

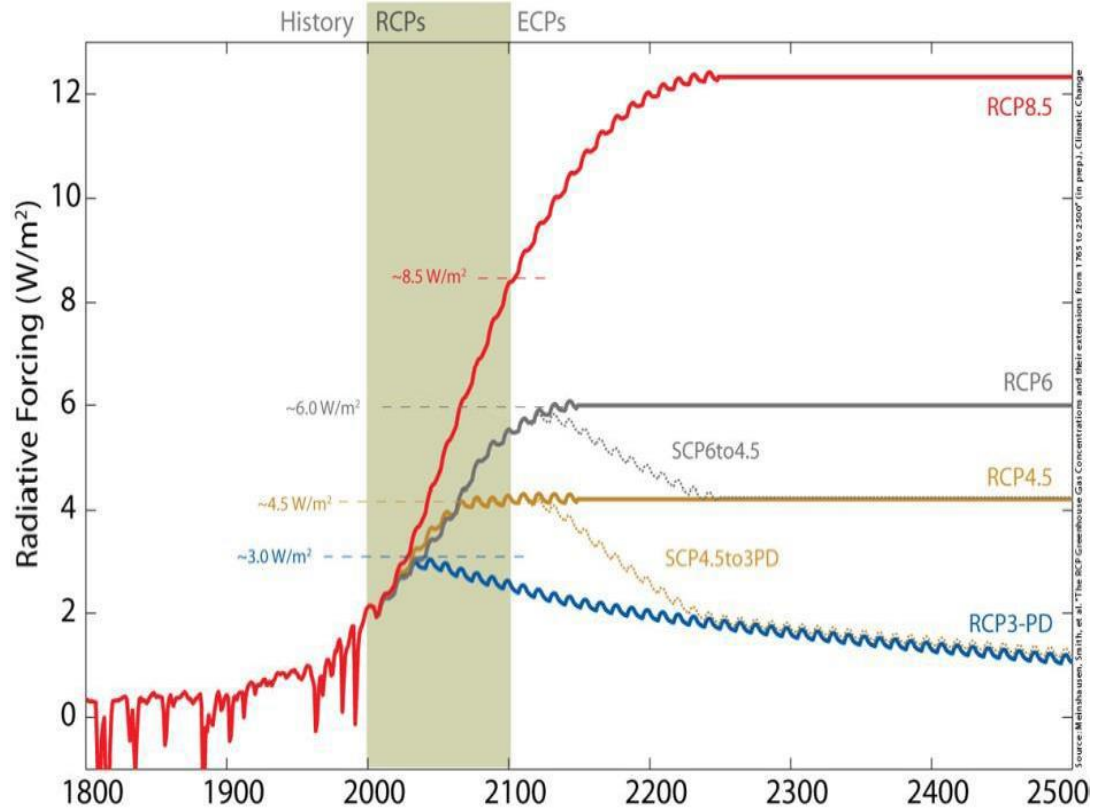


Water protection – long time horizons

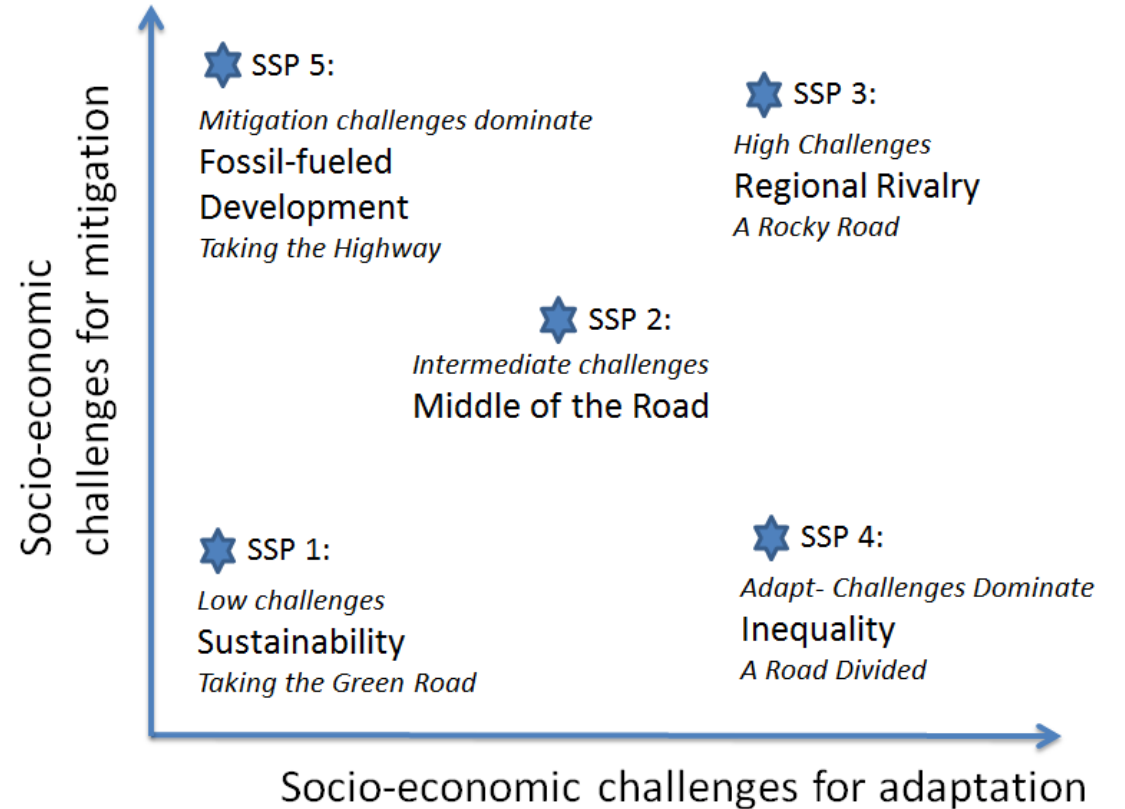
**BONUS BALTICAPP:**

**Changing climate & changing society -> long-run management challenges**

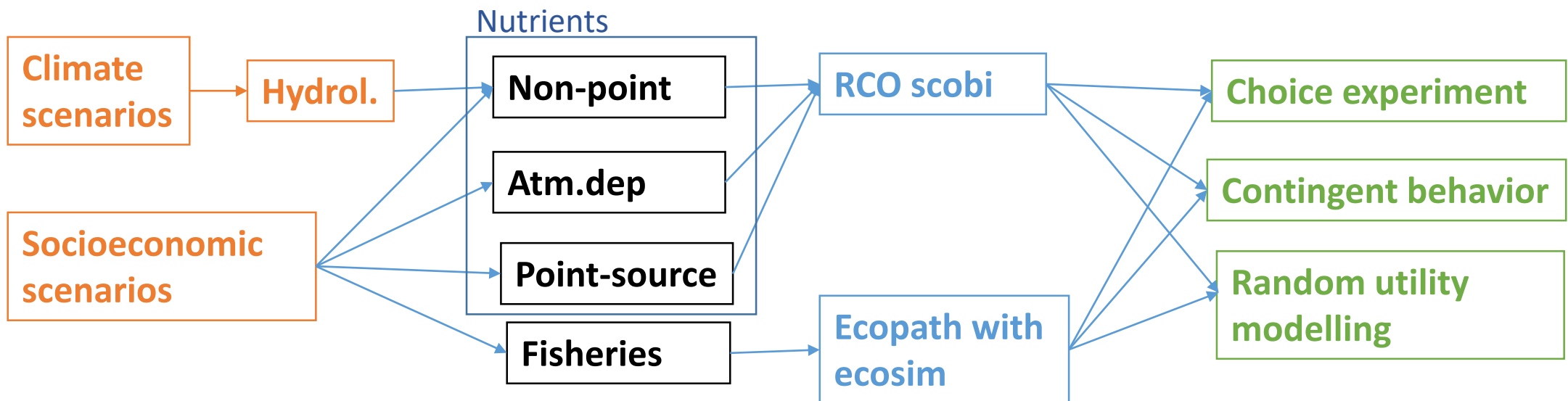
# Climate futures



# Socioeconomic futures



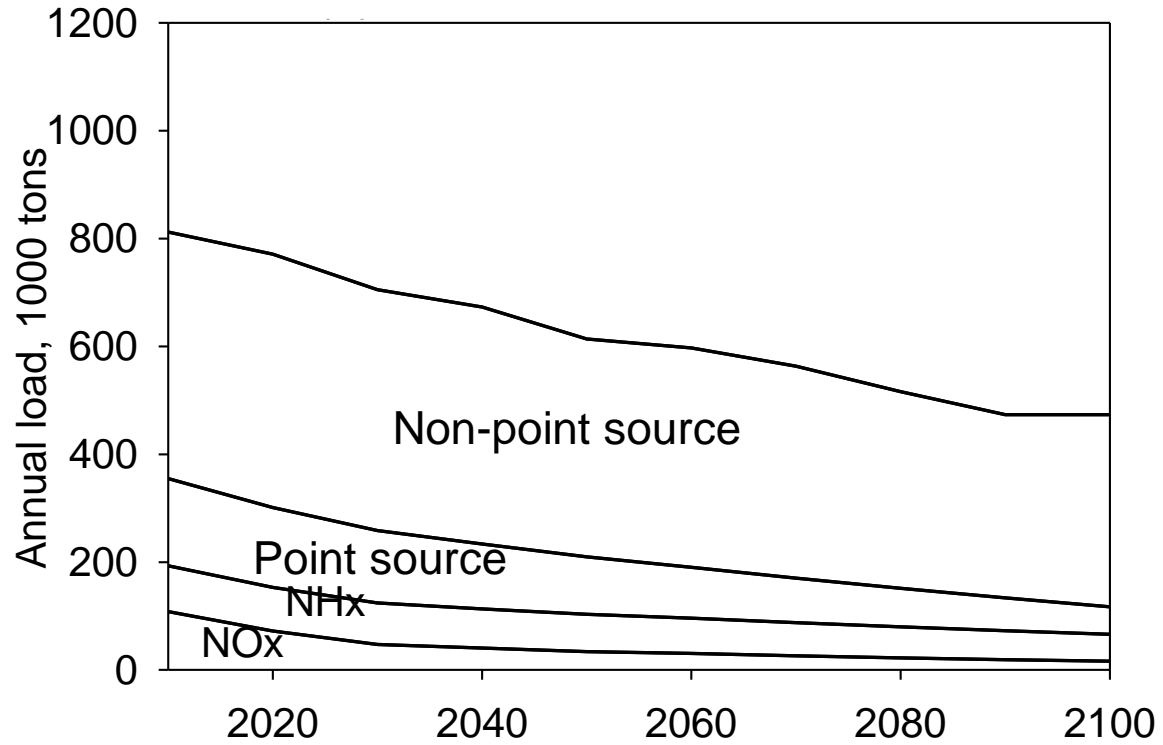
Sources: O'Neill et al (2014); Meinshausen et al (2011)



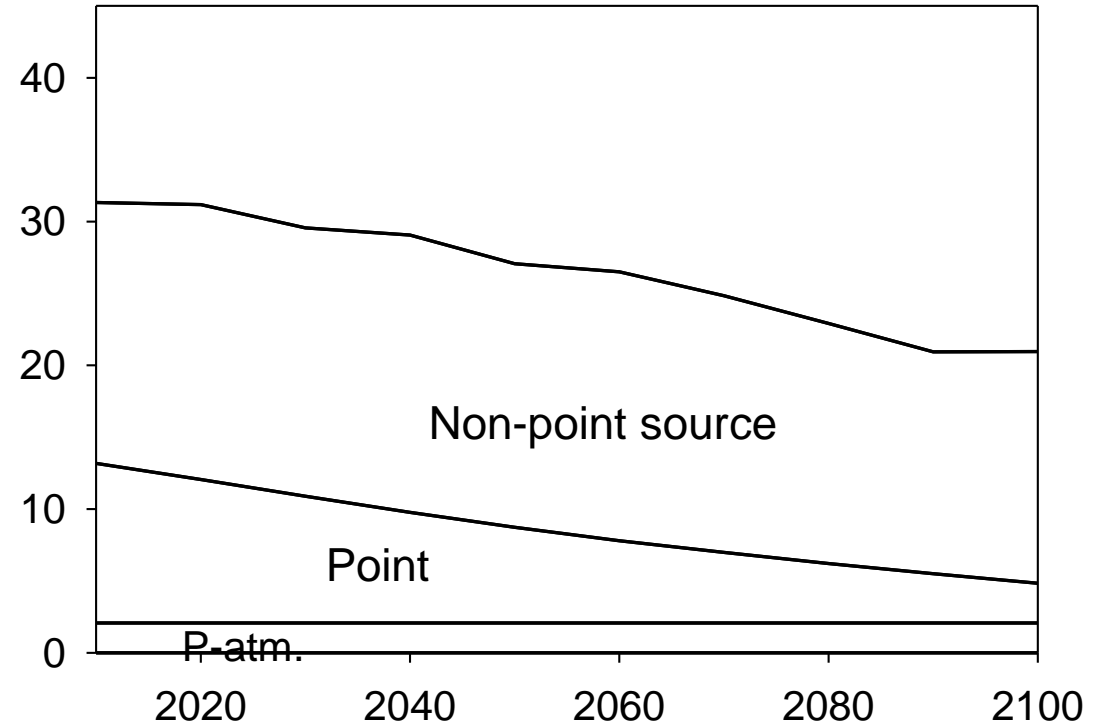
Zandersen, M., Hyytiäinen, K., Meier, H.E.M, Tomczak, M.T., Bauer, B., Haapasaari, P., Olesen, J.E.O., Gustafsson, B.G., Refsgaard, J.C., Fridell, E., Pihlainen, S., Le Tissier, M.D.A., Kosenius, A.K, Van Vuuren, D.P. 2019. Shared socio-economic pathways extended for the Baltic Sea: exploring long-term environmental problems. Regional Environmental Change <https://doi.org/10.1007/s10113-018-1453-0>

# Moderate climate change (RCP4.5) & Sustainability (SSP1)

## NITROGEN

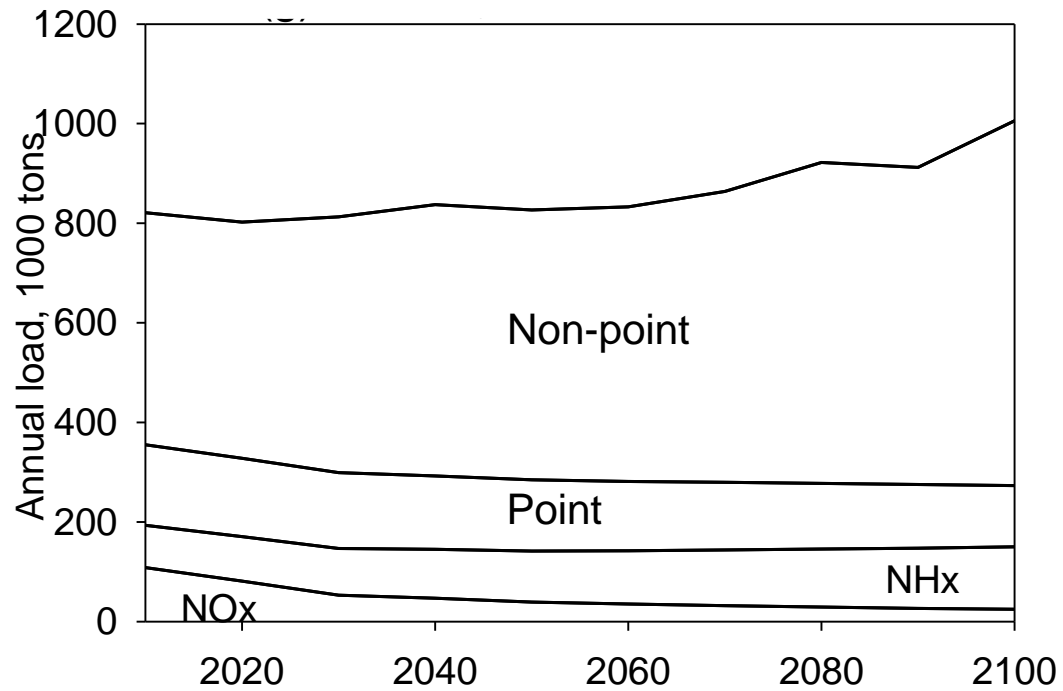


## PHOSPHORUS

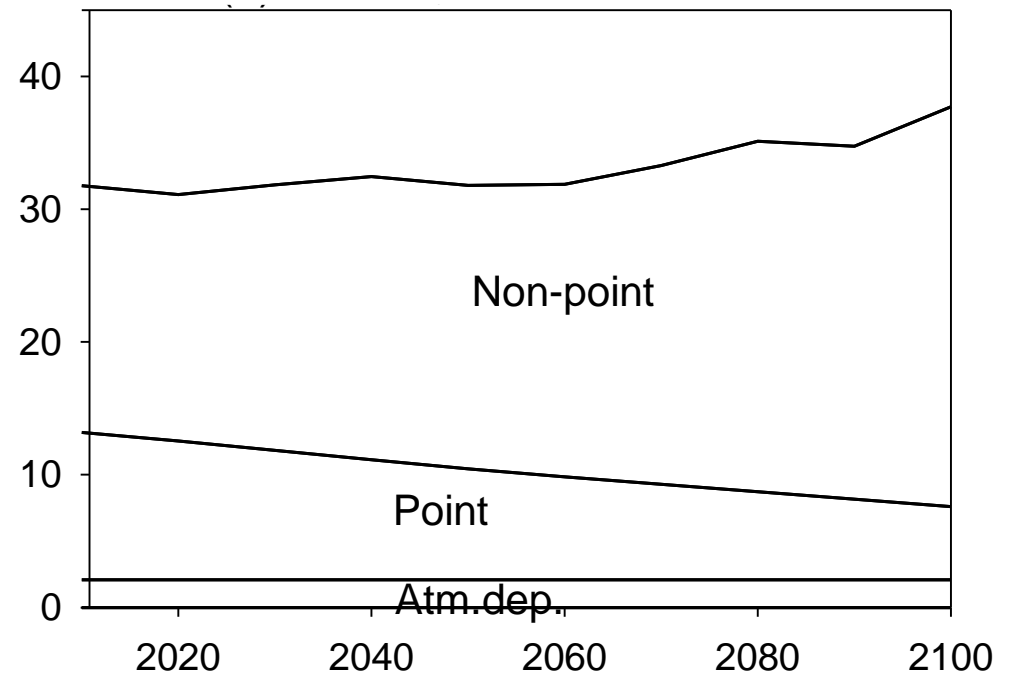


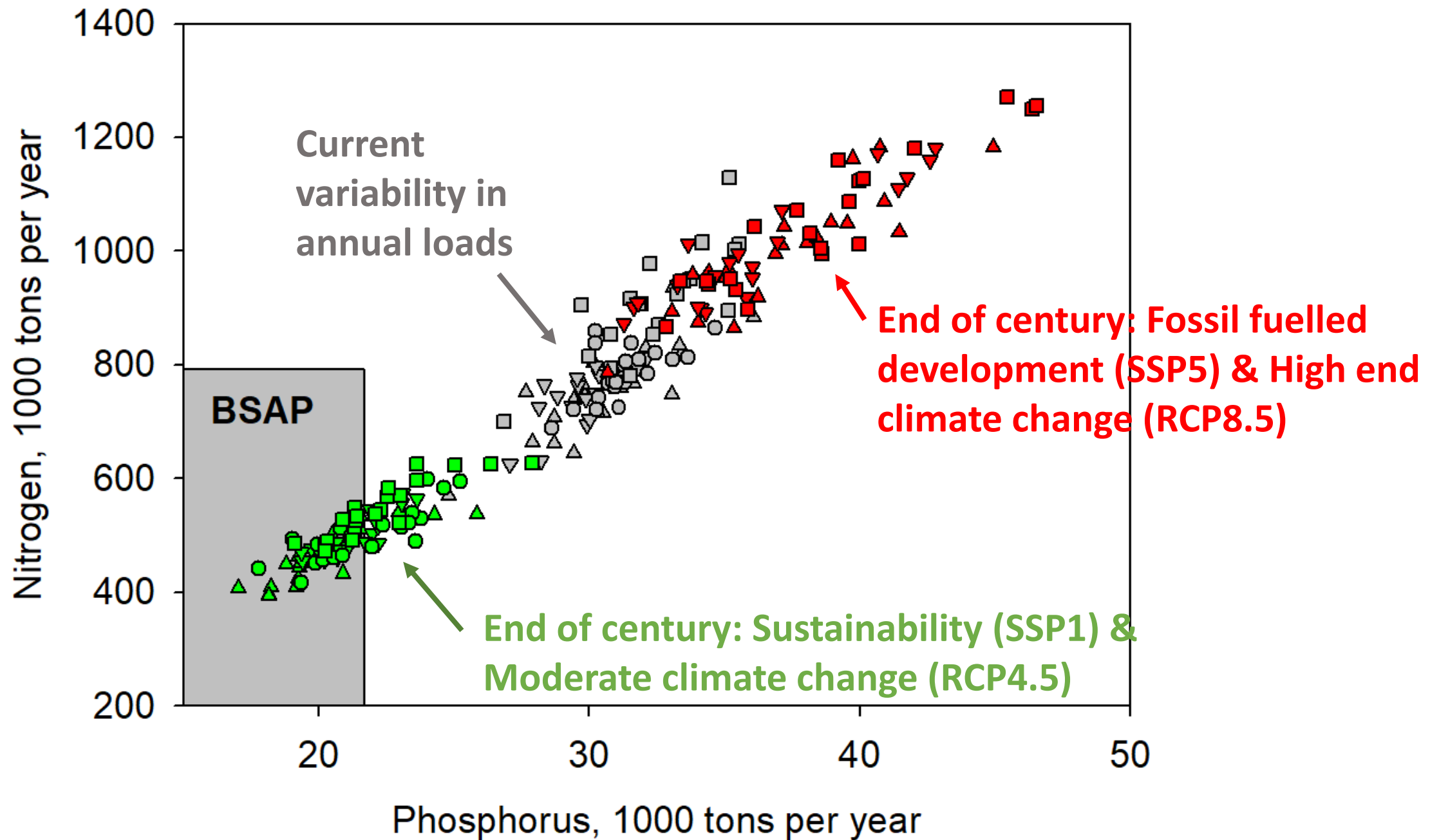
# High end climate change (RCP8.5) & Fossil fuelled development (SSP5)

## NITROGEN




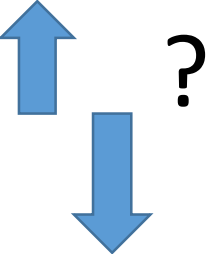
## PHOSPHORUS





# Some conclusions

Focus of mitigation efforts on phosphorus

Loads: Changing climate:  Changing Society: 

Global warming:

- may impair the conditions for agriculture elsewhere
- may improve the competitiveness and lead to expansion of fisheries and agricultural sectors in the Baltic sea region

**Long-run challenge: good balance between food production and healthy aquatic environments**



## Contacts:

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- **Fisheries:** Maciej Tomczak, Stockholm University
- **Water recreation benefits:** Mikolaj Czajkowski, University of Warsaw
- **Non-market valuation:** Eija Pouta, LUKE Finland

