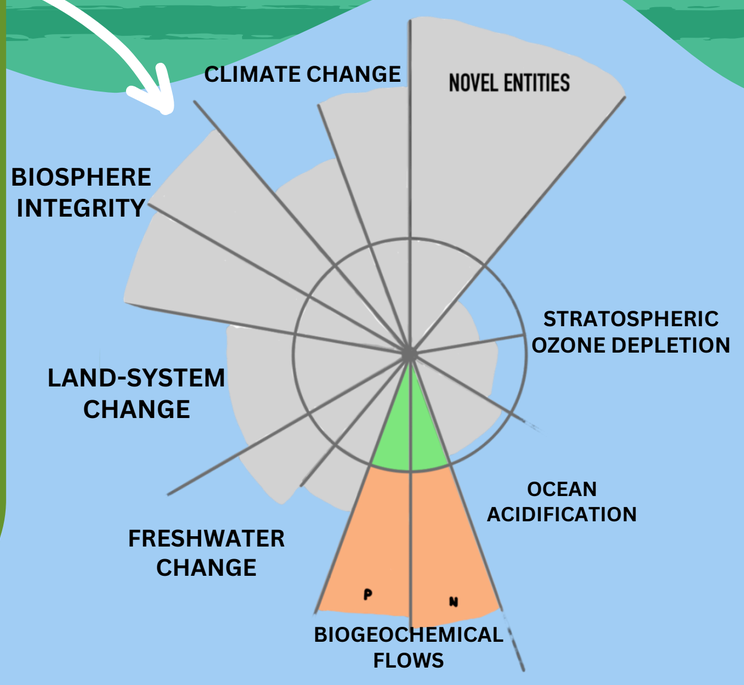
CAN FISHERIES AND MARICULTURE HELP TO REDUCE EUTROPHICATION IN THE BALTIC SEA?

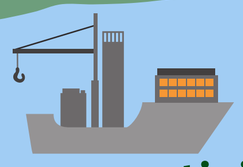
Marius, Eva, Eve, Rebekka, Mathias & Mathea

WHY IS IT IMPORTANT?

- Biochemical flows are one of the planetary boundaries that have exceeded their high-risk zone.
- The Baltic Sea is the ocean most affected by this out of all the world's oceans.
- While land-based solutions are the most effective way to reduce further pollution, ways to cleanse the already polluted waters are important.



WHAT IS EUTROPHICATION?



Human activity enriches the water with excess nutrients

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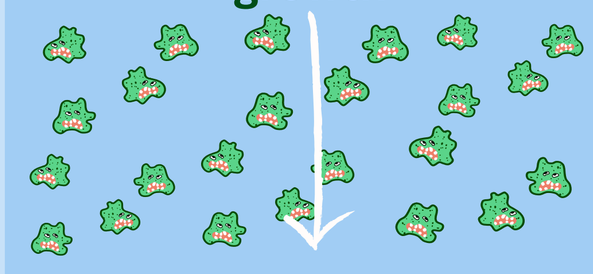
Leads to excessive blue-green algae growth

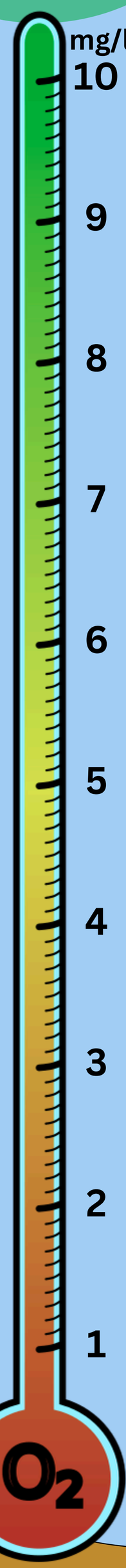


Extreme algal blooms: Blocks sunlight

Algae sink under photic zones increasing metabolic activity

Death zones!

Areas with not enough oxygen to sustain life



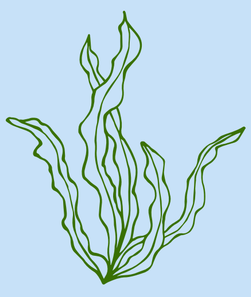
POSSIBLE MARINE SOLUTIONS

MANAGE FISHERIES

- Fishing removes nutrients from ecosystems
- Maximizing nutrient removal instead of private profit ⇒ benefit for society increases
- Different possible approaches, e.g.
  1. A Baltic ITQ (individual transferable quotas) system
  2. Fishing at MSY (maximum sustainable yield)

MUSSELS

- Long-line mussel farming efficiently removes excess nutrients, addressing eutrophication.
- High biomass and significant nitrogen/phosphorus removal achieved annually.
- Offers a cost-effective alternative to land-based measures for mitigating nutrient pollution.



SEAWEED

- Seaweed production has shown to be an effective way of removing excess nutrients form aquatic systems, and could play a central role in managing man-made nutrient pollution
- The expected technological advancements in seaweed cultivation: ⇒ double productivity ⇒ reduce cultivation area ⇒ more sustainable

RELATION TO THE SDGS

UNIVERSITETET I BERGEN

REFERENCES

- Nielsen et al., 2019
- Petersen et al., 2014
- Seghetta et al., 2016
- Rockström et al., 2009
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- Gilbert et al, 2005

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