



Gemensam undervattens karta för Finland och Sverige

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Länsstyrelsen i Västerbotten

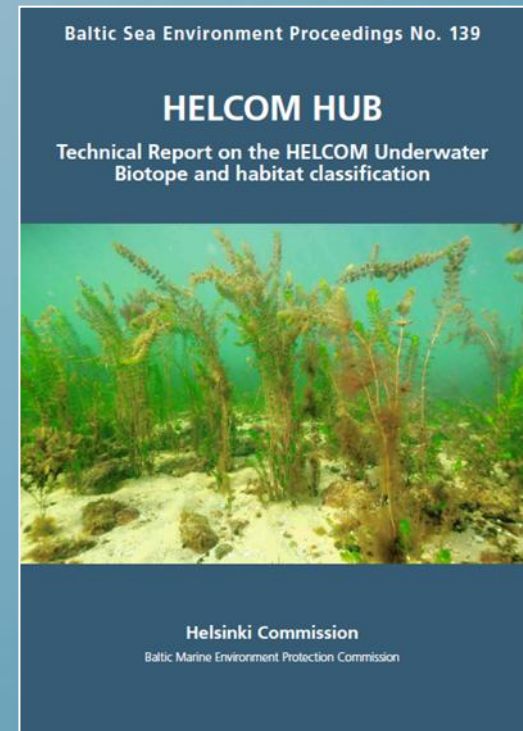
SeaGIS mål: gemensam undervattens karta

- *HELCOM:s HUB-habitat*
- *HUB-habitats modellering*
- *Resultat → HUB-habitats kartor*
- *Kan HUB-habitats kartor vara en bra stöd för planerare?*

HELCOM (Helsinki Commission) – the Baltic Marine Environment Protection Commission

*HUB – HELCOM Undervattens biotop och habitat klassningsystem
(en gemensam habitats klassning för hela baltiska havet)*

- Syfte är att underlätta förståelse, hotbildning, skötsel och bevarande av baltiska havet*
- Klassning sker enligt abiotiska och biotiska faktorer*
- 328 HUB habitat*



HUB KLASSNING

Hierarcical classification with 6 -levels:

1) Region (Baltic)

2) Vertical zones (photic/aphotic)

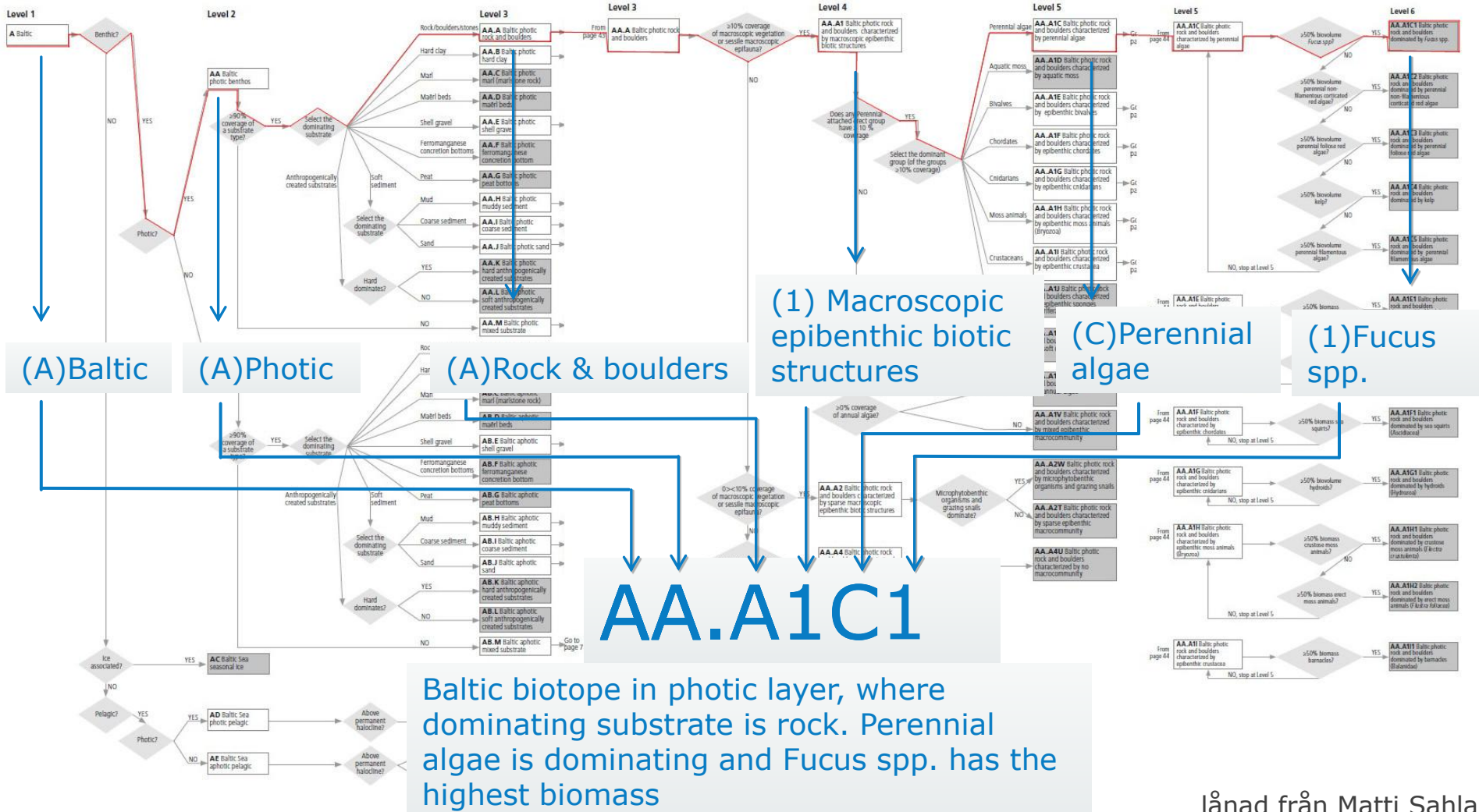
3) Substrate (rock/sand/mud... etc.)

4) Community structure (epibenthic/infaunal)

5) Characteristic community (sp. group)

6) Dominating taxa (species)

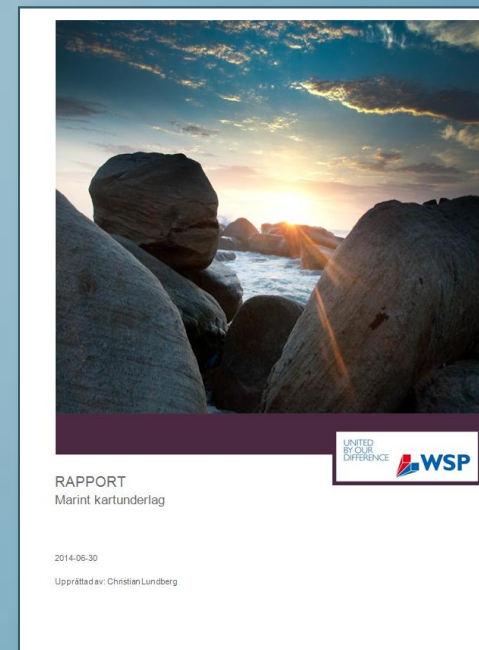
lånad från Matti Sahla



HUB MODELLERING

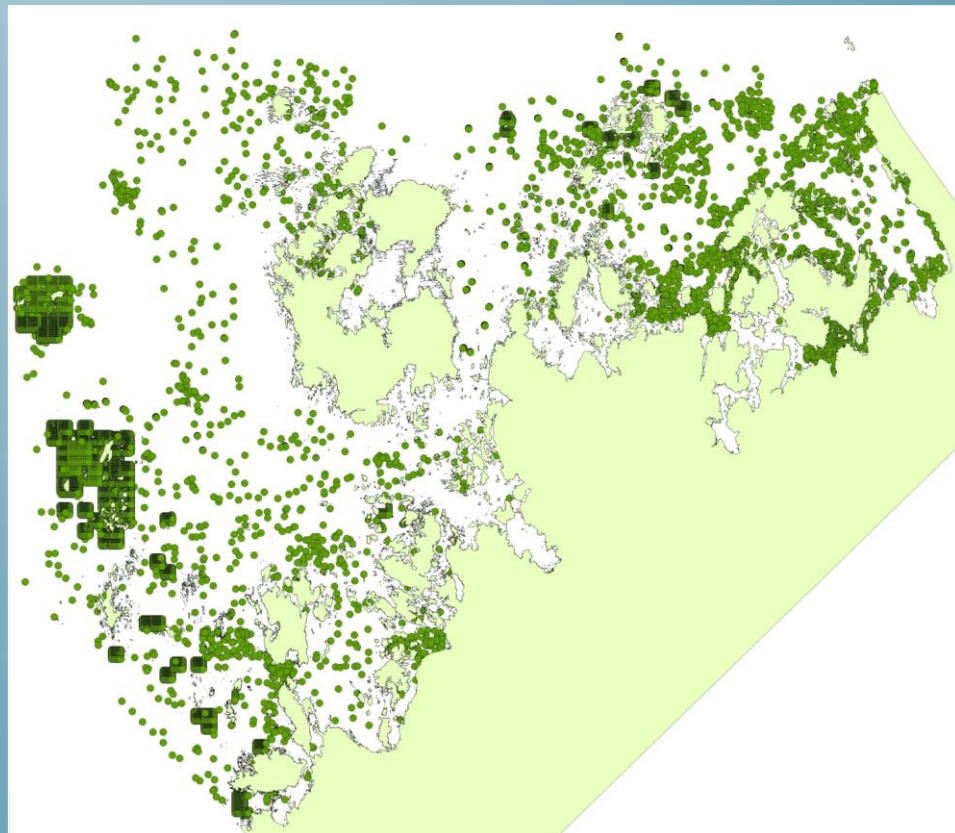
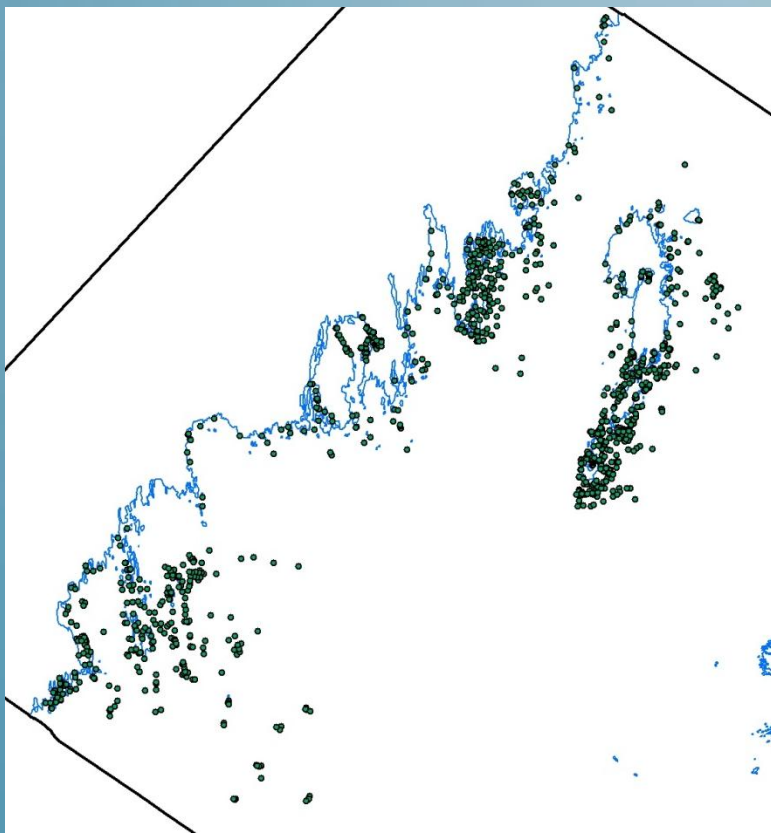
Vanliga modelleringsmetoder

- Regressionsanalys
- Generalized Additive Modelling (GAM)
- Maximum Entropy (MaxEnt)
- Random Forest (RF) Sverige (test)
- Maximum Likelihood (ML) Finland (test-fas)



HUB MODELLERING

Input data – Finland 12 000 provpunkter
– Sverige 1 200 provpunkter



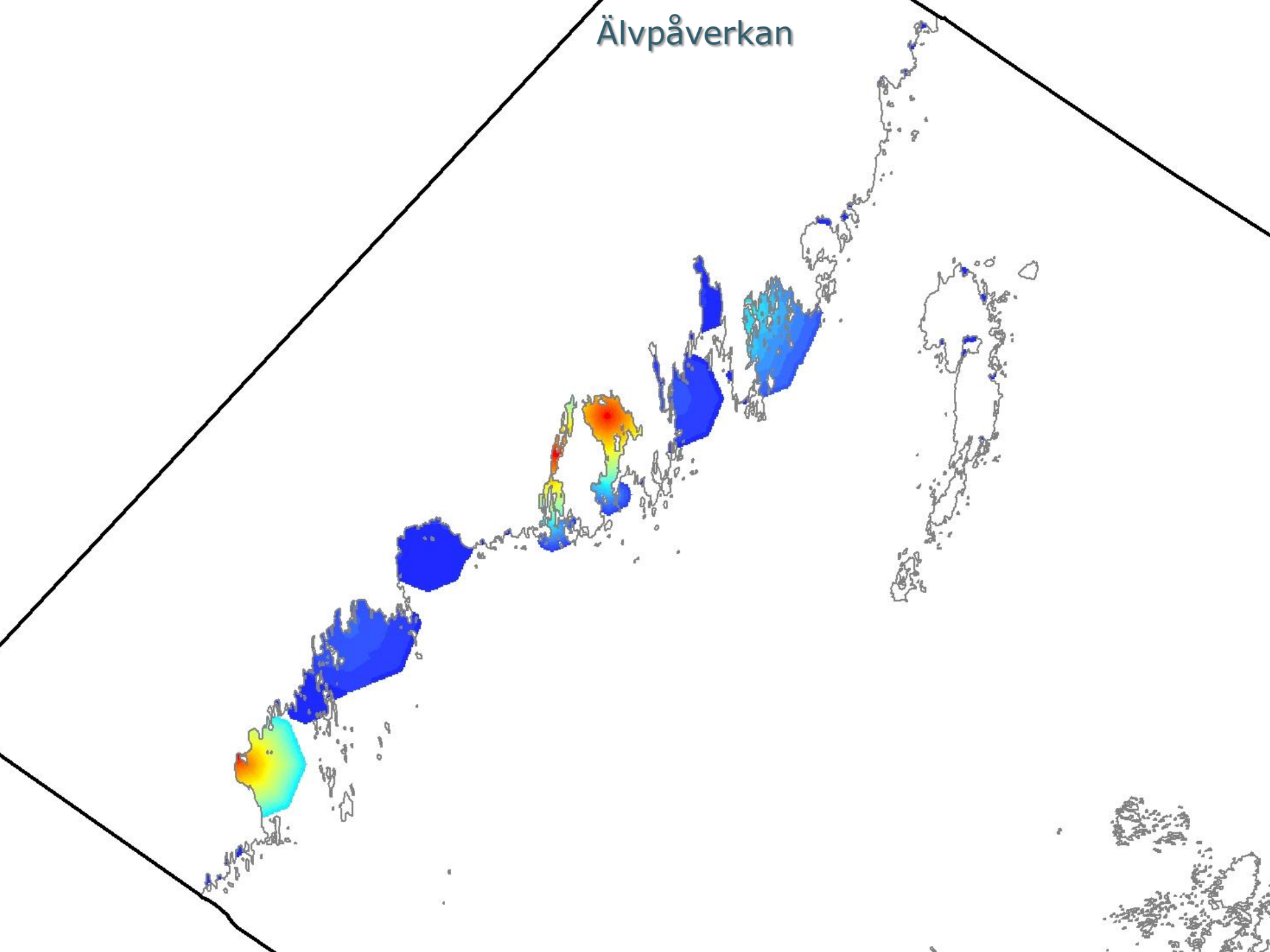
Testade förklarande variabler

Sverige / Finland

→ Djup	Ja	/	Ja
→ Salinitet	Ja	/	Ja
→ Geografiska formationer* (från djupdata)	Ja	/	Ja
→ Botten sediment	Ja	/	Ja
→ Vattendragspåverkan	Ja	/	Nej
→ Vågexponering	Ja	/	Ja
→ Skärgårdsindex	Ja	/	Nej
→ Avstånd från land	Nej	/	Ja

* T ex dalar, toppar, lutning, m fl

Älvpåverkan



Viktigaste variabler (Sverige / Finland)

→ Djup

→ Vågexponering

Ytterligare viktiga variabler (Sverige)

→ Skärgårdsindex

→ Salinitet

Variabler som var viktiga i enstaka HUB

- Vattendragspåverkan
- Bottensediment
- Geografiska toppar

Variabler som gav dåligt samband

- Geografiska dalar

HUB-habitat grupperade

- Annual algae on muddy sediment
- Pondweed on muddy sediment
- Less than 10% macrocommunity on muddy sediment
- Submerged rooted plants on muddy sediment
- Less than 10% macrocommunity on sand
- Submerged rooted plants on sand
- Annual algae on rock and boulders
- Less than 10% macrocommunity on rock and boulders
- Perennial algae on rock and boulders
- Perennial filamentous algae on rock and boulders

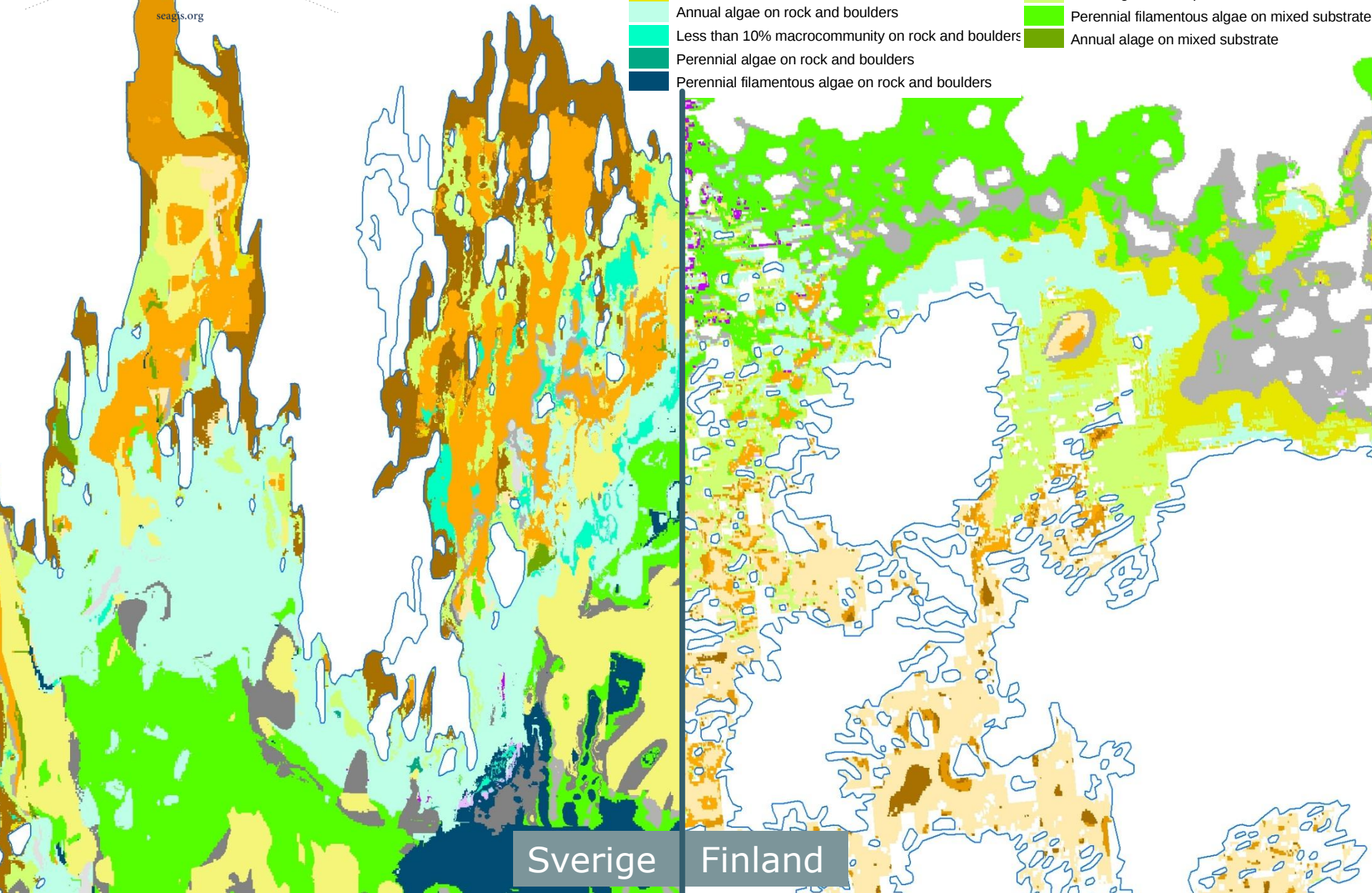
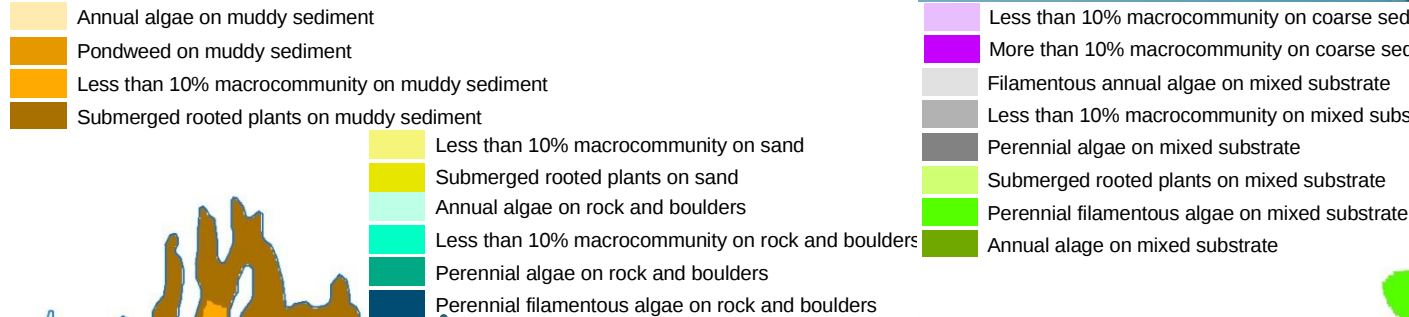
Umeå

Vasa

- Less than 10% macrocommunity on coarse sediment
- More than 10% macrocommunity on coarse sediment
- Filamentous annual algae on mixed substrate
- Less than 10% macrocommunity on mixed substrate
- Perennial algae on mixed substrate
- Submerged rooted plants on mixed substrate
- Perennial filamentous algae on mixed substrate
- Annual algae on mixed substrate

SeaGIS

seagis.org

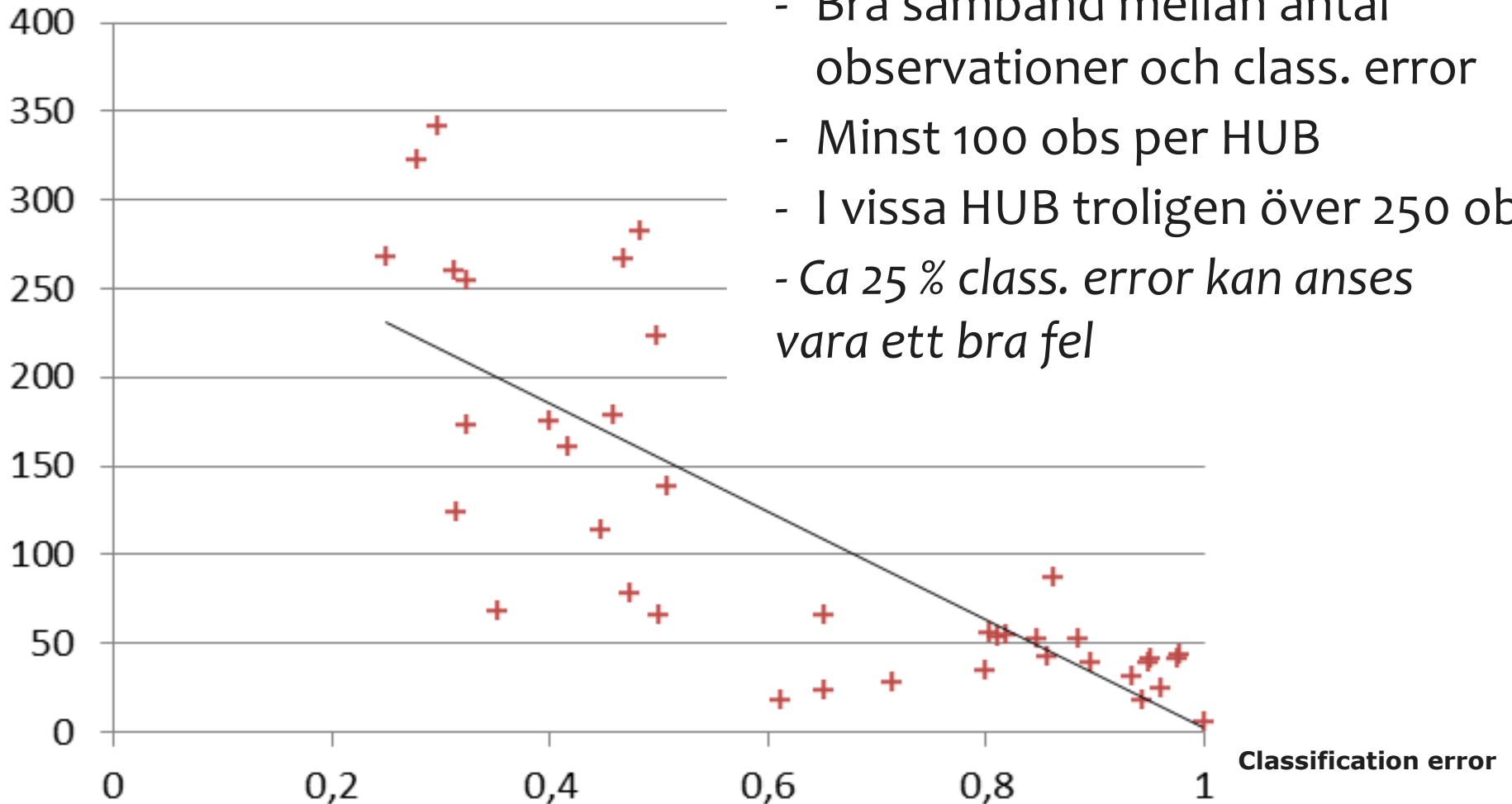


Sverige

Finland

Hur bra blir modelleringar?

Antal observationer

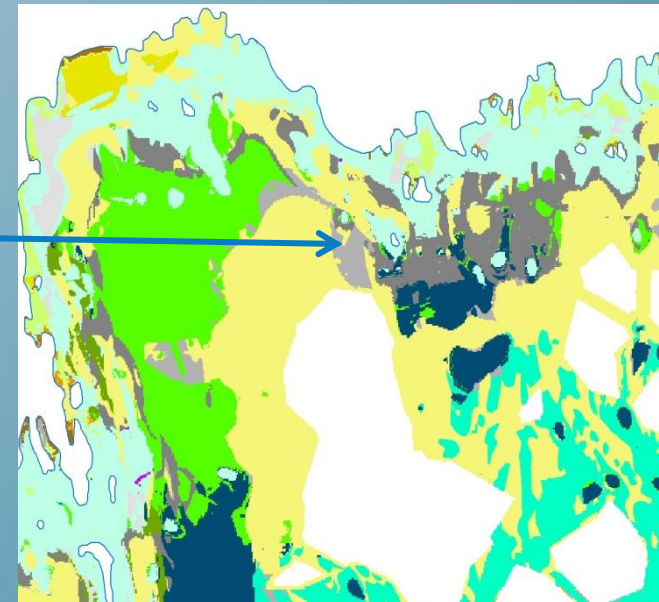


HUR MINSKAR VI FELET?

- Problem i Finland och Sverige – otillräckliga inventeringar för att kunna modellera alla HUB
- Antal inventeringsprover fördelat i HUB:ens distribution (fördelad i djup, vågexponering, allokering, m fl)
- Bristfälligt underlag
- T ex djupdata är av otillräckligt noggrannhet, Salinitets kartor är också dåliga
- Lösa problem med spatiala noggrannhet (modelleringsenhet → 10x10 m eller 25x25 m)
- I en yta på 25x25 m kan finnas flera HUB-habitat

ANVÄNDNING AV HUB-KARTOR

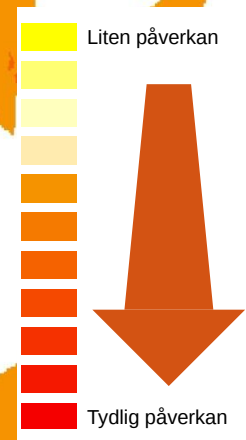
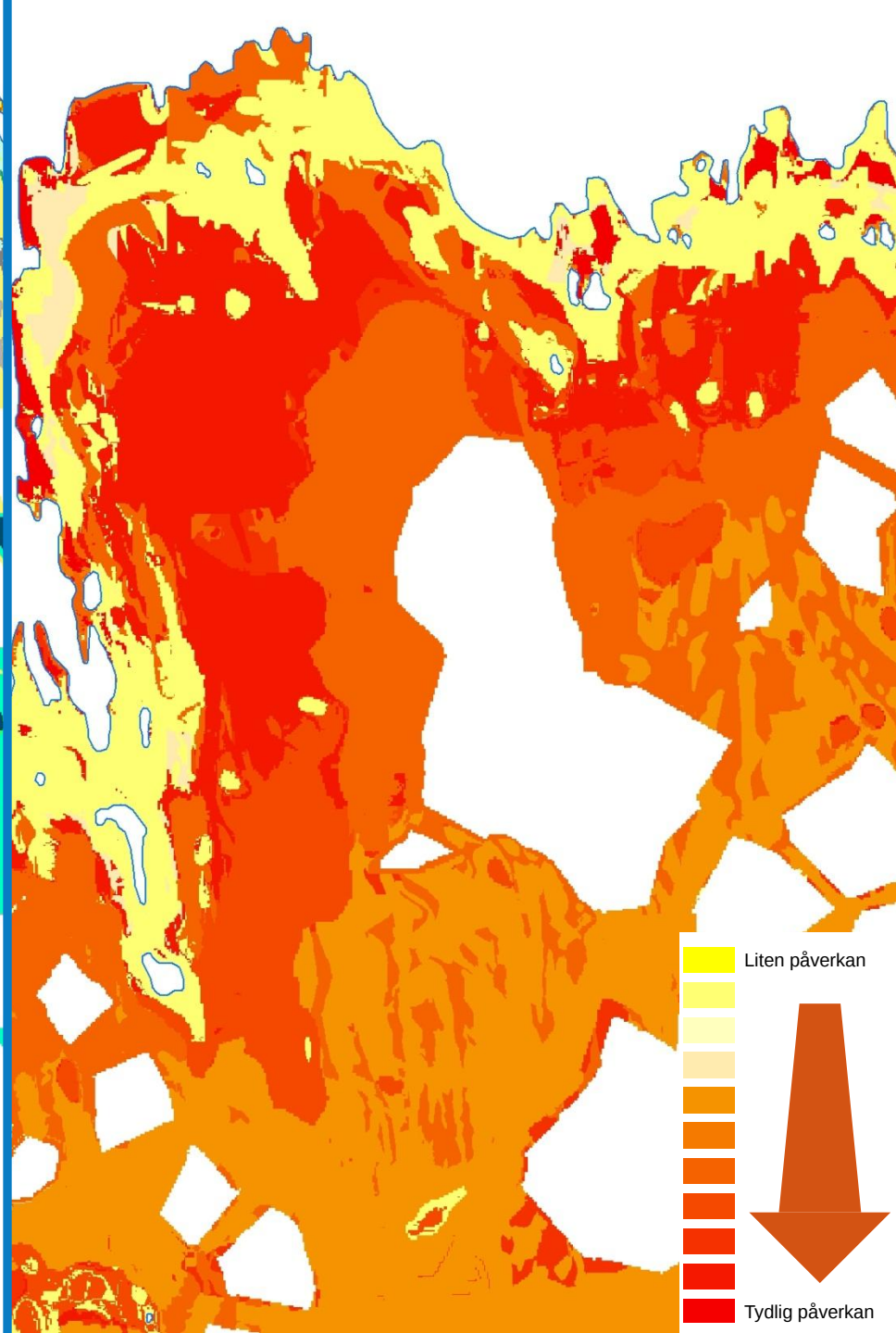
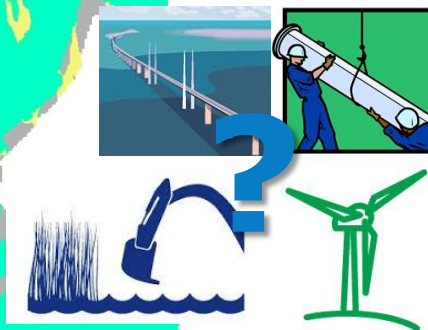
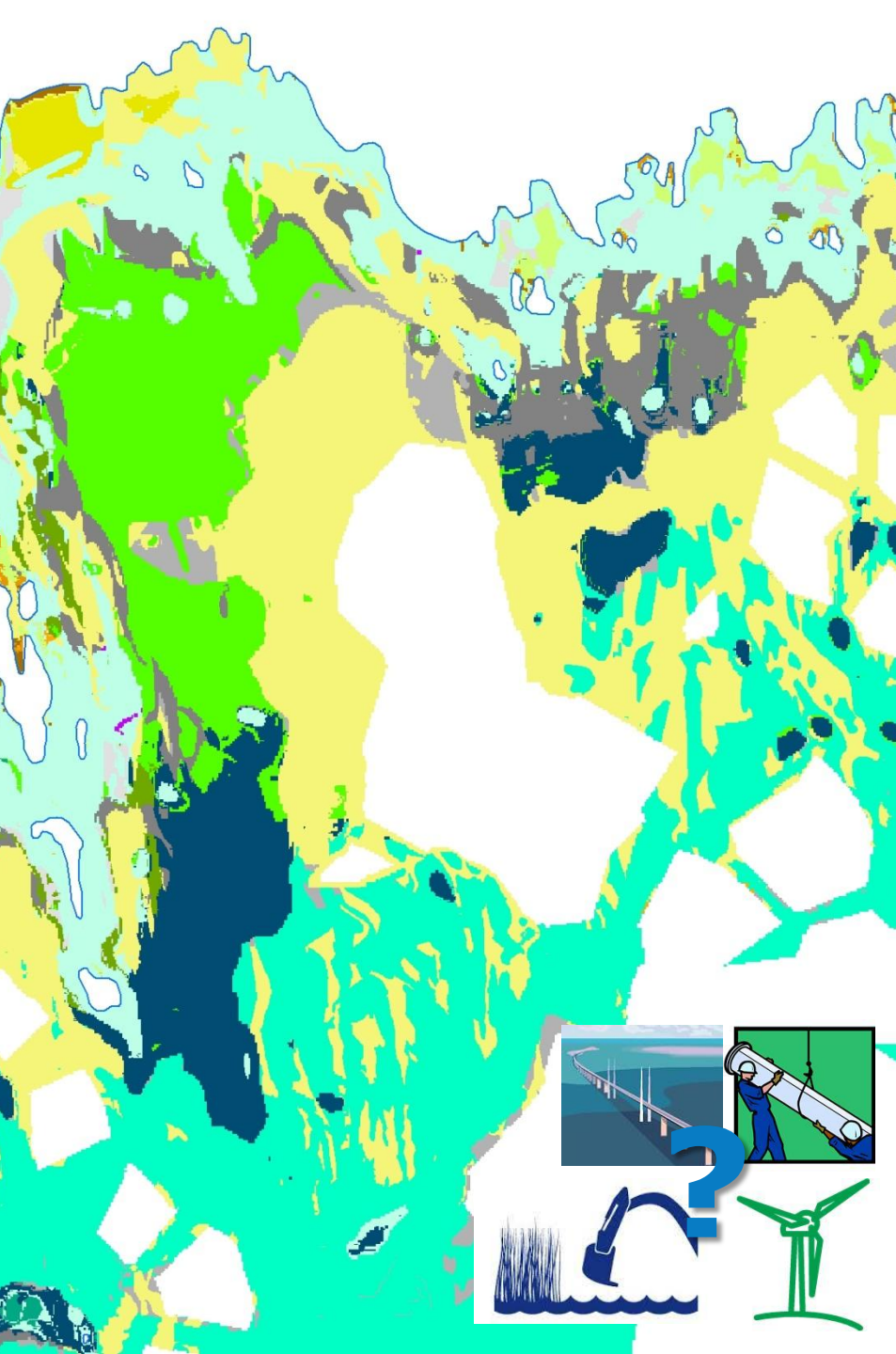
HUB-habitat kan användas för att få en bild av ett specifikt område och kunna även bearbetas för att stödja havsplanering inför möjliga användnings tryck, t ex broar, vindkraftparker, placering av rörledningar eller kablar, mm



ANVÄNDNING AV HUB-KARTOR

Forsstyrelsen (Finland) har tagit fram en matris med bedömningar av påverkan från olika aktiviteter (fiske, bebyggelse, båttrafik, mm). Enbart HUB-habitat, dvs ingen påverka på fiskar, fåglar, med flera

Activity category	Human activity, given as a direct measure of the pressure		LEVEL 5		LEVEL 4		LEVEL 3		LEVEL 2		LEVEL 1		LEVEL 0		LEVEL -1		LEVEL -2		LEVEL -3		LEVEL -4		LEVEL -5		LEVEL -6		LEVEL -7		LEVEL -8		LEVEL -9		LEVEL -10		LEVEL -11		LEVEL -12		LEVEL -13		LEVEL -14		LEVEL -15		LEVEL -16		LEVEL -17		LEVEL -18		LEVEL -19		LEVEL -20		LEVEL -21		LEVEL -22		LEVEL -23		LEVEL -24		LEVEL -25		LEVEL -26		LEVEL -27		LEVEL -28		LEVEL -29		LEVEL -30		LEVEL -31		LEVEL -32		LEVEL -33		LEVEL -34		LEVEL -35		LEVEL -36		LEVEL -37		LEVEL -38		LEVEL -39		LEVEL -40		LEVEL -41		LEVEL -42		LEVEL -43		LEVEL -44		LEVEL -45		LEVEL -46		LEVEL -47		LEVEL -48		LEVEL -49		LEVEL -50		LEVEL -51		LEVEL -52		LEVEL -53		LEVEL -54		LEVEL -55		LEVEL -56		LEVEL -57		LEVEL -58		LEVEL -59		LEVEL -60		LEVEL -61		LEVEL -62		LEVEL -63		LEVEL -64		LEVEL -65		LEVEL -66		LEVEL -67		LEVEL -68		LEVEL -69		LEVEL -70		LEVEL -71		LEVEL -72		LEVEL -73		LEVEL -74		LEVEL -75		LEVEL -76		LEVEL -77		LEVEL -78		LEVEL -79		LEVEL 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ANDRA ANVÄNDNINGAR AV HUB-KARTOR

- *HUB-habitat → Blåinfrastruktur*
- *Utvärdera befintlig skydd → har vi skyddat rätt?*
- *Hitta utbredningsgränser*

- HUB-klassificering och modellering kan hjälpa till att få en uppfattning av ett stort havsområde
→ regional, nationellt eller internationellt
- Modelleringen lyser upp problematiken kring behov av mer detaljerat/noggrant underlag (speciellt djup men även bottensubstrat, salinitet, m fl)
- Kartor över HUB-habitat och kartor över bedömning av risk kopplade till olika HUB-habitat kan vara ett kraftfull hjälpmedel för planerare och ansvariga myndigheter för skydd och nyttjande av havet

TACK!

FRÅGOR??