



# Flood risk management plan

## - from a local perspective



**CITY OF KARLSTAD**

By: Anna Sjödin  
City of Karlstad



*Investing in the future by working together for a sustainable and competitive region*

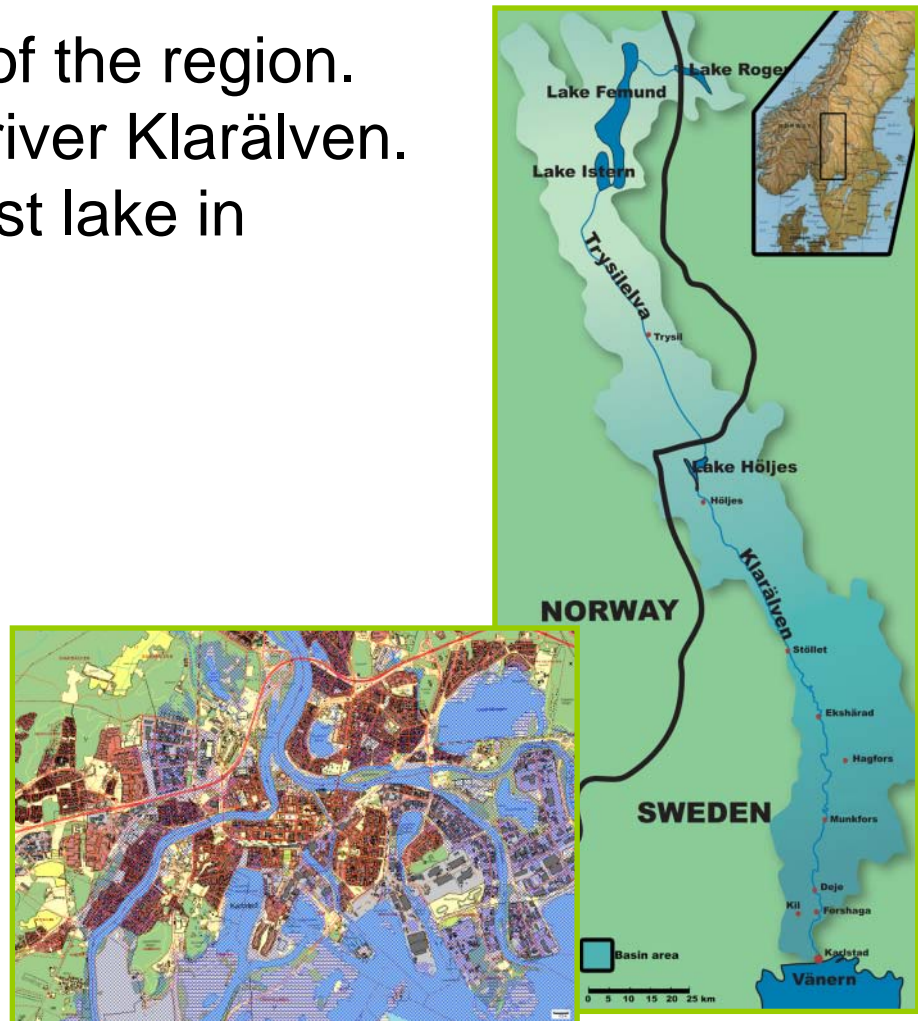
**The Interreg IVB  
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# Flood risks in Karlstad

City of Karlstad is the capital of the region. It's situated at the estuary of river Klarälven. Lake Vänern is the third largest lake in Europe.

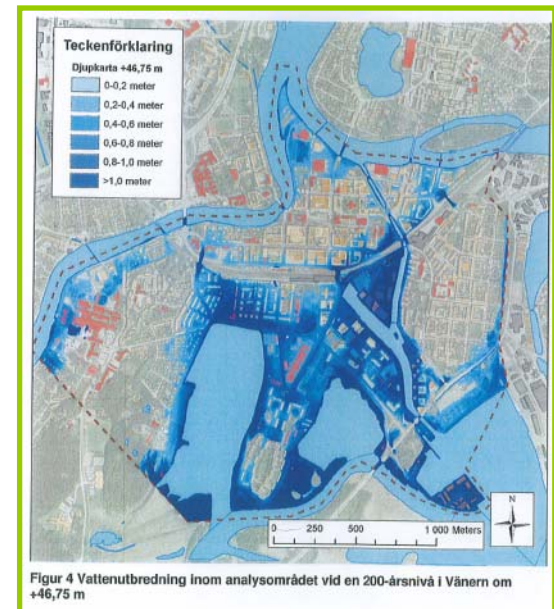
- Four flood risks: *Klarälven, Vänern, ground water, surface water*
- Climate change simulation projects less spring flood, more rain at fall & winter
- Important for the whole region that city of Karlstad works during floods



# Flood risks management in Karlstad

- Flood risk management coordinator
- Flood risk mapping
- Surveillance of water levels
- Flood risk management plan
- Consideration of flood risk at city planning
- Surface water
- EU project; SAWA
- Communication
- Projects to protect the inner city:

*technical flood prevention as dikes, flood gates, raised pedestrian/bicycle paths, mobile barriers, dredging*

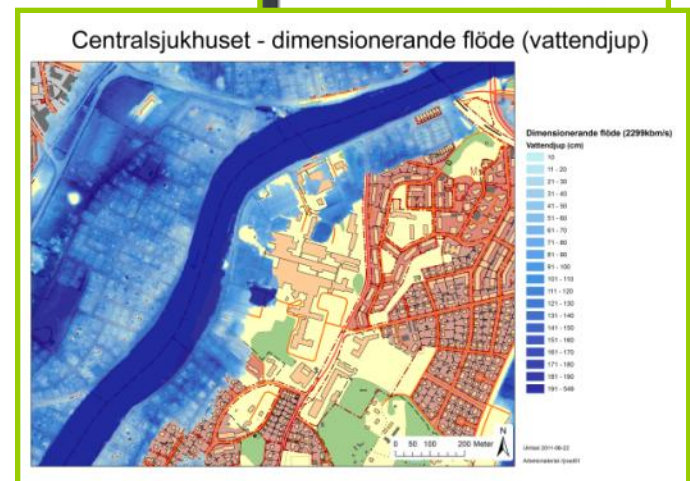


Figur 4 Vattenutbredning inom analysområdet vid en 200-årsnivå i Vänern om +46,75 m

# Flood risks management plan

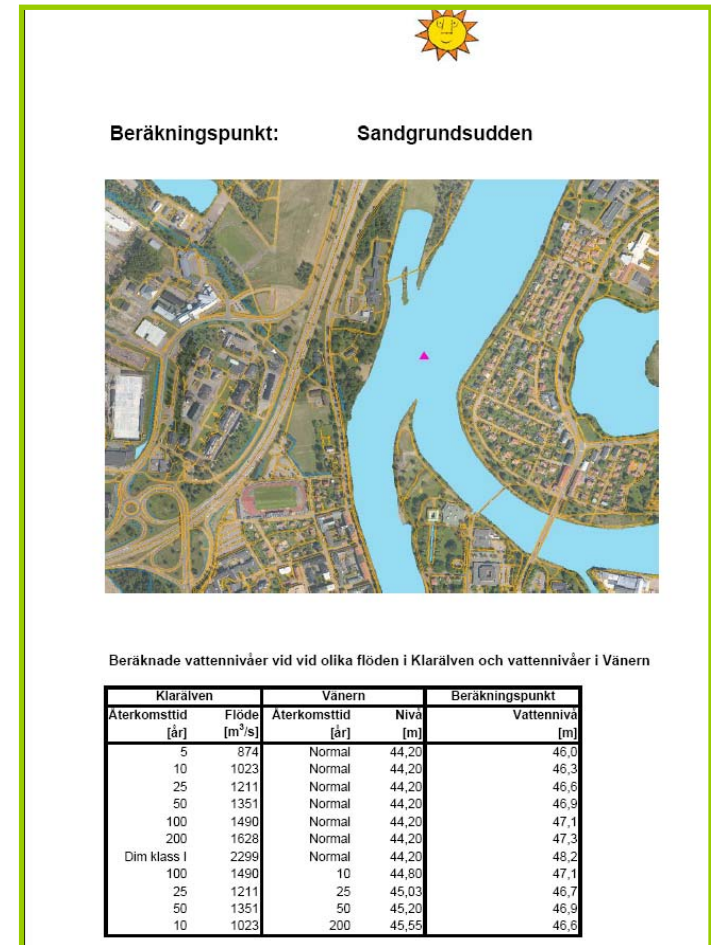
The management plan consists of:

- *background information*
- *climate change*
- *flood risk maps*
- *consequenses of floods*
- *risk objects in the city area*
- *guidelines on how to build concerning flood risks*
- *adaptation projects with responsibilities among the minucipality administrations*



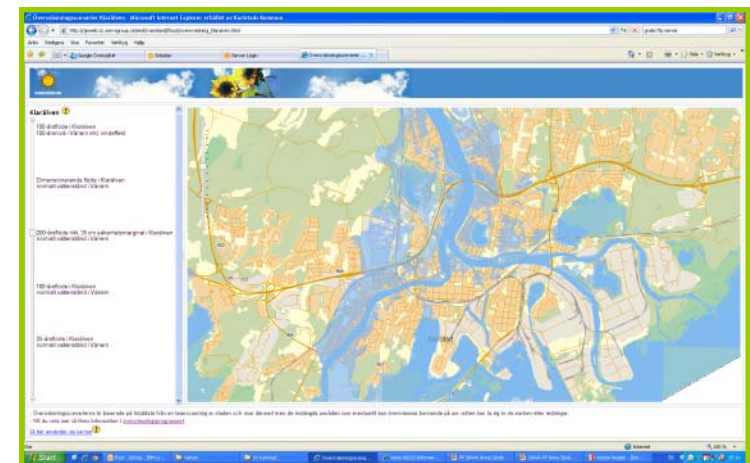
# Awareness of flood risks in city planning

- The flood risk management plan give guidance to what levels to aim for in planning of new areas;
  - for important public functions:  
*EHQ in Vänern or Klarälven*
  - for houses and other buildings:  
*HQ200 Klarälven, EHQ Vänern*
- For help there is a tool showing waterlevels at different flows at several places in the city



# Communication

- Important to have communication with the citizens about the flood risks, especially when Karlstad doesn't have large floods on a regular basis
  - *flood risk maps on the website*
  - *updated information on the website*
  - *flood risk walks (with university of Karlstad & County administrative board)*
  - *broschures*
  - *articles & interviews in media*
  - *information to companies*



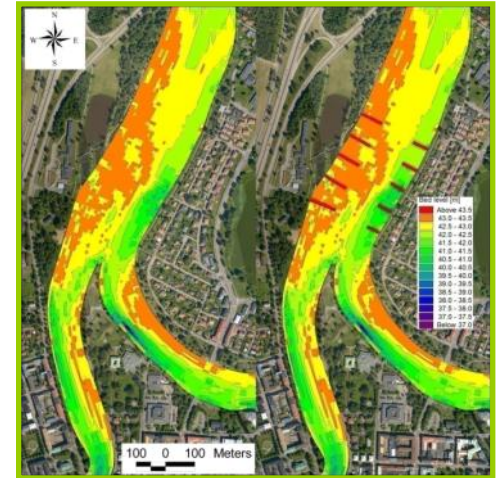
# Management plan on a local scale

- The advantages are:
  - *good local knowledge*
  - *direct implementation within the municipality*
  - *early consideration during planning process*
  - *Co-operation between municipality, developers and citizens*
- The disadvantages are:
  - *expensive; lots of investigations*
  - *requires experts in different areas*
  - *doesn't involve other municipalities in the catchment area*



# SAWA projects

- The SAWA project of Karlstad is a proceeding from Interreg IIIB North Sea project FLOWS
  - *Project A: Modeling of groynes to examine if that is a solution to increase the flow in one branch of the river. Result showed that dredging will be more effective to lower flood risk*
  - *Project B: Producing an EIS for dredging Klarälven*
  - *Project C: Guidance of how to use Risk Cost Analysis to improve the decision support system for planning of future exploitation*



*Flood risks walk in Dresden, within SAWA project*



***Thank you!***

***www.sawa-project.eu***



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