

# If you build it they will come: A new coastal monitoring program for Svalbard

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Photo: Marcel van Oosten

# CBMP Monitoring Plans

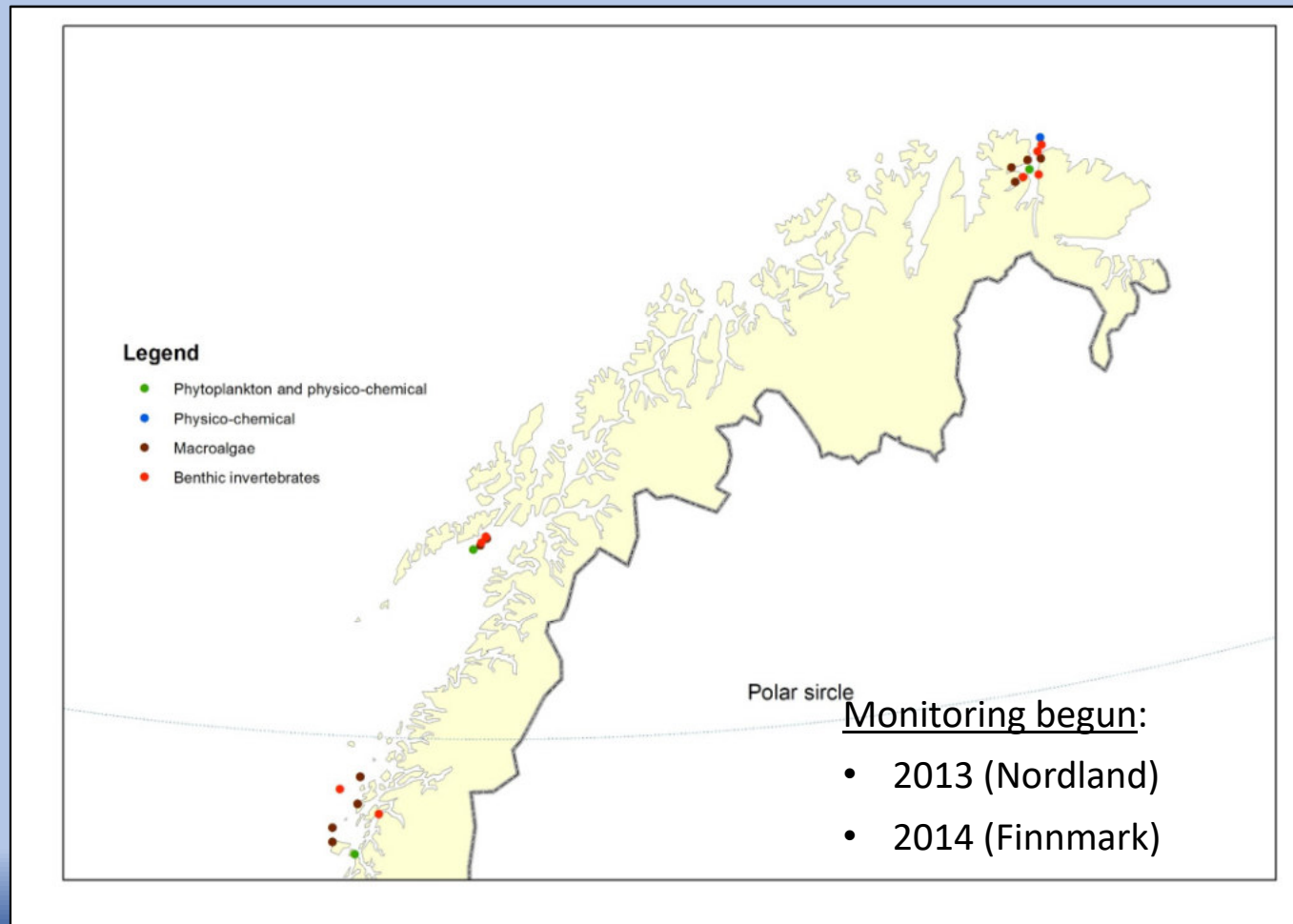
- Recognizing the value of biodiversity in Arctic socio-ecological systems
  - International consensus on characteristic and valuable components
  - Strategies for how these should be monitored
- 
- Little funding for coordinated monitoring across boundaries
  - Activities must be carried out with (primarily) national resources

# How can a monitoring program be built and funded?

## **1. Build CBMP targets into national/international directives:**

- ✓ Water framework directive, Marine strategy framework directive

# Coastal ecosystem monitoring (ØkoKyst): WFD methodology



# How can a monitoring program be built and funded?

## 1. Build CBMP targets into national/international directives:

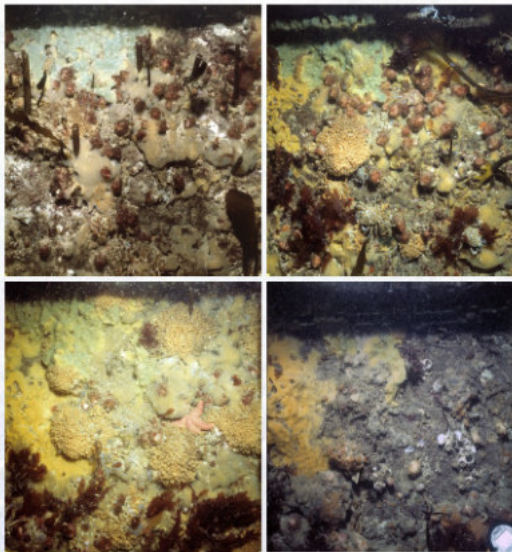
- ✓ Water framework directive, Marine strategy framework directive

## 2. Take advantage of current/historical efforts:

- ✓ Research projects, national monitoring
- ✓ Multiple institutions, international

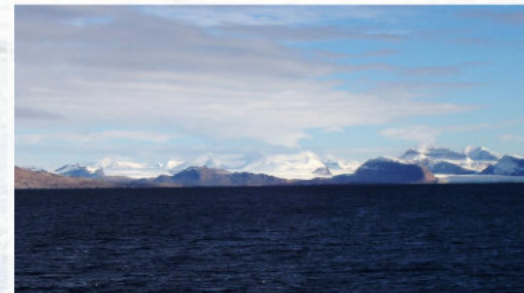


**Existing time-series of marine biodiversity and the need for nature-type mapping in Svalbard waters:  
Status, financing, and value for developing management strategies in a changing Arctic**



Akvaplan-niva AS Rapport: 6229 - 2

**A Metadata Atlas for Svalbard Benthos:  
Scoping for Habitat Mapping Studies**

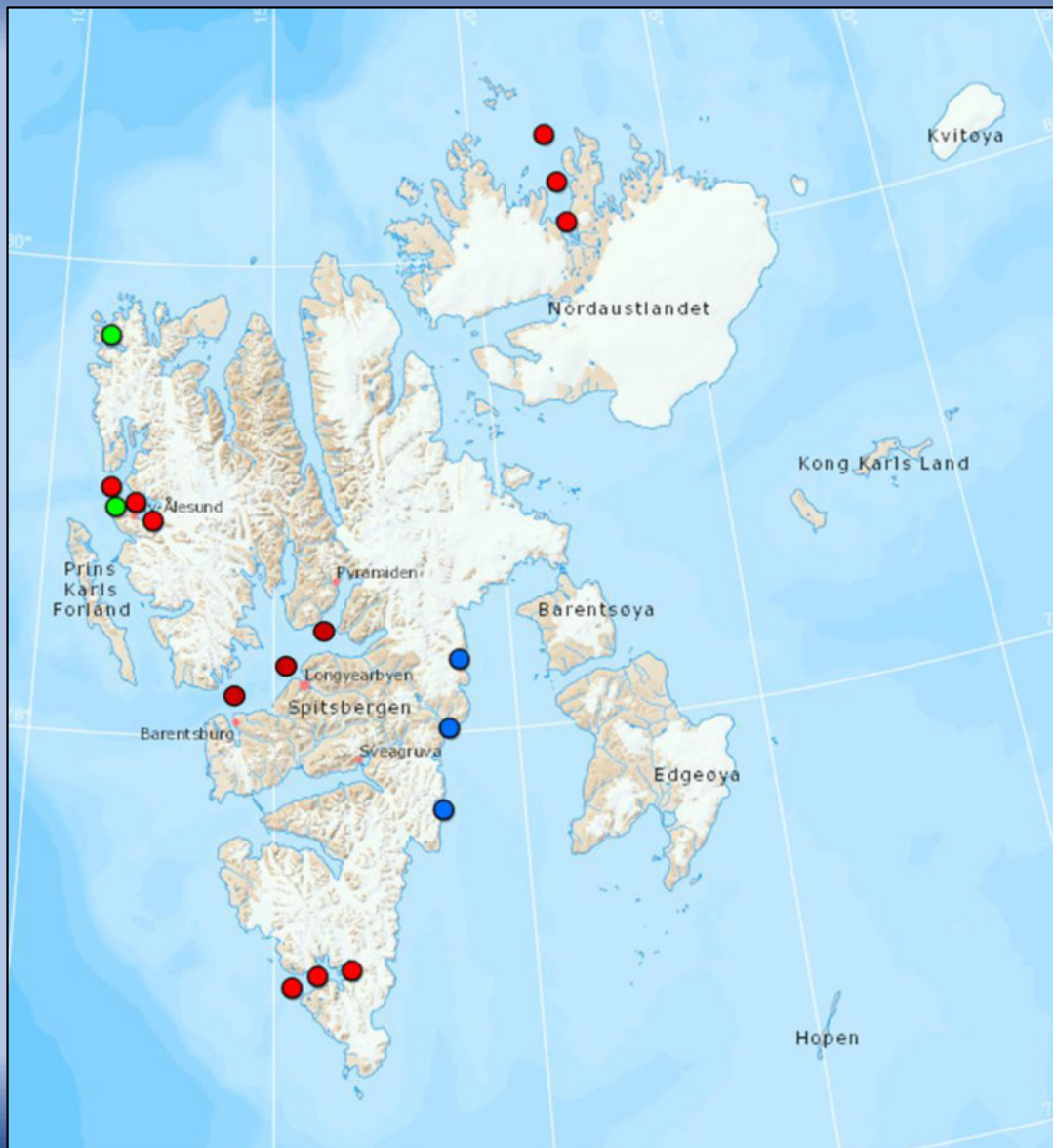


Akvaplan-niva AS Rapport: 8057 - 02



## Station network for baseline monitoring on Svalbard

- ✓ Register/monitor biodiversity in different Arctic habitats
- ✓ Based on ongoing monitoring projects
- ✓ Contribute to CBMP monitoring of rocky shore and fjord coastscapes
- ✓ Prioritize soft-sediment macrobenthos, sub-littoral macroalgae, phytoplankton
- ✓ Connect these elements to EU Water Framework Directive elements



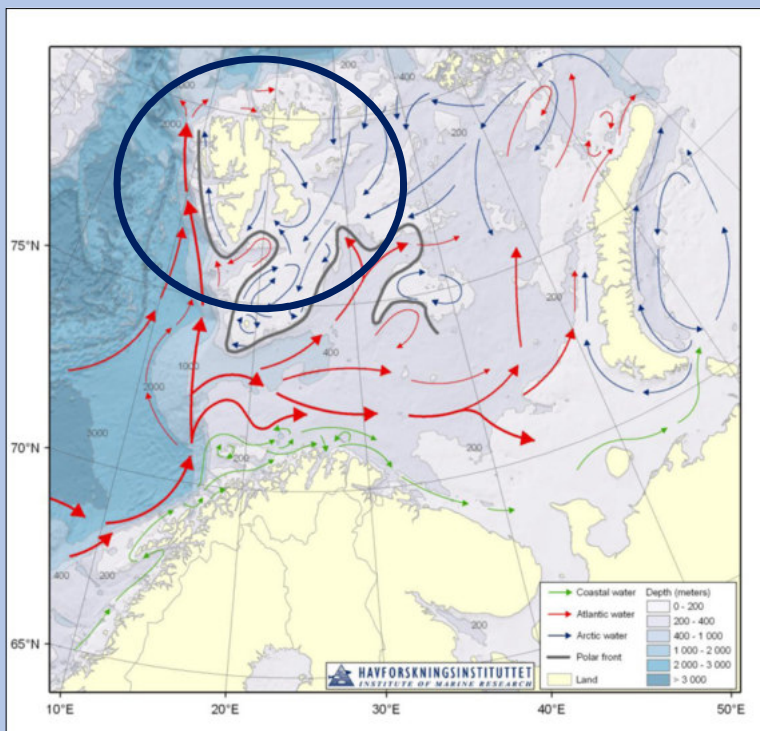
## Proposed sampling strategies

### Basic and high ambition levels

- Hard and soft-bottom benthos
- Hydrography/chemistry
- Phytoplankton
- Macroalgae
- Megafauna (bottom trawl database)
- Zooplankton
- Settlement plates
- Pink salmon (introduced)
- Purple sandpiper (citizen science)



# A new coastal monitoring program for Svalbard



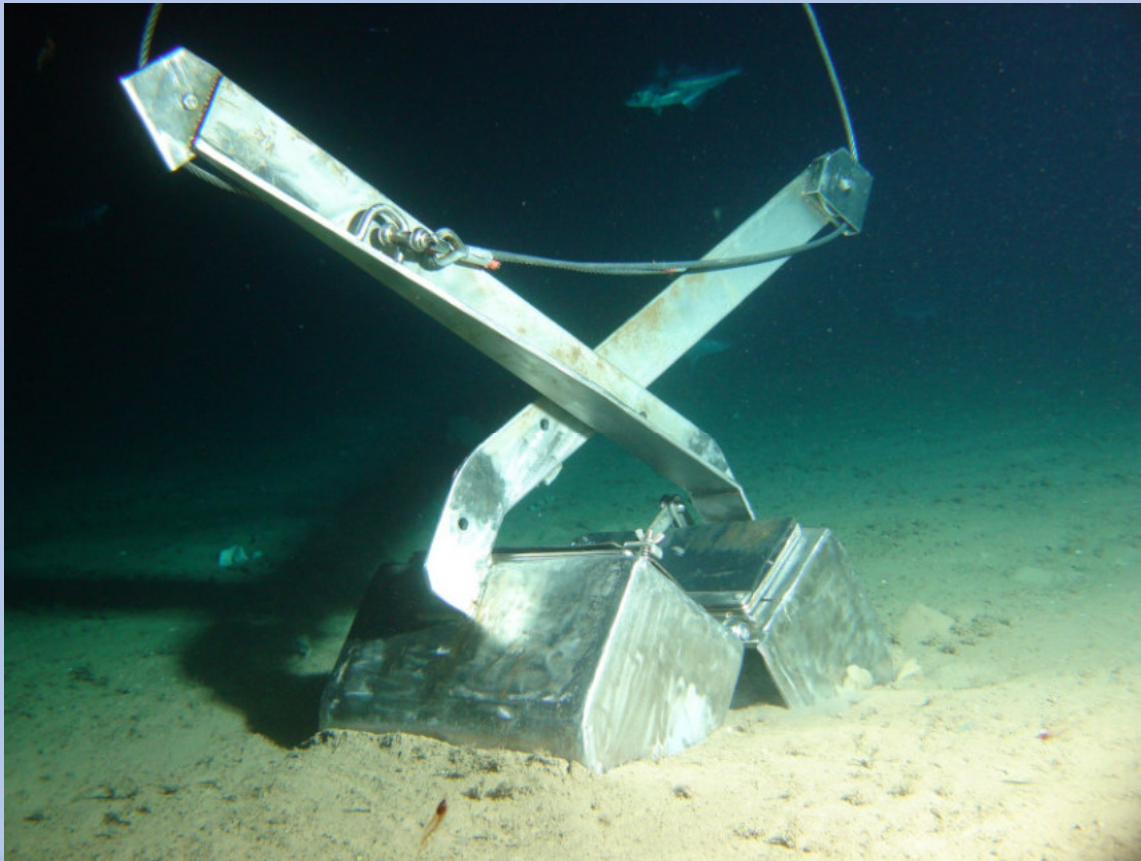
Kongsfjorden

Isfjorden

Hornsund

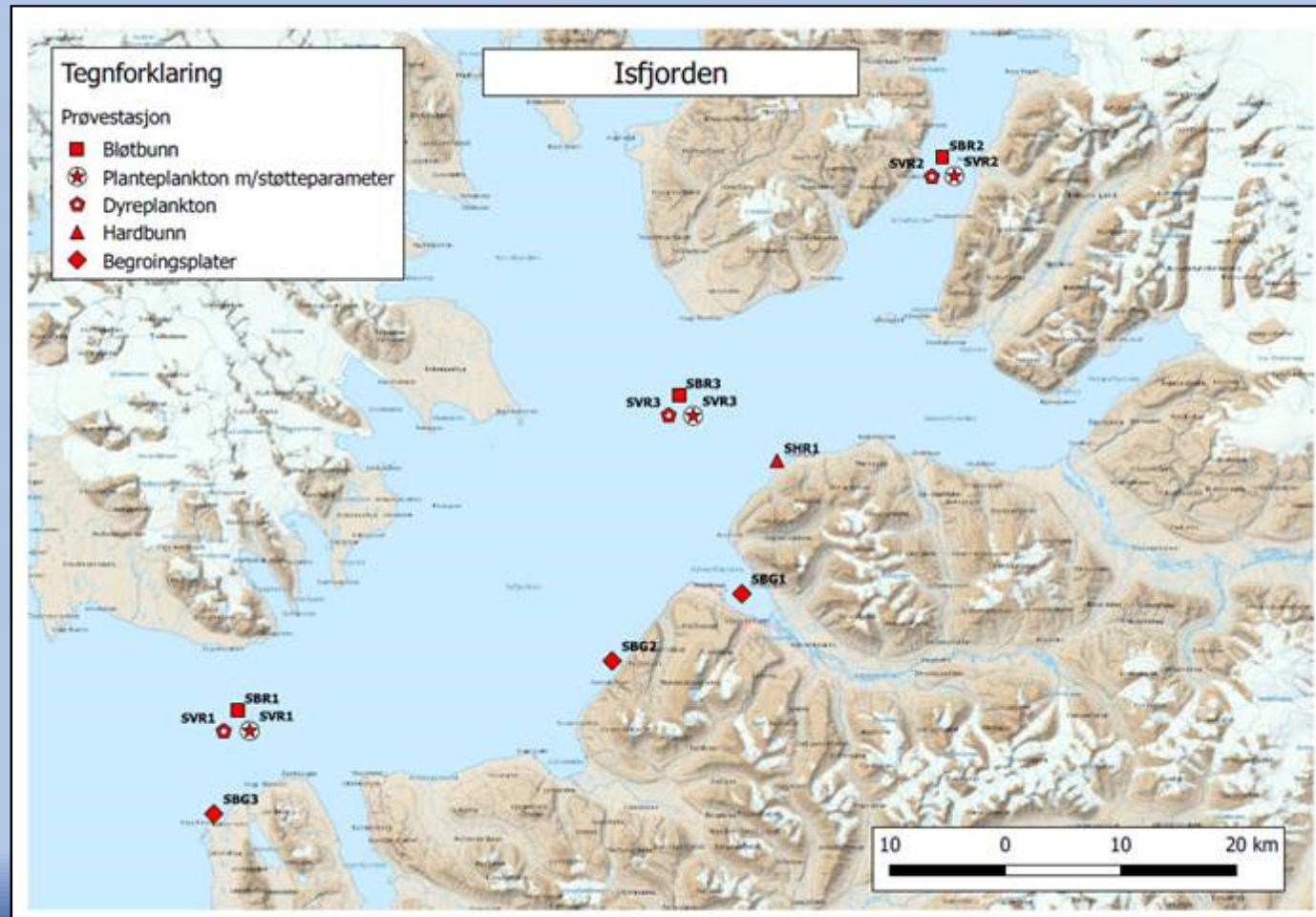


## CBMP/WFD elements included



- ★ Hard and soft-bottom benthos
- ★ Hydrography/chemistry
- ★ Phytoplankton
- ★ Macroalgae
  - Megafauna (bottom trawl database)
- ★ Zooplankton
- ★ Settlement plates
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# Completed sampling: Isfjorden, 2018

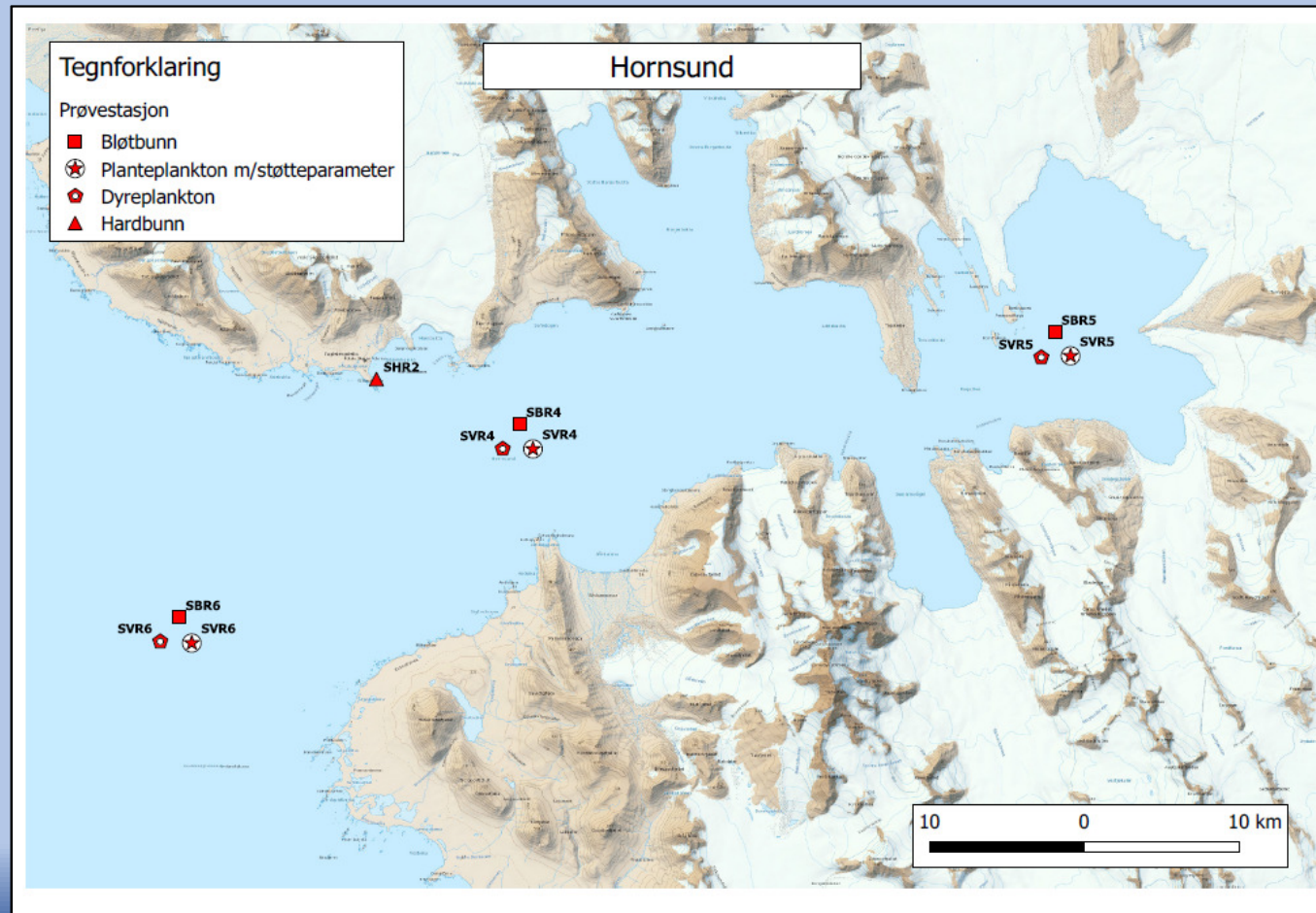


## What has been done in 2018 in Isfjorden?

- Soft-bottom benthos: 3 stations, 4 replicate grabs
- Hydrography (CTD/nutrients/chl *a*): 4 monthly samplings, 5 depths
- Phytoplankton: 4 monthly samples: 5 m depth, vertical haul
- Macroalgae: sampling in October, 2 sites
- Zooplankton: 2 times (spring, summer), vertical hauls from bottom
- Settlement plates: 3 stations (and work-up of 14 y time series)



# Proposed sampling: Hornsund, 2019 (and Kongsfjorden, 2020)



## Lessons learned

- Need strong networks of researchers who are interested
- Need thorough understanding of existing data sets/time series
- Need national agency commitment for funding, inspiration
- And involvement in CBMP work can bring added value:
  - Stronger international networks
  - Strong research-management links
  - Provides direct and immediate application of research results

# Thanks

- Maria Pettersvik Arvnes, Norwegian Environmental Agency
- CBMP coast team



Photo: Fredrik Broms