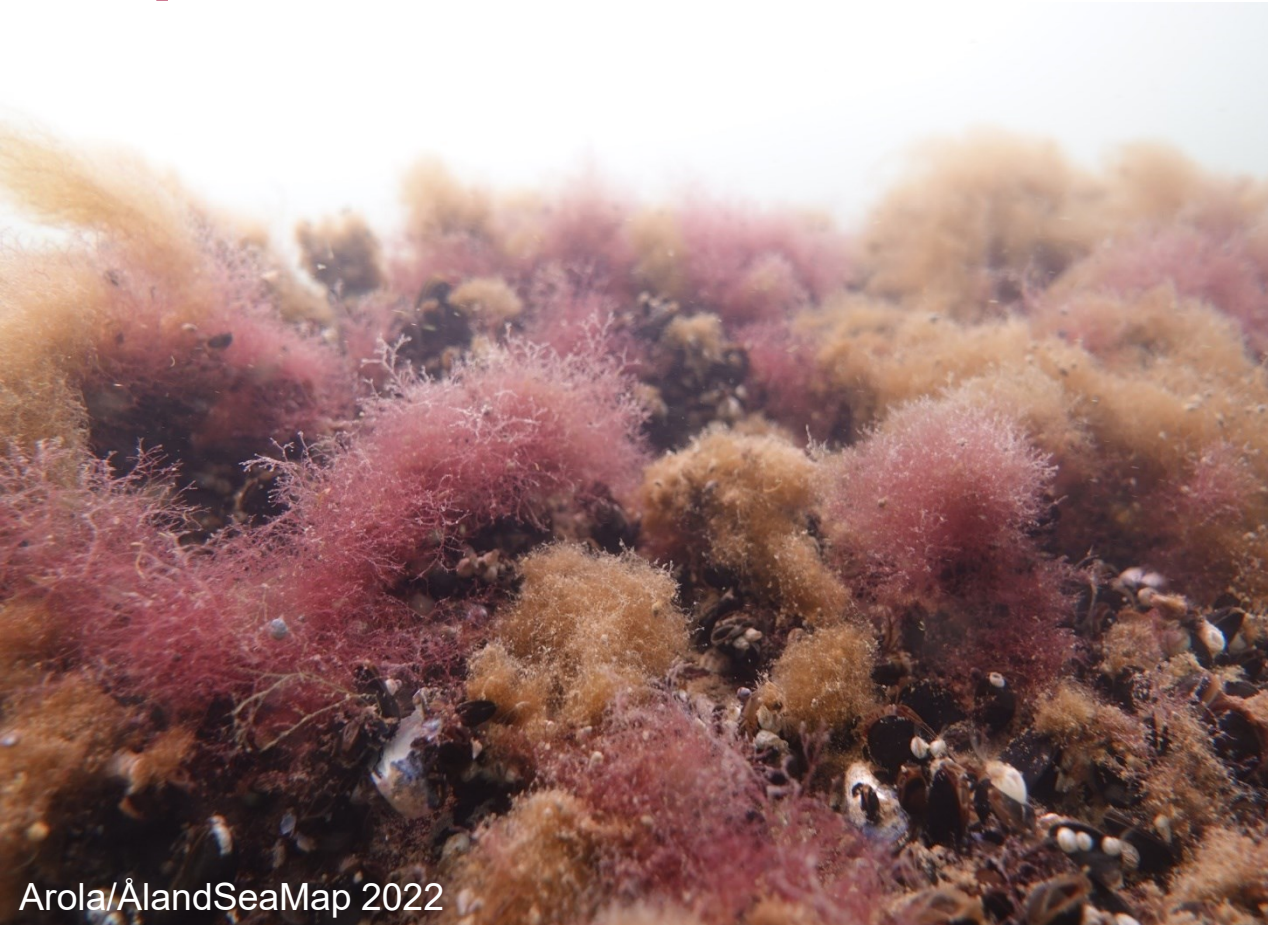


# Science-based marine conservation planning and implementation in the Åland Islands



**Sonja Salovius-Laurén**

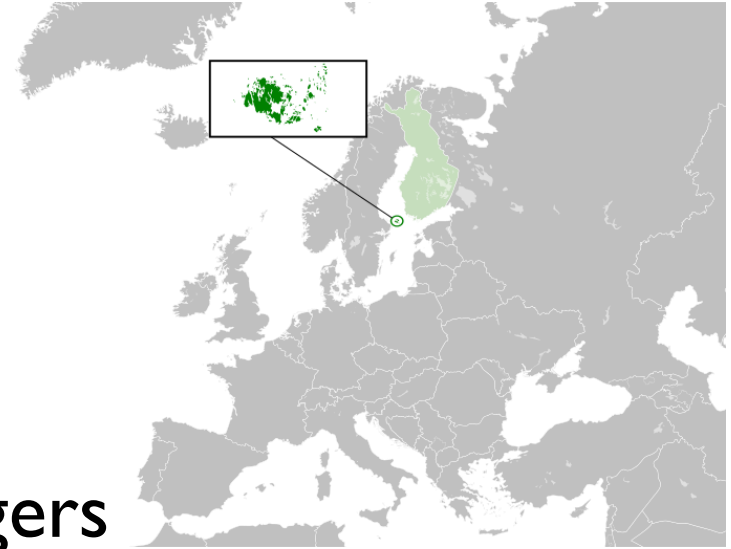
University researcher

&

Karl Weckström

Researcher

14.3.2023 Helsinki



Autonomous region with own  
government and management

Very small dept of marine managers

⇒ ÅAU/biological field station at Åland & co-operation

Marine conservation planning with the **Marxan** tool

- What has been done
- Ways forward



# Åland and it's MPA network

- Ca 6 700 number of islands, 1 527 km<sup>2</sup>
- Sea area 7 600 km<sup>2</sup> (11 900 km<sup>2</sup>)
- MPAs:
  - ca 6 % of coastal territorial waters
  - ~3% of coastal and marine waters

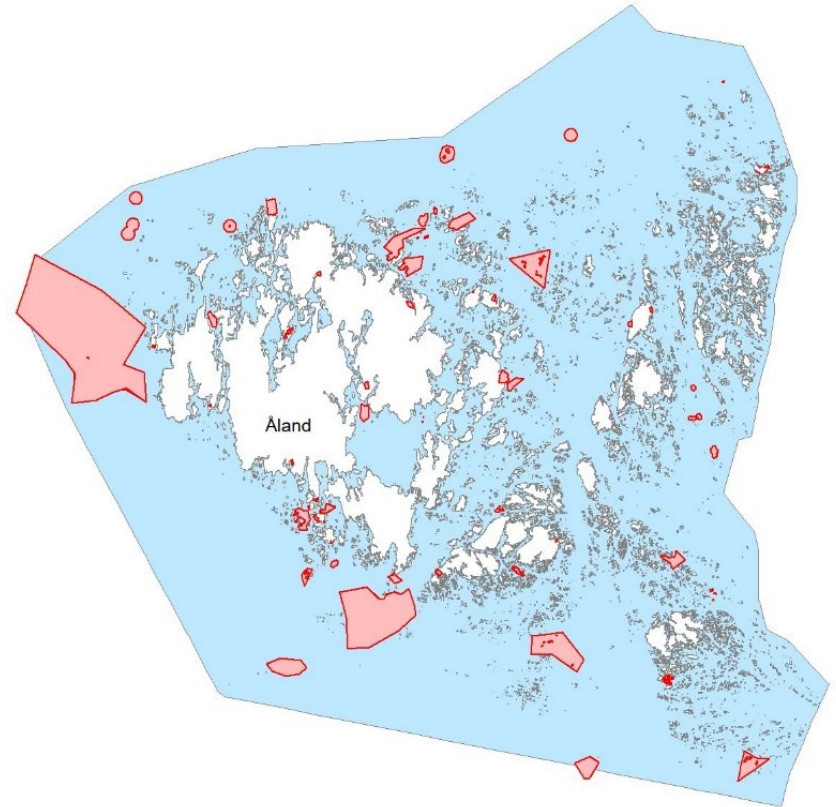
=> Need to develop MPA network

BD strategy, UN:

total 30 % protected,

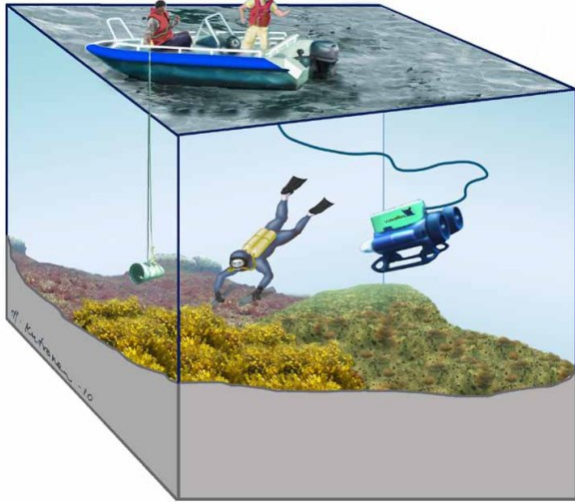
10 % strictly protected

Government of Åland (GÅ) committed to the work and to expanding the MPA network

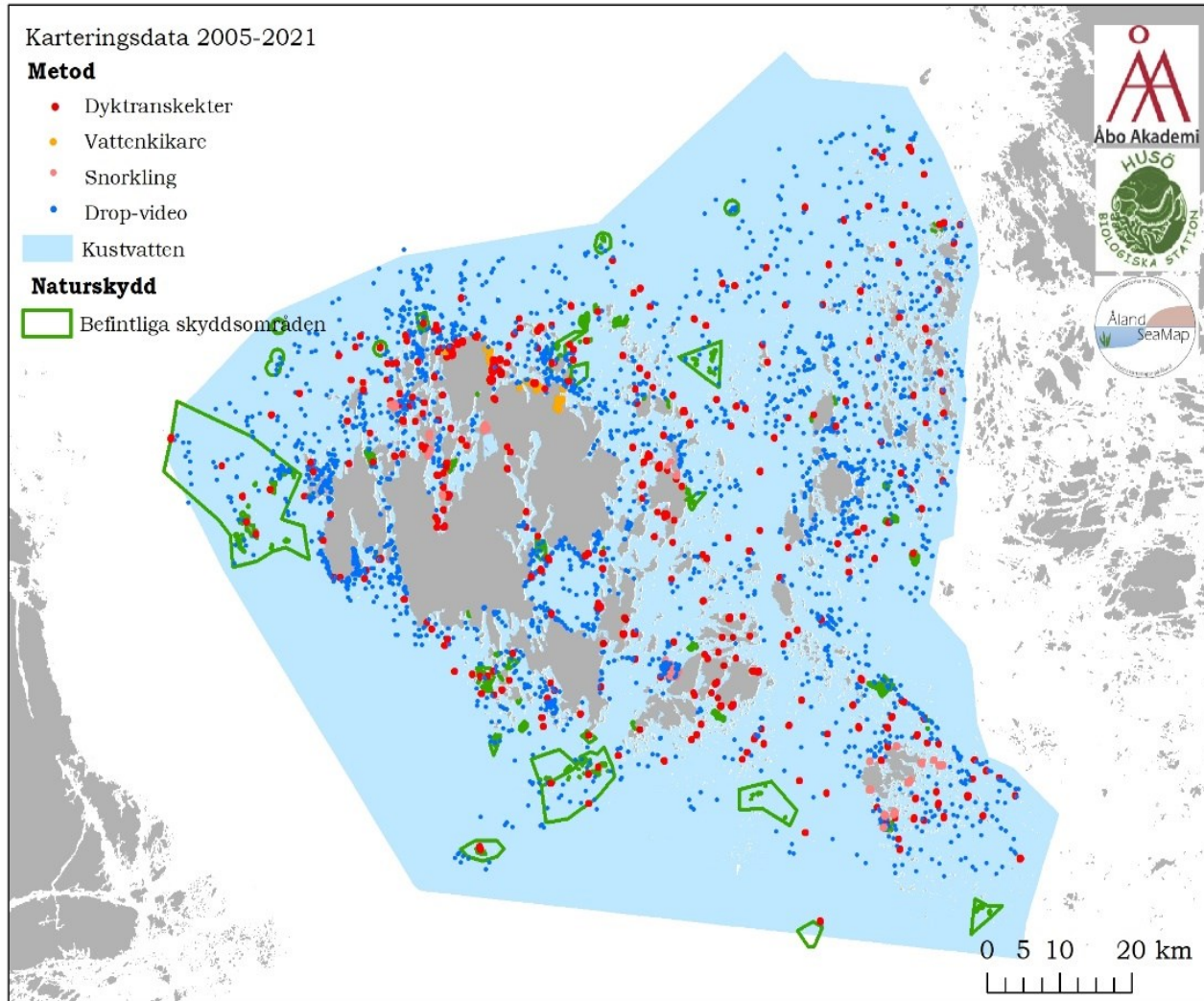




# Intensive field work



# Inventories 2017-2022

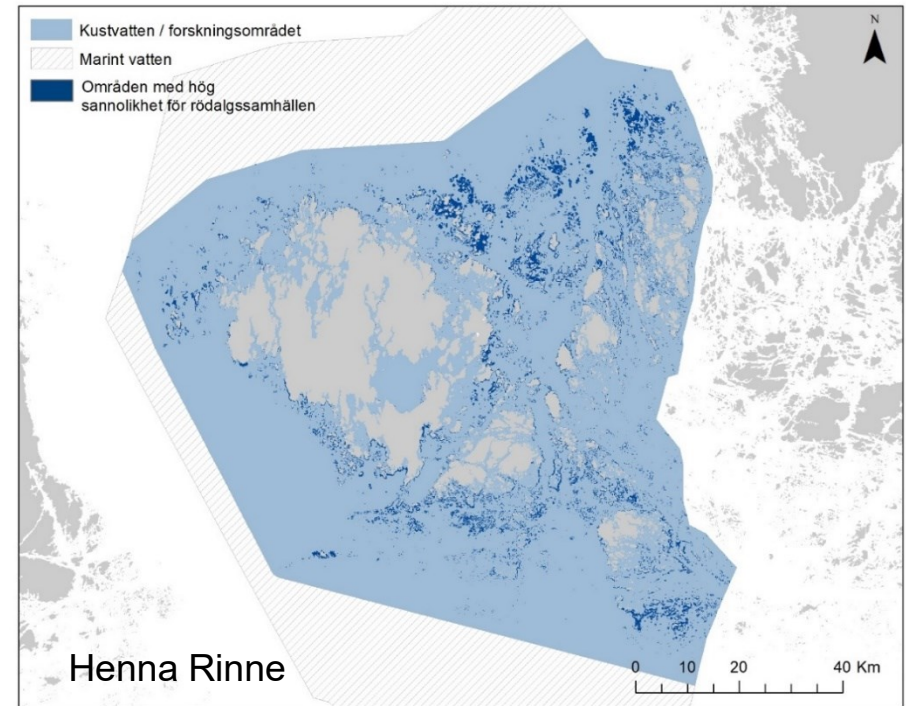
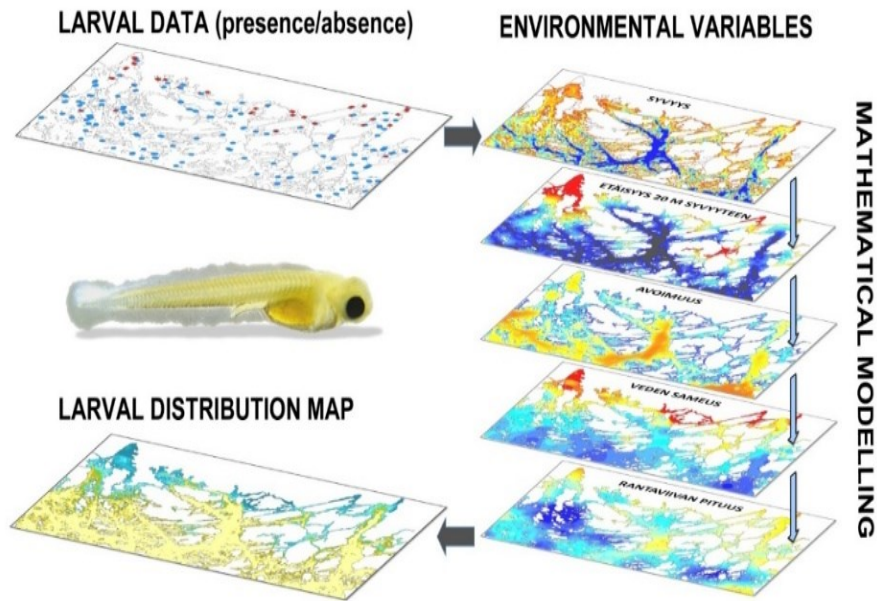


Dive transects: >200  
Video points: > 2500



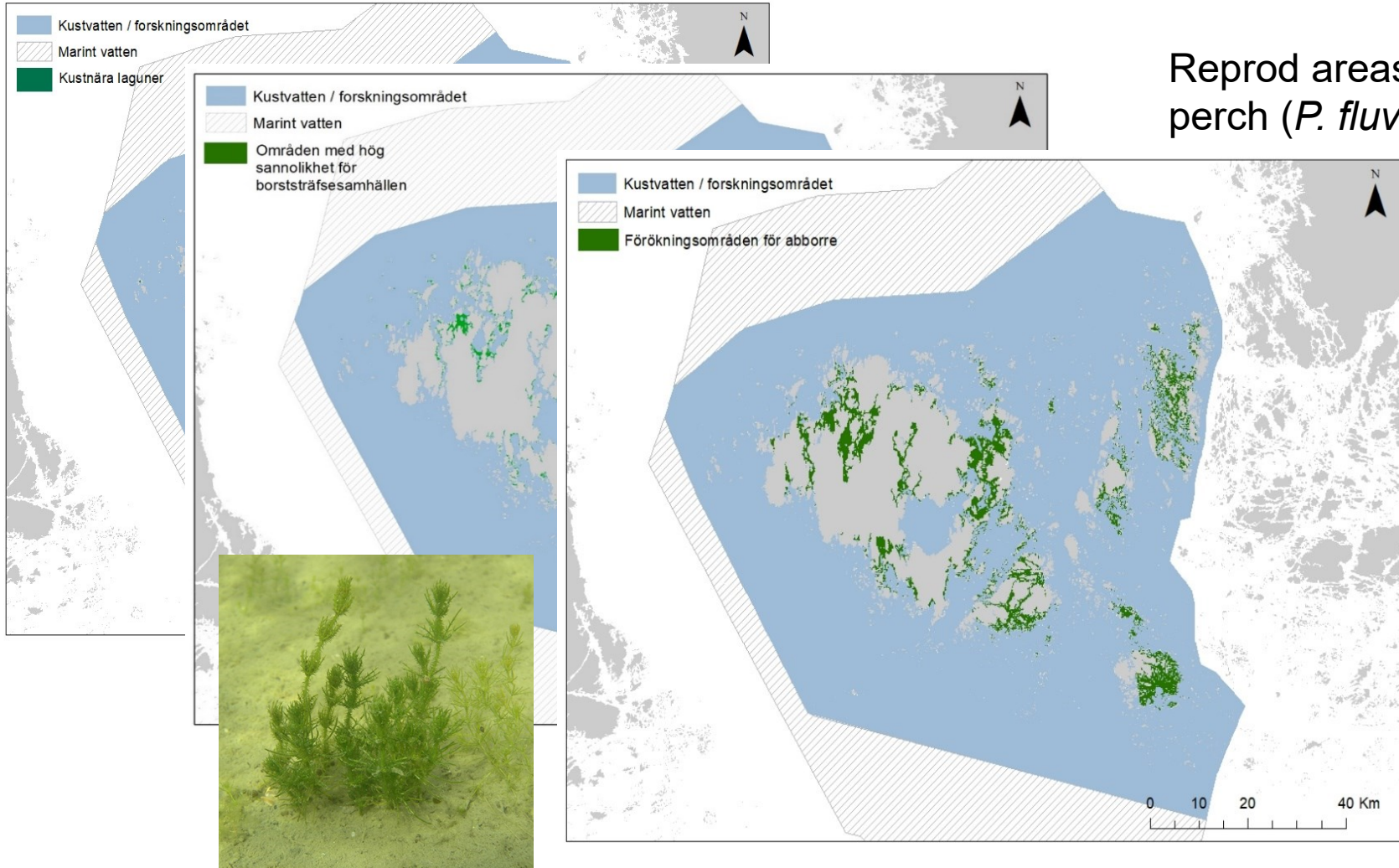
=> Extensive data set

=> Species distribution modeling



High occurrence of red algae

# Examples of nature values (37)



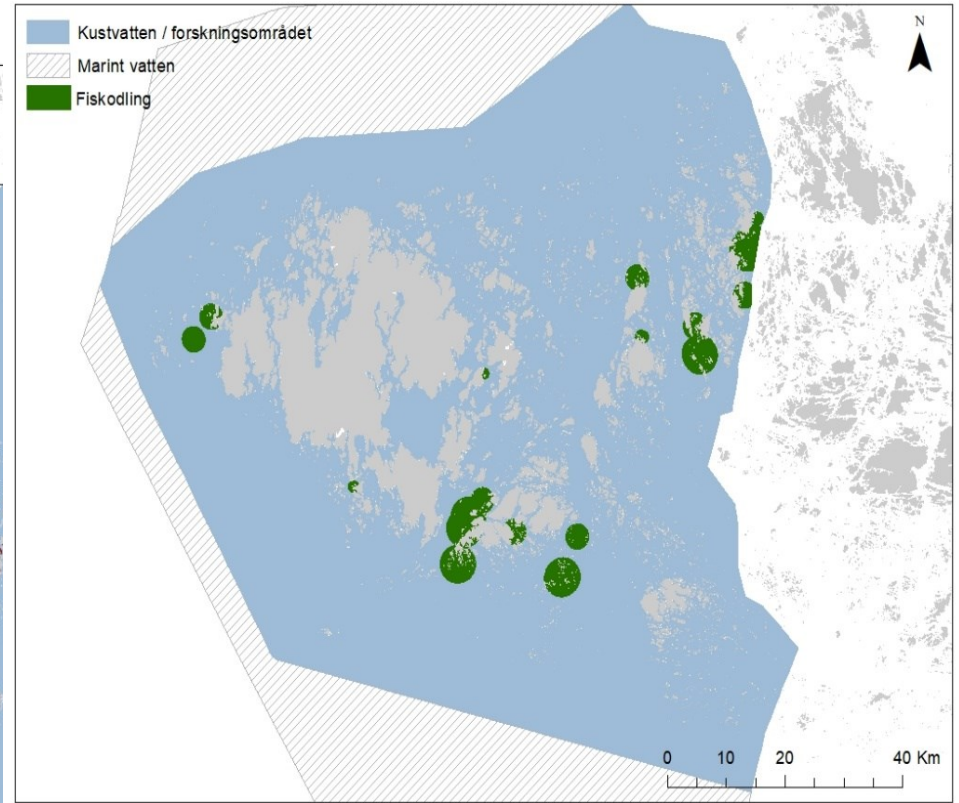
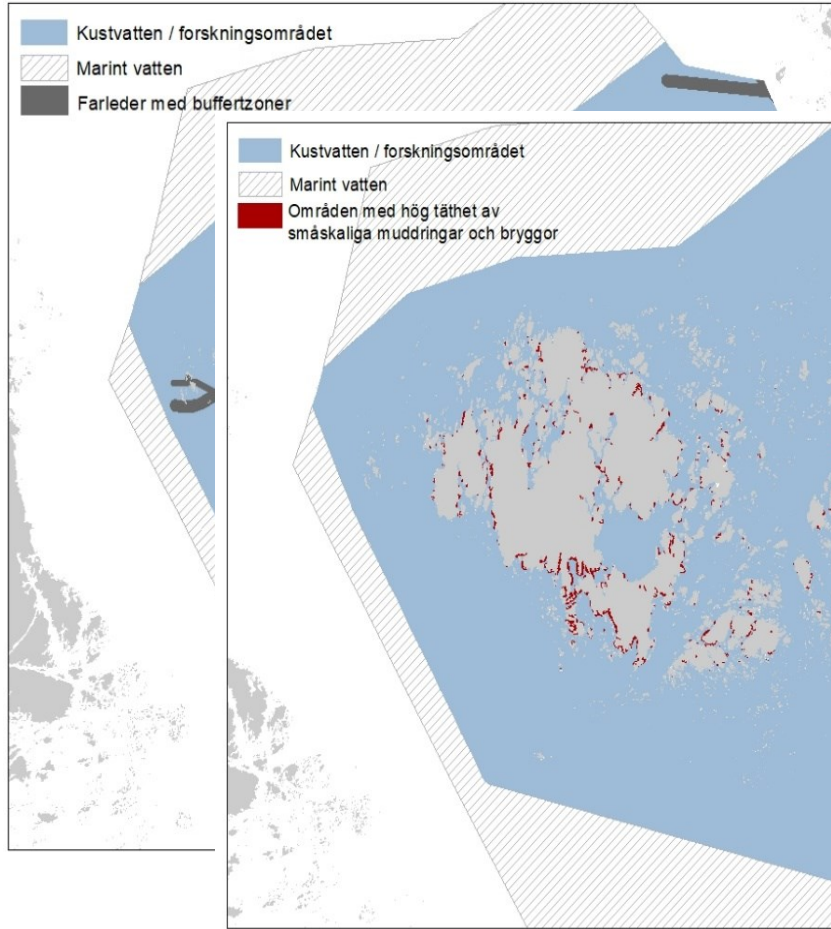
Reprod areas for perch (*P. fluviatilis*)

# Setting the protection goals (what to protect and how much)

Nature value (total 37)	Protection goal	Motivation	Data availability	Data format
<b>HD Natura habitat type (7)</b>				
Coastal lagoons	30 %	Spec protect, EN	Metsähallitus	Polygon
Reefs	20 %	VU	Metsähallitus	Polygon
<b>Helcom biotops (17)</b>				
Bladder wrack bottoms	20 %	EN	Åbo Akademi	Raster, 20 x 20 m
Exposed Charophyte communit.	20 %	NT	Åbo Akademi	Raster, 20 x 20 m
<b>Rare &amp; threatened species (8)</b>				
<i>R. confervoides</i> (red alga)	30 %	NT	Åbo Akademi	Point data
Important bird areas	30 %	Red listed species	Birdlife	Polygon
<b>Economically import species (5)</b>				
Pikeperch	20 %	viable	LUKE	Raster
Baltic herring	20 %	viable	LUKE	Raster

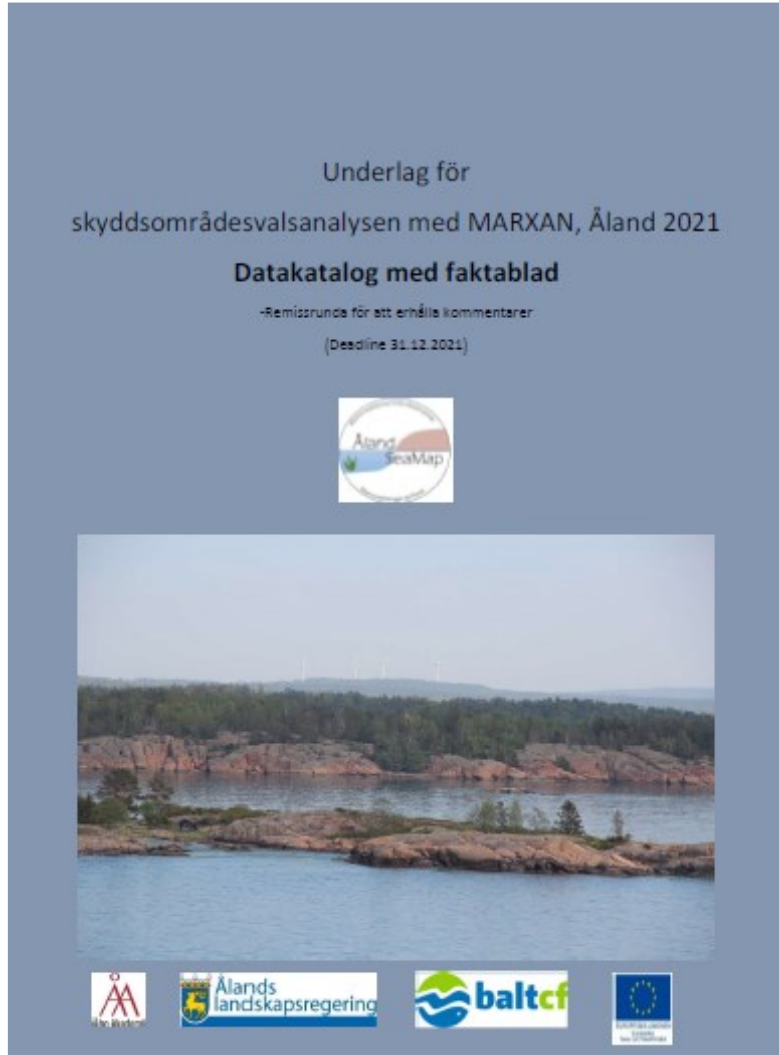


# Examples of human pressures (14):



Fish farms with  
buffer zones

Areas with cottages and small scale dredging



**Data catalog** published in Dec 2021:  
-results from mapping & other nature values  
-protection goals  
-human pressures

<https://www.regeringen.ax/sites/www.regeringen.ax/files/attachments/page/marxan-datakatalog-2021.pdf>

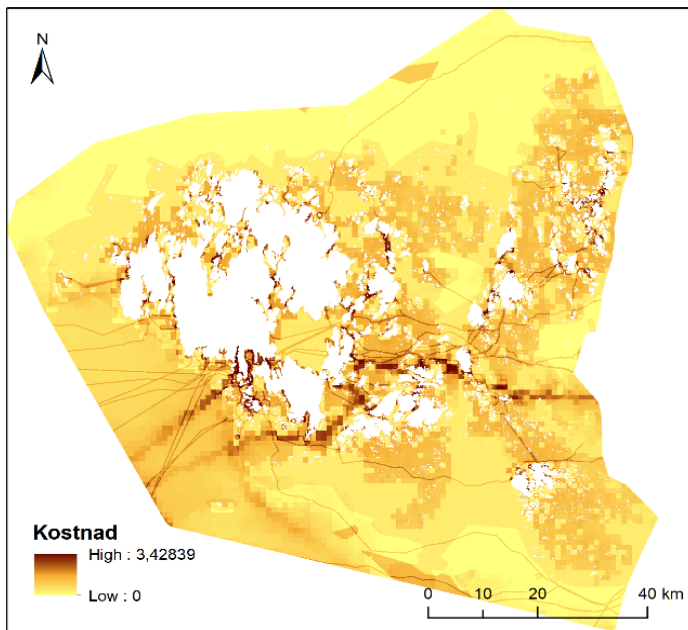
# Feedback and updates of input data

- Too low protection goals (Swedish Agency for Marine and Water Management)
- "People protect and take care of their own seas as always done"
- Fear of potential future restrictions, protect from what and whom?
- No reliable data on fishing and hunting areas, "we do not harm nature values" => excluded as costs
- Data on sea spawning white fish reproduction areas reported => included as new nature value
- Protection ok both on private and common waters





# Human pressures merged in a cost layer



Map: Karl Weckström

Activity	Suggested costs	Explanation
Ship traffic, intensity	0-1	Standardised value of ships/year AIS
UW noise	0-0.88	BIAS
Commercial fishing	0,8	GÅ waters + Helcom
Potential aquaculture	0,2	Maritime spatial plan
Urban areas	0,8	Distance to urban areas (ports, industry cities etc)
Areas with human activities/impact	0-1	Jetties, dredged areas
Cables and pipes	0,5	Buffer 100 m
Sea based energy production areas	0,5	Maritime Spatial Plan
Lesure boat traffic	0-0.83	SHEBA (fuel consumption, AIS, harbours, depth)
Areas for fishing and hunting	0.5/0	After revision; all areas in practice
Private/common waters	0.2	Ownership of waters

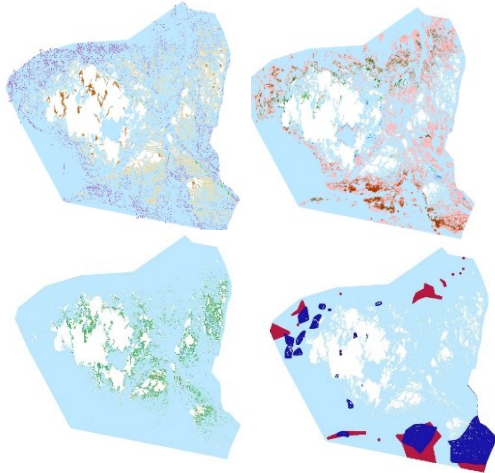
# Site selection analysis

- Nature values and human pressures
- Setting up protection goals

## Nature values

Natura habitats  
(GTK, ÅA, MH)

Key species  
(ÅA)

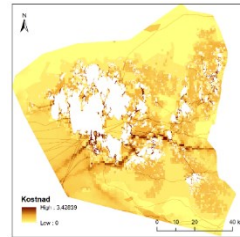
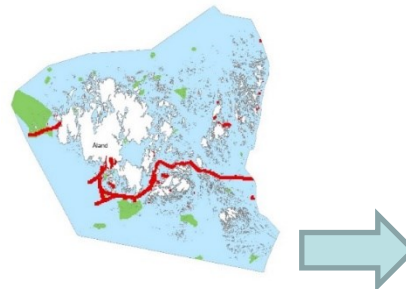


Spawning  
areas of fish  
(GÅ, LUKE,  
SLU)

Important bird  
and seal areas  
(BirdLife, LUKE)

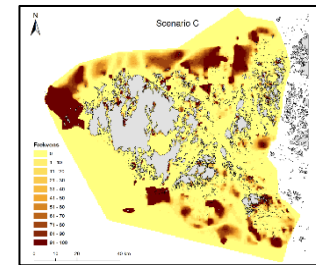
## "Criteria"

Areas can be looked out  
(red) or looked in (green)

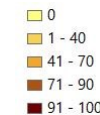


**Cost layer**  
(human pressures)

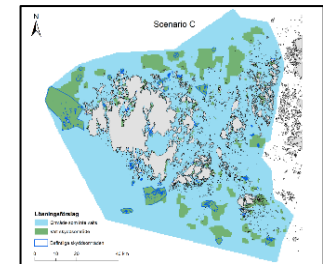
## Important areas



Important areas with  
high selection  
frequency



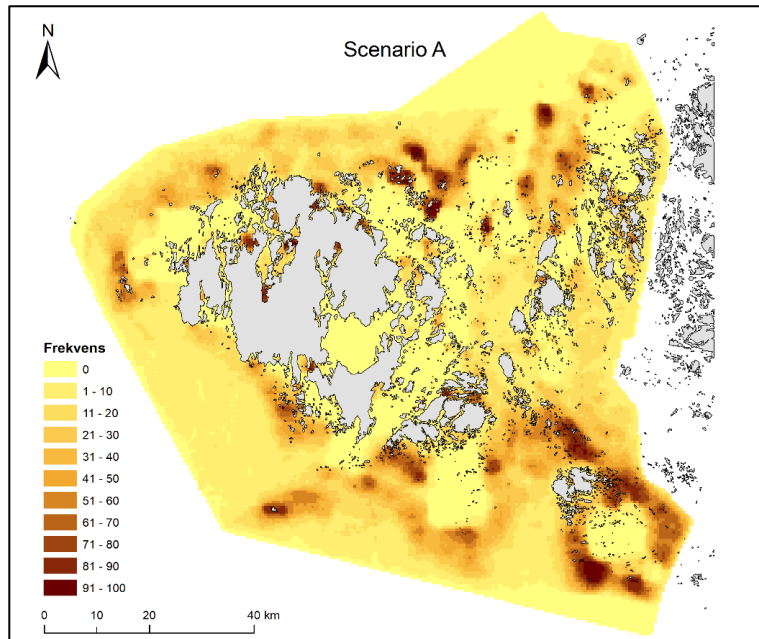
## Scenarios to develop MPAs



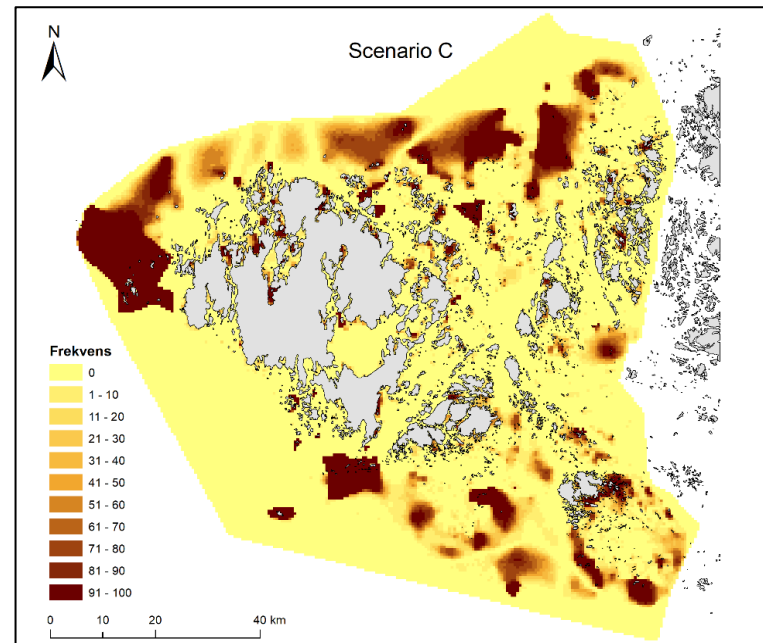
Different options  
fulfilling protection  
goals

# Results: Maps on selection frequency

Sea area divided into planning units of 500 x 500 m  
Nature values and pressures calculated for each unit  
Analysis run 100 times



Highest nature values!

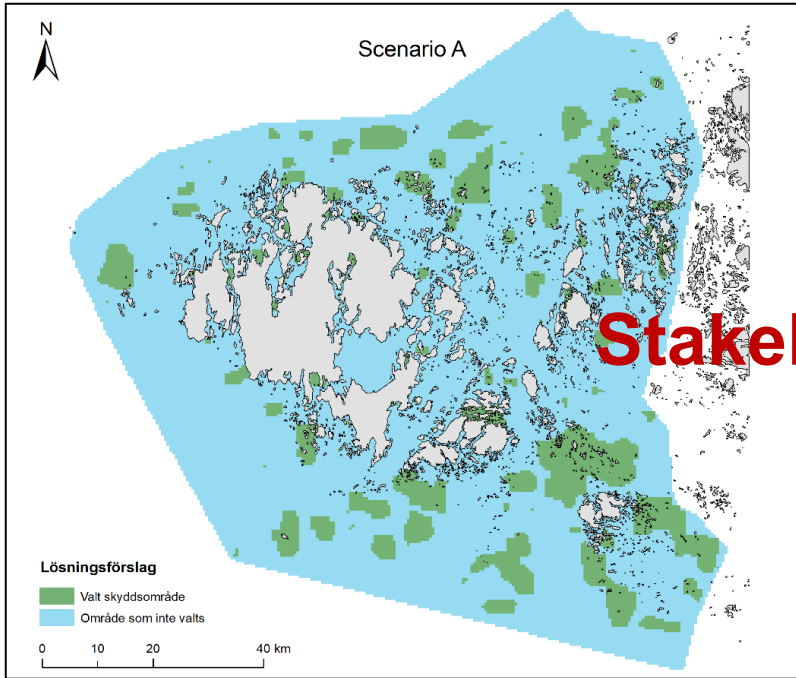


Nature values + existing MPAs + human pressures & water ownership

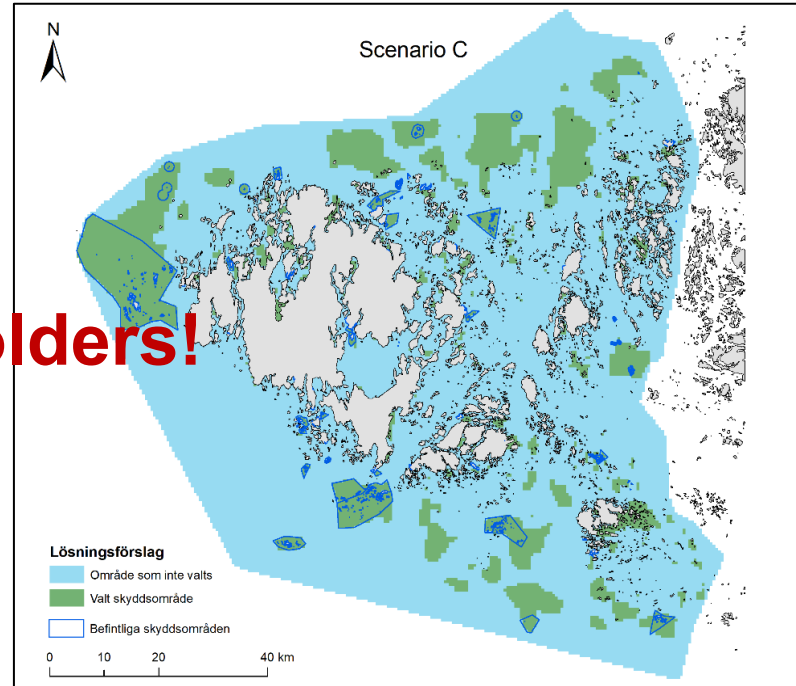


# Results

## Suggested areas to add to MPA network



Karl Weckström



**Stakeholders!**

Highests nature values!

- => Enough protection of nature values
- => Reaching protection goals
- => Cost effective

Nature values + existing MPAs +  
human pressures & water ownership



# Ålands värdefulla undervattensmiljöer på kartan – diskussionsunderlag för skyddsområdesplanering

Sonja Salovius-Laurén & Karl Weckström

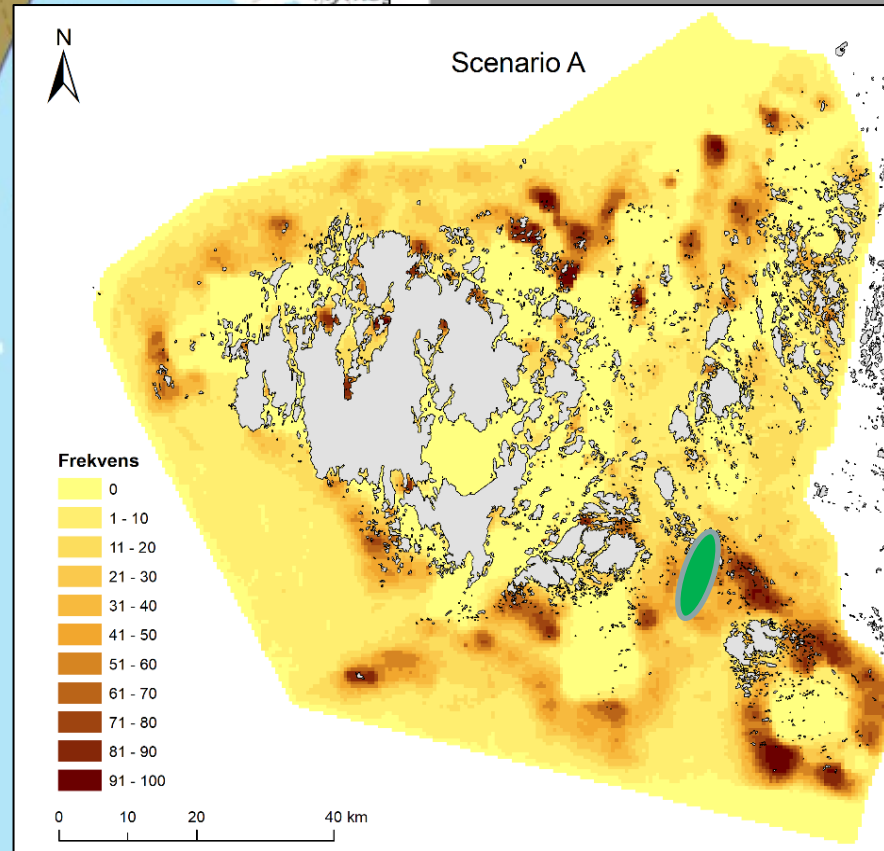
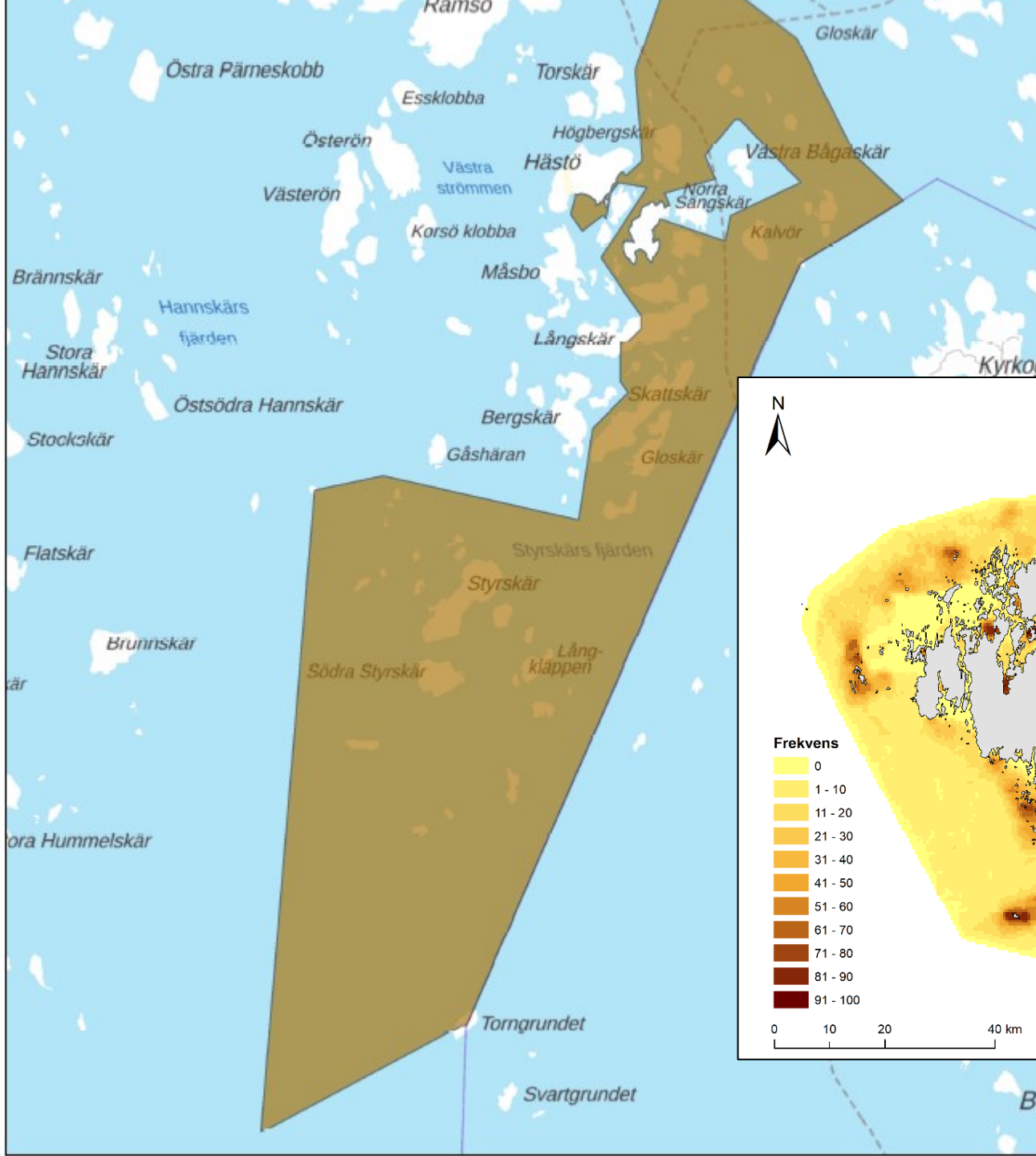
Maj 2022



## Published site selection analysis May 2022

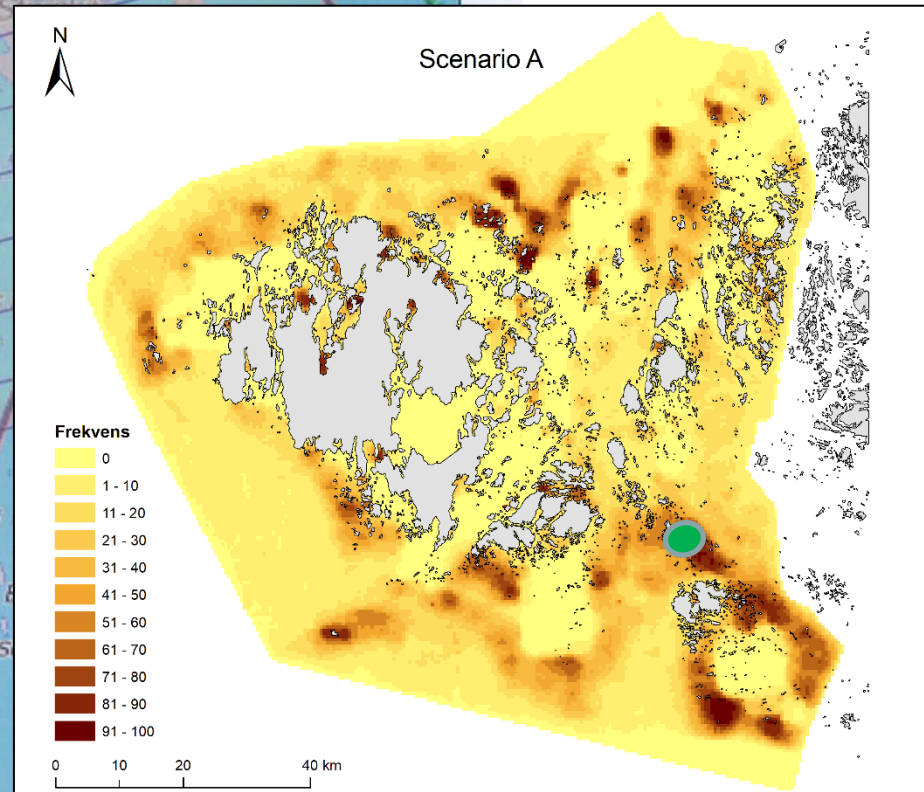
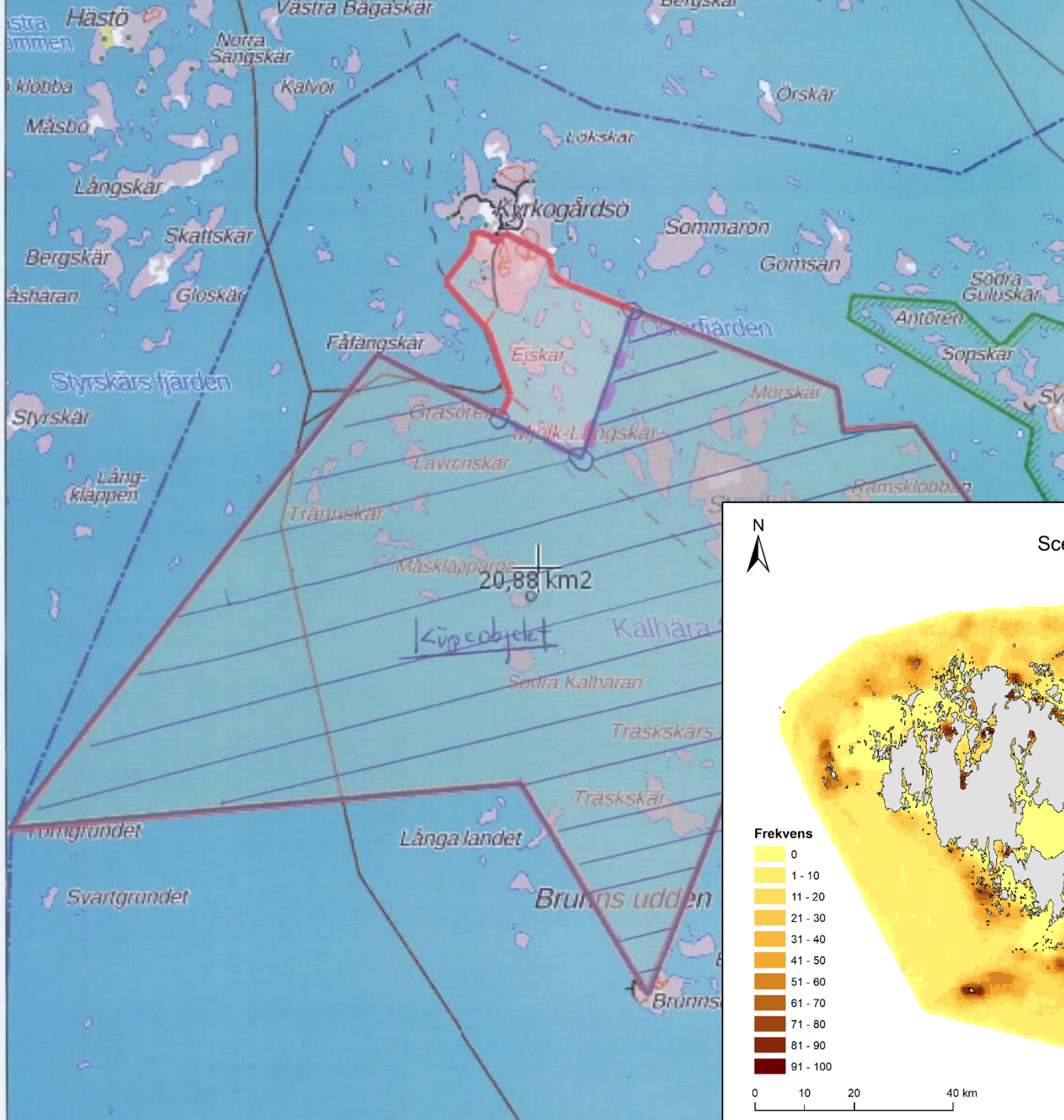
[https://www.regeringen.ax/sites/www.regeringen.ax/files/attachments/page/marxan\\_analysens\\_resultat\\_2022.pdf](https://www.regeringen.ax/sites/www.regeringen.ax/files/attachments/page/marxan_analysens_resultat_2022.pdf)

1400 ha  
May 2022





2088 ha  
Sept 2022





Hem



Nyheter



Landskapsregeringen vill köpa vattenområden

# Landskapsregeringen vill köpa vattenområden

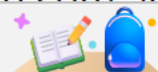
För att förhindra förlusten av biologisk mångfald deltar landskapsregeringen under de kommande åren i ett antal projekt och internationella åtaganden, vilket möjliggör att det marina naturskyddet nu kan utökas genom inköp av vattenområden. Under 2023 har landskapsregeringen 50 000 euro inom ÅlandSeaMap-projektet som är öronmärkta till inköp av vattenområden för marina naturreservat.

Miljöbyrån begär därför in bud från allmänheten på

område/områden som ägaren är villig att sälja för 50 000 euro



Type here to search







Sonja SS-L ÅA



Karl Weckström, ÅA



Field teams, ÅA



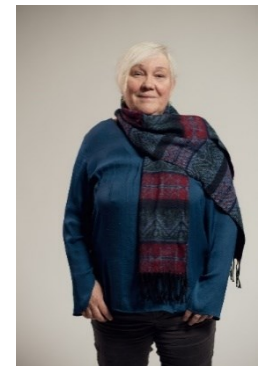
Martin  
Snickars ÅA



Tony Cederberg  
ÅA



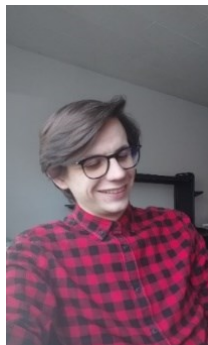
Maija Häggblom /  
Ted Waleij-Slight  
Conservation officer GÅ



Susanne Vävare  
Water biologist GÅ



Henna Rinne  
ÅA



Jean Blanc  
PhD-stud ÅA



Wiljam  
Eklund  
MSc-stud  
ÅA



Petra Arola  
MSc ÅA





# Marine conservation work in Åland continues...



**Enhancing the marine and coastal biodiversity of the Baltic Sea in Finland and promoting the sustainable use of marine resources**





Thank you for listening!



Arola/ÅlandSeaMap 2022

