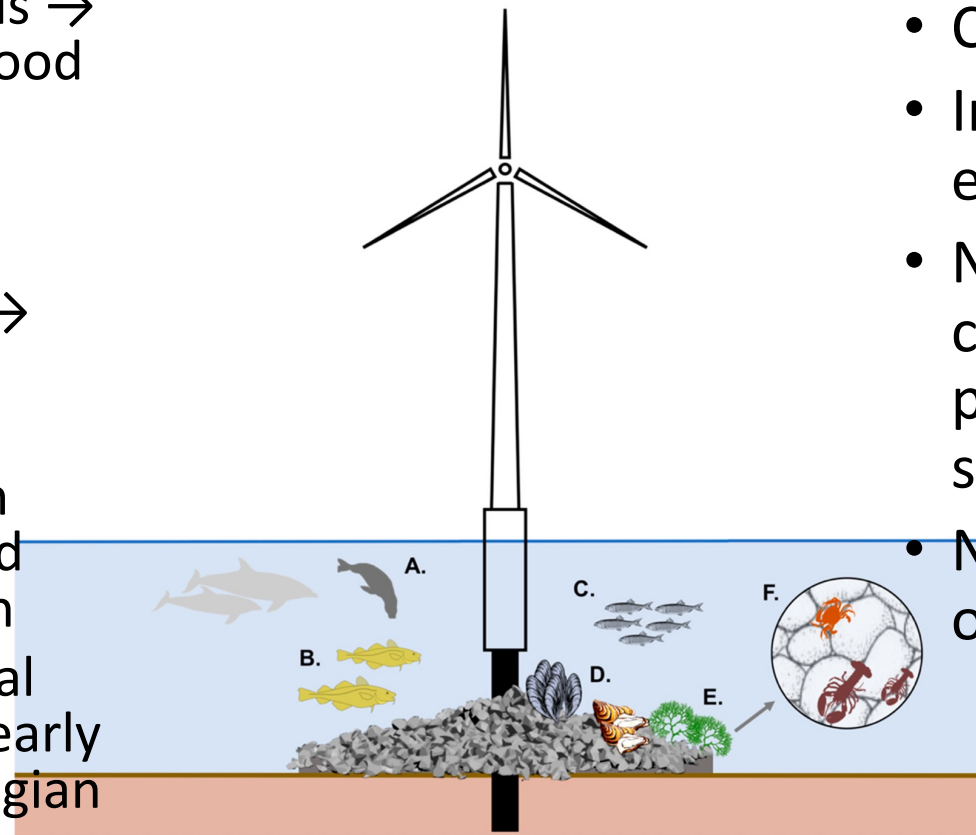


Effects of OWFs

- Positive effects:
 - Reduction of CO₂ levels → less acidic oceans → good for marine life
 - Increase of marine life abundance near OWF
 - Less bottom trawling → less aqueous CO₂ emissions
 - Increased upper ocean circulation → increased production of plankton
 - OWF increases the local carbon assimilation (Yearly >50,000 tons (C) in Belgian sector of the North Sea. – Mavraki et al. 2020)



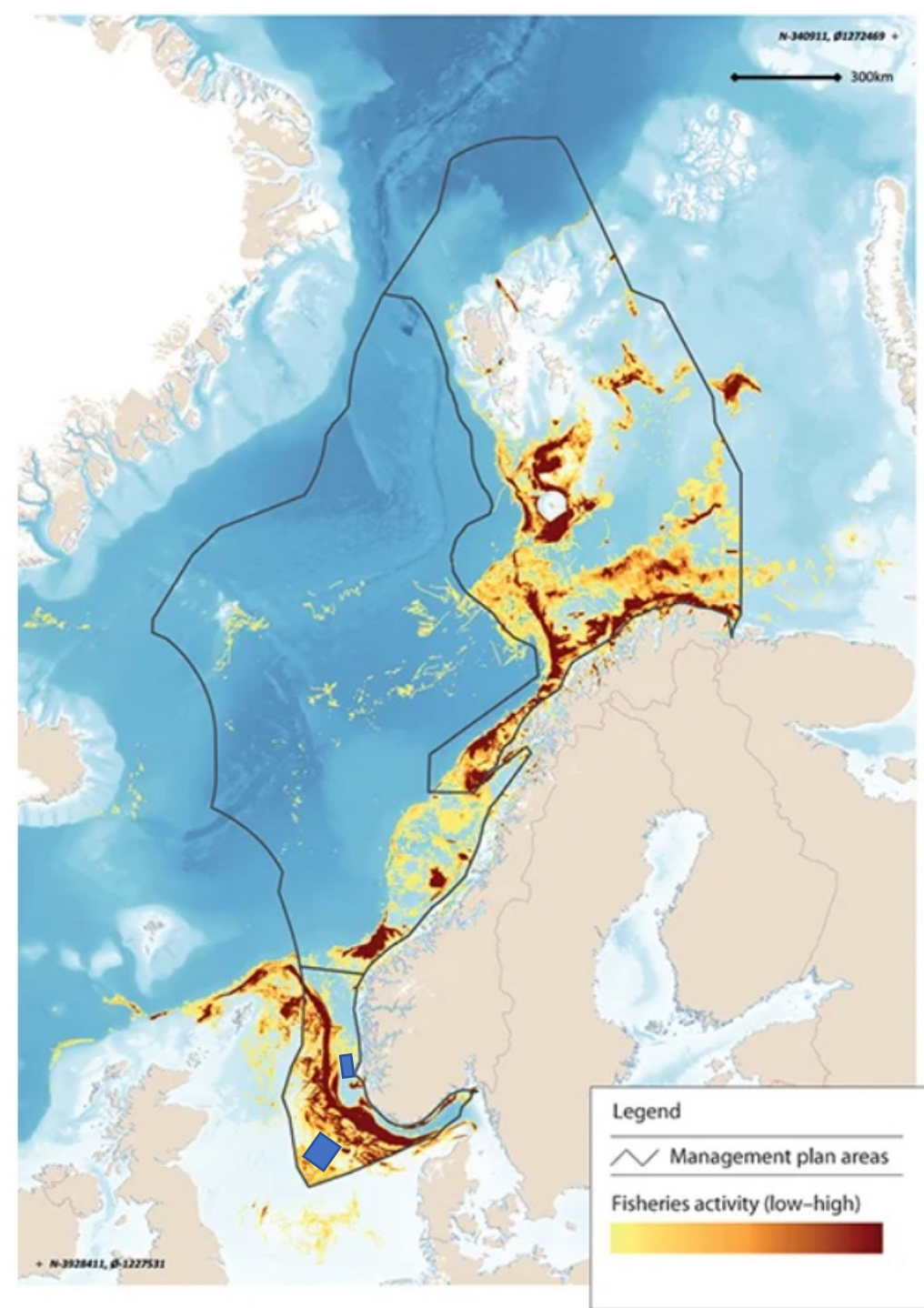
Glarou et al. 2020

- Negative effects:
 - Conflicts with fisheries
 - Introduce imbalances to ecosystem?
 - Noise pollution during construction (seismic, piling) → cause stress/hearing loss?
 - Noise pollution during operation?

Langhamer, Dahlgren and Rosenqvist 2018: Parameter variation larger between years than between impact site and reference site
Possible to reduce noise levels through design choices (transmission, generator, foundation, mooring,...)

Fisheries

- Coexistence is possible
- Construction in the spawning season can be a threat
- However, no evidence of harmful effects on spawning areas during the operational phase
- Fewer conflicts in deeper waters? → floating offshore wind
- Important with early and ongoing input from stakeholders to address concerns and find optimal mitigation measures
 - In Norway the fishery industry has been heavily involved



Future challenges

- Take into account climate change: changes in migration patterns for fish, sea level rise, change in ocean temperature
- Look deeper into the differences in environmental impact between bottom fixed and floating
- Massive acceleration in the construction of OWF
 - EU: 450 GW before 2050
 - Norway: 30 GW before 2040
 - Do we need more studies of the cumulative environmental impact?

