Update of the Flood Hazard and Flood Risk Maps in the International River Basin District 'Rhine' (Catchment > 2,500 km², Part A)

Third cycle of the Floods Directive

International Commission for the Protection of the Rhine

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Foreword

In the Conference of Rhine Ministers of 18 October 2007, the International Commission for the Protection of the Rhine (ICPR) had been charged to support the coordination required within the implementation of the "Directive 2007/60/EC[1] of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks" (in the following: "FD") between EU Member States and Switzerland in the International River Basin District Rhine (IRBD Rhine) in a comparable manner to what is done for the Water Framework Directive (WFD).

Switzerland and Liechtenstein are not members of the EU and are therefore not required to implement the FD. As with the implementation of the WFD, Switzerland and Liechtenstein have supported the EU Member States in coordinating the implementation of the FD on the basis of their national legislation.

The EU Member States are in charge of reporting on the state of implementation of the FD to the EU Commission.

According to Article 6(1) FD the **EU Member States** drafted **flood hazard maps and flood risk maps[2]** for areas with potential significant flood risk identified under Article 5(1) FD[3].

Article 6(2) FD presupposes an exchange of information of the Member States concerned prior to drafting flood hazard and flood risk maps for areas determined according to Article 5 FD and shared by several Member States.

In the second cycle, areas with potentially significant flood risk and flood hazard and risk maps were reviewed and updated by 22 December 2018 and 22 December 2019, respectively.

Furthermore, information gathered during the first and second cycle for drafting flood hazard maps and flood risk maps according to Chapters III and IV of the FD, have been used in the first and second International Flood Risk Management Plan (IFRMP) of the IRBD Rhine[4].

In the third cycle of implementation of the FD, the report on the designation of areas with potential significant flood risk in the IRBD Rhine pursuant to Article 14 FD has been updated until 22 December 2024[5].

At the same time, in the context of the third cycle, the flood hazard and risk maps referred to in Article 14(2) FD shall be reviewed and, if necessary, updated by 22 December 2025 on the basis of the update of the areas with potential significant flood risk. Further reviews shall be carried out every six years.

The reporting of the EU Member States to the EU Commission is based on the "Guidance for Reporting under the Floods Directive (2007/60/EC)[6]"(2013) including a "Reporting Sheet for Flood Hazard Maps and Flood Risk Maps".

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060
[2] https://www.iksr.org/en/eu-directives/floods-directive/flood-hazard-and-flood-risk-maps
[3] https://www.iksr.org/en/eu-directives/floods-directive/flood-risk-assessment/
[4] https://www.iksr.org/en/eu-directives/floods-directive/flood-risk-management-plan
[5] https://www.iksr.org/en/eu-directives/floods-directive/flood-risk-assessment
[6] See Guidance Doc. No. 29 "A compilation of reporting sheets adopted by WD CIS for the WFD (2000/60/EC)", Technical Report – 071", 2013. Link: http://ec.europa.eu/environment/water/flood_risk/implem.htm

The update at hand is available to the States in the Rhine river basin for their reporting on the FD to the EU according to Article 6(1)(2) FD as well as Article 14(2) FD. The update is the result of the exchange of information during the period 2020-2025 at the level of the IRBD Rhine pursuant to Article 6(2) FD. Including the Annexes, it serves the EU Member States:

(1) as documentation for the application of Article 14 FD (review and, if necessary, for updating flood hazard and flood risk maps) in the IRBD Rhine (Part A, catchment > 2,500 km²) in the third cycle
(2) as proof for the exchange of information in the IRBD Rhine required according to Article 6(2) FD and covered by the reporting obligation.

For further details on flood risk management, reference is made to the internationally coordinated IFRMP drawn up in 2021 as part of the 2d cycle of the FD[7].

Exchange of information according to Article 6(2) FD on reviewing and, if necessary updating flood hazard and flood risk maps

In its Article 6(2) the FD provides that, for areas determined according to Article 5 FD and which are shared by several Member States, the preparation of the maps shall be *„subject to prior exchange of information between the Member States concerned*".

The exchange of information within the ICPR concerning the drafting of the flood hazard and risk maps is based on concrete earlier ICPR work.

a. Following the great floods of the Rhine in 1993/1995, the ICPR adopted the "Action Plan on Floods" in 1998. In this connection, in 2001, an ICPR Atlas of Flood Danger and Potential Damage due to Extreme Floods of the Rhine[8] from the outlet of Lake Constance until the North Sea was drafted.

b. In the first and second cycle of the FD, following the joint preparation of the report on the identification of potentially significant flood risk areas in the IRBD Rhine (2011 and 2018)[9], the states in the Rhine catchment area regularly exchanged information and subsequently published the Report on the drafting of flood hazard maps and flood risk maps in the IRBD Rhine in 2014 and 2019[10], respectively.

c. Since 2015, the ICPR Rhine Atlas (flood hazard and flood risk maps of the IRBD Rhine) (see Annex 4) has been available on the ICPR website as a map portal based on national GIS data[11]. The Rhine Atlas was updated at the beginning of 2020 in line with the national maps updated in accordance with Article 14(2) of the FD. Based on the coordination within the ICPR - including the internationally agreed discharge values (see Annex 3) for the three flood scenarios (low, medium and high probability) - the Rhine Atlas presents the flood hazards and flood risks for the areas identified as presenting a potentially significant flood risk of the type "fluvial flood" for the main stream of the Rhine from the Alpine Rhine to the North Sea estuary. The Interactive Rhine Atlas also includes links to all portals of member states, regions and federal states enabling the visualisation of detailed maps of the Rhine and its main tributaries. The Rhine Atlas will be updated by mid-2026 to incorporate the latest national flood hazard maps and flood risk maps (the subject of this report).

[7] https://www.iksr.org/en/eu-directives/floods-directive/flood-risk-management-plan/
[8] See ICPR Rhine Atlas 2001
[9] https://www.iksr.org/en/eu-directives/floods-directive/flood-risk-assessment
[10] https://www.iksr.org/en/eu-directives/floods-directive/flood-hazard-and-flood-risk-maps
[11] https://www.iksr.org/en/public-relations/documents/archive/maps/rhine-atlas

The present report presents the results of the information exchange in 2025 and the updated flood risk and flood hazard maps (Part A) based on the update of areas with potentially significant flood risk. The following products are available:

1. An **updated overview map showing the river sections** in the IRBD, part A (catchment > 2.500 km²), **for which the Member States have drafted flood hazard maps and flood risk maps (see Annex 1)**.

   This map provides for the following categories:
   a. *green: river sections without any potentially significant flood risk*
   b. *red or* [12]*: River sections and areas with potentially significant flood risk*[13] *for which flood hazard maps and flood risk maps have to be prepared in accordance with Article 6 FD and updated in accordance with Article 14 FD.*

2. List of **internet links** towards the national or regional map portals for flood hazard and risk maps **(see Annex 2).** It equally includes links towards national reports or reports for sub basins (e.g. Moselle-Sarre of ICPMS), which contain the details on how the maps were drafted for flood risk areas in border regions for which a coordination is required.

3. Coordination results between the Rhine bordering states for the **preparation of the Rhine Atlas 2020 and 2026 respectively (flood hazard and flood risk maps of the IRBD Rhine)**: **Coordinated discharge values for the three scenarios** of the FD for the main stream of the Rhine; these values apply to the ICPR Rhine Atlas as well as for the national maps for the main stream of the Rhine **(see Annex 3).**

4. **Legend and excerpt of the digital Rhine Atlas (see Annex 4; Status: Rhine Atlas 2020)**

[12] The visualisation of flood risks on the overview map in Annex 1 differs between Member States due to the use of different reporting methods, such as areas or lines. These differences in visualisation do not reflect differences in the actual potential flood risk.
[13]Coordination in the ICPR concerns floods from rivers and lakes ("fluvial" type) but no other types of floods (see updated report on the identification of potentially significant flood risk areas in the IRBD Rhine, 3rd cycle, 2024). For this reason, the coastal areas of the North Sea in the Netherlands are not included in this report.

Comments on the FD maps for the Netherlands:

In 2017, the Netherlands moved from standardisation based on the probability of exceedance of water levels to standardisation based on the flood probability for primary flood protection installations. By 2050, all primary flood defences in the Netherlands will comply with these new standards. For the second and also for the third cycle of the FD, the Netherlands have decided to produce maps for protected areas based on available current probabilities of flooding. In contrast, in the first cycle of the FD, the norm of the probability of exceedance of water levels was assumed for protected areas. The background for this change in relation to flood risk management maps is that many (primary) flood defences do not yet comply with the new standard. The current probabilities of flooding therefore provide a more realistic picture of the flood risk to which citizens are exposed.

Given the high protection level of the primary flood defences in the Netherlands, 4 maps are to be produced which correctly describe the entire range of flood probabilities from 1/10 to 1/10,000 per year. The first three maps correspond to flood probabilities in the order of 1/10, 1/100 and 1/1000 per year. The additional 4th map shows the scenario of an extraordinary (maximum conceivable) event with a flood probability in the order of ≤ 1/10,000 years.

Based on the preliminary risk assessment and the identification of areas with significant flood risks, the Netherlands produce maps showing floods of rivers and lakes (fluvial), coastal floods (sea water) and floods of shipping channels (artificial water-bearing infrastructures). Significant risks in the regional water system were also identified.

The coast of the Rhine catchment lies entirely within the national borders of the Netherlands, and the influence of North Sea water levels, including the possible rise in sea level, on Rhine water levels is limited to the Netherlands. Therefore, storm surges are not considered in the following. However, this information can of course be obtained from the Dutch flood hazard and flood risk maps.

The maps show the current state according to the latest information. On the basis of the discharges calculated with climate scenarios of the KNMI, the extreme discharges increase and, for example, a scenario of a flood that occurs once every 100 years today will occur more frequently in the future. With respect to flood risk management measures, the Netherlands take climate change into account. The expected rise in sea level and river discharge is taken into account in dyke reinforcement, amongst others.

Remark concerning national maps available for Switzerland:

In Switzerland, maps representing the ***flood intensity*** and ***flood hazard*** in settlement areas are being drafted. Outside the settlement area, ***hazard index maps*** with a lower level of detail show the possible hazard areas.

The Swiss maps of ***flood intensity*** represent the spatial extension (flooded surface) and occurring intensities (flow depth and velocity) for different probability classes. Thus, their contents correspond to the flood hazard maps according to the FD.

The Swiss ***hazard maps*** include a 5 level classification based on the intensities and probability of occurrence. They thus go beyond the flood risk maps provided for by the FD, but they do not make any indications with respect to goods at risk. With respect to their contents their position is between the flood hazard map and the flood risk map according to the FD. At the level of measures planning, however, risks are identified and assessed in detail.

Since 1991, federal laws on hydraulic engineering and forests have required the cantons to draw up hazard maps and to take these into account in structural and land-use planning, as well as in all activities with spatial implications. While the intensity maps represent an important basis for emergency planning and technical measures planning, the hazard maps derived from them are the basis for the identification of hazard zones in land use planning and the drafting of building requirements in the context of building permit procedures. Hazard maps must be updated periodically, and zoning and land-use plans adjusted accordingly. Hazard maps are also important for raising public awareness of natural hazards.

All existing hazard maps are freely accessible via the respective cantonal geoportals.

The ICPR’s overview map on flood hazard and risk maps (see annex 1) indicate Swiss areas with flood hazard maps.

In Switzerland, the initial mapping has been completed. Hazard maps for floods, landslides, gravitational processes and avalanches are available throughout Switzerland and are continuously updated and spatially supplemented.

Since mid-2018, new hazard data and documentation has been available in the form of the hazard map for surface runoff. This closes an important gap in the hazard data and documentation. Insurance damage analyses show that surface runoff due to heavy rainfall accounts for around 50 % of water damage (approx. CHF 140 million per year). The new map shows which areas in Switzerland are potentially affected by surface runoff. It is an important tool for damage prevention.

Some cantons are now already analysing the risks posed by natural hazards for their own purposes. Creating risk overviews and overall planning based on standard guidelines has been part of Swiss law since 2015; the cantons are obliged to prepare the relevant documents by 2031.

Remarks concerning national maps available for Liechtenstein:

In Liechtenstein, ***maps of intensity*** and ***hazard maps*** are drawn up for natural hazards related to water, avalanches, landslides and gravitational processes in settlement areas. Outside the settlement areas, ***hazard index maps*** with a lesser degree of detail indicate possible hazard areas.

The ***maps of intensity*** represent the spatial extension (surface concerned) and occurring intensities (intensity of the process) for different probability classes. Thus, their contents correspond to the flood hazard maps according to the FD.

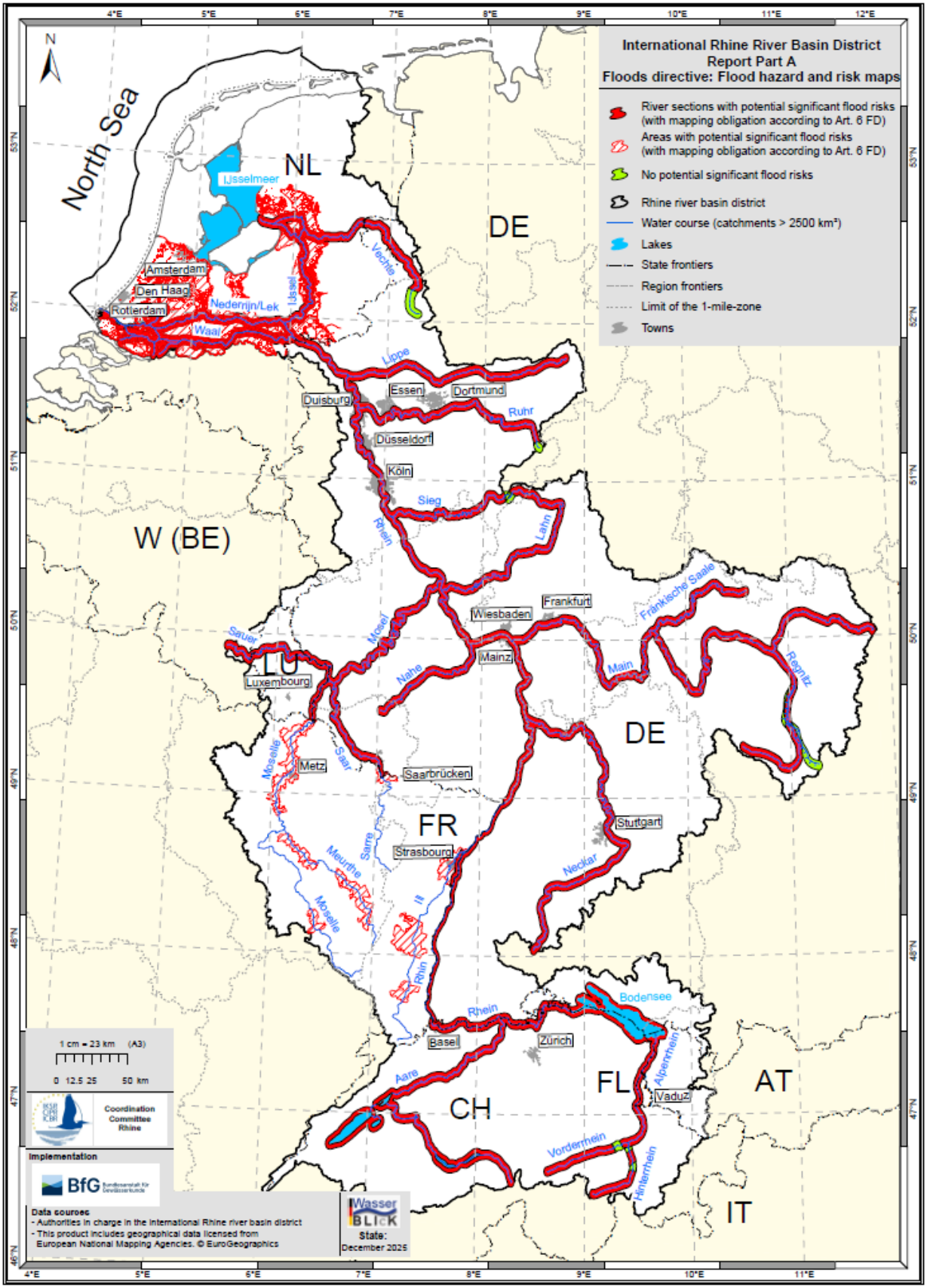
The ***hazard maps*** include a 5 level classification based on the intensities and probabilities of occurrence. They thus go beyond the flood risk maps provided for by the FD, but they do not make any indications with respect to goods at risk. With respect to their contents their position is between the flood hazard map and the flood risk map according to the FD. At the level of measures planning, however, risks are identified and assessed in detail.

Since 1991, the Forest Act obliges the country to draft hazard maps and to take them into account in structural and land-use planning. While intensity maps provide an important basis for emergency planning and technical measures planning, the hazard maps derived from them form the basis for the designation of hazard zones in municipal land-use planning and for the definition of building requirements within building permit procedures. Hazard maps are also important for raising public awareness of natural hazards.

All existing intensity, hazard and hazard index maps are freely available via the geoportal of the country.

In Liechtenstein, first mapping was done until 2001. Hazard maps for water, avalanches, landslides and gravitational processes are available for the entire country and are regularly updated. The first revision of the hazard maps was concluded in 2019. The zoning and land-use plans are subsequently adjusted accordingly.

Annex 1 - Overview of river sections or areas with potentially significant flood risk, as well as flood hazard and risk maps[14]



[14] The visualisation of flood risks on the overview map in Annex 1 differs between Member States due to the use of different reporting methods, such as areas or lines. These differences in visualisation do not reflect differences in the actual potential flood risk.

Annex 2 - Internet links towards maps of flood hazard and risk maps including the ICPR Rhine Atlas

ICPR:

Report on the Drafting of Flood Hazard and Flood Risk Maps in the International River District Rhine (first and second cycle, publication 2014 and 2019, respectively):
https://www.iksr.org/en/eu-directives/floods-directive/flood-hazard-and-flood-risk-maps/

Rhine Atlas (flood maps of the International River Basin District Rhine) *(Status: 2020; will be updated by mid-2026)*:
https://www.iksr.org/en/public-relations/documents/archive/maps/rhine-atlas or direct link: https://geoportal.bafg.de/karten/rhineatlas/

States

*Remark: For national sites and maps related to **surface runoff and heavy rainfall risks**, consult ICPR Report No. 306 (Annex 2).*

Netherlands: https://basisinformatie-overstromingen.nl (see under 'Projectmatig vastgestelde waterdieptekaarten' and then 'Europese Overstroomingsrichtlijn')

Germany:
https://geoportal.bafg.de/karten/HWRM
Report of the River Basin Community on the update of the flood hazard maps and flood risk maps: http://www.fgg-rhein.de/servlet/is/87526/

France:
https://www.grand-est.developpement-durable.gouv.fr/territoires-a-risques-importants-d-inondations-tri-a22780.html
http://www.georisques.gouv.fr/cartes-interactives/#/

Luxembourg:
https://map.geoportail.lu/theme/eau (see „Directive Inondation")

Belgium (Wallonia):
https://environnement.wallonie.be/home/gestion-environnementale/risques-climatiques/inondations/directive-inondation/cartographies.html

Austria:
https://maps.wisa.bmluk.gv.at/
https://www.bmluk.gv.at/themen/wasser/wisa/hochwasserrisiko.html

Liechtenstein:
https://map.geo.llv.li/theme/Naturbedingte%20Risiken
https://www.llv.li/en/national-administration/office-for-civil-protection

Switzerland:
Hazard maps:
English: https://map.geo.admin.ch/?topic=bafu&lang=en > Natural hazards > floods
http://www.bafu.admin.ch/gefahrenkarten
http://www.bafu.admin.ch/cartes-dangers
http://www.bafu.admin.ch/carte-pericoli
Overland flow map:
English: https://map.geo.admin.ch/?topic=bafu&lang=en > Natural hazards > floods > overland flow map
http://www.bafu.admin.ch/oberflaechenabfluss
http://www.bafu.admin.ch/ruissellement
http://www.bafu.admin.ch/ruscellamento

International Commissions for the Protection of the Moselle and the Saar (ICPMS):
http://www.iksms-cipms.org; http://www.iksms-cipms.org/servlet/is/20073/ *(planned information update: expected end of March 2026)*

Annex 3 - Coordinated discharge values (Q) and water levels (H) for the production of the flood hazard maps (main stream of the Rhine) and the Rhine Atlas 2020 and 2026, respectively *(publication by mid-2026)*

1. Main stream

Within the coordination activities, the following discharge values were coordinated with a view to **drafting flood hazard maps** (basic water network >2,500 km²) and thus also for updating the Rhine Atlas:

(1) Floods with a low probability or extreme event scenarios.

Scope	Low probability $HQ_{extreme}$***
Alpine Rhine - Landquart to mouth R. Ill	5,250 m³/s*
Alpine Rhine - mouth R. Ill to Lake Constance	6,500 m³/s*
Lake Constance to mouth R. Thur	1,250 m³/s
Mouth R.Thur to mouth R. Aare	2,930 m³/s
Mouth R. Aare to mouth R. Wiese (point of reference: Basel)[15]	5,480 m³/s
from mouth R. Wiese to Iffezheim **	**
Iffezheim to downstream mouth R. Neckar[16]	6,500 m³/s
from mouth R. Neckar	7,600 m³/s
from mouth R. Main	10,300 m³/s
from mouth R. Nahe	10,400 m³/s
from mouth R. Moselle	15,250 m³/s
from mouth R. Sieg	15,300 m³/s
from mouth R. Ruhr	15,800 m³/s
from Lobith[17]	14,100 m³/s

*Values taken from the Development Concept Alpine Rhine of the International Government Commission Alpine Rhine. For the assessment of the present risk with respect to low probability, Austria applies 3,350 resp. 4,300 m³/s and additionally takes into account dike breaches and solid matter scenarios. The calculation values for concrete constructional protection measures are bilaterally agreed upon for each individual case for the shared border section.

**Discussions between France and Germany within the framework of the Standing Committee aimed at coordinating the section between the mouth of R. Wiese and Iffezheim are going on. The results of these consultations (expected in 2026) will lead to the definition of discharge values and possibly also to a reallocation of this river section. This can be taken into account in the next update of the present report.

***Note: corresponds to ~1,000a without dyke overflow, except for Lobith (with dyke overflow).

[15] **Additional information from the Swiss delegation (FOEN) for Basel and CH-gauges**: The values for the Rhine at Basel and upstream of Basel are still up to date (see ICPR report FD 2019). However, a major study on extreme floods in Switzerland is currently being carried out. The results of this study are expected at the end of 2025. Based on the results then available, the flood values for extreme events are to be reviewed.

Additional information from the French delegation (DREAL Grand Est) for Basel: In July 2021, the French National Research Institute for Agriculture, Food and the Environment (Institut national de recherche pour l'agriculture, l'alimentation et l'environnement - INRAE) conducted an expert assessment of the hydrology of the Rhine at the Gambsheim and Iffezheim barrages. The study shows that the reference discharge in Basel in relation to extreme discharges is 5760 m3/s, with a confidence interval between 5120 m^3/s and 6440 m^3/s. The study is available at https://hal.science/hal-03295501 (abstract also in English).

[16] **Note for the French side**: In view of the lack of study results for HQ1000, the FR delegation confirms the values in the table. However, it is awaiting the results of an ongoing study on the risk of dyke overflow for HQ1000 as part of the PPRI (French land-use plan) downstream of Iffezheim.

[17] **The difference in discharge between the Ruhr estuary and downstream of Lobith** can be explained by the fact that the Dutch discharge values take into account dyke overflows in Germany (which occur when discharge is very high), whereas the German discharge values do not.

(2) According to Article 6(3b) FD, a flood with a medium probability is defined by a return period of HQ 100-120 years.

Scope	Medium probability $H_{100-120}$
Alpine Rhine - Landquart to mouth R. Ill	2,550 m³/s
Alpine Rhine - mouth R. Ill to Lake Constance	3,050 m³/s
Lake Constance to mouth R. Thur	1,100 m³/s
Mouth R.Thur to mouth R. Aare	2,260 m³/s
Mouth R. Aare to mouth R. Wiese (point of reference: Basel)[18]	4,780 m³/s
from mouth R. Wiese to Iffezheim **	**
Iffezheim to downstream mouth R. Neckar	5,000 m³/s
from mouth R. Neckar	6,000 m³/s
from mouth R. Main	7,900 m³/s
from mouth R. Nahe	8,000 m³/s
from mouth R. Moselle	11,850 m³/s
from mouth R. Sieg	11.910 m³/s
from mouth R. Ruhr	12.400 m³/s
from Lobith[19]	12,700 m³/s

**Discussions between France and Germany within the framework of the Standing Committee aimed at coordinating the section between the mouth of R. Wiese and Iffezheim are going on. The results of these consultations (expected in 2026) will lead to the definition of discharge values and possibly also to a reallocation of this river section. This can be taken into account in the next update of the present report.

(3) According to Article 6(3b) FD, a flood of medium probability is defined by a return period of HQ 100-120 years, for the Alpine Rhine of HQ 30.

Scope	High probability H_{10}
Alpine Rhine - Landquart to mouth R. Ill	1,950 m³/s*
Alpine Rhine - mouth R. Ill to Lake Constance	2,450 m³/s*
Lake Constance to mouth R. Thur	920 m³/s (basic value CH HQ_{30} = 1,010 m³/s)
Mouth R.Thur to mouth R. Aare	1,660m³/s (basic value CH HQ_{30} = 1,940 m³/s)
Mouth R. Aare to mouth R. Wiese (point of reference: Basel)[20]	3,980 m³/s (basic value CH HQ_{30} = 4,380 m³/s)
from mouth R. Wiese to Iffezheim **	**
Iffezheim to downstream mouth R. Neckar	4,100 m³/s
from mouth R. Neckar	4,750 m³/s
from mouth R. Main	5,700 m³/s
from mouth R. Nahe	5,800 m³/s
from mouth R. Sieg	8,880 m³/s
from mouth R. Ruhr	9,470 m³/s
from Lobith	9,320 m³/s

*The basic value for AT and CH is HQ 30
**Discussions between France and Germany within the framework of the Standing Committee aimed at coordinating the section between the mouth of R. Wiese and Iffezheim are going on. The results of these consultations (expected in 2026) will lead to the definition of discharge values and possibly also to a reallocation of this river section. This can be taken into account in the next update of the present report.

[18] **Additional information from the French delegation (DREAL Grand Est) for Basel**: In July 2021, the French National Research Institute for Agriculture, Food and the Environment (Institut national de recherche pour l'agriculture, l'alimentation et l'environnement - INRAE) conducted an expert assessment of the hydrology of the Rhine at the Gambsheim and Iffezheim barrages. The study shows that the reference discharge in Basel for a return period of 100 years is 4870 m³/s, with a confidence interval between 4470 m³/s and 5280 m³/s. The study is available at https://hal.science/hal-03295501 (abstract also in English).

[19] **The difference in discharge between the Ruhr estuary and downstream of Lobith** can be explained by the fact that the Dutch discharge values take into account dyke overflows in Germany (which occur when discharge is very high), whereas the German discharge values do not.

[20] **Additional information from the French delegation (DREAL Grand Est) for Basel**: In July 2021, the French National Research Institute for Agriculture, Food and the Environment (Institut national de recherche pour l'agriculture, l'alimentation et l'environnement - INRAE) conducted an expert assessment of the hydrology of the Rhine at the Gambsheim and Iffezheim barrages. The study shows that the reference discharge in Basel for a return period of 10 years is 3870 m³/s, with a confidence interval between 3630 m³/s and 4080 m³/s. The study is available at https://hal.science/hal-03295501 (abstract also in English).

2. Tributaries

Many tributaries to the Rhine (Aare, Ill, Neckar, Main including Franconian R. Saale and Regnitz, Nahe, Lahn, Moselle/Sarre including Sûre, Sieg, Ruhr, Lippe, Vechte - see map in annex 1) equally belong to the International River Basin Rhine (part A, catchment > 2,500 km²). According to the WFD, the **major tributaries Neckar, Main and Moselle/Sarre** constitute separate working areas. This is also supposed to apply to the FD.

	HQ_{10}	**$HQ_{100-120}$**	**$HQ_{extreme}$**
Neckar	1,875 m³/s	2,840 m³/s	3,970 m³/s
Main	1,580 m³/s	2,580 m³/s	3,350 m³/s
Moselle/Sarre:	3,250 m³/s	4,500 m³/s	6,500 m³/s

Table: Relevant discharges at the mouths of the Neckar, Main and Moselle/Sarre for the implementation of the FD in these working areas.

3. Lake Constance

The flood hazard is due to the water level of Lake Constance. The values for defined return periods are taken from the report of the Working Group Water Level Prediction Lake Constance (determination of the extreme water level of Lake Constance, final version, state: 07.06.2011).

The water levels are indicated for different reference periods. The reason is that the riverine states to Lake Constance, i.e. Germany, Austria and Switzerland use different standard water levels as a reference for their indications of altitude (see Annex 1 of the above mentioned report):
- Germany: Standard water level of the North Sea near Amsterdam (m ü. NN)
- Austria: Standard water level of the Adriatic Sea near Trieste (m ü. A)
- Switzerland: Standard water level near Marseille (m ü. M]

Within the coordination, the following water levels were convened for drafting the **flood hazard maps**:

(1) according to Article 6(3a) FD, the lake level with low probability is defined for a return period of 1,000 years or scenarios for extreme events.

Lake Constance	**Water level for the national vertical datum**		
	DE [m ü. NN]	**AT** [m ü. A]	**CH** [m ü. M]
Lake Constance - Upper Lake	398.00	398.25 Basic value AT HW_{300} = 398.02*	398.30
Lake Constance - Lower Lake	397.75	-	398.05

*For the assessment of the present risk situation and low probability AT uses the lake level and a return period of 300 years, additionally taking into account scenarios of dike breaches.

(2) According to Article 6 (3b) FD, the lake level with medium probability is defined by a return period of 100 years.

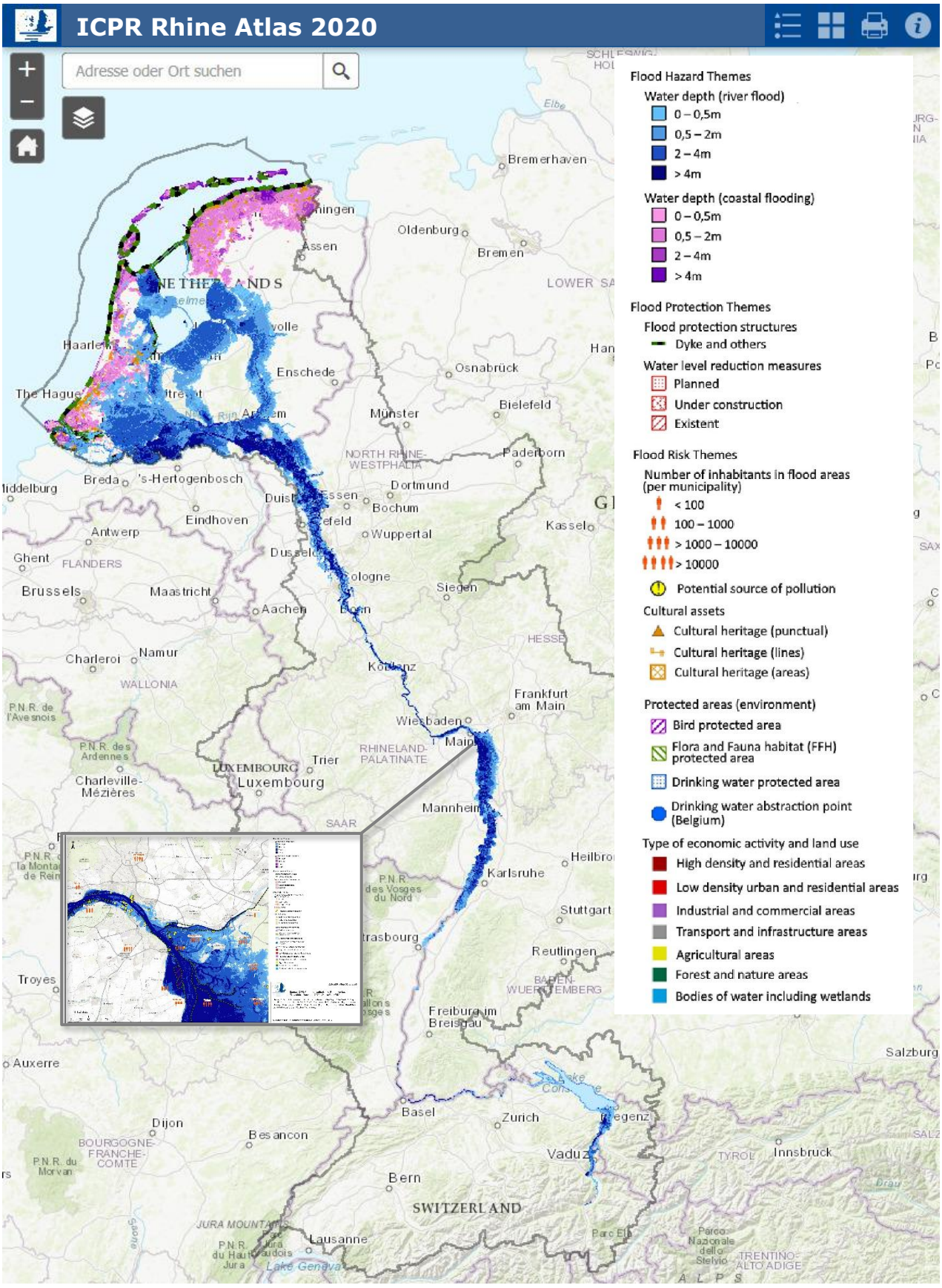
Lake Constance	**Water level for the national vertical datum**		
	DE [m ü. NN]	**AT** [m ü. A]	**CH** [m ü. M]
Lake Constance - Upper Lake	397.57	397.82	397.89
Lake Constance - Lower Lake	397.30	-	397.62

(3) According to Article 6(3c) FD, the lake level with high probability is defined by a return period of 10 years, resp. 30 years for AT and CH.

Lake Constance	**Water level for the national vertical datum**		
	DE [m ü. NN]	**AT** [m ü. A]	**CH** [m ü. M]
Lake Constance - Upper Lake	397.01	397.26 Basic value AT HW_{30} = 397.55*	397.33 Basic value AT HW_{30} = 397.62*
Lake Constance - Lower Lake	396.81	-	397.13 Basic value CH HW_{30} = 397.39*

*Basic value for AT and CH is a lake level with a 30 years return period.

Annex 4 - Extract from the Rhine Atlas 2020 including coordinated and harmonized legend



Further details relating to the Atlas see document "Rhine Atlas - Maps and legend explanation"[21].

[21] https://geoportal.bafg.de/karten/rhineatlas/ (*The Atlas 2020 will be updated at the same link until mid-2026*)