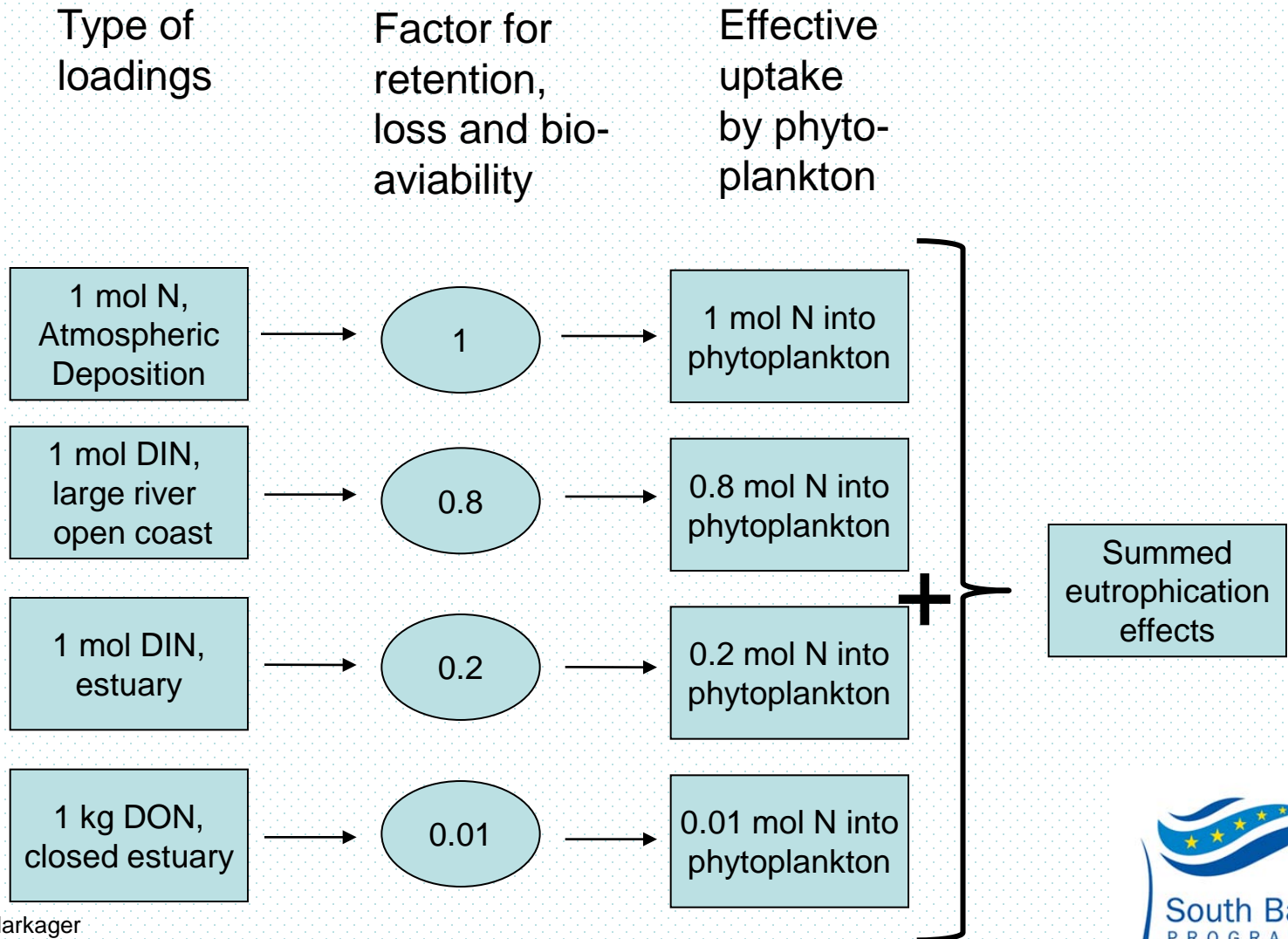
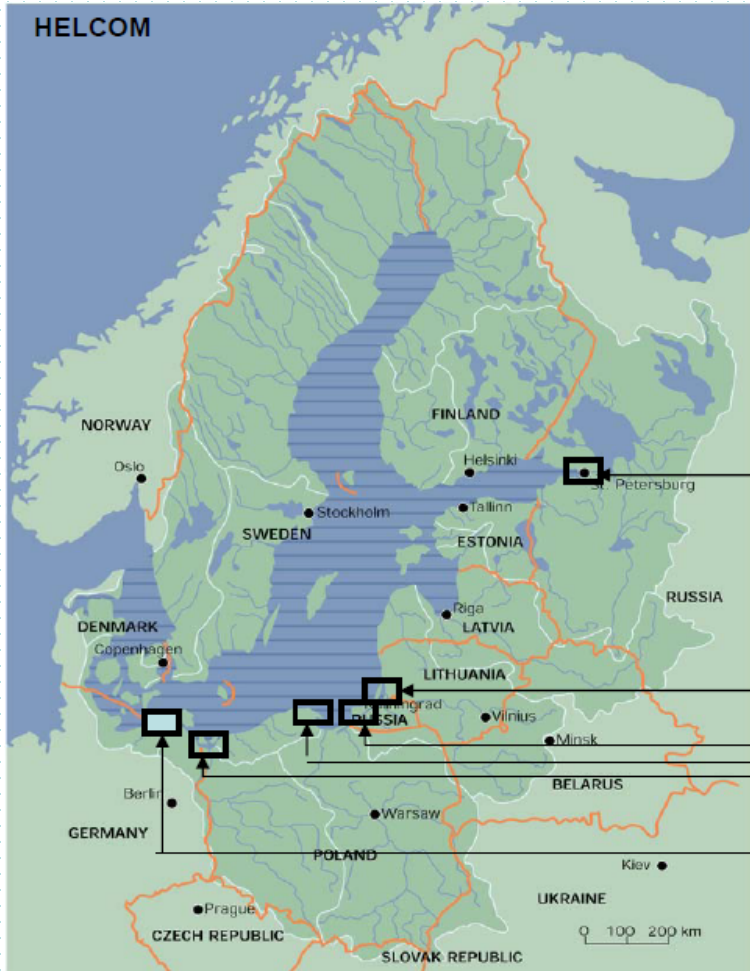


Role of Baltic lagoons in transformation of terrestrial nutrient loads

ARTWEI project partners A. Razinkovas-Baziukas, B. Chubarenko, P. Margonski and G. Schernewski

1 mol nitrogen does different harm! - this effects the cost-models





Neva Bay (Russia)

Curonian Lagoon
(Russia – Lithuania)

Vistula Lagoon
(Poland – Russia)

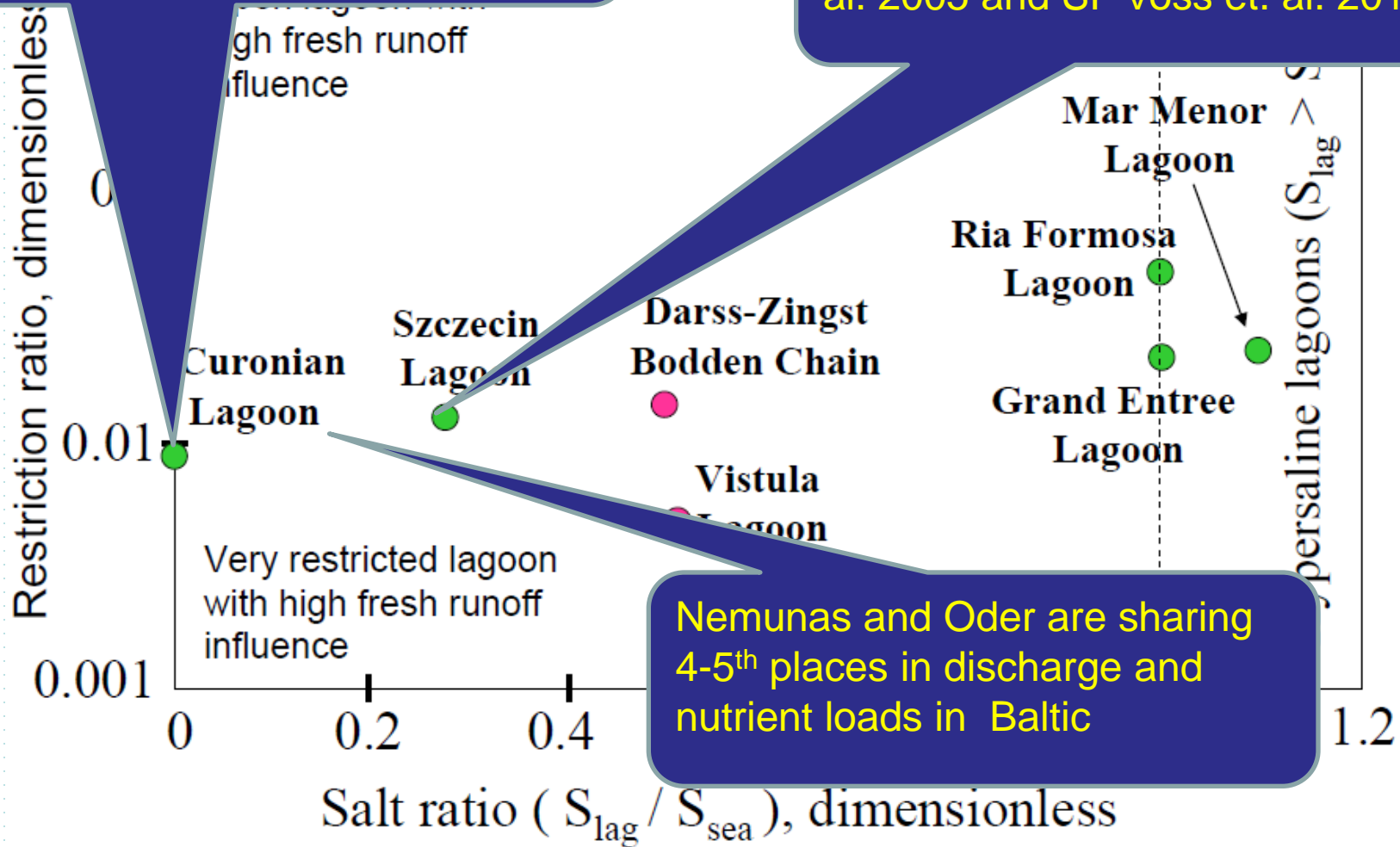
Puck Lagoon (Poland)

Szczecin Lagoon
(Germany – Poland)

Darss-Zingst Bodden Chain
(Germany)

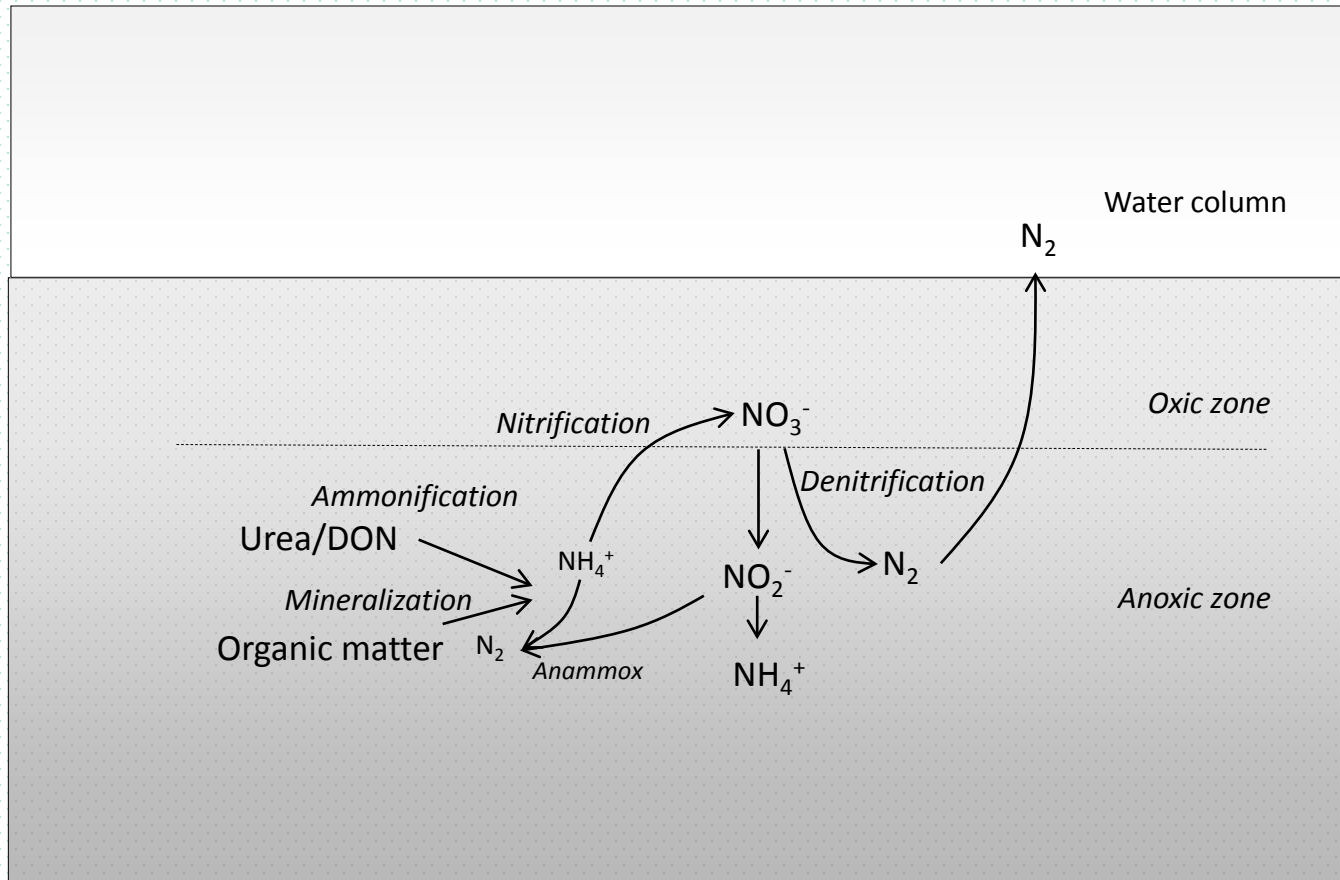
In situ experimental approach
and balance calculation (our
unpublished results)

Balance based calculation
(LOICZ approach) Pastuszak et
al. 2005 and SI Voss et. al. 2010

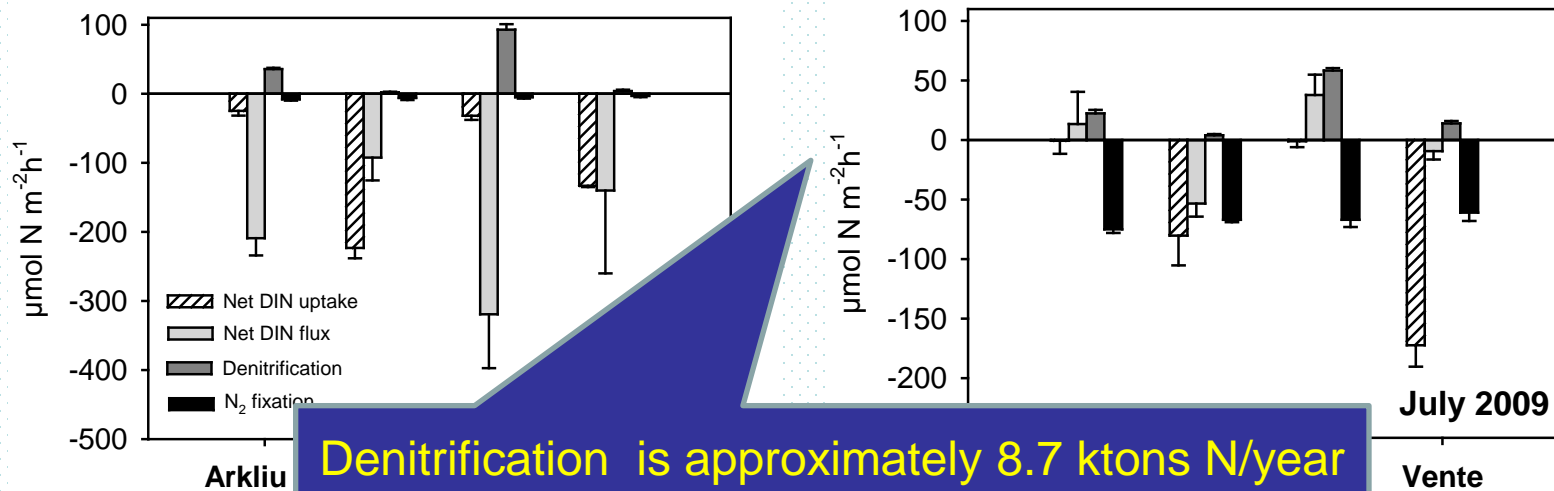


Where nitrogen could disappear ?

Sedimentary nitrogen cycle



DIN bentopelagic flux, denitrification and N fixation in bottom sediments



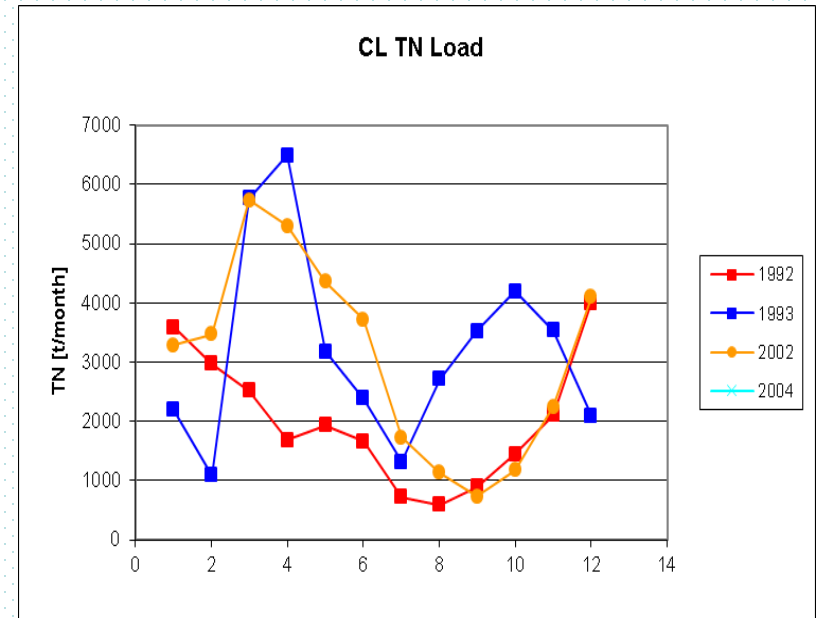
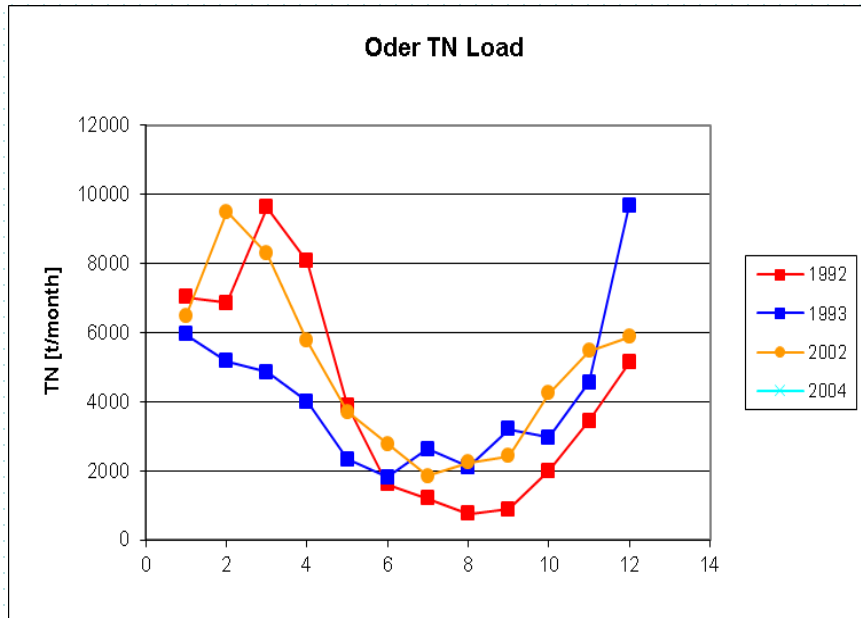
Denitrification is approximately 8.7 ktons N/year or 23% annual balance (19 ktons N/year or 49% of annual balance in the Oder lagoon according to Pastuszak et al.)



Does season matter ?



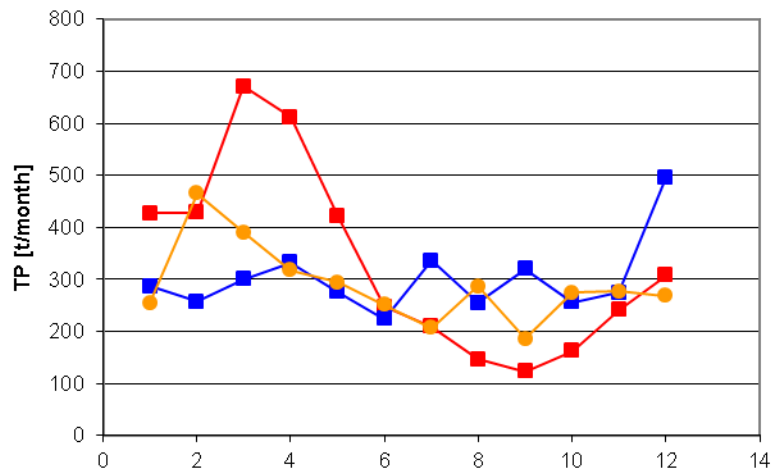
TN loads to the Oder and Curonian lagoons



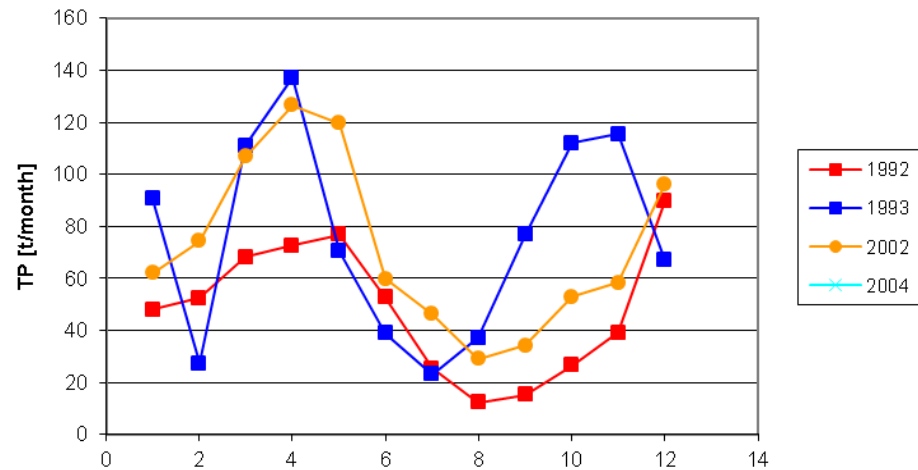


TN loads to the Oder and Curonian lagoons

Oder TP Load

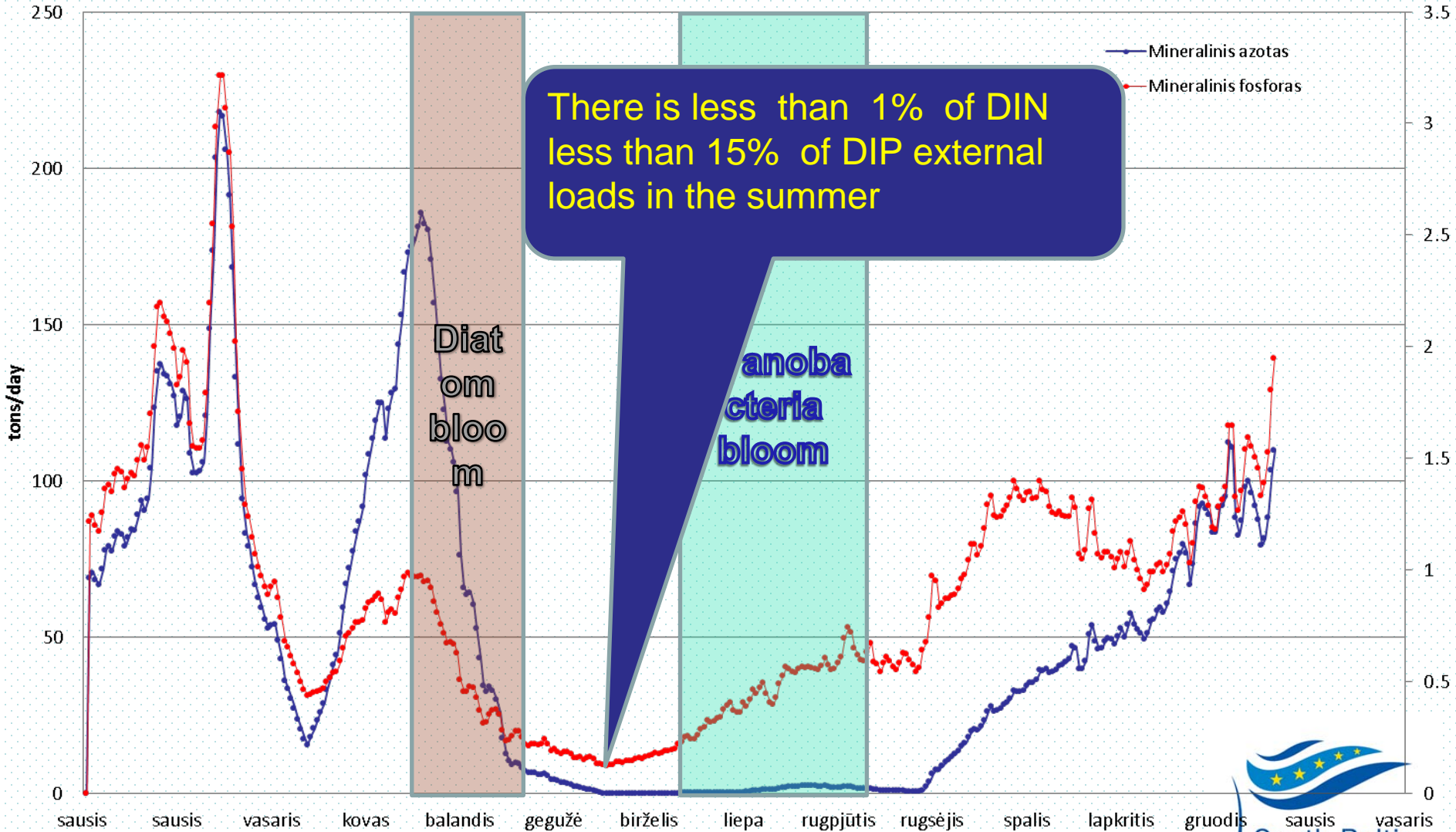


CL TP Load



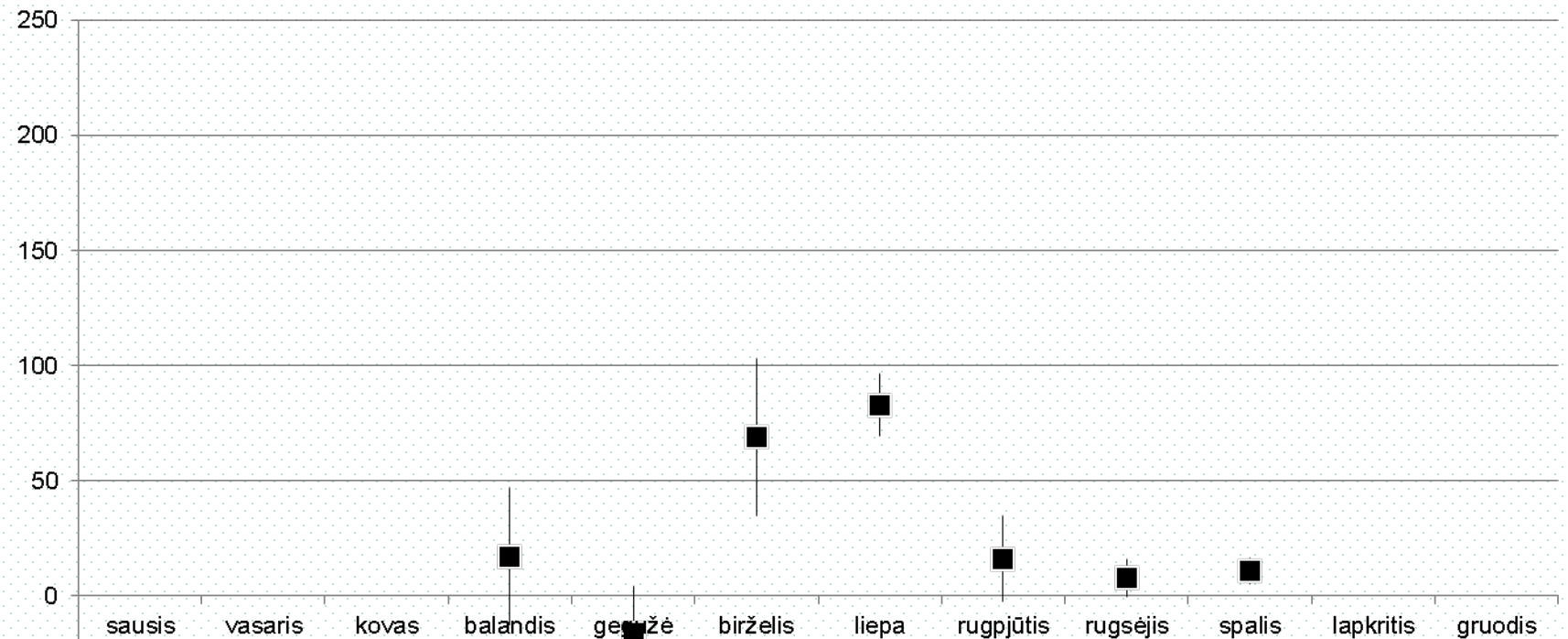


DIN and DIP loading from the Nemunas river in 2011



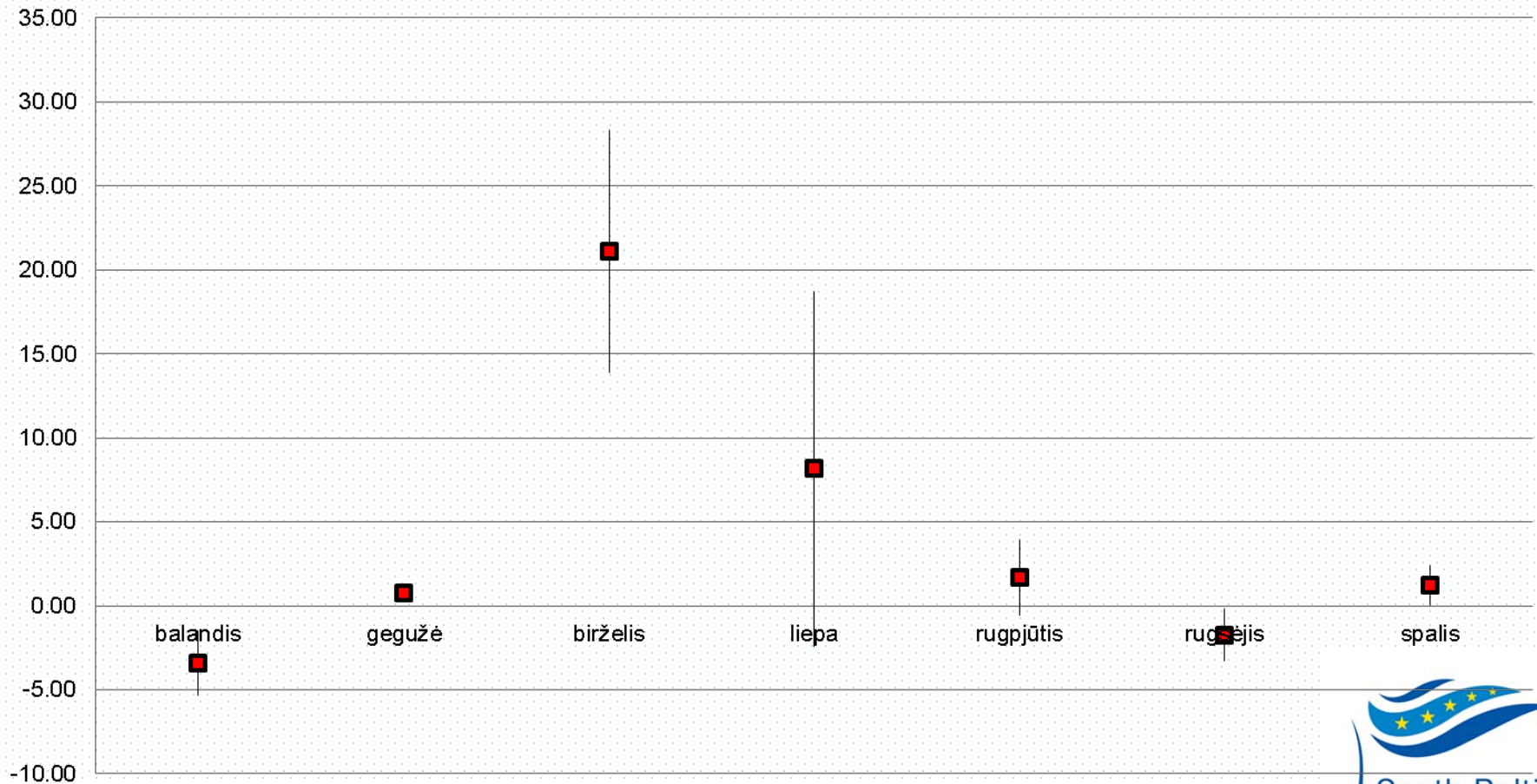


Seasonal internal DIN loads (Curonian lagoon)





Seasonal internal DIP loads (Curonian lagoon)



Conclusions

- 25-50 % of Nitrogen terrestrial loads are retained in lagoons. Main pathway – denitrification
- Presumably ~20-30 % of phosphorus are also retained
- Spring and summer water “blooms” in the lagoon are decoupled and driven by different factors
- Summer, most severe cyanobacteria “blooms” are sustained by internal loads and nitrogen fixation
- Management options aimed at the WQ improvement in coastal lagoons not necessary the same as for the Baltic sea in general.

Final report will coming by the end
of summer

www.balticlagoons.net