Broad Character: Navigation
Character Type: Navigation Feature
National Perspective

INTRODUCTION: DEFINING/DISTINGUISHING ATTRIBUTES

This Character Type includes the following Sub-types:

- Navigation channel (active);
- Navigation channel (disused);
- Navigation channel (disused buried);
- Dredged channel/area.

This Character Type relates to areas created for, and directly relating to, the passage of shipping traffic. This Character Type is found where active management has been undertaken to maintain the accessibility of a stretch of water for safe passage. In relating to active management of material portions of navigation route across hazardous areas, this Type is distinct from the 'Navigation Activity' Character Type which is defined by usage and/or regulation,

Expressions of this Character Type include active, disused and buried navigation channels, dredged channels and entrances to harbours. Increased sea trade, particularly from the 19th century onwards, saw larger vessels in greater numbers seeking access to what had long been hazardous and restricted river or estuary channels. Industrialisation forced port authorities to improve and maintain navigational access by dredging, the spoil often dumped out to sea. Creating estuary channels also often involved the reclamation of adjacent land, including sand banks and saltmarsh, and the construction of retaining walls.

'Navigation channel (active)' includes channels charted or otherwise recorded as in active navigational use by present shipping traffic, whether or not the channel is of historic or modern origin. Time-depth expressed in the HSC attributes will reveal the channel's broad date of origin.

'Navigation channel (disused)' includes historic channels no longer charted or recorded as in active navigational use for present shipping traffic, whatever the channel's date of origin. Again, time-depth expressed in the HSC attributes will reveal the channel's broad date of origin and that it is no longer in use in the present. Where there is evidence that the channel is also now a buried feature (if extant at all), it will be assigned to 'Navigation channel (disused buried)'.

'Navigation channel (disused buried)' includes historic channels no longer charted or recorded as in active navigational use for present shipping traffic, and with evidence that the channel is also now a buried feature (if extant at all). As above, time-depth expressed in the HSC attributes will reveal the channel's broad date of origin.

'Dredged channel/area' refers to the removal of accumulated sediments from harbour channels and berths to ensure a safe depth of water for navigational purposes, or similar maintenance works to remove sediment to restore an adequate flow of water to mitigate risk of flooding or protect a sensitive habitat. Maintenance dredging refers to the excavations of material to deepen or create navigational channels and berths to provide additional harbour infrastructure or provide access for deeper draught vessels. The difference between capital and maintenance dredging is that capital dredging reduces the seabed to a level (relative to Ordnance Datum) lower that it has been at anytime during the preceding 10 years (www.mceu.gov.uk/MCEU_LOCALE/FEPA/FEPA-capital.htm).

English waters have been used for navigation since prehistoric times and such activity contributes considerably to the character of the marine landscape/seascape. Despite in themselves leaving no permanent mark on the sea surface, they have a diversity of associated features on and offshore and are responsible for the thousands of wrecks and related materials and debris surviving on the seabed across the UK Controlled Waters.

Navigational channels are found in many areas of English waters. Several navigational channels, especially those that are prone to silting, are dredged or cleared of sediment frequently enough to ensure enough draught for safe harbour (e.g. within the Thames and Mersey Estuaries).

HISTORICAL PROCESSES; COMPONENTS, FEATURES AND VARIABILITY

Usual components of this Character Type include active, disused and disused buried navigation channels, dredged channels and entrances to harbours.

Navigable channels have been used since prehistoric times (Cunliffe 2001) but the extent to which they were or could be maintained is unclear. On the Irish Sea, travel was generally characterised by short-haul pottering between beaches on rocky foreshores and islands, and there were (and still are) numerous inshore lakes and narrow necks of land inviting portages. Navigational channels can be constrained by the presence of hazards such as sandbanks and are now often buoyed to avoid these features. Our knowledge of navigation features offshore mainly dates back to the 1800s.The Hydrographic Office was established as a sub-department of the Admiralty in 1795 and issued its first officially published Admiralty chart in November 1800 (http://www.nationalarchives.gov.uk/records/research-guides/admiralty-charts.htm). These charts were continually updated and corrected to reduce the dangers from the changing position of channels.

Natural rivers and lakes were used as waterways for the transportation of people and goods. These were often then improved to make navigation more reliable and capable of taking ships of greater draught. Many rivers were dredged from the post medieval period onwards to allow transport to major trading ports and, later, industrial centres., Other modifications included the construction of artificial channels and flash locks (i.e. designed with a single gate). The introduction of the pound lock (a lock almost exclusively found nowadays on canals and rivers) enabled more ambitious waterways to be built.

Industrialisation from the mid 18th century required the transportation of large quantities of raw materials and finished goods. This led to the construction of a large network of canals in England, some of which connected directly with tidal zones via locks as, for example in the Copperhouse Canal built in 1769 at Hayle, Cornwall. The decline of many canals and, in some cases their abandonment, started with the competition first from railways and later from road transport.

VALUES AND PERCEPTIONS

Navigation channels and dredged areas form an integral part of working ports or harbours but most people are probably unaware of their vital role in maintaining that operation. More obvious are the dredging craft that are often found moored in harbours ready for service, becoming a regular part of the landscape/seascape of coastal communities. For mariners the importance of maintaining a safe draught for vessels is imperative to their livelihoods and safety.

RESEARCH, AMENITY AND EDUCATION

The history of creating and maintaining navigation channels is an important aspect of cultural manipulation of the coastal and marine environment to facilitate economic desires and expansion. Many navigable channels are now lost or buried. Where extant but obscured, they may offer potential for the survival and understanding of closely associated features, such as wrecked craft, wharves, pilings, jetties, artefacts and palaeo-environmental components.

This Character Type provides an enormous public amenity for the commercial shipping and ports that depend on maintained navigational accessibility, but also on a far smaller scale, they enable safer access too for recreational watercraft, small boats and anglers to use these areas and reach their moorings.

The British Marine Aggregates Producers Association (BMAPA) and English Heritage have put in place a Protocol for Reporting Finds of Archaeological Interest (BMAPA and English Heritage 2005). Although generally understood to be relevant to aggregates dredging operations offshore, this protocol also applies to the wharves and vessels of all BMAPA companies and requires that any finds discovered at a wharf, onboard vessel or on the seabed are reported to allow such finds from our common submerged heritage to be better understood.

The educational potential of this Character Type is considerable. For example, the 'Solent Aggregates to Outreach' project has successfully demonstrated the direct educational potential of dredging related subjects and the historic environment (Hampshire & Wight Trust for Maritime Archaeology 2007; also see http://www.hwtma.org.uk/index.php?page=aggregate-to-outreach; http://ads.ahds.ac.uk/project/alsf/). Further educational tools could be developed to raise awareness in schools about these less visible aspects of our common cultural inheritance and demonstrating the beneficial collaboration between regulators, the heritage sector and industry, in this case the aggregates industry

CONDITION AND FORCES FOR CHANGE

Dredging has much affected the historic character of the waters in the United Kingdom, enabling many ports to develop much further and be accessed by far larger vessels than would otherwise be possible. It is a necessary requirement at the approaches to most active ports and will continue to be so.

In England, dumping of industrial waste at sea has been prohibited since 1994. The bulk of the material eligible for disposal at sea now comes from port and navigation channel operations, as well as coastal engineering projects. Nevertheless, dumping of dredged materials can introduce contaminants to the marine environment (Department of Trade and Industry 2002a, b).

Sandbanks also relate intimately with this Character Type as mobile entities prompting the need for active management to maintain navigation. Besides dredging to keep channels clear, sediment mobility through time can require that the course of channels close to major sandbanks need changing. Reduction in shipping activity and restructuring of navigation routes to serve new or expanded ports can also lead to former channels becoming redundant. This can result in the presence of disused or buried former navigation channels (e.g. in the approach to the Mersey River). The development of lighthouses along the coast can illustrate changing sandbanks and channels. For example a series of lighthouses were constructed in Harwich in the 19th century due to the changing course of the main channel into the port.

In general, the survival of river channels is fairly good even if most components are no longer used or have been developed by industry.

RARITY AND VULNERABILITY

This Character Type has a wide variety of well preserved components from the early modern period onwards. In areas that are continually dredged today, the potential of encountering prehistoric or historic remains could be considered low due to dredging having an intrusive impact on the seabed and river banks. However, in some places, there may be remnants of historic dredging activities.

Navigation channel dredging activities, if new or expanded from previous operations, may alter the historic character of a region although the major effects are more likely to arise from the stimulus for such change, such as port development or expansion.

Climate change may also affect some channel-dredging regimes as increased water turbulence and storm activity changes the environmental influences bearing on the position of sandbanks.

PUBLISHED SOURCES

BMAPA, English Heritage. 2005. *Protocol for Reporting Finds of Archaeological Interest*, Prepared by Wessex Archaeology on behalf of BMAPA & English Heritage, http://ads.ahds.ac.uk/catalogue/projArch/alsf/search_maritime.cfm

Cunliffe B. 2001. *Facing the Ocean, the Atlantic and Its People*. Oxford: Oxford University Printers

Department of Trade and Industry. 2002a. *Strategic Environmental Assessment of Mature Areas of the Offshore North Sea SEA2*. London: DTI

Department of Trade and Industry. 2002b. *Strategic Environmental Assessment of Parts of the Central & Southern North Sea SEA 3*. London: DTI

Hampshire & Wight Trust for Maritime Archaeology. 2007. *Aggregates to Outreach: Presentation and Teaching Pack Final Report*, Hampshire & Wight Trust for Maritime Archaeology on behalf of English Heritage, Southampton

WEBSITES

http://www.mfa.gov.uk/

http://en.wikipedia.org/wiki/Portal:UK_Waterways

http://en.wikipedia.org/wiki/River_Tyne,_England