



Seasearch Survey of Alderney



June and August 2007
A report to the Alderney Wildlife Trust

by
Chris Wood



**Marine
Conservation
Society**



December 2007

Seasearch

Seasearch is a volunteer underwater survey project for recreational divers to record observations of marine habitats and the life they support. The information gathered is used to increase our knowledge of the marine environment and contribute towards its conservation. Seasearch is coordinated by a Steering Group led by the Marine Conservation Society and including representatives from the UK statutory conservation bodies (CCW, EHS(NI), JNCC, NE, SNH), the Environment Agency, The Wildlife Trusts, the Marine Biological Association, the diver training agencies (BSAC, PADI, SAA, SSAC), Nautical Archaeology Society and independent marine life experts. Seasearch is supported financially by all of the UK statutory conservation agencies and the Environment Agency. Volunteer divers can participate in training courses and this is one of many surveys organized during the diving season. For more information www.seasearch.org.uk

The objectives of the Seasearch programme are to:

- Gather information on seabed habitats and associated wildlife throughout Britain and Ireland, by the participation of recreational SCUBA divers,
- Provide standardized training to enable volunteer divers to participate in Seasearch surveys,
- Ensure the quality of the data gathered,
- Make the data available through websites and reports,
- Raise awareness of the diversity of marine life in Britain and Ireland and its environment through participation of volunteer divers and dissemination of information.

The Alderney Wildlife Trust

The Alderney Wildlife Trust aims to promote the conservation and protection of Alderney's terrestrial and marine wildlife and associated habitats, also to promote the conservation and protection of places of scientific interest, amenity value or natural beauty.

The Trust seeks to educate the public about the importance of sustainable development, biodiversity conservation and Alderney's wildlife, and to promote research in all branches of nature study.

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Marine Conservation Society

The Marine Conservation Society (MCS) is the UK Charity dedicated to the protection of the marine environment and its wildlife. Since its formation in 1983, MCS has become a recognized authority on marine and coastal conservation and produces the annual *Good Beach Guide*, as well as promoting public participation in volunteer projects and surveys such as *Adopt-a-Beach*, *Seasearch* and *Basking Shark Watch*.

This Seasearch survey was carried out by members of the MCS as a part of the MCS Member's Dives Programme.

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Synopsis

This report presents the results of surveys of sublittoral marine habitats and species carried out in Alderney in June and August 2007. The surveys used the Seasearch methodology and were carried out by volunteer divers from the Marine Conservation Society with the assistance of local divers who had been trained in Seasearch Observation techniques.

A total of 15 sites were surveyed, the majority of which were accessed from the shore. A limited number of boat dives were carried out but the deeper, offshore habitats were less well covered.

At each site records were made of the habitats and species present and these are described on a site by site basis in the report.

In addition to the habitat descriptions JNCC biotopes have been assigned to sites where possible. 22 biotopes were recorded, 3 littoral rock biotopes, 10 infralittoral rock biotopes, 2 circalittoral rock biotopes and 7 sublittoral sediment biotopes.

Additional sites are suggested for future surveys, largely comprising circalittoral habitats which were under represented in this survey.

A total of 276 species were recorded, comprising 165 animals and 111 plants. Species which are considered as scarce or rare in UK waters, or which are Biodiversity Action Plan species in the UK include:

branching sponge	<i>Adreus fascicularis</i>
pink sea fan	<i>Eunicella verrucosa</i>
trumpet anemone	<i>Aiptasia mutabilis</i>
yellow cluster anemone	<i>Parazoanthus axinellae</i>
scarlet and gold cup coral	<i>Balanophyllia regia</i>
ormer	<i>Haliotis tuberculata</i>
red mullet	<i>Mullus surmuletus</i>
blaced faced blenny	<i>Tripterygion deleasi</i>
red seaweed (introduced sp)	<i>Heterosiphonia japonica</i>
brown seaweed	<i>Carpomitra costata</i>
golden kelp	<i>Laminaria ochroleuca</i>
peacock's tail	<i>Padina pavonica</i>
eelgrass	<i>Zostera marina</i>

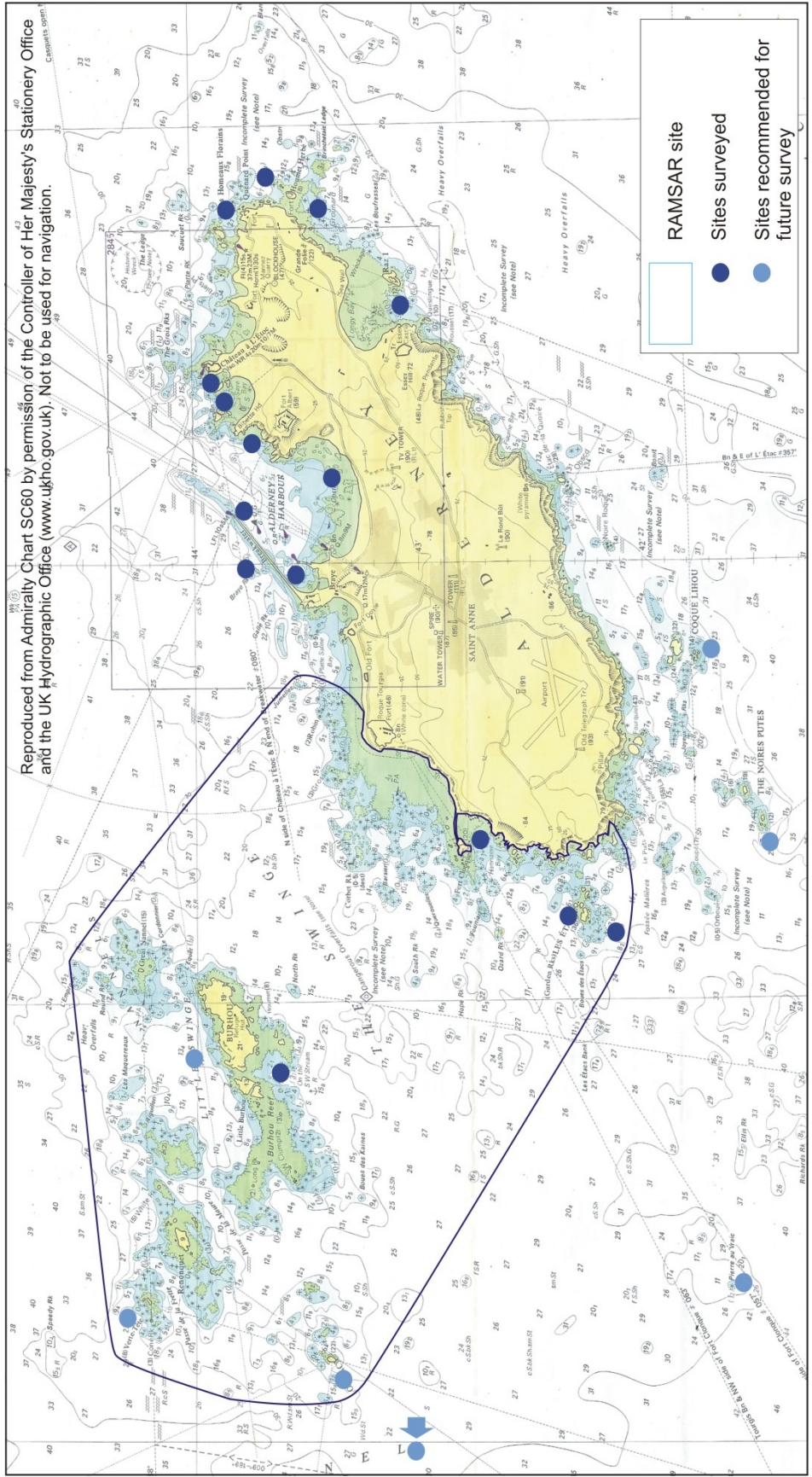


Figure 1: Alderney, showing RAMSAR site and Survey sites

Introduction

1.1 Background to the survey

Whilst Seasearch surveys have been carried out on Jersey and Sark no records have ever been made in Alderney.

The Alderney Wildlife Trust has been responsible for a number of surveys of seabirds and littoral species but there have been no previous sublittoral habitats or species surveys of the island. Parts of the east coast of the island and the Burhou Islands have been designated as wetlands of international importance under the RAMSAR Convention, primarily for the seabirds, and a Management Strategy for the area has been prepared (Soanes & Booker, 2007). This notes that there has been no monitoring of marine habitats around Alderney and the Management Plan sets out surveys of subtidal areas as a high priority. This is further accentuated by proposals for tidal power installations, which though not actually within the RAMSAR site, do have the possibility of impact on it.

Seasearch was asked by the Wildlife Trust to carry out a survey of the sublittoral habitats and species, and also to train local divers in Seasearch recording techniques. A week long survey was organised for June 2007, to be accompanied by training, and the author arranged to return in August to carry out surveys of additional sites.

1.2 The Survey Area

Alderney is the most northerly of the Channel Islands and the closest to France. The island itself is approximately three miles in length and less than one mile wide. In addition to the main island there are a number of islets, such as Burhou, and rocks, particularly on the west and north west side of the island. The furthest group of rocks is the Casquets, some 6 miles to the west.

The RAMSAR site encompasses the western coast of the island together with the islets and rocks of Burhou, and includes the two gannet colonies at Les Etacs and Ortac.

Figure 1 opposite shows the island and its surroundings, the RAMSAR site, and the sites dived during this survey.

Methods

2.1 Training

A Seasearch Observer training course was held on the first day of the survey and was attended by five Alderney divers. Four of the divers trained took part in survey dives during the following week and have contributed data included in this report. We hope they will continue to contribute records in the future.

2.2 Participants

The Seasearch survey team consisted of three Seasearch surveyors from England:

Chris Wood – National Coordinator
Lin Baldock – Marine Biologist
Fiona Ravenscroft – Seasearch surveyor

Generally the three surveyors collaborated on the production of a single Survey form for each dive, except where they had visited different parts of a site where two forms were completed.

The local divers who took part in the training and survey were:

Louise Soanes – Alderney Wildlife Trust
Dave Venn
James Neill
Kevin Wood

The local divers completed Observation forms which will contribute to their Seasearch Observer qualifications. On the spot guidance was available on the completion of the forms.

2.3 Organising and undertaking Seasearch dives

Boat dives were undertaken using the motor launch 'Otarie' and the RIB 'Spare Rib' both loaned by Mark Wordsworth and skippered by local volunteers. Shore dives were greatly assisted by the use of the AWT's pick-up truck to ferry divers and their equipment. Generally the less experienced surveyors were buddied with more experienced ones.

Information was recorded underwater using a slate and pencil. Data was transferred to either Observation or Survey Forms on the surface. Copies of the two types of form are contained in Appendix 1. The main procedures for Seasearch dive recording are as follows:

- Divers either provide a description of the habitat as a whole using a sketch and tick boxes (Observation Form), or divide the site into separate habitats and provide a description and qualitative information about seabed composition and features (Survey Form)
- Species are recorded either in a single list using a simplified COR (common-occasional-rare) scale (Observation Form) or recorded in separate lists for each habitat using the SACFOR (Superabundant-abundant-common-frequent-occasional-rare) scale (Survey Form).
- Positions for each dive were recorded by GPS and dive times recorded. Depths were recorded by surveyors using dive computers, which also provided minimum temperature information.
- During the compilation of the Survey forms extensive use was made of images taken on the dives using digital cameras, and identifications have been checked in keys and identification guides.

- After the survey all depths have been adjusted to chart datum, JNCC biotopes identified for the Survey forms and all of the data has been entered into the Marine Recorder database.

2.4 Data analysis and quality control

Where possible experienced surveyors were paired with Observer trainees. This provides a good level of accuracy with both habitat descriptions and species names. Apart from algae no specimens were collected and identifications were made *in situ*, backed up with photographs and in the case algae identification from small specimens where required. Some life cannot be reliably identified to species level *in situ* and smaller species, including infauna and crevice dwellers are generally under recorded in visual surveys. Identification guides were available on site to check identifications and all forms were completed the same day whilst fresh in people's minds.

Scientific names generally follow the nomenclature of the MCS Species Directory (Howson & Picton, 1997), however in some cases this is now out of date and the most recent authoritative name has been used with the previous name in brackets in the species lists. Common names have been included in the report where they exist to aid accessibility and follow the names in the Seasearch Guide to Marine Life (Wood, 2007).

The data on the recording forms have been subsequently validated and entered into the Marine Recorder database by the author. JNCC biotopes have been assigned to each habitat on the Survey forms as a part of this process.

3.00 Results

Whilst our intention had been to collect as much information as possible from the RAMSAR site to complement that designation, in the event strong south-westerly winds throughout much of the first week of the survey limited access to this area significantly. In the event only two dives were possible during the first week in the RAMSAR site with all of the remaining dives taking place on the north and easterly end of the island, many of them from the shore due to the rough sea state offshore. This means that the sites surveyed were mostly rich in seaweeds, but we only had limited opportunities to record animal dominated habitats, which are usually deeper. Additional sites were surveyed in August but again access to offshore sites was limited by the availability of boats and divers.

A summary description of each site dived is included in this section and representative sketches drawn by divers have been included.

General locations of the dive sites are shown in Figure 1 with a more detailed chart extract as a part of each site description. Species lists for each site with abundances are included in Appendix 2 and tables giving details of dive site positions and other data about the dive are given in Appendix 4. The original 'raw' data forms are held by the Marine Conservation Society and a copy by the Alderney Wildlife Trust.

Site 1 Longis Bay

(49° 43.195'N 002° 10.068'W)

Surveyed 26/06/07 by Lin Baldock, Fiona Ravenscroft & Chris Wood. 2 Survey Forms completed

Physical Environment

Longis Bay is the second largest sheltered bay on the island after Braye Bay. It opens to the south and is protected on its east side by Raz Island. There is an extensive intertidal area but the survey was undertaken from the Raz Island causeway at low water and covered only the sublittoral, outer, part of the bay. Three sublittoral habitats were recorded, fine rippled sand, sand with eelgrass, and kelp covered rock adjacent to Raz Island. The bay provides a sheltered environment with little tidal streams and is thus relatively unusual in local terms.

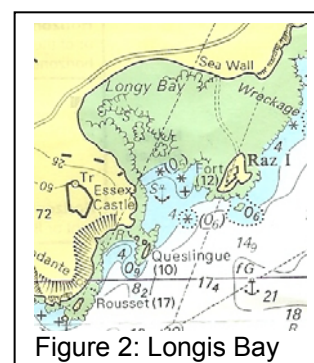


Figure 2: Longis Bay

Habitat/Community Types

Much of the outer part of the bay comprises fine sand which shelves very gently to the south until reaching the line between Queslingue and Raz which marks the entrance of the bay where the sand slopes more steeply downwards from a lip at 7.5m (10m below sea level at the time of the survey). Over most of the entrance to the bay from 3.0-7.5m there is an extensive eelgrass bed. On the eastern side the rocky slopes of Raz Island fall to 7.5m in a series of NE/SW oriented ridges with gullies between them. The ridges were covered in kelp forest.

Observations/Features of interest

Seagrass beds, including eelgrass (*Zostera marina*) are a threatened habitat in many areas. This is because they occur in shallow, sheltered

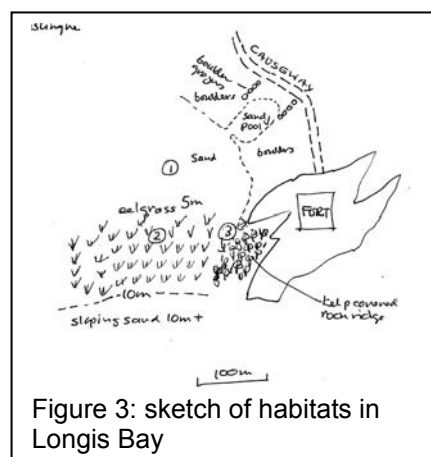


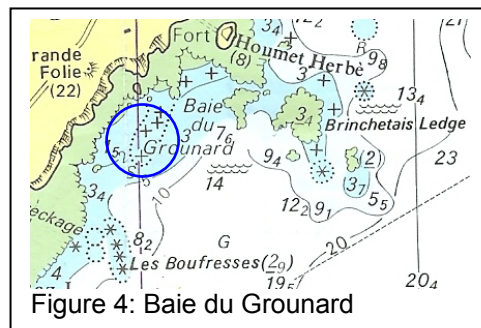
Figure 3: sketch of habitats in Longis Bay

areas, often in harbours, which are also popular anchorages and permanent moorings. This particular eelgrass bed is notated on the Admiralty Chart as an anchorage. Eelgrass beds stabilize sandy areas and provide a habitat which is popular with anemones, molluscs and fish, especially juveniles, and pipefish and seahorses. This particular eelgrass bed did not appear to be particularly species rich, though there were burrowing worms and anemones, and two- spot gobies *Gobiosculus flavescens*, were abundant. The rocky slopes of Raz island had two species of forest kelps, the widespread cuvie *Laminaria hyperborea*, and the southerly golden kelp *Laminaria ochroleuca*. There was a small amount of the invasive japweed *Sargassum muticum*, present but it did not appear to be becoming dominant. There was a rich understory of red seaweeds, and an extensive mixed algal community in the more sheltered rocky areas. 46 species of seaweeds were recorded, including the peacock's tail, *Padina pavonica*, which is very scarce in British waters with few records from the north side of the English Channel.

Site 2: Baie du Grounard, south of Fort Houmet Herbé

(49° 43.395'N 002° 09.861'W)

Surveyed 25/06/07 by Lin Baldock, Fiona Ravenscroft & Chris Wood. 1 Survey Form completed



Physical Environment

A shore dive with rocky gullies and pinnacles close inshore and sheltered from main tidal currents.

Habitat/Community Types

The seabed consisted of areas of steep sided rocky reefs with no obvious orientation, in shallow water just below the intertidal zone. Most surfaces were seaweed dominated with much thongweed *Himanthalia elongata* on upper surfaces, with occasional kelps, cuvie *L. hyperborea* and furbelows *Saccorhiza polyschides*. Vertical and overhanging rock faces had encrusting coralline algae and a short animal turf consisting mainly of bryozoans and sea squirts.

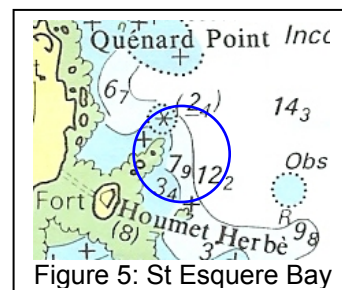
Observations/Features of Interest

Notable at this site were scour tolerant anemones, daisy anemone, *Cereus pedunculatus* and gem anemone, *Aulactinia verrucosa*. The latter has a westerly distribution in the British Isles. There are no recent records east of Portland Bill.

Site 3: St Esquere Bay, north of Fort Houmet Herbé

(49° 43.68'N 002° 09.44'W)

Surveyed 26/06/07 by Lin Baldock, Fiona Ravenscroft, Chris Wood & Dave Venn. 2 Survey & 1 Observation forms completed



Physical Environment

Although close inshore this site is on the edge of the Alderney Race and experiences strong tidal flows at some states of the tide. The two pairs of surveyors investigated different parts of the site and encountered different habitats.

Habitat/Community Types

Close inshore at a depth of 9-10m the seabed was of medium to large boulders on bedrock covered with kelp forest and a dense understory of foliose and filamentous red

seaweeds. Moving away from the coast this merged into a flat cobble and pebble seabed between 9m and 12m depth with a kelp park of *Laminaria ochroleuca* and an understory of red seaweeds. The pebbles had little life and were clearly mobile. A little further out in a depth of 11-13m were larger boulders with kelp cover and an understory of dense oaten pipes hydroid, *Tubularia indivisa*, a typical inhabitant of current swept areas. The two more shallow habitats were notable for the lack of fauna, either sessile or mobile and whilst there was a little more animal life present in the deeper habitat it was still relatively impoverished.

Observations/Features of Interest

This site is subject to strong tidal streams and whilst there was a rich algal cover inshore the offshore areas may prove too extreme a habitat for much sessile and mobile fauna.

Site 4: Cats Bay, Quenard Point and Fort Homeaux Florains

Southerly side towards Quenard Point (49° 43.757'N 002° 09.728'W)

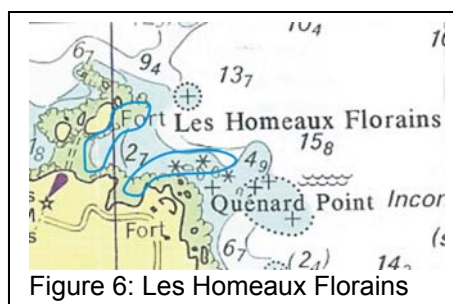
Surveyed 25/06/07 by Lin Baldock, Louise Soanes, Fiona Ravenscroft & Chris Wood. 1 Survey and 1 Observation Form completed

Northerly side and Fort Homeaux Florains (49° 43.793'N 002° 09.756'W)

Surveyed 27/06/07 by Lin Baldock, Fiona Ravenscroft & Chris Wood. 1 Survey Form completed

Outer edge of Les Homeaux Florains (49° 44.00'N 002° 09.700'W)

Surveyed 26/08/07 by Chris Wood. 1 Survey Form completed



Physical Environment

This is a shallow bay with sand in the centre facing north-east and thus sheltered from the prevailing westerly winds. There are strong tidal currents outside the bay and at high water the tide runs between Les Homeaux Florains and the shore. There are rocky margins on both sides of the bay, to the south forming the northern side of Quenard Point and to the north the southern sides of Les Homeaux Florains fort and rocks. Two shore dives were made which concentrated on these rocky margins and extended to the edge of the bay on both sides. Near the northern point off Les Homeaux Florains there were boilers on the sand which are the remains of a ship wrecked in the vicinity. A third dive beyond this point on the exposed outer side of the rocks revealed more dispersed metal wreckage on a seabed of tide-swept sloping rock.

Habitat/Community Types

The rocky margins of the bay were seaweed dominated with large brown seaweeds, thongweed *Himantalia elongata*, furbelows *Saccorhiza polyschides* and cuvie *Laminaria hyperborea* all dominating different areas and always with an understory of other mixed red and brown seaweeds. Gully bottoms were filled with boulders or cobbles and dominated by green seaweeds. There was a limited fauna on the steeper gully sides. The two boilers provided a different cave-like habitat which attracted fishes and contained Devonshire cup-corals *Caryophyllia smithii*, which were not found on the rocks. The outer side of the rocks was tide-swept and had a kelp forest of golden kelp *Laminaria ochroleuca* below 10m, becoming kelp park with pod weed, *Halidrys siliquosa* also common. Overall this site had the greatest number of species recorded, partly due to it being surveyed on three occasions.

Observations/Features of Interest

55 species of seaweeds were recorded in this area making it a particularly diverse site for seaweeds. A surprising record was the presence of dabberlocks, *Alaria esculenta*, which is characteristic of very exposed locations. It was found in what at high tide would be the tide swept channel between the shore and Les Hommeaux Florains. The *Laminaria ochroleuca* kelp forest on the exposed side of the rocks is also unusual and very much a SW Britain biotope. Two very characteristic Channel Island species were present, the ormer *Haliotis tuberculata* and the black face blenny *Tripterygion delesi*. The ormer does not occur on the north side of the English Channel and the black face blenny has a restricted distribution from Dorset to the south coast of Cornwall.

Site 5: Bay west of Château à L'Étoc

(49° 43.827'N 002° 10.719'W)

Surveyed 27/06/07 by Lin Baldock & Fiona Ravenscroft. 1 Survey Form completed

Physical Environment

A narrow cobble and boulder beach with a northwards facing cove with huge granite boulders over 3m high in the mouth creating deep overhangs.

Habitat/Community Types

Dense seaweed growths in shallow water on cobbles and smaller boulders, including large brown seaweeds such as furbelows, *Saccorhiza polyschides* (common), oarweed, *Laminaria digitata* (occasional), thongweed, *Himanthalia elongata* (frequent) and japweed *Sargassum muticum* (rare). The large boulders at the entrance were heavily scoured.

Observations/Features of Interest

This is a disturbed site due to topography and swell and no unusual species were recorded.

Site 6: Saye Bay

(49° 43.90'N 002° 10.90'W)

Surveyed 27/06/07 by Chris Wood. 1 Survey Form completed

Physical Environment

Saye Bay is a sheltered sandy bay facing northwards with its entrance narrowed by large rocks on both sides. The inner part of the bay consists of fine rippled sand. On the western side there is a margin of kelp covered rock with significant vertical faces near the entrance. Depth at the entrance is 6.5m.

Habitat/Community Types

On the sand in the centre of the bay are a few low exposed rocks which were very scoured. To the western side there is a sparse bed of eelgrass, *Zostera marina*. The kelp forest on the shallow rocks marking the west side of the bay was dominated by golden kelp, *Laminaria ochroleuca* with other large brown and a variety of red seaweeds also present. At the outer western side of the bay the rock formed many vertical and overhanging surfaces. This had a low growing seaweed cover, or where they were overhanging, a sparse animal turf. Upward facing surfaces at this point were dominated by thongweed, *Himanthalia elongata*, or cuevie, *Laminaria hyperborea*.

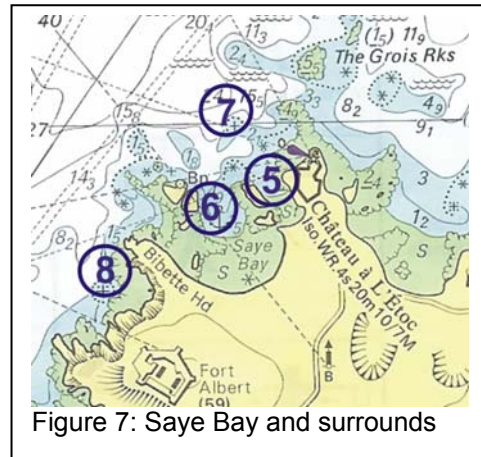
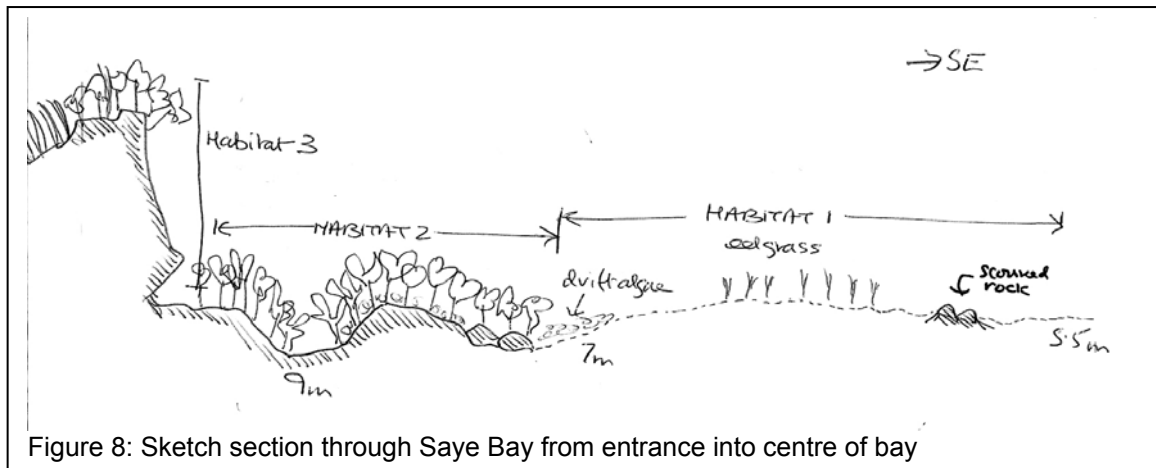


Figure 7: Saye Bay and surrounds



Observations/Features of Interest

Eelgrass is an important and often threatened habitat. This eelgrass bed was much less dense than that in Longis Bay. It is also shown on the Admiralty chart as an anchorage. There were no unusual species recorded, though the black face blenny, *Tripterygion delaisi*, was present on the steep faces at the western entrance to the bay.

Site 7: West of The Grois Rocks (49° 44.049'N 002° 10.950'W)

Surveyed 24/06/07 by Chris Wood & Kevin Wood. 1 Survey and 1 Observation Form completed

Physical Environment

The site comprised lower circalittoral bedrock in a depth of 21-26m subject to strong tidal streams, with areas of coarse mobile sand around them. There was a strong current at the time of the dive which limited the records that could be made. The site is exposed and likely be the subject of considerable scour given the exposure, the strength of the tidal streams and the mobile nature of the surrounding seabed. However it was one of the only two lower circalittoral sites which we were able to visit during the June week of the survey.

Habitat/Community Types

The low lying rocks were covered in a faunal turf dominated by the orange sea squirt, *Stolonica socialis* and a variety of sponges (9 species recorded) of which the yellow staghorn sponge *Axinella dissimilis* was the most common.

Observations/Features of Interest

This site was totally different to sites 1-6 in that it was, because of the depth, dominated by animals rather than seaweeds. Unusual species included pink sea fans, *Eunicella verrucosa* (R), which is a Biodiversity Action Plan species in the UK, and the sponge *Adreus fascicularis*, which is listed as nationally rare in the UK, and has a southerly distribution. It was common at this site. A white *Tethya* sponge was also recorded which we were unable to identify to species.

Site 8: Bibette Head (49° 44.049'N 002° 11.15'W)

Surveyed 23/08/07 and 27/08/07 by Chris Wood. 2 Survey Forms completed.

Physical Environment

The site is relatively sheltered from deep swells by the breakwater but there are extensive shallow boulders and rocky surfaces that will be disturbed in winter storms. The intertidal zone comprises largely of boulders, with fingers of rock out from the shore. Deeper down were more extensive areas of bedrock, some outcrops with faces up to 1m high. At 13m bsl the seabed became flat mobile gravel with waves extending towards the breakwater.

Habitat/Community Types

The intertidal boulders supported a dense cover of seaweeds. In the shallowest parts this was dominated by serrated wrack, *Fucus serratus*, then by thongweed, *Himantalia elongata* and finally furbelows, *Saccorhiza polyschides*. Furbelows was also the main component of the sublittoral kelp forest though the deepest rock outcrops, close to the gravel, had a kelp park of *Laminaria hyperborea* with *Halidrys siliquosa*. The vertical rock faces had an animal turf of sponges, bryozoans and sea squirts.

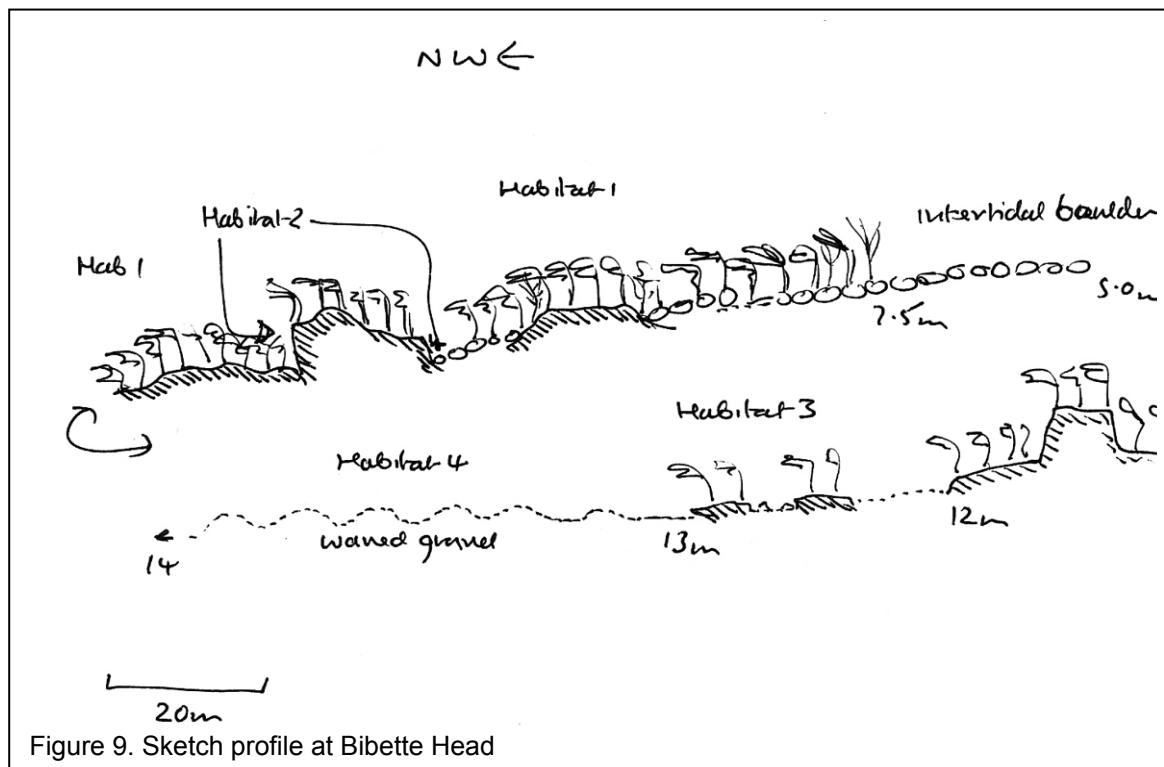


Figure 9. Sketch profile at Bibette Head

Observations/Features of Interest

Though densities were low, there was a good variety of sponges (8 species). The black face blenny, *Tripterygion delesi* was also present here.

Site 9: Braye Bay foreshore

(49° 43.38'N 002° 11.29'W)

Surveyed 29/06/07 by Lin Baldock, 1 Survey Form completed

Physical Environment

The foreshore on the south-east side of Braye Bay was recorded at low water. The intertidal area here comprised low reef with shallow rock pools and small boulders, interspersed with patches of sand.

Habitat/Community Types

The shore was seaweed dominated with a number of typically intertidal animals such as barnacles, beadlet and gem anemones, dog whelks, shanny and porcelain crab.

Observations/Features of Interest

There were no unusual species recorded in this habitat.

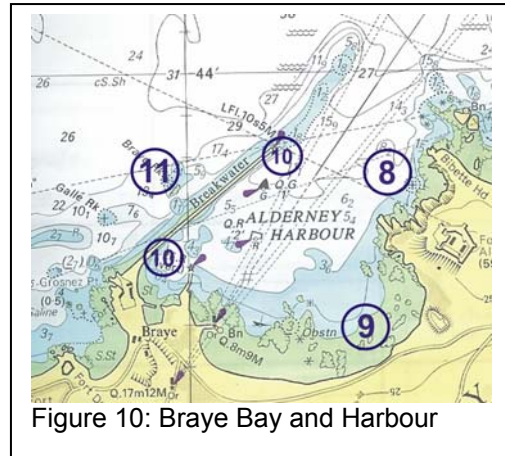


Figure 10: Braye Bay and Harbour

Site 10: Braye Breakwater

Inner end (49° 43.75'N 002° 12.140'W) surveyed 24/06/07 by James Neill. 1 Observation Form completed

Outer end (49° 43.810'N 002° 11.680'W) surveyed 30/06/07 by Lin Baldock & Chris Wood. 1 Survey Form completed

Physical Environment

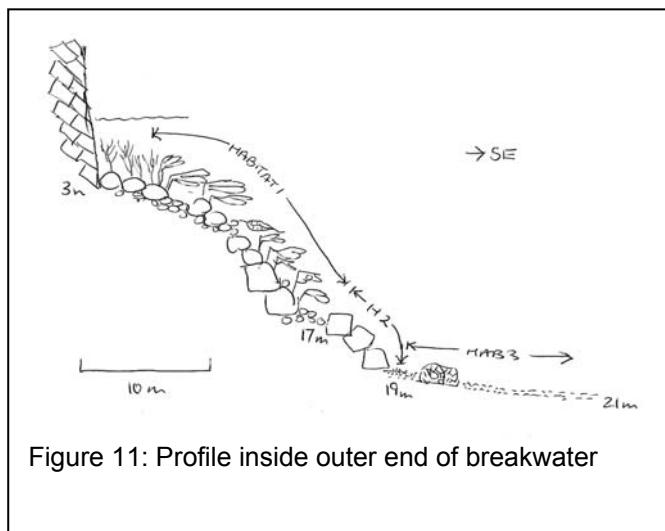


Figure 11: Profile inside outer end of breakwater

The Braye Breakwater is 2,800ft (880m) long with an abandoned and submerged extension of 2,000ft (610m). This provides a significant protection to Braye Bay which contains the only harbour on the island. It is the largest sheltered area of water on the island. There are strong tidal streams running across the submerged section. Two dives were undertaken, both on the sheltered, southern, side of the breakwater. One was at the end of the existing breakwater and the other near the inner end of the breakwater in the most sheltered location on the island.

Habitat/Community Types

At both locations the base of the breakwater is formed by a boulder slope down to 3m depth at the inner end and 17m depth at the outer end. The boulder slope is seaweed dominated by a kelp forest of cuvie *Laminaria hyperborea*, with significant amounts of furbelows *Saccorhiza polyschides*. At the inner site other large brown seaweeds included thongweed *Himanthalia elongata*, mermaid's tresses *Chorda filum* and japweed *Sargassum muticum*. There was also an understory of smaller red and brown seaweeds. At the outer end of the breakwater the kelp and most of the seaweeds did

not extend below 15m and the last 2m of boulders had silted surfaces, with many cup-corals, both the common Devonshire cup-coral, *Caryophyllia smithii* and the scarce scarlet and gold cup-coral, *Balanophyllia regia*. This was the only site on the island where the latter species was seen.

Observations/Features of Interest

The outer site was unusual in that it included both plant and animal dominated habitats. There was a good range of species which included the scarce scarlet and gold cup-coral and also the ormer, *Haliotis tuberculata*.

Site 11: Braye Rock

(49° 43.758'N 002° 12.107'W)

Surveyed 28/06/07 and 29/06/07 by Lin Baldock, Fiona Ravenscroft Chris Wood & Dave Venn. 1 Survey, 1 Observation & 1 Pink sea fan Form completed

Physical Environment

Steep rocky surfaces from surface to 22m. Very rugged lower circalittoral bedrock with outcrops up to 5m high. Strong tidal streams and exposed to the north, though partly sheltered from the west by Burhou.

Habitat/Community Types

Surfaces dominated by a rich animal turf of sponges (16 species recorded), ascidians (especially *Stolonica socialis*) and bryozoans (especially *Bugula* spp.)

Observations/ Features of Interest

This site had the most diverse fauna of any visited during the first week of the survey. The variety of sponges was notable and included relatively unusual species such as *Adreus fascicularis*, *Haliclona fistulosa*, *Homaxinella subdola* and a white species of *Tethya*, as well as significant numbers of more common south-westerly species such as *Axinella dissimilis*, *Polymastia boletiformis* and *Axinella damicornis*. Other relatively scarce or more local species included pink sea fan, *Eunicella verrucosa*, yellow cluster anemones, *Parazoanthis axinellae*, here found in abundance, red mullet, *Mullus surmuletus* and black face blenny *Tripterygion deleasi*.

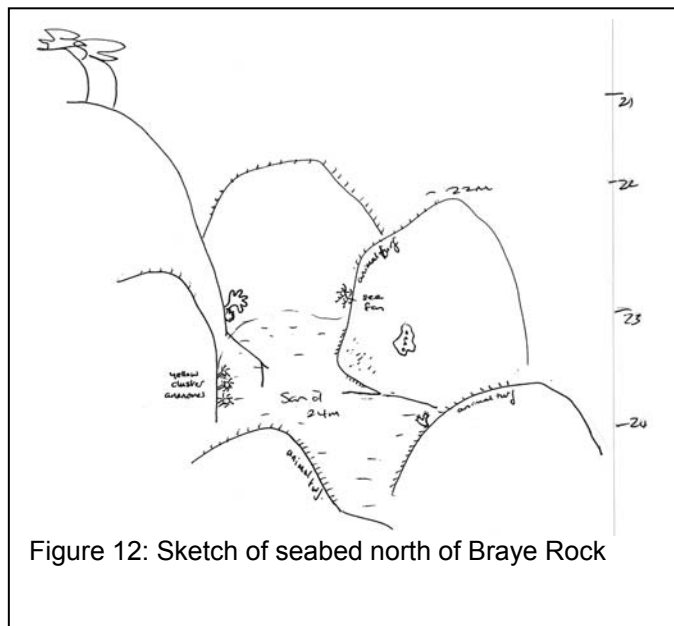


Figure 12: Sketch of seabed north of Braye Rock

It is a popular fishing mark and it was notable that three of the five pink sea fan colonies looked at in detail were damaged by rope or angling line. Most of the debris was removed.

Site 12: Hannaine Bay

(49° 42.70'N 002° 14.00'W)

Surveyed 24/08/07 by Chris Wood. 1 Survey Form completed

Physical Environment

Hannaine Bay is a westerly facing shallow bay exposed to storms and swell but out of the tidal currents. The seabed within the bay consisted of areas of rock, solidified sand and cobbles, defined at its western end by fine rippled sand at a depth of 4m bcd.

Habitat/Community Types

Hard surfaces were dominated by predominantly brown seaweeds. The main species were serrated wrack *Fucus serratus*, in the intertidal zone and thongweed *Himanthalia elongata* and furbelows *Saccorhiza polyschides* in the shallow sublittoral. Pink encrusting algae were common on the rocks and there were red coralline seaweeds growing in the areas of solidified sand. These were also extensively bored with small dark holes over the surface. The organism responsible was not identified.

Observations/Features of Interest

This is an exposed site which must be heavily disturbed by winter swells. There were no unusual species recorded, except for the ormer, *Haliotis tuberculata*, and very few sessile animals present.

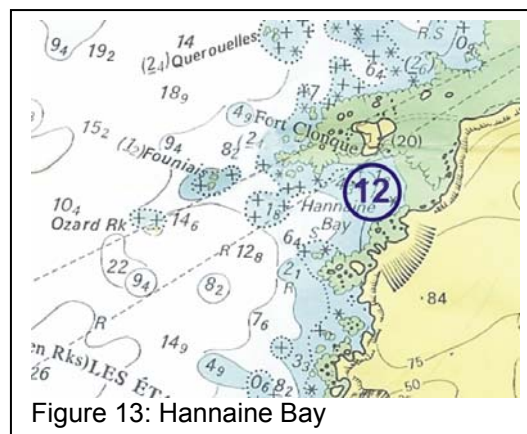


Figure 13: Hannaine Bay

Site 13: Les Étacs (north)

(49° 42.31'N 002° 14.45'W)

Surveyed 28/06/07 by Fiona Ravenscroft & Chris Wood. 1 Survey Form completed

Physical Environment

The dive took place on the northern side and very close to the gannet colony rocks of Les Étacs. The seabed was of rugged, kelp covered rocks from the surface to 13m extending about 50m northwards from the rocks. The seabed then became clean waved sand.

Habitat/Community Types

The upper surfaces of the bedrock were dominated by a kelp forest of cuvie *Laminaria hyperborea* with an understorey of red and smaller brown seaweeds. Vertical and overhanging surfaces had a mixed fauna of sponges (10 species), ascidians (especially *Stolonica socialis*) and bryozoans (mainly *Bugula* and *Crisia* spp.).

Observations/Features of Interest

Species recorded included the nationally scarce sponge *Adreus fascicularis*, and the black face blenny *Tripterygion deleasi*.

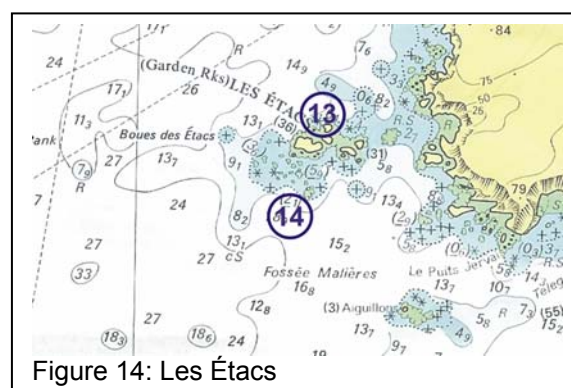


Figure 14: Les Étacs

Site 14: Les Étacs (south)

(49° 42.13'N 002° 14.55'W)

Surveyed 25/08/07 by Chris Wood & James Neill. 1 Survey Form completed

Physical Environment

This dive took place on the southern side and immediately south of the low lying rocks a little to the south of the main gannet colony rocks of Les Étacs. The seabed was extremely rugged with steep rocky outcrops from 16m almost to the surface. There were extensive steep and vertical rock faces and canyons between rocky outcrops. At the lower end of the sample area were large boulders set in areas of clean mobile shell gravel.

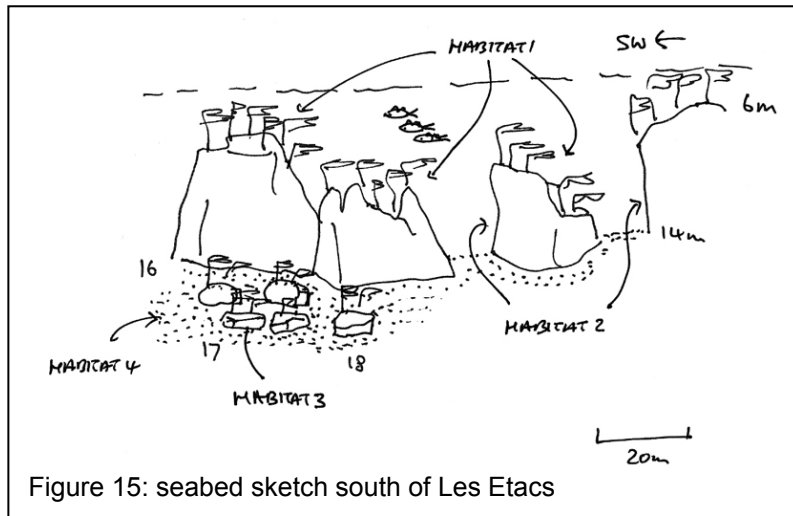


Figure 15: seabed sketch south of Les Étacs

Habitat/Community Types

The upper surfaces of the bedrock and boulders were dominated by a kelp forest of cuvie *Laminaria hyperborea* with an understorey of red and smaller brown seaweeds. Vertical and overhanging surfaces were covered in a hydroid, bryozoan and jewel anemone short turf with many sponges and sea squirts.

Observations/Features of Interest

The species recorded here were similar to those on the north side of Les Étacs but the scenery was much more rugged providing more extensive areas for sessile fauna, and the rocks extended deeper than on the north side. The main difference in species composition was the abundance of jewel anemones, *Corynactis viridis*, which were not recorded on the north side.

As on the north side, the species recorded included the nationally scarce sponge *Adreus fascicularis*, and the black face blenny *Tripterygion deleasi*. The two sites at Les Étacs together had the greatest diversity of animals recorded. This was also the site with the greatest diversity of fish species, and some large pollack were present at this site, as was a large shoal of sand eels. It is clear that the huge gannet population has not led to any lack of fishes in the immediate area of their colony.

Site 15: The Lugg, Burhou

(49° 43.195'N 002° 10.068'W)

Surveyed 30/06/07 by Lin Baldock, & Chris Wood. 1 Survey Form completed

Physical Environment

There are very strong tidal streams through The Swinge, between Alderney and Burhou. The Lugg is the only site on the south side of Burhou which is largely protected from current by the surrounding rocks. It is, however, exposed to south-westerly swells.

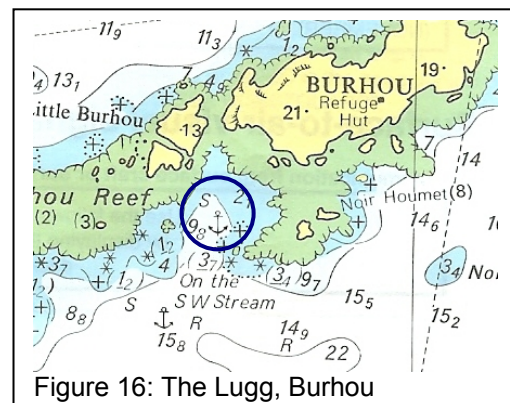


Figure 16: The Lugg, Burhou

Habitat/Community Types

The seabed was largely flat with cobbles and small boulders, sand to one side and, towards the mouth of the bay, becoming pebbles and then gravel forming waves. The maximum depth was 11m. The substrate of coarse sand and pebbles was quite different from the kelp habitats on rock where most of the surveys were carried out. The site was dominated by seaweeds wherever there was a sufficiently firm surface for attachment. In the cobble and pebble zone there seaweeds were ephemeral in nature and would be broken off in times of wave swell. There was a very wide range of seaweeds present with 56 species recorded and the annual seaweeds here warrant further study. There was a very limited range of animals recorded, none of which were unusual.

Observations/Features of Interest

This was the site with the widest range of seaweeds recorded. 13 of them were not recorded from any other site.

4 Discussion

4.1 Survey scope and limitations

The diversity of sites sampled was limited by weather conditions and the availability of boats and divers and consequently this must be regarded as a preliminary survey with many omissions.

A good range of shallow water sites was sampled from the shore, however weather and access limitations means that the majority of the shore sites surveyed were in the north and eastern part of the island. Most were the rocky margins to the sandy bays and most were only a maximum of 10m bcd. Only one of the shore sites, Hannaine Bay, is within the RAMSAR site.

Of the seven sites visited by boat three were in the RAMSAR area, Les Étacs (north and south sides) and The Lugg at Burhou. The sites at Les Étacs are probably similar to others around Burhou and the offshore rocks, whilst the Lugg is probably not replicated elsewhere in the RAMSAR site because it is the one site sheltered from the strong tidal streams. The deeper, tide-swept, circalittoral sites at Braye Rock and The Grois Rocks are also probably repeated elsewhere both around Burhou and the outer rocks and around the rocks to the south of the island.

There are a number of sites which should be included in any additional survey programme. These are:

- Steep slopes to the north of Burhou around Vert Tête
- The Little Swinge
- South west of Ortac
- Edges of The Swinge close to Burhou and Corbet Rock
- South sides of The Noires Putes and Coque Lihou

Their locations are shown in Figure 1.

All of these sites are likely to have a range of rocky habitats with extensive animal turfs which were undersampled in this survey. All are subject to strong tidal streams and would require both experienced divers used to currents, and a boatman with excellent knowledge of local tidal streams.

In ideal conditions sites further offshore would be likely to provide different habitats. Examples are Pierre au Vraic to the south-west and The Casquets, where there is deep water both north and south of the islets.

4.2 Range of habitats and biotopes

JNCC biotopes have been identified for the sites from which Survey Forms were received. The JNCC biotope suite was not designed to include the Channel Islands and infralittoral rock biotopes containing *Laminaria ochroleuca* kelp forest or park are not very well catered for. We are also at a relatively early stage in assessing biotopes for Seasearch surveys and as a result some of the biotopes identified must be considered as preliminary.

The List of biotopes identified is shown in Appendix 3.

The largest number of biotopes identified is for Infralittoral Rock. This is unsurprising given the preponderance of shallow sites surveyed. Only 2 circalittoral rock biotopes

have been identified. There was a third circalittoral biotope present at Les Étacs (both north and south) but this could not be matched with a JNCC biotope, largely because of the lack of soft corals and anemones. This may be a local variation.

4.3 Diversity of species

Appendix 2 contains a list of all of the species recorded and the sites at which each species was present. It also shows the abundance for each record. In some cases there is more than one abundance score for a species. This is because separate habitats are recorded any and species may occur in more than one. Abundances use the SACFOR scale (superabundant-abundant-common-frequent-occasional-rare). An abbreviated abundance scale is used for Observation forms - COR (common-occasional-rare). In cases where species were subsequently identified from photographs, or where the recorder was uncertain, P for present is substituted for the abundance scale.

A total of 276 species is recorded for the survey as a whole comprising 165 animals and 111 plants in the following groups:

Sponges	Porifera	27
Jellyfish, hydroids, anemones and corals	Cnidaria	27
Flatworms	Platyhelminthes	1
Segmented worms	Anellida	6
Barnacles, crabs, prawns and lobsters	Crustacea	14
Shells, bivalves and sea slugs	Mollusca	26
Sea mats and sea mosses	Bryozoa	15
Horseshoe worms	Phoronida	1
Starfish, sea urchins and sea cucumbers	Echinodermata	7
Sea squirts	Tunicata	16
Fishes	Pisces	25
Red seaweeds	Rhodophycota	72
Brown seaweeds	Phaeophyceae	31
Green seaweeds	Chlorophyceae	7
Flowering plants	Angiospermae	1

The total number of species for each site shown in Appendix 2 must be taken as a guideline only as number of species recorded is highly dependent on recording skills, particularly for seaweeds. The sites with the greatest diversity of plants recorded were Cats Bay/Les Hommeaux Florains, The Lugg on Burhou and Longis Bay. In the case of all three sites there were a mixture of rocks and boulder/cobbles providing a diversity of habitats. They are also all relatively sheltered sites out of main tidal streams.

Conversely the sites with the greatest diversity of animal life are the exposed, tide-swept sites of Braye Rock and les Étacs. As pointed out above such sites were under-recorded and a significantly increased list of animal species could be expected if other similar sites were able to be surveyed.

Sponges

The greatest diversity of sponges was at Braye Rock with 18 species recorded. Many of these were typical of clean water rocky environments in SW Britain with such conspicuous species as the hedgehog sponge, *Polymastia boletiformis* (figure 17 left), elephant-hide sponge, *Pachymatisa johnstonia* (figure 17 middle) and yellow staghorn sponge, *Axinella dissimilis* (figure 17 mid right). A similar variety of sponges was present at the other two deeper circalittoral sites, Les Étacs and The Grois Rocks.



Figure 17: Sponges at Braye Rock -

Less commonly recorded sponges which were present were *Adreus fascicularis*, which is listed as nationally scarce in the UK but is probably under-recorded. It is also typical of rocky sites with some scour; *Ulosa digitata*, *Homaxinella subdola* and *Haliclona fistulosa*. An unusual white form of the golfball sponge *Tehtya aurantium/citrina* was seen at two sites and may be a separate species.

Hydroids, anemones and corals

Hydroids were not common at most sites and the diversity was low. Large and prominent hydroids such as *Nemertesia antennina* and *Nemertesia ramosa*, which are abundant at many sites in SW Britain were notable for their almost complete absence. The oaten pipes hydroid *Tubularia indivisa*, which is typical of areas with strong currents and might thus be expected to be abundant around Alderney, was only common at one site, a tide-swept site on the edge of The Race at St Esquere Bay.

The two soft corals, dead men's fingers *Alcyonium digitatum* and red fingers *Alcyonium glomeratum* were both present at all three of the deeper sites. Unlike the remainder of the British Isles, where *Alcyonium digitatum* dominates, on Alderney *Alcyonium glomeratum* was more common. This is the same in Sark (pers. obs.).

The pink sea fan, *Eunicella verrucosa* was seen at 2 sites, Braye Rock and Grois Rocks. It is a common species in the Channel Islands and we would expect to find it at other deeper sites if they were surveyed. Most of the colonies seen at Braye Rock were fouled with angling line, and in one case a piece of rope which was carefully removed. This is a long-lived and slow growing coral and prone to damage by fishing gear. It is a Biodiversity Action Plan Species in the UK.

The most commonly recorded shallow water anemone was the snakelocks, *Anemonia viridis* which occurred at all of the shallow water sites. Less regularly recorded shallow water species were the gem anemone, *Aulactinia verrucosa*, (Baie du Grounard & Braye shoreline) which is a SW Britain species, and the trumpet anemone, *Aiptasia mutabilis*, (Braye Breakwater) which has a restricted distribution and is at its most common in Dorset. Of the deeper water anemones the most interesting record was of large numbers of yellow cluster anemones, *Parazoanthus axinellae* at Braye Rock. These are nationally scarce in the UK. They are found in clumps and are never common. Those at Braye Rock were particularly prolific. A small clump can be seen in Figure 17 immediately below the yellow staghorn sponge.

Jewel anemones, *Corynactis viridis*, were found in small numbers at most offshore sites but were abundant only on the walls on the south side of Les Étacs. Jewel anemone dominated walls are typical of clear rocky environments in SW Britain and we would expect to find many more in the recommended additional survey sites.

The Devonshire cup-coral, *Caryophyllia smithii* has a very widespread distribution and is common throughout the British Isles. It was found at most sites around Alderney, except for the very shallow ones. Much less common is the scarlet-and-gold cup-coral *Balanophyllia regia* which we found in small numbers off the end of the Breakwater. We had hoped to find the sunset coral *Leptopsammia pruvoti*, which is nationally rare but does occur in Sark (pers. obs.) and has also been seen “somewhere beyond Burhou” (S. Daly pers.comm.). Again a more comprehensive survey of suitable deep rock sites would be likely to bring it to light.

Worms

No unusual flatworms or segmented worms were observed and numbers and diversity were low. Visual surveys are not the best way of recording worms and typically under-record them.

Crustacea

Crabs, lobsters, shrimps and prawns were notable for their small numbers and low diversity at most sites. Most were seen at sheltered sites such as the Breakwater, Braye shoreline and Saye Bay. The only unusual sighting was of a large parasitic isopod which is regularly found attached to fishes, particularly wrasse. This is a common sight in the Channel Islands (pers.obs.) but has never been recorded by us on the north side of the English Channel.

Molluscs

The three most commonly recorded molluscs all have a widespread distribution and are common around much of the British Isles. The grey topshell, *Gibbula cineraria* is commonly found on seaweeds in shallow water, the painted topshell, *Calliostoma zizyphinum* is rarely found on the shore but commonly seen on shallow rocks, and the netted dog whelk, *Hinia reticulata* is a scavenger and seen both on rocks and soft sediments.

The most significant mollusc recorded is the ormer, *Haliotis tuberculata*, the signature mollusc species of the Channel Islands. We recorded it at four shallow water sites and, as it is a somewhat cryptic species, it is likely to be much more widespread. The ormer is not found on the northern side of the English Channel and thus the Alderney records are likely to be the most northerly.



Figure 18: grazing ormer, Cats Bay

Bryozoans

Bryozoans are often a major part of the short animal turf in areas where there is no urchin grazing. *Crisia*, the white-clawed sea moss is one small but widespread species which is often abundant. The spiral bryozoans, *Bugula* spp. were also commonly recorded. Sea mats on kelp and other seaweeds, such as *Membranipora membranacea* and *Electra pilosa* were not common though more were apparent in August than in June. The largest and most prominent deeper water bryozoan, the potato crisp bryozoan *Pentapora folicacea*, was seen at all three of the deeper sites.

Starfish, urchins and sea cucumbers

Echinoderms were not numerous with only 7 species recorded. The most common starfish was the small cushion star *Asterina gibbosa*. The common starfish *Asterias rubens* was absent, as elsewhere in the Channel Islands. Only one sea urchin *Echinus esculentus*, was seen and clearly urchin grazing is not a significant feature in Alderney. Two crevice sea cucumbers were recorded but a surprising omission was the large cotton spinner *Holothuria forskali*, which is common in south-west Britain.

Sea squirts

Sea squirts are relatively short lived species and may colonise disturbed areas after storms. The most widely recorded species was the four spotted sea squirt *Morchellium argus*, which forms small clumps about the size of a 50p piece on rocky surfaces at all depths. At deeper sites the orange sea squirt *Stolonica socialis* is a characterizing species. This was recorded as abundant or common at all three deeper sites, and no doubt is very widespread indeed around the offshore islets and rocks. It can be seen above the elephant hide sponge in Figure 17.

Fishes

A wide variety of fishes were recorded. Most numerous are the wrasse, which occurred at every site except on the shore. Ballan wrasse, *Labrus bergylta* are the most common and found in a wide range of rocky habitats. Juvenile species seem to take on the the colour of their surroundings so that bright green wrasse can be seen in shallow areas with green seaweed, a colour not seen in adults. In shallow waters the corkwing wrasse, *Crenilabrus melops* is also common. These are nest-building fishes and the male fishes are particularly brightly coloured and active in the spring. There is a closely related species in the Channel Islands, Baillon's wrasse, but we did not observe any during the survey.

Pollack, *Pollachius pollachius* are common and widespread. Juveniles can be seen at most inshore sites whilst the adults are more common offshore, with particularly large individuals encountered at Les Étacs.

Amongst free swimming fishes small groups of bass, *Dicentrarchus labrax* were common in shallow water, whilst probably the most common fish of all was the tiny two-spot goby, *Gobiousculus flavescens* which occurred in huge numbers at some of the shallow and more sheltered sites.

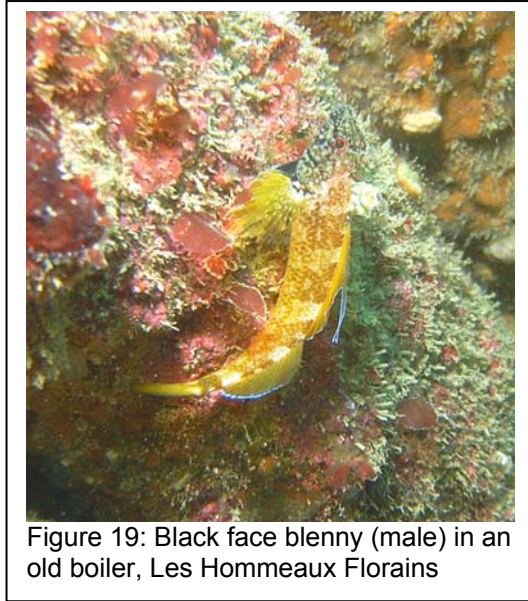
Three less often recorded fishes are of particular interest:

Red mullet, *Mullus surmuletus* was seen at Braye Rock. This is a southerly species which seems to be becoming more common in the British Isles and thus not a surprising record in Alderney.

At all of the sites where we encountered sand and gravel outside sheltered bays, large shoals of lesser sand eel could be seen. These are an important food source for young seabirds, particularly puffins and the lack of sand eels has been implicated in poor

seabird breeding success in parts of the UK, especially in the North Sea. The number of sand eels encountered in Alderney, in habitats which tend only to be looked at briefly, suggests that a lack of sand eels is not a local problem.

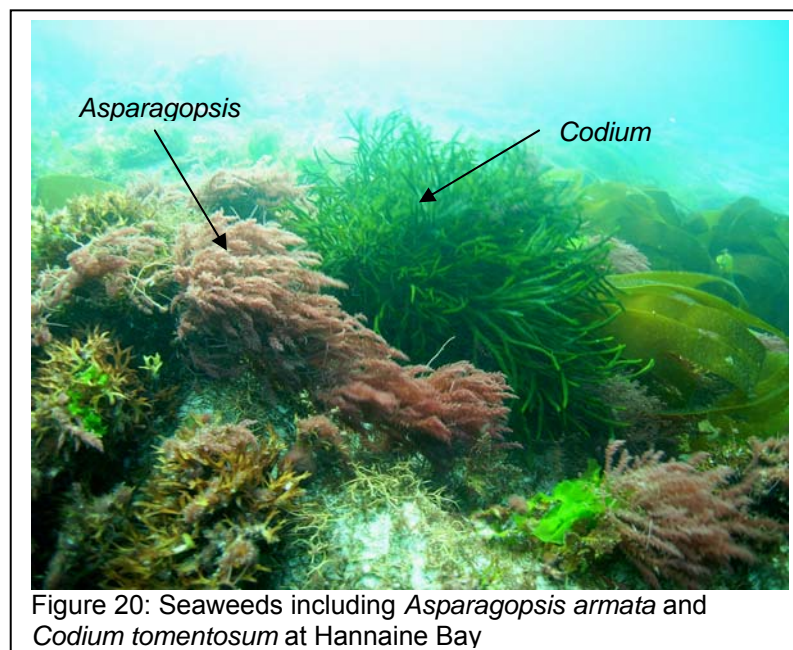
The black face blenny (Figure 19) is probably the signature fish of the Channel Islands. Whilst it does occur along parts of the south coast of England, and seems to be spreading westwards, it is much more common in the Channel Islands. Small numbers were seen at about half of the sites visited. The male with his bright yellow body and black head is particularly distinctive in the springtime. Females and non-breeding males are mottled and difficult to pick out in the crevices where they tend to be found.



Seaweeds

A wide range of seaweeds was recorded because much of our diving was done at shallow coastal sites. Only very limited samples were taken for immediate identification and it is likely that additional species would be recorded if a more detailed survey were carried out of these areas. The greatest diversity of species was found at Cats Bay/Les Hommeaux Florains, The Lugg at Burhou and in Longis Bay. The deeper sites had few seaweeds and the diversity was also low in Hannaine Bay probably due to the exposure and nature of the sea bed.

Amongst the red seaweeds *Asparagopsis armata* is an introduced species which was widely and commonly recorded. This species has barbed branches and attaches to and becomes entangled with, other seaweeds. It has south-westerly distribution in the British Isles. Another introduced species, *Heterosiphonia japonica*, was found in the drift in Braye harbour. It has previously been recorded on Guernsey. On the other hand thriving populations of *Codium tomentosum* were observed. This is the native species which has been replaced by the invasive *C. fragilis* at many sites on the English south coast.



Carpomitra costata has a restricted westerly distribution in England.

The Lugg at Burhou was unique because it represents a habitat for ephemeral algae and there were many annual species there. It would warrant further study as similar habitats elsewhere have yielded a number of rare red seaweeds.

The brown seaweeds include most of the large species, including the kelps. In most parts of the British Isles the primary kelp forest species is kelp, *Laminaria hyperborea*. Whilst this species is common on Alderney, particularly deeper down, two other kelps are equally common. Furbelows, *Saccorhiza polyscides*, distinguished by its flat belt-like



Figure 21: Golden kelp, *Laminaria ochroleuca*



Figure 23: Thongweed, *Himanthalia elongata*

stalk, typically colonises disturbed areas. Its prevalence on Alderney may well reflect the level of disturbance occurring naturally through winter storms and the strong tidal streams. The densest forests of this species were in shallow water at Bibette Head and in Hannaine Bay. The third forest kelp is the golden kelp, *Laminaria ochroleuca*. This is a south westerly species only common in England in the Isles of Scilly. In Alderney it is most common at tide-wet sites such as outside Les Hommeaux Florains and in St Esquere Bay.

Dabberlocks, *Alaria esculenta* is frequently found in very wave-exposed situations and it was thus surprising to find it on the sheltered site of Les Hommeaux Florains. A much more widespread inhabitant of shallow water was the thongweed, *Himanthalia elongata* which was found both at very exposed, tide-swept sites and in the shelter of the inner end of the Breakwater and in Longis Bay.

The non-native brown seaweed japweed, *Sargassum muticum* was widely recorded though nowhere was it dominant. This species is widely found in the southern and western British Isles and its fast rate of growth and large size (up to 2m) can both cause clogging of shallow sheltered areas such as harbours as well as out competing native seaweeds.

The peacock's tail, *Padina pavonica* is a leafy brown seaweed which has a very



Figure 24: Peacock's tail, *Padina pavonica*, Longis Bay

restricted distribution in the British Isles with few records on the south coast of England. It was recorded in Longis Bay.

Flowering plants

Seagrasses are the only marine flowering plant and are found underwater only in shallow sheltered areas of sand. The sublittoral species is the eelgrass, *Zostera marina*. They are a threatened habitat due to coastal development and moorings and are a Biodiversity Action Plan habitat in the UK. We found three sites with eelgrass present. A little sparse eelgrass was found in the harbour close to the slipway on the breakwater and the permanent moorings. There was a small bed on the west side of Saye Bay, but the most extensive bed was in Longis Bay in the sandy centre of the bay between Raz Island and the Frying Pan Battery. This was a good bed of dense eelgrass and is shown in Figure 25. All three of the locations where eelgrass was found are mooring areas, permanent in the case of the harbour and temporary in the case of Saye and Longis Bays. Temporary anchoring, such as takes place in these two areas is much more likely to cause damage to the eelgrass because of the continual dropping and raising of the anchors and the danger of anchors dragging through the eelgrass. The provision of a permanent mooring buoy in both locations could be considered as preventing anchoring is unlikely to be acceptable.



Figure 25: Eelgrass bed in Longis Bay

5 References

- Soanes, L. and Booker, H. (2007)
Alderney West Coast and Burhou Island Ramsar Site Management Strategy, Alderney Wildlife Trust/RSPB report.
- Howson, C.M & Picton, B.E. (eds) (1997)
The species directory of the marine fauna and flora of the British Isles and surrounding seas. Ulster Museum and the Marine Conservation Society, Belfast and Ross-on-Wye. ISBN 0 948150 06 8
- Wood, C. (2007)
Seasearch Observer's Guide to the Marine Life of Britain and Ireland. Marine Conservation Society, Ross-on-Wye. ISBN 0 948150 46 7

6. Acknowledgements

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The Alderney divers were Dave Venn, James Neill, Mark Trowell, Kevin Wood and Pete Allen. Boats were provided by Mark Wordsworth and Phil Murray, Tim Finding, James Hutton and Chris Walker acted as boatmen. Fred Shaw provided us with tanks, weights and air for diving.

Appendix 1 Recording Forms

Thank you for completing this form

All that's left for you to do is to either hand it to the Dive Organiser or fold it into thirds along the dotted lines, tuck one part into the other, add a stamp and send it off. Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. It will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public. If you do not agree with this use of the data do not submit the form.

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second fold and tuck in



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Seasearch is a joint project co-ordinated by the Marine Conservation Society and supported by: The Heritage Lottery Fund, The Wildlife Trusts, English Nature, Countrywide Council for Wales, Scottish Natural Heritage, Environment & Heritage Service Northern Ireland, Joint Nature Conservation Committee, Environment Agency, Marine Biological Association (MarLIN), British Sub-Aqua Club, Professional Association of Diving Instructors and Project Aware, Scottish Sub-Aqua Club, Sub-Aqua Association and The Nautical Archaeology Society.

Record no



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Seasearch Observation Form

This form asks for two types of information from your dive - what the seabed was like and what marine life you saw. Please read the guidance notes before completing the form. By completing this form you will be adding to our knowledge of the near-shore marine environment - helping it to remain fit for life!
 Please complete the following sections in a black pen and **BLOCK CAPITALS**

Name	
Address	
Postcode	
Tel: Home	Mobile
Email	
Buddy's Name	
Site Name	Date of Dive / /
General Location (inc county)	Start of dive : : (year)
	Max depth of survey m
	Dive duration (min)
	UW visibility m
Sea Temperature °C	
Position at start of dive D N W or E	or OS Grid Reference
Position derived from (circle) GPS Admiralty Chart OS Map (state)	Drift dive? yes / no
	Night dive? yes / no
Did you take any photographs? yes / no or video footage? yes / no	

S01-02/06

SEASEARCH SURVEY FORM



- If anything is unclear please refer to the **Guidance Notes**.
- Each pair of divers should complete a form between them.
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.

Validated by	Date	Verified by	Date
--------------	------	-------------	------

Your details

Name	Tel No:	hm/wk
Address	Email:	
	Buddy's Name	
	Name of group or survey	
Postcode		

Dive details

Site name				Date of dive: dd / mm / yy		
General location				Start of dive: : (24hr)		
				Dive duration: (mins)		
				U/W visibility: m		
				Sea temperature: °C		
Position	Latitude		Longitude		W or E	Drift dive? yes / no
Centre of site	0 .	0 .				Night dive? yes / no
For drift dives						Did you take any of the following? photographs yes / no video footage yes / no specimens yes / no seaweeds for pressing yes / no
From	0 .	0 .				
To	0 .	0 .				
Or OS Grid Reference						
Position derived from: (circle)				GPS Datum (circle)		
GPS	Admiralty chart	OS map	other	WGS84	OSGB36	

Seabed summary

Tick which types of seabed were present				For the area surveyed, what was		
rocky reef <input type="checkbox"/>	boulders <input type="checkbox"/>	cobbles/pebbles <input type="checkbox"/>	mixed ground <input type="checkbox"/>	the deepest depth? (m)	bsl	bcd
sand/gravel <input type="checkbox"/>	mud <input type="checkbox"/>	wreckage <input type="checkbox"/>	other <input type="checkbox"/>	the shallowest depth? (m)	bsl	bcd
Circle the dominant one				Tidal correction to chart datum m*		
Summarise: a. the main features of the seabed, b. any unusual features or species, c. any human activities or impacts at the site.						

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Each written description should tally with the information entered in the columns below and with your diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another Form. Tick boxes where shown, or give percentages (make sure they add up to 100%!), or assign a score from 1-5 as appropriate. If you are uncertain about anything, leave the box blank.

1. DESCRIPTION

2. DESCRIPTION

3. DESCRIPTION

1	2	3	
m			DEPTH LIMITS
			Upper (from sea level) (i.e. minimum)
			Lower (from sea level) (i.e. maximum)
			Upper (from chart datum) *
			Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
			Cobbles (fist - head size)
			Pebbles (50p - fist size)
			Gravel - stone
			- shell fragments
			Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

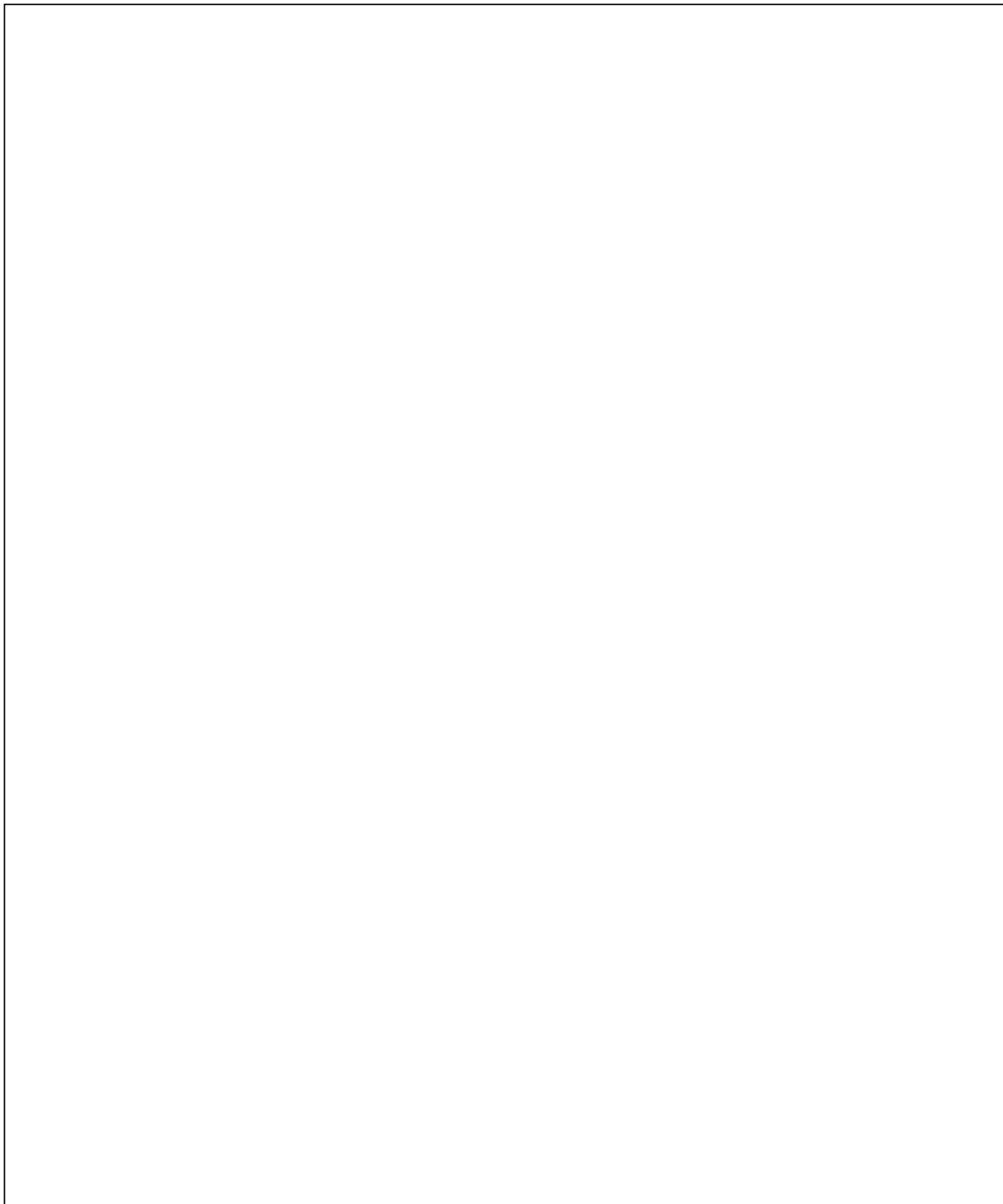
1	2	3	
1-5			FEATURES - ROCK (all categories)
			Relief of habitat (even - rugged)
			Texture (smooth - pitted)
			Stability (stable - mobile)
			Scour (none - scoured)
			Silt (none - silted)
			Fissures > 10 mm (none - many)
			Crevices < 10 mm (none - many)
			Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate your direction of travel (compass bearing) and/or the direction of any current.



Appendix 2: Species List

SpeciesName	Common Name	Longis Bay	Baie du Grounard	St Esquere Bay	Cats Bay/ Homeaux Florains	W of Chateau a l'Etoc	Saye Bay	Grois Rocks	Bibette Head	Braye Breakwater	Braye shore	Braye Rock	Hannaine Bay	Les Etacs	The Lugg
PORIFERA	SPONGES														
<i>Leucosolenia</i>												R			
<i>Scypha ciliata</i>	purse sponge			F								P			
<i>Pachymatisma johnstonia</i>	elephant hide sponge											OP		OOO	
<i>Dercitus bucklandi</i>	black tar sponge						R		R				O	OR	
<i>Tethya (white sp.)</i>								O				R			
<i>Tethya citrina</i>	golf ball sponge							O				O		O	
<i>Polymastia boletiformis</i>	hedgehog sponge							F	R			FP		OOO	
<i>Polymastia mamillaris</i>	chimney sponge							O		R				R	
<i>Adreus fascicularis</i>								C				R		OR	
<i>Cliona celata</i>	boring sponge	R		P				OO	R			OP		OOO	
<i>Axinella damicornis</i>		R		R					R			P		FFR	
<i>Axinella dissimilis</i>	yellow staghorn sponge			RP				CO				FO		FF	
<i>Homaxinella subdola</i>	wiry staghorn sponge									R		R			
<i>Ciocalypta penicillus</i>	tapered chimney sponge							R							
<i>Halichondria</i>			O												
<i>Hymeniacidon perleve</i>		O			O										
<i>Esperiopsis fucorum</i>	shredded carrot sponge								OR						
<i>Ulosa digitata</i>												R			
<i>Hemimycale columella</i>	crater sponge			OP			O		R			O		O	
<i>Myxilla incrustans</i>														R	

<i>Raspailia hispida</i>		R										O			
<i>Raspailia ramosa</i>	chocolate finger sponge							OO				O		R	
<i>Haliclona cinerea</i>		R												R	
<i>Haliclona fistulosa</i>												R			
<i>Haliclona oculata</i>	mermaid's glove											P			
<i>Dysidea fragilis</i>	goosebump sponge	O			FOO		O		OO			R			
<i>Porifera indet crusts</i>			O	O			O	O		O	R		O		
		6	2	6	2	1	4	9	8	3	0	18	2	13	0
CNIDARIA	HYDROIDS, ANEMONES, CORALS, JELLYFISH														
<i>Haliclystus auricula</i>						R									
<i>Tubularia indivisa</i>	oaten pipes hydroid			A										F	
<i>Halecium</i>												R			
<i>Sertularella gayi</i>														F	
<i>Sertularia cupressina</i>	squirrel's tail													R	
<i>Nemertesia antennina</i>	antenna hydroid											R			
<i>Aglaophenia</i>												O			
<i>Aglaophenia pluma</i>				O											
<i>Gymnangium montagui</i>	indian feathers hydroid											F		O	
<i>Obelia geniculata</i>	kelp fur	F		CF							O	O		FFO	F
<i>Alcyonium digitatum</i>	dea men's fingers							O				R		R	
<i>Alcyonium glomeratum</i>	red fingers							OO				F		OR	
<i>Eunicella verrucosa</i>	pink sea fan							R				O			
<i>Cerianthus lloydii</i>	burrowing anemone	FOO			R					RR					
<i>Parazoanthus axinellae</i>	yellow cluster anemone											F			
<i>Isozoanthus sulcatus</i>	peppercorn anemone							R				R	R		
<i>Actinia equina</i>	beadlet anemone		F		CF						F		O		
<i>Actinia fragacea</i>	strawberry anemone								F						
<i>Anemonia viridis</i>	snakelocks anemone	OO	O		OOO	O	O		FOO	OOR	O		OO	R	R
<i>Urticina felina</i>	dahlia anemone		R												
<i>Aulactinia verrucosa</i>	gem anemone		F								R				
<i>Aiptasia mutabilis</i>	trumpet anemone									O					

<i>Cereus pedunculatus</i>	daisy anemone	FO	F		O												
<i>Actinothoe sphyrodeta</i>	white striped anemone				CR	O	R	RR				OP				O	
<i>Corynactis viridis</i>	jewel anemone			FP	ORR	O						RP				A	
<i>Caryophyllia smithii</i>	Devonshire cup-coral	O		O	OO	O	OO	O	CR			OP	R			FO	
<i>Balanophyllia regia</i>	scarlet and gold cup-coral									F							
		5	5	5	8	1	4	6	4	6	3	13	4	11	2		
PLATYHELMINTHES	FLATWORMS																
<i>Prostheceraeus vittatus</i>	candy striped flatworm	R										R				R	
		1	0	0	0	0	0	0	0	0	0	1	0	1	0		
ANNELIDA	SEGMENTED WORMS																
<i>Polychaeta</i>	tube worms indet.	C								S							
<i>Chaetopterus variopedatus</i>												R					
<i>Arenicola marina</i>	lugworm	O			CF	O	F					F					
<i>Lanice conchilega</i>	sand mason worm	O			O					R							R
<i>Bispira volutacornis</i>	double spiral worm			RP			R			OO			R		O		
<i>Filograna implexa</i>	coral worm											F					
		3	0	1	2	1	2	0	0	3	1	2	1	1	1		
CRUSTACEA	CRABS, LOBSTERS, SHRIMPS AND PRAWNS																
<i>Balanomorpha</i>	barnacles		O									F					
<i>Boscia anglica</i>	cup-coral barnacle									R							
<i>Mysidae</i>			O				O										
<i>Isopoda</i>	parasitic isopod (on fishes)						O			O		O					
<i>Homarus gammarus</i>	lobster							R		R						R	
<i>Pagurus bernhardus</i>	common hermit crab	R						R									R
<i>Galathea</i>	squat lobsters			R						R							
<i>Galathea strigosa</i>	spiny squat lobster				RR				R								
<i>Porcellana platycheles</i>	porcelain crab											O					
<i>Maja squinado</i>	spiny spider crab				OO	R	R			RRR						R	
<i>Inachus</i>	spindly spider crab									R							
<i>Cancer pagurus</i>	edible crab				RR		R					O				R	
<i>Necora puber</i>	velvet swimming crab			P		R	R					O					

<i>Carcinus maenas</i>	shore crab			R							O					
		1	2	3	3	2	5	2	1	6	5	1	0	3	1	
MOLLUSCA	SHELLS, SEA SLUGS, BIVALVES AND CEPHALOPODS															
<i>Acanthochitona fascicularis</i>											R					
<i>Haliotis tuberculata</i>	ormer			R	RR					R			R			
<i>Gibbula cineraria</i>	grey topshell			FFO	FO	O	FO		F	o	R		FF		O	
<i>Gibbula umbilicalis</i>	flat topshell	O	O			O					C					
<i>Osilinus lineatus</i>											C					
<i>Calliostoma zizyphinum</i>	painted topshell			OP	R		O		OO	OO	R	R		OOO		
<i>Patella</i>	limpets	O														
<i>Patella vulgata</i>	common limpet		F		OO	O					C					
<i>Helcion pellucidum</i>	blue rayed limpet	R			F				F				C			
<i>Littorina obtusata</i>											O					
<i>Trivia</i>	cowries	O			RR											
<i>Trivia arctica</i>	arctic cowrie													O		
<i>Trivia monacha</i>	european cowrie		R													
<i>Ocenebra erinacea</i>	sting winkle			R												
<i>Nucella lapillus</i>	dog whelk				R						R					
<i>Hinia reticulata</i>	netted dog whelk	OOR														
<i>Elysia viridis</i>	green sea hare	R	R		R		O	R					R			
<i>Tritonia nilsodhneri</i>	san fan sea slug				R								R			
<i>Polycera faeroensis</i>	yellow edged polycera				R					R						
<i>Cadlina laevis</i>													R			
<i>Coryphella</i>		R														
<i>Coryphella browni</i>		O								O						
<i>Pecten maximus</i>	king scallop									R						
<i>Ensis</i>	razor shell	R														
<i>Sepia officinalis</i>	cuttlefish												R			
<i>Loliginidae</i>	squid												R			
		8	4	4	10	3	3	1	3	6	8	5	4	2	2	
BRYOZOA	SEA MATS AND SEA MOSSES															
<i>Crisia</i>	white claw sea moss	A		C			F		FF					CCF	F	

<i>Callionymus lyra</i>	dragonet	O							F	R					
<i>Gobius cobitis</i>	giant goby				RR										
<i>Gobius paganellus</i>	rock goby										R				
<i>Gobiusculus flavescens</i>	two spot goby	ACC			AAC										
<i>Pomatoschistus</i>	small gobies	C	C	F	C	O			CCF	AO					CO
<i>Thorogobius ephippiatus</i>	leopard spotted goby	COO								O					C
<i>Zeugopterus punctatus</i>	topknot		R							OR		R			
										R					
		7	3	7	11	2	9	4	10	13	2	8	3	13	5
RHODOPHYCOTA	RED SEAWEEDS														
<i>Rhodophycota</i>	red seaweeds indet.	C		AA	CF		F		CF					CF	
<i>Porphyra</i>			O												OO
<i>Porphyra umbilicalis</i>	purple laver				O	O					O				
<i>Scinaia</i>				R						R					R
<i>Asparagopsis armata</i>		FFO	O	F	O	F	A		CO	F	R		CF		O
<i>Bonnemaisonia</i>				O	R					O					OO
<i>Bonnemaisonia hamifera</i>															R
<i>Gelidium</i>			O												
<i>Gelidium pusillum</i>											F				
<i>Palmaria palmata</i>	dulse	F	O		O	F			O	O					
<i>Rhodothamniella floridula</i>			O								F				
<i>Ahnfeltia plicata</i>	wire weed				O										FF
<i>Corallinales</i>	pink encrusting algae	C	A	C	CCF	C			F	OO	C	F	CO	CFF	CF
<i>Corallina officinalis</i>	coral weed		F	O	CF	F	F		F		C		F	O	O
<i>Lithophyllum incrustans</i>											C				
<i>Mesophyllum lichenoides</i>	pink plate algae	O			F	O			F						
<i>Calliblepharis ciliata</i>	red fringe weed				F					FR		F			F
<i>Calliblepharis jubata</i>		O			OO	O				O					
<i>Cystoclonium purpureum</i>		F			O										
<i>Rhodophyllis</i>			O												
<i>Rhodophyllis divaricata</i>		F			FO										
<i>Dilsea carnosa</i>	red rags	O		OO	CFR		O		O	OO			O	O	O
<i>Furcellaria lumbricalis</i>		C	F	F	F										CF

<i>Acrosorium venulosum</i>				F	R					F		O		P	CF
<i>Apoglossum ruscifolium</i>															R
<i>Cryptopleura ramosa</i>		F	P	F	FO			C		C			F	C	C
<i>Delesseria sanguinea</i>	sea beech			FO				O		O				O	
<i>Drachiella heterocarpa</i>												O			
<i>Drachiella spectabilis</i>	rainbow weed			C	C										
<i>Hypoglossum hypoglossoides</i>					OR										
<i>Membranoptera alata</i>					O										
<i>Phycodrys rubens</i>	sea oak			F					F						F
<i>Polyneura bonnemaisonii</i>				O	OR				F						
<i>Brongniartella byssoides</i>															F
<i>Chondria dasyphylla</i>															O
<i>Laurencia</i>		F	O		OO	O				F					
<i>Polysiphonia brodiei</i>					O										
<i>Polysiphonia nigra</i>															P
<i>Rhodomela confervoides</i>															O

28 18 24 37 18 9 0 9 25 14 8 5 11 41

PHAEOPHYCEAE		BROWN SEaweEDS													
<i>Phaeophyceae</i>	brown seaweeds indet														C
<i>Ectocarpus</i>	maiden's hair				F										
<i>Colpomenia peregrina</i>		R										O			
<i>Stilophora tenella</i>														F	
<i>Cladostephus spongiosus</i>			O		O										O
<i>Halopteris filicina</i>										OR		O			O
<i>Dictyopteris membranacea</i>	midrib fan weed				RR					O		R		FF	FO
<i>Dictyota dichotoma</i>	brown fan weed	O			COO				F	F		O		FFO	FF
<i>Padina pavonica</i>	peacock's tail	O													
<i>Taonia atomaria</i>										R					
<i>Carpomitra costata</i>										R					
<i>Sporochnus pedunculatus</i>															O
<i>Arthrocladia villosa</i>															F
<i>Desmarestia aculeata</i>	landlady's wig				F	O				O					O
<i>Desmarestia ligulata</i>	mermaids hair	O	O			OR	R	O					O		RR

<i>Alaria esculenta</i>	dabberlocks					OR									
<i>Chorda filum</i>	mermaid's tresses									O					
<i>Laminaria digitata</i>	oar weed	F			F	O									
					CFF										
<i>Laminaria hyperborea</i>	cuvie	CC	F	CCO	F		A	CO	CC		R		AAC	F	
<i>Laminaria ochroleuca</i>	golden kelp	F		CCC	A		A	O	O					F	
<i>Laminaria saccharina</i>	sugar kelp			FO	COO				O				O	CF	
					CCC										
<i>Saccorhiza polyschides</i>	furbelows	CC	O	O	FO	C	FF	AC	FO				AO		FF
<i>Bifurcaria bifurcata</i>		F				F		O		R			F		
<i>Cystoseira</i>		CF		F	F	O	o	F	R						O
<i>Cystoseira tamariscifolia</i>											R				
<i>Halidrys siliquosa</i>	podweed			COO	FO		F	CR					R	C	O
<i>Fucus serratus</i>	serrated wrack	FFO	C		O	A		O		A			A		
<i>Fucus vesiculosus</i>										A					
<i>Pelvetia canaliculata</i>										C					
<i>Himanthalia elongata</i>	thongweed	FF	F		CCF	F	C	C	C	R			C		
<i>Sargassum muticum</i>	japweed	FO	R	O	O	R			R	F					
		13	7	10	15	8	7	0	9	15	8	4	7	5	14
CHLOROPHYCEAE	GREEN SEAWEEDS														
<i>Chlorophyceae</i>	green seaweeds indet.										C				
<i>Enteromorpha</i>		O	C		A			F		C			F		
<i>Ulva</i>	sea lettuce	O	F		AC	F				C			FO		FO
<i>Cladophora</i>			O		O										
<i>Cladophora rupestris</i>						O					F				
<i>Bryopsis plumosa</i>	henpen		R												
<i>Codium tomentosum</i>	velvet horn	F	0		FO	O		OO					F		
		3	5	0	4	3	0	0	2	0	4	0	3	0	1
ANGIOSPERMAE	FLOWERING PLANTS														
<i>Zostera marina</i>	eelgrass	ACO						O		R					
		1	0	0	0	0	1	0	0	1	0	0	0	0	0
TOTAL ANIMAL SPECIES		37	24	33	47	12	32	32	32	42	20	68	14	70	17
TOTAL PLANT SPECIES		45	30	34	55	29	17	0	19	41	26	12	15	16	56
TOTAL SPECIES		82	54	67	102	41	49	32	51	83	46	80	29	86	73

Appendix 3 JNCC sublittoral biotopes identified

Littoral rock biotopes

- LR.HLR.FR.Him *Himanthalia elongata* and red seaweeds on exposed to moderately exposed lower eulittoral rock, (Baie du Grounard, West of Château à L'Étoc, Bibette Head)
- LR.MLR.BF.Fserr *Fucus serratus* on moderately exposed lower eulittoral rock (Hannaine Bay)
- LR.LLR.F.Fserr *Fucus serratus* on sheltered lower eulittoral rock (Braye Bay)

Infralittoral rock

- IR.HIR.KFaR.LhypR *Laminaria hyperborea* with dense foliose red seaweeds on exposed infralittoral rock, (St Esquere Bay)
- IR.HIR.KFaR.LhypR.Ft *Laminaria hyperborea* forest with dense foliose red seaweeds on exposed upper infralittoral rock, (Les Étacs (north), Les Étacs (south))
- IR.HIR.KFaR.LhypRVt *Laminaria hyperborea* and red seaweeds on exposed vertical rock, (Saye Bay)
- IR.HIR.KFaR.LhypR.Loch Mixed *Laminaria hyperborea* and *Laminaria ochroleuca* forest on exposed infralittoral rock, (St Esquere Bay, Les Homeaux Florains)
- IR.HIR.KSed.Sac *Saccorhiza polyschides* and other opportunistic kelps on disturbed sublittoral fringe rock (Bibette Head, Hannaine Bay)
- IR.MIR.KR.Lhyp *Laminaria hyperborea* and foliose red seaweeds on moderately exposed infralittoral rock, (Cats Bay, Longis Bay, Les Homeaux Florains)
- IR.MIR.KR.Lhyp.Pk *Laminaria hyperborea* park and foliose red seaweeds on moderately exposed lower infralittoral rock, (Bibette Head)
- IR.LIR.K.LhypLsac Mixed *Laminaria hyperborea* and *Laminaria saccharina* on sheltered infralittoral rock, (Braye Breakwater)
- IR.LIR.K.LhypLoch Mixed *Laminaria hyperborea* and *Laminaria ochroleuca* forest on moderately exposed or sheltered infralittoral rock, (Saye Bay)
- IR.FIR.IFou Infralittoral fouling seaweed communities (Les Homeaux Florains)

Circalittoral rock biotopes

- CR.HCR.XFa mixed faunal turf communities on high energy circalittoral rock, (West of the Grois Rocks)
- CR.HCR.XFa.ByErSp Bryozoan turf and erect sponges on tide-swept circalittoral rock, (Braye Rock)

Sublittoral Sediment biotopes

- SS.SCS.ICS infralittoral coarse sediment, (Bibette Head)
- SS.SCS.CCS circalittoral coarse sediment, (West of the Grois Rocks, Les Étacs (south))
- SS.SSa.IFiSa infralittoral fine sand, (Longis Bay)
- SS.SSa.IFiSa.IMoSa infralittoral mobile clean sand with sparse fauna, (Cats Bay, Les Homeaux Florains, Saye Bay, Les Étacs (north), The Lugg, Hannaine Bay)
- SS.SSa.CMuSa circalittoral muddy sand (Braye Breakwater)
- SS.SMp.KSwSS.LsacR *Laminaria saccharina* and red seaweeds on infralittoral sediments, (The Lugg)
- SS.SMp.SSgr.Zmar *Zostera marina/angustifolia* beds on lower shore or infralittoral clean or muddy sand, (Longis Bay, Saye Bay)

Appendix 4: Dive positions and details

Name	Ref. Fig 1	Position	Date	Time In	Surveyors	Records made
Longis Bay	1	49°43.195'N 002°10.068'W	26/06/07	1200	Lin Baldock Fiona Ravenscroft Chris Wood	2 Survey
Baie du Grounard south of Fort Houmet Herbé	2	49°43.395'N 002°09.861'W	25/06/07	1750	Lin Baldock Fiona Ravenscroft Chris Wood	2 Survey
St Esquere Bay, north of Fort Houmet Herbé	3	49°43.68'N 002°09.44'W	26/06/07	1630	Lin Baldock Fiona Ravenscroft Dave Venn Chris Wood	2 Survey 1 Obs
Cats Bay, Southerly side towards Quenard Point	4	49°43.757'N 002°09.728'W	25/06/07	1430	Lin Baldock Louise Soanes Fiona Ravenscroft Chris Wood	1 Survey 1 Obs
Cats Bay, Northerly side towards Les Hommeaux Florains	4	49°43.793'N 002°09.756'W	27/06/07	1120	Lin Baldock Fiona Ravenscroft Chris Wood	1 Survey
Outside of Les Hommeaux Florains	4	49°44.00'N 002°09.70'W	26/08/07	1515	Chris Wood	1 Survey
Bay west of Château à L'Étoc	5	49°43.827'N 002°10.719'W	27/06/07	1640	Lin Baldock & Fiona Ravenscroft	1 Survey
Saye Bay	6	49°43.90'N 002°10.90'W	27/06/07	1645	Chris Wood	1 Survey
West of The Grois Rocks	7	49°44.049'N 002°10.950'W	24/06/07	1535	Chris Wood Kevin Wood	1 Survey 1 Obs
Bibette Head	8	49°43.75'N 002°11.15'W	23/08/07 27/08/07	1555 1125	Chris Wood Chris Wood	1 Survey 1 Survey
Braye Bay foreshore	9	49°43.38'N 002°11.29'W	29/06/07	1245	Lin Baldock	1 Survey
Braye Breakwater Inner end	10	49°43.578'N 002°12.140'W	24/06/07	1040	James Neill	1 Obs
Braye Breakwater Outer end	10	49°43.810'N 002°11.680'W	30/06/07	1500	Lin Baldock Chris Wood	1 Survey
Braye Rock	11	49°43.758'N 002°12.107'W	28/06/07 29/06/07	1515 1600	Lin Baldock Fiona Ravenscroft Chris Wood Dave Venn	1 Survey 1 Obs 1 sea fan
Hannaine Bay	12	49°42.70'N 002°14.00'W	24/08/07	1750	Chris Wood	1 Survey
Les Étacs (north)	13	49°42.31'N 002°14.45'W	28/06/07	0905	Fiona Ravenscroft Chris Wood	1 Survey
Les Étacs (south)	14	49°42.13'N 002°14.55'W	25/08/07	1010	Chris Wood James Neill	1 Survey
The Lugg, Burhou	15	49°43.195'N 002°10.068'W	30/06/07	1050	Lin Baldock Chris Wood	1 Survey