

A juvenile cuttlefish (*Sepia officinalis*) in the shallows on the north shore (MD)



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2008

Brownsea Island
Seasearch Surveys
Summary Report



A greater pipefish (*Sygnathus acus*) hiding among the weed (MD)

An anemone (*Urticina* sp.) amongst mixed weed (PW)



Brownsea Island Seasearch

20 - 21 September 2008



Brownsea Island is managed by the Dorset Wildlife Trust and the National Trust. There have been limited marine biological surveys around the Island since an Environment Agency survey in the 1960s or 70s. Earlier in 2008 there was a sighting of a seahorse off the north shore of the island. We decided to organise a weekend trip to the island to conduct marine habitat surveys on the north coast, to take benthic samples from the lagoon and to undertake an intertidal survey on the western shore.

Eight Seasearch divers travelled to the island to participate in the surveys. The weather was hot and sunny all weekend providing good diving conditions. As well as adding to Dorset's Seasearch data, the results have been given to the wardens who manage the island. All survey times and locations are given in Appendix A.



Location map of Brownsea Island showing the survey locations and the DWT villa (Image source: Google Earth).

North Shore Diving

Three buddy pairs carried out two dives from the north shore of Brownsea between the old chain ferry and the shore. Data were recorded between depths of 1.0 m and 4.2 m. The main habitats types were:

- A silty, sandy slope down to 4 m with sparse, visible life; some patches of green algae and gobies present, pockets of life (fish, tunicates and sponges) around a dead tree trunk.
- At around 4 m, a sandy substrate with clumps of red and green algae; shore crabs, molluscs, sponges, tunicates and gobies common. Many slipper limpets, dead and alive, were present.



Diadumene cincta living within a *Crepidula fornicata* shell (LB).



Typical view of the seabed near to the old chain ferry on the north coast (MM).

| Species summary for the north shore dives, Brownsea Island 2008 | | | |
|---|---------------------------------------|----------------|--|
| Phylum | Common name | No. of species | Common / notable species |
| Porifera | Sponges | 16 | <i>Suberites ficus</i> , <i>Hymeniacidon perleve</i> |
| Cnidaria | Anemones, corals, hydroids, jellyfish | 7 | <i>Hydrallmania falcata</i> , <i>Diadumene cincta</i> , <i>Cereus pedunculatus</i> |
| Annelida | Worms | 6 | <i>Lanice cochilega</i> |
| Crustacea | Crabs, lobsters, shrimp | 7 | <i>Carcinus maenus</i> , <i>Macropodia</i> sp. |
| Mollusca | Snails, sea slugs, cephalopods | 12 | <i>Crepidula fornicata</i> , <i>Crassostrea gigas</i> , <i>Aequipecten opercularis</i> |
| Bryozoa | Sea mats | 2 | <i>Alcyonidium diaphanum</i> |
| Tunicata | Sea squirts | 10 | <i>Styela clava</i> |
| Pisces | Fishes | 11 | <i>Pomatoschistus</i> sp., <i>Taurulus bubalis</i> |
| Algae | Seaweeds | 18 | <i>Chondria coerulescens</i> , <i>Gracilaria multipartita</i> |
| Vascular plants | Seagrass | 1 | <i>Zostera</i> fragments |
| Total species | | 90 | |

Species of interest on the dives were the nationally rare sponge *Suberites massa* and three nationally rare red algae *Chondria coerulescens*, *Gracilaria bursa pastoris* and *Gracilaria multipartite*. No seahorses were observed. The full data set is provided in Appendix B with SACFOR abundance ratings, as explained in Appendix E.



Divers kitting up on the north shore of Brownsea (MD).



Archidoris pseudoargus seen near the old chain ferry (NO).

The Lagoon

The main lagoon at the eastern end of Brownsea Island is extremely shallow with soft mud. It is not possible to snorkel or walk safely across the lagoon; such activities may also be detrimental to the lagoon. Most of the animals in the lagoon live on and in the mud (benthic organisms). On the surface of the mud were thousands of starlet anemones, *Nematostella vectensis*. These have UK Biodiversity Action Plan status, are regarded as Nationally Scarce and are included on the IUCN Red Data List of threatened species as Vulnerable. Despite their national scarcity, we estimated their density at each location in the lagoon to be in the order of 1000 to 1500 individuals per square metre. *If* the anemone cover is uniform throughout the lagoon, then Brownsea Island is home to tens of millions of these tiny animals.



Collecting core samples from the edge of the lagoon (PW).



Nematostella vectensis in the lagoon on Brownsea Island (MD).

To find out what else lived in the sediment, duplicate core samples were taken from three locations around the lagoon on the northeast corner of Brownsea (as indicated on the island plan above). The cores were taken to a depth of ca. 5 cm with a 0.008 m² corer. Samples were sieved on site before being preserved in formalin for analysis at a later date. These benthic samples require the animals to be carefully sorted from organic matter and silt/sand before identification under a microscope in the laboratory. The complete breakdown of data is provided in Appendix C.

| Species summary for the lagoon samples, Brownsea Island 2008 | | | | | | | |
|--|--------------|-------------------------------|-----------------------------|-------------------------|--------|--------|---|
| Phylum | Family | Species | Common name | SACFOR abundance rating | | | |
| | | | | Site 1 | Site 2 | Site 3 | |
| Annelida | Tubificidae | <i>Tubificoides benedii</i> | Oligochaete worm | C | - | C | |
| | Nereididae | <i>Hediste diversicolor</i> | Polychaete worm | A | S | A | |
| | Spionidae | <i>Polydora cornuta</i> | Spionid worm | F | C | - | |
| | Cirratulidae | <i>Tharyx killariensis</i> | Cirratulid worm | A | A | - | |
| Crustacea | Corophiidae | <i>Corophium volutator</i> | Mud shrimp | A | C | F | |
| | | <i>Corophium insidiosum</i> | Mud shrimp | F | - | - | |
| | Idoteidae | <i>Idotea neglecta</i> | An isopod | - | C | - | |
| | | <i>Idotea balthica</i> | An isopod | - | - | C | |
| | | Melitidae | <i>Melita palmata</i> | Amphipod shrimp | - | C | - |
| | | | | | | | |
| Mollusca | Semelidae | <i>Abra tenuis</i> | Bivalve - thin furrow shell | C | - | C | |
| | Cardiidae | <i>Cerastoderma glaucum</i> | Bivalve - lagoon cockle | - | - | C | |
| | Hydrobiidae | <i>Hydrobia</i> sp. | Snail | - | - | C | |
| | | | | | | | |
| Cnidaria* | Edwardsiidae | <i>Nematostella vectensis</i> | Starlet anemone | S | S | S | |

* Numbers for *N. vectensis* are estimates per m² and not counts in core samples.

The lagoon benthic communities at sites 1 and 2 were very similar in terms of species composition. The mud was very soft at both these sites. Site 3 was close to the bird hide. The mud was firmer here and contained large stones, presumably from the hardcore laid to establish both the hide and the path leading to it. This might explain the absence of some of the species that were present at the other two sites. The majority of species sampled were suspension and deposit feeders and grazers, typical for a lagoon environment.

The Southwest Intertidal Survey

A walkover survey of the intertidal area on the southwest side of Brownsea was undertaken at low tide. The beach is made up of rocks and broken pottery and covered with fucoids and other algae. Below the low tide mark, the substrate is sandy. The most common species recorded were: amphipods, daisy anemones, fucoids, sea lettuce, tubeworms, barnacles, slipper limpets, shannies and gobies. Also recorded were: chitons, the introduced Japanese sea spider *Ammothea hilgendorfi* and a nationally rare red alga *Chondria coerulescens*. The full data set is provided in Appendix D.



Ammothea hilgendorfi found on the shore (MD).

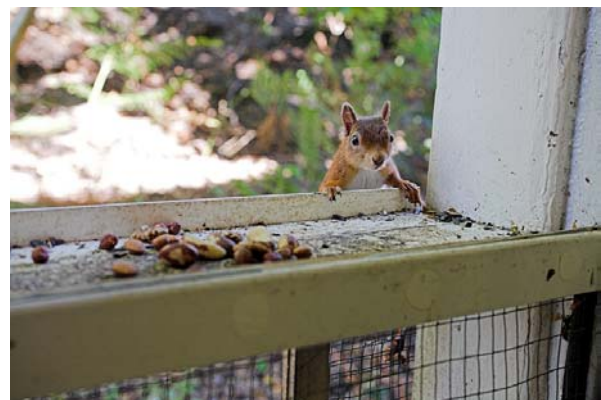


A shanny *Lipophrys pholis* uncovered on the foreshore (MD).

| Species summary for the southwest shore intertidal area, Brownsea Island 2008 | | | |
|---|---------------------------------------|----------------|---|
| Phylum | Common name | No. of species | Common / notable species |
| Porifera | Sponges | 5 | <i>Hymeniacidon perleve</i> , <i>Amphilectus fucorum</i> |
| Cnidaria | Anemones, corals, hydroids, jellyfish | 4 | <i>Cereus pedunculatus</i> |
| Annelida | Worms | 6 | Terebellidae indet., <i>Pomatoceros</i> sp., <i>Spirorbis spirorbis</i> |
| Crustacea | Crabs, lobsters, shrimp | 3 | <i>Carcinus maenas</i> , <i>Porcellana platycheles</i> |
| Mollusca | Snails, sea slugs, cephalopods | 10 | <i>Ostrea edulis</i> , <i>Crepidula fornicata</i> , <i>Mytilus edulis</i> |
| Bryozoa | Sea mats | 3 | <i>Tricellariella inopinata</i> |
| Tunicata | Sea squirts | 7 | <i>Asciella aspersa</i> , <i>Styela clava</i> |
| Pisces | Fishes | 3 | <i>Lipophrys pholis</i> , <i>Gobius pagenellus</i> |
| Algae | Seaweeds | 18 | <i>Chondria coerulescens</i> , <i>Grateloupia turuturu</i> |
| Pycnogonids | Sea spiders | 2 | <i>Ammothea hilgendorfi</i> |
| Total species | | 61 | |



The survey team (MD).



One of the friendly visitors to the kitchen window at the DWT villa (MD).

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Produced by Matt Doggett and Polly Whyte, January 2009.

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Carcinus maenus on the north coast (MM)

Appendix A - Survey details

| Survey site | Date | Approximate Time (BST) | Location |
|-----------------------------------|-----------|------------------------|----------------------------|
| North shore dives | | | |
| Dive 1 | 20-Sep-09 | 1200h | 50° 41.859 N, 01° 58.833 W |
| Dive 2 | 20-Sep-09 | 1430h | 50° 41.843 N, 01° 58.472 W |
| Mike's dive 2 | 20-Sep-09 | 1430h | 50° 41.869 N, 01° 58.425 W |
| Lagoon samples shore dives | | | |
| Core samples 1 | 20-Sep-09 | 1830h | 50° 41.696 N, 01° 57.713 W |
| Core samples 2 | 20-Sep-09 | 1830h | 50° 41.700 N, 01° 57.563 W |
| Core samples 3 | 20-Sep-09 | 1830h | 50° 41.579 N, 01° 57.665 W |
| South west shore survey | | | |
| General shore location | 21-Sep-09 | 0800h | 50° 41.224 N, 01° 59.023 W |

Appendix B - Raw data and SACFOR scale of abundance for scuba dives on the north shore

| Species | | Dive 1 | | Dive 2 | | Mike's dive 2 | Notes* | EA records* |
|---------------------------------|----------------------------|--------|-------|--------|-------|---------------|--------|-------------|
| Scientific name | Preferred common name | Hab 1 | Hab 2 | Hab 1 | Hab 2 | Hab 1 | | |
| Sponges | | | | | | | | |
| <i>Amphilectus fucorum</i> | shredded carrot sponge | | o | r | | | | |
| <i>Cliona</i> sp. | | | o | o | p | | | |
| <i>Dysidea fragilis</i> | goosebump sponge | | | | r | | | |
| <i>Esperopsis fucorum</i> | | | | | r | | | |
| <i>Halichondria panicea</i> | breadcrumb sponge | | o | o | | | | |
| <i>Haliclona oculata</i> | mermaid's glove | | r | r | | | | |
| <i>Hymeniacion perleve</i> | | | f | f | r | | | |
| <i>Leucoselenia</i> sp. | spiky lace sponge | | o | o | | | | |
| <i>Suberites ? carnosus</i> | | | | | o | | | |
| <i>Suberites ? ficus</i> | sea orange | | | | o | | | |
| <i>Suberites ficus</i> | | | f | f | | | | |
| <i>Suberites massa</i> | | | | o | | | NR | |
| <i>Sycon ciliatum</i> | | | p | | r | | | |
| unidentified pale yellow sponge | | | | | r | | | |
| unknown orange enc sponge | | | r | | r | | | |
| unknown yellow sponge | | | r | | | | | |
| Cnidaria | | | | | | | | |
| <i>Anemonia viridis</i> | snakelocks anemone | | r | r | r | | | |
| <i>Cereus pedunculatus</i> | daisy anemone | r | o | o | | | | |
| <i>Diadumene cincta</i> | | | o | | | | | |
| <i>Hydrallmania falcata</i> | helter-skelter hydroid | | o | o | o | | | |
| <i>Sagartia troglodytes</i> | | r | | | | | | |
| <i>Sertularia argentea</i> | | | p | p | | | | |
| <i>Urticina</i> sp. | dahlia or horseman anemone | | r | r | | | | |
| Polychaetes | | | | | | | | |
| <i>Arenicola</i> sp. | lug worm | o | o | o | | | | |

| Species | | Dive 1 | | Dive 2 | | Mike's dive 2 | Notes* | EA records* |
|--------------------------------|-------------------------|--------|-------|--------|-------|---------------|-------------|-------------|
| Scientific name | Preferred common name | Hab 1 | Hab 2 | Hab 1 | Hab 2 | Hab 1 | | |
| <i>Lanice conchilega</i> | sand mason worm | o | o | | o | | | |
| <i>Sabella pavonina</i> | tube worm | o | | | | | | |
| <i>Sabella</i> sp. | tube worms | o | o | | r | | | |
| <i>Terebellidae</i> sp. | tube worm | | p | | o | r | | |
| unidentified fan worm | | | | | | r | | |
| Crustacea | | | | | | | | |
| <i>Carcinus maenas</i> | shore crab | r | f | | f | o | | |
| <i>Inachus dorsettensis</i> | | | | | | o | | |
| <i>Inachus phalangium</i> | Leach's spider crab | | r | | r | | | |
| <i>Macropodia</i> sp. | long legged spider crab | r | o | | o | | | |
| <i>Maja squinado</i> | spiny spider crab | | r | | r | | | |
| <i>Necora puber</i> | velvet swimming crab | | r | | r | | | |
| <i>Palaemon</i> sp. | prawn | | | | o | | Dive 2 only | |
| Mollusca | | | | | | | | |
| <i>Aequipecten opercularis</i> | queen scallop | | r | | r | | | |
| <i>Archedoris pseudoargus</i> | sea lemon | | r | | | | | |
| <i>Buccinum undatum</i> | common whelk | | r | | r | | | |
| <i>Crassostrea gigas</i> | portugese oyster | | f | | f | | | |
| <i>Crepidula fornicata</i> | slipper limpet | | a | | a | c | | |
| <i>Gibbula cineraria</i> | grey topshell | | p | | p | | | |
| <i>Hinia reticulata</i> | netted dog whelk | | o | | o | | | |
| <i>Littorina littorea</i> | common periwinkle | | | | o | | | |
| <i>Mytilus edulis</i> | blue mussel | | r | | r | | | |
| <i>Nessarius reticulatus</i> | | | | | | r | | |
| <i>Ostrea edulis</i> | European oyster | | o | | o | | | |
| <i>Sepia officinalis</i> | common cuttlefish | | | r | o | | | |
| Bryozoa | | | | | | | | |
| <i>Alcyonidium diaphanum</i> | finger bryozoan | | o | | o | | | |
| encrusting | | | | | | | | |
| Tunicates | | | | | | | | |

| Species | | Dive 1 | | Dive 2 | | Mike's dive 2 | Notes* | EA records* |
|--------------------------------------|--------------------------|--------|-------|--------|-------|---------------|------------------------|-------------|
| Scientific name | Preferred common name | Hab 1 | Hab 2 | Hab 1 | Hab 2 | Hab 1 | | |
| <i>Botrylloides leachi</i> | | | r | | o | | | |
| <i>Botrylloides cf diagense</i> | | | o | | o | | Introduced | |
| <i>Ascidella aspersa</i> | | o | f | | f | o | | |
| <i>Styela clava</i> | leathery sea squirt | | f | | f | | Introduced | |
| <i>Botrylus schlosseri</i> | star sea squirt | | o | | o | | | |
| <i>Diplosoma spongiforme</i> | | | o | | o | | | |
| <i>Ciona intestinalis</i> | yellow rimmed sea squirt | | r | | r | | | |
| <i>Didemnidae</i> | | | p | | p | | | |
| unknown orange colonial sea squirt | | | r | | | | | |
| yellow-on-purple colonial sea squirt | | | | | | r | | |
| | | | | | | | | |
| Fish | | | | | | | | |
| <i>Callionymus lyra</i> | | | r | | r | | | |
| <i>Crenilabrus melops</i> | corkwing wrasse | o | | | | r | | |
| <i>Gobius niger</i> | black goby | | o | | o | | | |
| <i>Gobius paganellus</i> | rock goby | | o | | | | | |
| <i>Gobiusculus flavescens</i> | two-spot goby | c | f | | f | c | | |
| <i>Sygnathus acus</i> | greater pipefish | | r | | r | | | |
| <i>Labrus bergylta</i> | ballan wrasse | f | | | | o | | |
| <i>Pleuronectes platessa</i> | plaice | | | | p | | Dive 2 only | |
| <i>Pomatoschistus pictus</i> | painted goby | | p | | p | | | |
| <i>Pomatoschistus sp.</i> | goby sp. | f | f | f | f | | | |
| <i>Taurus bubalis</i> | long-spined sea scorpion | | | | | r | Dive 2 only | |
| | | | | | | | | |
| Vascular plants | | | | | | | | |
| <i>Zostera</i> | sea grass fragments | | p | | p | | | |
| | | | | | | | | |
| Algae | | | | | | | | |
| Red algae | | | | | | | | |
| <i>Anotrichium furcellatum</i> | | | o | | o | | Introduced | |
| <i>Chondria coerulescens</i> | | | o | | f | | NR, southern species | |
| <i>Cryptopleura ramosa</i> | | | f | | f | | | |
| Filamentous reds | | | sa | | sa | | | |
| <i>Gracilaria bursa pastoris</i> | | | o | | | | NS, a southern species | |

| Species | | Dive 1 | | Dive 2 | | Mike's dive 2 | Notes* | EA records* |
|---------------------------------|-----------------------|--------|-------|--------|-------|---------------|------------------------|-------------|
| Scientific name | Preferred common name | Hab 1 | Hab 2 | Hab 1 | Hab 2 | Hab 1 | | |
| <i>Gracilaria multipartita</i> | | | o | | f | | NS, a southern species | |
| <i>Gracilaria verrucosa</i> | | o | f | | f | | | |
| <i>Griffithsia coralinoidea</i> | | | | | o | | | |
| <i>Halurus flosculus</i> | | | f | | f | | | |
| <i>Pterothamnion plumula</i> | | | p | | p | | | |
| | | | | | | | | |
| Brown algae | | | | | | | | |
| <i>Dictyota dichotoma</i> | | | o | | o | | | |
| <i>Ectocarpacea</i> | | | c | | c | | | |
| <i>Undaria pinnatifida</i> | | | o | | o | | Introduced | |
| <i>Laminaria saccharina</i> | | | p | | p | | | |
| | | | | | | | | |
| Green algae | | | | | | c | | |
| <i>Bryopsis hypnoides</i> | | | | | | | | |
| <i>Enteromorpha</i> sp. | | o | f | o | f | | | |
| <i>Ulva lactuca</i> | | o | c | r | c | c | | |
| <i>Vaucheria</i> sp. | | f | | | | | | |

Note:

NR - Nationally rare as listed in Wyn *et al.* (2006). Handbook for marine intertidal Phase 1 Biotope Mapping Survey CCW.

NS - Nationally scarce

Habitat 1 fine muddy sand on slope of channel.

Habitat 2 main channel with *Crepidula* and oyster shell providing the main hard substrate

Mike's dive 2 – Habitat 1, shallow silty sand seabed covered with loose weed, some dense patches of *Crepidula* . abandoned pots forming an artificial reef supporting varied life.

EA (Environment Agency) records from the 1960s or 70s indicate species recorded in previous surveys (box highlighted in green). Species not previously recorded does not necessarily indicate previous absence.

Appendix C - Raw data, densities and SACFOR rating of abundance for the lagoon benthic samples

| Species | Common name | Number in samples | | | Number per m ² | | | SACFOR rating | | |
|---------------------------------|-----------------------------|-------------------|--------|--------|---------------------------|--------|--------|---------------|--------|--------|
| | | Site 1 | Site 2 | Site 3 | Site 1 | Site 2 | Site 3 | Site 1 | Site 2 | Site 3 |
| <i>Tubificoides benedii</i> | Oligochaete worm | 2 | 0 | 4 | 125 | 0 | 250 | C | | C |
| <i>Hediste diversicolor</i> | Polychaete worm | 3 | 19 | 4 | 187.5 | 1187.5 | 250 | A | S | A |
| <i>Polydora cornuta</i> | Spionid worm | 1 | 2 | 0 | 62.5 | 125 | 0 | F | C | |
| <i>Tharyx killariensis</i> | Cirratulid worm | 14 | 32 | 0 | 875 | 2000 | 0 | A | A | |
| | | | | | 0 | 0 | 0 | | | |
| <i>Corophium volutator</i> | Mud shrimp | 20 | 6 | 1 | 1250 | 375 | 62.5 | A | C | F |
| <i>Corophium insidiosum</i> | Mud shrimp | 1 | 0 | 0 | 62.5 | 0 | 0 | F | | |
| <i>Idotea neglecta</i> | An isopod | 0 | 1 | 0 | 0 | 62.5 | 0 | | C | |
| <i>Idotea balthica</i> | An isopod | 0 | 0 | 1 | 0 | 0 | 62.5 | | | C |
| <i>Melita palmata</i> | Amphipod shrimp | 0 | 4 | 0 | 0 | 250 | 0 | | C | |
| | | | | | 0 | 0 | 0 | | | |
| <i>Abra tenuis</i> | Bivalve - thin furrow shell | 6 | 0 | 6 | 375 | 0 | 375 | C | | C |
| <i>Cerastoderma glaucum</i> | Bivalve - lagoon cockle | 0 | 0 | 1 | 0 | 0 | 62.5 | | | C |
| <i>Hydrobia</i> sp. | Snail | 0 | 0 | 2 | 0 | 0 | 125 | | | C |
| | | | | | 0 | 0 | 0 | | | |
| <i>Nematostella vectensis</i> * | Starlet anemone | n/a | n/a | n/a | 1500 | <1000 | 1500 | S | S | S |

* Numbers for *N. vectensis* are estimates per m² and not counts in core samples.

Appendix D - Raw data and SACFOR scale of abundance for the intertidal survey on the southwest shore

| Species | | Abundance | EA records / notes* |
|---------------------------------|-----------------------------|-----------|---------------------|
| Scientific name | Preferred common name | | |
| Sponges | | | |
| <i>Hymeniacion perleve</i> | | o | |
| <i>Amphilectus fucorum</i> | Shredded carrot sponge | o | |
| <i>Halichondria panicea</i> | Breadcrumb sponge | | |
| <i>Scypha ciliata</i> | | | |
| <i>Leucoselenia</i> sp. | Silky lace sponge | | |
| Cnidaria | | | |
| <i>Cereus pedunculatus</i> | anemone | c | |
| <i>Sagartia troglodytes</i> | anemone | r | |
| <i>Actinia equina</i> | anemone | o | |
| <i>Anemonia viridis</i> | Snakelocks anemone | o | |
| Polychaetes | | | |
| <i>Arenicola</i> sp. | Lugworm | o | |
| <i>Sabella</i> sp. | Tube worm | r | |
| <i>Terebellidae</i> indet | Tube worm | f | |
| <i>Pomatoceros</i> sp | Tube worm | f | |
| <i>Spirorbis spirorbis</i> | Tube worm | c | |
| <i>Lanice conchilega</i> | Sand mason worm | r | |
| Crustacea | | | |
| <i>Carcinus maenas</i> | Shore crab | f | |
| <i>Cancer pagurus</i> | Edible/brown crab | r | |
| <i>Porcellana platycheles</i> | Broad-clawed porcelain crab | o | |
| Mollusca | | | |
| <i>Littorina littorea</i> | Comon periwinkle | o | |
| <i>Littorina mariae</i> | Flat periwinkle | o | |
| <i>Ostrea edulis</i> | Native oyster | o | |
| <i>Gibbula umbilicalis</i> | Flat topshell | o | |
| <i>Crepidula fornicata</i> | Slipper limpet | f | |
| <i>Cardium edule</i> | Common cockle | o | |
| <i>Mytilus edulis</i> | Edible mussel | r | |
| <i>Hinia reticulata</i> | Netted dog whelk | | |
| <i>Lepidochitona cinereus</i> | Chiton | | |
| <i>Patella vulgata</i> | Common limpet | o | |
| Pycnogonids | | | |
| <i>Ammothea hilgendorfi</i> | Japanese sea spider | o | Introduced |
| Bryozoa | | | |
| <i>Tricellariella inopinata</i> | | o | Introduced |
| <i>Electra pilosa</i> | | p | |

| Species | | Abundance | EA records / notes* |
|--------------------------------|--------------------------|-----------|---------------------|
| Scientific name | Preferred common name | | |
| <i>Cryptosula pallasiana</i> | | p | |
| Tunicates | | | |
| <i>Asciidiella aspersa</i> | | f | |
| <i>Ciona intestinalis</i> | Yellow rimmed sea squirt | r | |
| <i>Didemnidae indet</i> | | o | |
| <i>Aplidium pallidum</i> | | r | |
| <i>Botryloides leachii</i> | | r | |
| <i>Botrylus schlosseri</i> | Star sea squirt | o | |
| <i>Styela clava</i> | Leathery sea squirt | f | |
| Fish | | | |
| <i>Pomatoschistus</i> sp. | Goby species | | |
| <i>Lipophrys pholis</i> | Shanny | f | |
| <i>Gobius paganellus</i> | Rock goby | | |
| Algae | | | |
| Reds | | | |
| <i>Chondrus crispus</i> | | f | |
| <i>Mastocarpus stellatus</i> | | o | |
| <i>Chondria coerulescens</i> | | o | NR |
| <i>Grateloupia turuturu</i> | | | Introduced |
| <i>Anotrichium furcellatum</i> | | | |
| <i>Halurus flosculosus</i> | | | |
| <i>Ceramium</i> sp. | | | |
| <i>Gracilaria verrucosa</i> | | | |
| <i>Porphyra</i> sp. | | o | |
| <i>Catenella caespitosa</i> | | o | |
| Browns | | | |
| <i>Fucus serratus</i> | | | |
| <i>Fucus vesiculosus</i> | | | |
| <i>Fucus spiralis</i> | | | |
| <i>Elachista fucicola</i> | | | |
| Greens | | | |
| <i>Ulva lactuca</i> | | | |
| <i>Blidingia marginata</i> | | p | |
| <i>Enteromorpha</i> sp. | | | |
| <i>Bryopsis hypnoides</i> | | | |

Notes:

NR - Nationally rare as listed in Wyn *et al.* (2006). Handbook for marine intertidal Phase 1 Biotope Mapping Survey CCW.

NS - Nationally scarce

EA (Environment Agency) records from the 1960s or 70s indicate species recorded in previous surveys (box highlighted in green). Species not previously recorded does not necessarily indicate previous absence.

Appendix E - SACFOR abundance scale (www.jncc.gov.uk)

SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards

NB. Read notes below prior to use of scale

Growth form Size of individuals/colonies

| % cover | Size of individuals/colonies | | | | | | Density |
|-----------------|------------------------------|--------------|------|--------|---------|--------|--|
| | Crust/meadow | Massive/Turf | <1cm | 1-3 cm | 3-15 cm | >15 cm | |
| >80% | S | | S | | | | >1/0.001 m ² (1x1 cm) >10,000 / m ² |
| 40-79% | A | S | A | S | | | 1-9/0.001 m ² 1000-9999 / m ² |
| 20-39% | C | A | C | A | S | | 1-9 / 0.01 m ² (10 x 10 cm) 100-999 / m ² |
| 10-19% | F | C | F | C | A | S | 1-9 / 0.1 m ² 10-99 / m ² |
| 5-9% | O | F | O | F | C | A | 1-9 / m ² |
| 1-5% or density | R | O | R | O | F | C | 1-9 / 10m ² (3.16 x 3.16 m) |
| <1% or density | | R | | R | O | F | 1-9 / 100 m ² (10 x 10 m) |
| | | | | | R | O | 1-9 / 1000 m ² (31.6 x 31.6 m) |
| | | | | | | R | <1/1000 m ² |

The MNCR cover/density scales adopted from 1990 provide a unified system for recording the abundance of marine benthic flora and fauna in biological surveys. The following notes should be read before their use:

1. Whenever an attached species covers the substratum and percentage cover can be estimated, that scale should be used in preference to the density scale.
2. Use the massive/turf percentage cover scale for all species, excepting those given under crust/meadow.
3. Where two or more layers exist, for instance foliose algae overgrowing crustose algae, total percentage cover can be over 100% and abundance grade will reflect this.
4. Percentage cover of littoral species, particularly the furoid algae, must be estimated when the tide is out.
5. Use quadrats as reference frames for counting, particularly when density is borderline between two of the scale.
6. Some extrapolation of the scales may be necessary to estimate abundance for restricted habitats such as rockpools.
7. The species (as listed above) take precedence over their actual size in deciding which scale to use.
8. When species (such as those associated with algae, hydroid and bryozoan turf or on rocks and shells) are incidentally collected (i.e. collected with other species that were superficially collected for identification) and no meaningful abundance can be assigned to them, they should be noted as present (P).