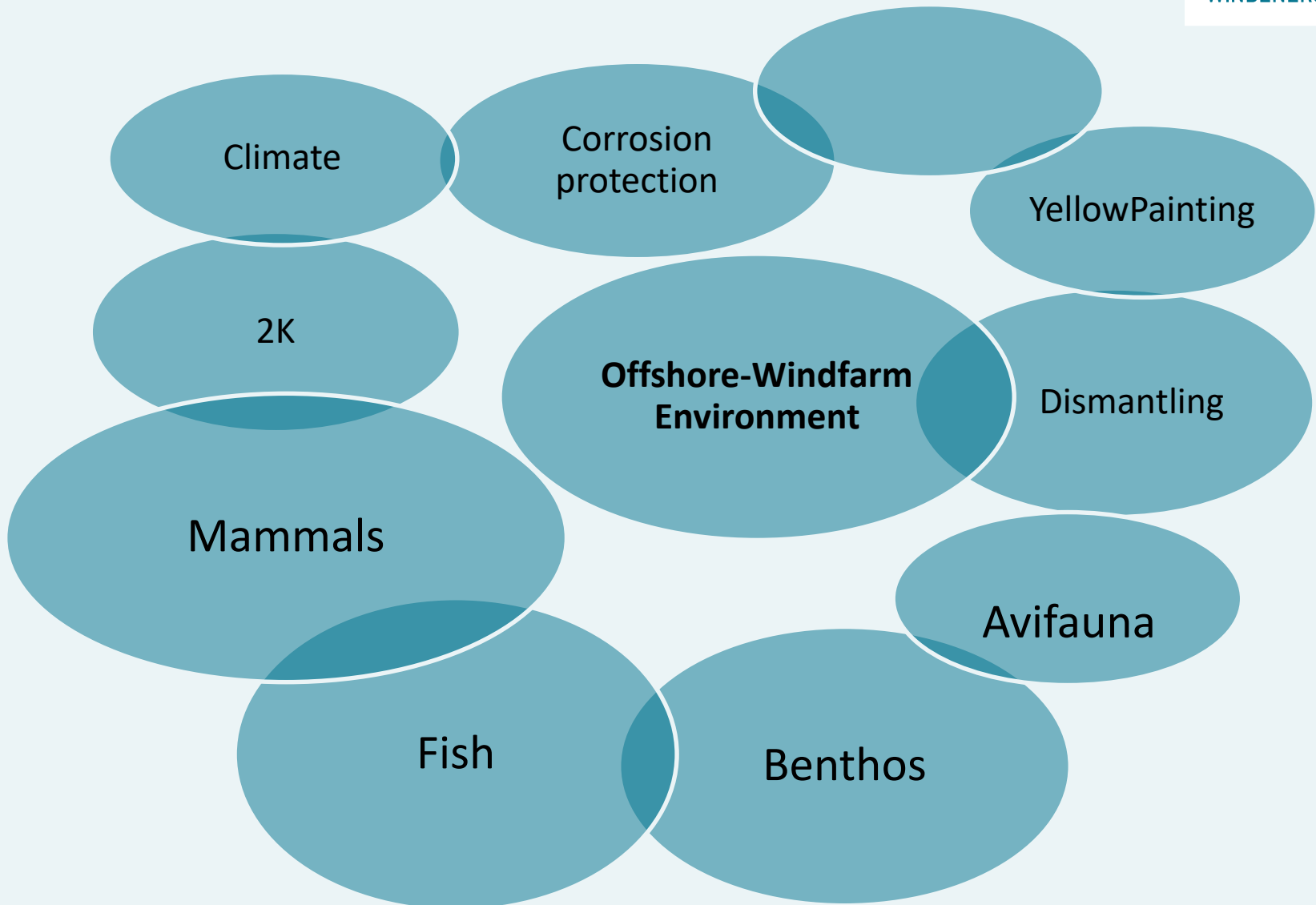
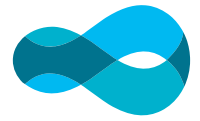


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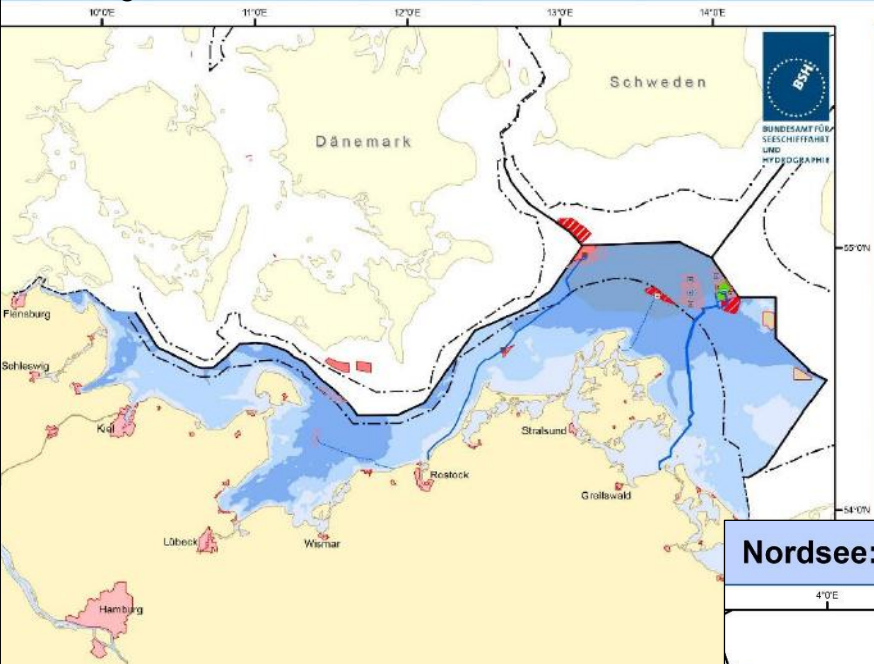
Baltic InteGrid 15.05.2018

Impacts of Offshore-Wind farms on the marine environment

Dr. Matthias Wehkamp



Ostsee: Offshore Windparks



Offshore Windparks

- in Betrieb
- im Bau
- genehmigt
- beantragt
- nicht genehmigt

Energie-Plattformen

- Umspannplattform, in Betrieb
- Umspannplattform, im Bau
- Umspannplattform, genehmigt
- Umspannplattform, beantragt

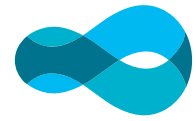
Netzanbindungen

- in Betrieb
- im Bau
- genehmigt
- beantragt

Grenzen

- Küstenmeer
- Festlandssockel / AWZ
- Internationale Grenze

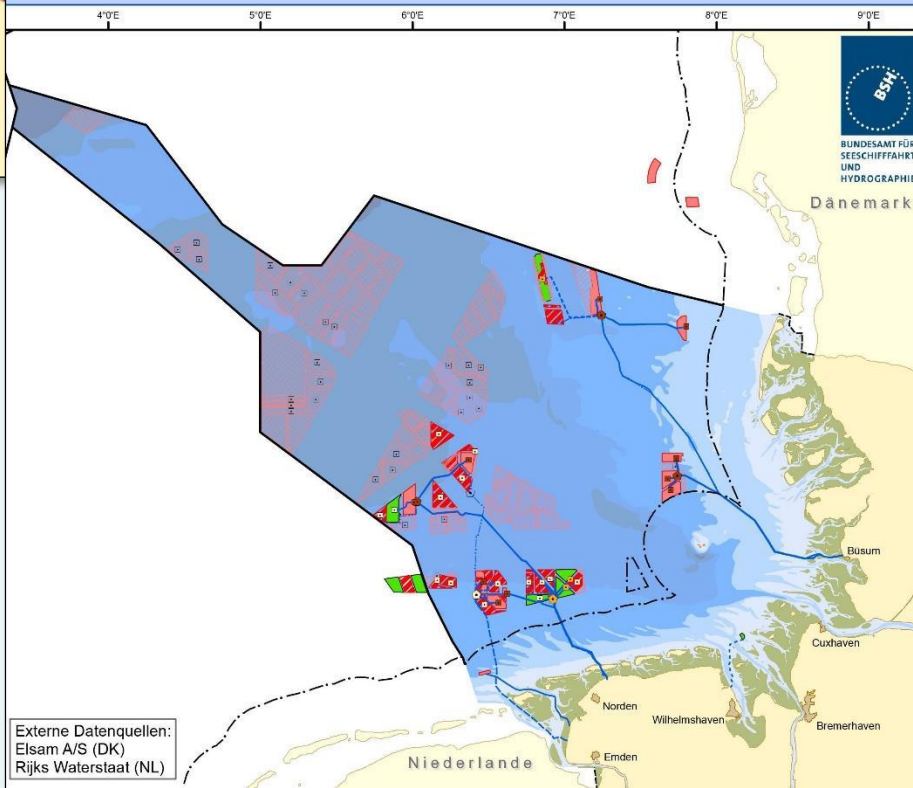
Externe Datenquellen:
 Ministerium für ländliche Räume (S-H)
 Ministerium für Verkehr, Bau und Landesentwicklung (M-V)
 Bezirksregierung Kalmar (Schweden)



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<http://www.bsh.de/de/Meeresnutzung/Wirtschaft/CONTIS-Informationssystem/ContisKarten/NordseeOffshoreWindparksPilotgebiete.pdf>

Nordsee: Offshore Windparks



Offshore Windparks

- in Betrieb
- im Bau
- genehmigt
- beantragt
- nicht genehmigt

Plattformen

- Umspannplattform, in Betrieb
- Umspannplattform, im Bau
- Umspannplattform, genehmigt
- Umspannplattform, beantragt
- Konverterplattform, in Betrieb
- Konverterplattform, im Bau
- Konverterplattform, genehmigt
- Konverterplattform, beantragt

Netzanbindungen

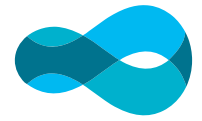
- in Betrieb
- im Bau
- genehmigt
- beantragt

Grenzen

- Festlandssockel/AWZ
- 12-Seemeilenzone/Küstenmeer
- Internationale Grenze

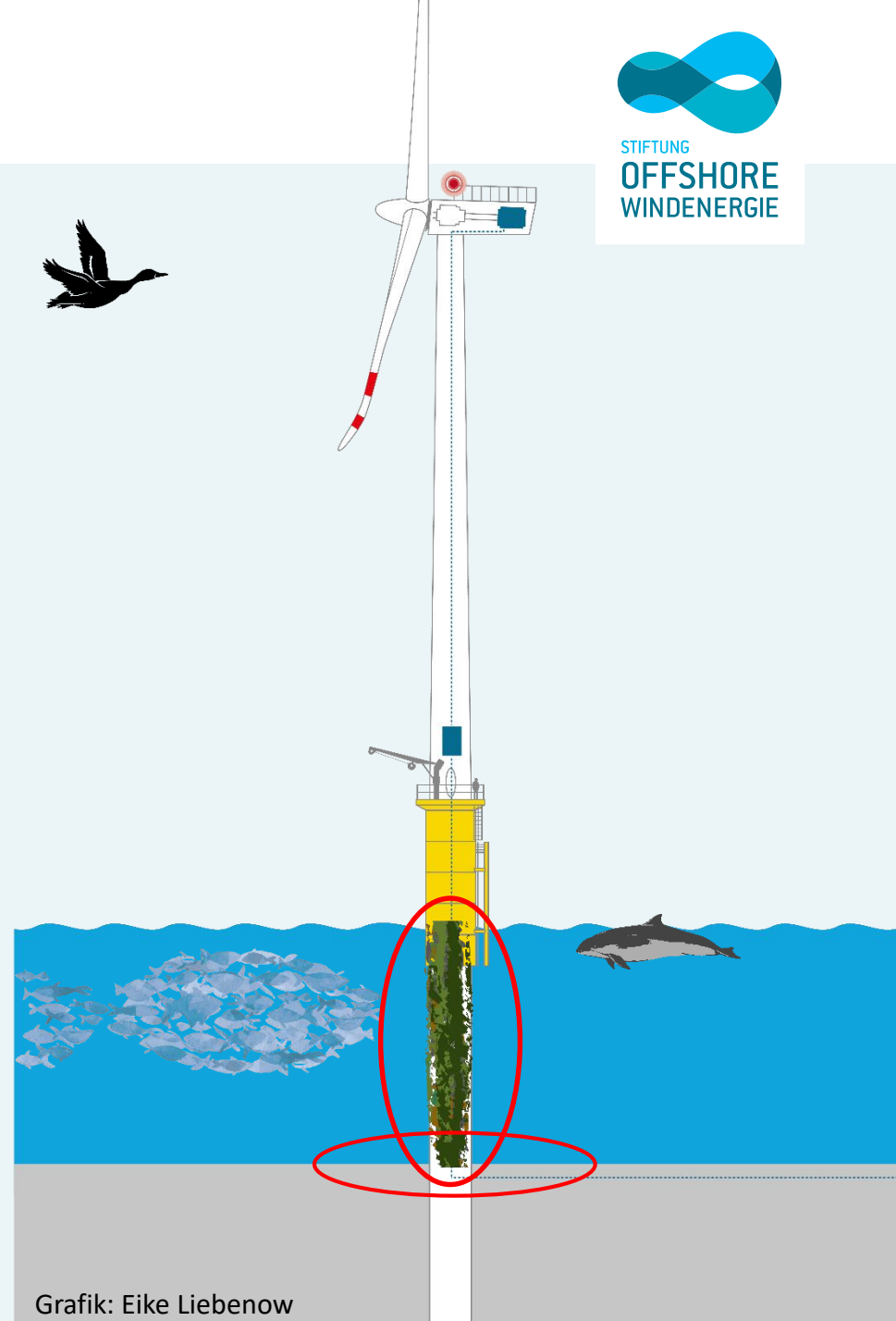
Externe Datenquellen:
 Elsam A/S (DK)
 Rijks Waterstaat (NL)

Geodätisches Datum: WGS 84
 Kartenprojektion: Mercator (54°N)
 BSH / M5 - 07.06.2016



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Fish & Benthos



Grafik: Eike Liebenow



Benthos und Fish

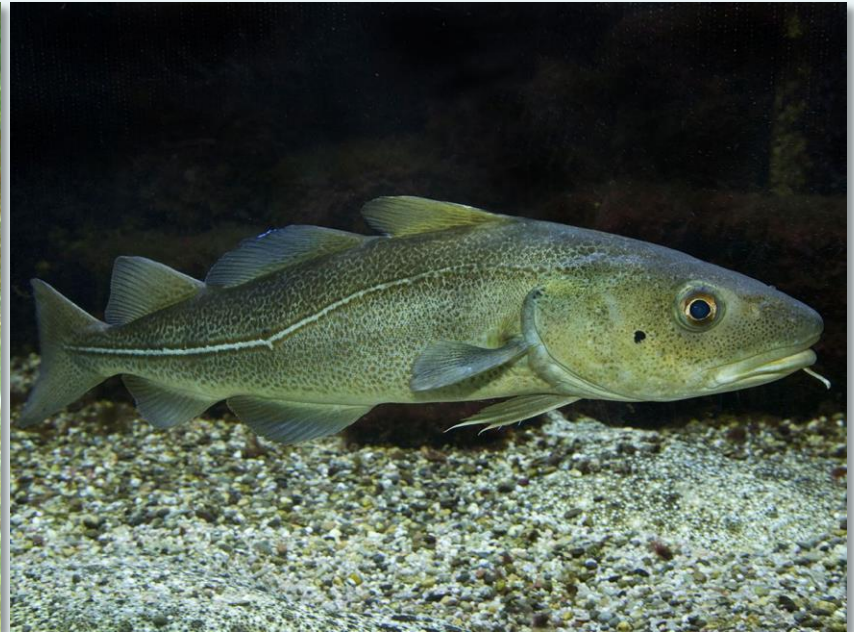
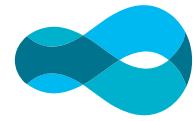


Image: <https://fischundfang.de>



Sea floor around Alpha Ventus,
3. year of operation

Image: Benthos Fachgutachten 2012

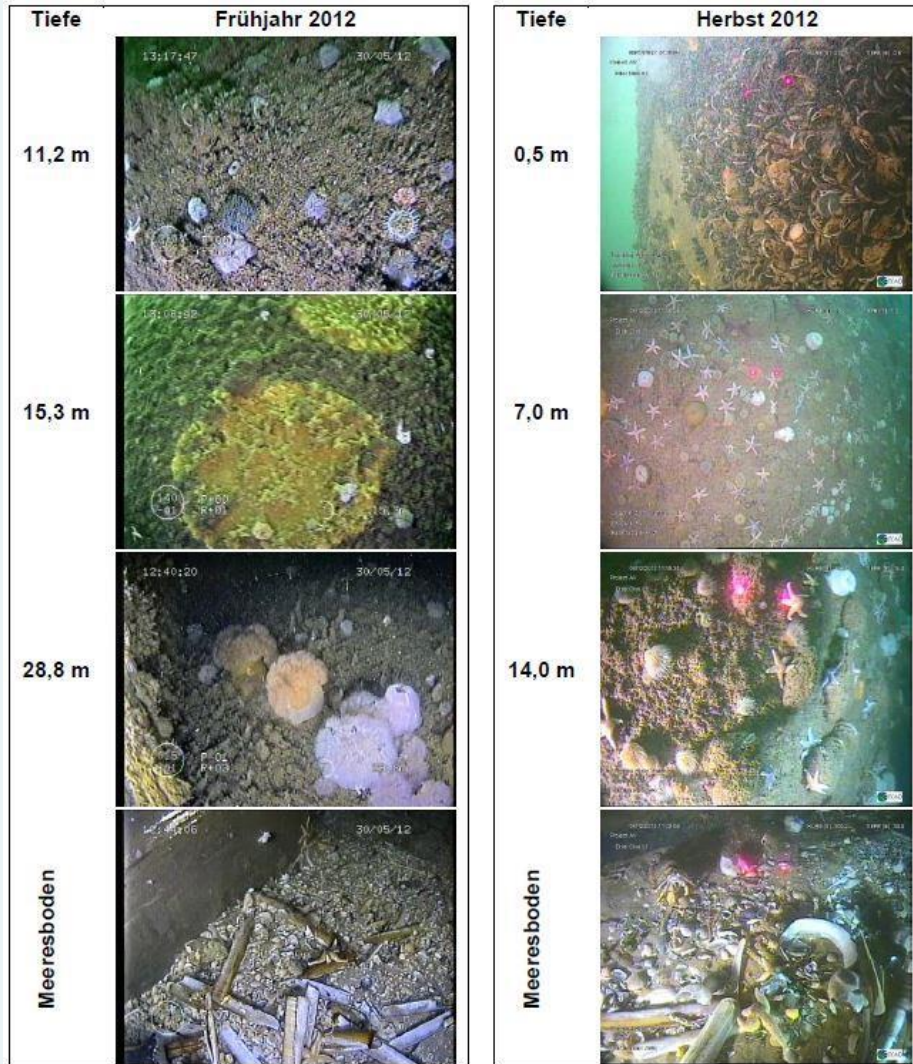
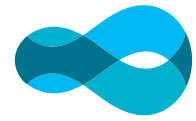
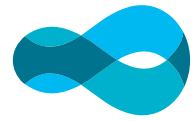


Image: Benthos Fachgutachten 2012

Depth zonation Alpha Ventus,
3. year of operation

Provides

- Food
- Shelter
- Sex

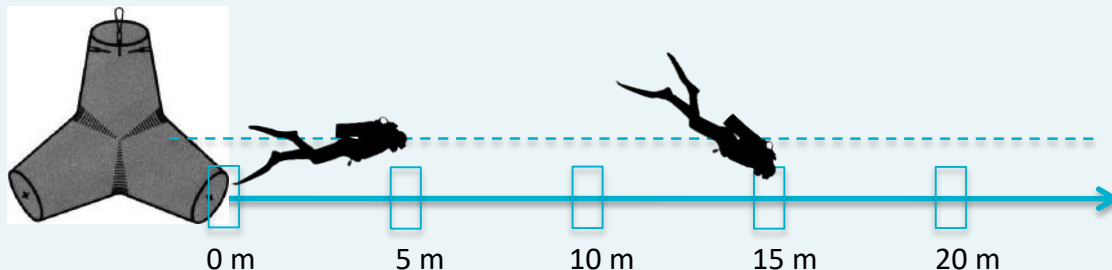


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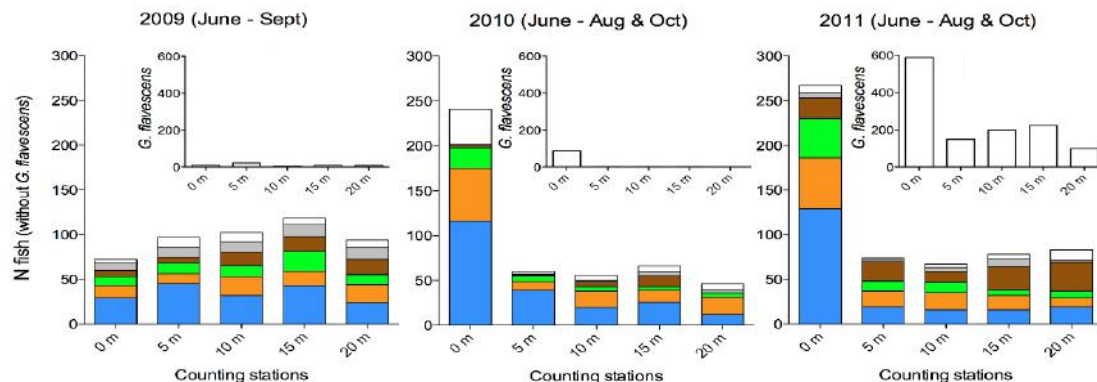
Fischreiser Bodensee



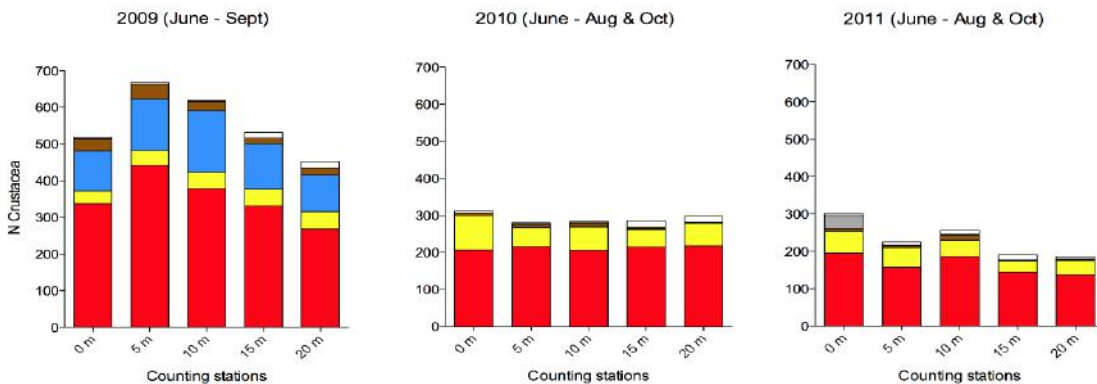
Foto: Arndt Weber



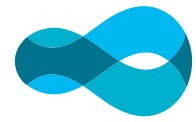
MarGate TestField



Fish

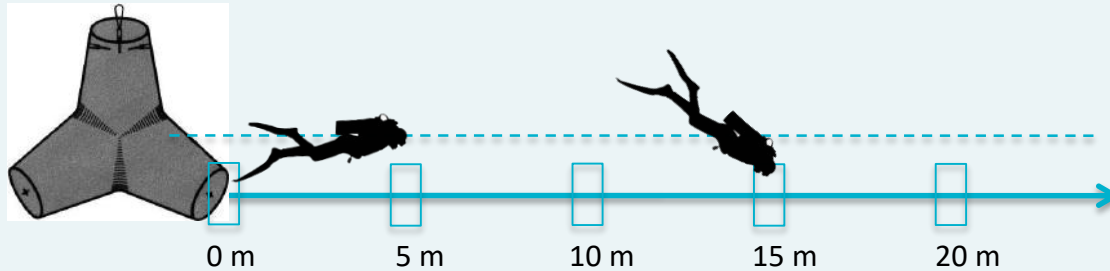


Crab

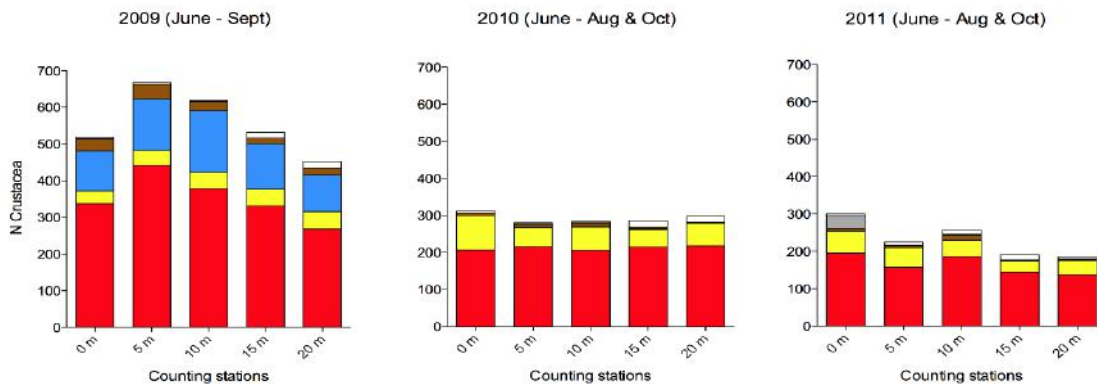
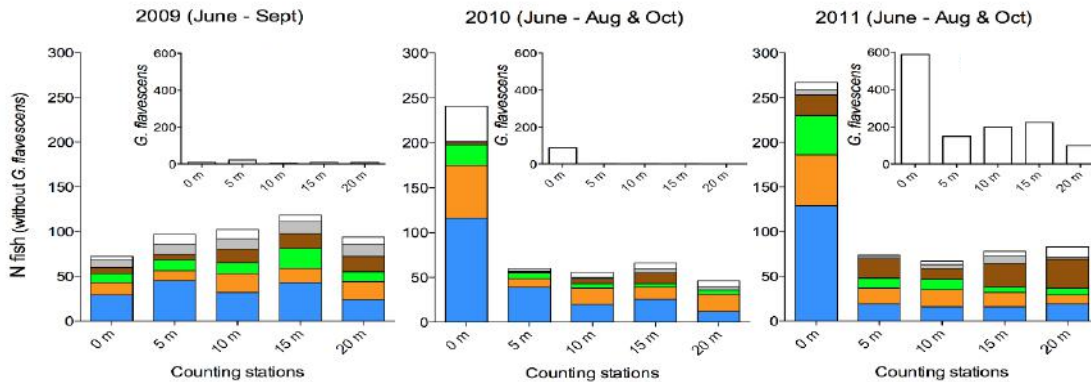


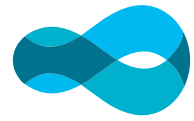
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MarGate TestField



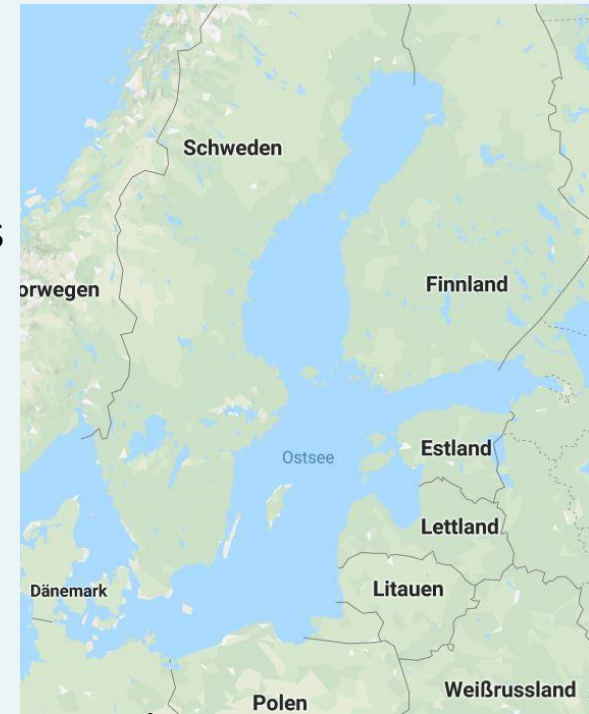


Baltic Sea

- Mostly hard substrate
- Addition of a third dimension through wind turbines
- No „new“ fouling communities, but fouling communities in changed concentrations and abundances

But:

- Low currents
- Shallow depth
- Low water exchange
- High production of biomass on the windmill
=> anoxic decomposition processes

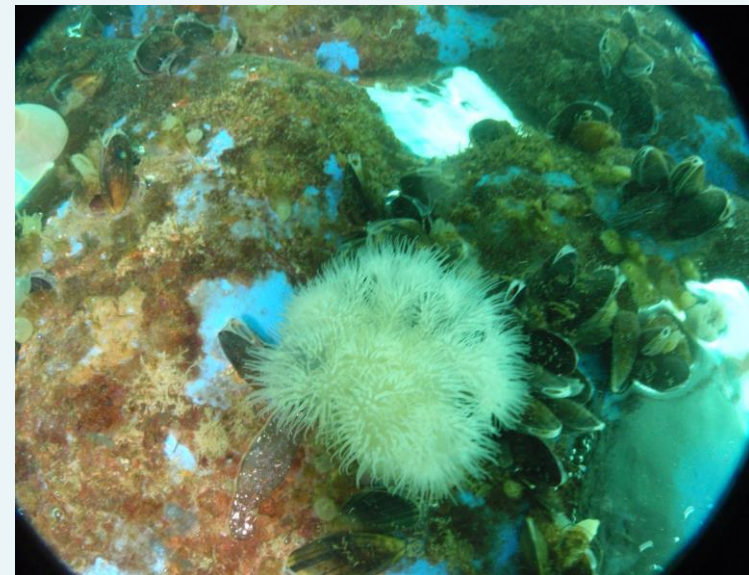


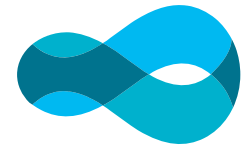
www.google.de/maps

Creation of artificial reefs:

- 3-dimensional structure through the entire water column
- Hard substrate on soft substrate
 - => New ecological niches for new marine communities
 - => Creation of new ecological services (increase of fish biomass, water cleaning by clams)
- Affected areas already largely influenced by human activities (e.g. fishery)

Countermeasures use of the potential benefits???





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Many thanks for your attention!

Many thanks to:

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