



# Specification & Content of Marine Reference Information

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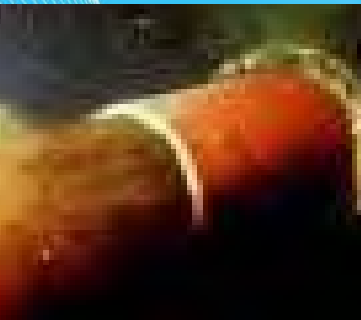
SeaZone Solutions Limited

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1. History of Marine Data
2. User Requirements
3. Geographic Content
4. SeaZone HydroSpatial



# HISTORY OF MARINE DATA ACQUISITION AND USE



Offshore Power

Fisheries & Aquaculture

Waste Disposal

Mineral Extraction

Coastal Protection

Security & Communication

Science & Discovery

Transportation

Crown Estate

CEFAS

Electricity



SFA

EA / SEPA

Water

Local Gov.

BERR



BGS

Oil & Gas

CCO

NOC

BODC

University



MOD

HO

Port

MCA



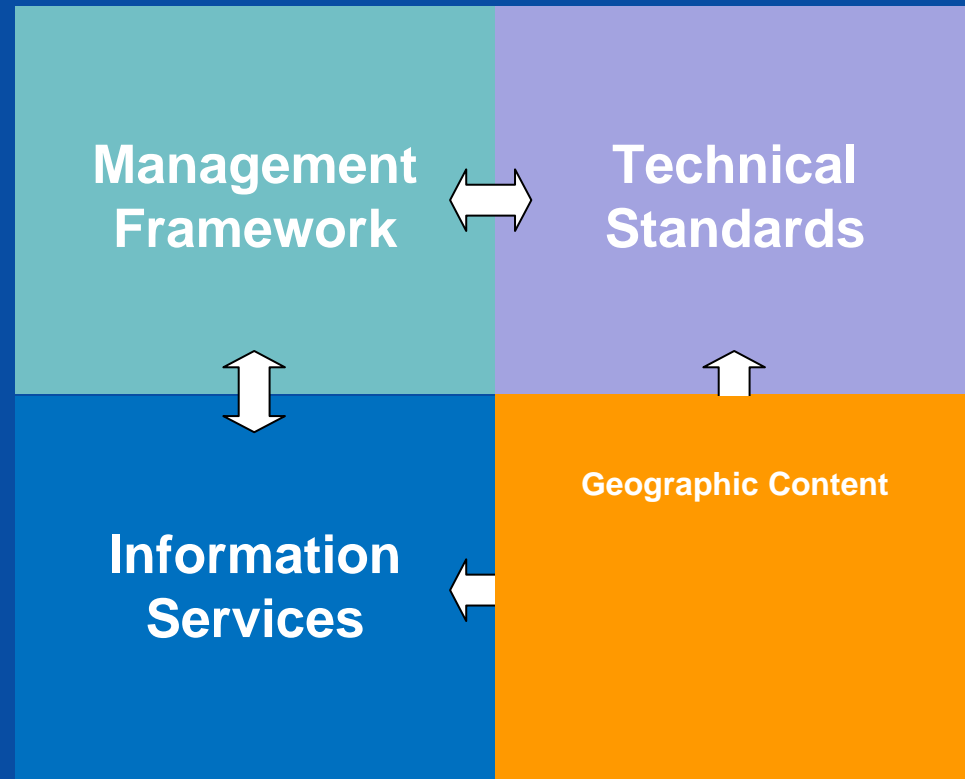
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**ALL REQUIRE ACCESS TO  
COMPREHENSIVE FIT FOR PURPOSE  
DATA AND INFORMATION**

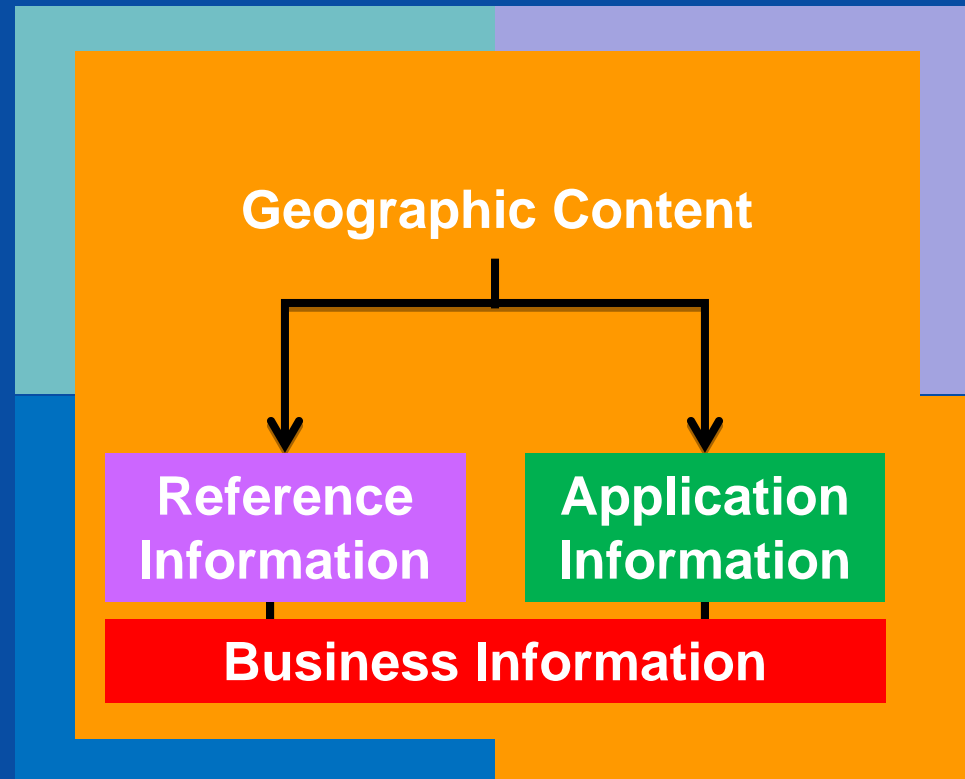




# SDI COMPONENTS

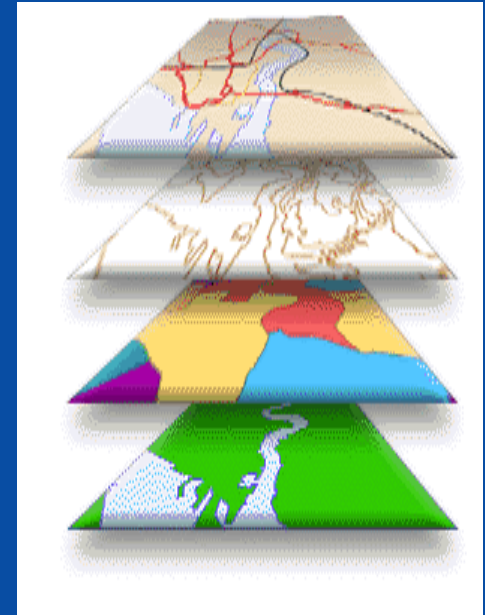


# SDI COMPONENTS

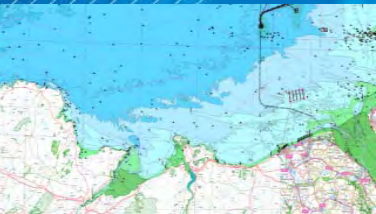


## MARINE REFERENCE INFORMATION

- CRS / Tidal Surfaces
- Coastline
- Elevation (Bathymetry)
- Coastal /Sea Bed Geology
- Offshore Infrastructure
- Shoreline Constructions
- Shipwrecks
- National Boundaries
- Managed Areas
- Protected Sites
- Marine Gazetteer







## USER REQUIREMENTS FOR DATA

- Authoritative and comprehensive
- Maintained, current and updated
- Metadata to appropriate standard
- National datasets to same technical standards
- Accessible for use in GIS and Web GIS
- Compliant with industry best practice
- Consistent licensing terms and conditions
- Usable in value added products and services



# Marine Spatial Planning Data Model / Register



Theme	INSPIRE Theme	Feature Type	Attributes	Responsible Authority	Source	Product	SPIRE
CRS	Coordinate reference systems	European Terrestrial Reference System (1989)					
		European Vertical Reference System (2007)		UKHO	SZ		
	Geographical grid systems	Tidal Surfaces (e.g. MSL)		OS	OS		
		British National Grid		OS	OS		
Geographic		Universal Transverse Mercator		EPSG	EPSG		
		Lambert Azimuthal		EPSG	EPSG		
Shorelines		Terrestrial Gazetteer		OS			
		Marine Gazetteer		UKHO	IHO S-23, SeaVox	MEDIN WS	
		MHW(S)		OS	OS	OSMM	
		MLW(S)		OS	OS	OSMM	Yes
		LAT		UKHO	SZ	SZHS	Yes
Elevation	Elevation	Rivers		OS	OS, (EA, SEPA) DRN		No
		Lakes		OS	OS, (EA, SEPA) DRN		No
Administrative & Regulatory Areas (Incl. National Boundaries)	Administrative Areas			UKHO	SZ	SZHS	
				UKHO	SZ (Gebco)	SZHS	
Protected Sites				UKHO	SZ	SZHS	
				UKHO		SZHS	
				UKHO		SZHS	
				UKHO		SZHS	
				UKHO		SZHS	
				UKHO		SZHS	
				UKHO		SZHS	

**Marine And INSPIRE Themes**

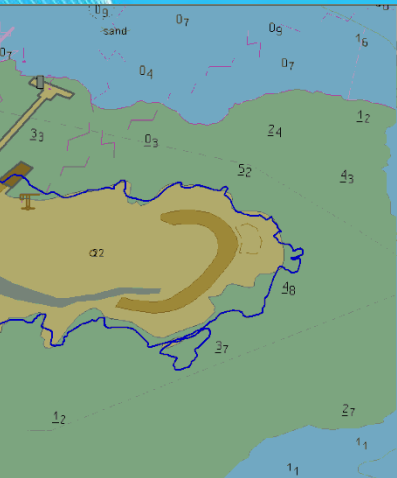
**Responsible Authorities**

**Feature Types & Specifications**

**Data Product / Available on Defra Network?**

## Sources of Content – Nautical Charting?

- Designed solely for navigation
- Charts individually compiled - varying scale level and inconsistent content especially at chart boundaries
- Depicts abstract safety bias view of real-world and less than ~5% of data held is actually used
- Contains generalisations and conservative depths (known as 'shoal bias')
- No interoperability with other datasets
- Electronic charting suitable for display only
- Presently content not suitable for SDI creation without policy change / major re-engineering



## Product Silos to SDI Themed Layers



Source: GB ENC



Source: SeaZone HydroSpatial



SZ Marine Topology / Harmonisation Tools



Wrecks

Areas

Wrecks

Structures

Geology

Bathymetry

## AGREED! SO WHAT IS NEEDED?

A Marine Data Policy reflecting modern user needs and immediate opportunities (UKLP INSPIRE, POI)

Objectives for best practice management / wider use

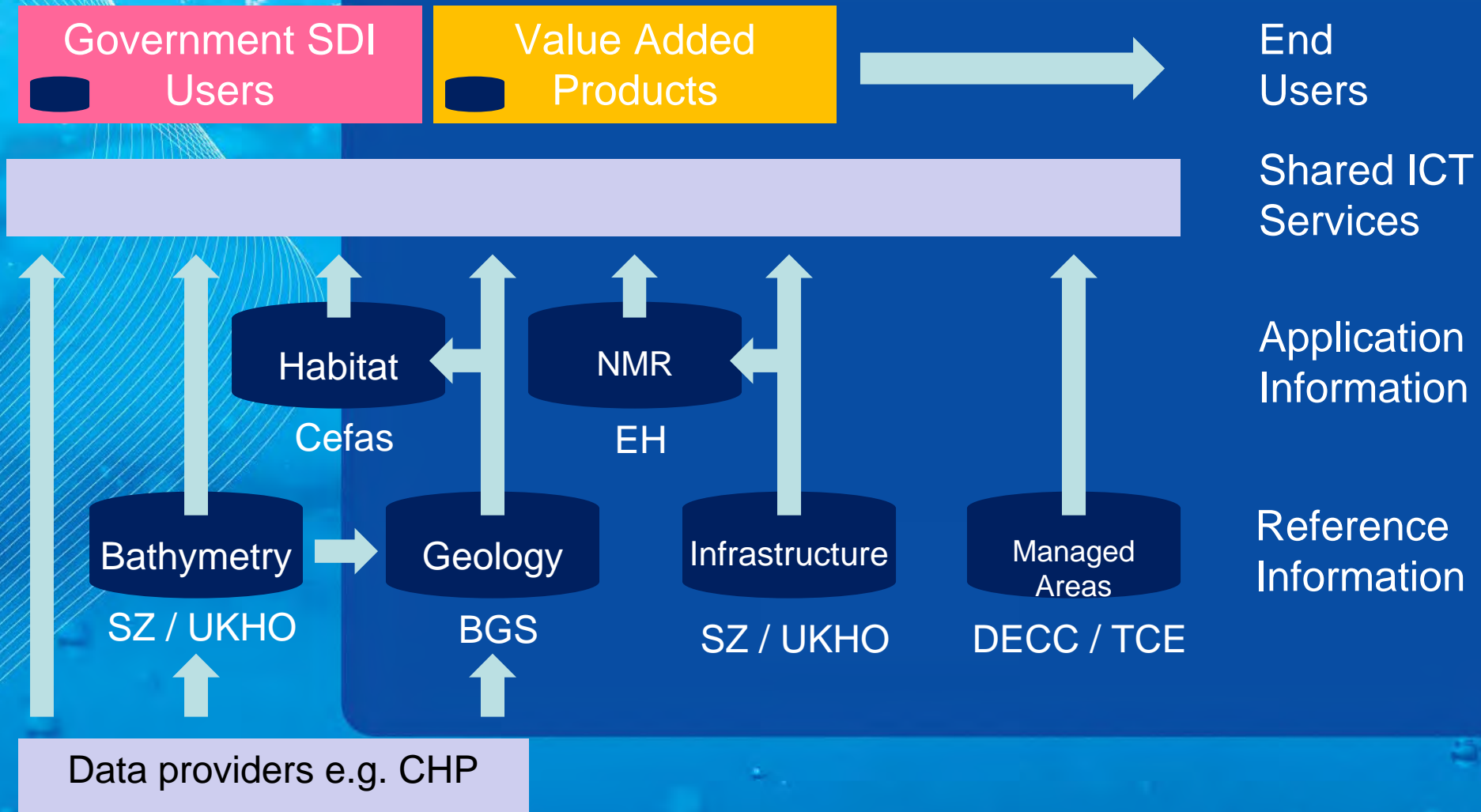
Identified Responsible Authorities producing data as themed layers (themed layers, not product silos)

Bathymetry → Geology → Habitat → Protected Sites

Interoperability and referencing between similar and adjacent datasets

Services and T&Cs enabling content to be utilised easily in higher level products and services

# Model for Data Management and Sharing



## SEAZONE HYDROSPATIAL

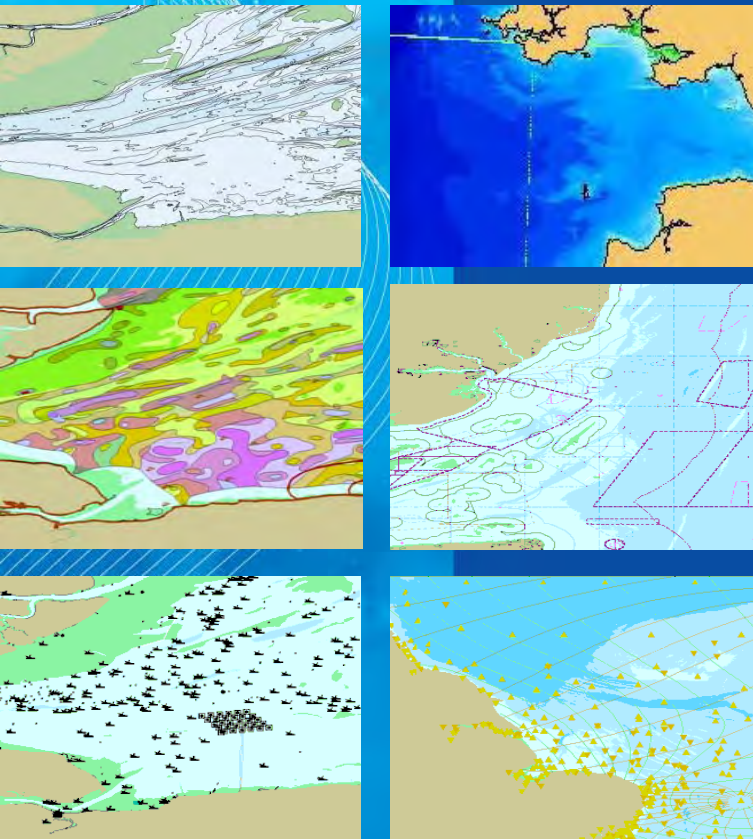
DATA



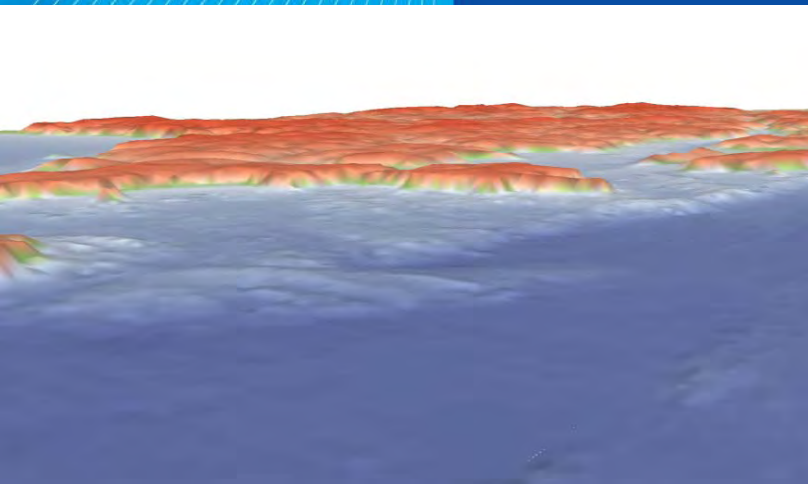
Digital Marine Mapping product quick and easy to use in GIS and Web GIS

- Bathymetry (Contours and DEM)
- Natural Features (Sea Bed Geology)
- Structures & Obstructions
- Socio-Economic & Marine Use
- Conservation & Environment
- Climate & Oceanography

SeaZone helps responsible authorities deliver best practice data management to meet the geographic content needs of users







## SeaZone New Survey Bathymetry Model

### SeaZone Offshore Model

- 6" Grid ~ 180m

### SeaZone Coastal Model

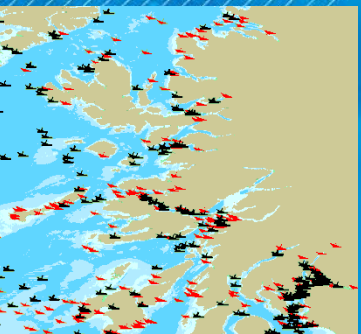
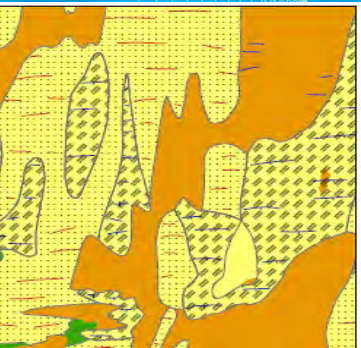
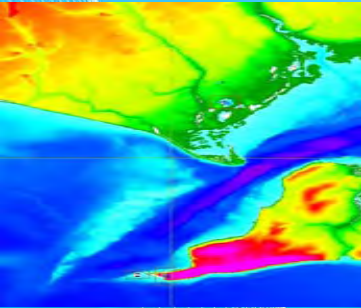
- 1" Grid ~ 30m

Supports BGS Sea Bed Geology, Cefas Habitat and Ordnance Survey integrated height datasets

Models use existing (post 1970) de-conflicted single and multi beam survey data where available

## SEAZONE INVESTING IN DATA IMPROVEMENT

- Developing marine topology (S-57) and harmonisation processes and tools
- Harmonising chart derived and source data into coherent, consistent GI for multiple use
- Deconflicting / modelling survey bathymetry data as input to Sea Bed Geology / Habitat maps
- Integrating terrestrial and marine topographic and height information with Ordnance Survey
- Merging UKHO and 3<sup>rd</sup> party shipwreck data into a comprehensive and consistent resource
- Developing and implementing data management best practice to meet the needs of users



## SUMMARY

- Sources of marine data are many and varied
- HO's hold much more data than used to produce navigational charts and products
- SDI content managed by responsible authorities as themed layers has numerous advantages
- SeaZone's mission is to create accurate and comprehensive marine reference information:
  - useful for a variety of different applications
  - integrated with terrestrial topography and height
  - easy to use in GIS and Web GIS
  - foundation for marine and coastal SDI development

