

Marine Data - A Horrible History?

by
Dr Mike Osborne
SeaZone Solutions Ltd

www.SeaZone.com

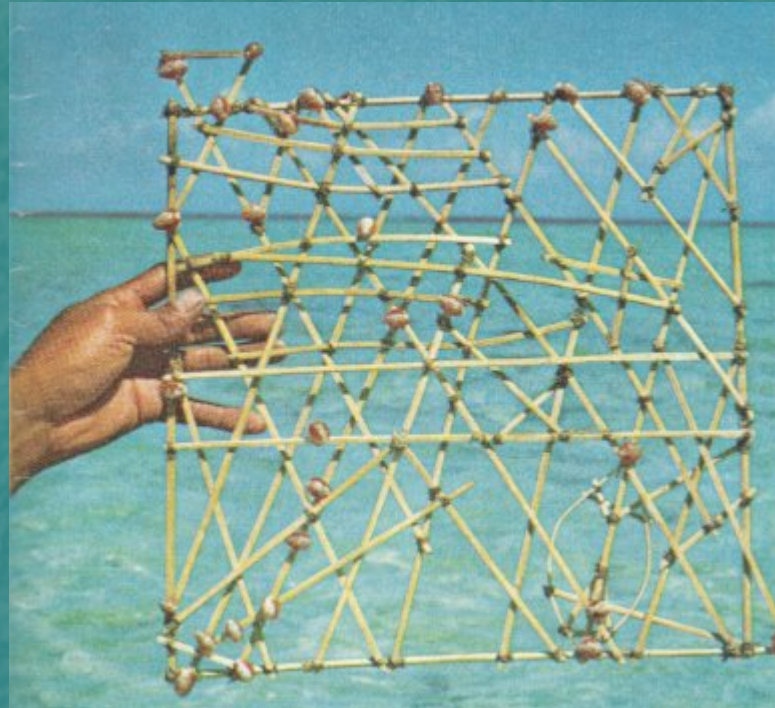
Marine Data -
A Horrible History?



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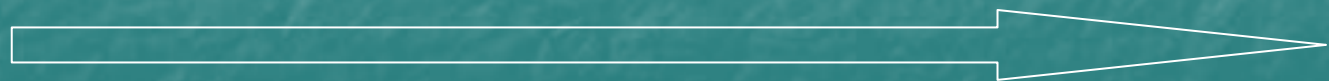
- Marine Data Needs
- Application Data Types
- Unlocking Data
- An Information Framework
- Summary

Growth of Marine Data Needs



A typical
Polynesian
stick chart

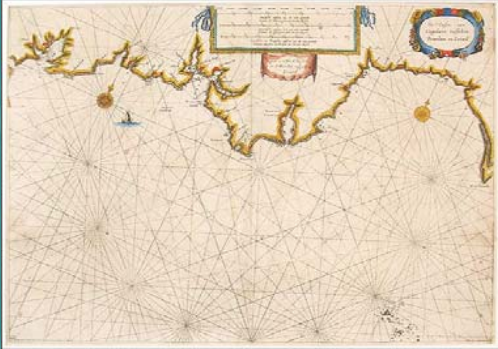
Transportation



30000 0 1000 1500 1800 1900 1950 2000

BC

Transportation



- Mediterranean coastline 'mapped' by traders from 3000 BC onwards
- First 'portalans' produced by European traders around 13th century

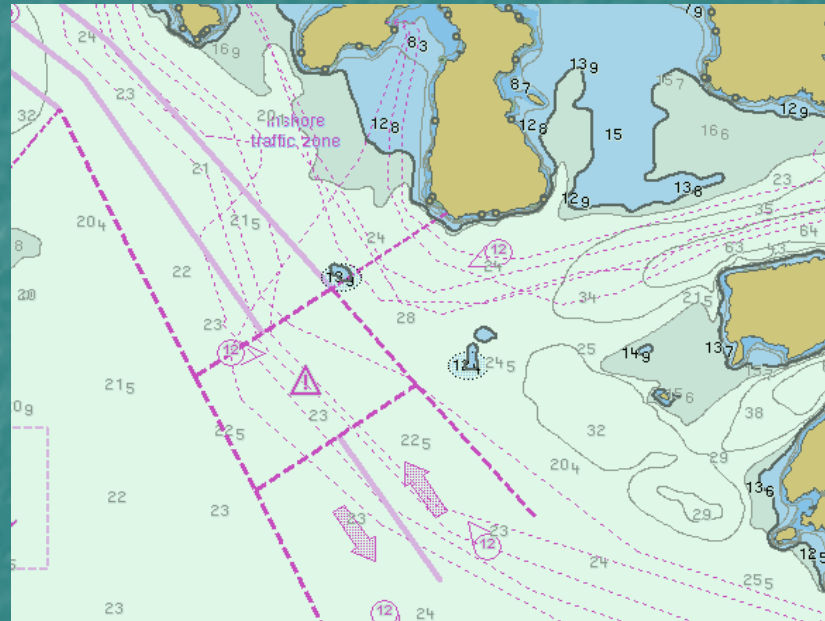


- Admiralty establishes Hydrographic Department (now UKHO) in 1795
- First chart of Quiberon Bay, 1801



- Admiralty makes charts available commercially from 1819
- Electronic charts introduced in 1998 as direct copies of paper equivalents

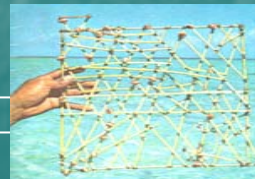
Growth of Marine Data Needs



An Electronic Navigational Chart

Science & Discovery

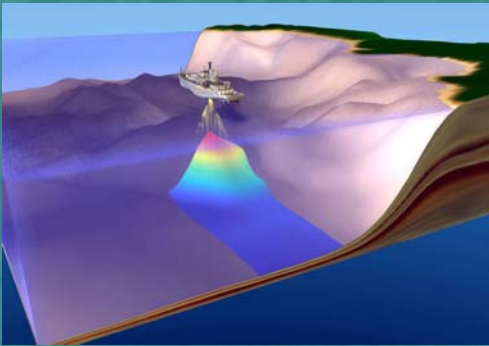
Transportation



Science & Discovery



HMS Challenger, 1876. Source WHOI



- Cook & The Endeavour 1768 - 1779
- Charles Darwin & The Beagle 1831
- 'Physical Geography of the Sea' published by Mathew Maury 1855
- Voyage of HMS Challenger marks birth of oceanography as a new science
- Voyage of the Meteor provides first use of newly invented echo sounder
- International Geophysical Year 1953
- Deep Sea Drilling Programme 1968 -
- World Ocean Circulation Experiment

Growth of Marine Data Needs

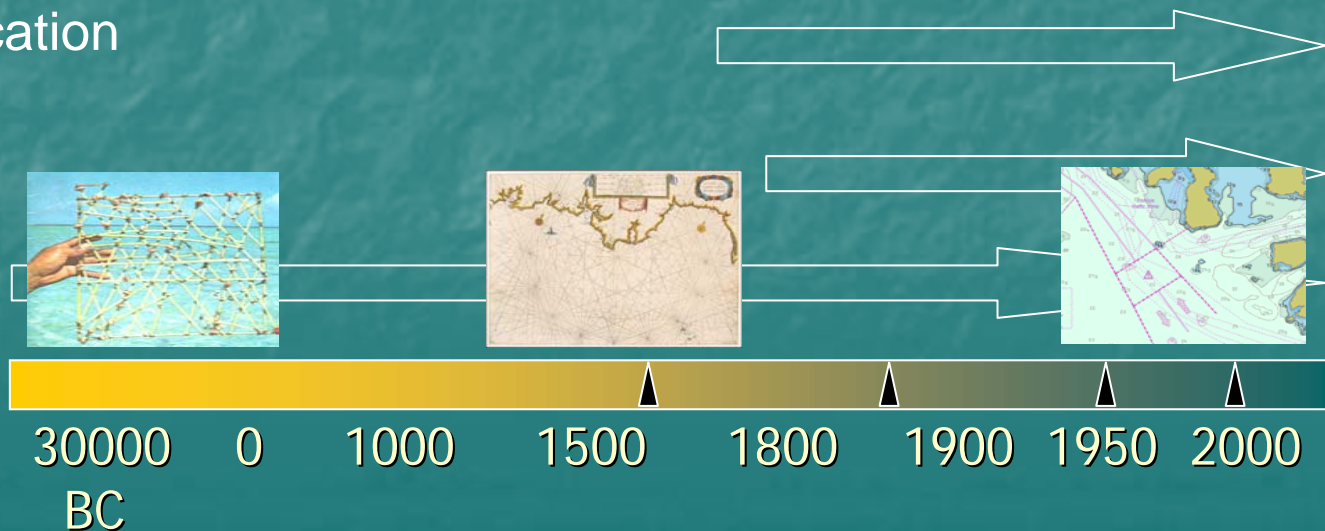


HMS
Challenger
1876

Security & Communication

Science & Discovery

Transportation



Mineral Extraction



- First offshore oil platform in Gulf of Mexico 1947
- Exploration drilling commences in North Sea 1964 - first oil Sep 1965
- Arbroath and Forties oil fields discovered in 1969 and 1970
- Launches new era of data collection and science of engineering design
- Environmental conditions introduced during 14th licensing round in 1994
- Piper Alfa disaster results in Cullen report & introduction of safety cases



Growth of Marine Data Needs

Mineral Extraction

Coastal Protection

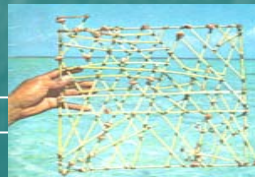
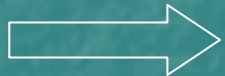
Security & Communication

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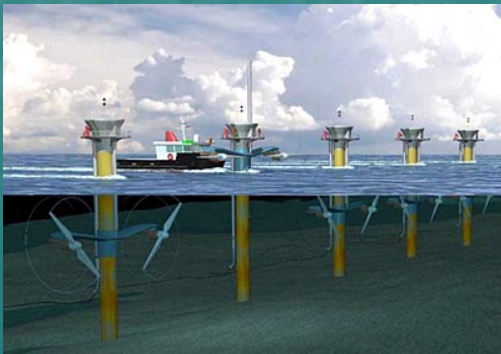
'Sea Gem'
strikes oil in
North Sea



30000 0 1000 1500 1800 1900 1950 2000

BC

Offshore Energy



- Rance tidal power plant, France opened in 1966
- First offshore wind farm at Vindeby in Denmark 1991
- 3 tidal power schemes and 10 wind farms operational offshore globally
- Wave and tidal current power generation enter pilot stage
- Many more schemes will be required to meet renewable energy targets
- Many engineering and environmental challenges to overcome

Growth of Marine Data Needs

Offshore Power

Fisheries & Aquaculture

Waste Disposal

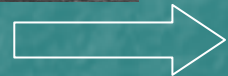
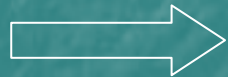
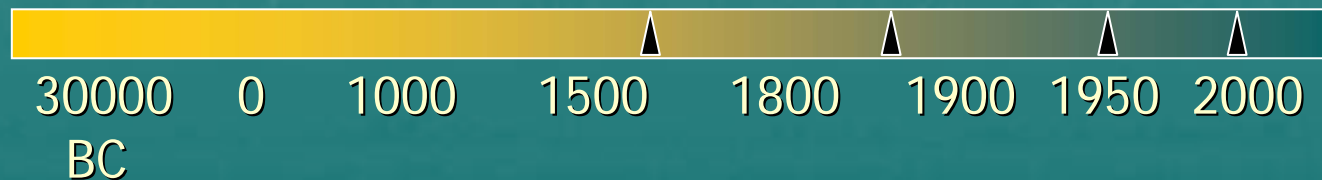
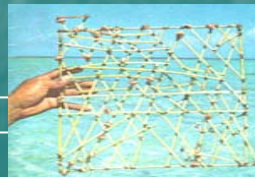
Mineral Extraction

Coastal Protection

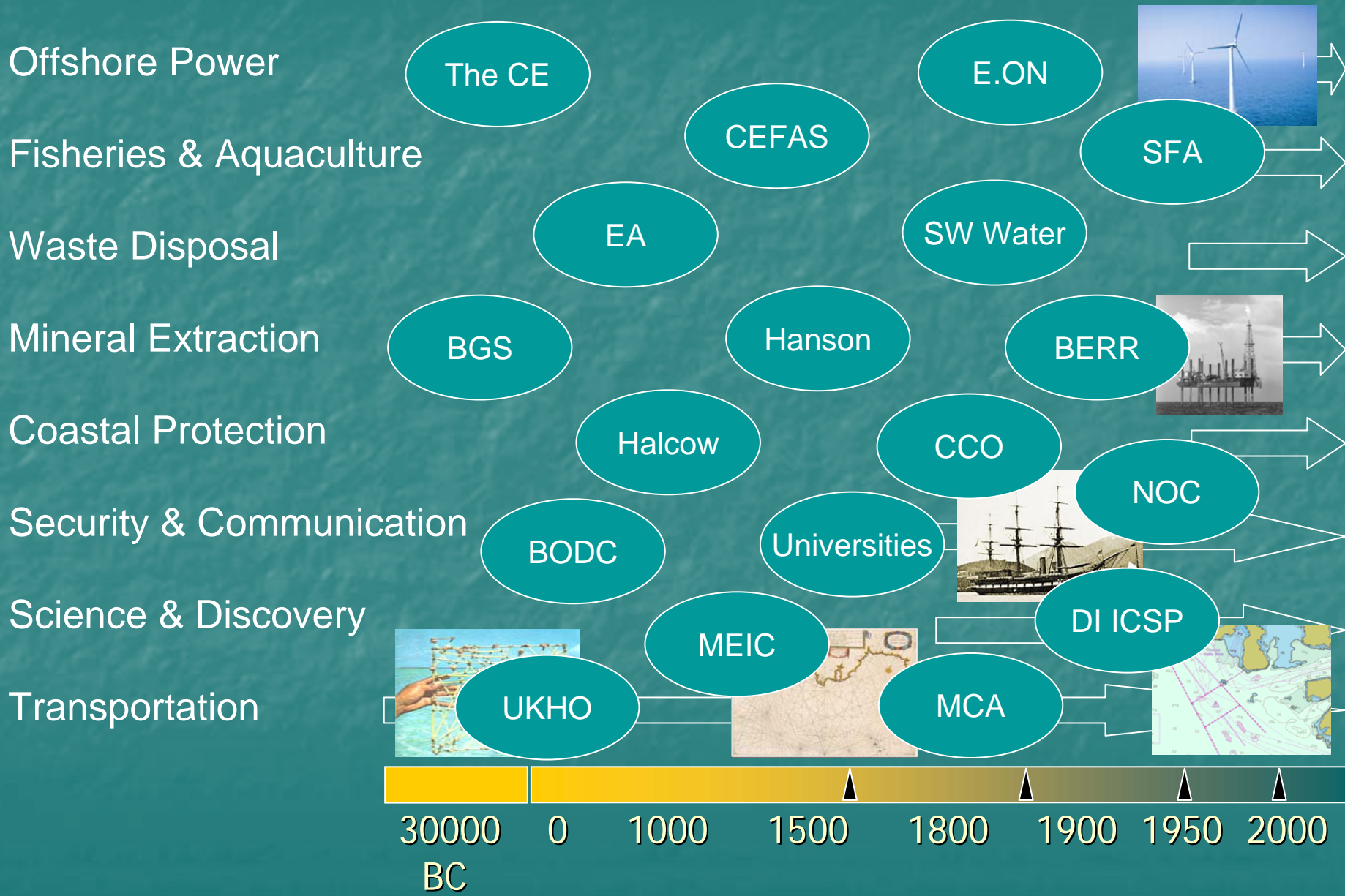
Security & Communication

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Transportation



Hidden Islands of Data



Application Data Types

Charting

- Coastline
- Bathymetry
- Seabed Conditions
- Structures / Wrecks
- Activity Areas
- Tides & Currents

Navigational chart:



Engineering

- Coastline
- Bathymetry
- Seabed Conditions
- Structures / Wrecks
- Activity Areas
- Tides & Currents
- Winds & Waves

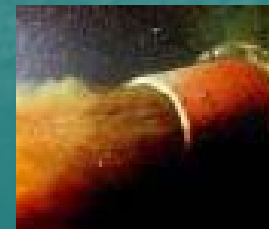
Engineering criteria:



Environment*

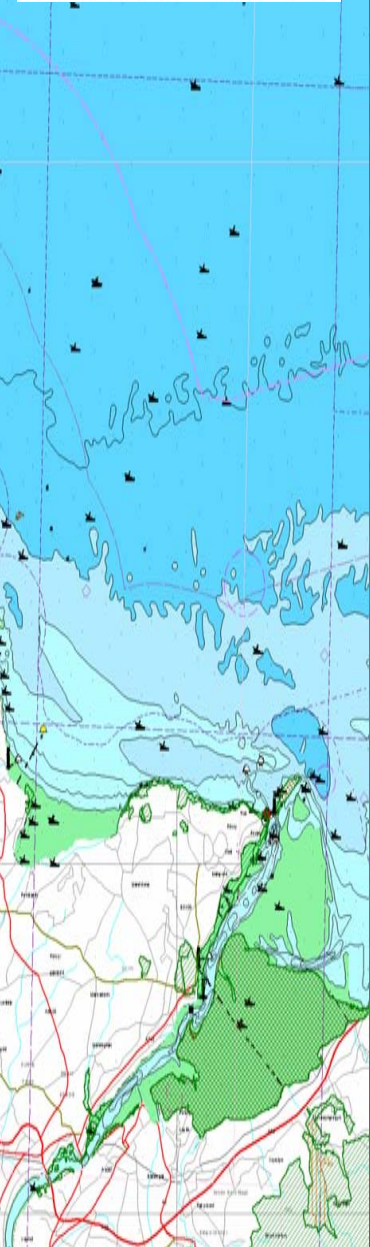
- Coastline
- Bathymetry
- Seabed Conditions
- Habitat / Biota
- Pressure / Sensitivity
- Impact Assessment

Location & mitigation:



Unlocking Data

- UKHO holds 20+ times more data than it uses to produce navigational charts and products
- In 2003 SeaZone started the process of unlocking UKHO and other authority data
- SeaZone's mission is to create an accurate comprehensive digital map of the sea:
 - Useful for a variety of different applications
 - Comparable with Ordnance Survey land mapping
 - Easy to use in GIS and Web GIS
 - Reference base for database & SDI development
- Sustainable and puts data users in the 'driving seat'



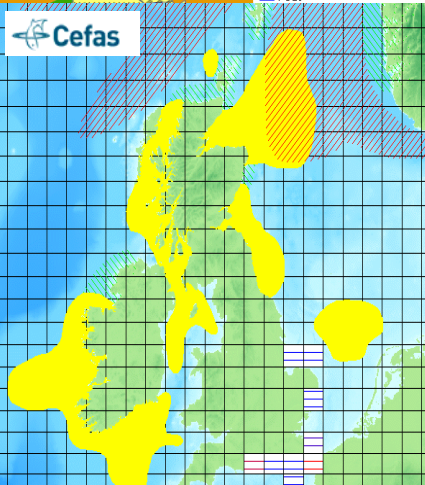
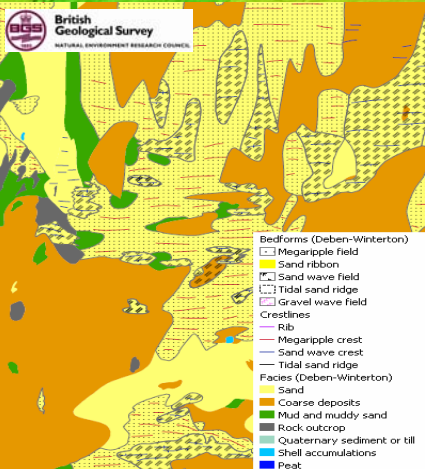
A Marine Data Framework - a Marine SDI - where:

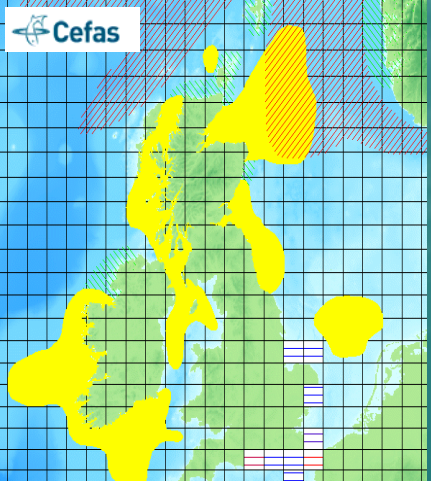
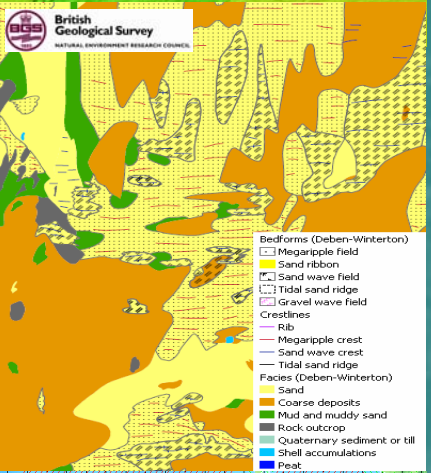
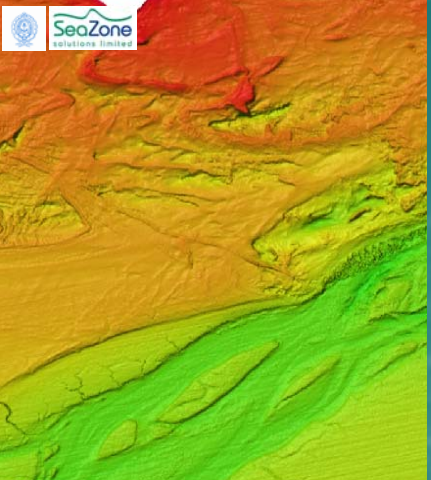
- Acquisition & funding supports the whole
- Individual requirements are accommodated
- Contributions from 3rd parties are welcome
- Data ownership is recognised (& rewarded)
- Raw and derived data is created and maintained once & consistently by experts
- Metadata is created and made accessible
- Reference information is authoritative, interoperable and well maintained
- The data customer (the user) is in control



Summary

- Data needs have expanded over time to deliver development & regulatory goals
- Data is acquired often to support narrow short-term aims resulting in replication and inefficiency across Government and beyond
- Short-term project based funding has led to insufficient focus on broad scale data needs
- Current initiatives provide opportunities for better management while meeting the requirements of multiples of users
- A horrible history? - Perhaps
- A bright future? - Definitely, as long as we work together & Government supports us





Thank You!

More later today and at

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DNF.org