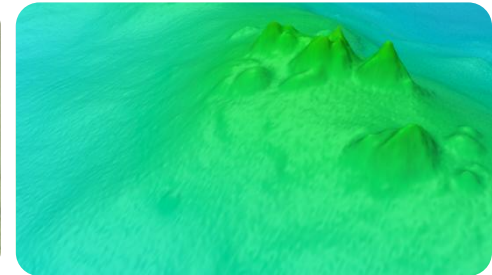# Involving industry data providers and users in marine data acquisition, management and sharing activities: experiences from the MAREANO programme

Terje Thorsnes, Geological Survey of Norway
John-Morten Klingsheim, Norwegian Coastal Administration

MAREANO – providing knowledge for ecosystem-based ocean government

www.mareano.no

Data collected and used by MAREANO
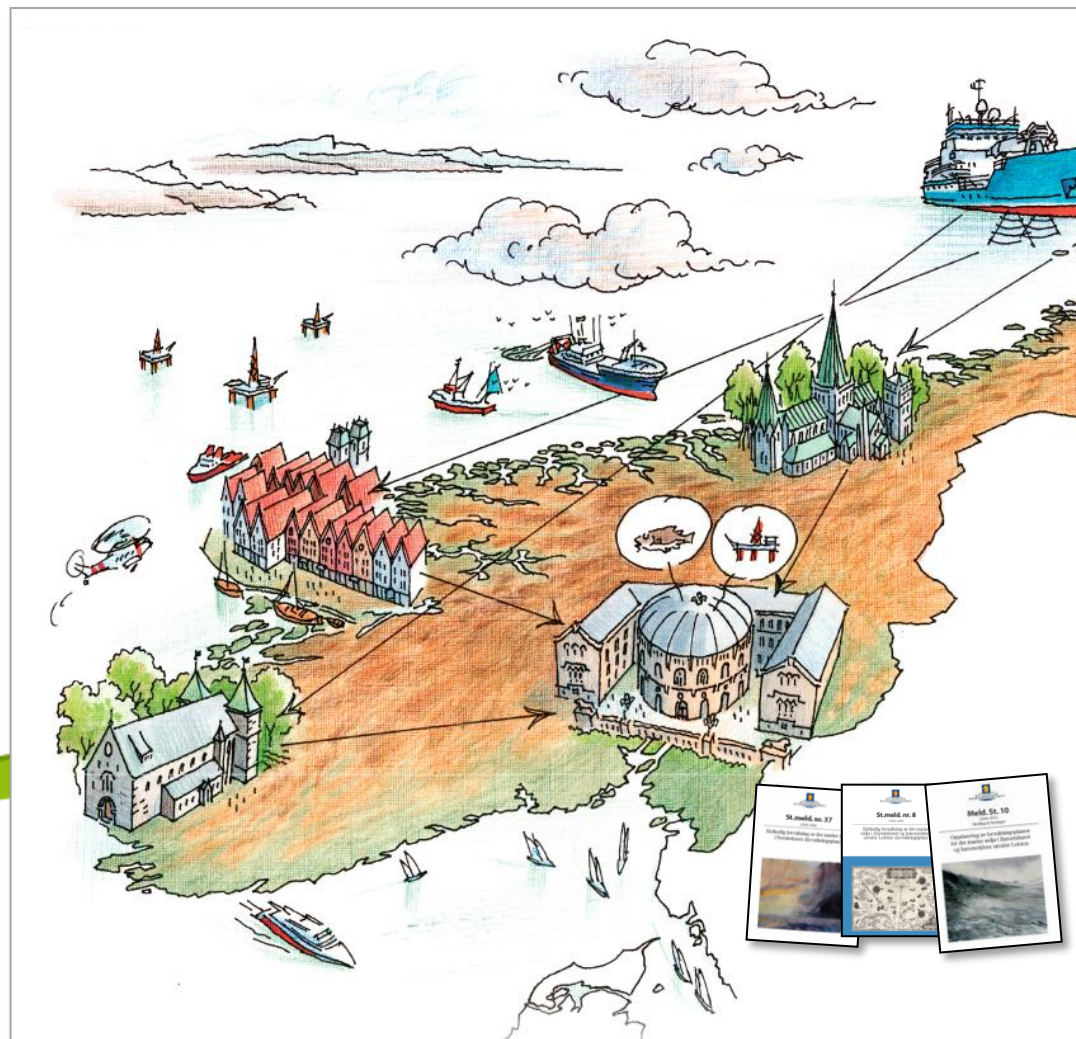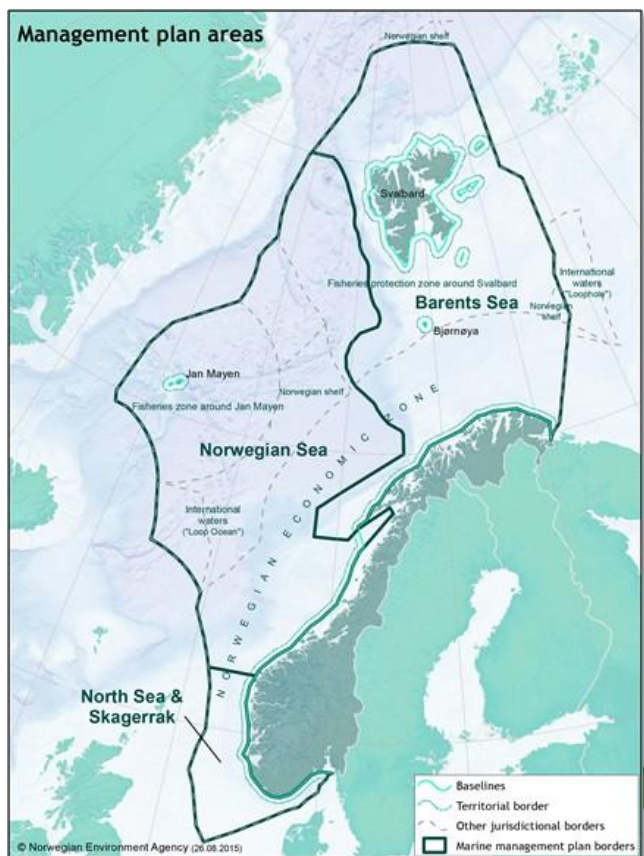
Depth mapping / Bathymetry
* Multibeam echo sounding from surface ship (bathymetry, backscatter and water column data)

Geological and chemical sampling
* Sediment samples by using corers or grab
* Visual observation of the seabed (real-time video)
* Sediment-penetrating echo sounder (e.g. TOPAS)

Biological sampling
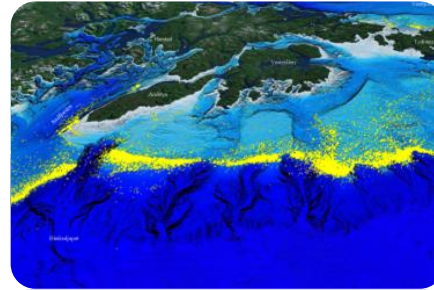* Fauna is sampled by using grab, sledge and beam trawl
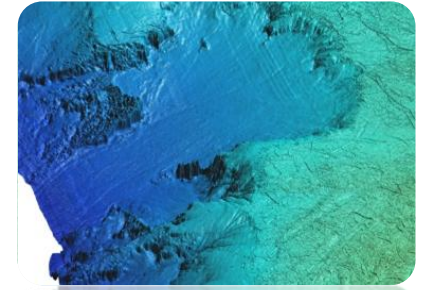* Video

What is the data used for?

Nature type maps –
basis for ecosystem based management

Environmental status for sediments –
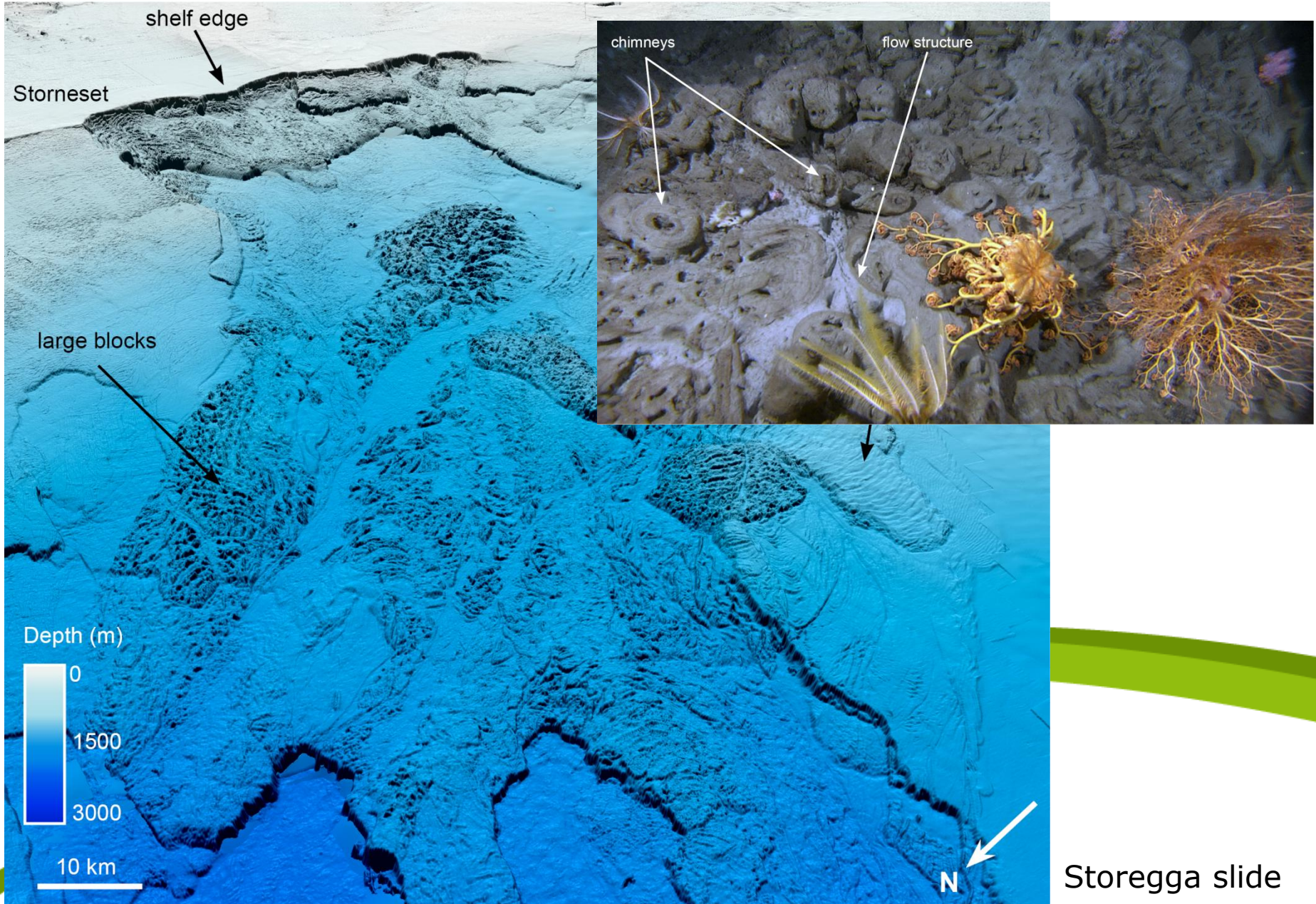basis for ecosystem based management

Fisheries –
reduced fuel consumption, reduced damage on gear and seabed, aquaculture

Energy industry -
• stability and geohazard
• wind mills
• pipelines
• environment
• research

Multiple scales and disciplines

shelf edge

Storneset

large blocks

chimneys

flow structure

Depth (m)

0

1500

3000

10 km

N

Storegga slide

Hydrographic data

Transfer from industry to MAREANO
- Multibeam bathymetry, backscatter and water column data
- Bathymetry data from 3D seismic surveys
- Single-beam data from OLEX, covering large areas

Data acquisition – 80% private

"South Norway"   "North Sea"   "West UK"

Transfer from MAREANO to industry
- Multibeam bathymetry, backscatter and water column data to oil industry
- Multibeam bathymetry to fishing industry through ECDIS and OLEX
- Multibeam bathymetry for offshore wind mills and aquaculture sites

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beam fan

gas flare

gas flares

100 m

100 m
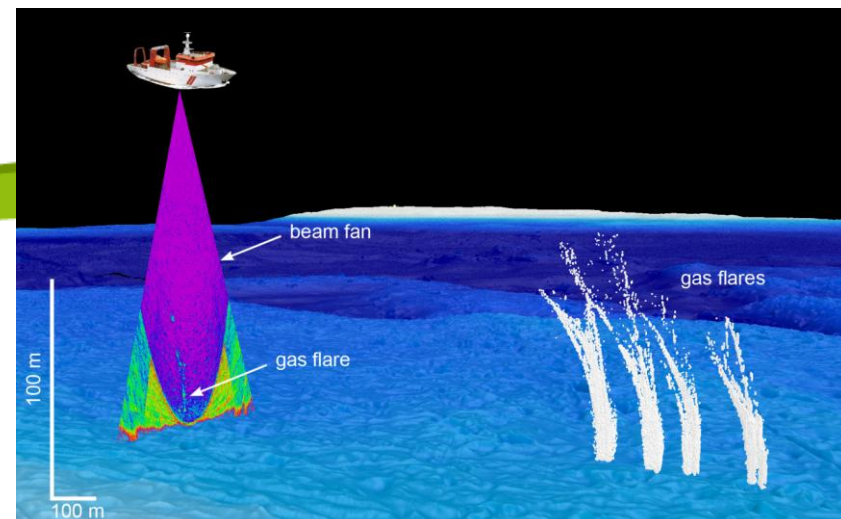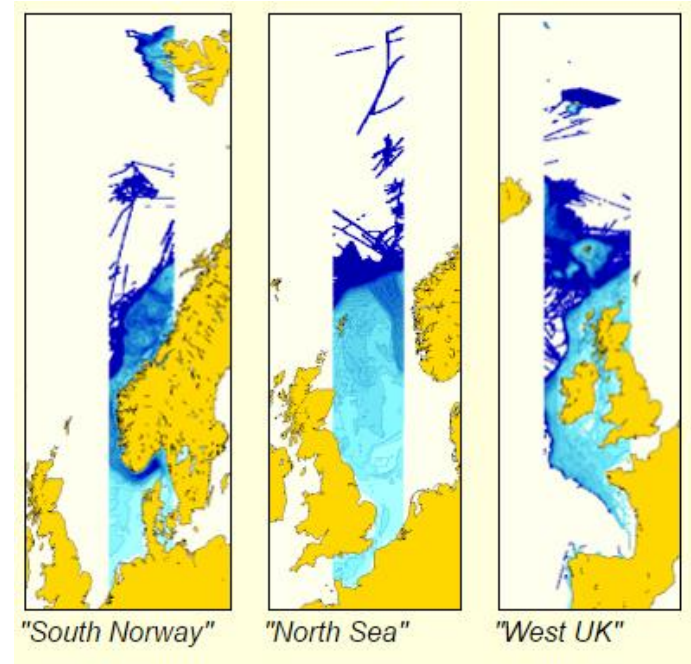
Geological data

Transfer from industry to MAREANO
- Seabed photos and grain size
- Grab samples and cores
- Shallow seismic data

Data acquisition – public

Transfer from MAREANO to industry
- Seabed geology maps for oil industry
- Grain size and derived thematic maps to fishing industry, on OLEX platform
- Distribution of heavy metals in seabed sediments
- Distribution of natural gas flares
- Geological data for offshore wind mills and aquaculture sites

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Thingling.com

www.salmar.no

Biological data

samler kunnskap om havet

Transfer from industry to MAREANO
• Seabed video and images
• Grab samples and analytical results regarding biodiversity and chemistry

**Data acquisition** - public

Transfer from MAREANO to industry
• Seabed biodiversity
• Distribution of vulnerable biotopes, incl. coral reef distribution
• Distribution of organic pollutants in seabed sediments
•Information on marine litter, especially loss of heavy equipment from fishing industry
• Material for biotechnology

2 km

Hola
Coral reefs
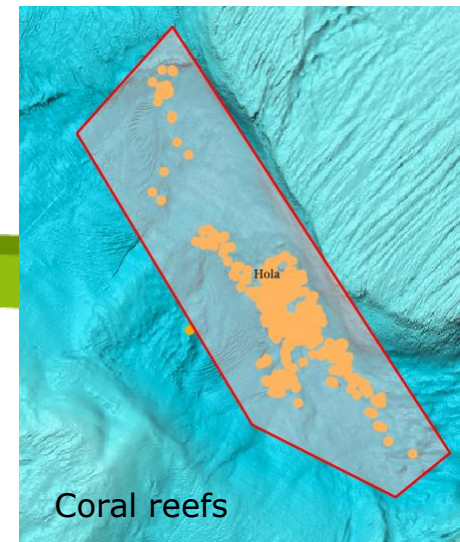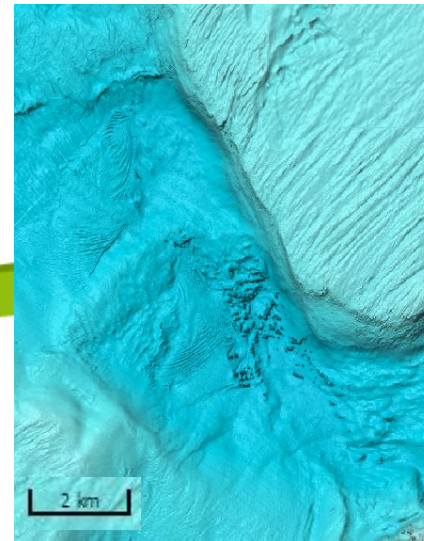
Seabed information for the Norwegian Coastal Administration (NCA)

NCA can share our data from fairway-projects and seabed mapping of shipwrecks causing risk of pollution

- Ownership can vary between projects
- Data sharing has low priority in a busy world!
- Variation in quality and methods. Standards!
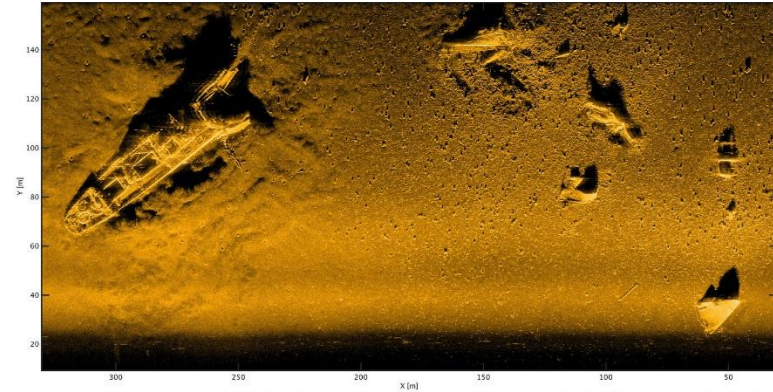
NCA access Mareano-data and private data for fairway projects, coastal zone management and preparedness against oil spill pollution

- Most needed is details on detailed depths as input for our fairway projects, but also physical/chemical/biological status.

- Detailed private surveys on depth and seabed classification should also be added into ENC's from National Hydrograhic Services (for navigation).

- Exchange of Technology knowhow

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Challenges, from Columbus Good practice guide

Marine data and information initiatives are not visible to industry

Public data is for public users
• different formats used by industry and public initiatives

Marine data managers and private sector users speak different languages
• public initiatives are often built bottom-up, focussed on data management and to serve as platform for making products

Availability doesn't imply usability
• complex interface for non-specialists
• data quality needs to be clearly documented

Industry may be less likely to make long term decisions based on short term initiatives

Industry represents a diversity of actors with a diversity of needs
• Offshore and coastal operators need more detailed and complex products
• Platforms and products are not tailored to industry needs
• Different software and data formats like GIS, CAD and ECDIS

**Europe's marine data and information sharing landscape is too complex**

Industry are willing to share data but there are barriers...
• Ownership of data, several licensing holders – obstacles
• Capacity issues – data sharing has low priority in a busy world
• Commercial interest – strategic data give competitive advantage
• Some success stories, involving scientific cooperation (e.g. Lundin)

Special national challenges

Very restricted access to bathymetry better than 50 m grid within the 12 nM boundary, due to military regulations

In aquaculture, exclusive access to multibeam bathymetry and backscatter is considered as an competitive advantage

Coral reefs

50m

5m

12 Nm
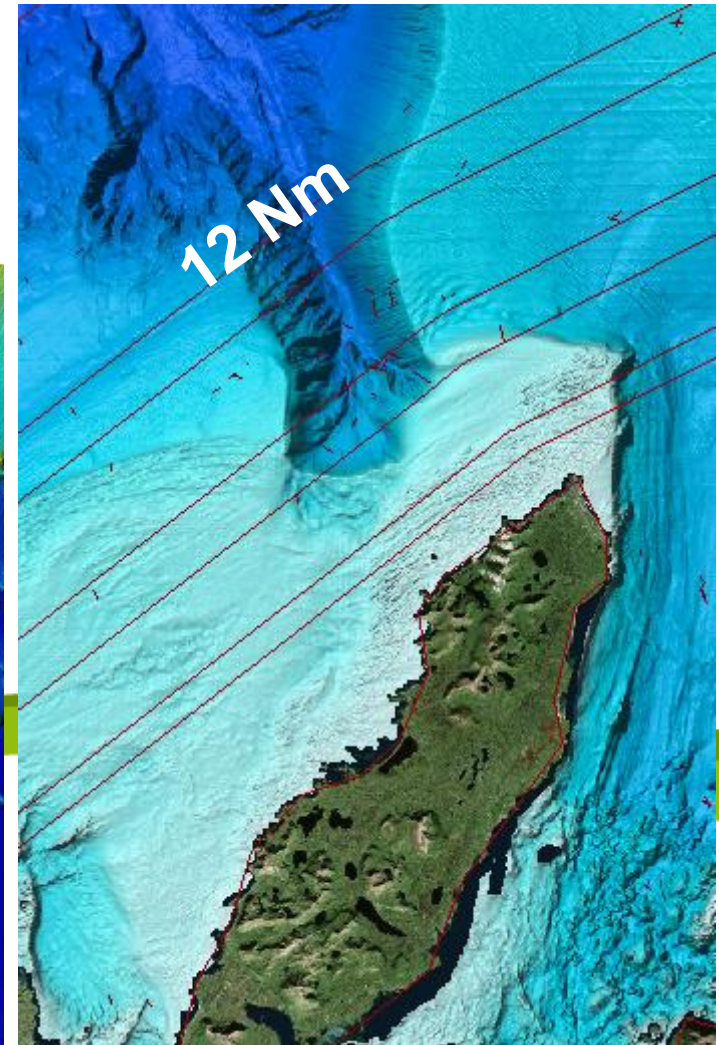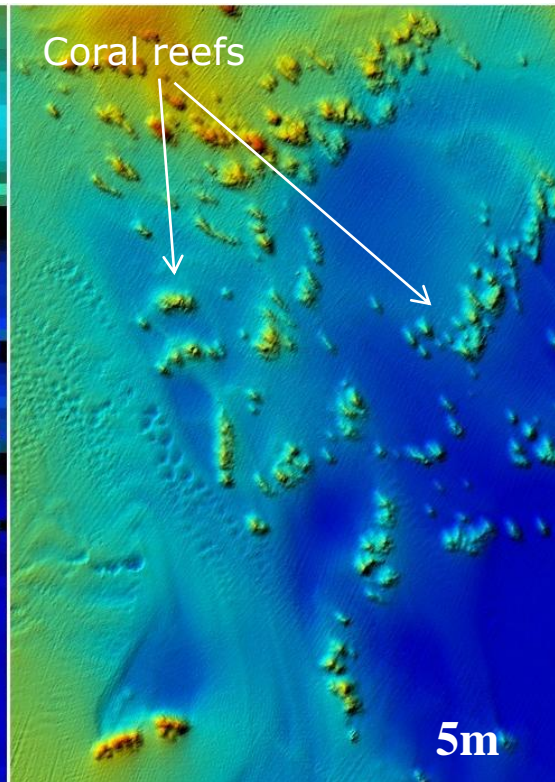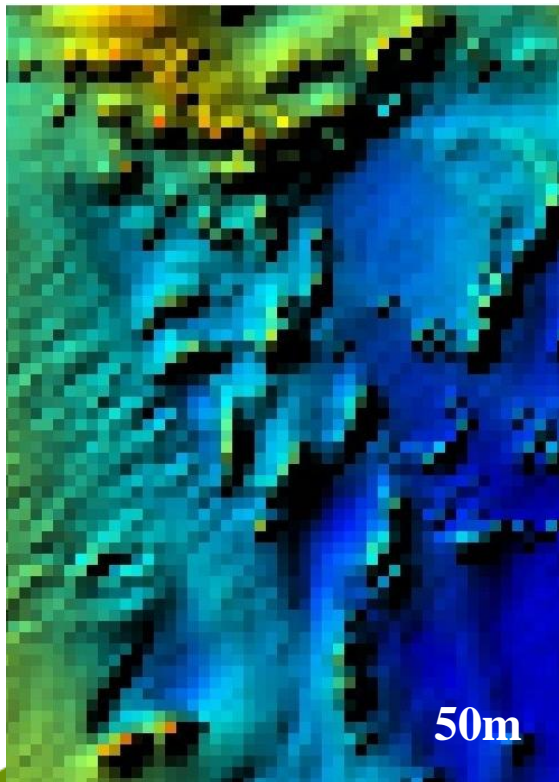
What next?

ICES review 2016
- Gave a fresh look on pro's and con's of MAREANO data sharing
- Dedicated funds are now being allocated

Adapting industry standards?
- MAREANO may adapt industry standards like Seabed Survey Data Model (SSDM) for geological data

Continued strong focus on user needs
- Test case – extract all information from a given area?
- Complete and uniform inventory of all MAREANO data?

Create national "one-stop-shop" for "all" seabed data within Norwegian territory?
- Norwegian Marine Data Centre – key role?
- Huge effort to chase up, QC, manage and make available the huge variety of data