3. How has Solent Seascapes been Created?

The project has involved several stages which have included data gathering, analysis using GIS to enable a multi-level approach to Seascapes and interpretation to build a final 'broad character' layer. The development of a multi-level approach to Seascapes was needed to reflect the full three dimensional character of the marine zone.

Data Acquisition and Processing

The first stage of the project was to gather digital datasets from the marine environment to assess their potential to inform the characterisation of the historic environment.

Summary of Principal Data Sources

The National Monuments Record - provided named location and known wreck data, in addition to also historical port and dock locations and significant archaeological point locations.
SMR's/HER's - provided data on the coastal and onshore archaeological resource, much of which was related to marine character types and activities.
Terrestrial HLC polygons - were analysed and those connected to the marine zone and within a 2 km landward buffer, were selected for incorporation into the project GIS.
Data from SeaZone - has provided additional data on wrecks and obstructions, as well as extensive information on industrial activities: dredging areas, offshore oil installations, protected areas, and also provided locations of military practice areas, and of course bathymetric data.
Ordnance Survey maps - were analysed to show landscape regression and changes in the dimensions of the marine/ shore interface.
Solent Hazards Project – the results of an ALSF-funded project mapping well known navigational hazards against seabed preservation potential have been incorporated into the Seascapes interpretation.
Historic Charts – these provided data on coastal and offshore changes and factors affecting navigation in previous periods.
Salt industry mapping – a project by Hampshire County Council mapped the evidence of areas used in the salt-making industry.
Shell-fishing zones – mapping of areas used by the industry have contributed to understanding the distribution of modern fishing.
Data on prehistoric landscapes – information from geophysical survey data, borehole and auger evidence and results of diver and inter-tidal investigations have been combined to provide mapping of known prehistoric landscape survival. While it is acknowledged that this data is representative of only a fraction of the potential resource, it provides an indication of where the presence of material has currently been confirmed.

Developing Characterisation

The project then involved identifying historic attributes of the marine environment from available digital data sources. This included elements of the historic and natural environment. The attributes were then grouped to develop of a set of Seascape Broad Character Types. Within these Broad Character Types there were further sub-divisions.

The Solent Seascapes project has eight Broad Seascape Character Types and twenty one Sub-Character Types. It is likely that all of the Seascapes pilot projects may have similar character types, but the diversity of sub-character types will depend on the form of the local marine historic environment.

After the analysis of data and development of Character Types it was realised that to represent the full interpretation of the marine historic environment of the Solent further divisions of data would be required. The multi-level Seascape was developed based on a stratified GIS.
This meant that datasets were further grouped into 4 levels:
Sea Surface
Seabed surface
Seabed subsurface
Coastal
This enabled recognition that some attributes and activities may occur in multiple levels, while others would only be in one.

Example Character Types Across Layers

Activity with multi- level representation = Aggregates dredging
This activity is represented within all four character layers. On the sea surface the dredging vessels travel from wharves to extraction areas. On the seabed surface and in the water column the dredging apparatus is deployed while extracting. The seabed subsurface is also impacted due to the removal of aggregate material. In the coastal zone dredged aggregates are used for beach replenishment and recharge.
Activity with single level representation = prehistoric landscapes
Prehistoric landscape deposits are mostly represented in the seabed subsurface level. Many of these deposits have become sealed by sediments during the process of sea level rise and are now preserved within the seabed.

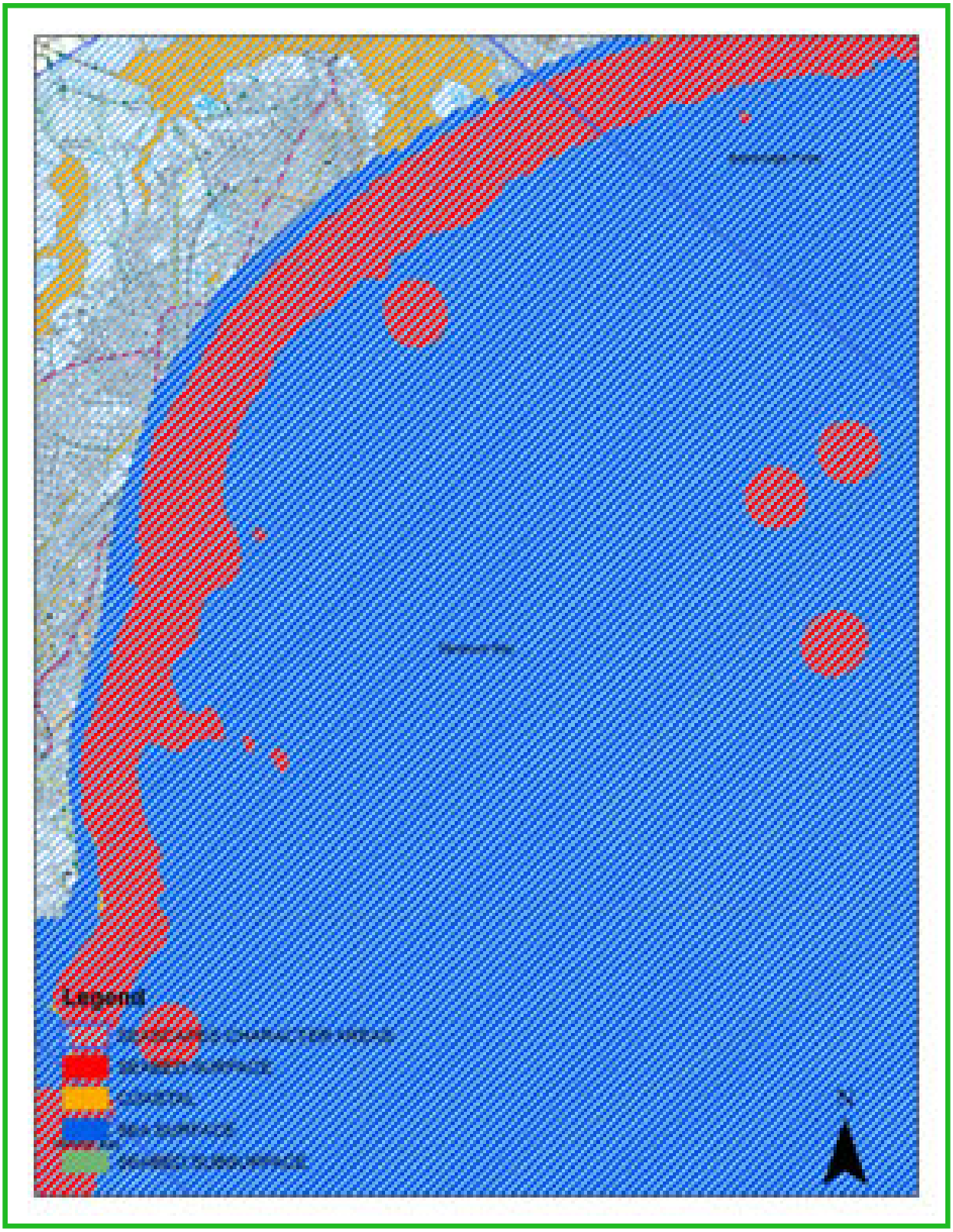
If you would like further details of all the different character types involved in the Solent Seascapes project please see Appendix 10.3 of the 'Solent Seascapes Technical Report'.

Producing Seascapes Polygons

With the fully developed four levels of character types within the project area we then moved on to the analytical process of combining the data within the four levels to produce the top level 'Seascapes' product.

The broad characterisation of Solent Seascapes areas involved the assessment of data from all four levels in the subjective process of creating broad polygons. Each of the polygons is accompanied by a description which reflects the data from all four Seascape levels (see example over page).

Example - Multi-layered Characterisation



Multi-Media Enhancement

To accompany the final broad character polygons and descriptions a multi-media element has been developed which integrates into the final product images from the Solent Seascapes and references to where you can find out further information.

Show me an Example of Seascapes

So, what does the Solent Seascapes product look like and how easy is it to use? This example of using Seascapes shows you what to expect.

Step One - Entering the Seascapes Product

The 'front end' of Solent Seascapes looks like this. You see the whole of the region split into colour coded areas. To look in detail at a particular area click on the polygon.

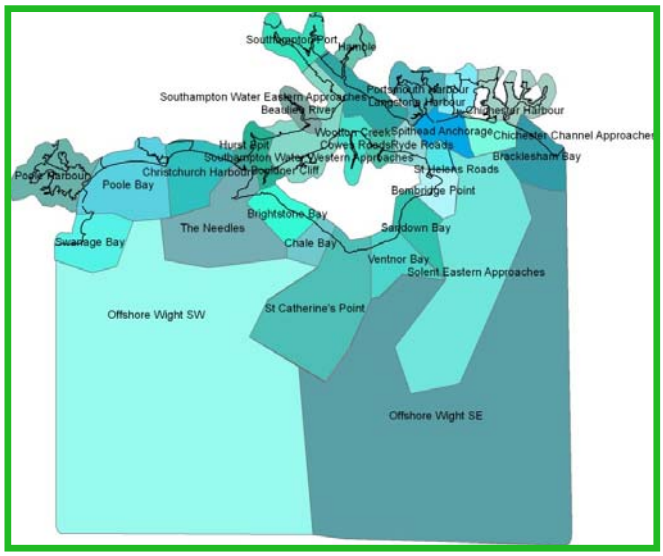
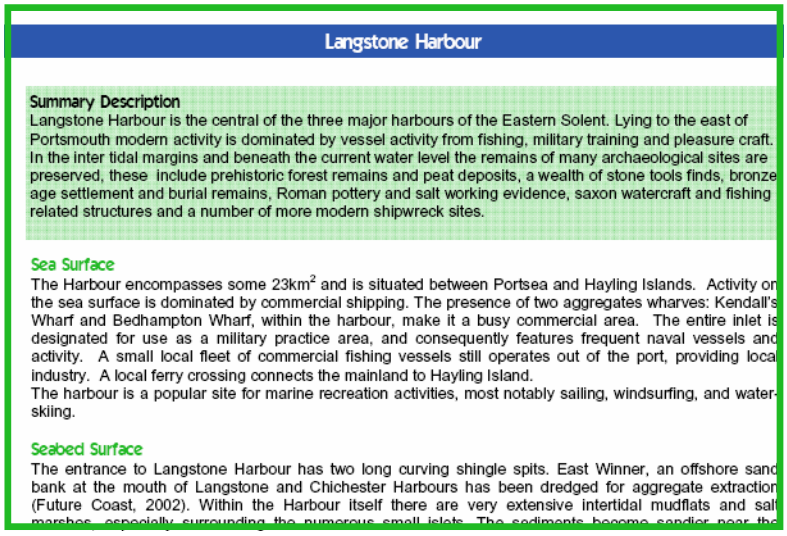


Figure 3.1 – The 'front end' of Seascapes product

Step Two – Viewing Information

You have entered a particular Seascapes area and a document has appeared which includes:
Text Description – this text has been created using data from the four different Seascapes layers, it will reflect both the modern and past use of the area and the range of archaeological and historical features found within it.



Langstone Harbour

Summary Description
Langstone Harbour is the central of the three major harbours of the Eastern Solent. Lying to the east of Portsmouth modern activity is dominated by vessel activity from fishing, military training and pleasure craft. In the inter tidal margins and beneath the current water level the remains of many archaeological sites are preserved, these include prehistoric forest remains and peat deposits, a wealth of stone tools finds, bronze age settlement and burial remains, Roman pottery and salt working evidence, saxon watercraft and fishing related structures and a number of more modern shipwreck sites.

Sea Surface
The Harbour encompasses some 23km^2 and is situated between Portsea and Hayling Islands. Activity on the sea surface is dominated by commercial shipping. The presence of two aggregates wharves: Kendall's Wharf and Bedhampton Wharf, within the harbour, make it a busy commercial area. The entire inlet is designated for use as a military practice area, and consequently features frequent naval vessels and activity. A small local fleet of commercial fishing vessels still operates out of the port, providing local industry. A local ferry crossing connects the mainland to Hayling Island.
The harbour is a popular site for marine recreation activities, most notably sailing, windsurfing, and water-skiing.

Seabed Surface
The entrance to Langstone Harbour has two long curving shingle spits. East Winner, an offshore sand bank at the mouth of Langstone and Chichester Harbours has been dredged for aggregate extraction (Future Coast, 2002). Within the Harbour itself there are very extensive intertidal mudflats and salt marshes, especially surrounding the numerous small islets. The sediments become sandier near the

Figure 3.2 Example extract Seascape polygon text description

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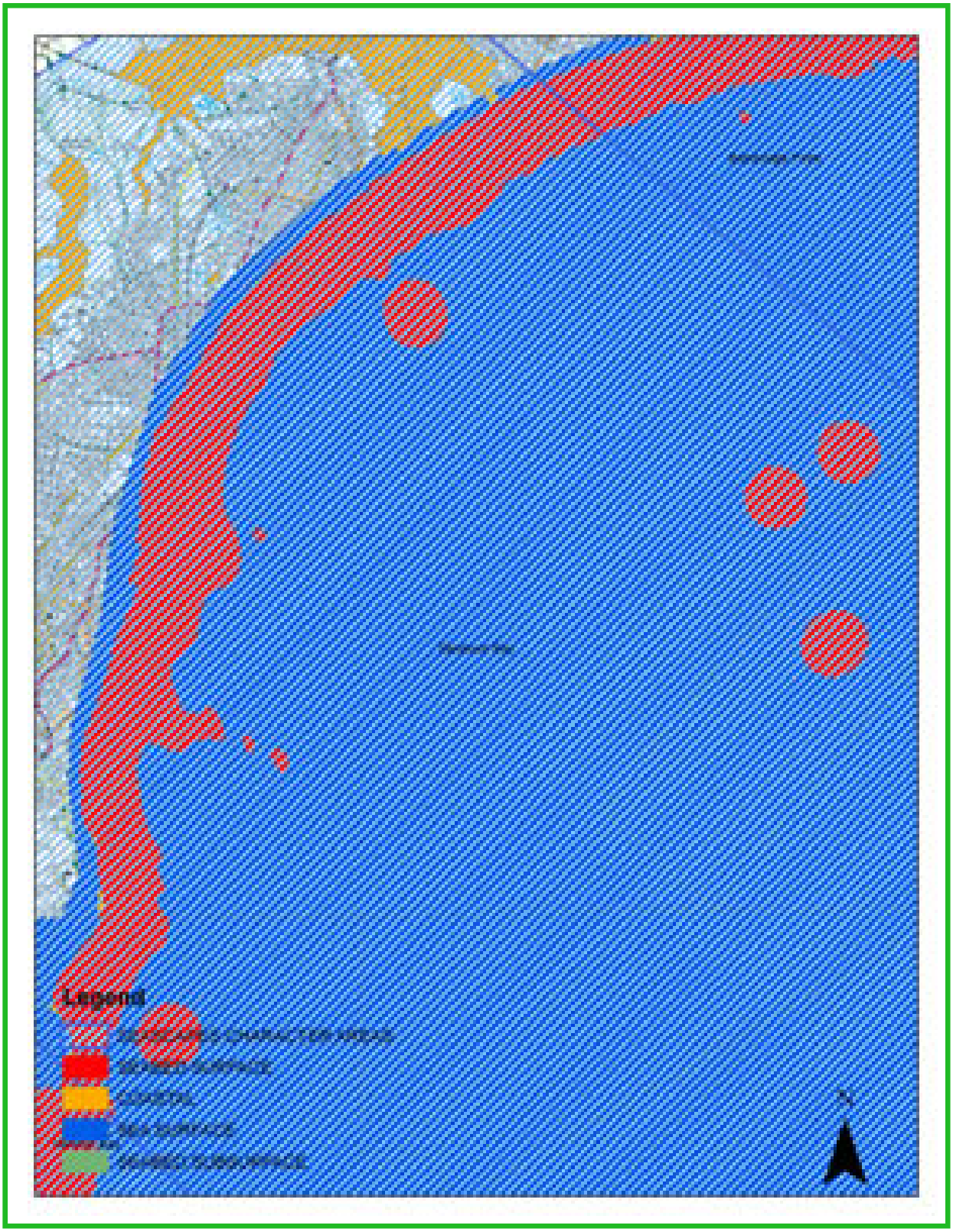
Example - Multi-layered Characterisation