

# Spatial planning in archipelago waters by high spatial resolution remote sensing

**HISPARES**

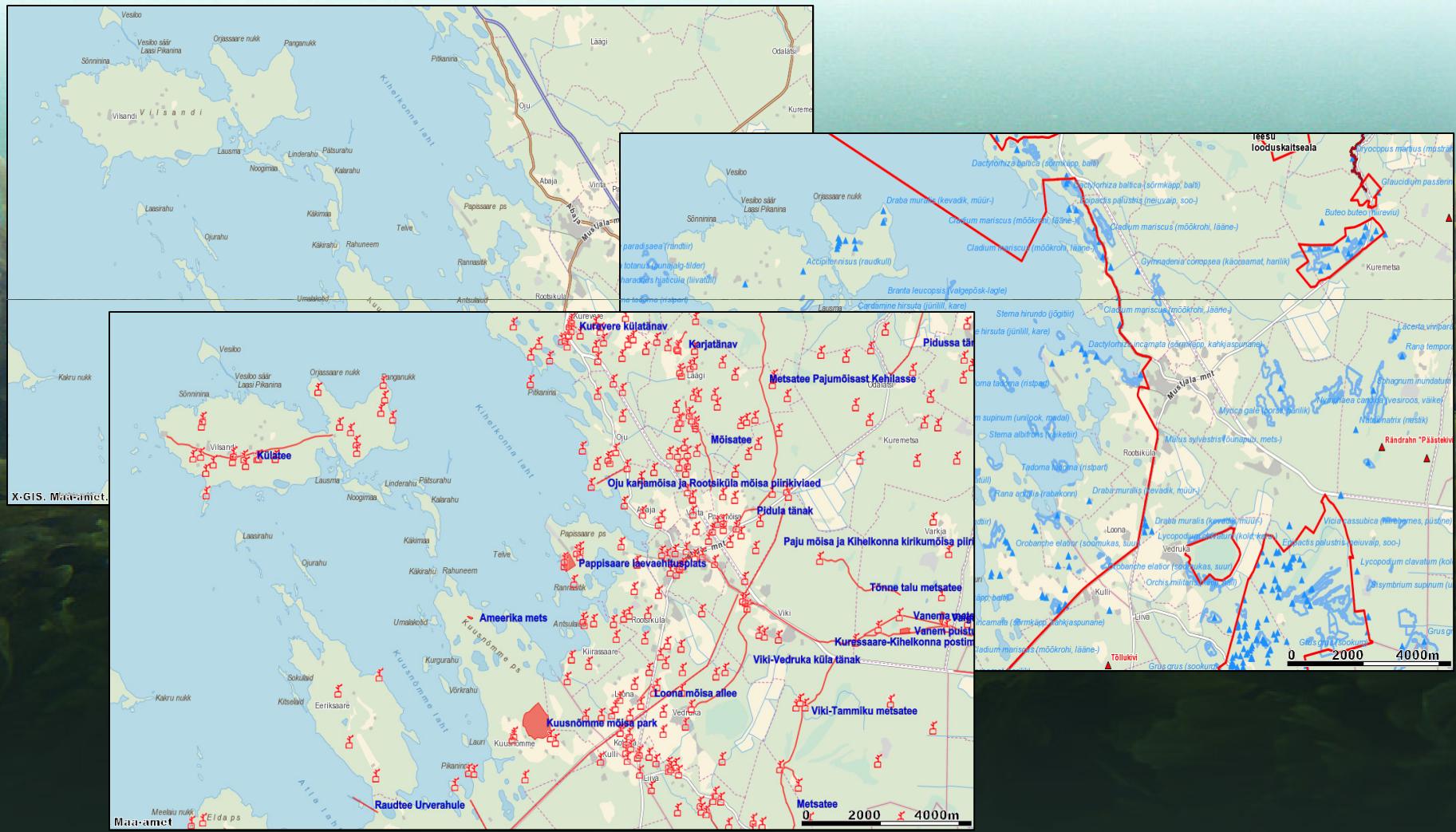


CENTRAL BALTIC  
INTERREG IV A  
PROGRAMME  
2007–2013



EUROPEAN UNION  
EUROPEAN REGIONAL DEVELOPMENT FUND  
**INVESTING IN YOUR FUTURE**

# Spatial planning on land

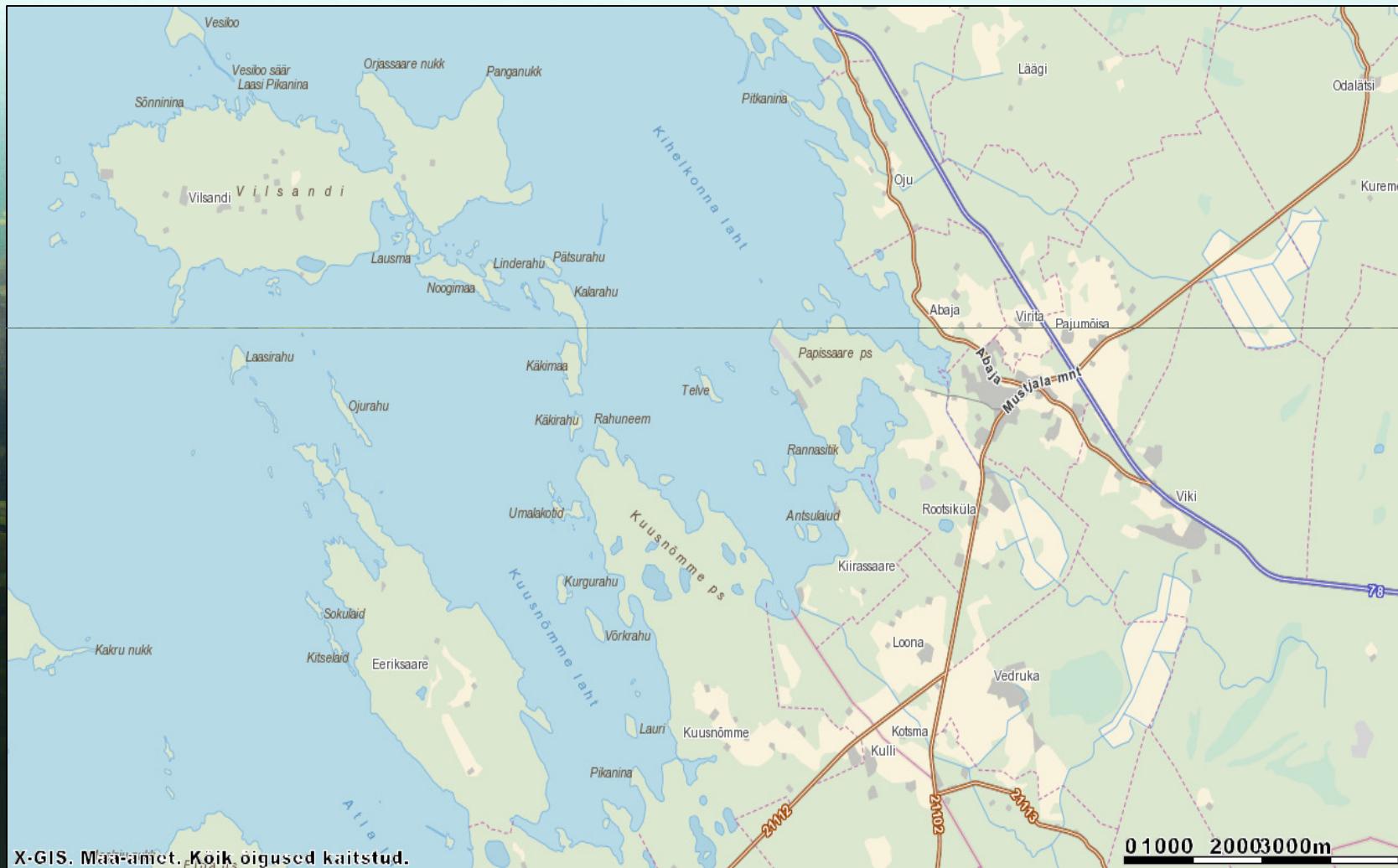


A photograph of an underwater kelp forest. The foreground is filled with dense, green, leafy kelp plants. In the background, the surface of the water is visible with small waves and bubbles. The water is a clear blue-green color.

# Spatial planning of coastal waters

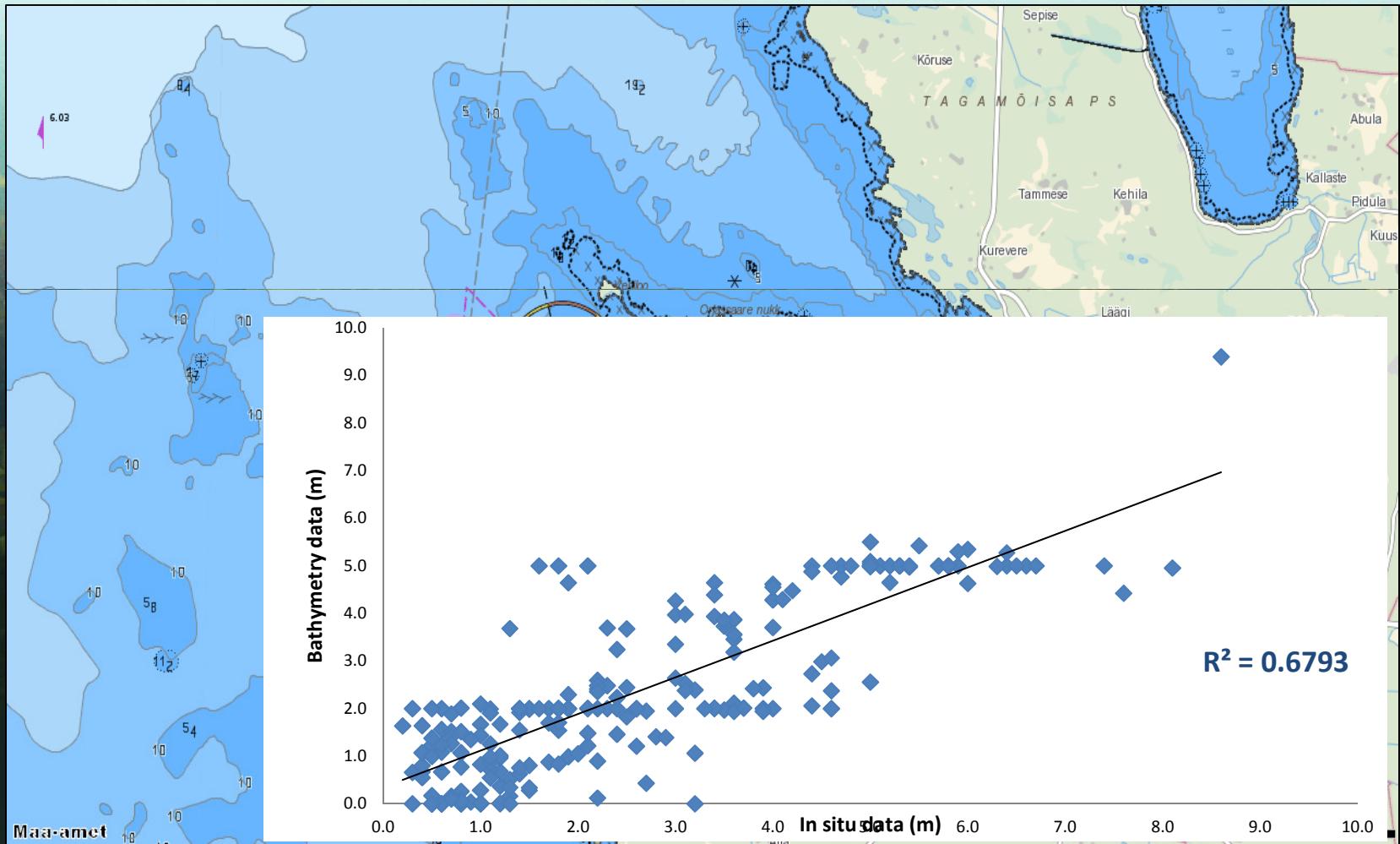
- \* Transport
- \* Fisheries
- \* Tourism
- \* Energy
- \* Environment

# Spatial planning of coastal waters





# Spatial planning of coastal waters



# WHY?

- \* **Spatial planning decision making and environmental monitoring requires adequate amount of data.**
- \* **Collecting the data with conventional methods is time consuming and expensive.**

A photograph of an underwater kelp forest. The water is a clear, light blue-green color. The surface of the water is visible at the top, showing small white waves and bubbles. Below the surface, a dense thicket of kelp plants with long, thin, yellowish-green blades grows on a rocky or sandy bottom. The lighting is natural, coming from above, which creates a bright, dappled effect through the water. The overall scene is peaceful and represents a healthy marine ecosystem.

# HISPARES

The main aim is to develop spatial planning tools for shallow coastal water areas using remote sensing, *in situ* data, spatial modelling and GIS techniques.



# HISPARES

**Archipelago and Islands Sub-programme**  
**Priority: Safe and healthy environment**  
**Direction of Support: Raising environmental  
awareness (Finding new ways)**



Estonian Marine  
Institute  
University of Tartu



Swedish Defence  
Research Agency

A photograph of an underwater kelp forest. The water is a clear blue-green, and the kelp plants are a vibrant green. The surface of the water is visible at the top, showing small waves and bubbles. The text is overlaid on this image.

# HISPARES

2010-2012

Total budget 929 000 €

ERDF 753 650 €



Estonian Marine  
Institute  
University of Tartu



Swedish Defence  
Research Agency



FINLAND

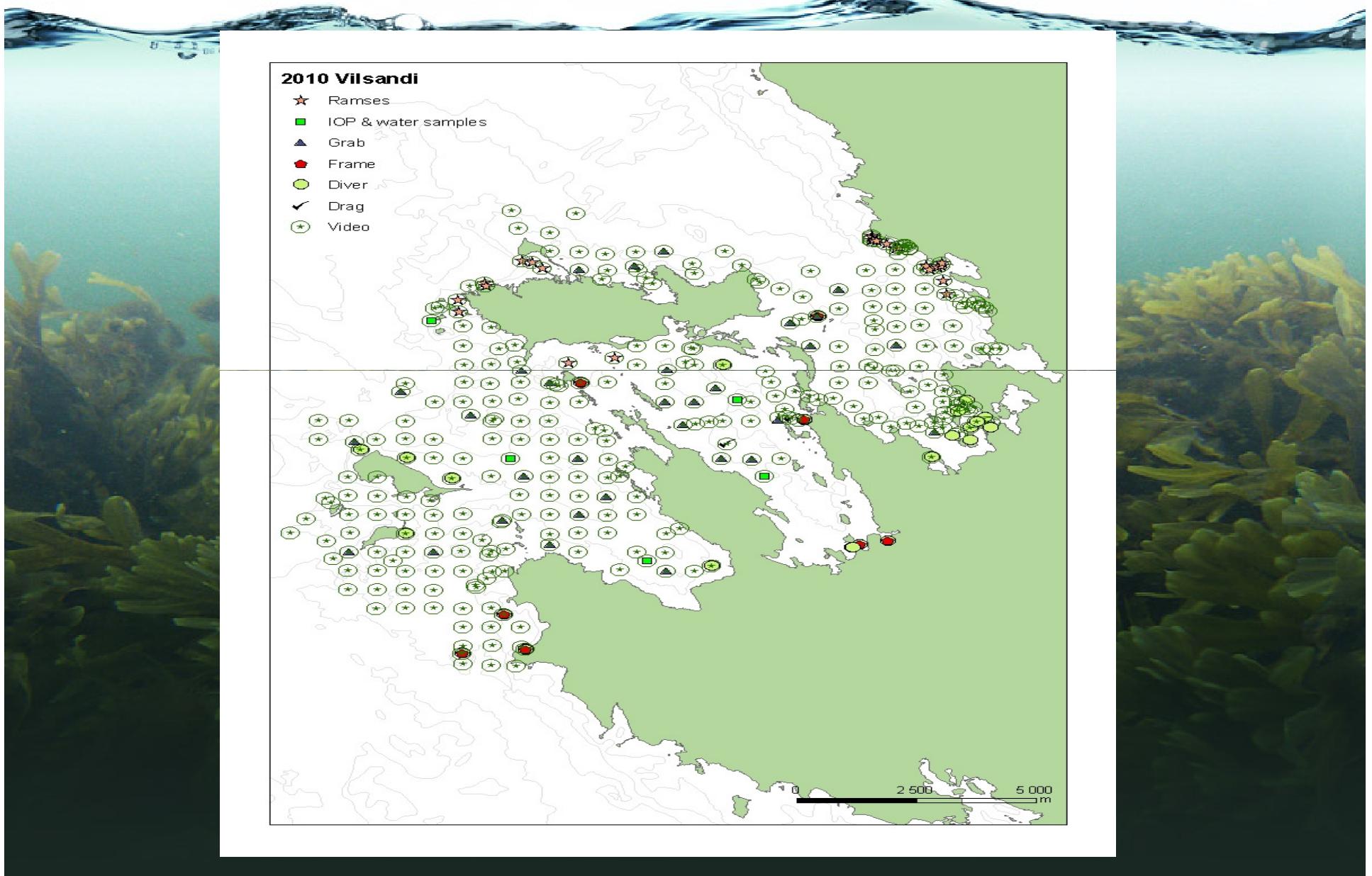
SWEDEN

ESTONIA

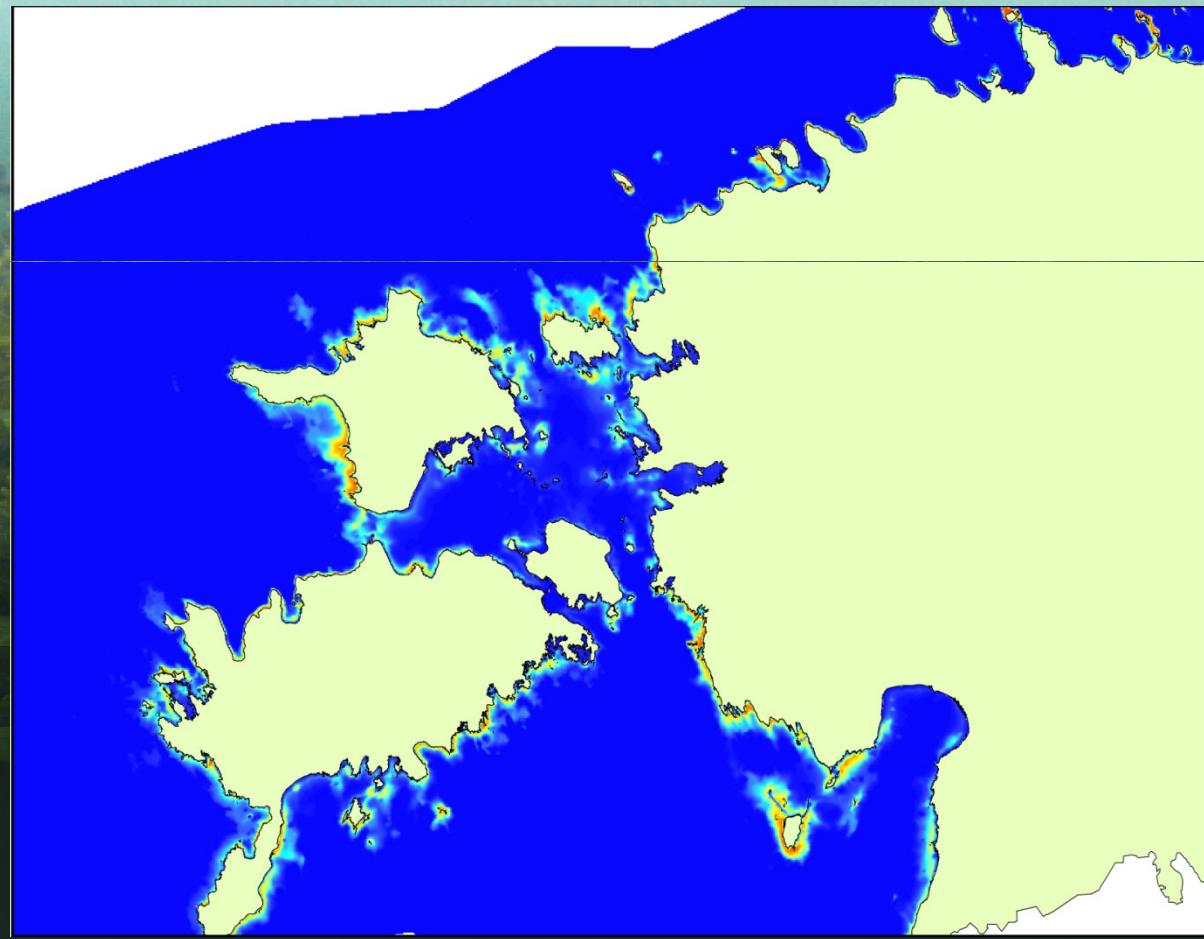
BALTIC  
SEA



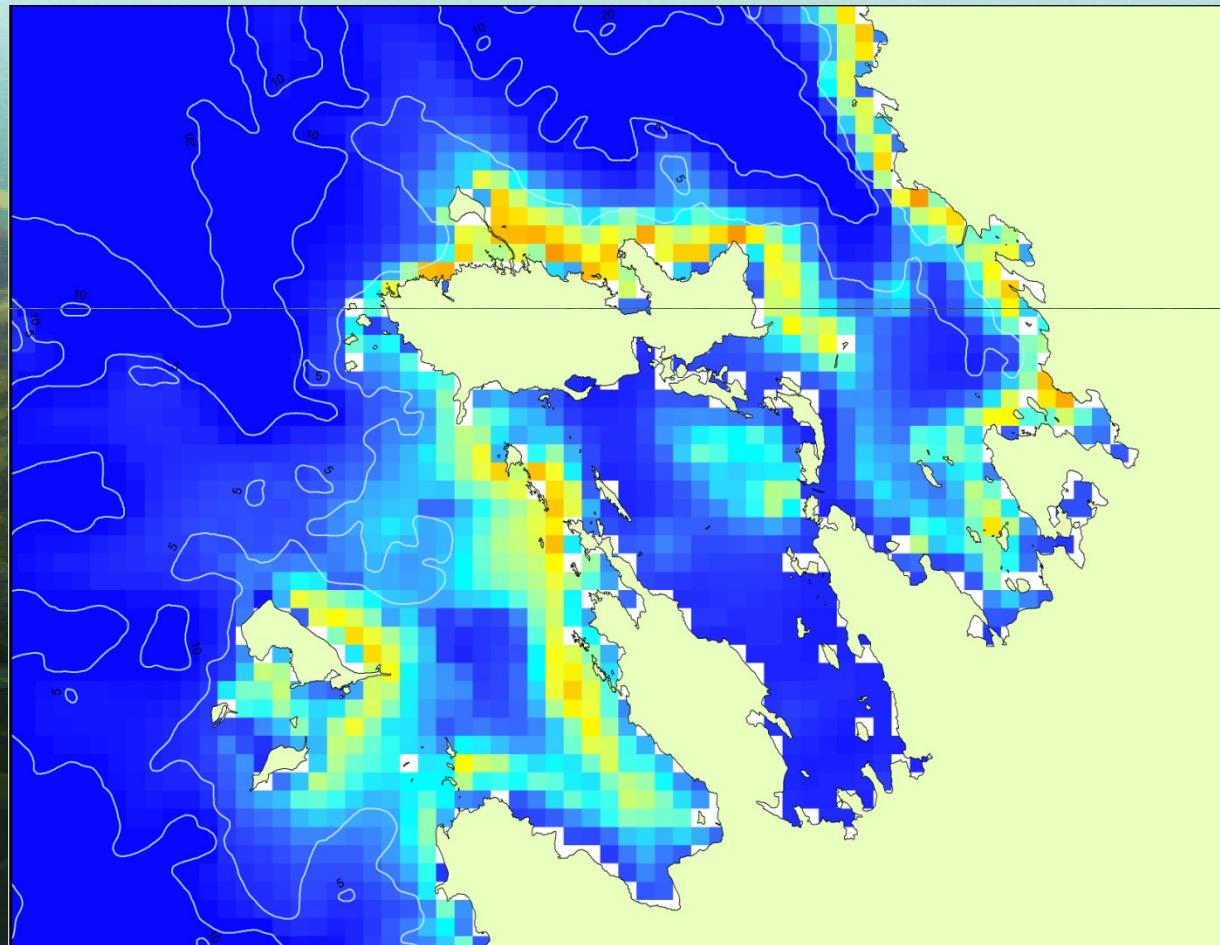
# Vilsandi fieldwork



# Modelled *Fucus vesiculosus* distribution



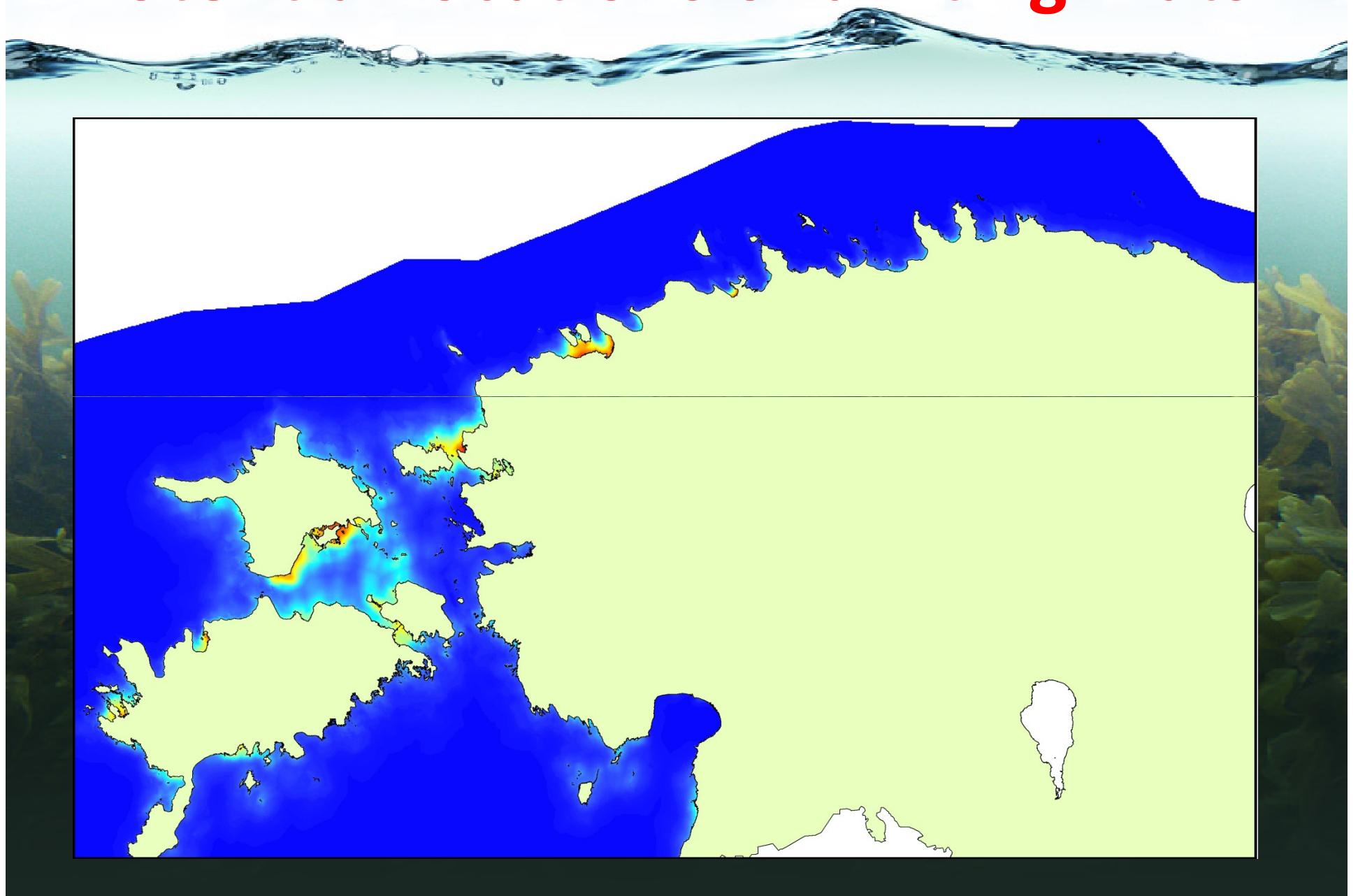
# Modelled *Fucus vesiculosus* distribution



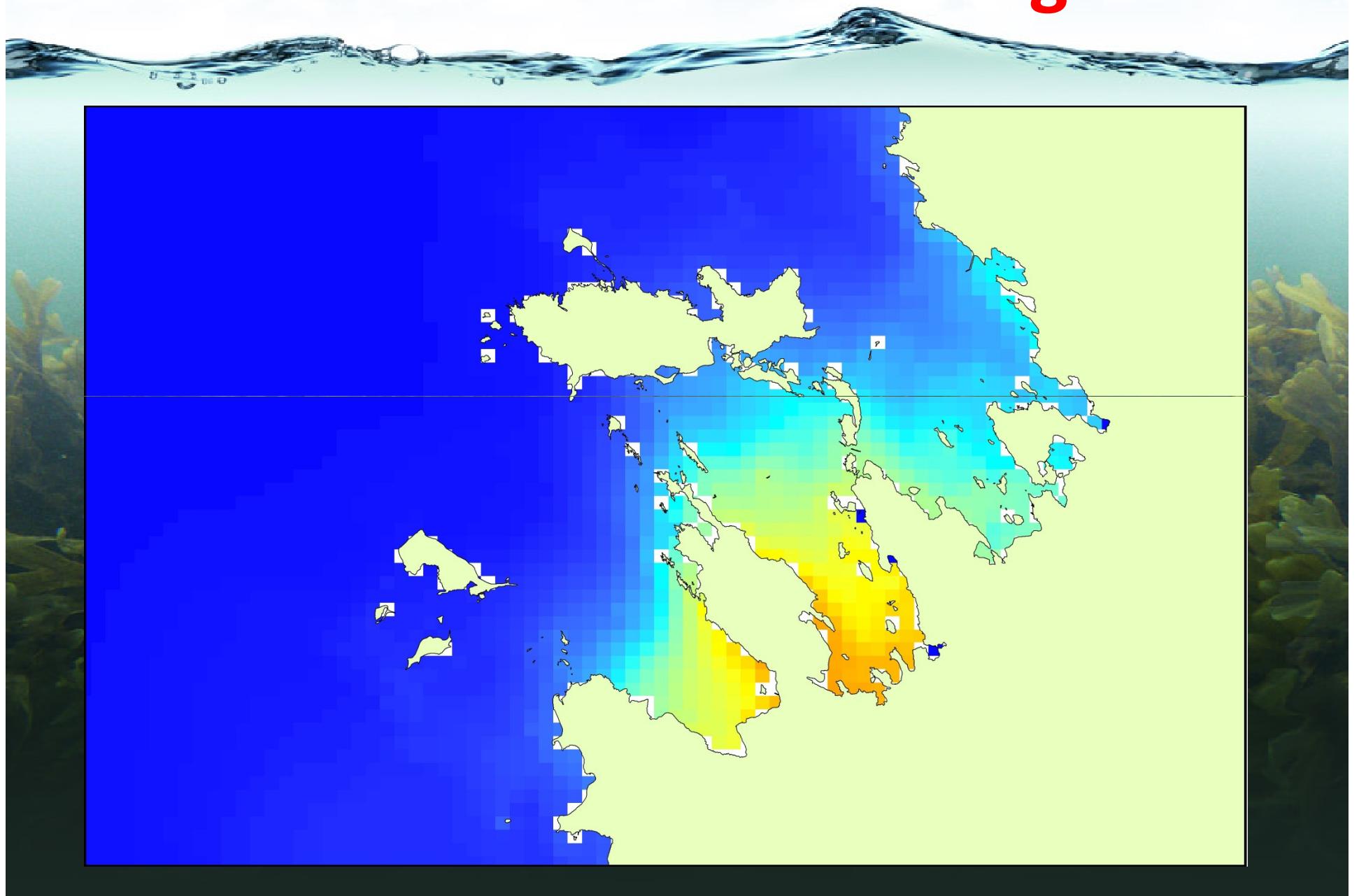
# Drifting algal mats

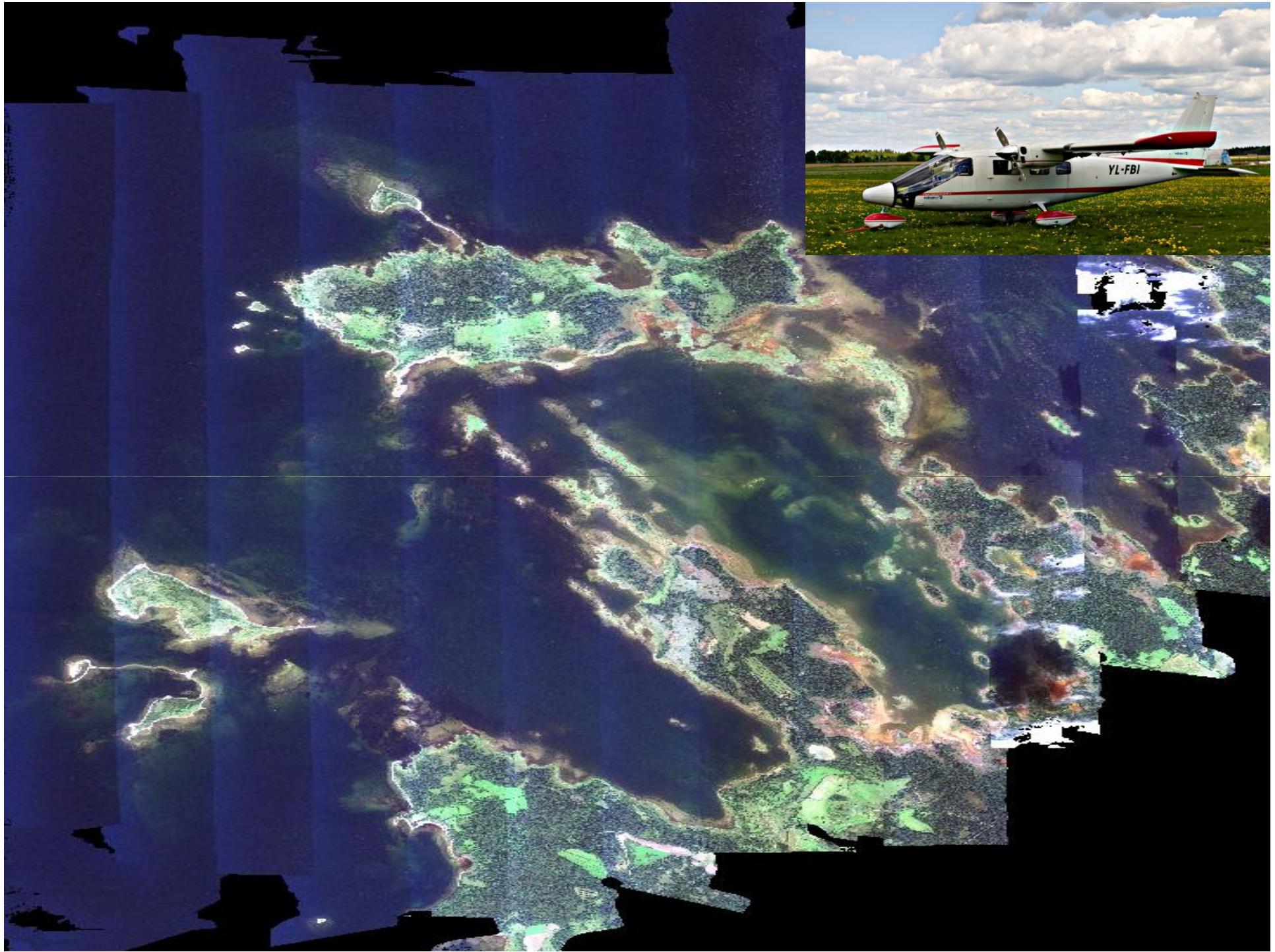


# Potential locations of drifting mats

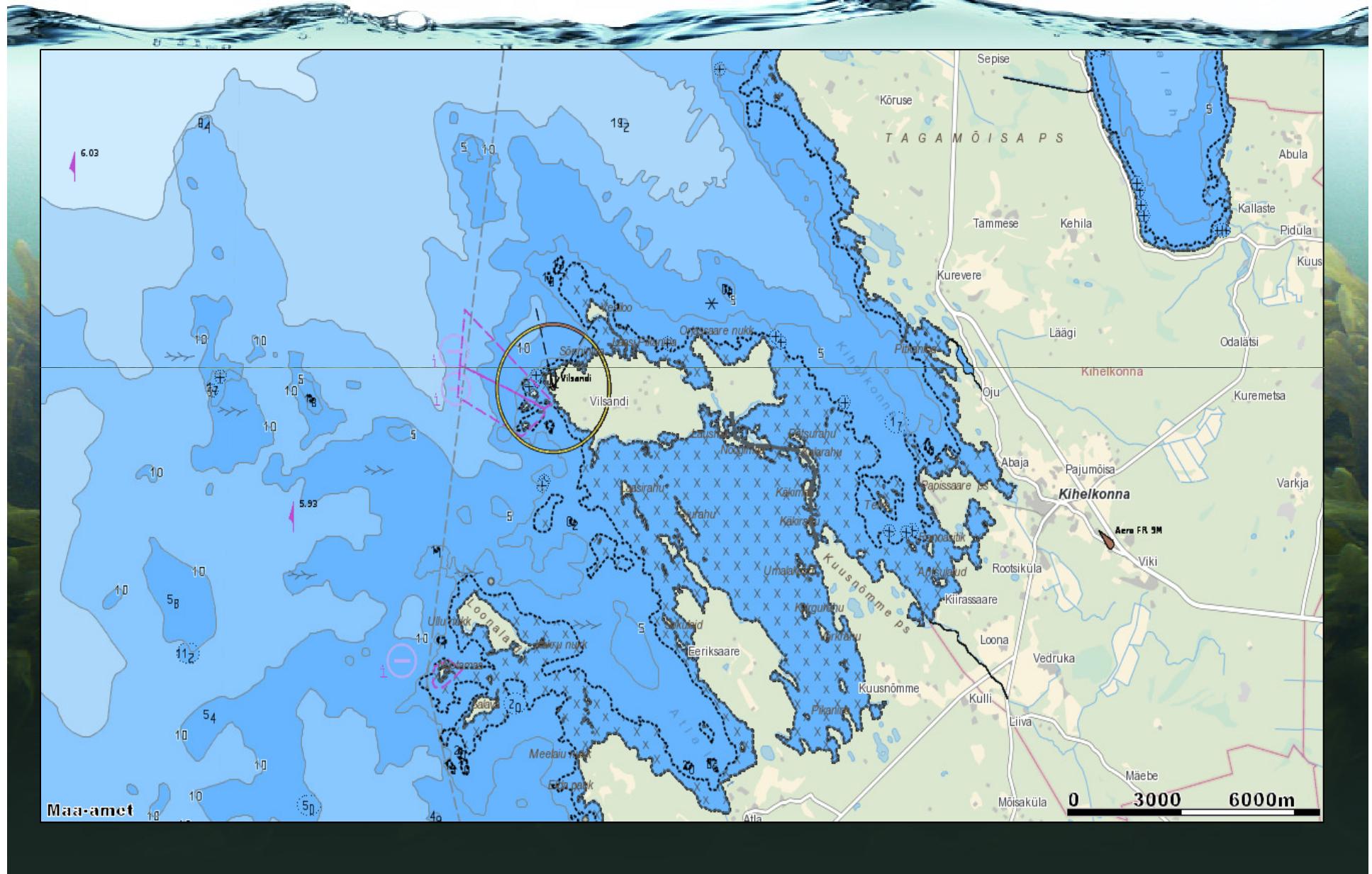


# Potential locations of drifting mats

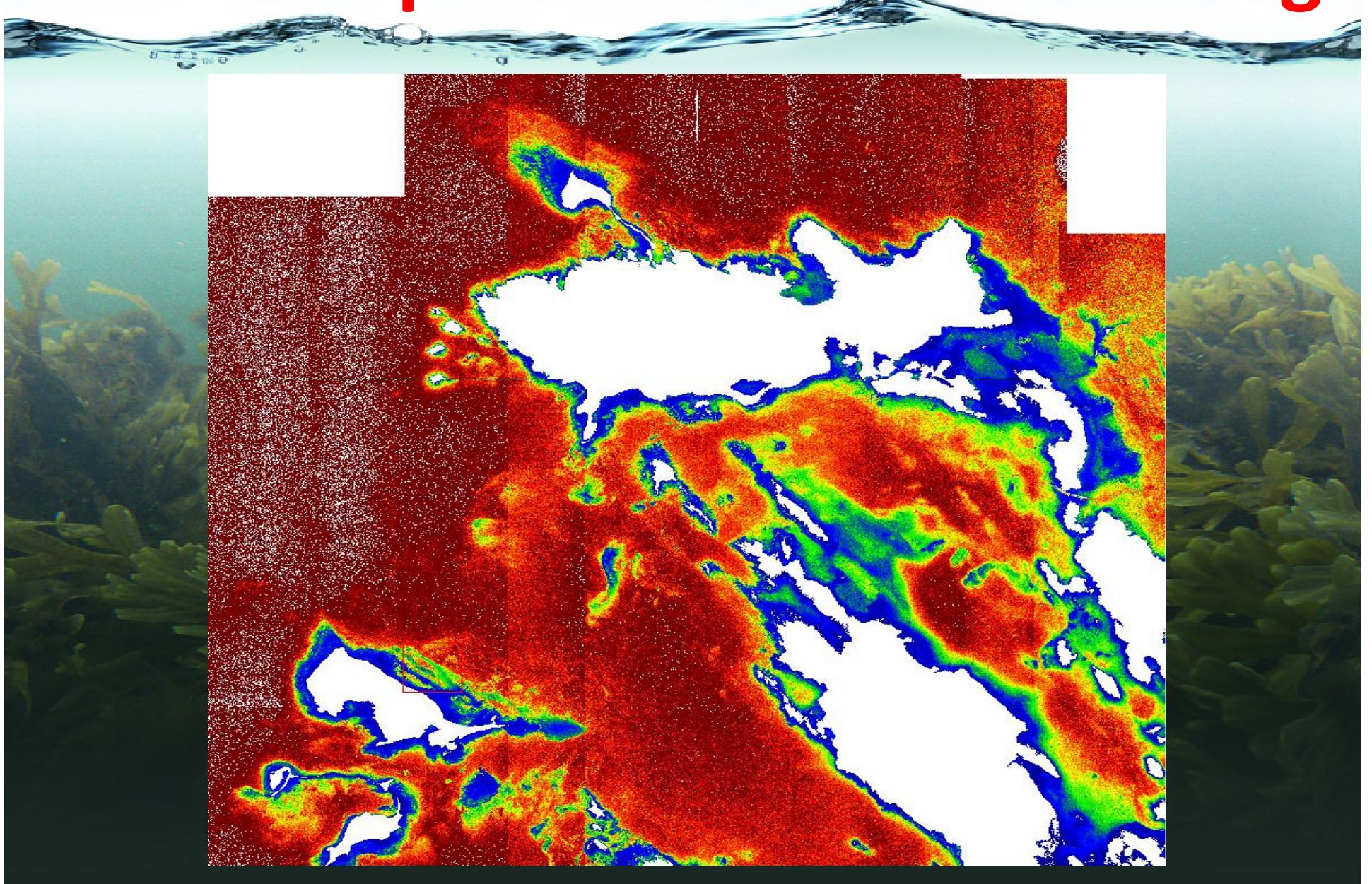




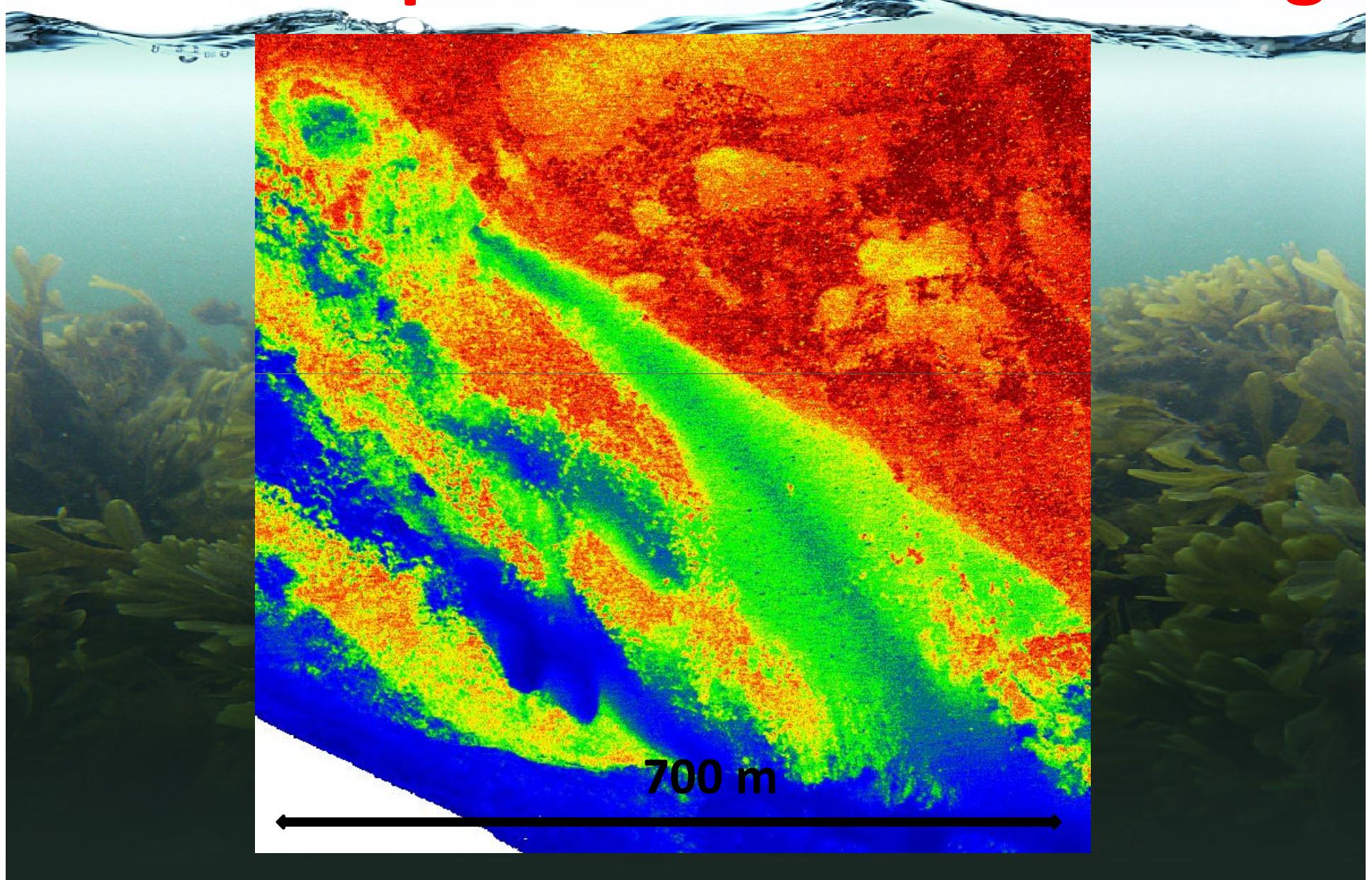
# Water depth



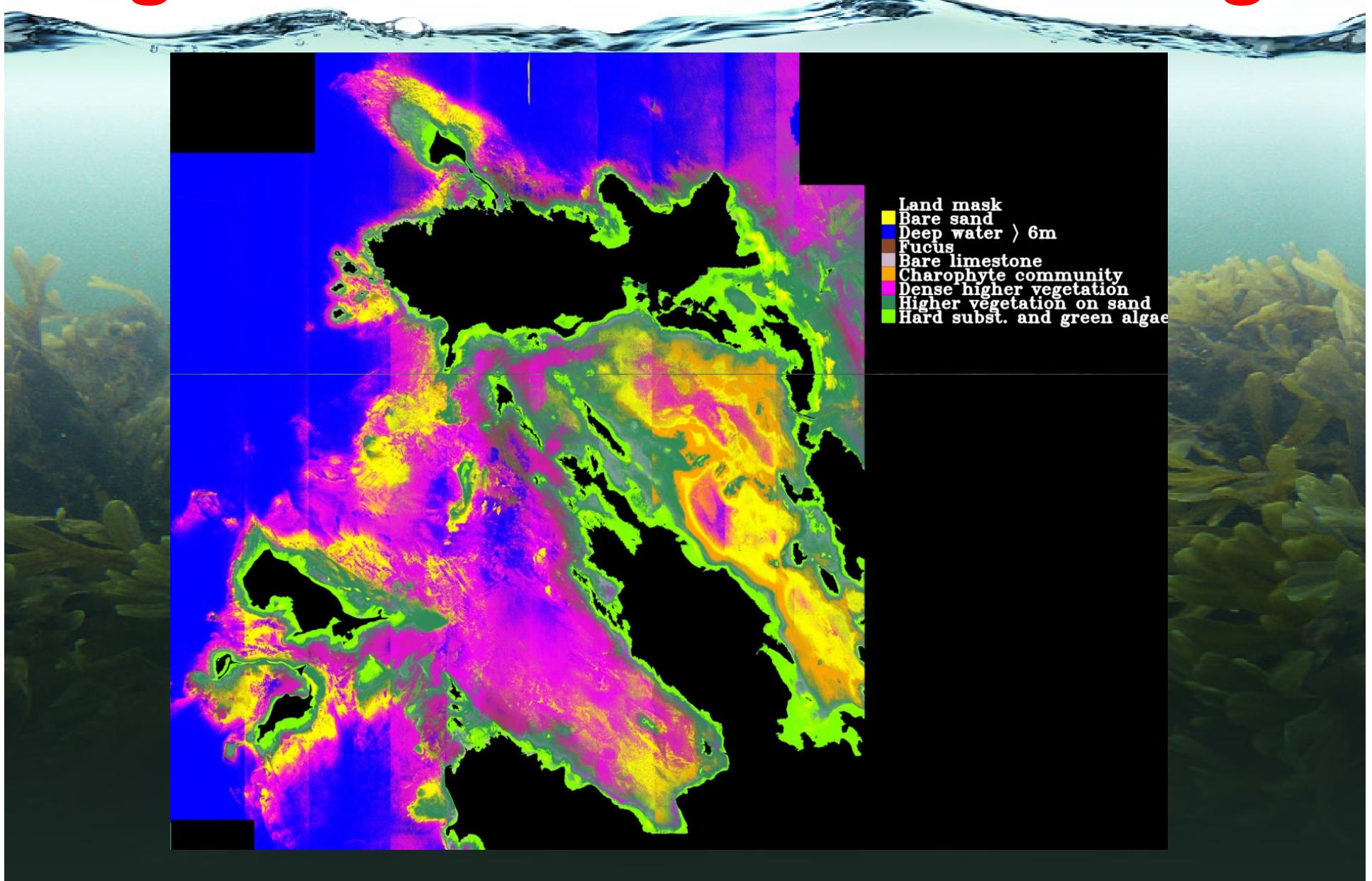
# Water depth from remote sensing

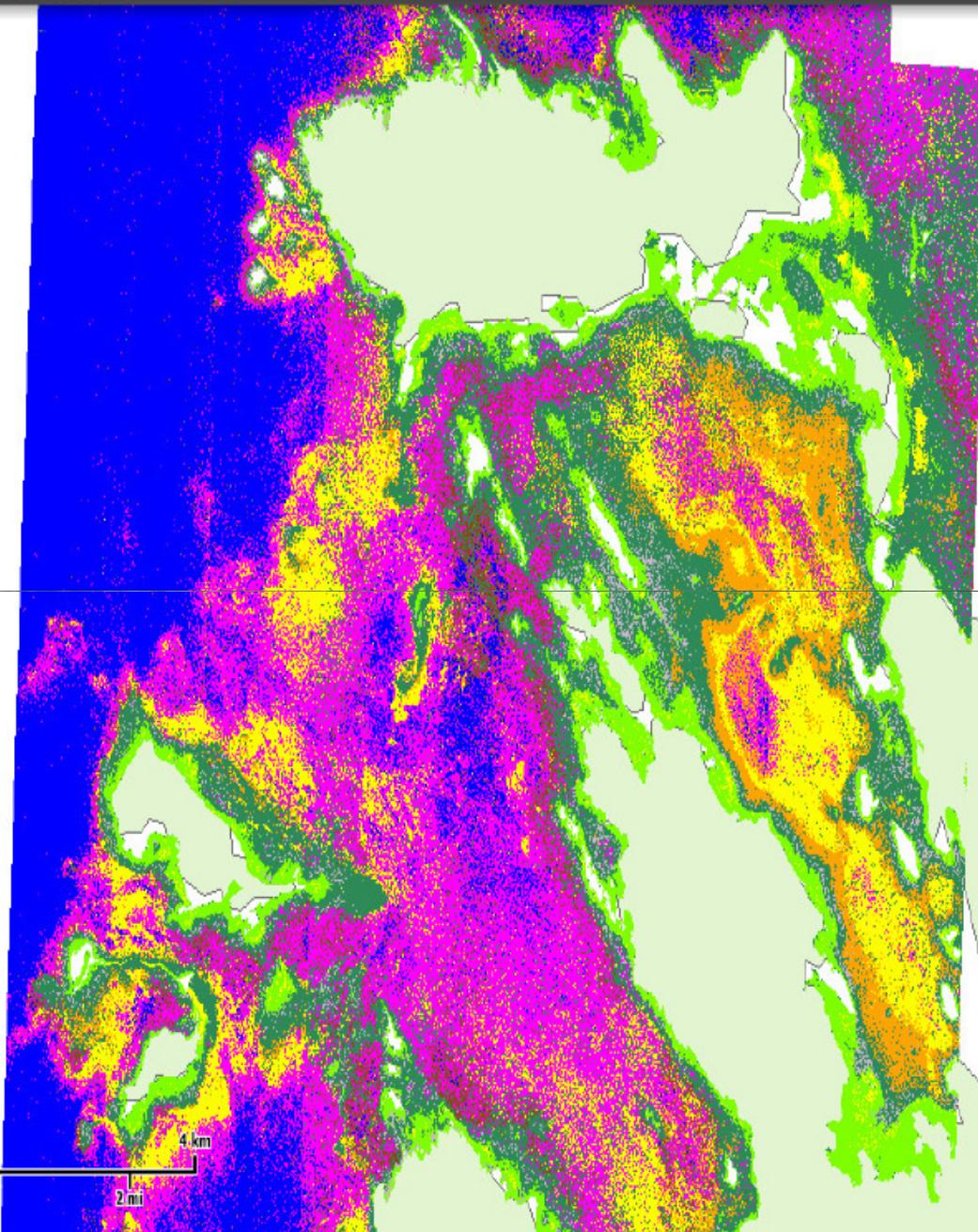


# Water depth from remote sensing



# Algal cover from remote sensing

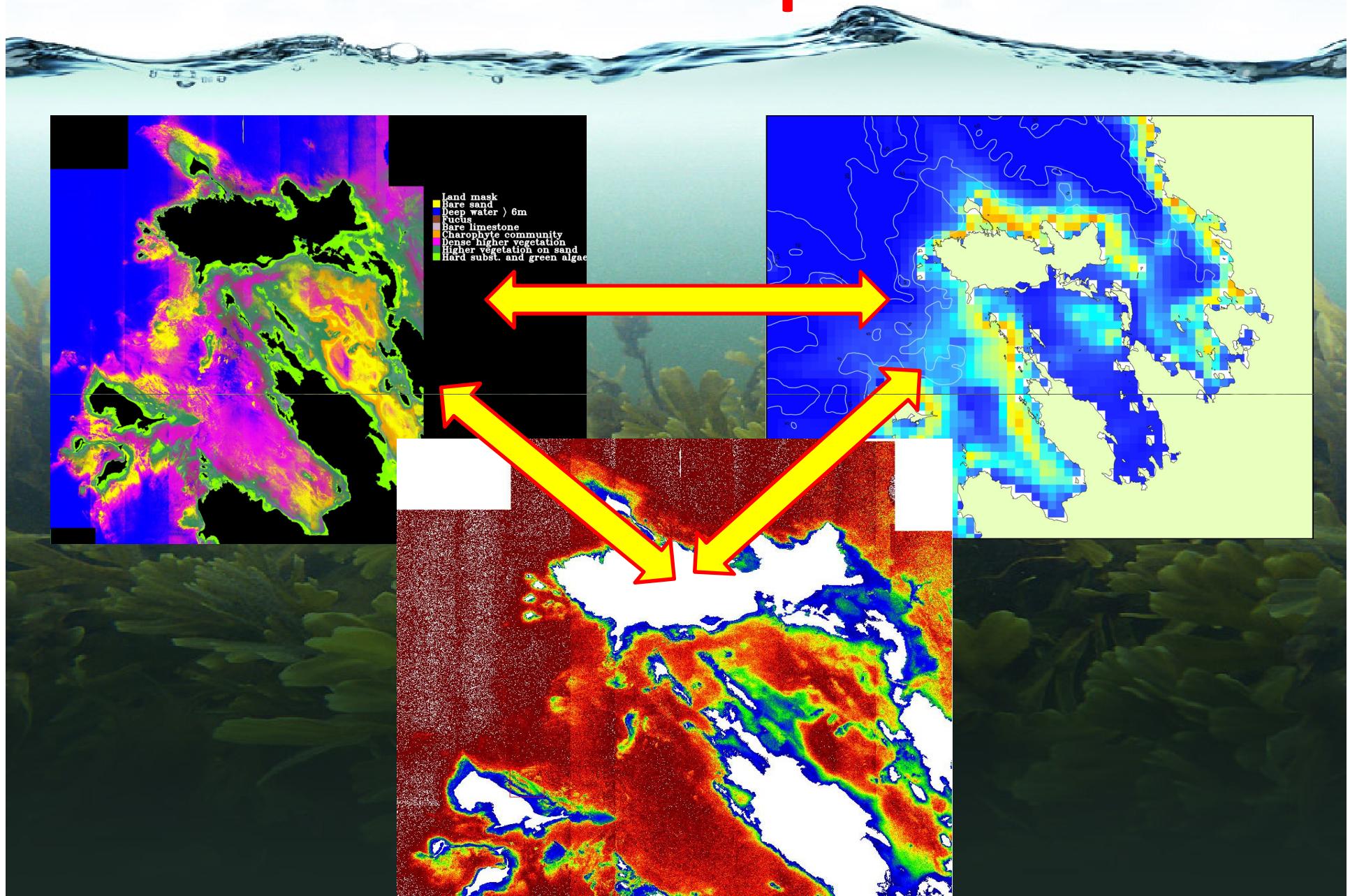


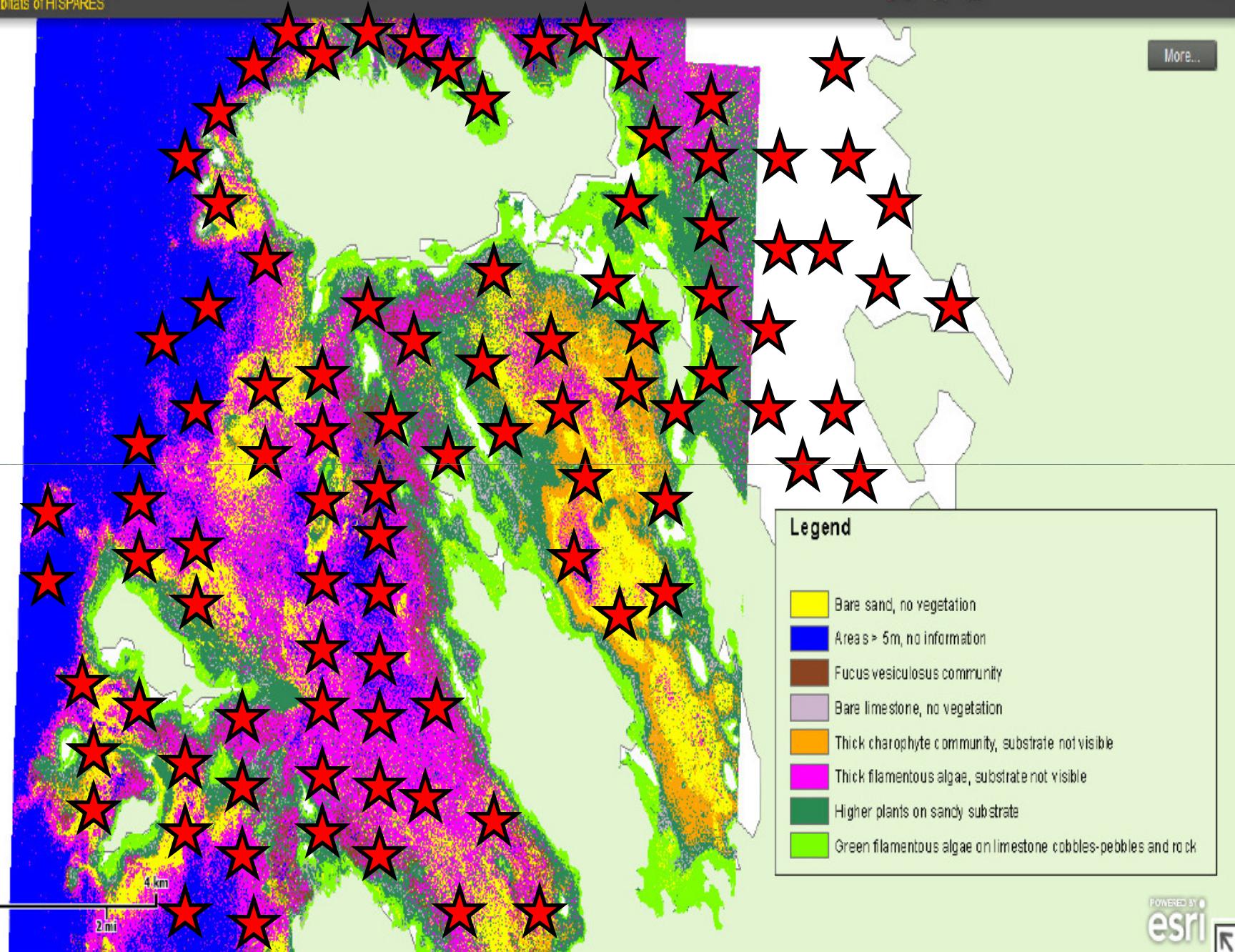


Legend

- Bare sand, no vegetation
- Areas > 5m, no information
- Fucus vesiculosus* community
- Bare limestone, no vegetation
- Thick charophyte community, substrate not visible
- Thick filamentous algae, substrate not visible
- Higher plants on sandy substrate
- Green filamentous algae on limestone cobbles-pebbles and rock

# Next steps





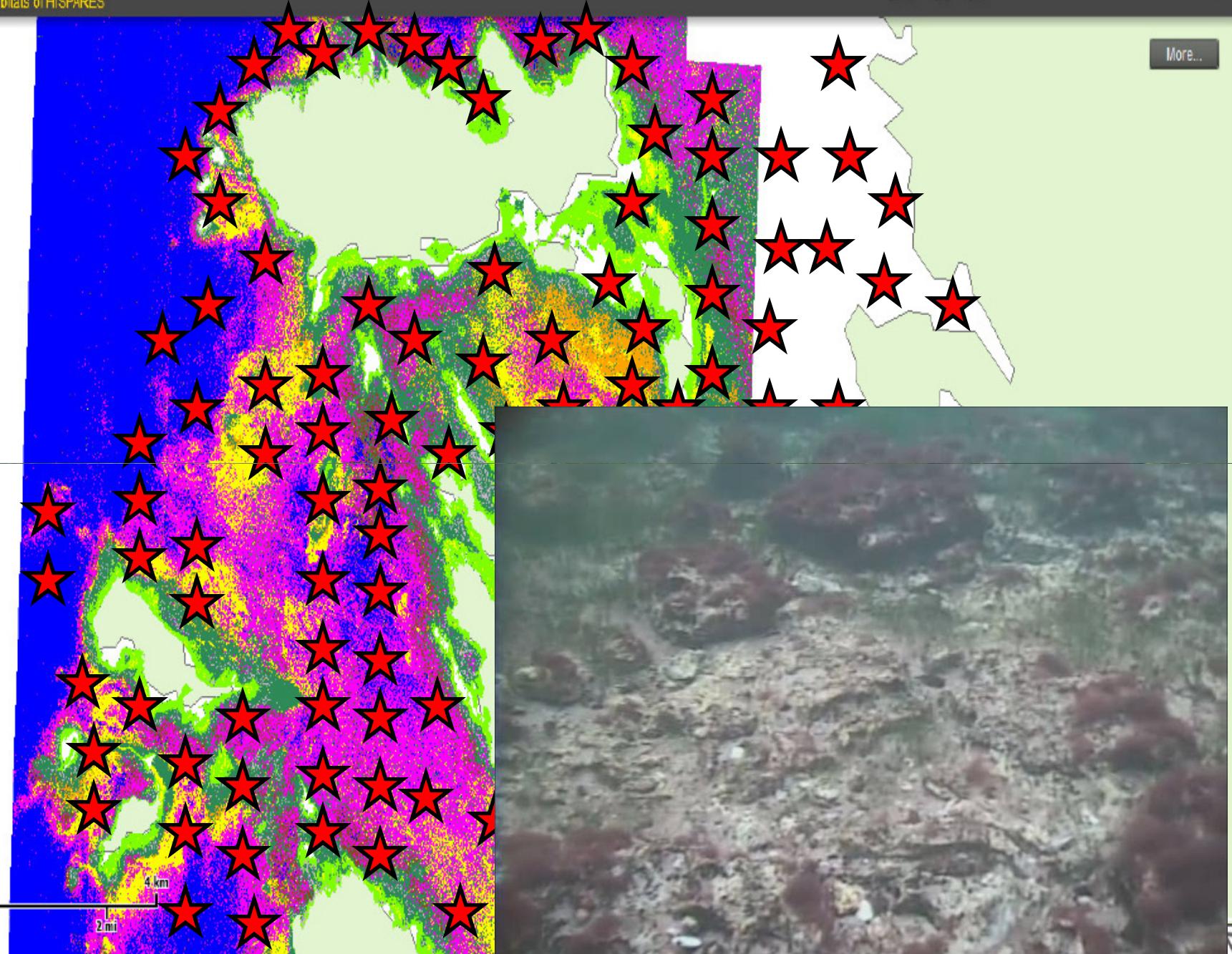
Legend

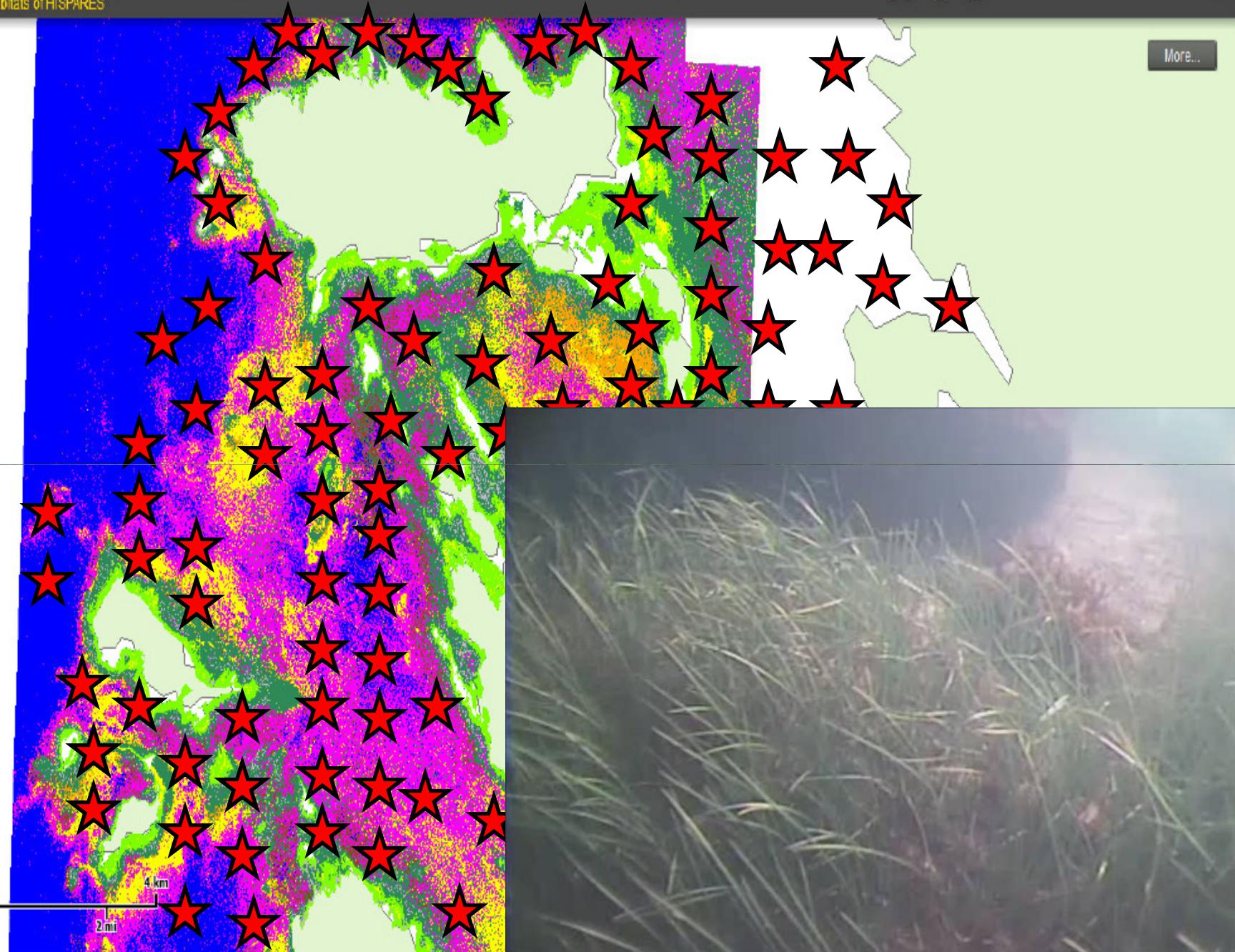
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2 mi

4 km





A photograph of an underwater kelp forest. The foreground is filled with dense, green, leafy kelp plants. Above them, the water is a clear, light blue. The surface of the water is visible in the background, showing small white waves and ripples under a bright, slightly cloudy sky.

**Thank you!**