

# SOLUTIONS FOR NAVIGABLE AND CLIMATE RESILIENT WATERWAYS

Connecting Europe Days 2024

3 April 2024

Lucia Luijten, Secretary-General CCNR



## NAVIGABILITY AND CLIMATE CHANGE

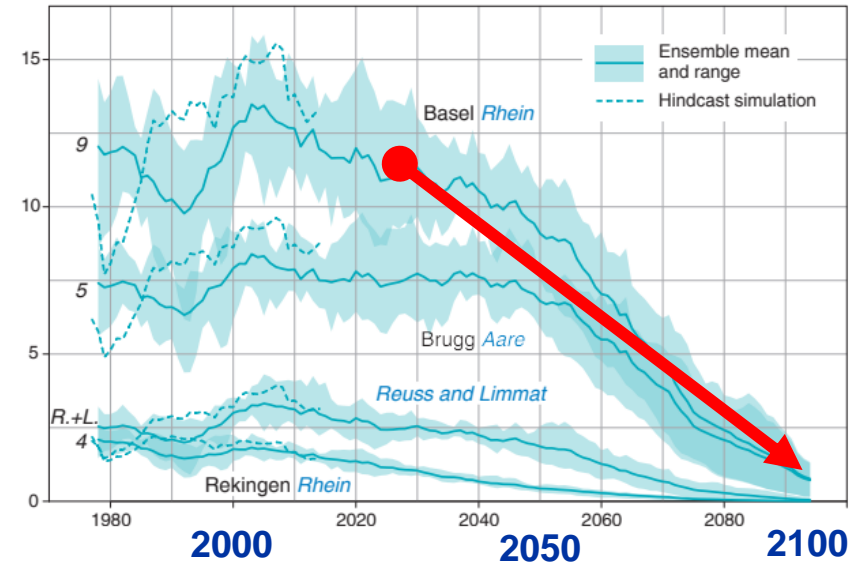
- Low water and climate change affect navigable channel depth
- Major concern for free-flowing rivers
- Effects increase in future
- Adaptation measures beyond waterway maintenance needed to increase resilience of inland waterway transport (IWT)



## KEY MESSAGES FOR THE RHINE

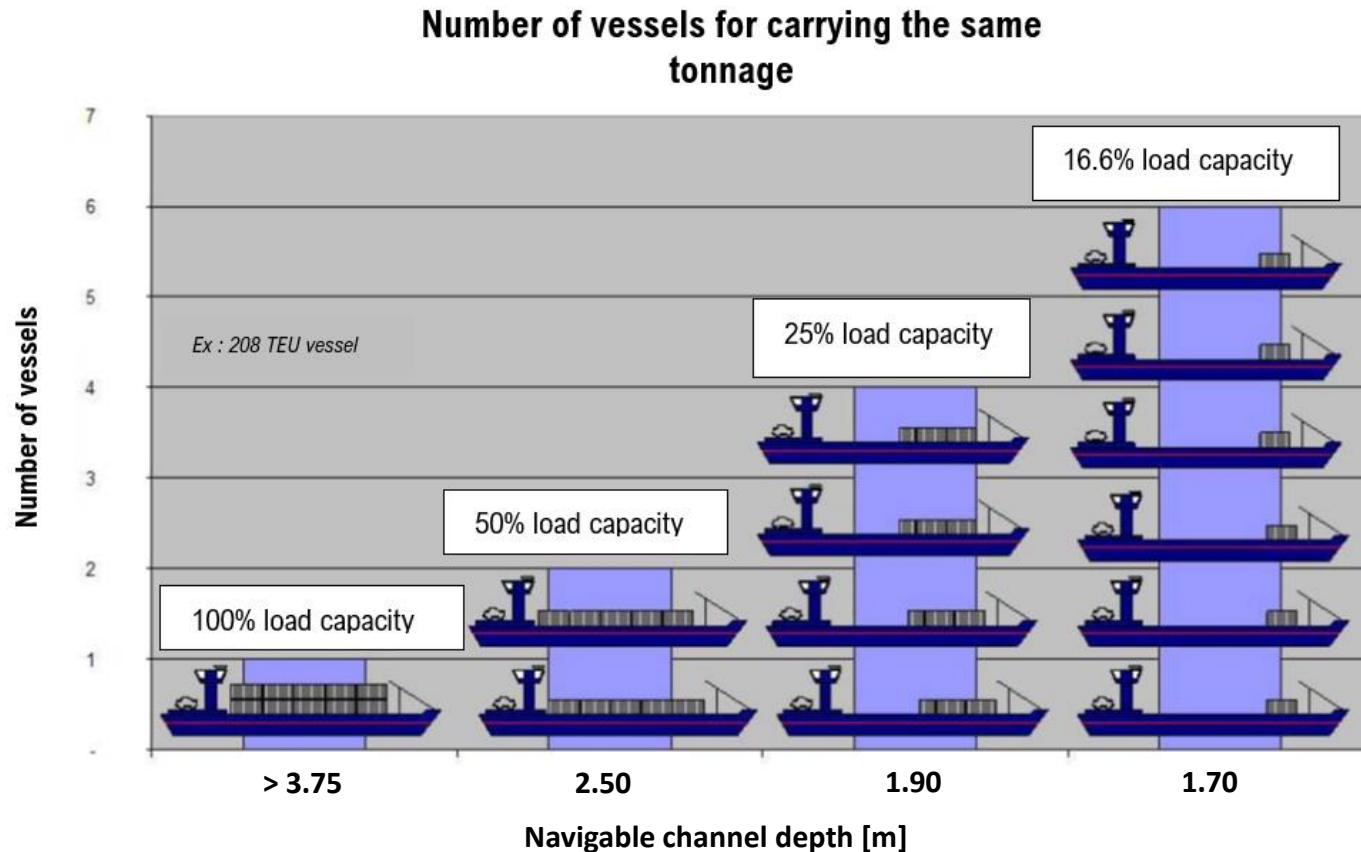
- Less water in summer
- More water in winter
- In average more water over the year
- More water  $\neq$  more transport capacity
- **IWT is not a climate change winner**

### Decreasing glacier melt water at Basel



(Source: Deltares, CHR, Stahl, K. et al, 2022)

# EFFECTS OF NAVIGABLE CHANNEL DEPTH ON TRANSPORT CAPACITY



**10 cm additionnal depth equals to 100 additionnal tons of cargo transported**



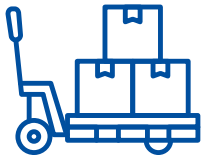
## ADAPTATION MEASURES NEEDED



Vessel



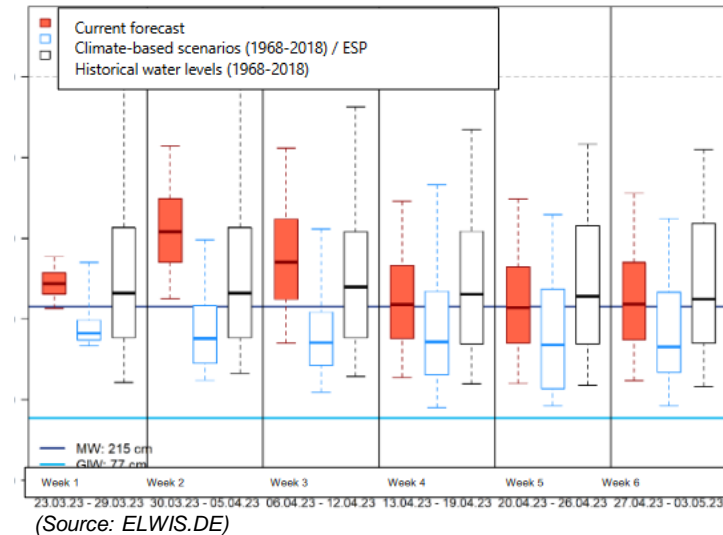
Infrastructure



Logistics



Digital



(Source: Marin, Photo: S. Oudakker, Oudcomb)

(Source: WSV.DE)

(Source: ELWIS.DE)









## WHAT DO THE DIFFERENT MEASURES ADD TO SOLVE THE PROBLEM?

- Propulsion: better efficiency at low water, less energy consumption, less emissions
- Middle Rhine: 20 cm more depth, 200 tons more transport capacity around the year
- Time Charter: increases reliability of transport chain
- Forecast: better planning of cargo transport, increases efficiency

**Sustainable transport is fully loaded ships, using the full capacity of the waterway.**



## CONCLUSIONS

-  Climate change has increasing effects on low water
-  Vessel-waterway system is more vulnerable than in the past
-  No one size fits all solution available
-  Important role for river commissions
-  IWT is a climate friendly mode of transport and contributes to green deal objectives
-  **Rhine remains an efficient waterway (with free capacity)**