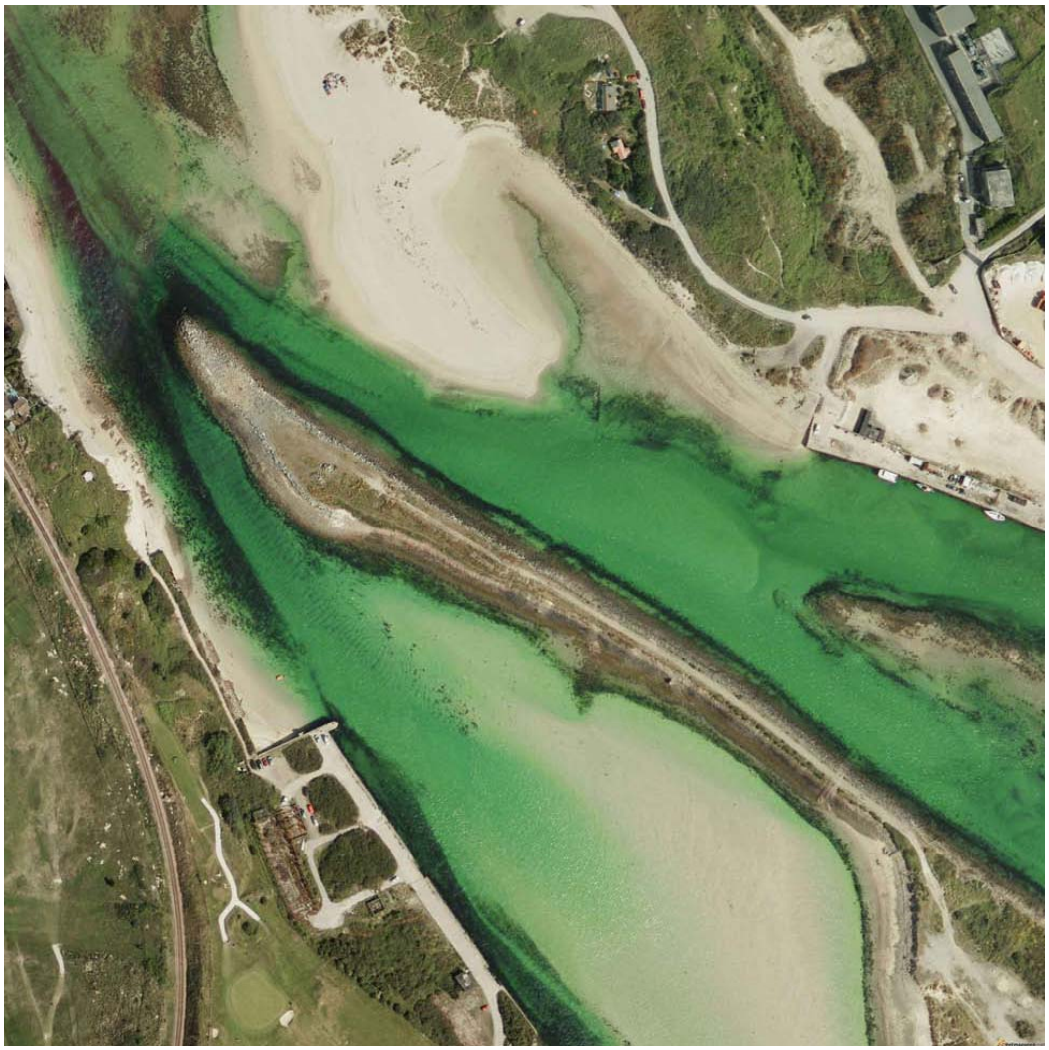
# Technical Annex 12G Ecological Survey of Proposed Sand-Trap Area, Lower Hayle Harbour.

# ECOLOGICAL SURVEY OF PROPOSED SAND-TRAP AREA, LOWER HAYLE HARBOUR, MAY 2007



## REPORT PREPARED FOR THE ENVIRONMENT PRACTICE AND ING REAL ESTATE

## BY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## 1. SUMMARY

Ecological surveys of the lower part of Hayle Harbour were carried out by Aquatonics Ltd on 17 May 2007. The aims of the surveys were to record the invertebrates and seaweeds present, describe the main biotopes and provide additional data for the Environmental Impact Assessment. We also noted any fish found during sampling.

The harbour area was previously surveyed by Aquatic Environmental Consultants (now Aquatonics Ltd) in January 1989 and February 2000 (Smith, 1989 & 2000). The main reason for this new survey was to examine in detail the location of the proposed sand-trap (which will be part of the sediment control within the harbour) and other nearby habitats that will be impacted by the proposed Hayle Harbour development.

The main findings of the surveys are:

- Sediments were predominantly sands of various sizes, but some sites had gravel and pebbles present.
- The biotopes recorded were typical of mobile intertidal sands in fully marine conditions.
- In total nine distinct biotopes were recorded, all of which were matched with JNCC biotopes.
- The seaweeds and invertebrates recorded from the intertidal were mainly common marine species.
- A total of 32 invertebrate taxa and eight seaweeds were recorded during the survey, plus one species of fish (lesser sandeel). The number of species recorded was in the expected range for this part of the Hayle complex.
- Four species (three crustaceans and a polychaete worm), that appear to be new records for the Hayle complex were recorded. *Talorchestia deshayesii* is a sand-hopper found in intertidal sands near to high tide level. *Urothoe brevicornis* is also a gammarid amphipod, usually found in of mid-tidal to shallow subtidal sands. *Pirimela denticulata* is a small crab that inhabits sands and gravels on the lower intertidal and shallow subtidal. *Ophelia borealis* is a polychaete worm normally associated with mobile sands. These new records reflect the lack of sampling effort in this area on previous surveys.
- Some parts, particularly the wetter intertidal sands, support populations of lesser sandeel (*Ammodytes tobianus*).

## 2. METHODS

The surveys took place on 17 May 2007, during spring tides so that the full extent of the intertidal habitat was visible. Low water was at 12:26 BST, and the height was 0.6m above Chart Datum.

The survey team was Julian Perrett (Encompass Ecology Ltd) and Colin Munro (Marine Bio-images) working under the prior direction of Dr Phil Smith (Aquatonics Ltd). Both the surveyors are experienced aquatic ecologists.

Weather during the survey was fine, with high cloud (approximately 60% cover) and good visibility.

### 2.1 Position Fixing

All positions were obtained with a handheld GPS (Magellan eXplorist XL). Positions are provided to the nearest 1 m in Table 1. They are likely to be accurate to within ± 10 m. All grid references are on the OSGB36 datum. Sampling sites are shown in Figure 1.

### 2.2 Identifications

All specimens recorded in the survey are shown in Table 2 of this report by their Latin name, common name (if available) and MCS (Marine Conservation Society) code (Howson & Picton, 1997). Each record is referable to a precise location.

Invertebrates that required checking were sent to Dr Peter Garwood of Identichaet for confirmation or identification.

### 2.3 Intertidal Survey Methods

The intertidal surveys combined several elements:

- Walk-over survey and photography
- Biotope assessment and selected sampling (2 locations)
- Sediment cores and digging over 1 square metre quadrats (8 locations)
- Net sample (1 sample at low water)

#### 2.3.1 Walk-over survey and photography

The walk-over survey was the main method of identifying the habitats and biotopes present and determining suitable sampling sites. Photos were taken of all features of interest. Densities of lugworm (*Arenicola marina*) were estimated from surface casts.

### 2.3.2 Biotope Assessment / MNCR Survey

Biotopes are habitats and their associated biological communities. Biotopes were assessed using the biotope classifications produced by the Joint Nature Conservation Committee (JNCC), which is available on the internet (Connor et al, 2004).

At each site we examined the full range of macroalgae and invertebrates present, by looking on and under stones and amongst the larger algae. Most species could be identified in the field. Specimens of difficult groups (eg amphipods) were put in a labelled container with buffered formalin and examined at a later date in the laboratory.

The SACFOR method was used to describe densities. This uses the following abbreviations for densities recorded:

| | |
|---|---|
| S | Super Abundant |
| A | Abundant |
| C | Common |
| F | Frequent |
| O | Occasional |
| R | Rare |

The JNCC method for determining the abundance of each species was used. Results are summarised in Table 2.

### 2.3.3 Core Sampling of Sediments

We obtained sediment cores at 8 sites, located to cover the range of tidal heights and sediment types present. The methodology closely followed that used by the Environment Agency and Natural England, but without replicate samples. Each core had an area of 0.01 sq metre. Cores were taken to a depth of 15 cm, except at Site 1 where the core depth was 10 cm due to the presence of hard substrate. Survey proformas included the descriptions and scoring used by the JNCC MNCR and SAC survey methods. Apart from Site 5 (in the low water channel) an area of approximately one square metre was dug over and any invertebrates or fish were removed and placed in buffered formalin for later examination.

Core samples were placed in labelled bags and preserved in buffered formalin within 24 hours. After one week the low density fraction was removed by elutriation in the laboratory (this operation was carried out by Dr Phil Smith of Aquatonics Ltd). This prevented damage of the more delicate species during the sieving process. The rest of the sample was sieved through a series of sieves and the percentage of sediment on each sieve was estimated by eye. The material retained by the sieves of 1 mm and greater was preserved in buffered formalin. Within 1-2 weeks the samples were re-sieved over a 1.0 mm mesh and the formalin removed by washing with freshwater. The fauna retained by the sieve was identified to species level wherever practicable. Specimens that were damaged or not showing full adult characteristics were identified as far as possible.

Accurate counts were made of each taxon in the samples and the results tabulated (Table 2).

### 2.3.4 Net Sample of Low Water Channel

Samples of nektonic (swimming) species were obtained during the intertidal survey. The low water channel was sampled using a standard FBA handnet, which has a mesh of 0.9 mm. The sampling time was two minutes. The method is useful in producing a better list of the species present, but is best considered as qualitative. Specimens were preserved in buffered formalin and identified later in the laboratory. Results are tabulated in Table 2.

The species present were all crustaceans (shrimps, mysids and gammarids).

## 3. RESULTS

Locations of each of the sampling sites and time and date of sampling are shown in Table 1. Details of the densities of invertebrates and algae recorded at location are shown in Table 2.

### 3.1 Taxa Recorded

### 3.1.1 Algae

Only eight algae were identified in the samples. The survey concentrated upon macroalgae and it is likely that other small algae are also present within the study area.

### 3.1.2 Invertebrates

A total of 32 invertebrate taxa were recorded (Table 3). The most common phyla were crustaceans and annelids (worms). Molluscs were only recorded on hard surfaces, not in the sediment. The only other phyla recorded were dipteran (fly) larvae and nemertean worms. The very low diversity is mainly due to the mobile nature of the sand and the scouring effect this has on any invertebrates and algae present. The lack of molluscs in the sediments could be partly due to metal contamination, but is more likely due to the unsuitability of the mobile sands for most species.

Four species (three crustaceans and a polychaete worm), that appear to be new records for the Hayle complex were recorded. *Talorchestia deshayesii* is a sand-hopper found in intertidal sands near to high tide level. *Urothoe brevicornis* is also a gammarid amphipod, usually found in of mid-tidal to shallow subtidal sands. *Pirimela denticulata* is a small crab that inhabits sands and gravels on the lower intertidal and shallow subtidal. *Ophelia borealis* is a polychaete worm normally associated with mobile sands. These new records reflect the lack of sampling effort in this area on previous surveys.

Lugworms were present at relatively low densities (approximately 1 per 5 $m^2$ at sites 3, 6 & 7. Tubes of the spionid worm *Pygospio elegans* were noted at site 8.

**TABLE 3. INVERTEBRATES RECORDED IN THE SURVEYS**

| INVERTEBRATE PHYLUM | NUMBER OF TAXA |
|---|---|
| Crustaceans (eg barnacles, mysids, shrimps and crabs) | 17 |
| Annelids (polychaete and oligochaete worms) | 8 |
| Molluscs | 4 |
| Insects | 2 |
| Nemertean worms | 1 |
| Total invertebrate taxa | 32 |

### 3.2 Sediments

The estimated percentage of the various sand and gravel fractions at the eight sites sampled by corer are shown in Table 4. Note that the less than 125 µm fraction was not assessed but was probably less than 1% of the total.

**TABLE 4. SEDIMENT PARTICLE SIZE.**

| Site | 125-250 µm Fine sand | 250-500 µm Medium sand | 500-1000 µm Coarse sand | 1000-2000 µm Very coarse sand | >2000 µm Gravel & pebbles |
|---|---|---|---|---|---|
| 1 | 10 | 35 | 43 | 2 | 10 |
| 2 | 8 | 25 | 25 | 7 | 35 |
| 3 | 19 | 45 | 19 | 5 | 12 |
| 4 | 3 | 30 | 65 | 1 | 1 |
| 5 | 5 | 34 | 60 | 1 | 0 |
| 6 | 2 | 8 | 88 | 1 | 1 |
| 7 | 11 | 60 | 28 | 1 | 0 |
| 8 | 10 | 40 | 40 | 2 | 8 |

Some sediments (sites 1-3) were poorly sorted, ie they contained a range of particle sizes. Some were moderately well sorted (sites 7-8). The remainder (sites 4-6) were well-sorted.

The organic matter present in the samples was visually assessed during sieving and sample sorting. As expected for mobile sands it was very low.

## 4. BIOTOPES

Each JNCC biotope code is a combination of substrate type and characterising species. In this survey the main substrate types were:

LR Littoral Rock
LS Littoral Sediments
SS Sublittoral Sediments
X Mixed Substrata

Other abbreviations used in relevant JNCC biotope codes include:

Asc *Ascophyllum nodosum* (knotted wrack)
B Barnacles
Bar Barren
Eur *Eurydice pulchra*
Fves *Fucus vesiculosus* (bladder wrack)
Mo Mobile
Mus Mussels
Ncir *Nephtys cirrosa*
Sa Sand
St Strandline
Tal Talitrids (sand-hoppers)

Detailed information on the characteristics of each biotope is available on the JNCC web site (Connor et al, 2004).

In total nine distinct biotopes were recorded, all of which could be were matched with JNCC biotopes (Table 5).

**TABLE 5. SUMMARY OF BIOTOPES RECORDED**

| JNCC BIOTOPE | LOCATION |
|---|---|
| LS.LSa.St.Tal<br>Talitrids on the upper shore and strand-line | Core 1 |
| LS.LSa.MoSa.BarSa<br>Barren littoral coarse sand | Cores 2 & 7 |
| LS.LSa.MoSa.AmSco.Eur<br>*Eurydice pulchra* in littoral mobile sand | Core 8 is similar |
| LR.LLR.F.Fves.X<br>*Fucus vesiculosus* on mid eulittoral mixed substrata | Core 3 |
| LS.LSa.MoSa<br>Barren or amphipod dominated mobile sand shores | Core 4 |
| LS.LSa.FiSa.Po.Ncir<br>*Nephtys cirrosa* dominated littoral fine sand | Core 6 is similar, but medium to coarse sand |
| SS.SSA.IFiSa.IMoSa<br>Infralittoral mobile clean sand with sparse fauna. | Core 5 |
| LR.HLR.MusB.Cht.Cht<br>*Chthamalus montagui* and *Chthamalus stellatus* on exposed upper eulittoral rock | MNCR 1 |
| LR.LLR.F.Asc.X<br>*Ascophyllum nodosum* on full salinity mid eulittoral mixed substrata | MNCR 2 |

The upper shore (Site 1, Photo 1) had a low diversity, as expected. The only species present were enchytraeid oligochaete worms, the sand-hoppers *Talitrus saltator* and *Talorchestia deshayesii* and two types of fly larvae. The best match with JNCC biotopes is LS.LSa.St.Tal Talitrids on the upper shore and strand-line.

The core from Site 2 (Photo 2) only contained two specimens, the spionid polychaete *Pygospio elegans* and an enchytraeid oligochaete. The best match with JNCC biotopes is LS.LSa.MoSa Barren or amphipod dominated mobile sand shores.

Site 3 on the mid to lower shore (Photo 3), was relatively diverse, probably due to the increased sediment stability, with a dense cover of algae (*Enteromorpha* spp., *Fucus vesiculosus* and filamentous ectocarp brown algae). The invertebrates present were mainly annelids, with relatively high densities of *Pygospio elegans* and *Ophelia borealis*. Other species recorded included crabs (*Pirimela denticulata* and *Carcinus maenas*), a catworm (*Nephtys cirrosa*), lugworm (*Arenicola marina*), brown shrimp (*Crangon crangon*) and the isopod crustacean *Eurydice pulchra*. The best match with JNCC biotopes is LR.LLR.F.Fves.X *Fucus vesiculosus* on mid eulittoral mixed substrata.

Site 4 was hummocky, soft wet sand (Photo 4). The particle size estimates show it was well-sorted coarse and medium sand. The only species recorded in the core were low densities of the amphipods *Urothoe brevicornis* and *Haustorius arenarius*. A lesser sandeel (*Ammodytes tobianus*) was recorded from the one square metre quadrat that was dug over. The best match with JNCC biotopes is LS.LSa.MoSa Barren or amphipod dominated mobile sand shores.

Site 5 was in the low water channel (Photo 5) and it was therefore not practical to dig over a one square metre quadrat. If this had been done it is very likely that sandeels would have been present. No specimens were recorded in the core at Site 5. As the site is sublittoral it cannot be accurately matched to any of the littoral sediment biotopes. The best match is with the sublittoral biotope SS.SSA.IFiSa.IMoSa Infralittoral mobile clean sand with sparse fauna. The description of this biotope refers to the fact that sandeels may be present.

Site 6 was close to the lobe of sand that is encroaching from the north west (Photo 6). This has created a pooled area of saline water. Lugworm casts were Frequent. The species present in the core were all annelids (*Pygospio elegans, Clitellio arenarius* and enchytraeidae). Catworm (*Nephtys cirrosa*), sand-hoppers (*Talitrus* saltator) and lesser sandeel (*Ammodytes tobianus*) were recorded in the quadrat. The best match was with JNCC biotope LS.LSa.FiSa.Po.Ncir *Nephtys cirrosa* dominated littoral fine sand. However, at Site 6 the sediment was medium to coarse sand so the match wasn't perfect.

Site 7 was on the lower shore (Photo 7). The sediment was well sorted, mainly medium sand. The only taxa recorded were lugworm (*Arenicola marina*) which were Frequent and in the core a single unidentified nemertean worm and the amphipod *Urothoe brevicornis*. The best match was with JNCC biotope LS.LSa.MoSa.BarSa Barren littoral coarse sand.

Site 8 was close to the base of the seawall (Photo 8). The only species found in the quadrat was the amphipod *Melita palmata*. The core contained five invertebrates, with the spionid polychaete *Pygospio elegans* and enchytraeid oligochaetes being the most abundant. Two specimens of the isopod *Eurydice pulchra* were also present. The best match was with JNCC biotope LS.LSa.MoSa.AmSco.Eur *Eurydice pulchra* in littoral mobile sand.

MNCR Site 1 was at the harbour wall on the north side of the harbour (see Figure 1 and Photo 9). The dominant species were barnacles (*Chthamalus stellatus*), limpets (*Patella vulgata*) and the algae *Fucus vesiculosus* and *Enteromorpha* spp. Other species recorded were algae (*Ascophyllum nodosum* and *Catenella caespitosa*), sea slaters (*Ligia oceanica*), mussels (*Mytilus edulis*) amphipods (*Orchestia mediterranea*) and shore crabs (*Carcinus maenas*). The best match for the main part of the seawall was LR.HLR.MusB.Cht.Cht *Chthamalus montagui* and *Chthamalus stellatus* on exposed upper eulittoral rock.

MNCR Site 2 was on the south side, on the extension to Triangular Spit that extends seawards (Figure 1). The site was dominated by knotted wrack (*Ascophyllum nodosum*), which was Abundant. Living on the knotted wrack was the commonly recorded epiphyte *Polysiphonia lanosa*, which was Occasional. Bladderwrack (*Fucus* vesiculosus) was Frequent. Most of the invertebrates recorded were molluscs (*Gibbula umbilicalis, Littorina littorea* and *Patella vulgata*), but all were at relatively low densities. The other invertebrates recorded were shore crabs (*Carcinus maenas*) and the gammarid amphipod *Eulimnogammarus obtusatus*. The best match was with JNCC biotope LR.LLR.F.Asc.X *Ascophyllum nodosum* on full salinity mid eulittoral mixed substrata.

The net sample from the low water channel did not produce many specimens. All the invertebrates were crustaceans: mysids (*Praunus flexuosus* and *P. inermis*) brown shrimp (*Crangon crangon*) and gammarid amphipods (*Gammarus* spp. juveniles). No attempt was made to match this sample to JNCC biotopes, as the sampling method only collects swimming species. No fish were recorded in the net sample, which was unusual, as common gobies or sand gobies were expected.

## 5. CONSERVATION ASSESSMENT

The intertidal habitats surveyed at Hayle have been assessed by Aquatonics Ltd in relation to the following criteria used by JNCC (Davidson et al, 1991):

"**International** Communities which are outstandingly good examples of their type in the north-east Atlantic, Communities recorded at only a few locations in the north-east Atlantic. Species which are recorded at only a few locations in the north-east Atlantic. Species recorded in higher abundance in the area under consideration than anywhere else in the north-east Atlantic or where the area is one of only a very few locations where large quantities are recorded.

**National** Communities which are outstandingly good examples of their type in Britain. Communities recorded in only a very few similar physiographic situations in Britain. Both of these definitions refer to communities which are or are likely to be

widely occurring in other similar physiographic situations in the north-east Atlantic. Species which are recorded at only a few locations in Britain but are more widespread in other parts of the north-east Atlantic. Species recorded in higher abundance at locations under consideration than in any others elsewhere in Britain or where the site is one of only a very few locations where large quantities are recorded in Britain.

**Regional** Communities which are present in similar physiographic situations elsewhere in Britain but which are outstandingly good examples of their type in the location under consideration or are as good examples as similar communities present elsewhere in Britain. Communities recorded at only a few locations in the same biogeographic region. Species which are unrecorded or recorded at only a few locations in similar physiographic situations in Britain but which are widespread in other similar sites in other parts of Britain. Species recorded in higher abundance in the area under consideration than in any other part of Britain or where the site is one of only a very few locations where large quantities are recorded in Britain.

**Local** Communities which are widespread throughout Britain with as good or better examples at several other locations. The selection of only species which are of higher than local importance precludes the use of this category in the species lists."

Previous reports by Aquatic Environmental Consultants (Smith, 1989 & 2000) have shown that most of the intertidal areas in the Hayle complex are of Local conservation importance for invertebrates and algae. The only exceptions were Carnsew close to the cill and tunnels and the nearby area of harbour close to the outlet from Carnsew. Both these areas were considered to be intermediate between Local and Regional conservation importance for invertebrates and algae.

All of the harbour area is considered to be of Local conservation importance for invertebrates and algae. Although the harbour area is obviously important area for sandeels it is difficult to put the data into a regional or national context. We think it is most likely that the harbour is of Local conservation importance for sandeels, as this species is also found in large numbers throughout St Ives Bay.

## 6. REFERENCES

Connor, DW; Allen, JH; Golding, N; Howell, KL; Lieberknecht, LM; Northen, KO and Reker, JB (2004). The Marine Habitat Classification for Britain and Ireland Version 04.05 JNCC, Peterborough ISBN 1 861 07561 8. Available at www.jncc.gov.uk/MarineHabitatClassification

Davidson, NC, Laffoley, D, Doody, JP, Way, LS, Gordon, J, Key, R, Drake, CM, Pienkowski, MW, Mitchell, R & Duff, KL (1991). Nature Conservation and Estuaries in Great Britain. Nature Conservancy Council, Peterborough.

Howson, CM & Picton, BE (1997). The Species Directory of the Marine Fauna and Flora of the British Isles and Surrounding Seas. Ulster Museum and Marine Conservation Society, Belfast and Ross-on-Wye.

Smith, P (1989). Survey of the Benthic Macro-invertebrate Communities at Estuarine Sites at Hayle, Cornwall. January 1989. Report Prepared for David Bellamy Associates, February 1989.

Smith, P (2000). Intertidal and Subtidal Surveys of the Hayle Estuary Complex, February 2000. Report Prepared For The Environment Practice and Hayle Harbour Company by Aquatic Environmental Consultants, 10 March 2000.

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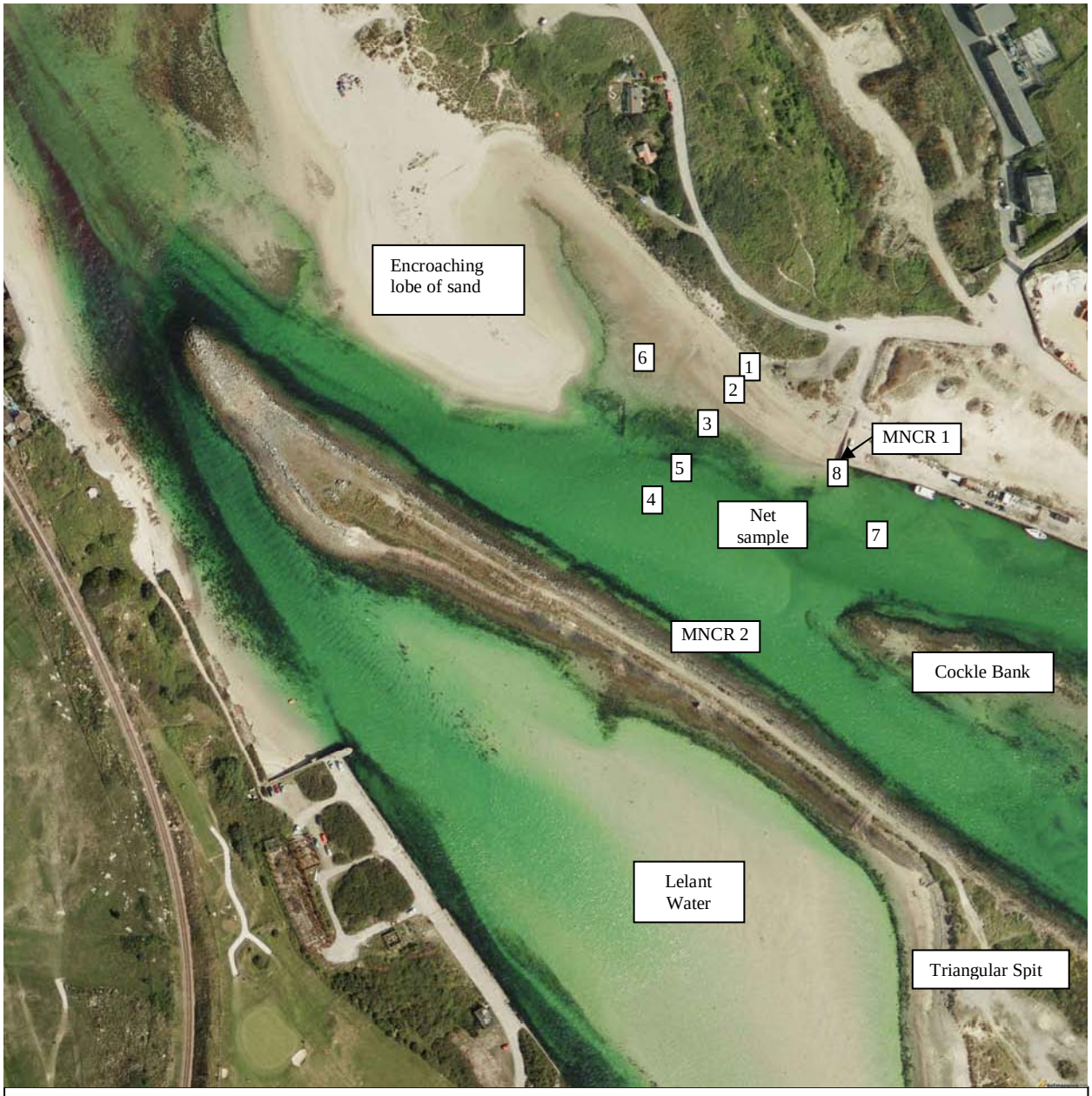


## FIGURE 1. LOCATION OF SAMPLING SITES

**1-8 ARE THE CORE AND QUADRAT SITES. AERIAL PHOTOGRAPH TAKEN 10 AUGUST 2005.**

**Photo 1. Obtaining core sample at Site 1.**

**Photo 2. Substratum at Site 2.**

**Photo 3. Site 3, showing dense algal cover (*Enteromorpha* spp., *Fucus vesiculosus* and filamentous browns).**

**Photo 4. Hummocky soft, wet sand at Site 4.**

**Photo 5. Obtaining core sample at Site 5, in low water channel.**

**Photo 6. Site 6, showing large lobe of raised sand to the NW.**

**Photo 7. Site 7, showing wet, mobile coarse sand.**

**Photo 8. Site 8, showing small rivulets.**

**Photo 9. MNCR Site 1, on north side of harbour.**

## TABLE 1. SAMPLE LOCATIONS AND PHOTOGRAPHS

| | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|
| SAMPLE TYPE | SAMPLE NUMBER | LOCATION | TIME BST | NGR | PHOTOGRAPHS | PHOTO NUMBER IN REPORT | Note that sites were not sampled in same order as numbering. |
| Core | 1 | Top of sandy intertidal | 11:50 | SW 55246 37953 | 6 & 7 | 1 | Core taken to 10 cm due to subsurface hard layer. Coarse to medium mobile sand on surface. |
| Core | 2 | Downshore from Site 1 | 12:05 | SW 55235 37939 | 8 to 11 | 2 | Medium to coarse sand with gravel and pebble armour & small to medium sized gravel & pebbles throughout. |
| Core | 3 | Downshore from Site 2 | 12:48 | SW 55220 37917 | 20 to 24 | 3 | Medium and coarse sand and with pebbles at 10 cm. Dense *Enteromorpha* , *Fucus vesiculosus* & filamentous brown algae. Occasional lugworm casts. |
| Core | 4 | | 12:27 | SW 55196 37886 | 12 to 14 | 4 | Highly mobile and soft coarse to medium sand, waves and troughs. |
| Core | 5 | Within low water channel | 12:40 | SW 55211 37897 | 15 to 19 | 5 | Well sorted coarse and medium sand. |
| Core | 6 | | 13:08 | SW 55187 37925 | 25 to 29 | 6 | Soft coarse sand within "basin" of water at base of sand cliff (see photo 6). Occasional lugworm casts. |
| Core | 7 | | 13:27 | SW 55297 37855 | 30 to 33 | 7 | Very wet and mobile coarse sand. Occasional lugworm casts. |
| Core | 8 | | 13:33 | SW 55292 37899 | 34 to 37 | 8 | Medium to coarse sand with gravel. Small drainage rivulets containing fine polychaete tubes. These later identified as *Pygospio elegans* . |
| Net | | | 12:30 (approx) | SW 55267 37889 | NONE | NONE | No fish caught. All specimens returned to the lab for identification. |
| MNCR | 1 | | 14:45 | SW 55295 37901 | 35 | 9 | North side of harbour. |
| MNCR | 2 | | 15:20 | SW 55223 37823 | NONE | NONE | South side of harbour, edge of Triangular Spit. |

## TABLE 2. TAXA RECORDED DURING THE SURVEY ON 17 MAY 2007

| PHYLUM | MCS Code | Latin name | Common names | Net | MNCR 1 | MNCR 2 | Quadrat 1 | Quadrat 3 | Quadrat 4 | Quadrat 6 | Quadrat 7 | Quadrat 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NEMERTEANS | | | | | | | | | | | | |
| G | 1 | Nemertea indeterminate | Ribbon worms | | | | | | | | | |
| ANNELIDS | | | | | | | | | | | | |
| P | 458 | Nereididae (juv) | Ragworm | | | | | | | | | |
| P | 498 | Nephtys cirrosa | Catworm | | | | | 1 | | 2 | | |
| P | 776 | Pygospio elegans | A spionid polychaete | | | | | 1 | | | | |
| P | 907 | Capitella capitata | A capitellid polychaete | | | | | | | | | |
| P | 931 | Arenicola marina | Lugworm | | | | | Frequent | | Frequent | Frequent | |
| P | 999 | Ophelia borealis | | | | | | | | | | |
| P | 1477 | Clitellio arenarius | A tubificid oligochaete | | | | | | | | | |
| P | 1501 | Enchytraeidae | Enchytraeid oligochaetes | | | | | | | | | |
| CRUSTACEANS | | | | | | | | | | | | |
| R | 45 | Chthamalus stellatus | An acorn barnacle | | Superabundant | | | | | | | |
| S | 82 | Praunus flexuosus | A mysid | 4 | | | | | | | | |
| S | 83 | Praunus inermis | A mysid | 1 | | | | | | | | |
| S | 228 | Talitridae (juv) | Sand-hopper | | | | | | | | | |
| S | 235 | Orchestia mediterranea | Sand-hopper | | Occasional | | | | | | | |
| S | 241 | Talitrus saltator | Sand-hopper | | | | 1 | | | 1 | | |
| S | 243 | Talorchestia deshayesii | Sand-hopper | | | | | | | | | |
| S | 247 | Urothoe brevicornis | | | | | | | | | | |
| S | 462 | Haustorius arenarius | | | | | | | | | | |
| S | 470 | Eulimnogammarus obtusatus | | | | Occasional | | | | | | |
| S | 471 | Gammarus sp. | | 3 | | | | | | | | |
| S | 525 | Melita palmata | | | | | | | | | | 1 |
| S | 854 | Eurydice pulchra | | | | | | | | | | |
| S | 1056 | Ligia oceanica | Sea slater | | Occasional | | | | | | | |
| S | 1385 | Crangon crangon | Brown shrimp | 1 | | | | | | | | |
| S | 1562 | Pirimela denticulata | Toothed Pirimela | | | | | 1 | | | | |
| S | 1594 | Carcinus maenas | Shore crab | | Rare | Occasional | | | | | | |
| MOLLUSCS | | | | | | | | | | | | |
| W | 165 | Gibbula umbilicalis | Purple top shell | | | Occasional | | | | | | |
| W | 231 | Patella vulgata | Common limpet | | Frequent | Occasional | | | | | | |
| W | 296 | Littorina littorea | Edible periwinkle | | | Occasional | | | | | | |
| W | 1695 | Mytilus edulis | Mussel | | Occasional | | | | | | | |
| INSECTS | | | | | | | | | | | | |
| | NONE | Psychodidae (larvae) | Fly larvae | | | | | | | | | |
| | NONE | Dipteran larvae | Fly larvae | | | | | | | | | |
| ALGAE | | | | | | | | | | | | |
| ZM | 304 | Catenella caespitosa | | | Rare | | | | | | | |
| ZM | 671 | Polysiphonia lanosa | | | | Occasional | | | | | | |
| ZR | 4 | Ectocarpaceae | A filamentous brown | | | Common | | | | | | |
| ZR | 375 | Ascophyllum nodosum | Knotted wrack | | Occasional | Abundant | | | | | | |
| ZR | 384 | Fucus vesiculosus | Bladder wrack | | Frequent | Frequent | | | | | | |
| ZS | 149 | Enteromorpha sp | Gut weed | | Frequent | Occasional | | | | | | Abundant |
| ZS | 156 | Enteromorpha intestinalis | Gut weed | Frequent | | | | | | | | |
| ZS | 179 | Ulva lactuca | Sea lettuce | Frequent | | | | | | | | |
| FISH | | | | | | | | | | | | |
| ZG | 444 | Ammodytes tobianus | Lesser sandeel | | | | | | 1 | 1 | | |