

The resilience of the Rhine at low water

CCNR conference –
The Mannheim Declaration: 5 years later
6 December 2023

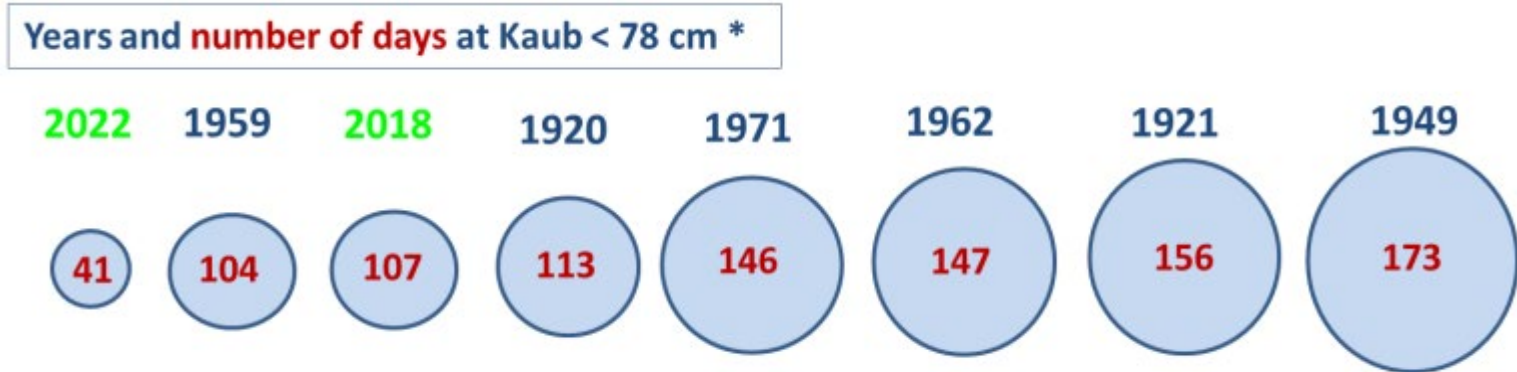
Markus Grewe (CCNR Commissioner, German delegation)



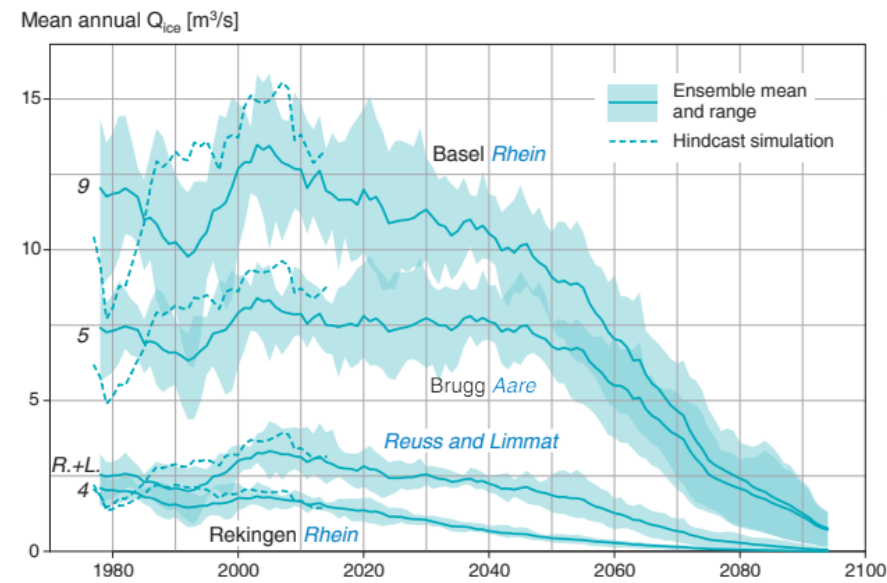
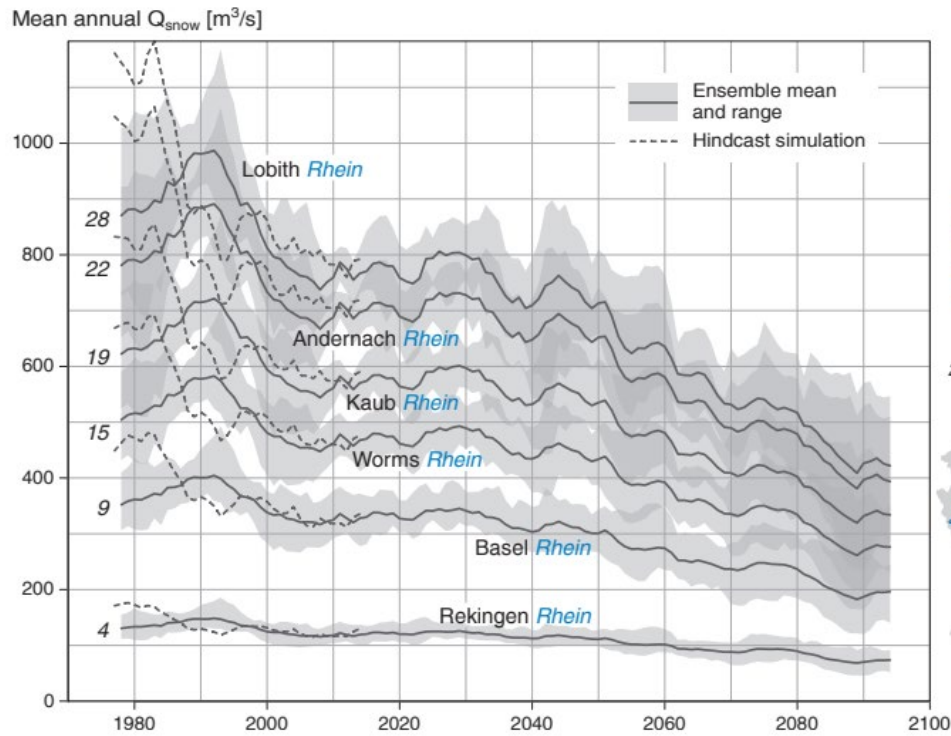
1. Low waters: present and future
2. Low waters: impacts
3. The need to “Act Now!”
4. Conclusions

01

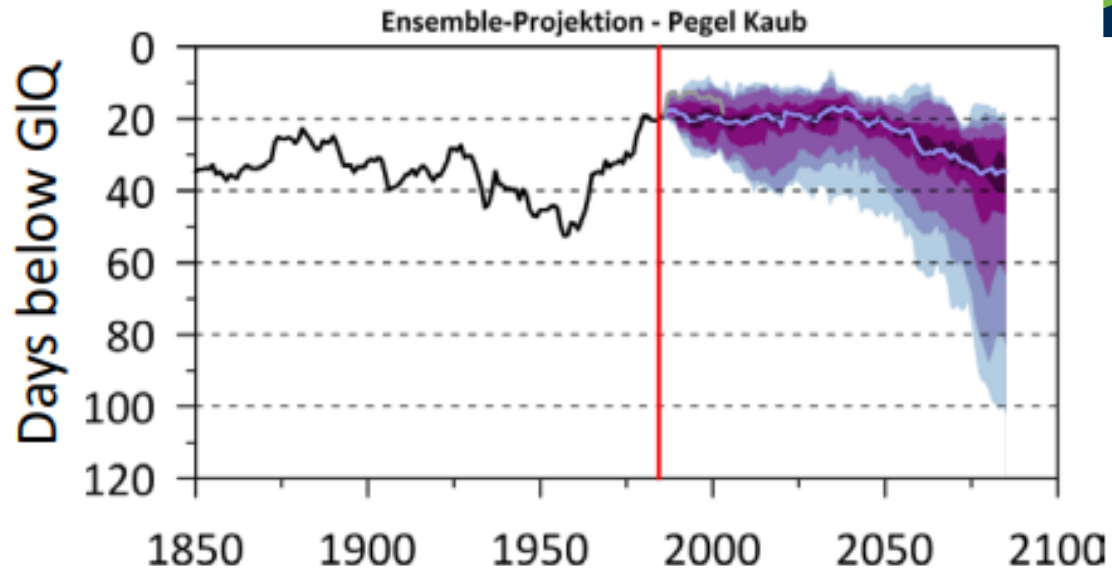
Low waters Present and future



Number of low-water days since 1920 (Source: CCNR)



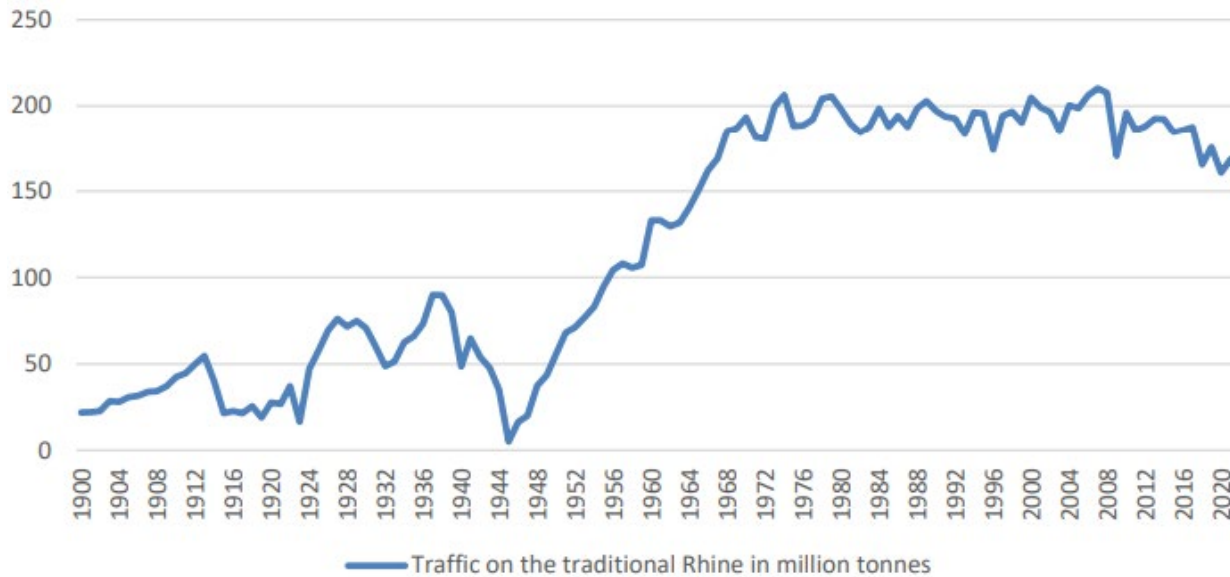
Snow (left) and ice (right) melt discharge fractions till the end of the century (Source: Deltares, CHR, Stahl, K. et al, 2022)



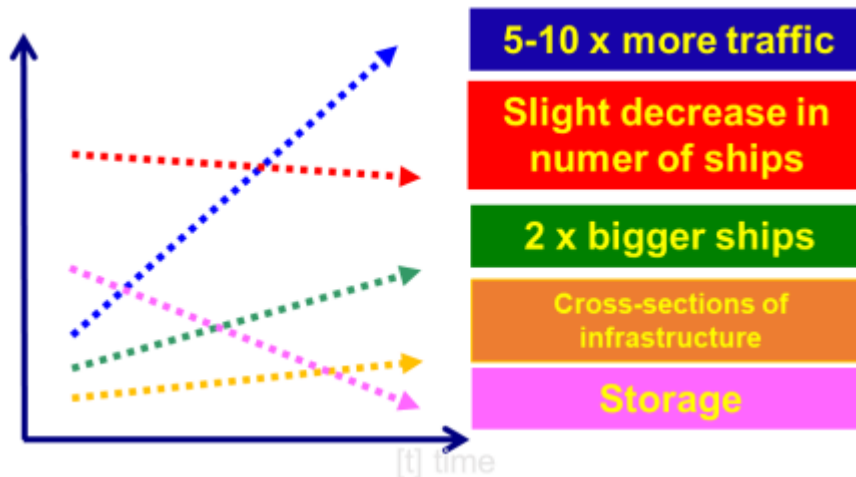
Probabilistic 100-years projection (Source: Federal Institute of Hydrology Germany)

02

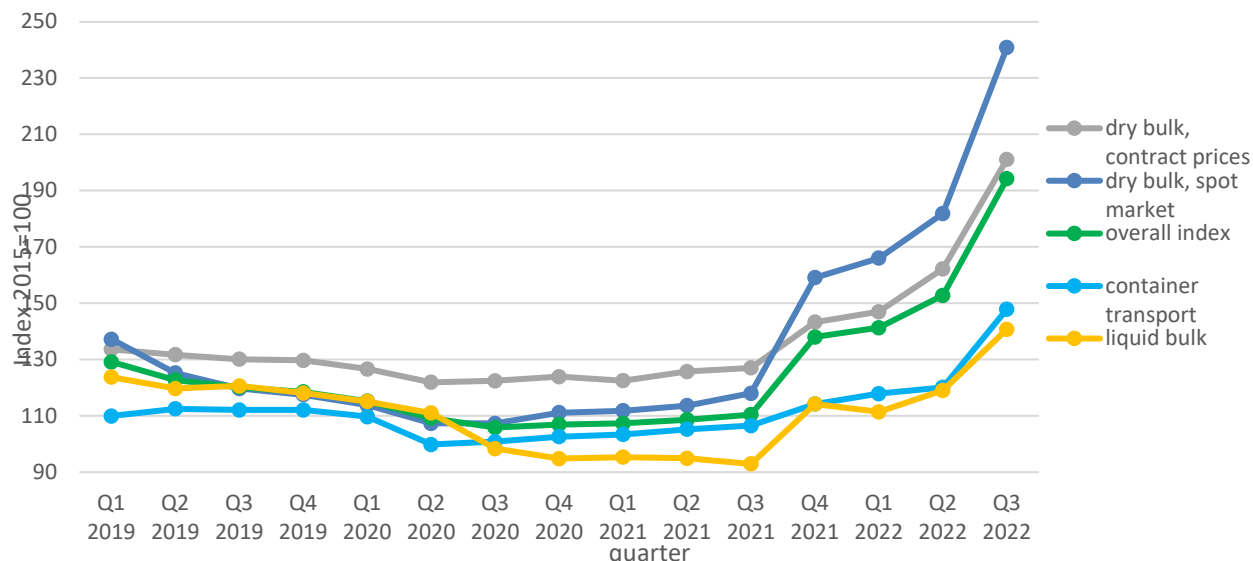
Low waters Impacts



Yearly volume of goods transported on the traditional Rhine (from 1900 to 2022, source: Destatis, CCNR Market Observation)



Developments in Rhine navigation (Source: Federal Waterways and Shipping Administration Germany)



Transport prices on the Rhine for different cargo segments (Source: CCNR analysis based on CBS – The CBS index covers different sailing regions of Dutch companies)

		Nederland	Duitsland	Totaal
Financial impact inland shipping sector	Net revenue	+ 378 million euro	+ 95 million euro	+ 473 million euro
	Additional costs	- 302 million euro	- 76 million euro	- 378 million euro
	<i>Net profit</i>	<i>+ 76 million euro</i>	<i>+ 19 million euro</i>	<i>+ 95 million euro</i>
Financial impact shippers	Transport costs	- 245 million euro	- 243 million euro	- 488 million euro
	Production reduction	- 60 million euro	- 2.1 billion euro	- 2.2 billion euro
	Strategic stocks	- 66 million euro	- 65 million euro	- 131 million euro
	<i>Total negative impact</i>	<i>- 371 million euro</i>	<i>- 2.4 billion euro</i>	<i>- 2.8 billion euro</i>
Total financial impact		- 295 million euro	- 2.4 billion euro	- 2.7 billion euro

Economic and financial impact of the 2018 low water event in the Netherlands and Germany, presented by IWT Platform (source: Economische impact laagwater, Erasmus UTP)

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The need to “Act Now!”



- CCNR-Workshops on low water and effects on Rhine navigation 2019 and 2023 to bring together all relevant stakeholders
 - Objective: identify and overcome challenges associated with the low water phenomenon and stimulate discussion on strategies
- CCNR-Reflection paper “Act now!” (first edition 2020, second edition 2021, third edition 2023)
 - Collection of statements and information on low water and their impacts
 - Proposals for short, medium and long term measures



	What has been achieved since 2018?	What remains to be achieved?	
		Medium term	Long term
A - Infrastructure	A1 - Setting up of a Commission for the accelerated implementation of the “Optimisation of navigable channel depth in the Middle Rhine valley and Lower Rhine”	A1 - Implementation of the “Optimisation of navigable channel depth in the Middle Rhine valley and Lower Rhine”	
		A2 - Integrated project planning approach	
	A3 - High-quality maintenance of waterways and infrastructure	A3 - Climate change-adapted maintenance of waterway and infrastructure	
	A4 - Studies aiming at improving water management on the Rhine	A4 - Improved water management on the Rhine; Study on the possibility of new reservoirs / extending	
	A5 - Investigate hydraulic engineering to ensure reliable transport conditions		
B - Fleet	B1 - Research in		
	B3 - Assess feasibility of convoy during low		
	B4 - Increase		
C - Shippers, logistics, industry	C1 - Secure time charter contract for vessels adapted to low water levels		
	C2 - Optimisation of handling capacity and storage capacity onsite and near site, increase on-site inventory	C2 - Expansion of handling and storage capacities in the ports next to the industrial sites	
		C3 - Research in adaptation of transport/storage concepts	
	C4 - Efficient internal communication processes		
	C5 - Use alternative modes of transport (i.e. long-term train transportation capacity)	C5 - Construction / optimisation of terminals to facilitate modal shift	

- A - Infrastructure
- B – Fleet
- C – Shippers, logistics, industry
- D - Digital tools and information services
- E – Transversal and policy

	What has been achieved since 2018?	What remains to be achieved?	
		Medium term	Long term
E - Transversal and policy			
E5 - CCNR contribution to CHR socio-economic scenarios			

Table in 3rd edition CCNR reflection paper „Act now!“

“Rhine Low Water” Action Plan



Provision of information

1. Improve water level forecasts
2. Establish DAS ‘Climate and Water’ basic service
3. Provide up-to-date depth information



Freight transport and logistics

4. Adapt transport strategies/optimize transport and load receptacles



Infrastructure

5. Speed-up implementation of ‘Optimization of laden draughts on the Middle and Lower Rhine’
6. Acceleration by acts to adopt measures



Long-term solution approaches

7. Investigate options of hydraulic engineering and water management
8. Social Dialogue

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Conclusions



- Climate change has increasing effects on low water, more often, more extreme
- Low water has significant impact on IWT
- The vessel-waterway system is more vulnerable than in the past
- No one size fits all solution available, but all solutions and tools are ready to be implemented
- Multi-disciplinary, multi-sector and cross-border approach is needed
- Important role for River Commissions to bring together the relevant stakeholder and to follow the development.
- Resilience of the Rhine important for the reliability of the Rhine
- Shift away from inland waterways to other transport modes should be avoided .
- Despite all the challenges, the Rhine remains an efficient waterway (with free capacity) that makes an important contribution to achieving climate protection targets

Link to „Act now!“:

https://www.ccr-zkr.org/files/documents/infovoienavigable/Act_now_3_0_en.pdf



THANK YOU VERY MUCH FOR YOUR ATTENTION

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