

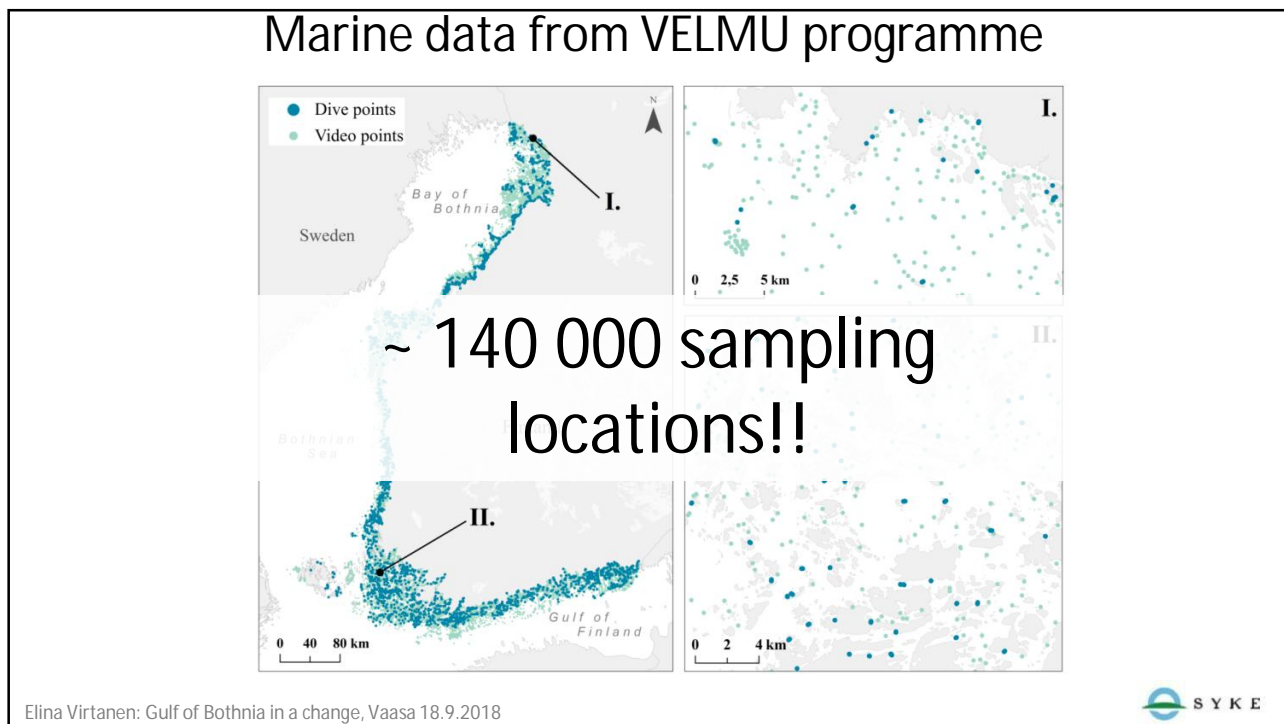
# Evaluation of the Finnish marine protected area network using spatial prioritization

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SmartSea Gulf of Bothnia in a change seminar  
18.9.2018, Vaasa



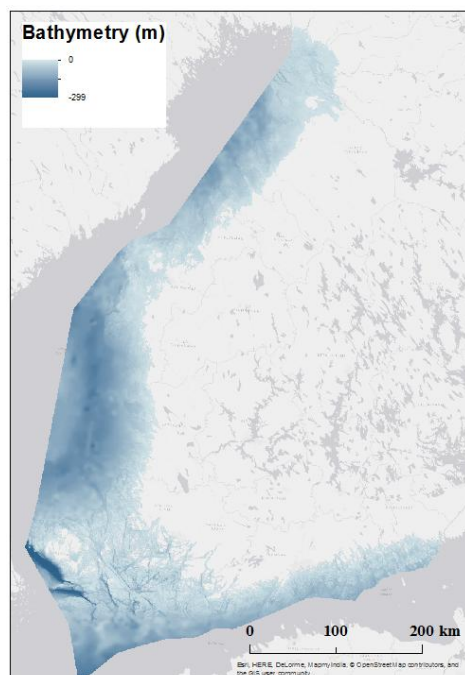
1) Sustainable Use of the Marine Areas, Marine Research Centre, Finnish Environment Institute  
2) University of Helsinki, Department of Geosciences and Geography



## Marine environmental data ~ 50 layers

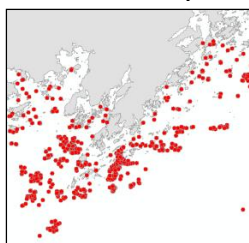
→ Hydrographical parameters

→ Seafloor characteristics



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### Field data on species

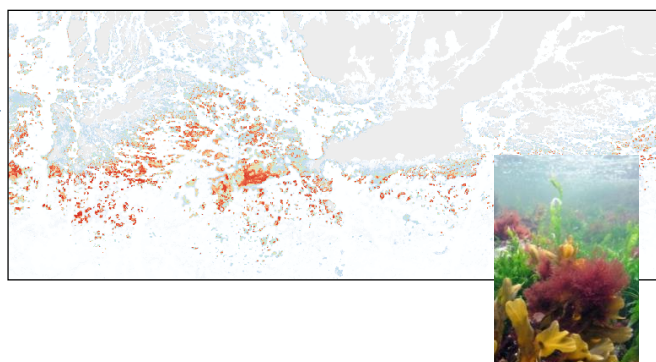
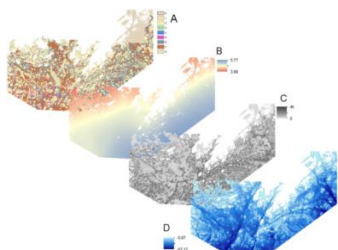


### Species distribution models

~200 models on species distribution and abundance

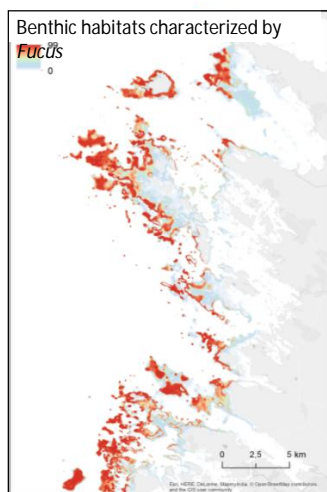
+

Data & models on the environment

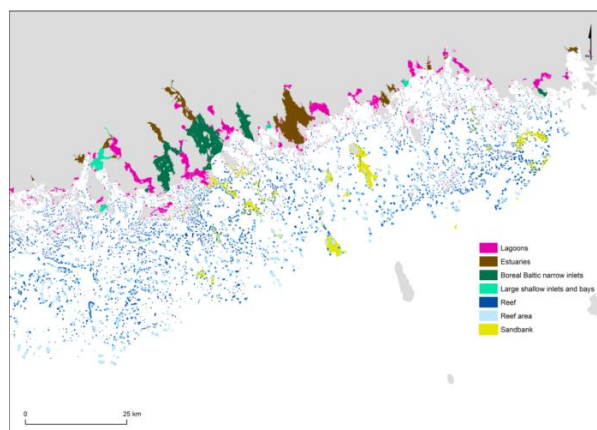


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## IUCN Red List of Ecosystems (2018)



## EU Habitats Directive Annex I Habitats



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## Marine pressures

Harbours

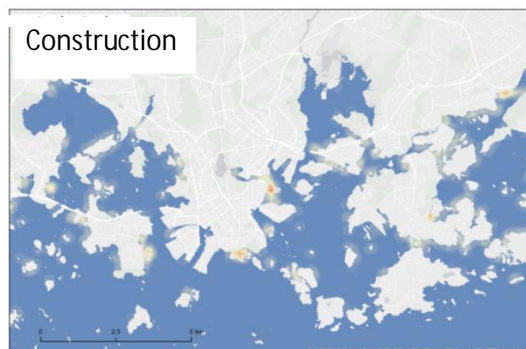
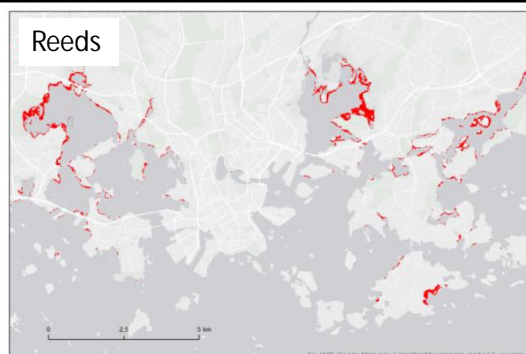
Dredging of shipping lanes

Dumping & extraction of material

Coastal construction

Hypoxic bottoms

Reed belts

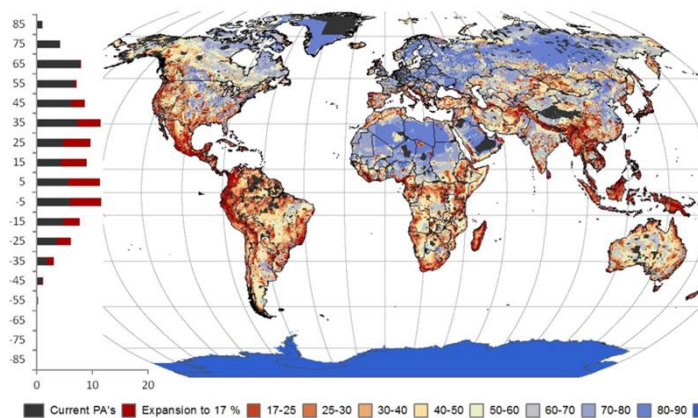


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E



Zonation results on terrestrial areas have been published in Science, Nature...



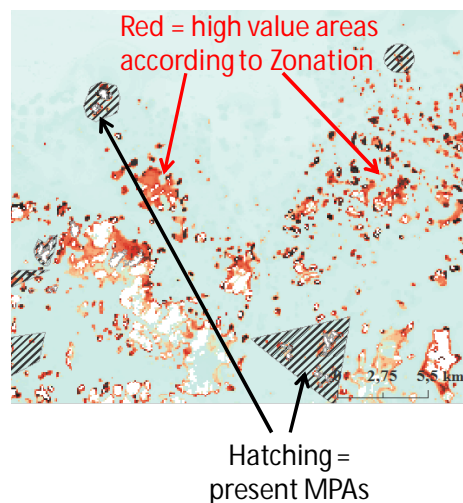
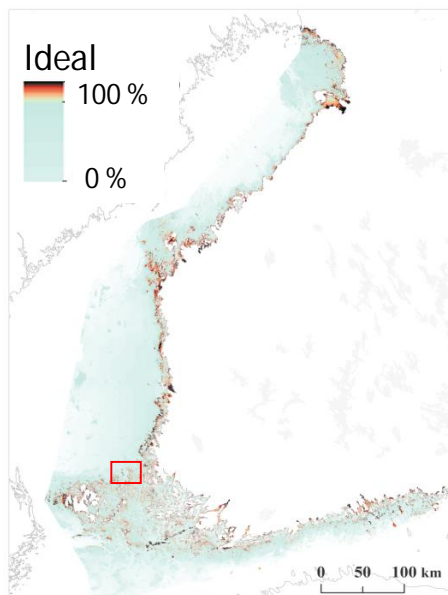
**Nature 2014**



First prioritization of nature values of the  
Finnish sea areas

### Identification of valuable areas

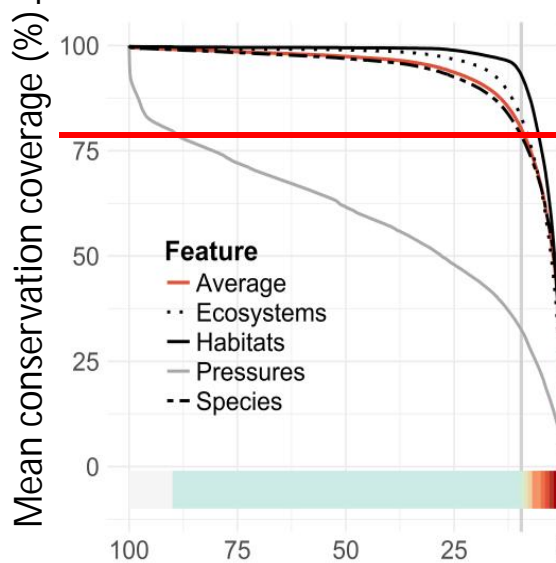
*Virtanen et al., in prep*



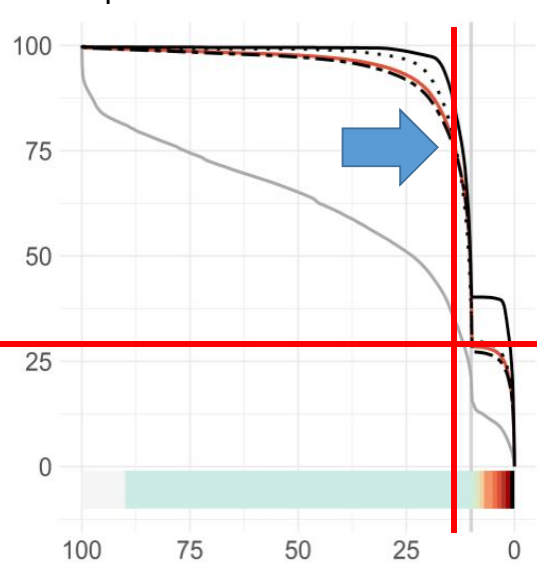
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Ideal: 10% area: ~80 % of values protected



Present MPAs: 10 % area: ~30 % of values protected

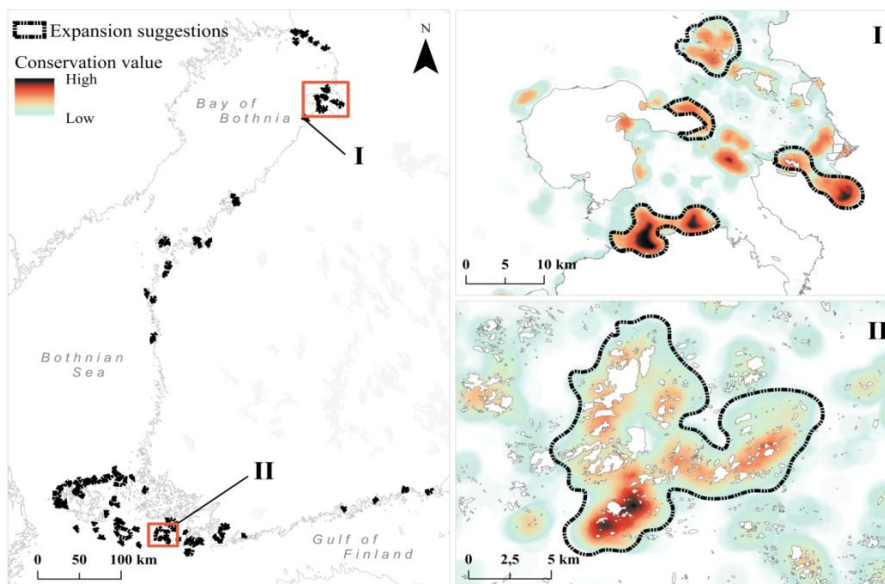


*Virtanen et al., in prep.*



## Suggested MPA expansions based on VELMU data

*Virtanen et al., in prep.*



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## Conclusions

- The present MPA network does not support marine biodiversity in a balanced way
- MPA network can be cost-efficiently developed by including biodiversity hotspots indicated by Zonation
- Approach also supports marine spatial planning



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