



# SEAmBOTH

*Seamless Bothnian Bay*

*Seamless Mapping and Management of the Bothnian Bay*

**Interreg**  
**Nord**

European Regional Development Fund



EUROPEAN UNION

# Background

- Pressures threatening nature values (e.g. dredging, extraction of material, eutrophication, harbors)
- Sparse knowledge of habitats & species
- No joint management plans (FIN & SWE), no joint habitat maps

→ **Underwater nature recognizes no borders**

- We require data to manage/achieve EU-directive requirements (*Habitat directive, Marine directive, Marine spatial planning directive and Water framework directive*)





# Objectives

- 1) **Harmonizing underwater mapping methods and habitat type descriptions/definitions** across Finnish-Swedish border
- 2) **Creating harmonized underwater habitat and species maps for Bothnian Bay marine areas**

...in order to...

...manage the Bothnian Bay marine area seamlessly across the border, based on sufficient knowledge, enabling sustainable development in the region.

# Partners



**Interreg**  
Nord

European Regional Development Fund



EUROPEAN UNION



LAPIN LIITTO

Swedish Agency  
for Marine and  
Water Management



METSÄHALLITUS  
FORSTSTYRELSEN

SGU

Sveriges geologiska undersökning  
Geological Survey of Sweden



GTK



Länsstyrelsen  
Norrbotten



SYKE



Centre for Economic Development,  
Transport and the Environment

- Metsähallitus MH (FIN) – project coordinator
- Finnish Environment Institute SYKE (FIN)
- Centre for Economic Development, Transport and the Environment ELY (Northern Ostrobothnia and Lapland) (FIN)
- Geological Survey of Finland GTK (FIN)
- Country Board of Norrbotten Lst (SWE)
- Geological Survey of Sweden SGU (SWE)

# Timetable & project area

- Interreg Nord – culture and environment granted SEAmBOTH 2,9 milj € 30.5.2017
- Project time 1.5.2017-30.4.2020 (three field seasons, end seminar in February 2020)

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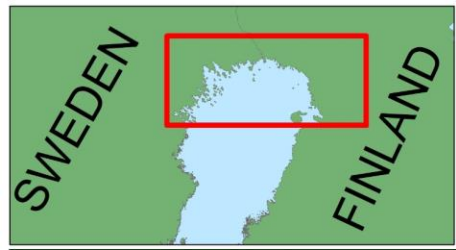


**SEAmBOTH**

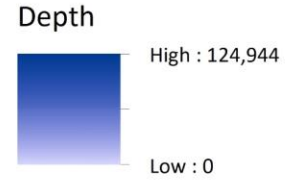
*Seamless Bothnian Bay*



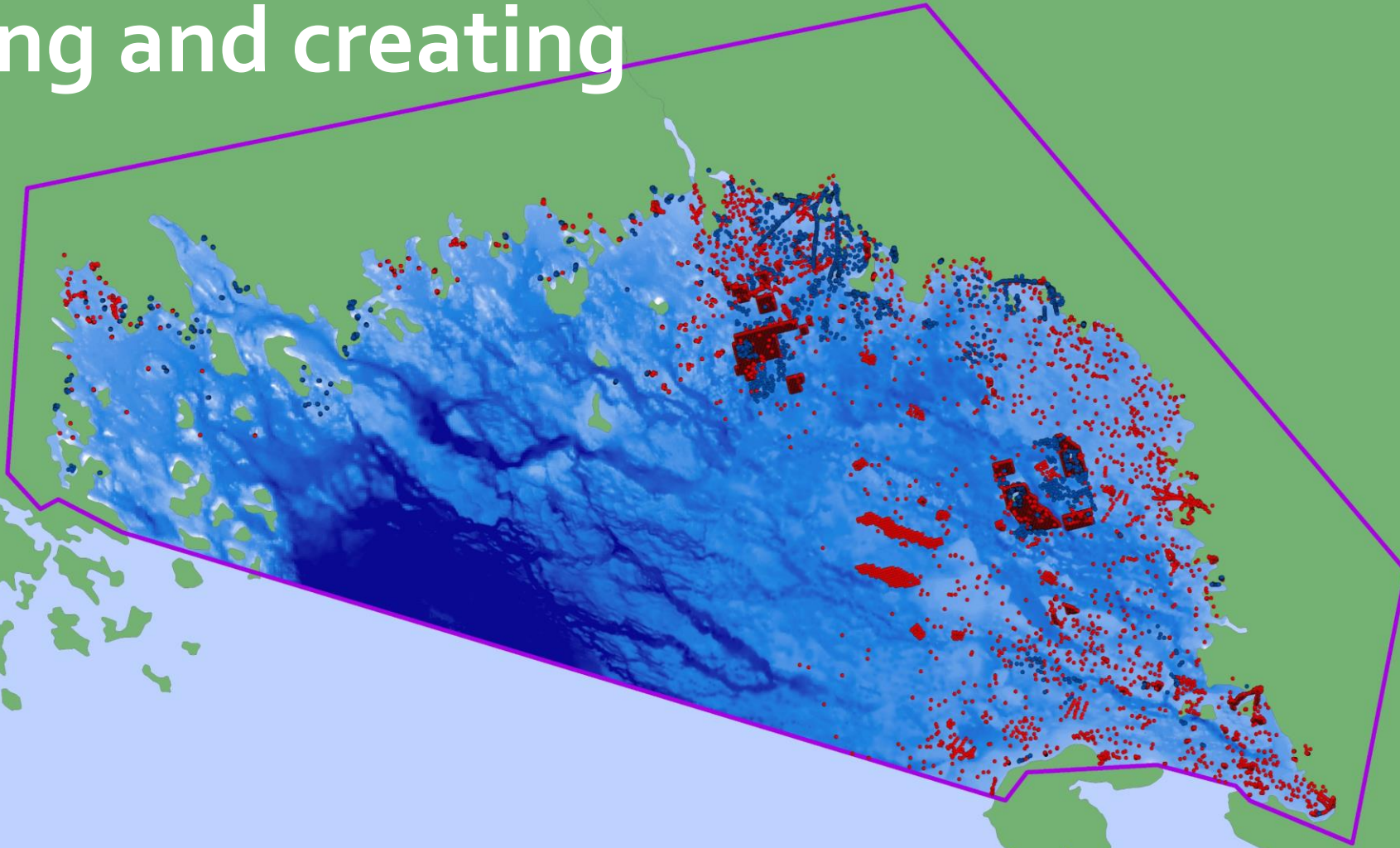




- SEAmBoth
- Other inventory



# Modelling and creating maps

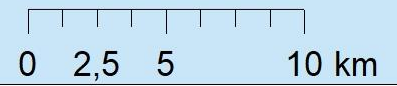
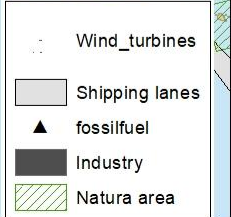
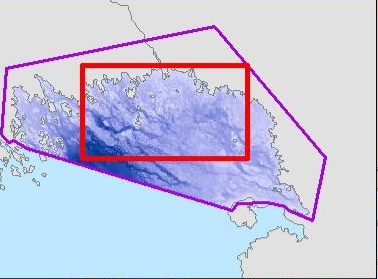
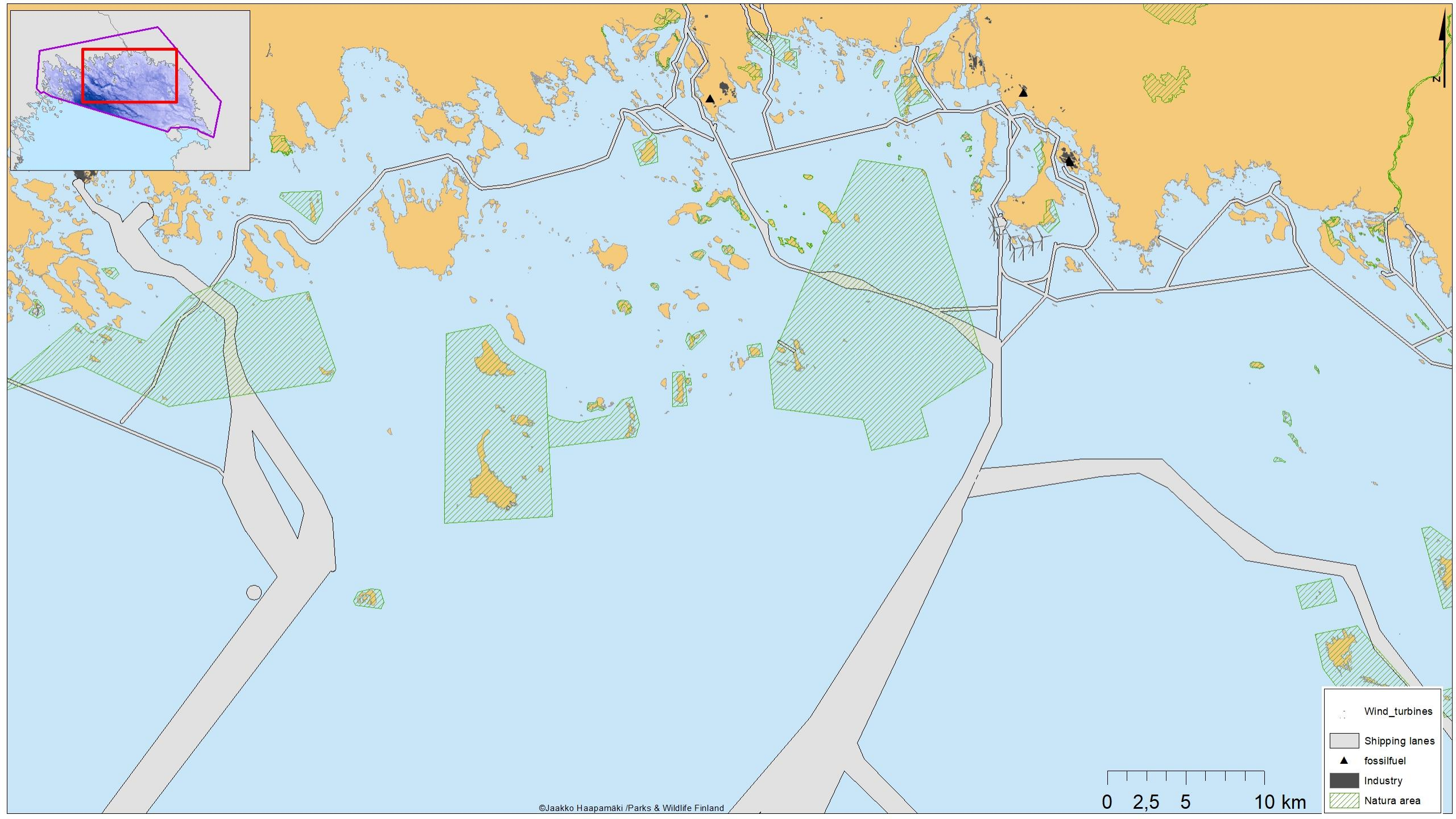


# Human activities

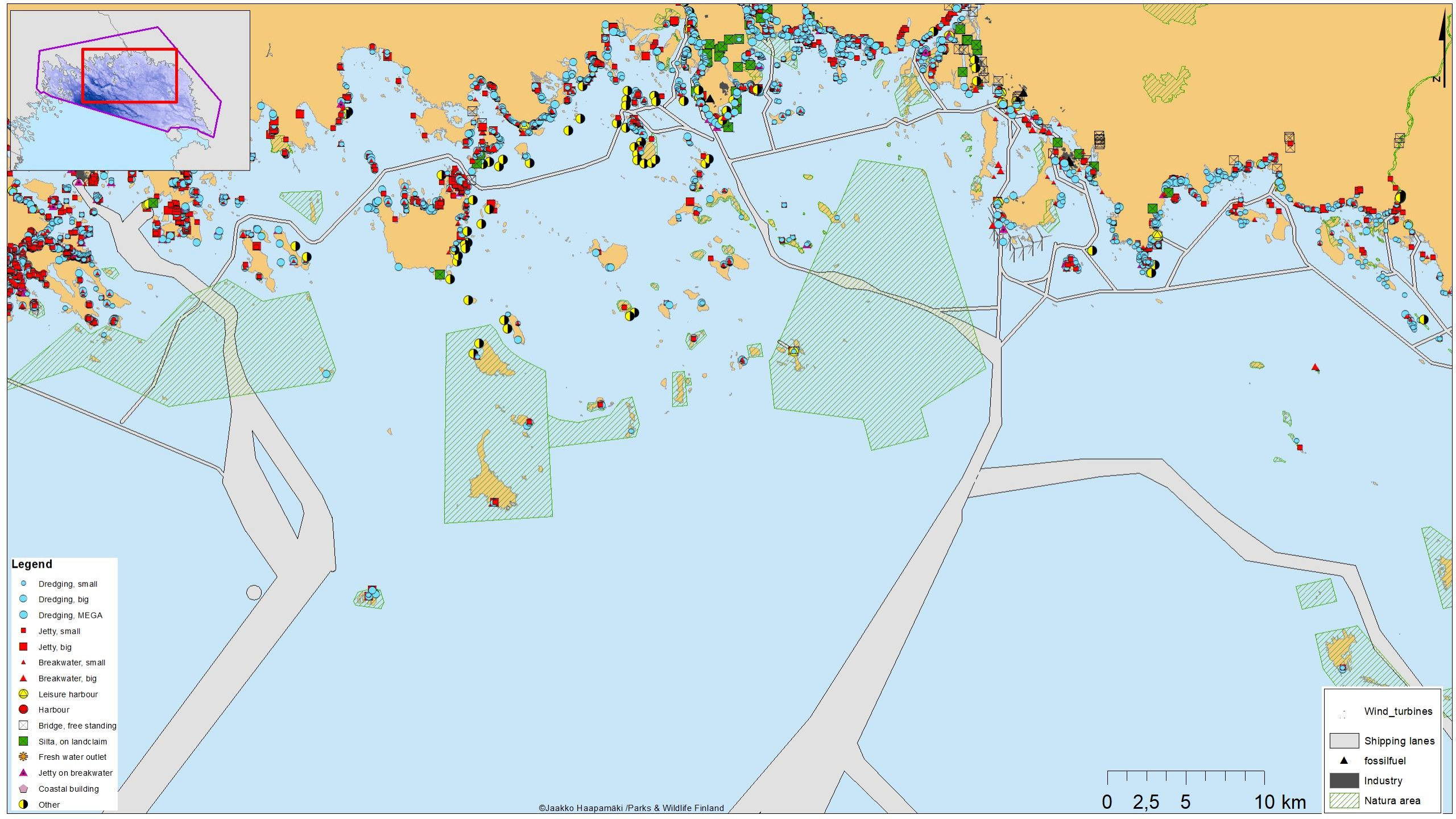
- Gathered data on 25 human activities at sea (or coastal areas)
- 9 datasets on Baltic Sea scale, 16 national scale
- Digitized activities visible from aerial images
- Development of **pressure models (Summer 2019)**

**Concentration on activities leading to disturbance/loss of habitats**



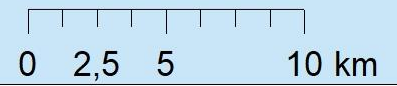






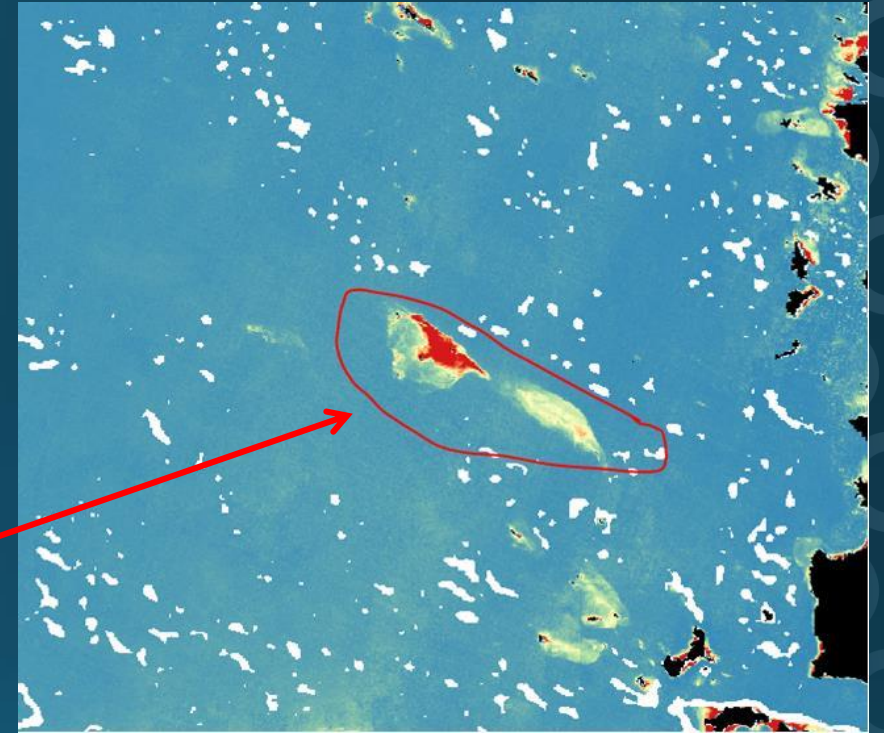
- Legend**
- Dredging, small
  - Dredging, big
  - Dredging, MEGA
  - Jetty, small
  - Jetty, big
  - ▲ Breakwater, small
  - ▲ Breakwater, big
  - Leisure harbour
  - Harbour
  - Bridge, free standing
  - Sitta, on landclaim
  - ✻ Fresh water outlet
  - ▲ Jetty on breakwater
  - Coastal building
  - Other

- Wind\_turbines
- Shipping lanes
- ▲ fossifuel
- Industry
- Natura area



# Sentinel-2 products

- Parameters:
  - Chl-a
  - Turbidity
  - Secchi depth
  - CDOM (humic substances)
  - Temperature
  - Shallow areas and sandy seafloors
- Seasonal composites (medians)
- Monthly products in summer 2019





# Ecological models

- Environmental data will be used for modelling the occurrence of species, habitats, biotopes and communities
- Biological data (FI-SE) ready by october 2019
- Individual SDMs, threatened habitat types based on IUCN Red List of Ecosystems, threatened species, Habitat Directive Annex I Habitats, HELCOM HUBs



# End product: Underwater nature values

- Swedish MOSAIC combined with Zonation
  - MOSAIC: definition of "nature values"
    - Workshop organized in 2018: expert evaluation
- Zonation: Identification of high (and low) nature value areas
  - Identification of areas with high human pressure

*Thank you for your interest!*

