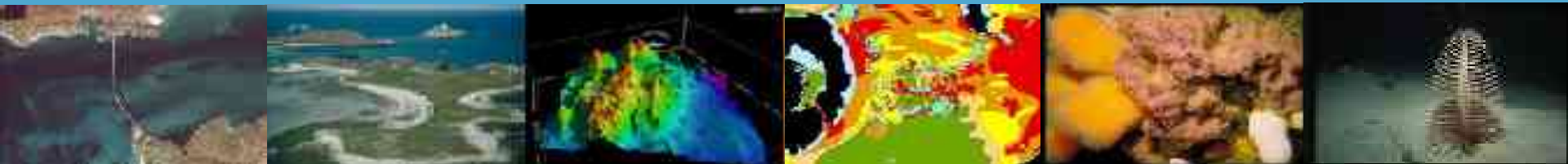




“Food for thoughts”

Jon Davies

MESH Project Coordinator



You are not alone.....

There is someone out there..

Habmap

UKSeaMap

MESH

Why is he here?

Introduce the MESH Project, give a brief overview of other marine mapping activities in NW Europe, and offer a few thoughts on doing an INTERREG project

Questions....

- What is the MESH Project?
- Can you really model marine landscapes?
- Does MESH do 'marine spatial planning'?

What is the MESH Project?

Development of a framework for
Mapping **E**uropean **S**eabed **H**abitats



Atlantic North West Approaches

Rockall Trough & Bank

Atlantic South West Approaches

Celtic Sea

Irish Continental Shelf

Irish Sea

Minches & West Scotland

Scottish Continental Shelf

Feroe-Shetland Channel

Northern North Sea

Southern North Sea

Eastern Channel

Western Channel

Bay of Biscay

MESH Partners



MESH Actions

- **Collate and harmonise existing habitat maps**
- **Develop standards and protocols**
- **Test protocols and standards**
- **Develop predictive mapping tools**
- **Case studies on uses for maps**
- **Communication and dissemination**

Generating maps

- Action leaders
 - ❖ JNCC (David Connor & Neil Golding)
- Outputs
 - ❖ Online metadata catalogue relevant studies
 - ❖ Data exchange format for map data
 - ❖ Unified GIS maps of seabed habitats for north-west Europe
 - ❖ Confidence maps

Standards & protocols

➤ Action leaders

- ❖ IFREMER (Jacques Populus), Marine Institute (Fiona Fitzpatrick), CEFAS (Roger Coggan)

➤ Outputs

- ❖ Review of standards and protocols
- ❖ Catalogue of habitat signatures
- ❖ Assessment of the EUNIS marine habitat classification for mapping and recommendations for its modification
- ❖ A guidance framework for marine habitat mapping

Field survey

- Action leader
 - ❖ TNO (Jan van Dalfsen)
- Outputs
 - ❖ New field surveys to test standards and protocols
 - ❖ Data to support modelling
 - ❖ Validation samples
 - ❖ New areas mapped according to agreed standards

Modelling

➤ Action leaders

- ❖ University of Gent (Vera van Lancker), IFREMER (Jacques Populus)

➤ Outputs

- ❖ Marine landscape map for MESH area
- ❖ Models to predict habitat distribution
- ❖ Biotope matching program

Using maps

➤ Action leaders

- ❖ Marine Institute (Fiona Fitzpatrick & Jonathan White)

➤ Outputs

- ❖ Workshops on habitat mapping and spatial planning
- ❖ Report describing case histories of the use of habitat maps in marine management

Communicating results

- Action leaders
 - ❖ All led by JNCC (Jon Davies & Gez Thulbourn)
- Outputs
 - ❖ Website
 - ❖ Interactive mapping website
 - ❖ Stakeholder database
 - ❖ International conference (spring 2007)
 - ❖ Follow on strategy

Oops, one more action

- Project management
 - ❖ Management groups
 - ❖ Technical workshops
 - ❖ Reporting: financial and technical
 - ❖ Planning

Probably the most time consuming.....

Communicating results: progress

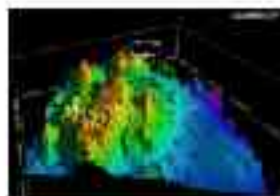
- Established a web site with:
 - ❖ Project outline
 - ❖ Project news & publications
 - ❖ Searchable metadata catalogue
 - ❖ Registration facility
 - ❖ Extranet for Partner 'exchange'
- Leaflet, bookmark & banner stands
- Stakeholder database



Development of a framework for Mapping European Seabed Habitats (MESH)

Quick Links:

- [Content list](#)
- [Metacata Catalogue](#)
- [Site map for Users](#)

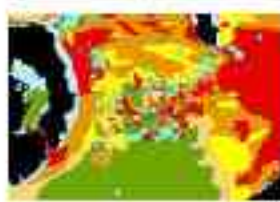


MESH is an international marine habitat mapping program that started in spring 2004 and will last for 4 years. A consortium of 12 partners across the UK, Ireland, the Netherlands, Belgium and France gained financial support from the EU INTERREG IIIB fund for this international programme. The MED partners currently covers all five countries in the North Sea (UK, Ireland, Europe) and the Mediterranean (France, Italy, Greece). The project aims to develop expertise in data collection, habitat mapping and from local level support in the use of seabed habitat maps for environmental management within national regulatory frameworks.

www.searchMESH.net



MESH aims to produce seabed habitat maps for north-west Europe (see [MESH data portal](#)) and develop a methodological handbook for seabed mapping studies. The end products will be a [meta catalogue of mapping studies](#), a web delivered geographic information system (GIS) showing the habitat maps, guidance for marine habitat mapping including protocols and standards, a report describing case histories of habitat mapping, a stakeholder database and an international conference with published proceedings.



For a general description of the project see the [Overview](#) section.

- The project has six scientific work-packages:
- [Generating habitat maps for north-west Europe](#)
 - [Developing standards and protocols for marine habitat mapping](#)
 - [Testing the standards](#)
 - [Predictive modelling](#)
 - [Developing policy solutions of habitat mapping for environmental management](#)

Generate maps - progress

- Produce a metadata catalogue of relevant data sets
- Established data exchange formats (DEF)
- Produce 'MESH data agreement'
- Collate existing mapping data into a GIS
- Tools to correlate to standard classification schemes
 - ❖ EUNIS
 - ❖ Habitats Directive Annex I types
 - ❖ OSPAR priority habitats

Standards & protocols - progress

- Review of habitat mapping standards
 - ❖ Remote sensing
 - ❖ Acoustic systems
 - ❖ Video and imagery
 - ❖ In-situ sampling
- Intercalibration workshop
- Catalogue of habitat signatures

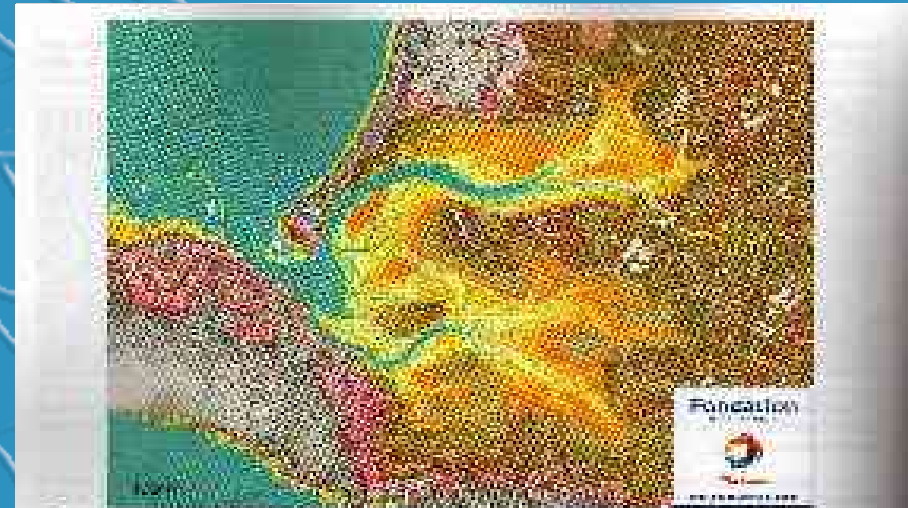


Figure 29: Aerial photograph of Brittany (in Western France) overlaid with bathymetric contours, approximately 60 m and greater resolution. Data from IFREMER (ELANDI, 2004).

The map below (Fig. 21) shows a LIDAR bathymetry merged with a topographic DEM (Digital Terrain Model) from a part of Victoria Bay, UK, where both of these datasets have been merged to provide a seamless bathymetry across the coastline.

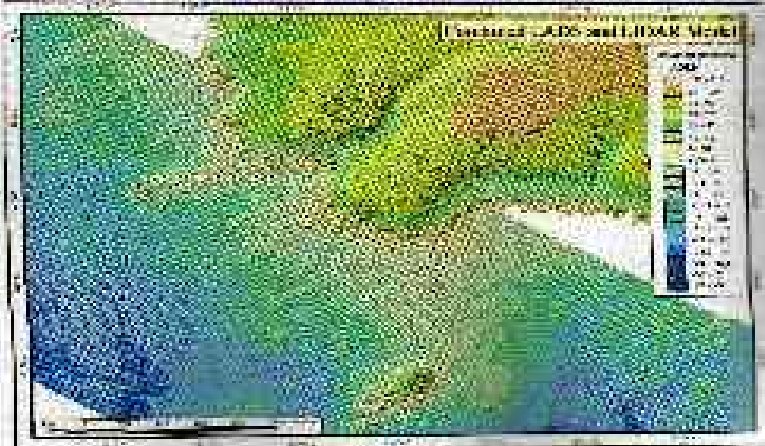


Figure 46: Combined topographic and bathymetric Digital Terrain Model of Victoria Bay, UK (see MACKENZIE, in Environmental Science 2007).

MESH events

- Intercalibration workshop, Brest:
20-23 Sept 2005
- Landscape modelling workshop,
Gent:
3-4 Oct 2005
- MESH Technical workshop, Belfast:
29 Nov-1 Dec 2005
- MESH Technical workshop,
Edinburgh: May 2006

MESH in a clam shell..

Establishing the ways and means to produce consistent maps for NW Europe, and showing how they might be used.

Can you really model marine landscapes?



Yes..

If you know
what they are!!

Terminology problem

- Biogenic reef
- Gravel
- Mud
- Tideswept sand
- Photic reef?
- Gravel banks
- Mud plains
- Sandy bay

Political 'habitat':

Annex I: reef, mudflat, estuary

OSPAR: oyster bed, seamount

Terminology

➤ **Habitat**

- ❖ A recognizable space which can be distinguished by its abiotic characteristics and associated biological assemblage, operating at particular spatial and temporal scales

➤ **Marine landscape**

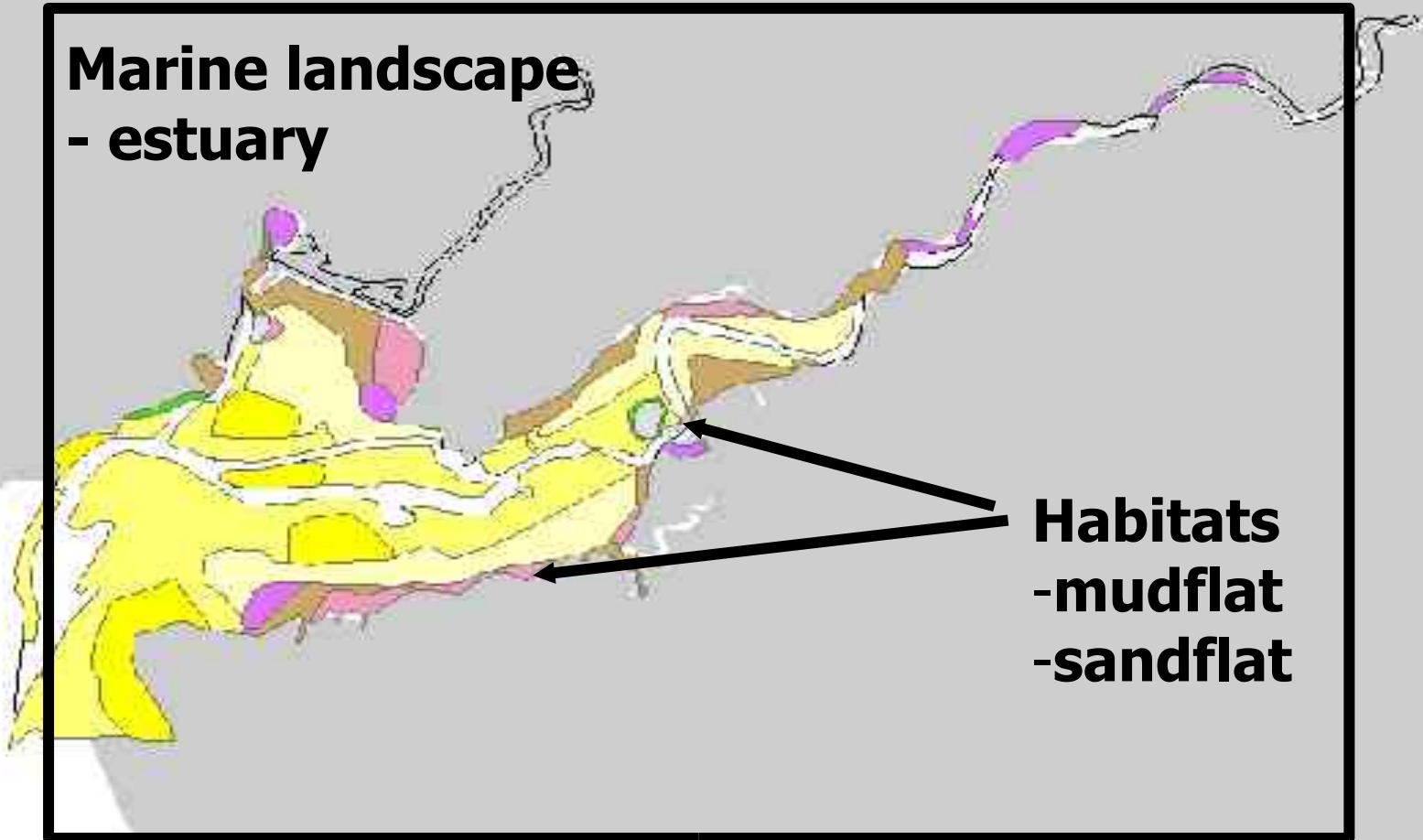
- ❖ A suite of habitat types which occur together, often in a specific pattern, to form a topographically distinct feature

➤ **Classification**

- ❖ A structured system of habitat or landscape types, often in a hierarchy, in which the types are clearly defined and recur in different geographical places

Habitats and landscapes

**Marine landscape
- estuary**



**Habitats
-mudflat
-sandflat**

UKSeaMap project

- Analysis of geophysical and hydrographic datasets
- Draft maps of seabed and water column features
- Consultation with stakeholders & 'experts'
- Biological data gathering and interpretation
- Biological validation and characterisation
- Web GIS application
- Complete by Spring 2006

Geophysical & hydrographic data

Seabed	Water column
Substrata	Surface temperature
Photic depth	Salinity
Natural disturbance	Mixing regime
Bathymetry	Temp/salinity relationship
Bottom temperature	Frontal locations
Coastal features	
Bed forms	

UKSeaMap v MESH

	UKSeaMap	MESH
Broad-scale – landscapes	✓	✓ (Action 4)
Fine-scale – habitats		✓
Coverage	UKCS	North-west Europe
Map type	Polygon + point	Polygon + point
Classifications	Landscape	Landscape, EUNIS, Annex I, OSPAR, BAP
Due	Spring 06	v1 Spring 06 Final Spring 07
Web access	jncc.gov.uk	searchMESH.net

Does MESH do 'marine spatial planning'?

No!

UK Government is funding a pilot
project on marine spatial planning
in the Irish Sea:

<http://mspp.abpmer.co.uk/mspp/>

Food for thoughts – the MESH experience

- Carefully consider the 'contract', particularly IPR & data ownership issues
- Meetings are good:
 - ❖ They make people do some work!!
 - ❖ Overcome cultural barriers and encourage co-operation
- Allow time for reporting
- Data is easy to find, difficult to secure

Scientists are good at science..

Managers manage..

Administrators administrate..

Finance officers and lawyers rule!!

Talk to your financial & legal
colleagues... regularly

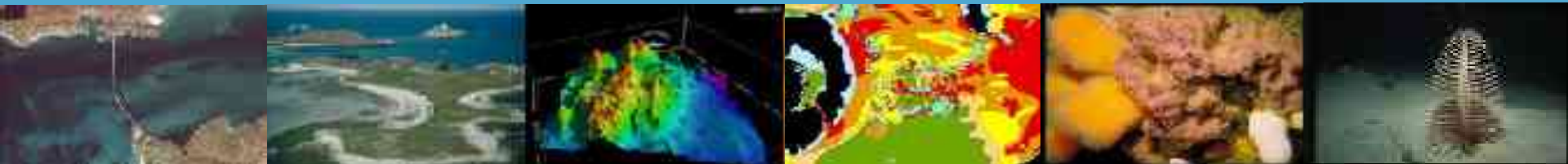
Have fun...

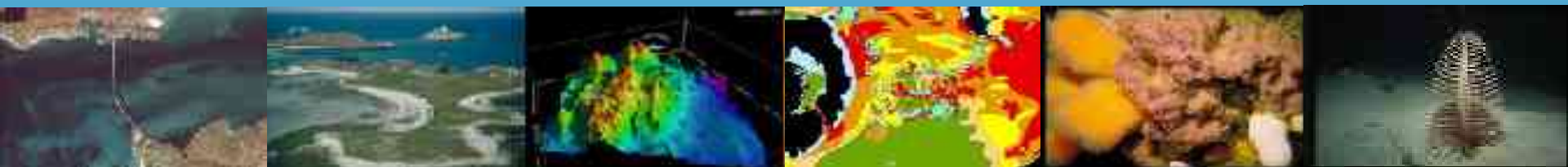
Enjoy transnational working



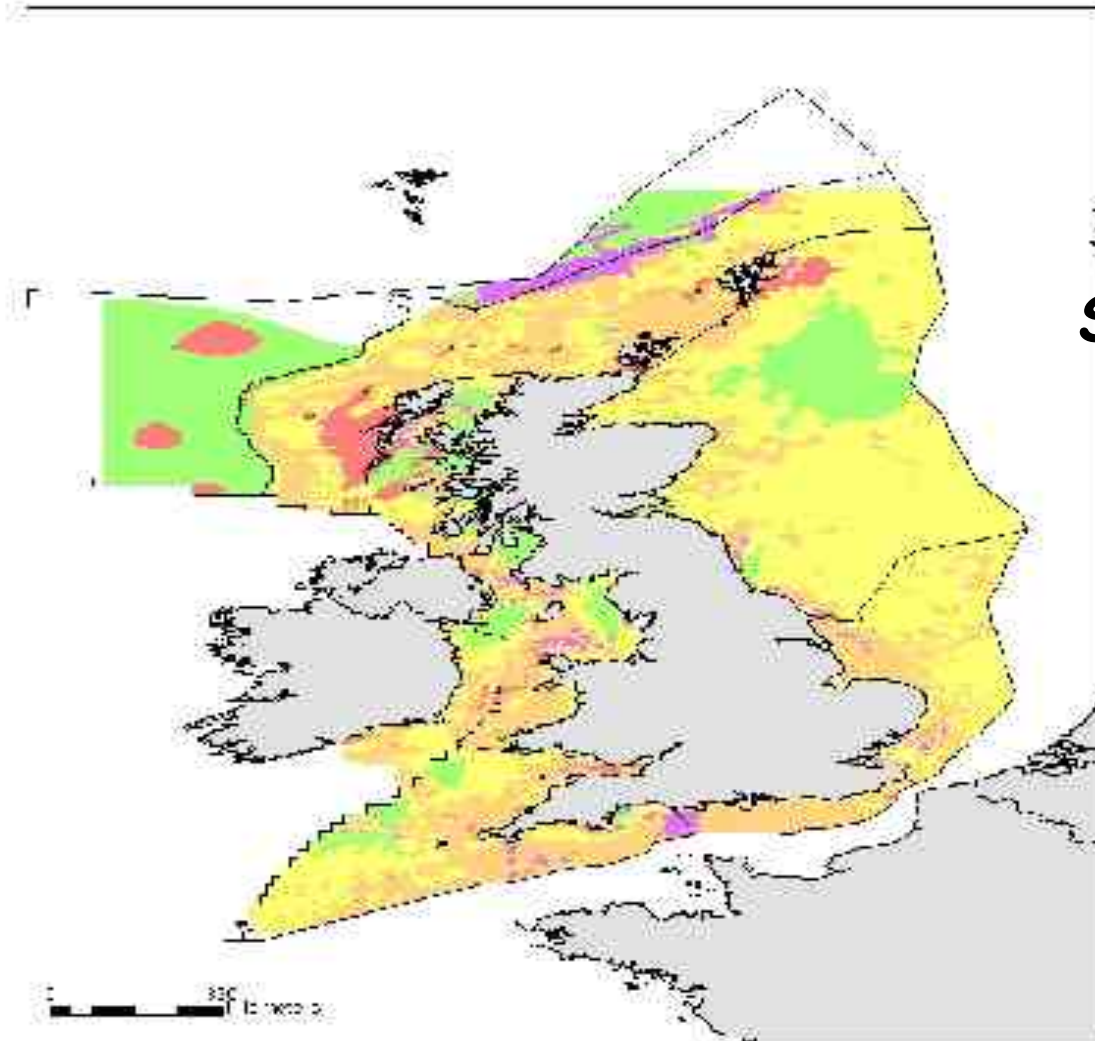
www.searchMESH.net

Jon.Davies@JNCC.gov.uk





Seabed substrata



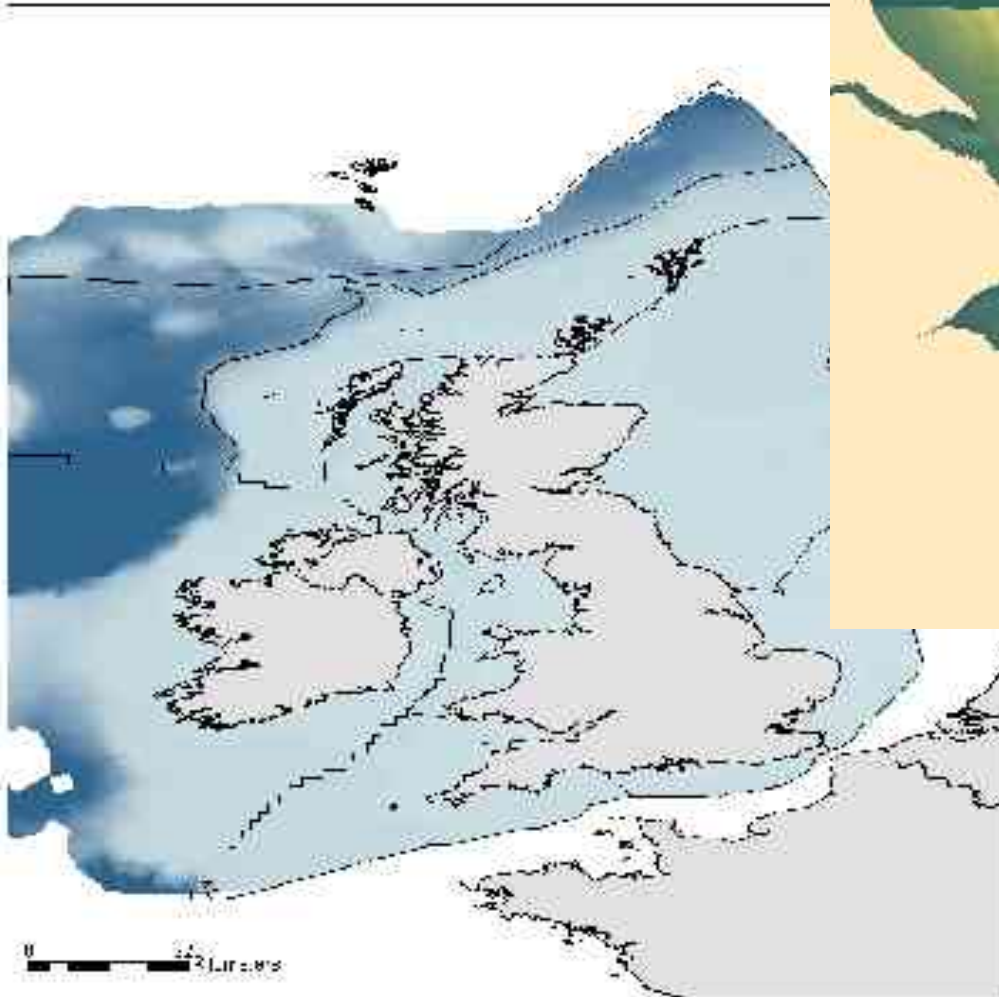
Source: BGS

Seabed Sediments

LEGEND

- Coarse Sediment
- Mixed Sediment
- Mud and Sandy Mud
- Rock or Diamicton
- Sand and Muddy Sand

Bathymetry



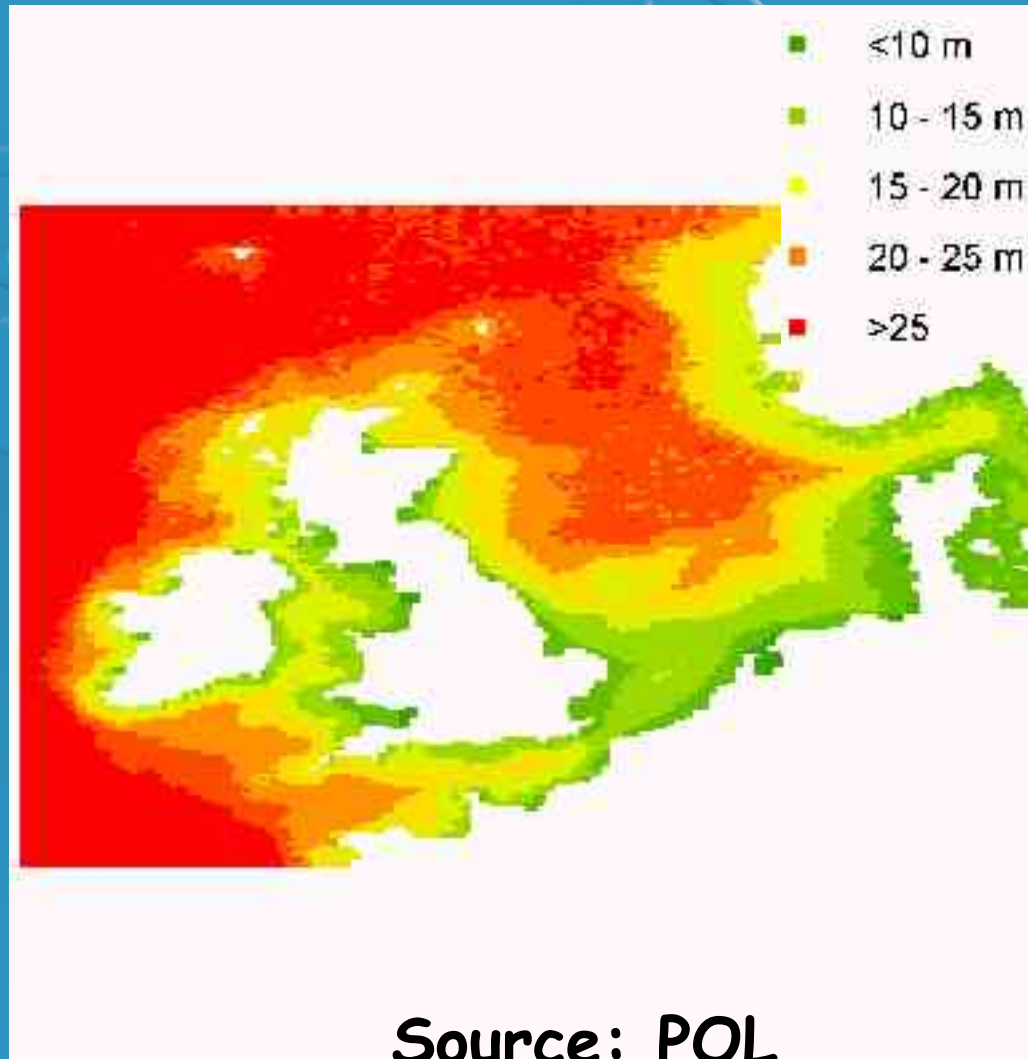
Bathymetry

Value

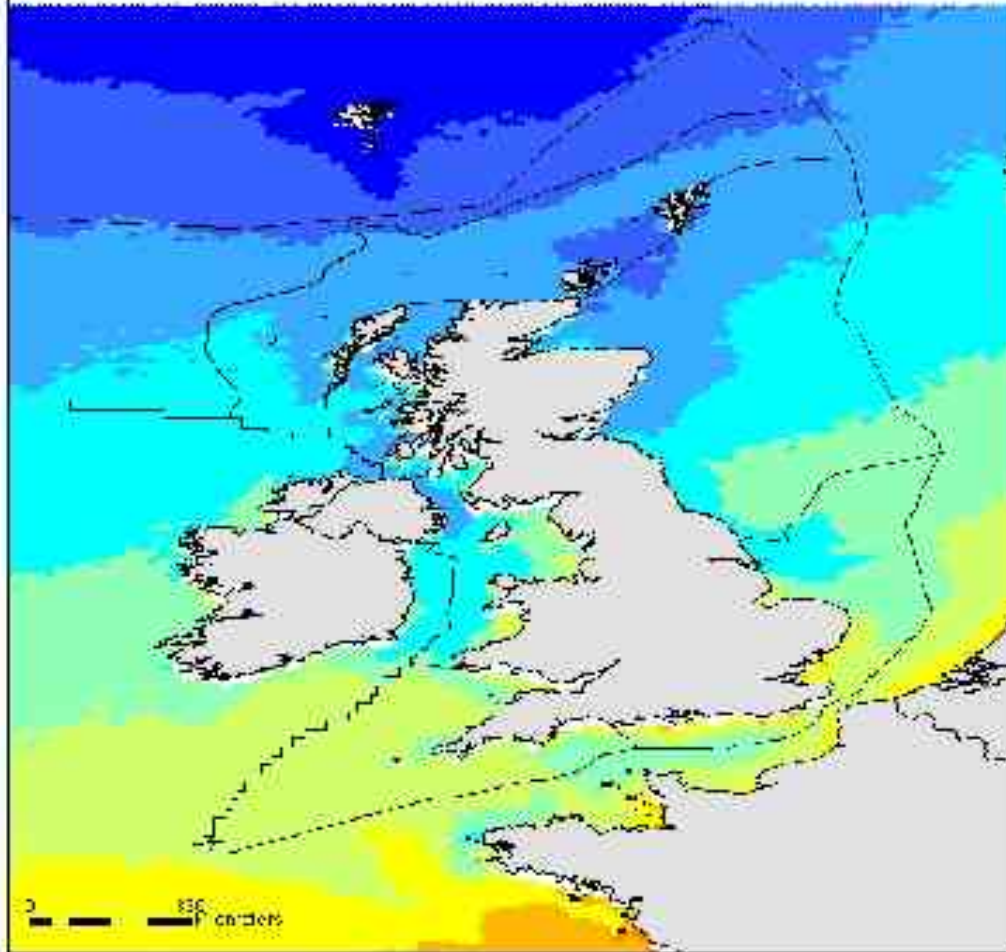
High : 50.000000

Low : -4387.000000

Photic depth



Surface temperature - summer

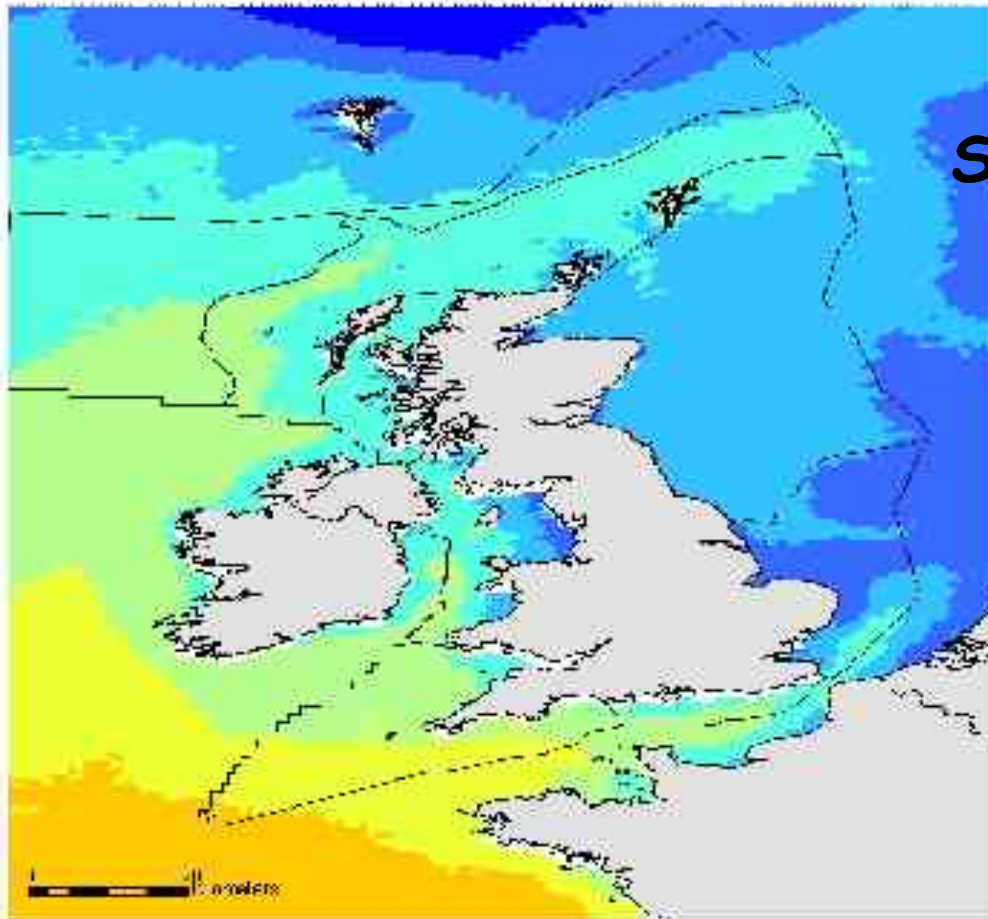


Source: POL

Summer Surf. Temp. SUMTMP

- 7.70140 - 9.97760
- 9.97761 - 11.26700
- 11.26701 - 12.52310
- 12.52311 - 13.78710
- 13.78711 - 15.02270
- 15.02271 - 16.30620
- 16.30621 - 17.58720
- 17.58721 - 18.93910
- 18.93911 - 21.35730
- 21.35731 - 25.76250

Surface temperature - winter



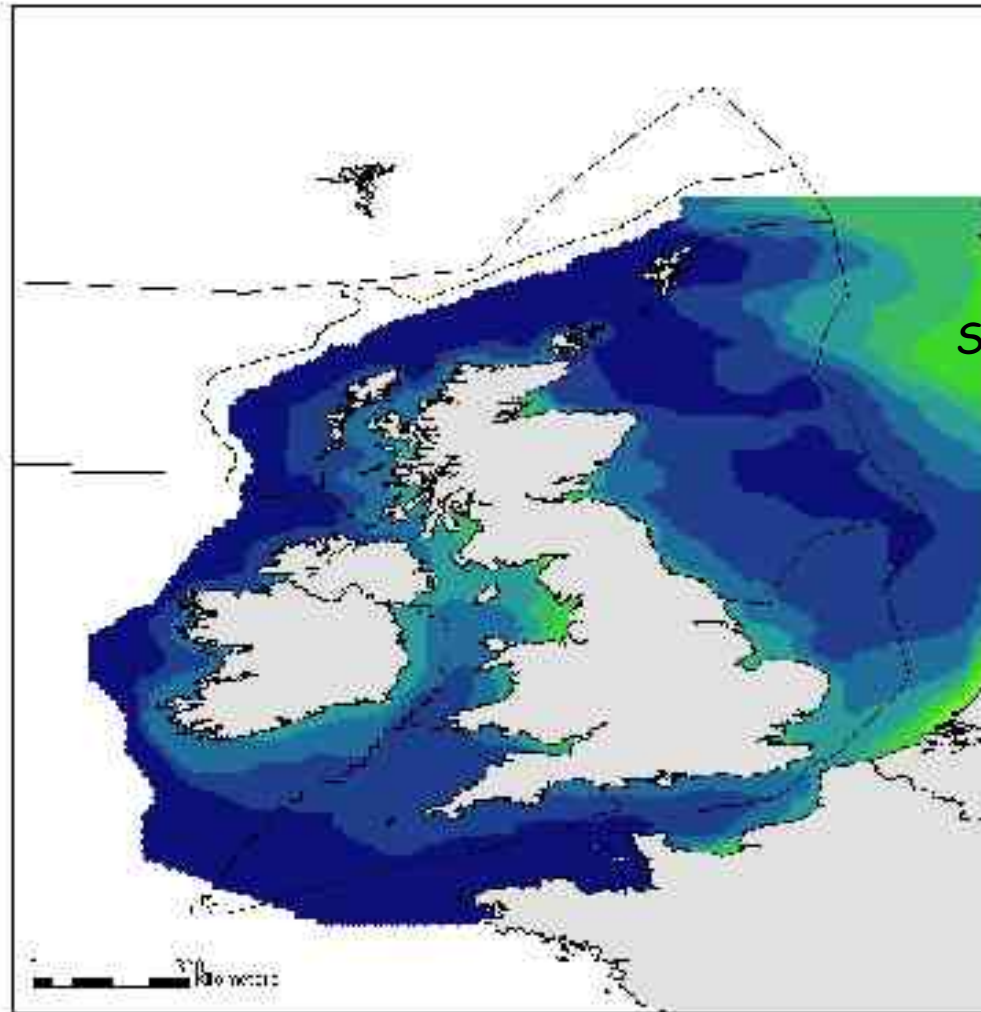
Source: POL

Winter Surf. Temp.

WINTMP

- 0.30000 - 5.05570
- 5.05571 - 6.86500
- 6.86501 - 8.04930
- 8.04931 - 9.22390
- 9.22391 - 10.40890
- 10.40891 - 11.58800
- 11.58801 - 12.72540
- 12.72541 - 13.86850
- 13.86851 - 15.90000

Salinity



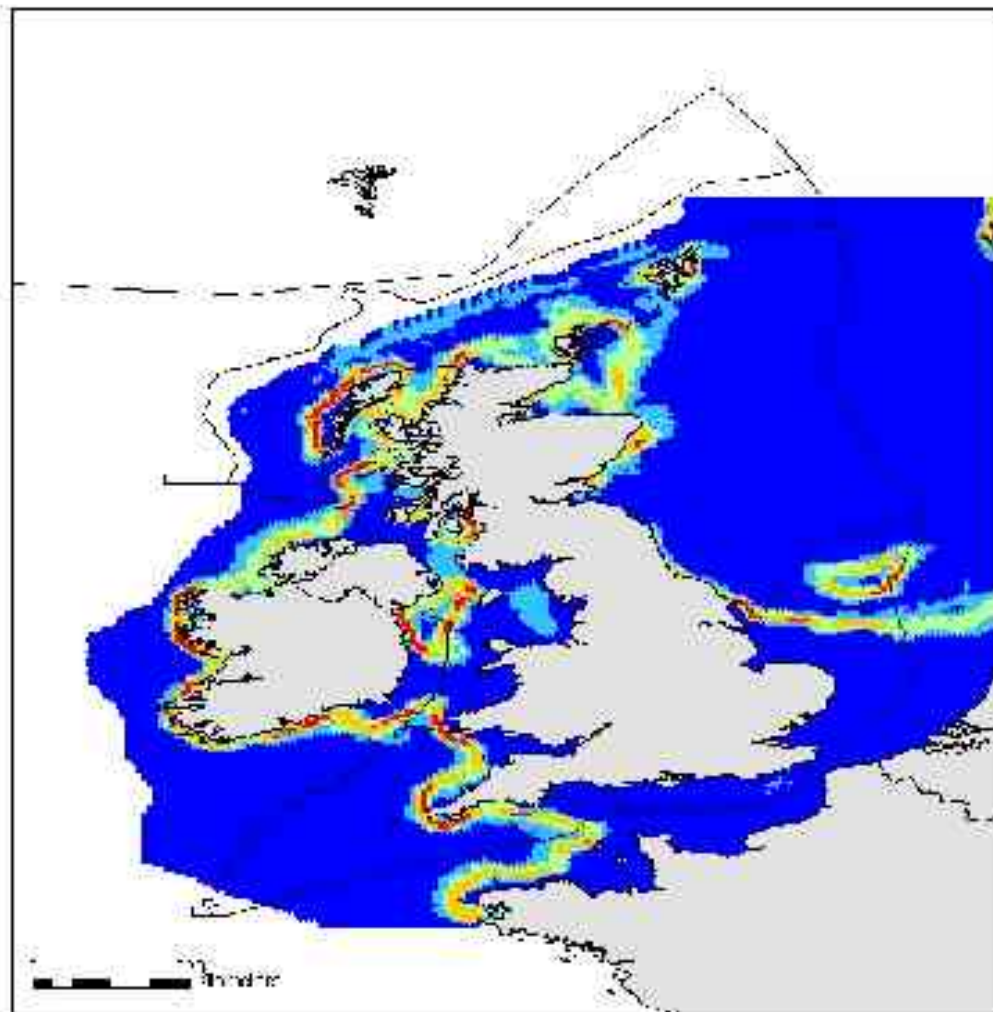
Source: POL

Summer values

Surface Salinity

- 12.19650 - 19.39590
- 19.39591 - 24.99280
- 24.99281 - 29.58690
- 29.58691 - 31.92320
- 31.92321 - 33.03000
- 33.03001 - 33.87050
- 33.87051 - 34.44740
- 34.44741 - 34.89080
- 34.89081 - 35.41380

Fronts



Source: POL

Summer Fronts

SUM_FRONT

- 0.00000 - 0.04460
- 0.04461 - 0.14130
- 0.14131 - 0.26520
- 0.26521 - 0.44240
- 0.44241 - 0.83260

Presentation Title

- Bullet
- Bullet
- Bullet
 - ❖ Bullet
 - ❖ Bullet
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