

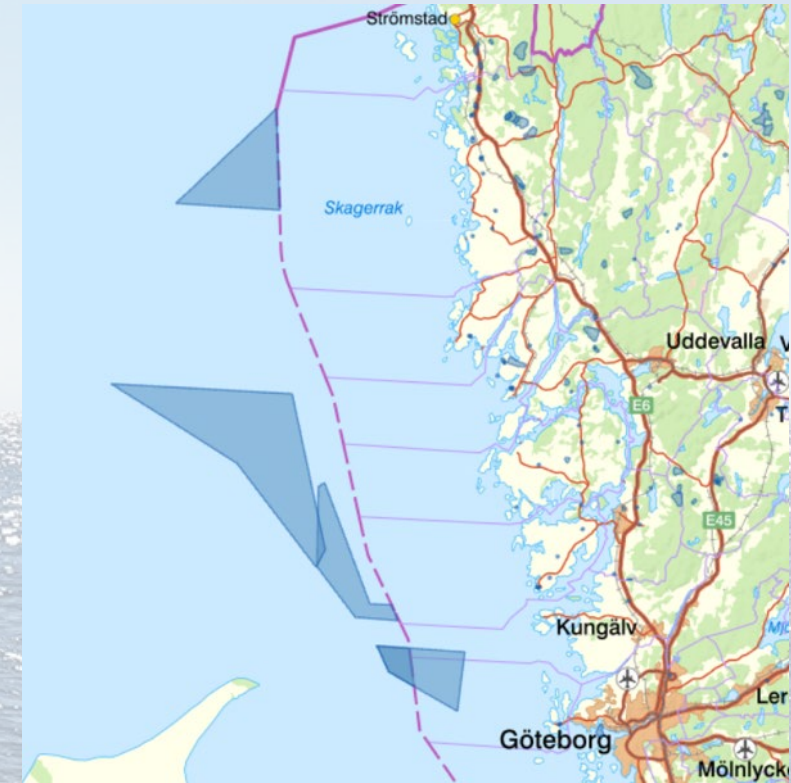
Basis for sustainable development of large-scale wind power off the west coast

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Wind Power Research in Focus 2022
Chalmers Lindholmen October 24, 2022

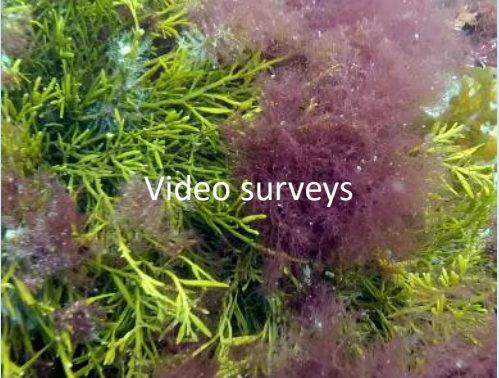
Basis for sustainable development of large-scale offshore windpower

- Increase availability of fossil-free energy
 - Swedish Maritime Plan: energy production ~ 20–30 TWh
 - Additional 90 TWh?
- Potential conflicts with other interests
 - Environmental, commercial, military
- Marin Medvind: maps to support development of offshore windpower in the Baltic Sea
- Goal: similar maps for the West Coast for Länsstyrelsen i Västra Götaland (Västra Götaland County Administrative Board)





Benthic fauna



Video surveys



Marine Monitoring

RESEARCH & CONSULTING



Diving and snorkeling



Fish surveys



Water and sediment sampling



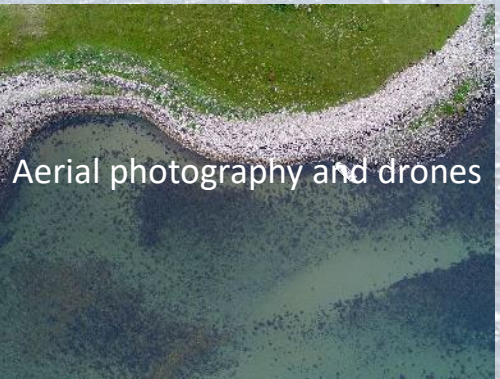
Offshore wind power



Environmental effects-
Imposex, LMS



Shipping lanes



Aerial photography and drones



Eelgrass restoration

”Marin Medvind” final report (Aug 2022)

- Ecologically sustainable windpower in the Baltic Sea

- Suitable areas for wind power farms
(industry preference, geophysical conditions)

- Impact on selected species



Mammals (harbour porpoise, harbour seal)



Fish (cod)



Wintering ducks (long-tailed duck, eider, red-breasted merganser, common and velvet scoter)



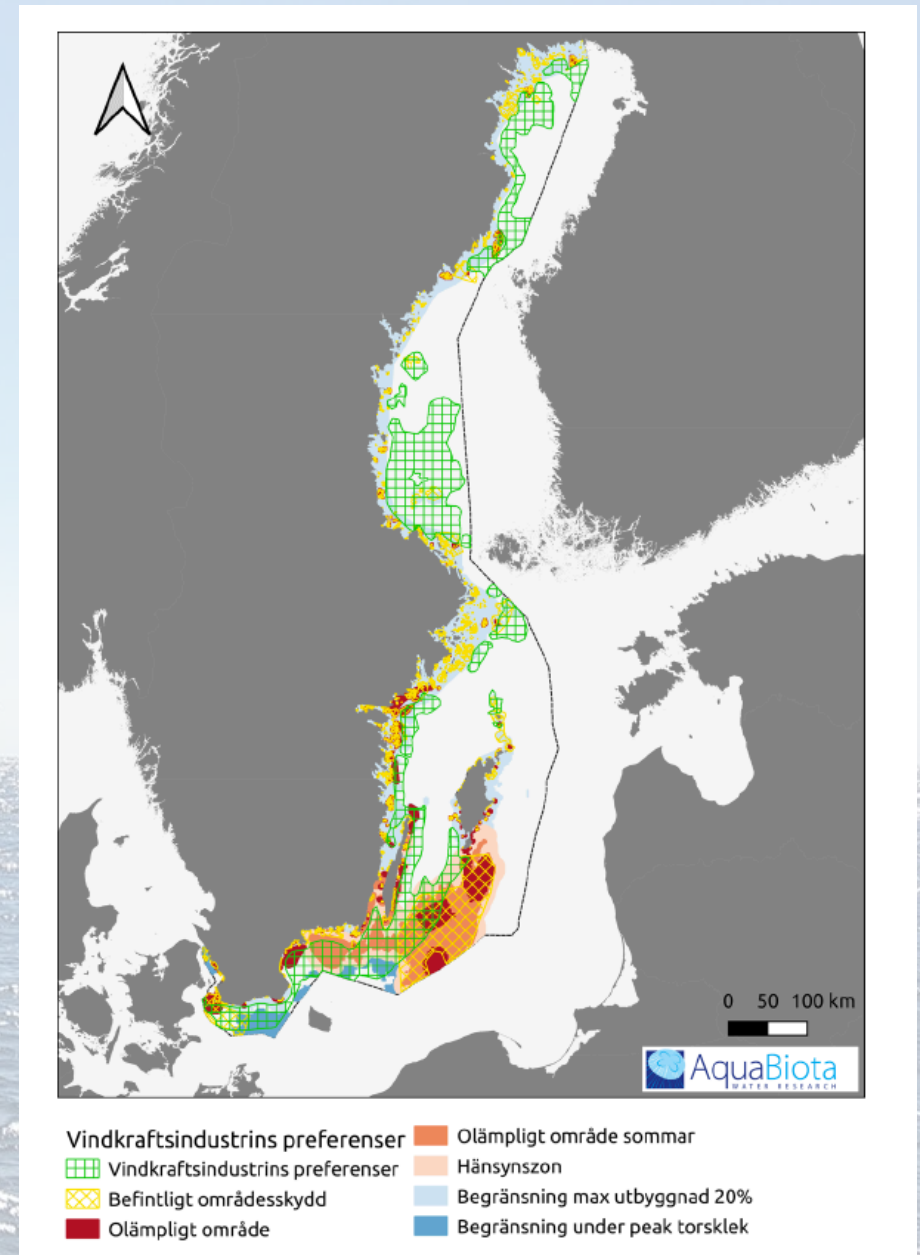
Bats & migratory birds not covered

- Suitable < - > ecologically sensitive areas



Maps to support for future decision-making

- *Areas of interest to industry*
- *Protected areas*
- *Areas entirely unsuitable (year-round)*
- *Areas with (wind farm/towers) density restrictions*
- *Areas with mitigation/consideration measures*



Map for windpower farms with fixed-foundations

Goal: (similar) maps for the West Coast

- Maps as basis for future decisions for offshore wind power development along the Swedish West Coast
- Different ecological conditions
 - different habitats
 - different species
- Shipping lanes
- Armed Forces
- Identify data gaps



Ecology - Habitats & species

- Benthos (soft sediment <-> hardground)
 - Sea floor not anoxic ("dead")
 - Species-rich
 - OSPAR habitats
- Variety of (commercially important) fish species
- Harbour porpoise & harbour seal
- Migratory birds

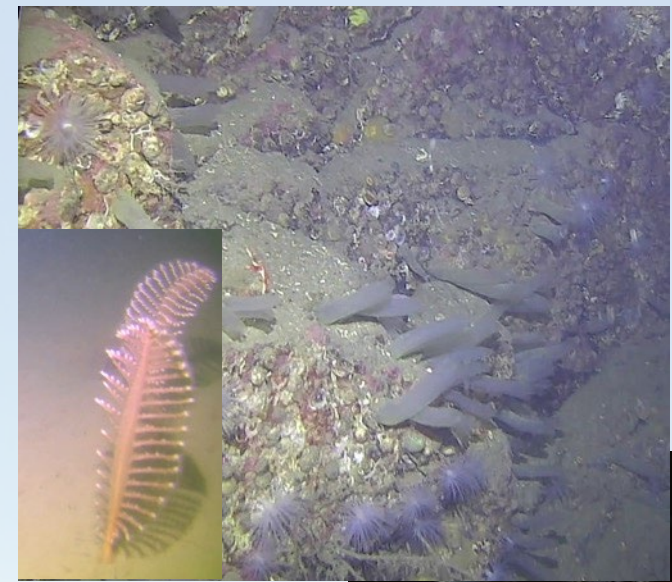


Photo: Kerstin Fransson



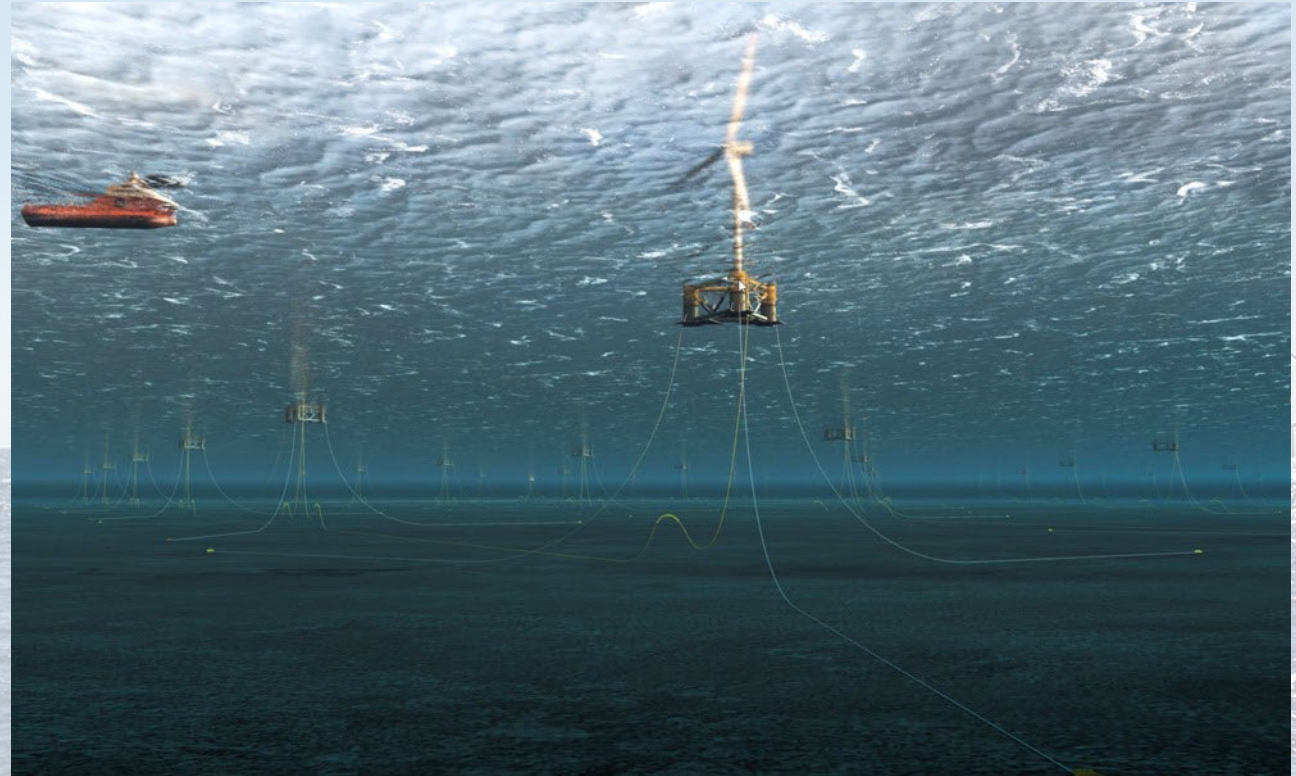
Photo: Tom Lee (lic CC BY-ND 2.0)



Photo: Sandra Andersson

Technology – floating wind farms

- Deep offshore areas
- Several projected farms planning for floating foundation



Armed Forces

- Exclusive zones
- Co-existence possible?

 FOI

Möjligheter till samexistens
mellan Försvarsmaktens
verksamhet och utbyggd
vindkraft

ANDERS ODELL, ANDERS BERNLAND, GUNNAR ERIKSSON,
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MARI OLSÉN, BEATRICE REICHEL



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Comments?

Suggestions?

Thank you for your attention