

# Low flows and impacts on navigation

CHR symposium “Low flows in the Rhine catchment”

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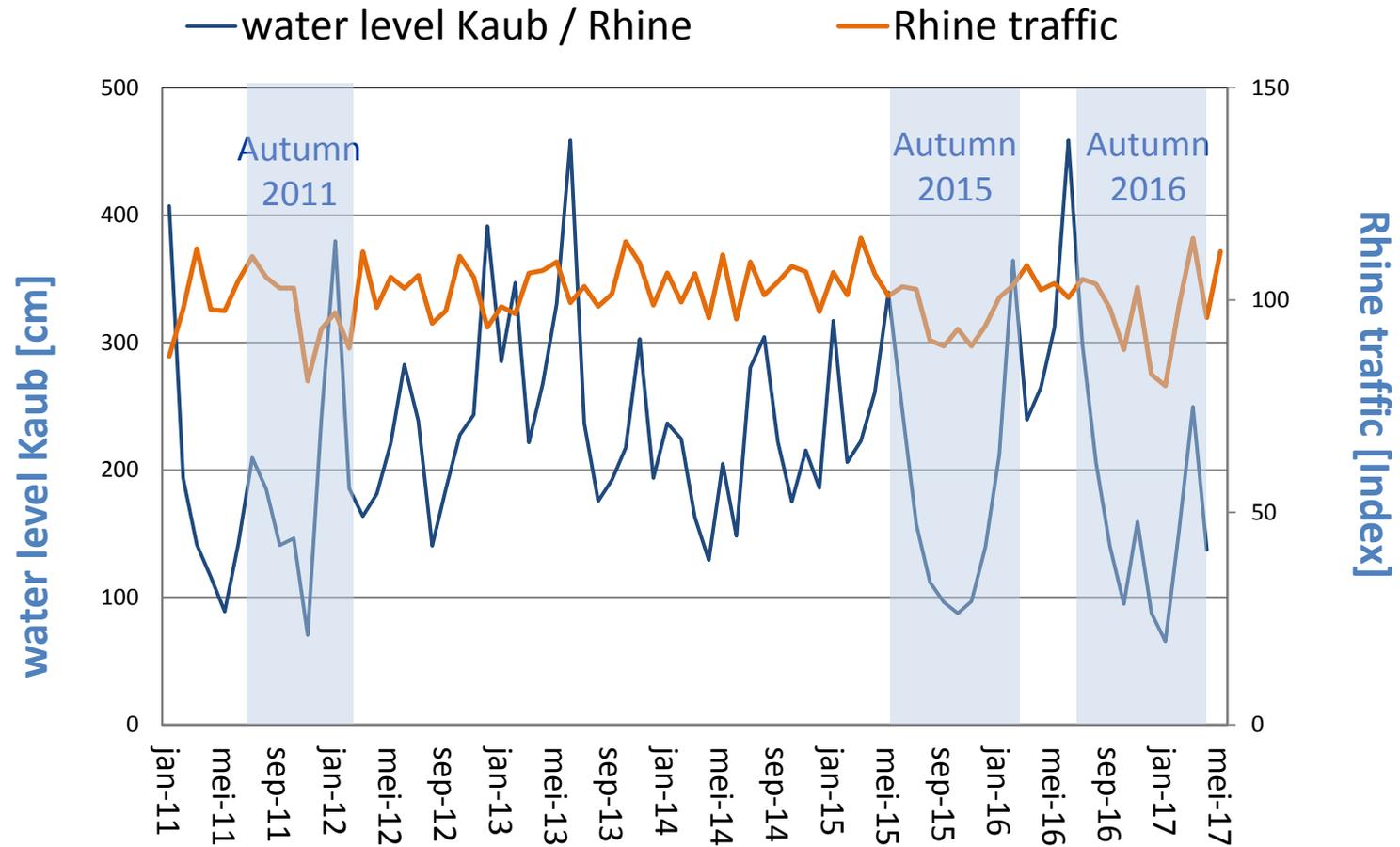


# 01

## *Impacts of low flow periods on inland navigation*



# Low flow periods compared to Rhine traffic Index



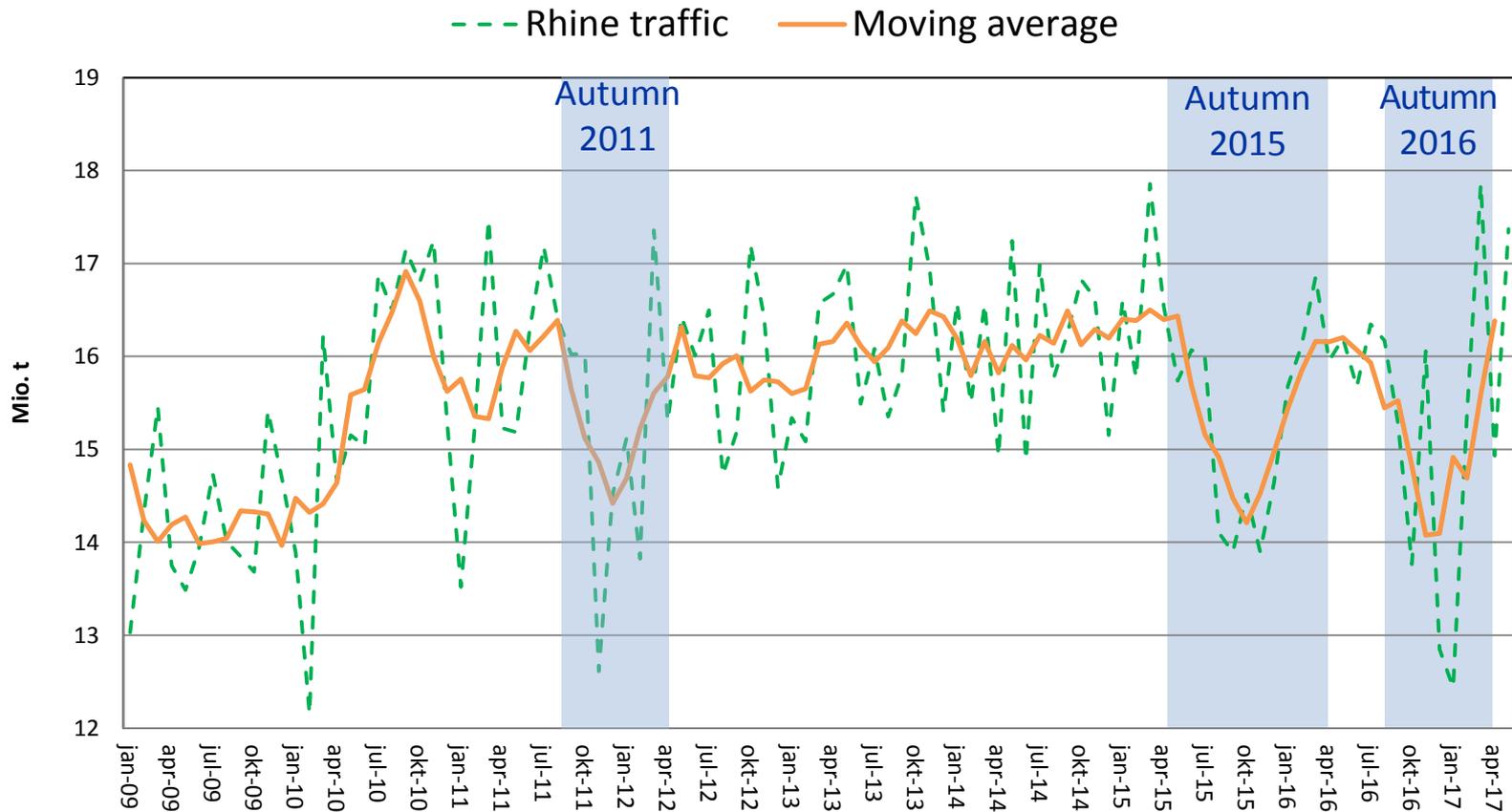


# Monthly goods traffic on the traditional Rhine [Mio. t] (Jan/2009-May/2017)

Low flow periods

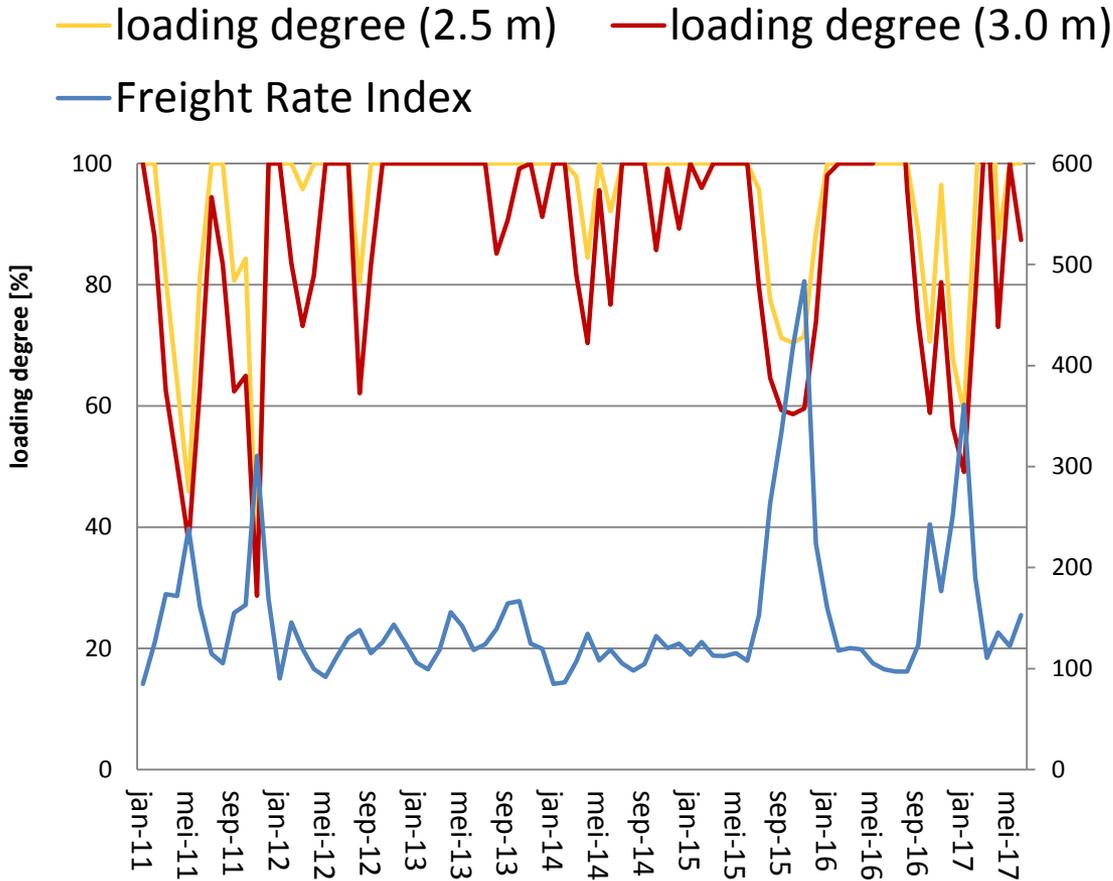


Negative impact on transport evolution





# Impact on vessels' loading degrees and transport prices\*

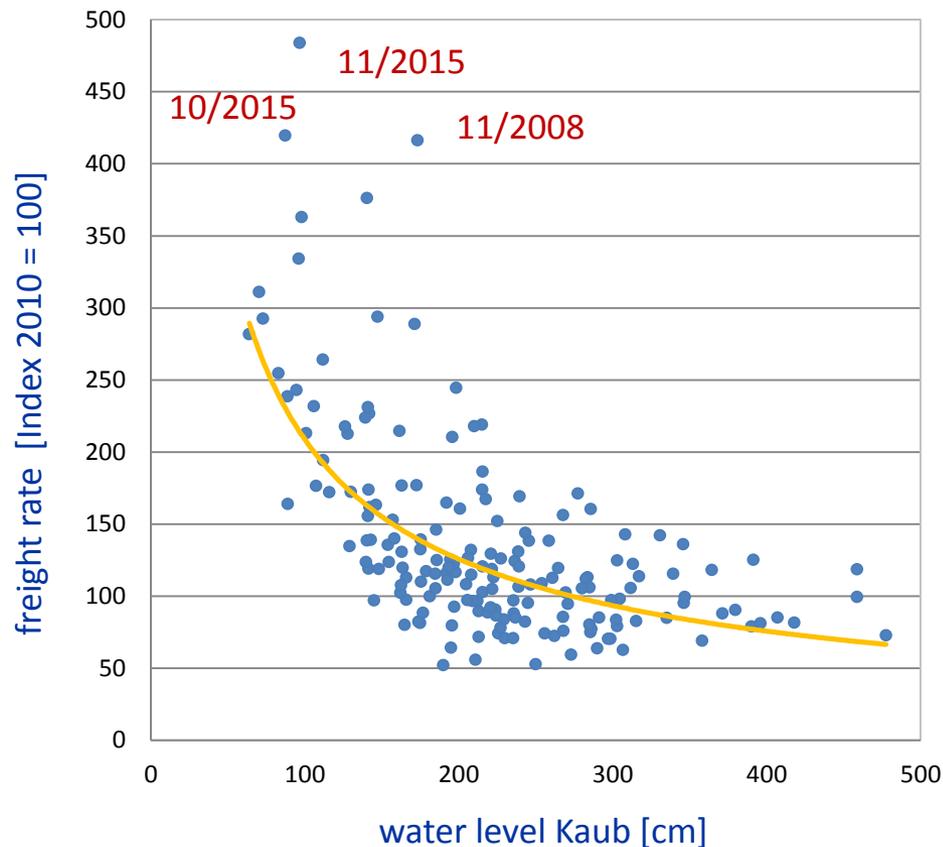


- Low flow periods
- ↓
- Reduced loading degree
- ↓
- Supply side contraction
- ↓
- Increase in freight rates (transport prices)

\* Maximum loading degrees at Kaub/ Middle Rhine for vessels with a draught of 2.5 and 3 meters, compared with freight rates Index\*; Prices (Freight Rates) in Tanker shipping



# Long run relationship between water levels and freight rates – Jan/2002-May/2017

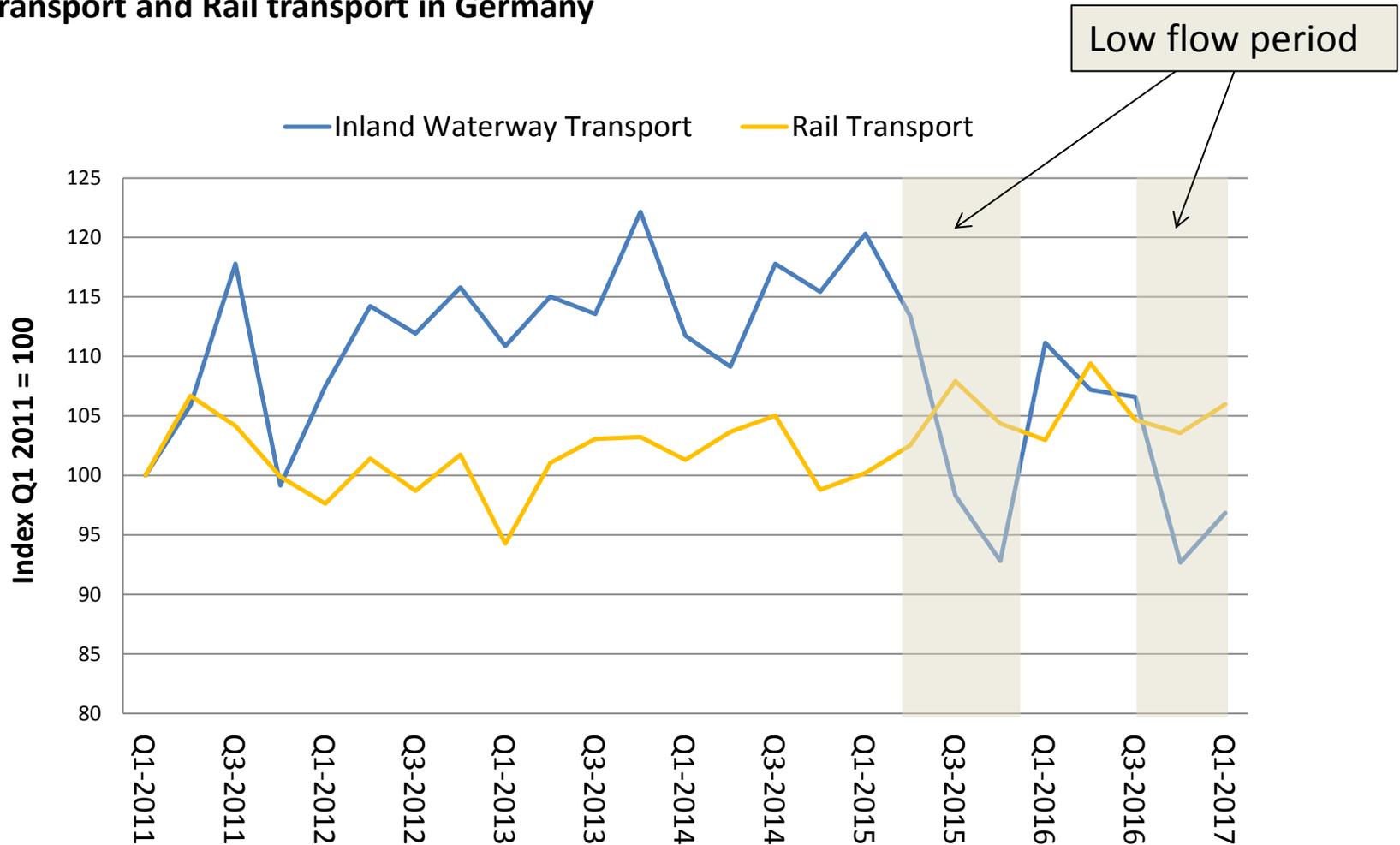


- Relationship is negative and non-linear: low flow periods increase prices
- Level of prices in autumn 2015 was on a multi-annual record level.



# Low flow periods cause modal shift towards rail transport

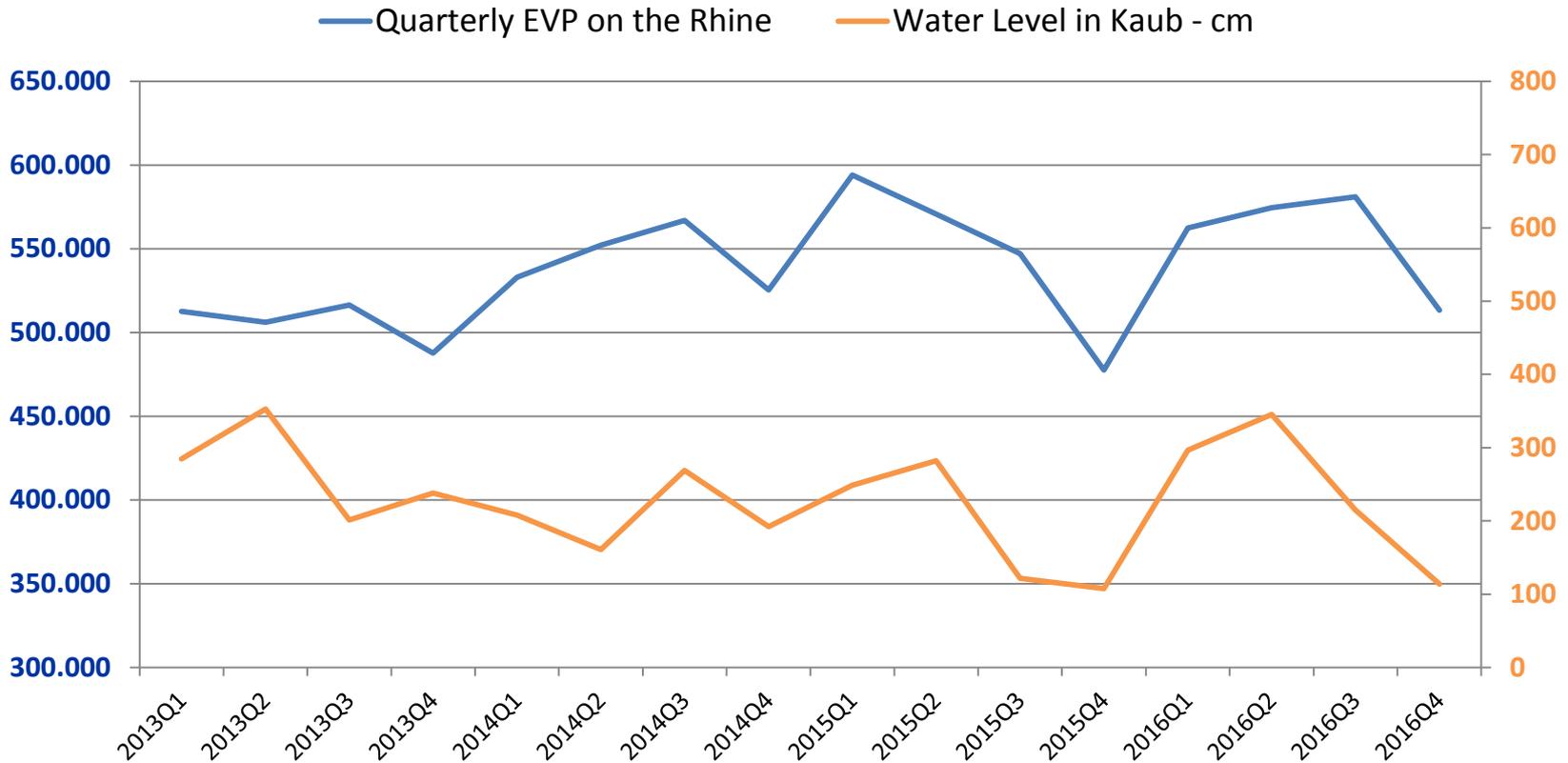
## IWT transport and Rail transport in Germany





# Container transport is sensible towards low flow periods

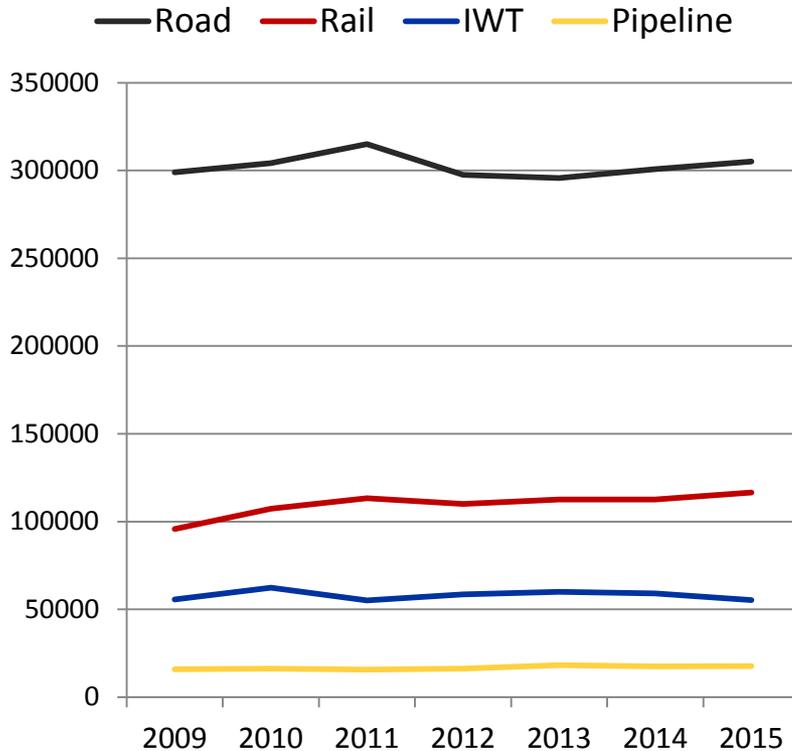
## Container transport and water level on the Rhine



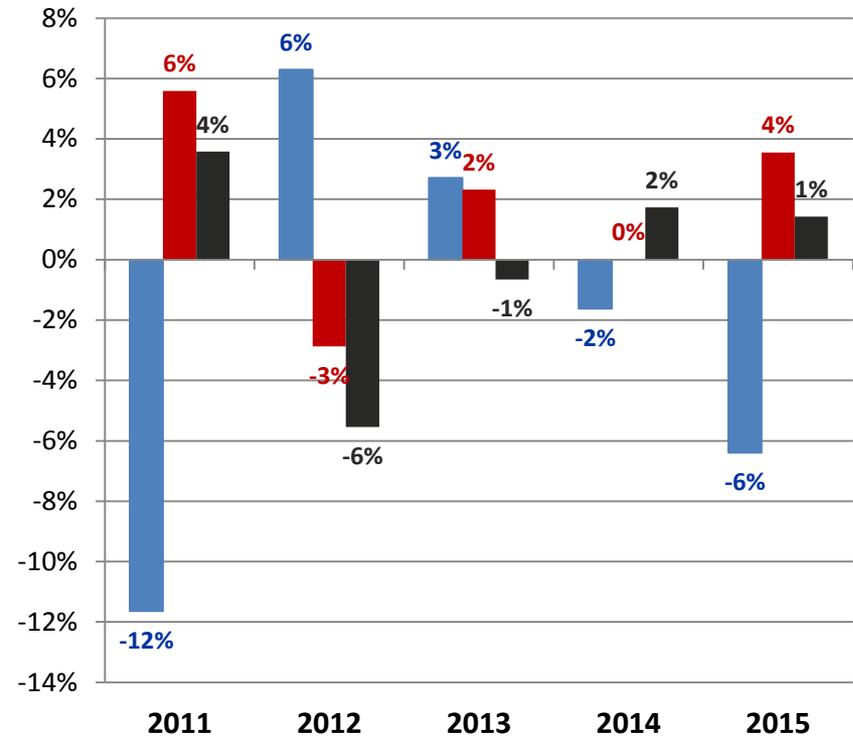


# IWT belongs to a multimodal environment - Focus on Germany

Total goods transport performance in Germany  
(Yearly transport performance in million TKM)



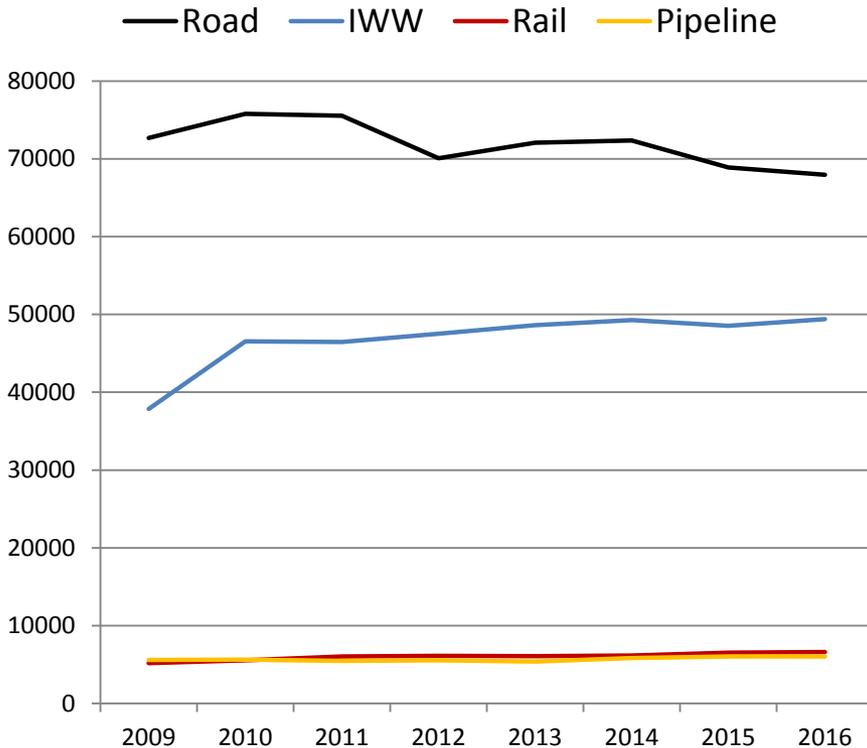
Yearly rate of change



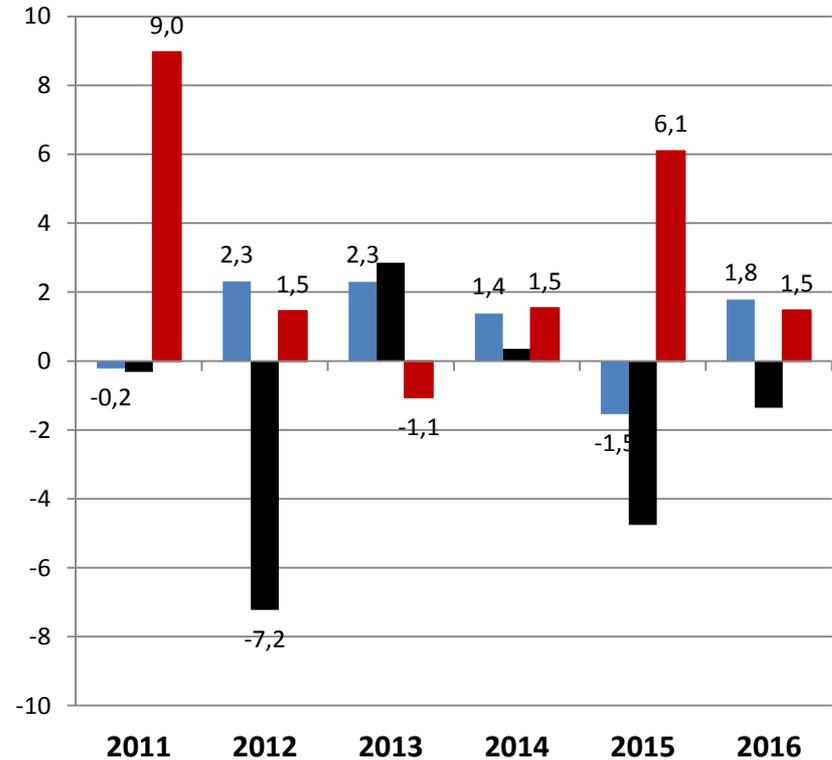


# IWT belongs to a multimodal environment - Focus on the Netherlands

Total goods transport performance in the Netherlands  
(Yearly transport performance in million TKM)



Yearly rate of change

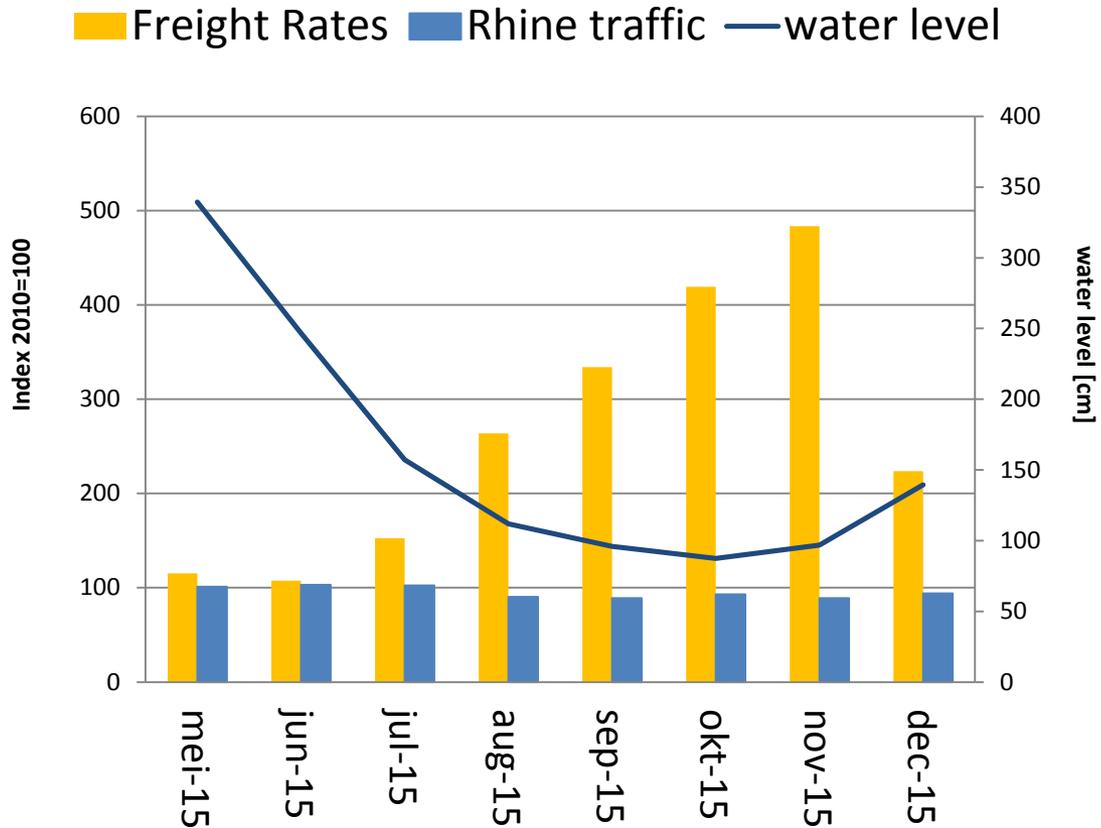


# 02

## *Focus on low water periods in autumn 2015 and 2016*



# Low flow period in Autumn 2015

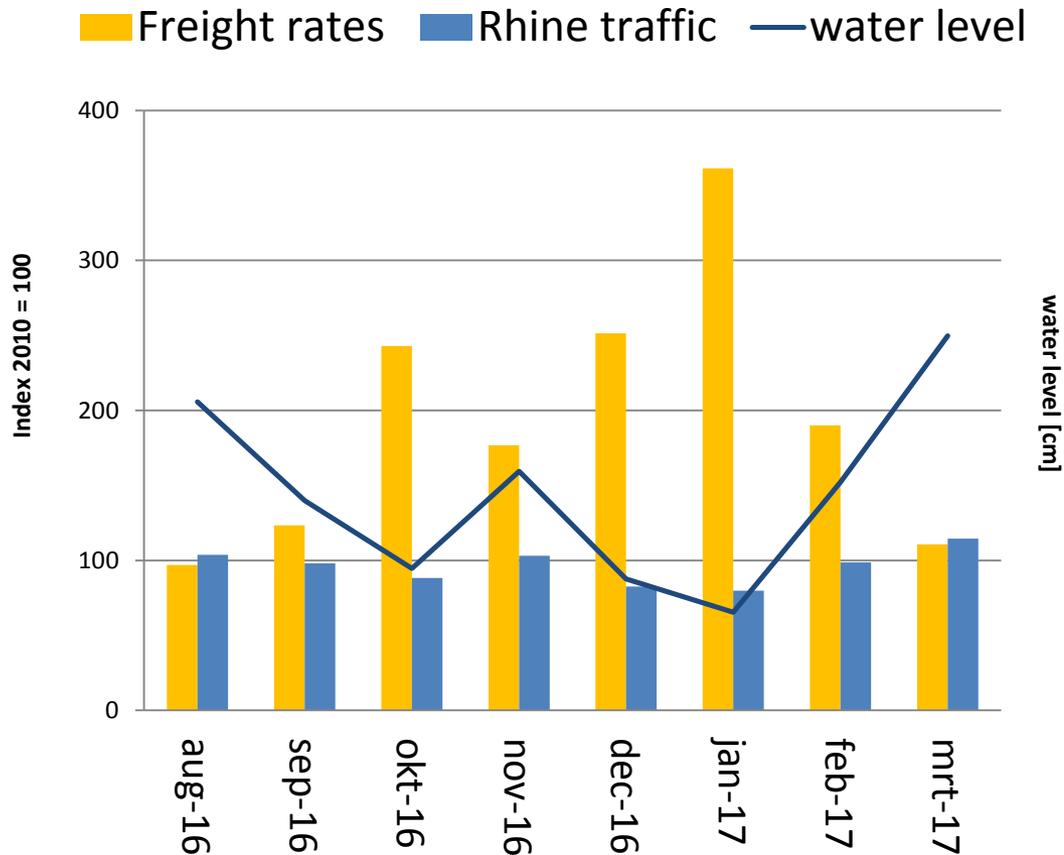


- Strong increase of prices
- Limited decrease of volumes

Source: calculation CCNR based on data from Destatis, PJK International and the German Inland Waterway Administration / German Federal Office for Hydrology



# Low flow period in autumn/winter 2016/2017



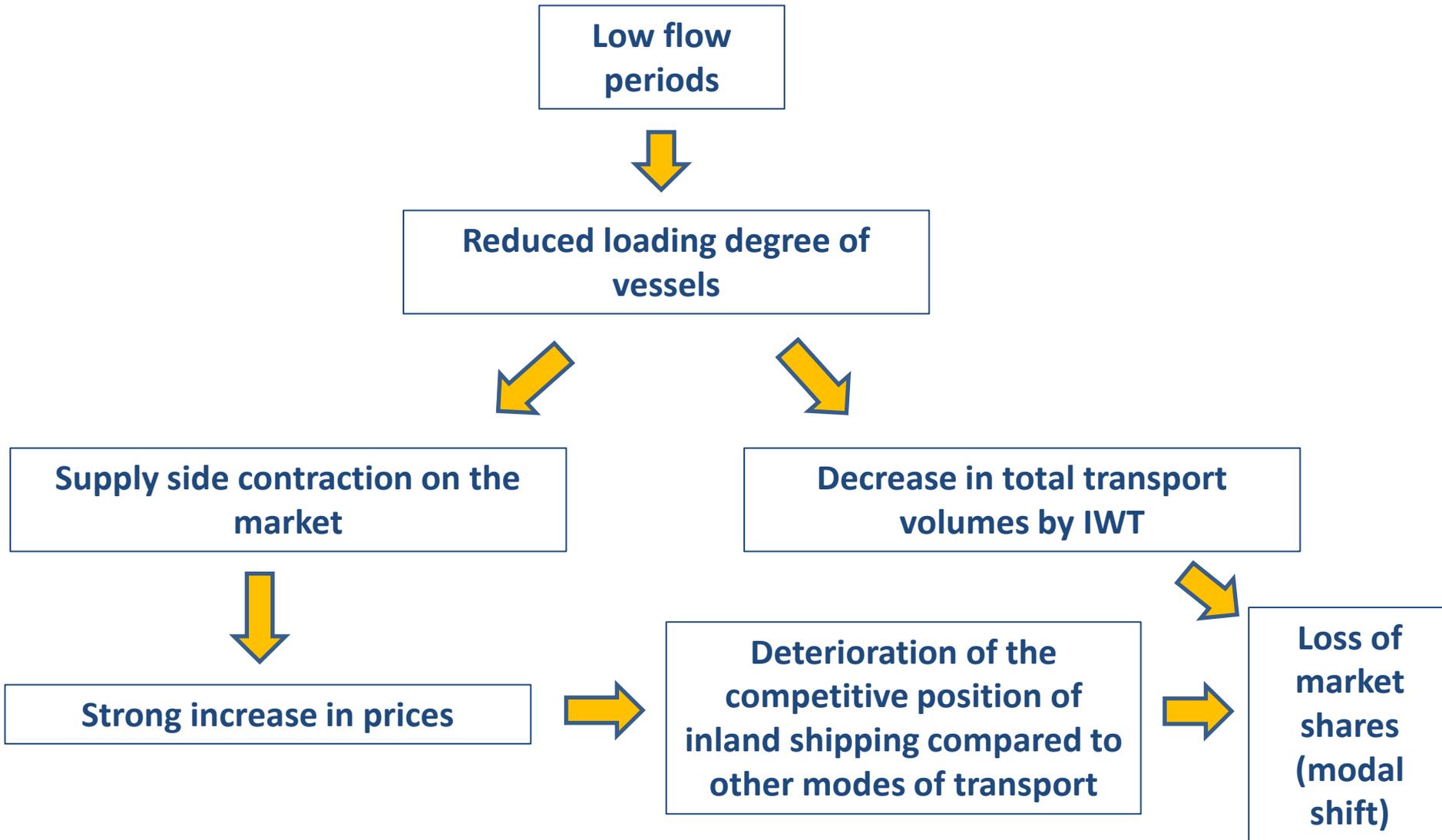
- Again strong increase of prices
- Impact on volumes this time stronger, but of shorter duration
- Explanation: low flow period was even more extreme than in 2015, but lasted not as long

# 03

## *Summary*



## Summary – main impacts of low flows on navigation





THANK YOU VERY MUCH FOR YOUR ATTENTION

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