SEABASED

SEABASED MEASURES IN
BALTIC SEA NUTRIENT MANAGEMENT

Nutrient compensation in the aquatic coastal environment

Annica Brink, Coordinator, The Government of Åland

What is compensation?

Dictionary:

“Something given or received as an equivalent for damage, loss or injury”

Compensation measures = Indemnification of negative impact on our environment caused by human activity

Why should we compensate?

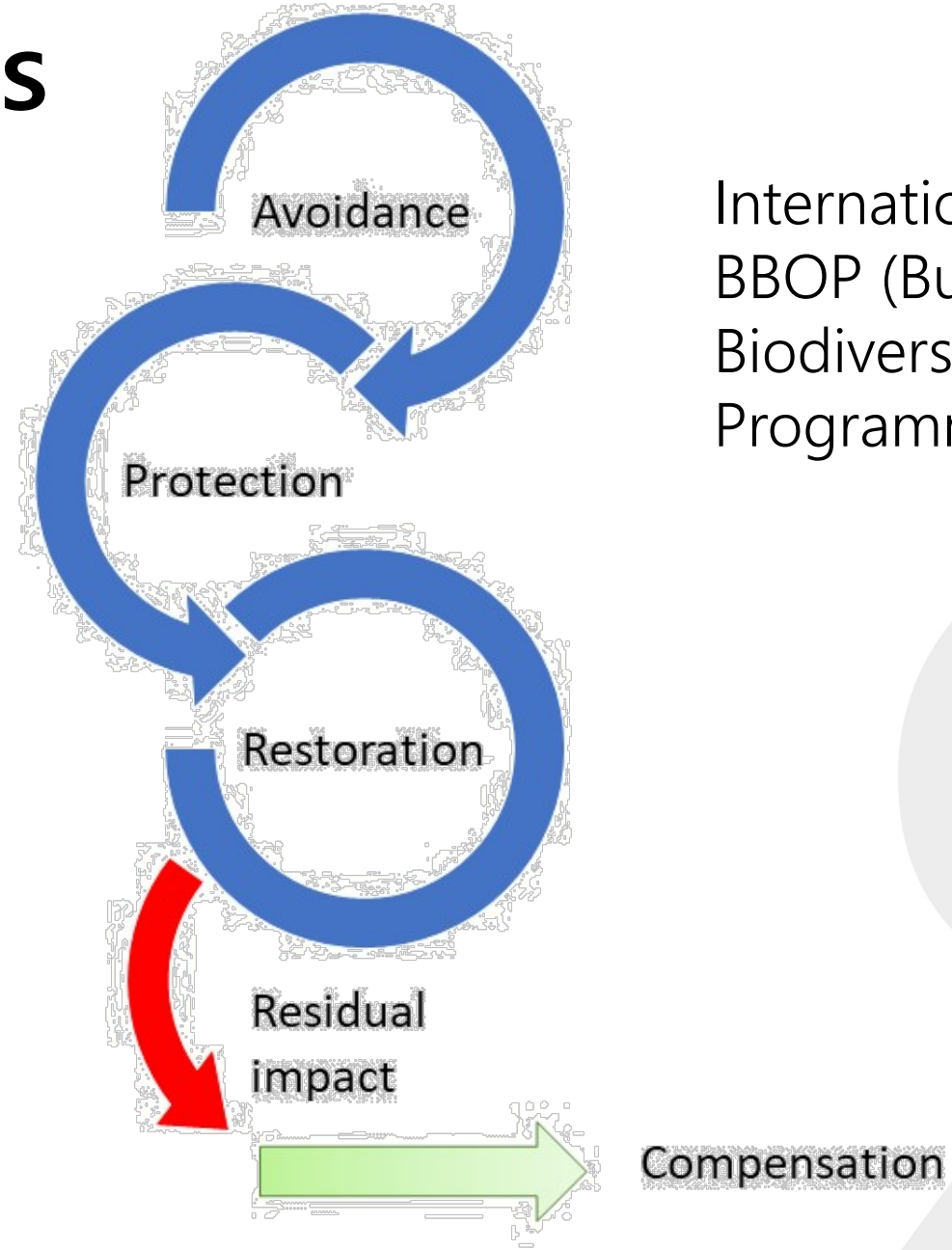
- Weser ruling, European Court of Justice, 2015: ”Member States may not authorize projects which may cause a deterioration of the status of a surface water body unless derogation is granted.
- Renewal/approval of permits?
- Compensation ⟶ win-win for entrepreneurs AND the environment!

Central concepts

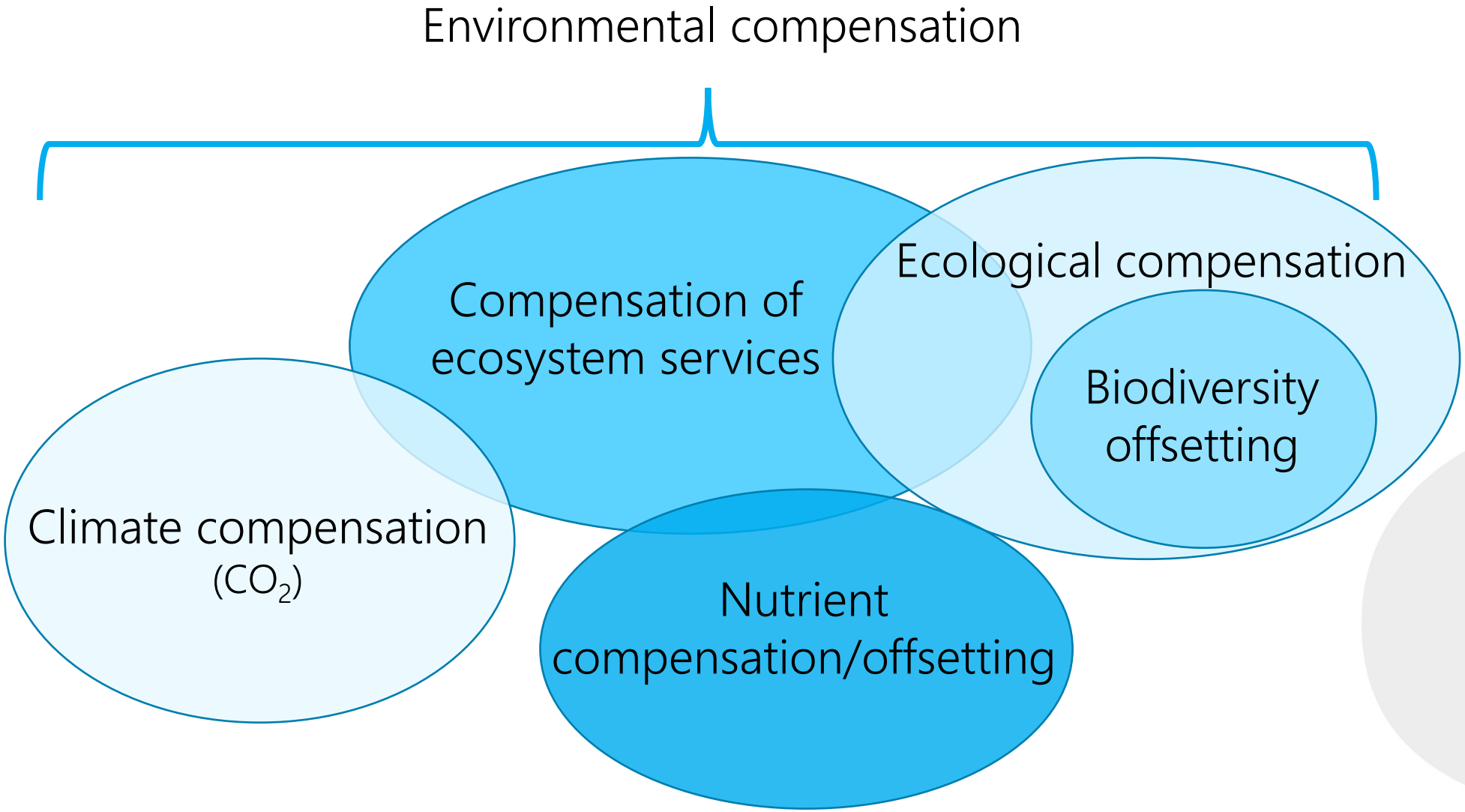
Mitigation hierarchy

Additionality

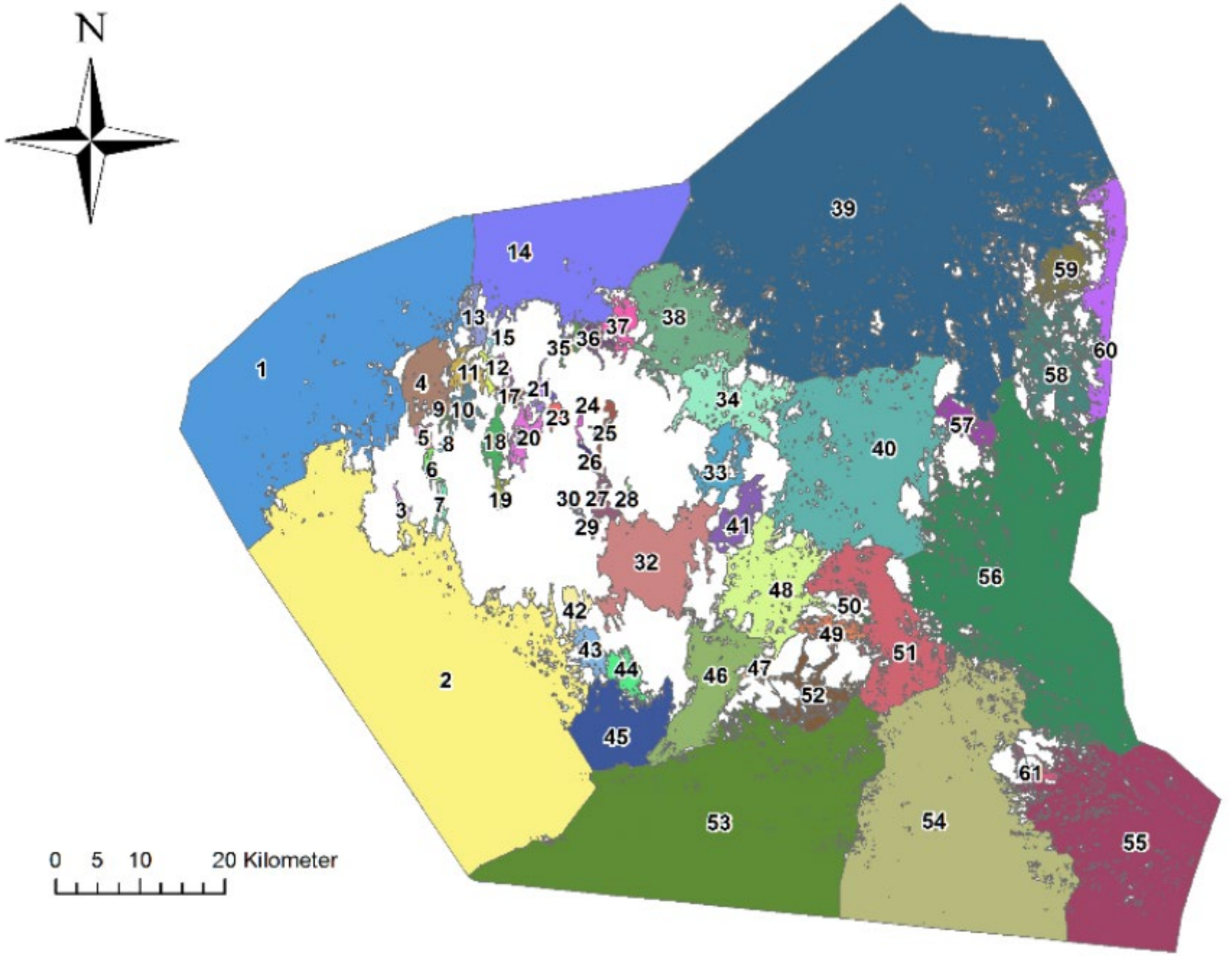
No net loss



International cooperation BBOP (Business and Biodiversity Offsets Programme)

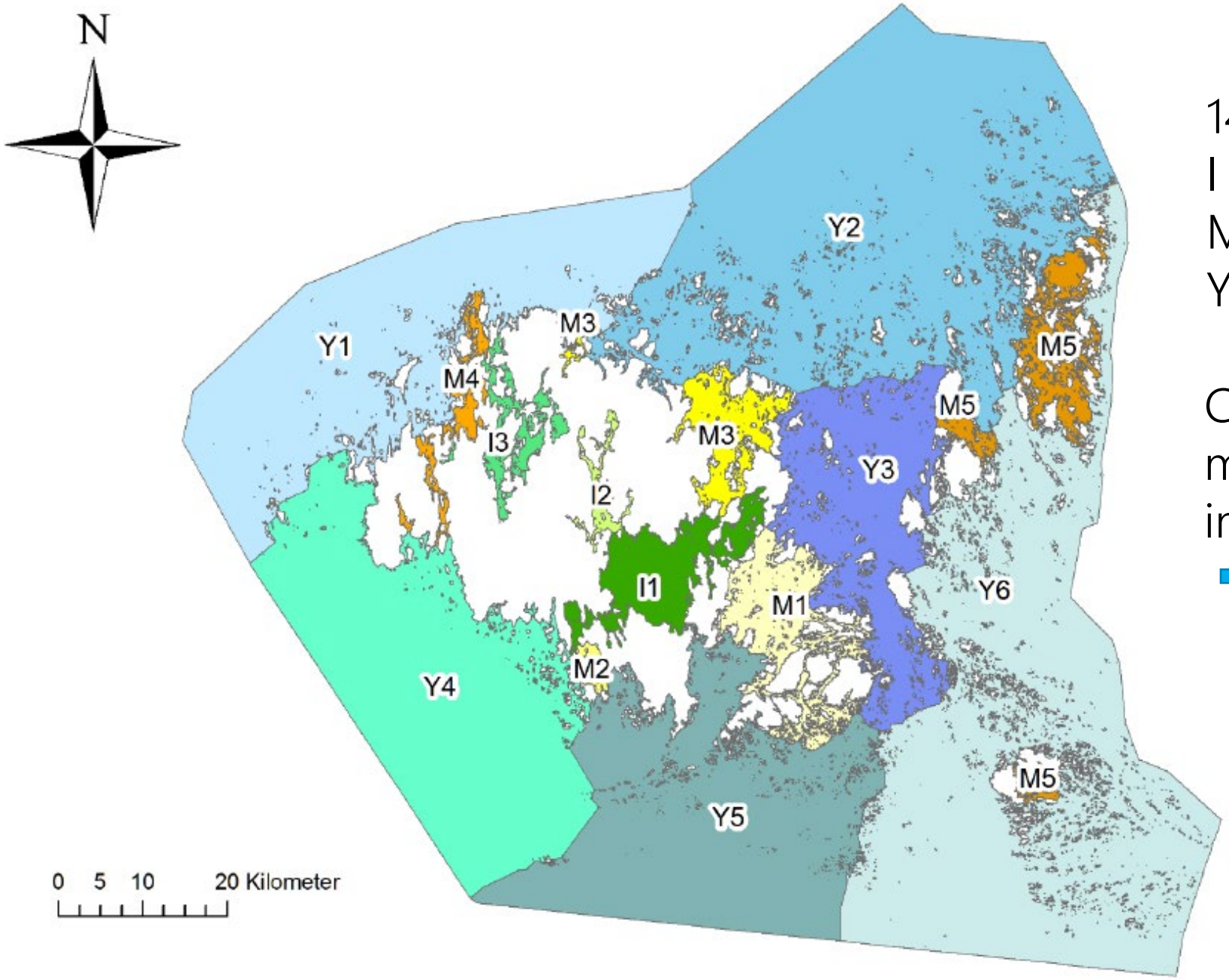


- Ecological compensation is possible, but how can it be incorporated into legislation?
- Need for supervision and demonstration of effects
- Nutrient compensation; models for nutrient reduction



Compensation should be done where the negative impact has occurred.

61 water bodies



14 monitoring areas
I = inner archipelago
M = middle archipelago
Y = outer archipelago

Compensation outside the monitoring area where the impact has occurred.

→ heavier burden of proof

Compensation concept

- Consultant team: SYKE and Swedish Ministry of the Environment
- Goal: Concept of aquatic compensation with focus on nutrients within an ecological context
- Legal, ecological and financial/administrative aspects
- Compensation measures

Compensation report

Legal aspects:

- What does EU law say about compensation?
  - Water Framework Directive (WFD)
  - Marine Strategy Framework Directive(MSFD)
  - Implement necessary measures to reach environmental objectives

- Comparison between countries. Several possibilities for compensation, no one has implemented a complete system.

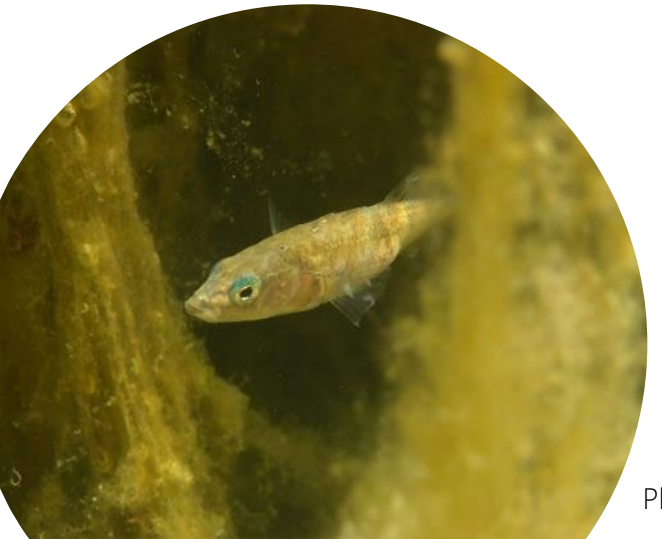
- Few examples from aquatic systems

Ecological aspects:

- Adequate measures on temporal and spatial scale
- Effect of different measures on the ecosystem
- Capacity for nutrient removal
- Potential risks

Financial/administrative aspects:

- Voluntary/mandatory compensation
- Public or private sector, or a combination
- For a market-based system (seller-buyer of compensation); need for demand. Increased demand if compensation is mandatory
- Public sector crucial to define laws, rules and frameworks



Compensation measures

- Removal of biomass:
  - Macroalgae
  - Mussels
  - Harvest of common reed
  - Fish
- Irrigation with nutrient-rich brackish water
- Removal of nutrient-rich sediments
- Permanent bindning of P i sediments
- Land-based measures within catchment area

Photo: Ulf Bergström

Next steps…

1. Start with EU law
2. Keep legislation simple
3. Clear definitions
4. Step-by-step approach
5. Tools for permit processes (price for nutrient emissions, verified methods, legal decrees)
6. Experiences from other countries
7. Social acceptance (public/private sector, stakeholders, general public)
8. Models for nutrient loading
9. Combination of land- and sea-based measures
10. New projects – bridge between theory and practice.

Photo: Mats Westerbom, Metsähallitus

Compensation report

- https://www.regeringen.ax/miljo-natur/vatten-skargard/pagaende-projekt
- https://seabasedmeasures.eu/aquatic-compensation/

EUROPEAN UNION
European Regional Development Fund

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Ålands landskapsregering

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BALTIC SEA NUTRIENT MANAGEMENT

Expert comment on aquatic compensations

Lena Bergström, Associate Professor, Swedish University of Agricultural Sciences

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Aquatic compensations

- some comments on concepts and complications

Lena Bergström
Swedish University of Agricultural Sciences

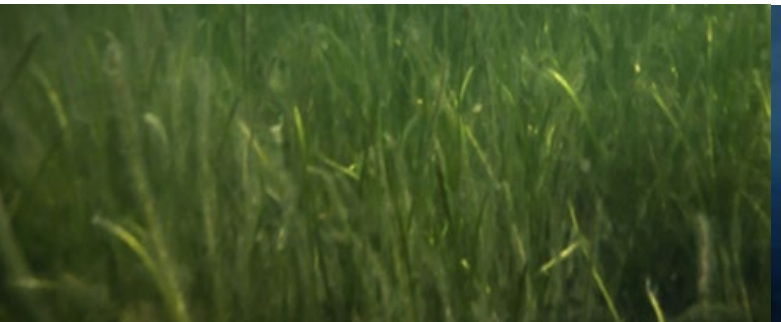
International SEABASED webinar 26.1.2021

MILJÖ | NATURVÅRDSVERKET FORSKNING

The ECOCOA project (2018-2021) aims to explore **environmental compensation** as a management tool to halt losses to biodiversity and ecosystem services in coastal areas.

Lead by SLU Aqua, together with researchers from Anthesis Enveco, KTH, EnviroEconomics Sweden,

University of Gothenburg, Stockholm University



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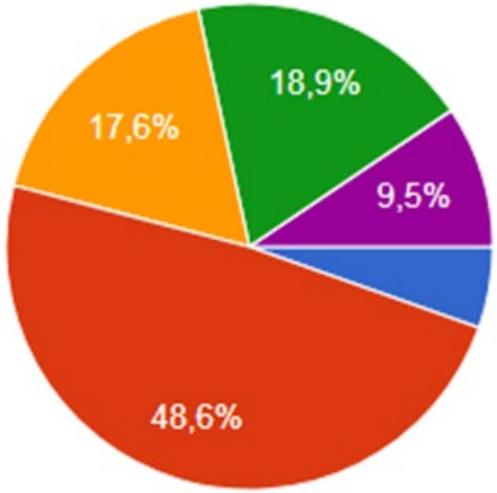
Environmental compensation is the focus a of a Swedish national research investment during 2018-2021

Seven projects

- MuniComp - on municipality perspectives. Ingemar Jönsson, Kristianstad University
- Effects on the environment and economy. Jonas Nordström, Lund University
- Systematizing ecological knowledge to optimize ecological compensation. Lina Widenfalk, SLU
- When can ecological compensation preserve biodiversity and ecosystem services? Erik Öckinger, SLU
- ECOCOA – on coastal areas. Lena Bergström, SLU
- ECOPAL- on compensation pools in the agricultural landscape. Katarina Elofsson, SLU
- Ethical aspects to compensation. Karin Edvardsson Björnberg, KTH Royal Insitute of Technology

Co-funded by the Swedish Environmental Protection Agency and the Swedish Agency for Water and Marine Management

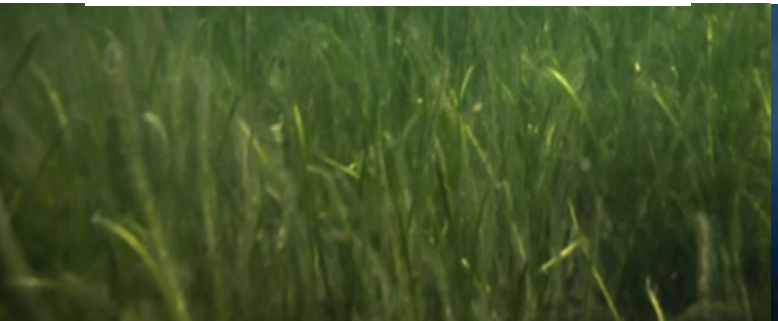
A growing interest in compensation as a management tool - but many questions to address



- I have only a vague understanding what it is
- I know what it is but have not worked with it
- Have attempted/ planning to use
- This is part of my regular work
- Not applicable to my situation

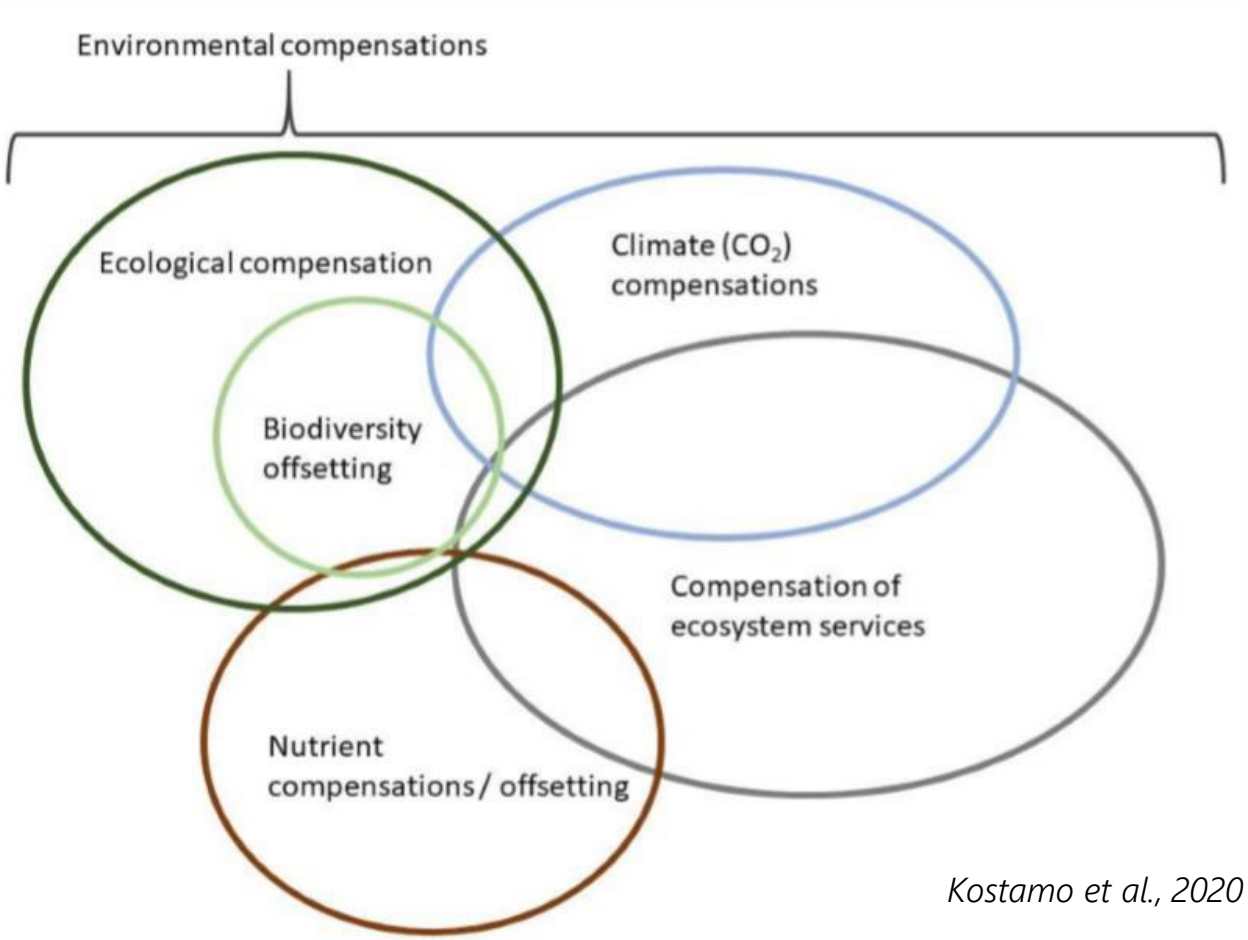
Based on 75 respondents representing experts on coastal management at Swedish regional and national agencies (76 %), universities (9 %), NGOs (8 %) and consultancies (7 %) in 2018

Bergström et al. 2021 (in manus)



Many types of compensation concepts exist

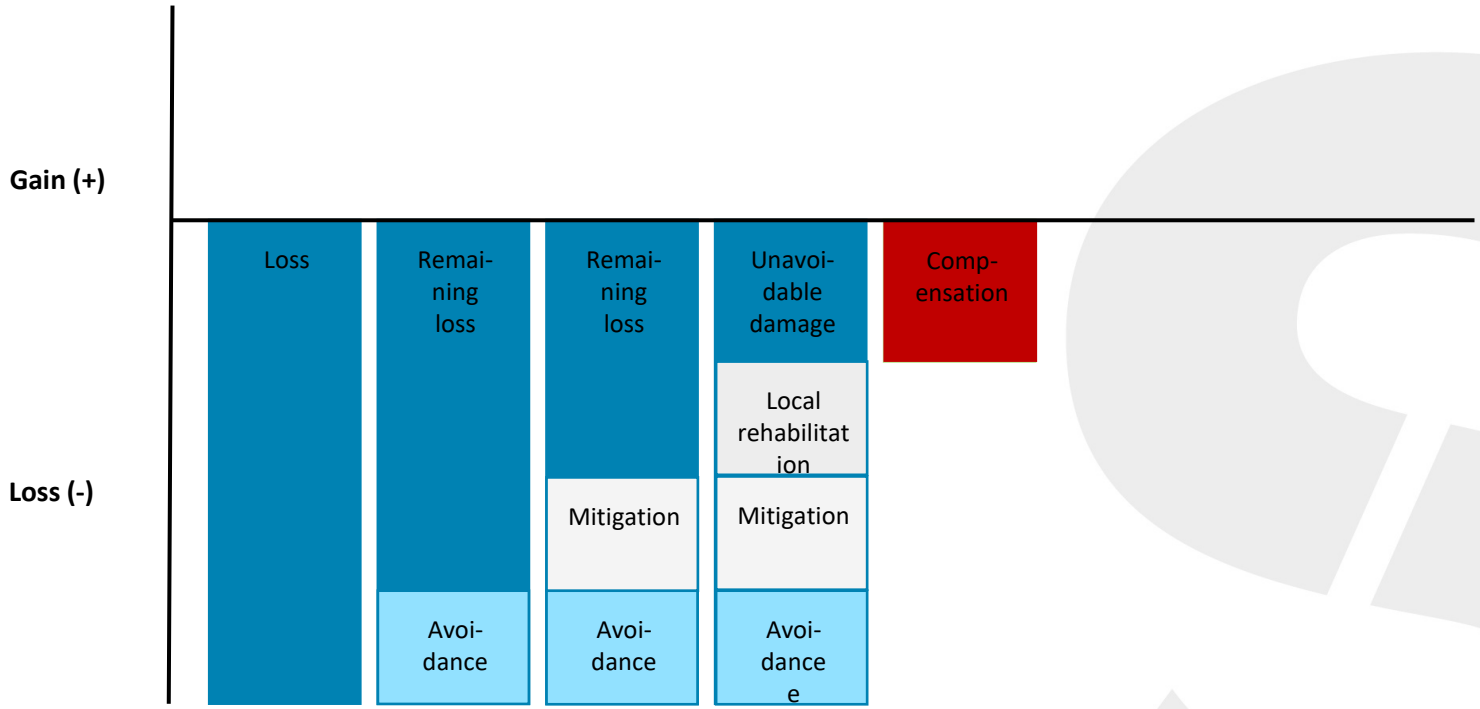
- Do we need different tools in all these cases
- Do the different types of compensation complement each other - or just add complexity?



Kostamo et al., 2020

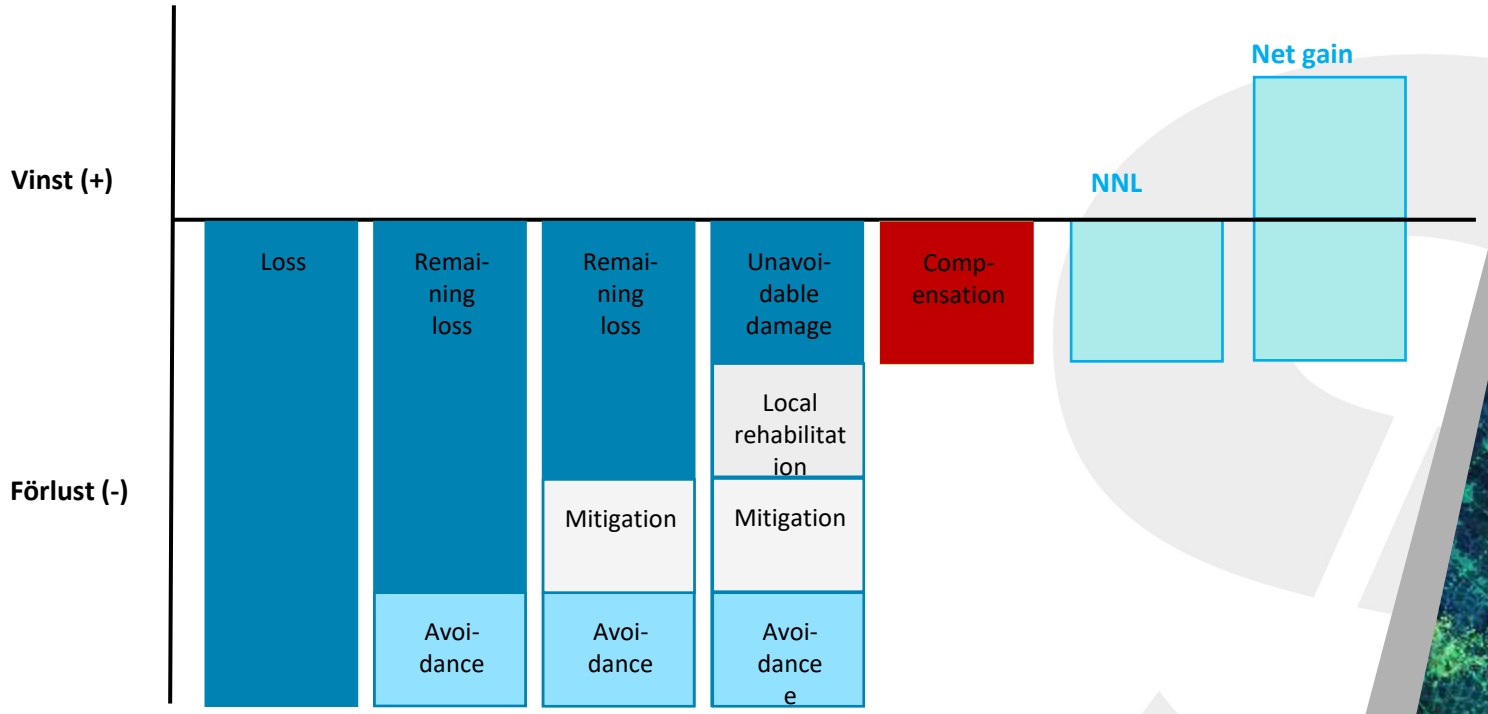
The importance of the mitigation hierachy

- How to ensure that the mitigation hierarchy is followed?
- Application of the mitigation hierarchy varies between different situtations
- How to define ”unavoidable damage”



Ensuring Not Net Loss, or (preferably) net gain

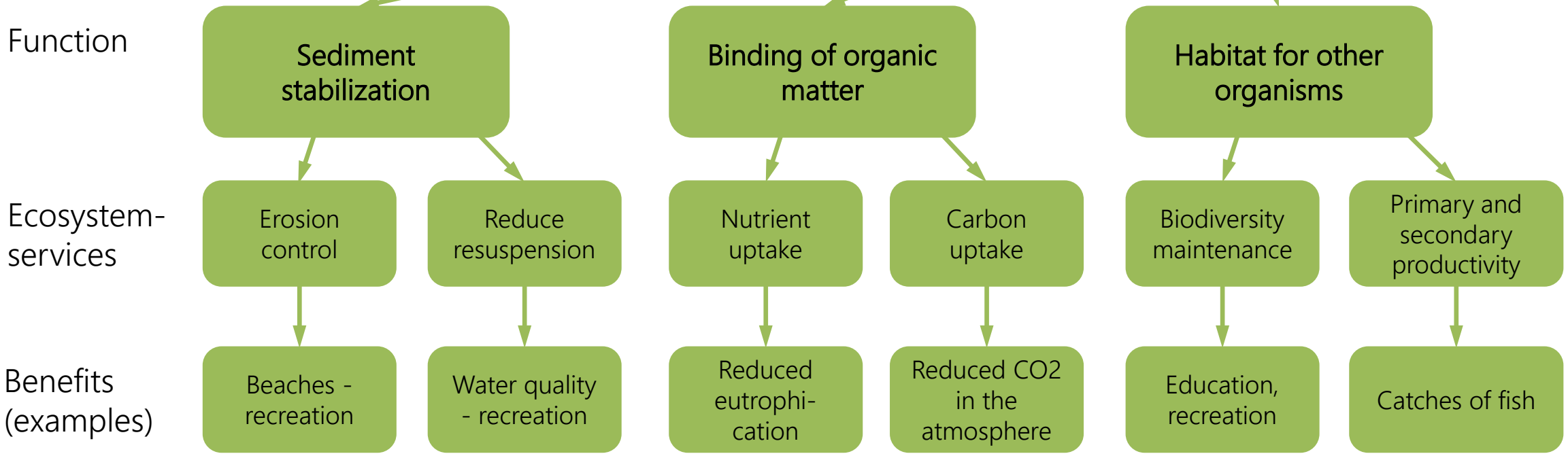
- What aspects are damaged, over what scale and what time perspective?
- What measures are available to apply?
- Follow-up is important



Polluter pays principle

How to distinguish between compensation on the one side, and restoration measures which would have been needed anyway on the other side?

It is particularly interesting to identify measures that could meet multple objectives



Bergström et al. 2021

Thank you

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