**IIC: EASTERN SOLENT**

Spit sand fort protecting the deep water channel into Portsmouth © Martyn Pattison - Geograph

The intercontinental ferries pass through the Eastern Solent – Southsea © Steve Daniels

A great variety of boats use this stretch of water in close proximity to one another. © Peter Trimmings

Annual cricket match on Brambles Bank low water springs © Yachts and Yachting

Beach at Hillhead – popular stretch of coast for kite surfing and windsurfing © Mike Stanier.

Last commercial hovercraft crossing Outline of Haslar hospital. © Charles Greenhough.

Rock gobi under Mystery wreck off Langstone Harbour – wrecks provide different, valuable habitats. © HWT.
1.0 Location and Boundaries

1.1 The western boundary with the adjoining Western Solent character area is influenced by a number of factors both above and below water. It is the approximate boundary between sand and gravel sea bed deposits to the west and a greater proportion of muds to the east. Ferries tend to use the waters in the eastern Solent more than the adjoining area to the west, which affects its character. This character area also has a more developed feel than the New Forest coastline. The eastern boundary is formed by an imaginary line extending from the County boundary southwards from the entrance to Chichester harbour for approximately 1.5km offshore. The area extends as far as the mean low water mark of the mainland and Isle of Wight.

1.2 Component County Landscape Types:
Coastal Sea.

1.2 Composition of Borough/District LCAs:
None

1.3 Associations with JCAs, Natural Areas and England’s Historic Seascapes
JCAs: None
NA109: Solent and Poole Bay
EHS: Southampton Water Eastern Approaches

2.0 Key Characteristics

• A former Pleistocene river which drained the Hampshire basin and expunged into the English Channel to the southeast of the Isle of Wight. It had a shingle silty mud seabed, becoming increasingly sandy and shingley further east.
• A couple of licensed mineral extraction areas remain to the east of the Island – not currently extracted.
• The major deep water shipping channel is the South channel, the western edge of which roughly follows the character area boundary, before dog legging to the east.
• Sheltered from predominant south-westerly winds, with very busy shipping, including commercial huge container vessels, tankers, ferries, high speed vessels, hovercraft and recreational sailing.
• Unusual tidal conditions due to the influence of the Isle of Wight, including unique double high tide.
• Internationally important for marine and coastal biodiversity with SPA and SAC designations.
• Commercial fishing interests are mainly of shellfish rather than fish. They include oysters and American hardshell clam, the harvesting of which affects the natural sea bed characteristics.

• Historically, the home port of the British navy at Portsmouth and one of the most significant cruise liner ports at Southampton have meant the waters have seen some of the most significant war and commercial vessels — often attracting great public interest and national passion.

• Numerous visually prominent historic defence related landmarks including Calshot castle, Southsea Castle, Norris Castle (I.o.W.) and Palmerston forts, evocative of times when this coast and its ports were of huge strategic defence importance.

• Varied views of low coastline to the north in contrast to the hilly backdrop of the Isle of Wight to the south — even with the coastal settlements it still retains more natural undeveloped stretches and is heavily wooded on the Island side.

3.0 Physical Characteristics and Uses

3.1 The underlying geology is comprised of Barton clays to the north and Becton and Barton sands to the south. Above the bedrock geology are the periglacial gravel beds of the drowned Solent river system from the Pleistocene (2m to 11,500 yrs ago). The Itchen and Test were conjoined to form a Solent river valley during this period, which extended in a south-easterly direction to the east of the Isle of Wight. The Pleistocene ice sheets did not cross this region and the gravelly deposits were limited to former valleys called paleovalleys. The Eastern Solent represents where the paleo - Solent river valley was at its deepest - incised to at least 46m below ordnance datum in the far east section and containing over 30m of sediment. The seabed sediment is predominantly comprised of muds (from the Holocene) and shingle. There are licensed dredging areas for marine aggregates east of the Isle of Wight – there is no apportionment requirement from these areas that is linked to the County’s requirements, but the County’s balance is part met through marine and imported aggregates. There is a danger of mismatch between the land and marine won aggregates.

3.2 The north channel connects Calshot reach with the natural mid Solent deep water channel, which corresponds with the location of the former Pleistocene river. The Thorn channel is the main deep water channel for large sea going vessels. Both join mid Solent, increasing in depth to the east. Channels are dredged regularly to maintain their depths. There are several shingle and sand shoals, some of which are exposed at low water spring tides, providing significant navigational hazards. Where the water movement is less vigorous (as is the case for much of this character area) the sea bed is muddy and uniform in topography, with linear furrows aligned in the direction of the current. The sea bed becomes increasingly gravelly and shingley eastwards. Sediment movement is predominantly west to east. This longshore drift pattern is modified by strong ebb tide currents from harbours and estuaries. Here, there is localised recirculation or back eddies which result in sediment deposition in the form of spits and apposition beaches (series of beaches parallel to the shore ridge of shingle). Where these features are prominent above the mean low water spring tide line they are described in the adjoining land based character areas. The formation and continuation of these coastal spits, which often protect vulnerable habitats such as saltmarsh, are dependent on replenishment by sediment from the
west. Throughout the 20th century coastal protection and construction of groynes has reduced this natural sediment input and may threaten the survival of these features.

3.3 The tidal characteristics are unique here, in that at Spring tides there is a ‘double high water’ which is slightly lower and about 2 hours after the first. This effect is localised around Southampton Water. The tidal regime of the Solent, particularly Southampton water is one of the most complex in the world. The double high tide results in a prolonged high tide in the eastern part of the character area and ebb currents are particularly strong. Mid channel The average tidal range is about 2.7m, exposing the shore particularly on the Isle of Wight side. Wave height is low – mostly less than 0.5m but the distance between waves is shorter than out in the English channel. To the east of the Isle of Wight the waters are sheltered from the prevailing south-westerlies and sea going container ships often anchor here in poor weather.

3.4 This is one of the busiest areas in the world for commercial shipping, and is also extremely popular for recreational sailing including the annual Cowes Regatta and round the Island race. Added to the mix of boats are cross channel and local ferries. The hovercraft service to the Isle of Wight is the last remaining route in the UK. Naval vessels regularly use these waters on their way to the dockyard at Portsmouth, and larger American naval vessels such as aircraft carriers can use the area east of the Island as a stop off point. This eclectic mix of craft is particularly unique to this stretch of water and is an essential element of this vibrant maritime scene.

3.5 Shellfish is the most important fishing industry, although compared with other sites around the country the fisheries activities are relatively low. Lobster, crab, mussels and (most significantly) oysters are the most extensive shellfisheries. The shoals and banks in the Solent provide important locations for spats but oyster harvests come from the estuaries and harbours. The largest designated shellfishing areas are off the northeast coast of the Isle of Wight. Principal other fish species include plaice, bass and sole. It is thought that the decline of most species (particularly bass) is principally due to pollution, leading to the designation of specified bass nursery areas which are located in the harbours and under fishing restrictions.

4.0 Experiential/Perceptual Characteristics

4.1 There are many landmarks visible from these waters, including the Palmerston or Spithead forts. The coastline is varied from Southsea, including the castle, modern development at gun wharf (including the Spinnaker tower) and the more wooded and hilly profile of the Isle of Wight. Coastal landmarks include Fort Gilkicker, Calshot power station stack, Alverstoke church tower, Ryde pier and church. The muds / silts and strong tides make the water turbid and cloudy, but visibility is better where the sea bed is more sandy.

4.2 There are numerous navigational routes and channels used by different types of shipping, including Isle of Wight ferries, continental ferries, container vessels and smaller craft. Most commercial traffic exit and enter the Solent from the east. There
is a multitude of navigational marks which can be difficult to observe against the land at night.

4.3 The number of craft on the stretch of water make it a busy seascape all year round, but especially in summer. At less busy times the experience can be much less frenetic. The open sea can offer wildness and remoteness in close proximity to a huge number of people.

5.0 Biodiversity Character
5.1 This landscape character area is internationally designated, in parts, for the sublittoral maritime habitats that it supports. These habitats are part of the Solent Maritime SAC valued for its estuarine systems and extensive estuarine flats. The area is important for supporting eelgrass and green algae, sand and shingle spits, and natural shoreline transitions. The area adjoins and is interconnected with intertidal habitats within character areas 9E, 3E, 9F and 9H which are also nationally or internationally designated.

5.2 Marine habitats are diverse. This area represents the northerly limit of shark pupping grounds (centred around the Isle of White). The ocean floor comprises gently sloping sand, gravels and muds which provide a range of habitats including sweet kelp forests. Marine gravels and sands provide habitat to a range of species including scallops, mantis shrimp and Solent oysters. Patches of seagrass meadow in the west of the area provide further habitat to small fish and potentially to species such as the seahorse. These areas, in turn, provide important feeding grounds to larger fish and seabirds.

6.0 Historic Character
6.1 Archaeology
6.1.1 Numerous known and potential shipwreck sites (including the Mary Rose and Invincible) are an important archaeological resource. The traces of submerged prehistoric landscapes in this area are also highly important archaeologically. The archaeological potential of Wootton Creek is extremely high. The area was subject to intensive intertidal archaeological investigations during the 1990's, revealing remains from all periods of human history in coastal, intertidal and marine zones.

6.2 Historic Seascape
6.2.1 In the C.16th Bristol and London began to dominate foreign trade, adversely affecting the Solent, although local trade along the coast and across the channel continued. Portsmouth and the Hamble became strategically important areas for building and repairing naval ships from about 1650. Portsmouth became the dominant port for port traffic during the 17th century. The importance of this stretch of water for trade and defence is evidenced by the remains of medieval lighthouses and coastal fortifications which provide very prominent landmarks. Wool and corn were the chief exports to France and Spain, and wine was imported from France.

6.2.2 The area remained important for defence. Through the 18th and 19th centuries large warships such as the men-of-war were constructed locally. There would have been an impressive seascape of Merchant and naval Tall ships in the Solent. Collectively the Solent's ports were most successful from the mid C.18th to the early C.20th.
coinciding with growth generated by the industrial revolution. Salt trading declined rapidly in the early C.19th due to competition from Cheshire rocksalt. From the C.19th the area became one of the first in the UK to develop businesses of commercial ferries and continental liners, which marked a new direction in the composition of shipping traffic. By 1830 these vessels were carrying more than 100 000 passengers a year. The glamorous liners attract many spectators when coming into port.

6.2.3 The 1950s and 1960s saw the development of Fawley in the adjoining character area – Southampton Waters one of the largest petrochemical works in Europe. It handles about 2500 ships a year, all of which pass through this area of the Solent.

6.3 Built Environment

6.3.1 The Palmerston forts are evocative landmarks of this part the Solent. They were built as a ring of defences around Portsmouth in the late 19th century – and nicknamed Palmerston’s follies as French threat of invasion had subsided by the time they were all built. Today they stand as huge round hulks guarding the entrance to the eastern Solent with different commercial and private uses and ownership. The submarine barrier off Southsea is another relic of a defence strategy from more modern times of war. The series of closely spaced submerge blocks is a particular hazard to shipping but also has the effect of making this area of coast shipping free and congenial to beach users.
## EVALUATION

### 7.0 FORCES FOR CHANGE

1. Recreation pressures trends in yachting and cruise liner industry.
2. Climate change in particular sea level rise and increase in frequency of storms - large waves, changes to water temperatures and stronger tidal currents and adaptation responses.
3. Effect on shipping characteristics by the enlargement of container port facilities in adjoining marine character areas and shoreline development.
4. Fishing trends.
5. Introduction of alien species from continental shipping.

### KEY QUALITIES AND EFFECTS OF FORCES

#### 7.1

*One of the busiest stretches of water in the world, with a very diverse range of shipping plying the ports of Southampton and Portsmouth. The large number of passenger ferries mean that the seascape and shoreline views are familiar first/last views of England for international travellers.*

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<tr>
<th>FORCES FOR CHANGE</th>
<th>CONSEQUENCES</th>
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<tr>
<td><strong>1.3</strong> Threats:</td>
<td>Achieving the right balance between commercial shipping, recreational sailing pressures and nature conservation interests. Further increase in commercial and large vessel shipping likely to increase potential erosion from ship wash, probability of toxic contamination (e.g. from accidental/deliberate discharge of lubricants). Also Non-physical disturbance such as noise and visual presence. Losing the visibility and visual dominance of historic landmarks from the water to visually competing surrounding development.</td>
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<tr>
<td>Opportunities:</td>
<td>Continuation of a diverse shipping character and the economic benefits that this brings to the area, without compromising the ambience to yachting / ocean liners using the estuary as a result of increasing the proportion of commercial shipping. Identification of important historic coastal landmarks as well as those traditionally use for navigational aid would help in retaining built historic skylines, possibly by looking into opportunities to work with the local community to identify popular and valued views in this part of the Solent and important visual receptor sites.</td>
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#### 7.2

*The estuarine habitats off the entrance to the Medina and off Hayling Island are internationally important. The sublittoral habitats are marine muds and gravels becoming increasingly sandy and gravelly eastwards and are UK priority BAP habitats. More sheltered and weaker tidal areas are generally more diverse.*

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<td><strong>All</strong> Threats:</td>
<td>The draft Solent European Marine Sites management scheme identifies an inventory of human activities in and around the SAC sites. The most relevant are connected with fishing, foreshore recharge and recreational sailing. The Solent Forum habitat information packs identify threats to the sublittoral sands and gravels and muddy gravels habitats (there is a greater percentage of the latter in this character areas than to the west) In particular, threats identified to this key quality include physical disturbance and nutrient enrichment.</td>
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Hampshire County Integrated Character Assessment

Status: FINAL DRAFT Autumn 2010
Eastern Solent
Opportunities:
Support ‘Seasearch’ marine surveys which investigate marine habitats in the Solent.
Support aims of the Solent Forum and SMP to protect these sublittoral habitats and emphasise their importance to local fish and shellfish stocks, and the role of natural sediment movement in coastal defence.

7.3
*Nationally important naval history associations including unique series of C.19th man-made island defences and numerous wrecks, particularly on the eastern approaches.*

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<tr>
<td>3.4</td>
<td>Threats:</td>
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<td></td>
<td>Deterioration of condition and expense of maintaining the Solent Palmerston forts.</td>
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<td></td>
<td>Damage to wreck sites from anchoring and trawling.</td>
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<td>Unsurveyed / unidentified wreck sites.</td>
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Opportunities:
The Solent Palmerston forts are iconic features – and are in various ownership and condition. Supporting the aims of the Palmerston forts society to ensure their survival will be important.
Support aims of the Hampshire and Wight Trust for Maritime Archaeology and projects such as Archaeology and Coastal Change (funded by the Standing Conference on Problems Associated with the Coastline (SCOPAC)), to promote further survey and greater understanding of the area’s archaeology.
Enforcement of byelaws and implementation of fishing policies to safeguard damage to the sea bed archaeology (Sea Fisheries Committee).

7.4
*The offshore sand and gravel banks provide natural shoreline defences and are replenished by the predominant easterly longshore drift.*

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<td>2</td>
<td>Threats:</td>
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<td></td>
<td>Physical change and disturbance to the west can alter the supply of sediment to replenish the sand and gravel banks – thereby increasing the susceptibility of the coast to erosion.</td>
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<td>There are currently no extraction operations in this area of the Solent, but there are some licensed areas to the east of the Isle of Wight. Operational activity could alter sediment flow patterns.</td>
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<td>Shoreline defences and groynes may adversely alter sediment flow.</td>
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Opportunities:
Continuation of the work of the Channel Coastal observatory and Solent Forum are essential in furthering understanding of sediment movement in the Solent.
Support SMP and coastal defence strategies and aim to influence design, material choice and alignment of defences.