Climate Adaption in the Coastal Zone

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RAMBØLL
Bright ideas.
Sustainable change

Preamble

- Actual damage levels still depend on future SSP and RCP
  - Expected Costs for Denmark without adaptation increase from present 0 to 9 – 85 billion € annually

- Adaptation is highly economically favorable
  - BCR >1 for 22 – 48% of coastline in a dike construction scenario (3000 km dike ?!)
  - Residual Expected cost for Denmark still >1 billion € annually in most optimistic studies

- Impacts for Denmark are dire, amongst the worst in Europe
  - Why dont we have a similar Danish study with realistic adaptation scenarios?

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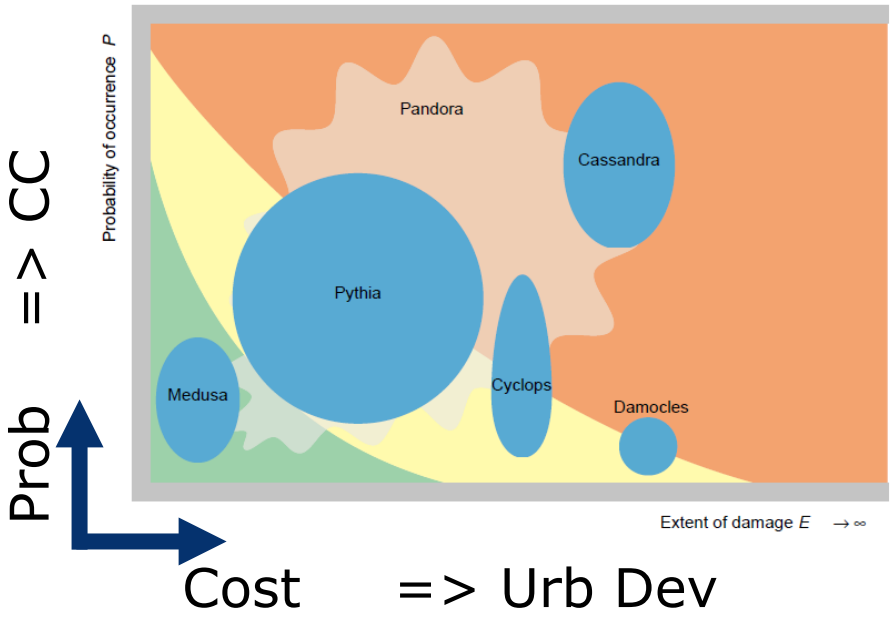
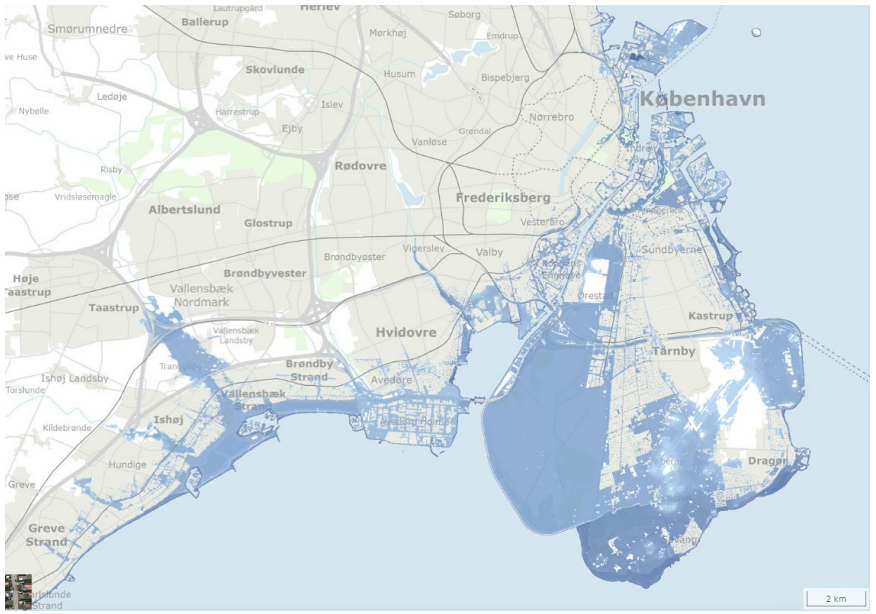
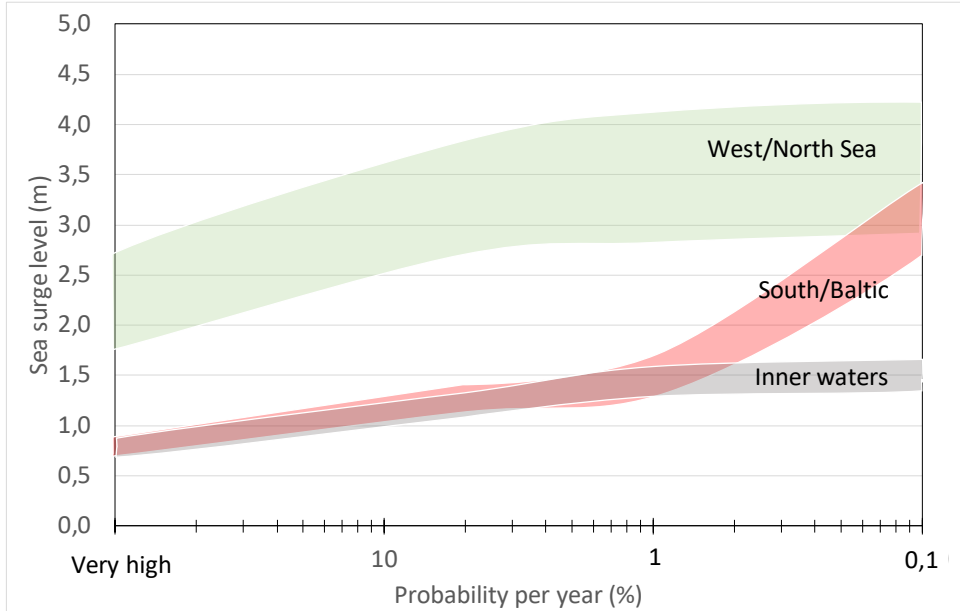
1: Damages are not additive

- Risk theory sets a limit for when CBA is acceptable
- Spacial and economic framing is crutial
  - For very extreme events adaptation in Vallensbæk will influence how many years it takes to rebuild Copenhagen
  - Is Dragør independent of the Greater Copenhagen area or not?

- Baltic Sea exceptional on global scale







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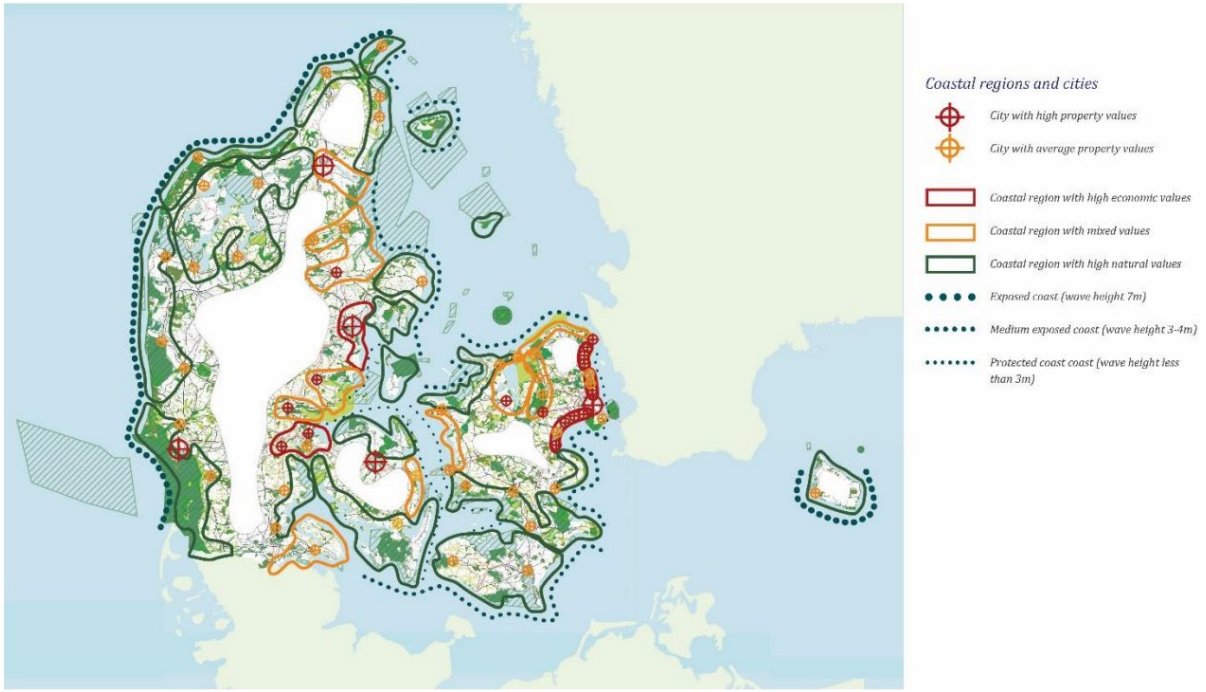
2: Safeguarding biodiversity and ecosystems is fundamental to climate resilient development (IPCC, 2022)

- Denmarks contribution to the international ecosystems are to a large extend linked to our coastline, both the nature type and as habitat for migratory birds
- Coastal systems are moving 4mm up and 2 km N every year, speed expected to increase
- Paradigm shift from safegarding human investments to avoiding mal-adaptation is highly needed
- This shift cannot be implemented on municipal scale



3: Tangible data defines mindset and solutions

- Klimaatlas is the authoritative data source
- Data focus on present and 2090
- Affected building value automatically valued
- Nature no value
- Climate justice impaired
- No incentive for cross-municipal solutions

Summary and outlook

1: Damages are not additive
2: No climate resilience without nature
3: Data frames mindsets

- Economic optimal solutions rely on unrealistic assumptions

- Sea surges for Denmark is a Cassandra phenomenon (accurate prophecy without impact)

- Action is further jeopardized by low-probability – high-impact phenomenon for part of Denmark

- Continued municipal framing will lead to mal-adaptation