website since 17 December 2015. In Austria and Poland, no areas with potential significant flood risk were identified in the International Plan for the first management cycle for the Elbe River Basin.

This plan is to be reviewed regularly and updated when needed until 22 December 2021 and then subsequently every sixth year. First to be reviewed in the preliminary work, and updated if needed, are the results of the preliminary risk assessment (by 22/12 2018) and the flood hazard maps and flood risk maps (by 22/12 2019).

ICPER intends to use this Information Sheet to inform readers about the state and results concerning the review that is underway and, most importantly, about the current state concerning the implementation of flood protection measures.

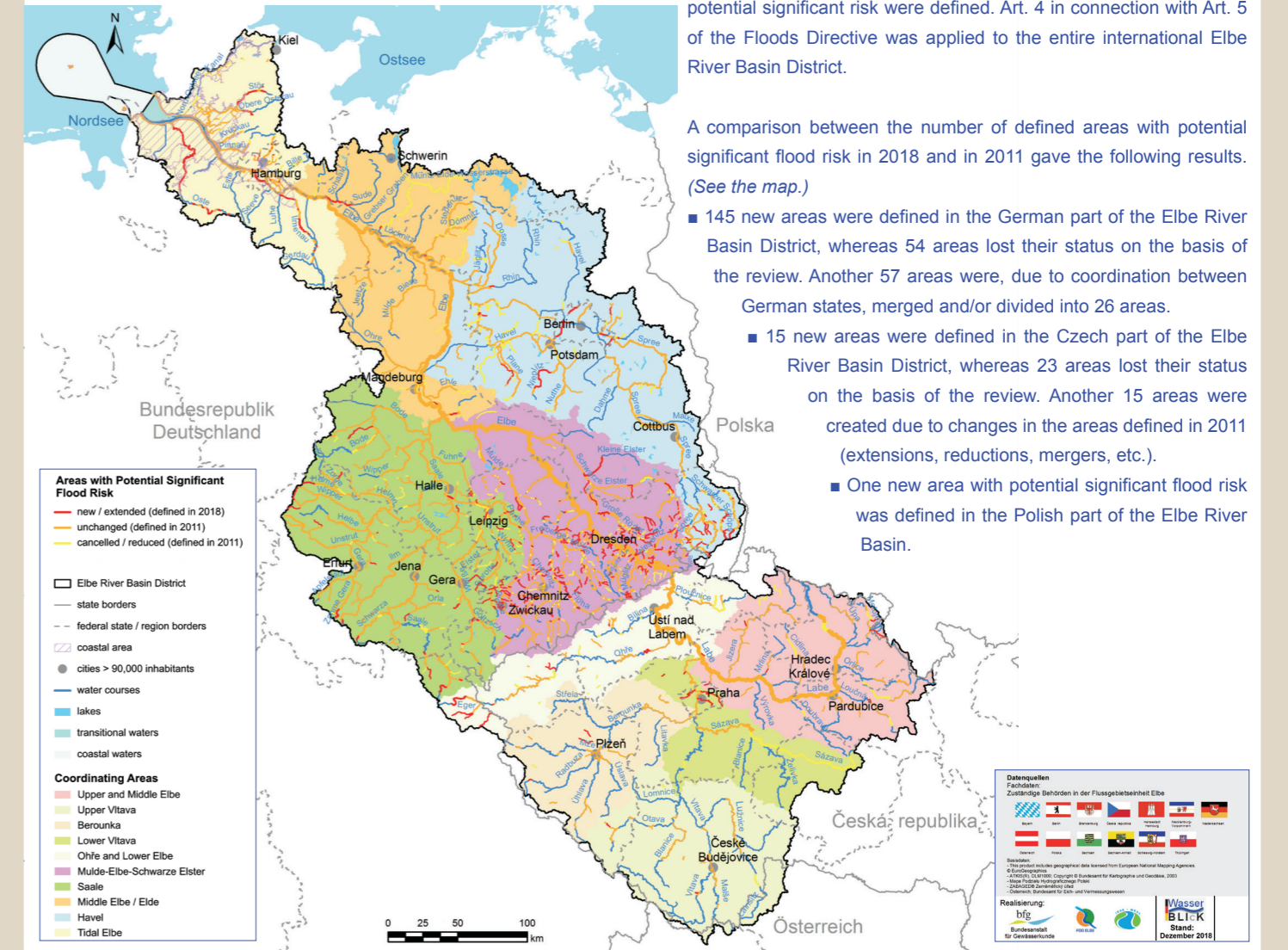
REVIEW RESULTS

On the basis of updated documents, considering the measures implemented, the anticipated impacts of climate change and the assessment of new findings, particularly after the assessment of the 2013 flood, the preliminary flood risk assessment for the Elbe River

Basin District was reviewed. A total of 423 areas with potential significant flood risk were defined, of which 342 were in Germany, 80 were in the Czech Republic and 1 was in Poland. In Austria, which accounts for 0.6% of the Elbe River Basin surface, no areas with potential significant risk were defined. Art. 4 in connection with Art. 5 of the Floods Directive was applied to the entire international Elbe River Basin District.

A comparison between the number of defined areas with potential significant flood risk in 2018 and in 2011 gave the following results. (See the map.)

- 145 new areas were defined in the German part of the Elbe River Basin District, whereas 54 areas lost their status on the basis of the review. Another 57 areas were, due to coordination between German states, merged and/or divided into 26 areas.
- 15 new areas were defined in the Czech part of the Elbe River Basin District, whereas 23 areas lost their status on the basis of the review. Another 15 areas were created due to changes in the areas defined in 2011 (extensions, reductions, mergers, etc.).
- One new area with potential significant flood risk was defined in the Polish part of the Elbe River Basin.



Datenquellen:
 Fachdaten:
 Zuständige Behörden in der Flussgebietsbehörden Elbe
 (List of authorities: Austria, Czech Republic, Germany, Poland)

Reiseplanung:
 iflg
 Bundesamt für Naturschutz
 Stand: Dezember 2018