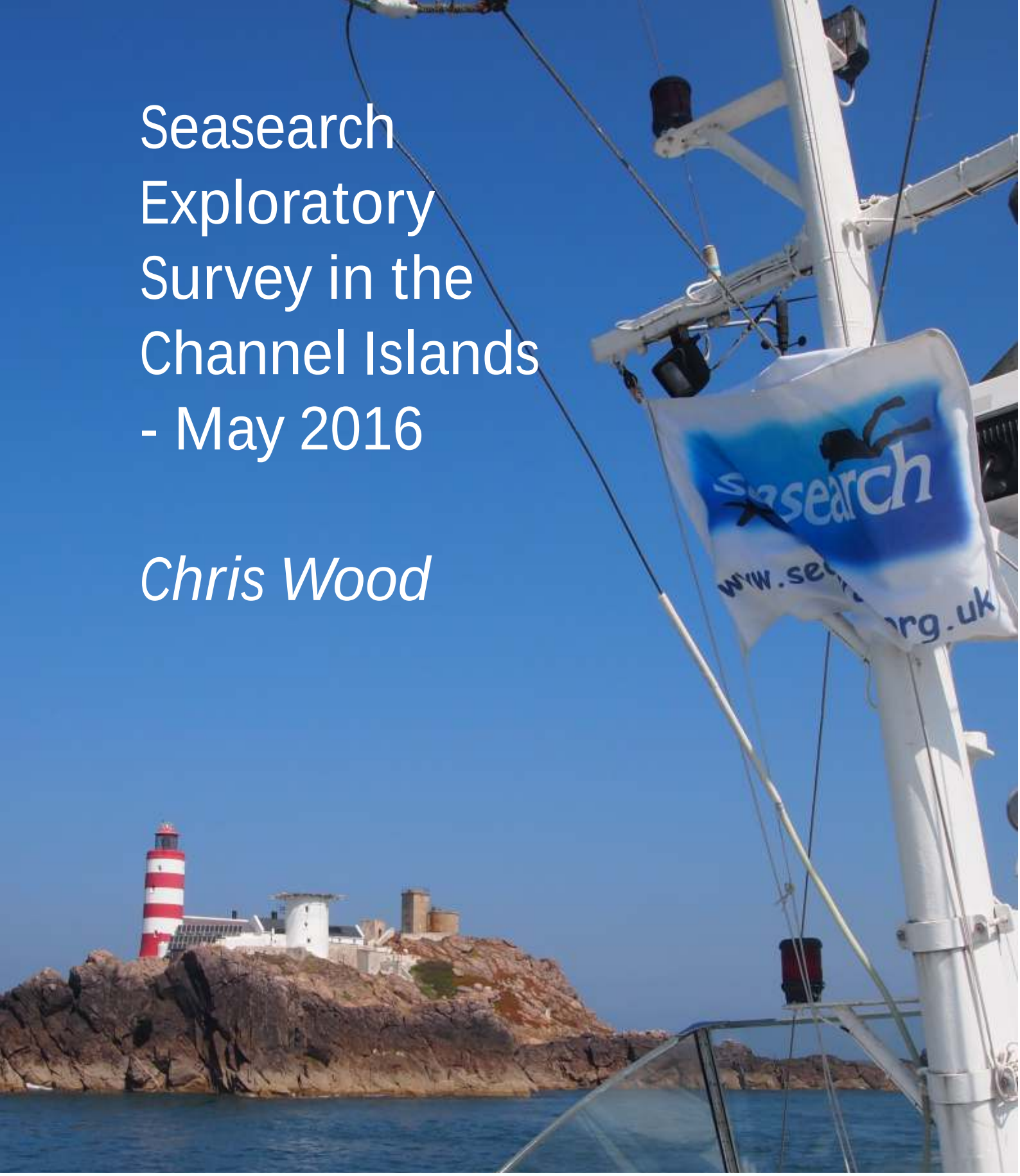
Seasearch Exploratory Survey in the Channel Islands - May 2016

Chris Wood



seasearch
www.seasearch.org.uk

BSAC
Dive with friends

marine conservation society

ACKNOWLEDGEMENTS

The Seasearch team would like to thank The British Sub Aqua Jubilee Trust which gave a grant of £750 towards the costs of the survey, reporting to the Channel Islands Environmental meeting in Guernsey and preparation of this report. Other costs were all met by the members of the team.

We would also like to thank Al and Freda Wright of MV Salutay for taking us to places none of us had ever been before, providing all diving support and feeding us handsomely throughout the week of the survey. Terry Ozanne on Guernsey and Sue Daly on Sark also provided invaluable local advice on tides and dive times.

The author would like to thank the remainder of the team for all of their efforts to make accurate records of the sites we visited and also to those who have provided images of the habitats and species we found.

I would also like to acknowledge the support of the Alderney Wildlife Trust, The Société Guernesiaise and the Marine Conservation Society in obtaining grant funding and advising on diving regulations.

Cover Images:
Front: Seasearch at The Casquets
photo by Chris Wood
Back: Tompot Blenny in a current - Les Audames, Guernsey
photo by Matt Doggett

Seasearch Exploratory Survey in the Channel Islands - May 2016

Contents Page

www.seasearch.org.uk

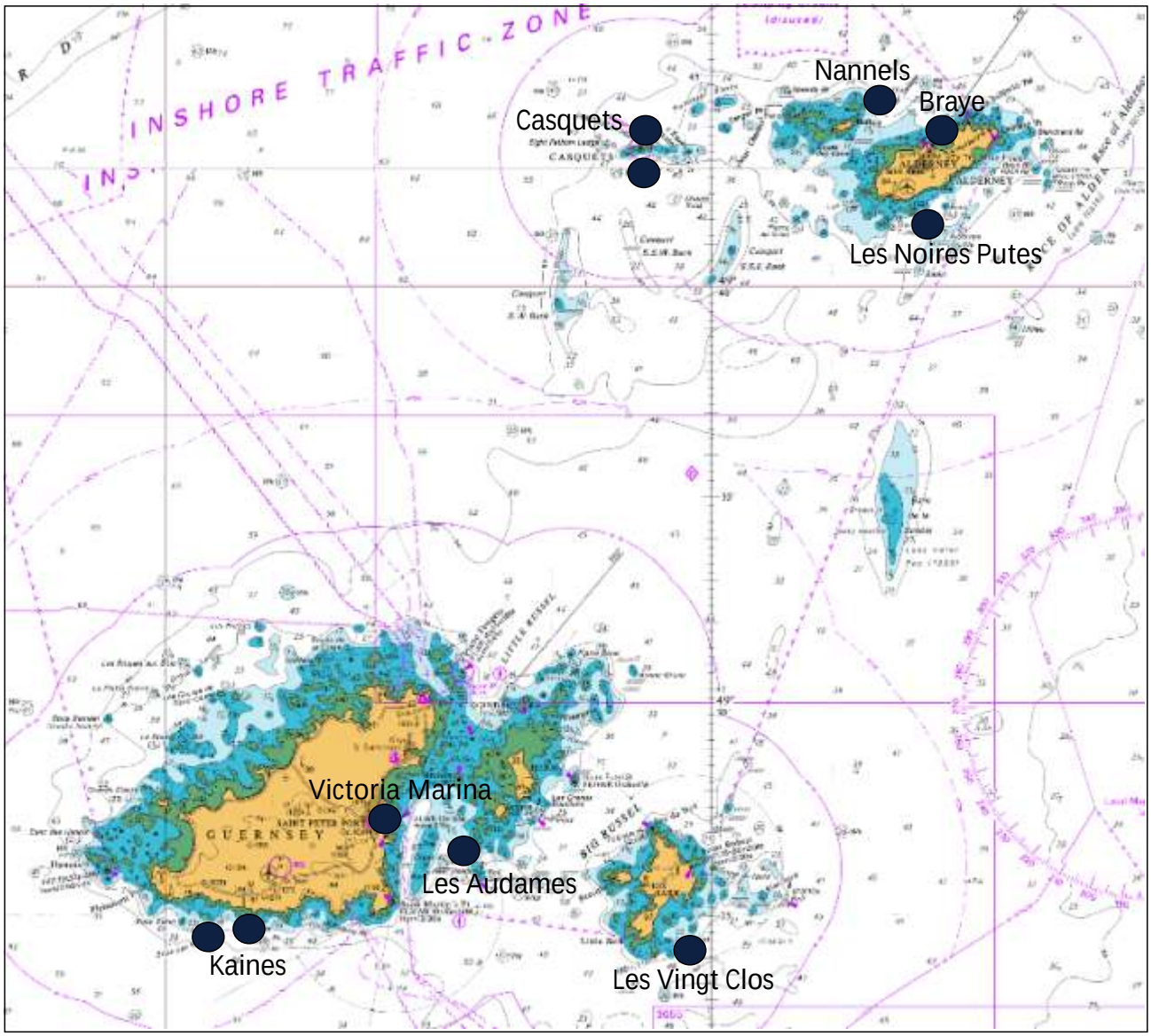


Figure 1: Alderney and Guernsey showing sites dived

Figure 2: MV Salutay picking up divers south of Guernsey (CWd)

INTRODUCTION

Seasearch is a marine habitat and species recording programme for volunteer sports divers and operates throughout Britain and Ireland. Divers are trained in sublittoral survey techniques and surveys are undertaken either by groups of divers supervised by a regional Seasearch coordinator, by other groups of Seasearch divers or by individuals either diving with a club or on their own initiative.

Seasearch has been active in the Channel Islands since 1997. Surveys have been undertaken both by local divers, mostly around Jersey, and by visiting divers, mostly around Alderney and Sark. The Seasearch data for the Channel islands up to the end of 2015 comprised 15,830 records of 839 marine species.

One of the aims of Seasearch is to provide species and habitat data in areas which have not previously been surveyed, often because they are difficult to access. This survey was carried out with main aim of diving un-surveyed sites in exposed locations for which no previous data existed. In the event we dived seven new sites, carried out one shore based survey (due to adverse weather conditions) and re-visited one previously surveyed site.

We were able to visit the new sites because we were based on board a seagoing dive support vessel, MV Salutay which provided accommodation and food for the six days, air/nitrox breathing gasses and diver deployment and recovery. The vessel sailed from Weymouth and, as its normal operating area is Normandy wrecks, the sites we wanted to dive were new to the crew as well as to the divers. The Channel Islands have notoriously strong tidal streams and many of the sites we were targeting were in very exposed locations. This was therefore exploratory diving in every sense of the term and we were lucky to be able to visit so many new sites. Even so these dives only provide a glimpse of the marine life and habitats in un-surveyed parts of the Channel islands and we hope to be able to carry out more exploratory surveys in the future.

The Seasearch survey team comprised:

Chris Wood	Team Leader and Seasearch National Coordinator
Chris Webb	Seasearch Coordinator for Devon, Tutor, Surveyor and Photographer
Elaine Le Claire	Experienced diver from Jersey
Jon Chamberlain	Seasearch Surveyor from Essex
Kevin McIlwee	Seasearch Coordinator for Jersey
Matt Doggett	Seasearch Surveyor and Photographer based in Hampshire
Rob Spray	Seasearch Tutor and Surveyor from Suffolk/Norfolk
Ruth Sharratt	Seasearch Surveyor from North Wales

Figure 3: The Seasearch survey team at The Casquets

Figure 4: Sites dived at The Casquets (photo MD)

Figure 5: Yellow/orange faunal turf at Casquets (North) (CWd)

1 SITES SURVEYED AT THE CASQUETS

The Casquets was top of the wish list of sites to be surveyed because we are not aware of any previous records of the sublittoral marine life and habitats, and the area had certainly never been visited by Seasearch.

The Casquets is a series of rocks 9 miles to the west of Alderney. Apart from the lighthouse, which is now automatically operated, there is little human impact and even potting around the rocks is limited because of the difficulty of access. The site is also subject to strong tidal streams and there are significant eddies and overfalls at most states of the tide. We visited the Casquets first because there were neap tides at the beginning of the week which reduces tidal currents. We were fortunate that weather conditions were perfect for two days with little wind or swell and we were therefore able to dive both on the north and south sides of the main area of rocks.

Casquets North

The Casquets lie in line with the main current flow which is west to east on the flood and east to west on the ebb. The northern side probably has slightly stronger tidal streams as there is little to break the flow. We did not survey the shallow area close to the rocks because of uncertainty over the tides and the difficulty of being picked up if it proved necessary. We therefore surveyed the northward facing slope of the reef from a depth of 19m below sea level (bsl) to 25m bsl. This was a steep slope becoming steeper with depth and there was an area of boulders at 25m bsl at the base.

The shallower areas (19-21m bsl) were dominated by a kelp park of *Laminaria hyperborea,* with mixed red algae both on the stipes and the rock surfaces. Beneath the kelp there were superabundant oaten pipe hydroids, *Tubularia indivisa.* This species is typical of sites with strong tidal streams and is at its most prominent in the spring. It was not therefore surprising to find it both here and at other current-swept sites.

Below 21m the kelp was less prominent though it continued in reduced densities to 24m bsl (21.5m below chart datum (bcd)). *Tubularia indivisa* remained common but there was an increasing number of sponges, cnidarians and orange sea squirts, *Stolonica socialis* (common). The sponges were mostly yellow cushion and branching forms including *Axinella dissimilis* (frequent), *Polymastia boletiformis* (F), *Cliona celata* (occasional), *Adreus fascicularis* (O) and *Tethya citrina* (O) as well as other grey, pink and brown sponges. The yellow cluster anemone, P*arazoanthus axinellae* was present as were scarlet and gold cup corals, *Balanophyllia regia,* Devonshire cup corals, *Caryophyllia smithii* (O) and red fingers soft coral, *Alcyonium glomeratum.*

Both the scarlet and gold cup coral and the sponge *Adreus fascicularis* are listed as a scarce species in UK waters. *Balanophyllia regia* is found mostly in shallow surge gullies in places like Skomer, Lundy and the isles of Scilly. Earlier Seasearch surveys have recorded it on Alderney but the widespread occurrence and densities in Alderney, The Casquets and Guernsey are unique. *Adreus fascicularis* is a silt and scour tolerant species and has a south-westerly distribution in the UK.

The ‘yellow turf’ of sponges, sea squirts and cnidarians (Figure 5) is also typical of the Channel Islands but rarely encountered elsewhere. Seasearch has recorded it in both Sark and Alderney and it was to be a feature of our dives throughout the week. Here it continued on both vertical faces to 25m bsl and also onto upward faces of the very large boulders at the same depth.

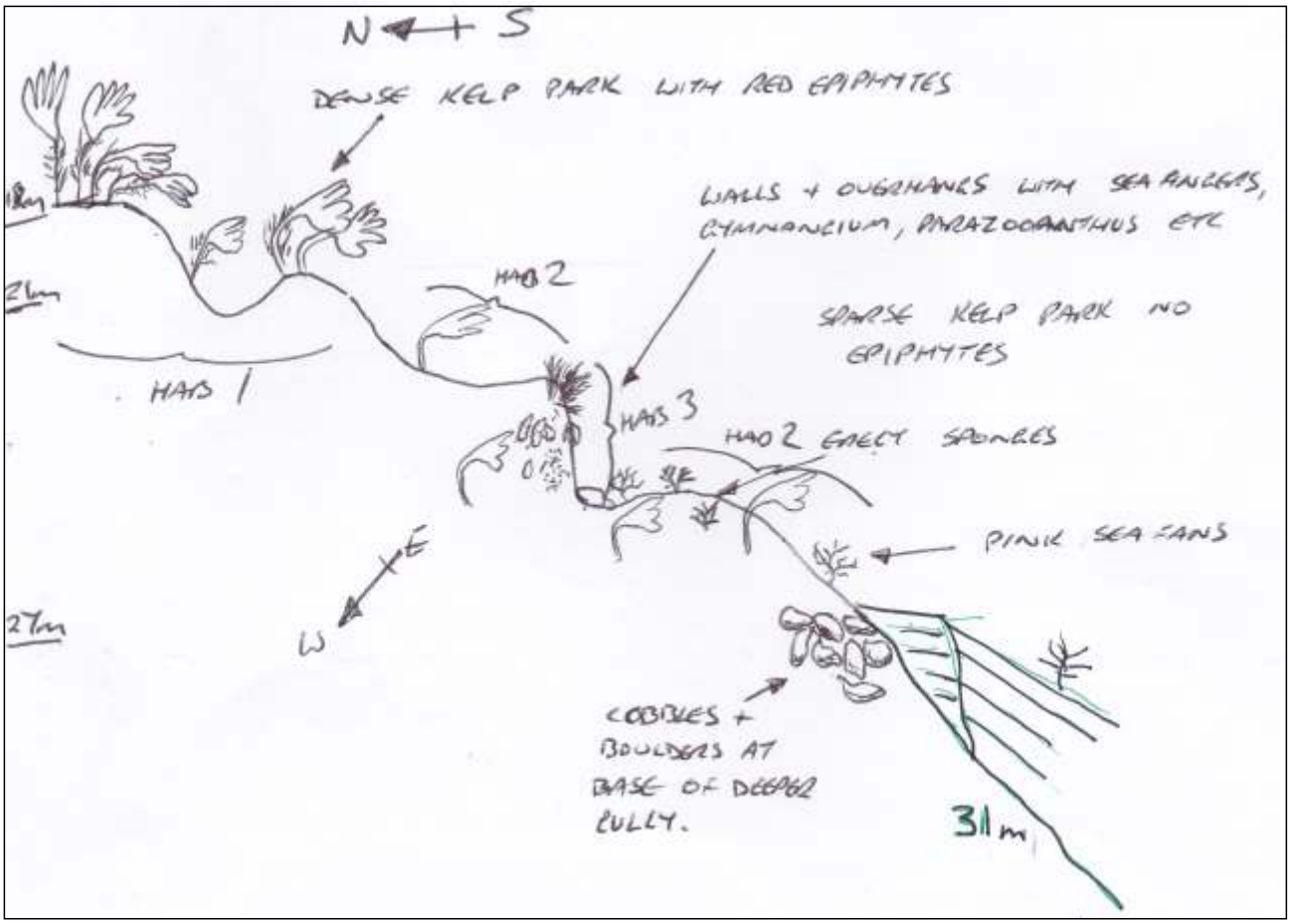


Figure 6: Profile sketch of Casquets South (MD)

Figure 7: Edible crab, C*ancer pagurus* at Casquets South (MD)

Casquets South

The profile of the seabed on the south side of The Casquets was similar to the north and was surveyed from 18m bsl to 31m bsl. The slope continued deeper than 31m (Figure 6).

The upper surfaces between 18m and 21m bsl also had a kelp park cover with red seaweeds on the stipes. However the understorey was of sparse red and brown seaweeds with a faunal turf of ascidians, primarily *Stolonica socialis,* and sponges. This was a distinct contrast to the north side where the understorey was dominated by oaten pipe hydroids. The change suggests that this side is somewhat more sheltered from the tidal streams and this is borne out by the chart which identifies the site as an anchorage in the SW stream. There was also a layer of silt over horizontal surfaces.

Below the kelp line the faunal turf was again dominated by a wide variety of sponges, together with cnidarians and orange sea squirts, *Stolonica socialis* (C). Twenty different sponge species were recorded including a number of unusual species including *Adreus fascicularis* (rare) - nationally scarce, *Axinella infundibuliformis* (R) - mostly northerly, *Axinella damicornis* (F) - nationally scarce and *Homaxinella subdola* (O).

Mobile species were relatively uncommon at both sites. There were more fish on the south side, where six species were recorded, of which ballan wrasse, *Labrus bergylta* was the most common. Large edible crabs, *Cancer pagurus* (Figure 7) and crawfish, *Palinurus elephas* (Figure 8), were both recorded and may reflect the lack of potting pressure. One of the crawfish was extremely large and had clearly been resident in a small cave for many years.

Ormer, *Haliotis tuberculata*, in British waters is found only in the Channel Islands and here and sites on Alderney are the most northerly UK records for this species.

Figure 8: Large crawfish, *Palinurus elephas* at Casquets South (CWd)

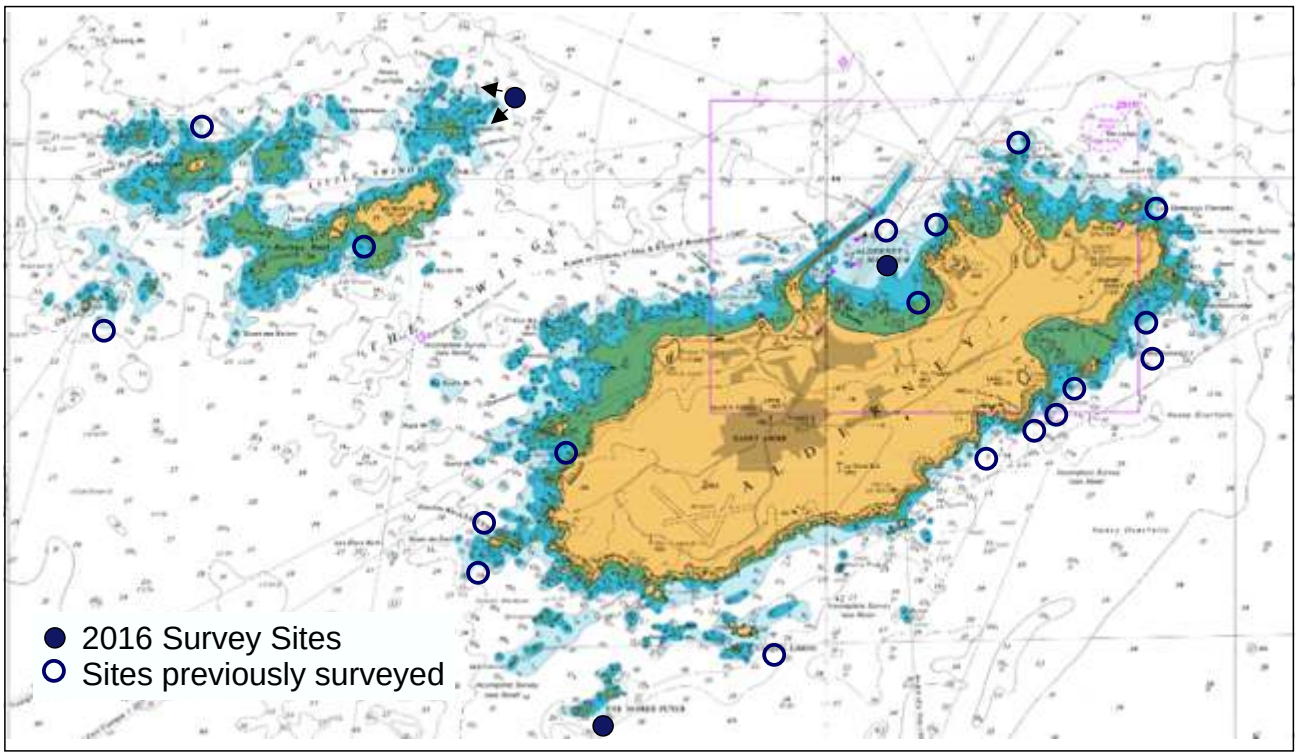


Figure 9: Sites surveyed around Alderney

Figure 10: Abundant *Tubularia indivisa* at The Nannels (MD)

2 SITES SURVEYED AROUND ALDERNEY

Two sites were surveyed around offshore rocks off Alderney and a third site inside Braye Harbour. The locations are shown in Figure 9 which also shows the sites previously surveyed around the island.

The Nannels (East)
The Nannels is a group of reefs at the north-eastern end of the Burhou group of islands. It is within the Alderney Ramsar site and is the most northerly point of the Channel Islands. It is fully exposed to the south-easterly ebb tide and adjacent to the accelerated tides which pass through The Swinge, the channel between Alderney and Burhou. The unpredictability of the tidal streams meant that different dive pairs were able to survey different areas starting from the same point at the eastern end of the reef.

What was common to all of the sites was the presence of oaten pipe hydroids, *Tubularia indivisa,* typical of current-swept sites (Figure 10). The density was recorded as superabundant in 2 habitats, abundant in one and common in another. This was similar to the north side of The Casquets but, as the seabed did not slope nearly as steeply, the area of *Tubularia* dominated rock was much more extensive.

Another feature of this, and other sites around Alderney was the presence of frequent scarlet and gold cup-corals, *Balanophyllia regia*. This is a scarce species in southern England where all of the individuals have the striking colour pattern suggested by their common name. This colour morph also occurs in the Channel islands but mixed with it are other specimens, which we think are this species, with a yellow colouration. The two colour morphs are shown together in Figure 11. The yellow colour is typical of the sunset cup coral, *Leptopsammia pruvoti,* which is normally found deeper and which Seasearch has recorded in Sark and Jersey. More work is needed to confirm the identity of the yellow form.

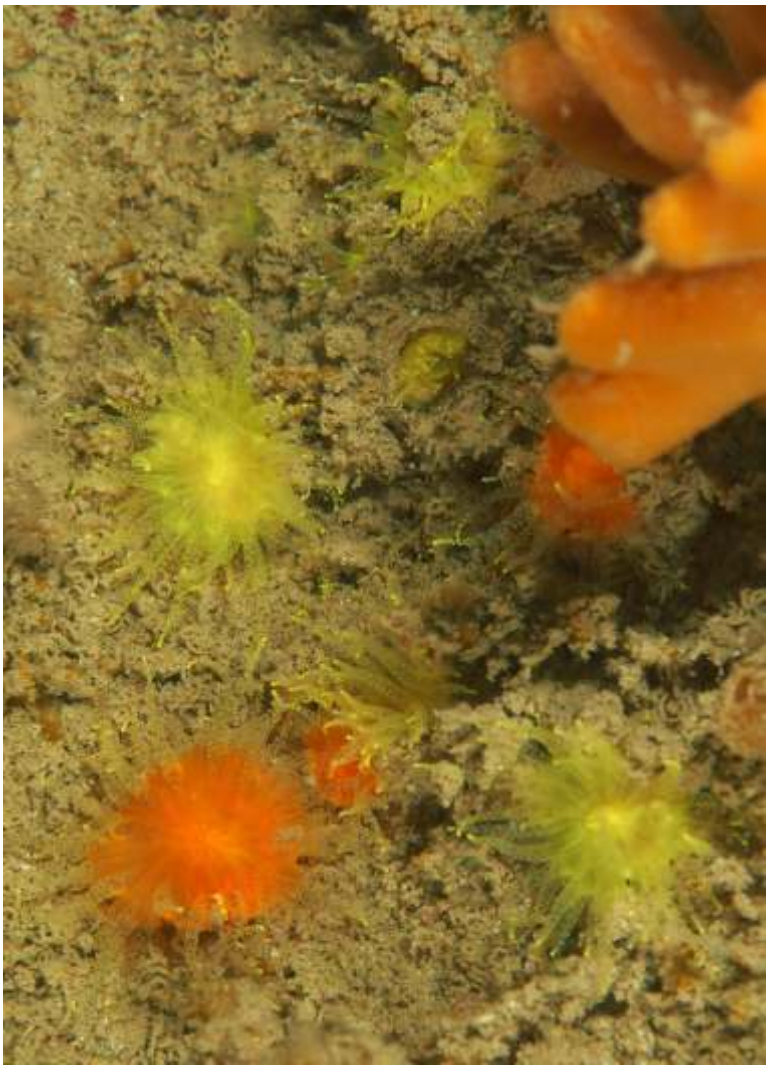


Figure 11: *Balanophyllia regia* at The Nannels (RS)

Other species of interest were pink sea fans, *Eunicella verrucosa* (occasional) and yellow cluster anemones, *Parazoanthus axinellae* (occasional).

In addition to the infralittoral and circalittoral rock habitats recorded there was also metal wreckage with a cover of kelp and red seaweeds lying on a coarse sand and shell gravel seabed.

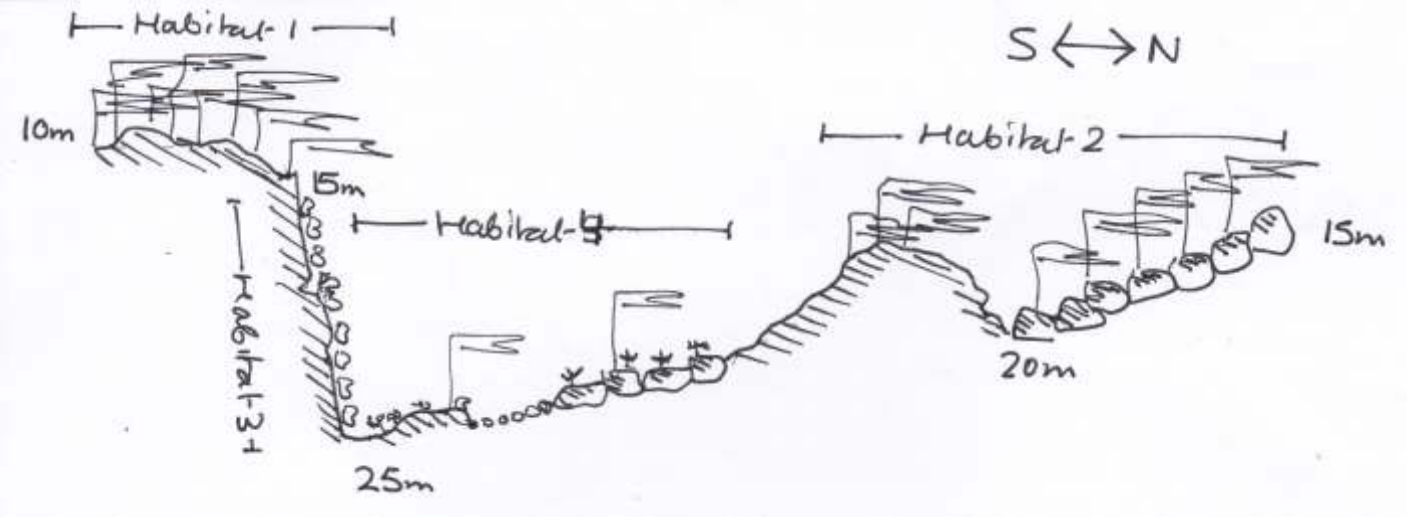


Figure 12: Profile seabed sketch at Les Noires Putes (CWd)

Figure 13: Sponge, sea squirt and anthozoan turf at Les Noires Putes (CWb)

Les Noires Putes

Les Noires Putes is a group of rocks south of Alderney and had not been previously surveyed. The area to the south of the exposed rocks had a rugged topography of boulders and bedrock, including a 10m tall, northward facing, cliff. A profile through the site is shown in Figure 12.

Shallower, upward facing, rock surfaces were dominated by a kelp forest or kelp park of mixed cuvie, *Laminaria hyperborea* and golden kelp, *L. ochroleuca*. Cuvie is the most common sublittoral kelp throughout Britain and Ireland but golden kelp is restricted to the far south and the Channel Islands are an important location for it. Beneath the kelp canopy was an understorey of oaten pipe hydroids and sponges, another typically tide-swept habitat.

Below the kelp park , on the vertical wall and on boulders there was the 'yellow turf' of sponges, anthozoans and sea squirts which we had already recorded at The Casquets. At this site the turf was particularly diverse with 19 species of sponge, 8 anthozoans and 12 sea squirts. A typical area of turf is shown in Figure 13. The most common sponge, both in Figure 13 and throughout this habitat, was the yellow staghorn sponge, *Axinella dissimilis*. Other sponges which are much less often recorded were *Homaxinella subdola,* and the nationally scarce *Adreus fascicularis* and *Axinella damicornis* (Figure 14). Anthozoans included red fingers, *Alcyonium glomeratum*, (frequent) which have a southerly distribution in Britain and Ireland, and occasional pink sea fans, *Eunicella verrucosa*. Most of these were in poor condition, including that shown in Figure 15 which has a spindly appearance to the branches and considerable die-back leaving exposed black skeleton.

Figure 14: crumpled duster sponge, *Axinella damicornis* (CWd)

Figure 15: Faunal turf below kelp park, with pink sea fan, *Eunicella verrucosa* (RS)

Braye Harbour

A survey was also carried out in the middle of Braye Harbour. Here the seabed was of flat sand at 13m bsl with a bed of eelgrass, *Zostera marina,* which is a priority habitat in England. Seagrass beds have been recorded from Alderney in previous Seasearch surveys.

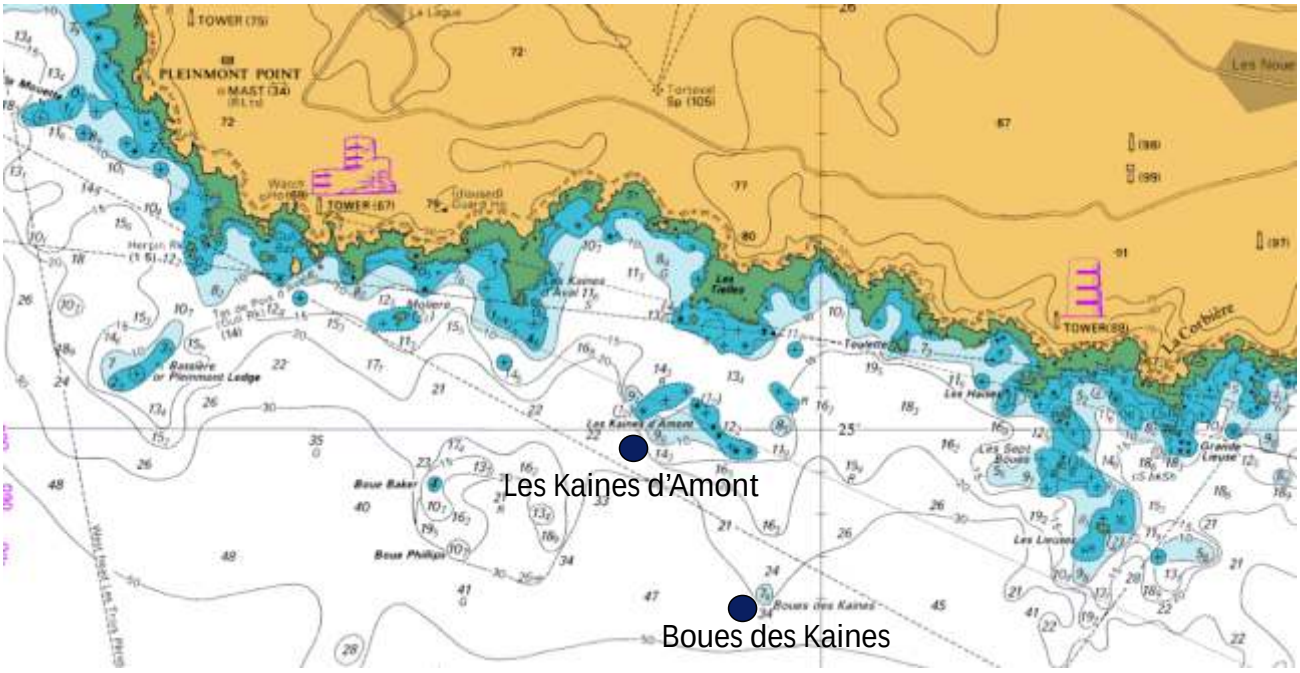


Figure 16: Sites surveyed on the south coast of Guernsey

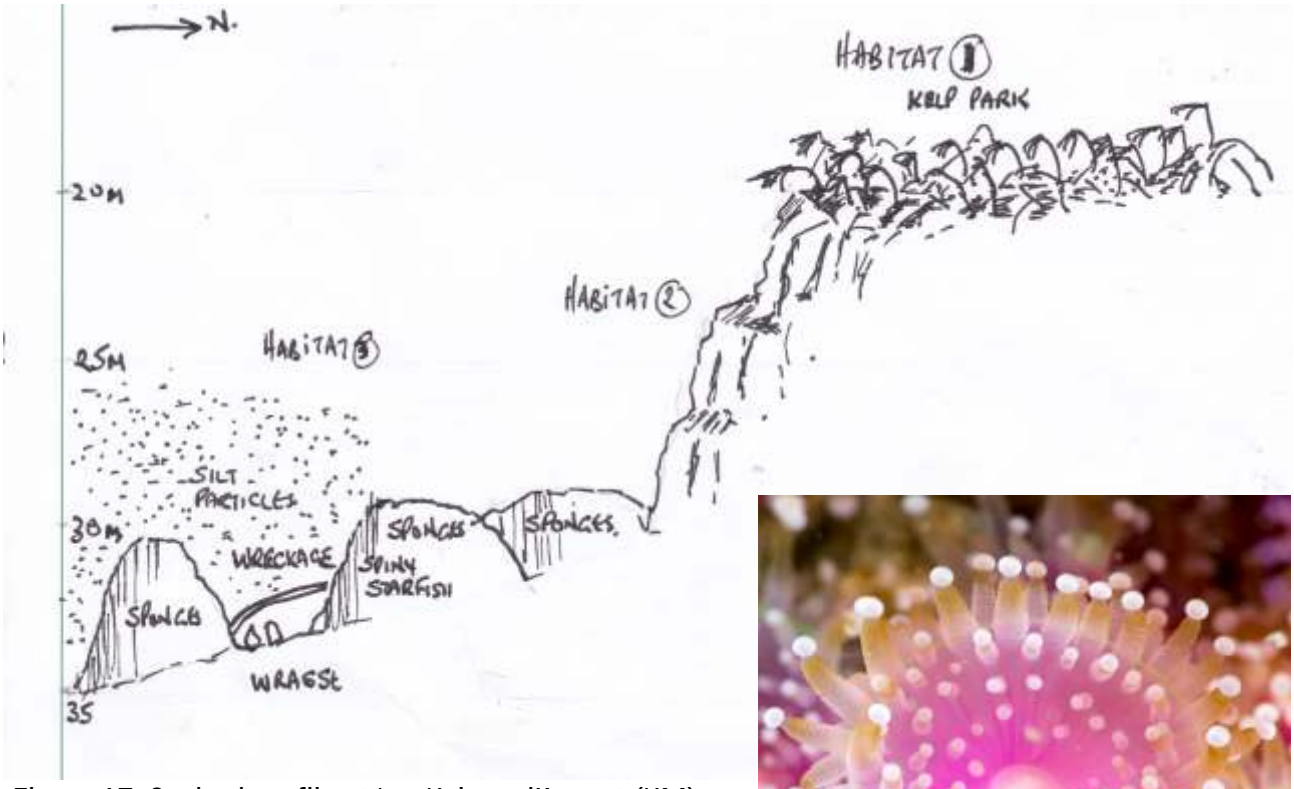


Figure 17: Seabed profile at Les Kaines d'Amont (KM)

Figure 17: Jewel anemones, *Corynactis viridis* at Boues des Kaines (MD)

3 SITES SURVEYED AROUND GUERNSEY

Boues des Kaines and Les Kaines d'Amont

Previous Seasearch surveys along the current-swept, rocky southern coastline of Guernsey had extended as far west as La Moye Point and we therefore took advantage of having a larger vessel to dive two previously unexplored sites further to the west. Sea conditions were not as good as around Alderney and slack water proved elusive. However two pinnacles were surveyed. Boues des Kaines is charted as a single pinnacle lying 1.4km offshore and was the more exposed of the two sites. Les Kaines d'Amont is a series of reefs and lies 700m offshore.

Underwater both sites had a similar profile with a flat top at 17-18m bsl with a cover of kelp park, a steep south facing wall from 20-30m bsl and a flatter bedrock or boulder slope below 30m (Figure 17) . The faunal composition of the turf below the kelp and on the wall was quite different to Alderney and The Casquets, without any oaten pipe hydroids. At Boues des Kaines the dominant species were jewel anemones, *Corynactis viridis* (Figure 18). These are typical of offshore locations but were not seen in such large numbers at Alderney or The Casquets. At Les Kaines d'Amont there was a much more typical Channel islands 'yellow turf' of erect sponges, anthozoans and sea squirts.

There was a surprising amount of silt at both sites both in suspension in the water and on upward facing surfaces, heavier at the closer inshore Kaines d'Amont. Given the rocky nature of the coastline and the tidal flows this is surprising. Figure 19 shows a silted sponge and anthozoan turf at Boues des Kaines.

Figure 19: Silted sponge and anthozoan turf at Boues des Kaines (CWd)

Amongst mobile species was an angler fish, *Lophius piscatorius,* a priority species in England (Figure 20).

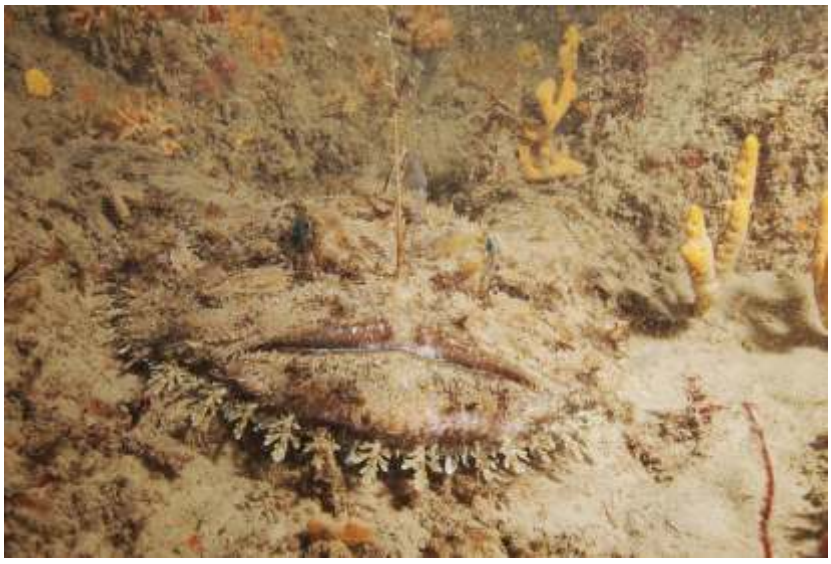


Figure 20: Anglerfish, *Lophius piscatorius* at Les Kaines d'Amont (CWd)

Victoria Marina, St. Peter Port

Adverse weather conditions resulted in one day confined to St Peter Port. The opportunity was taken to survey the harbour wall and on and under pontoons in Victoria Marina.
Ports and harbours are often the first places where invasive non-native species occur and a number of such species were recorded.

Bryozoans
Bugula neritina This species is believed to have arrived in SW England in the early 1900s and is found in docks and harbours in both SW England and the Channel islands, extending as far north as Carlingford Lough in Ireland.
Watersipora subatra A widespread species recorded in Californnia, Australia and Asia. There are previous records from Guernsey as well as ports in Brittany, Plymouth and Dublin.
Sea Squirts
Styela clava The leathery sea squirt is now well established in southern Britain.
Seaweeds
Undaria pinnatifida Wakame is a large brown seaweed which is native to Japan, Korea and China. It was first reported in the wild in Britain in the Solent in 1994 and has since spread to ports, marinas and estuaries along the south coast of England.
Grateloupia tututuru Devil's tongue weed is a red seaweed introduced from the Pacific and now established along the south coast of England, the Channel Islands and Pembrokeshire.

None of these records is surprising.

Les Audames, Little Russel

The Little Russel is the tide-swept channel between Guernsey on the western side and Herm and Jethou on the east. Les Audames is a pinnacle on the eastern side of the channel to the south of Jethou and had not been previously surveyed.

The seabed profile was very similar to the two sites to the south of Guernsey. The top of the pinnacle at 17m bsl was covered with a golden kelp, *Lamnaria ochroleuca,* kelp forest with an understorey of oaten pipe hydroids, *Tubularia indivisa. F*rom 20-30m bsl the vertical sides of the pinnacle were dominated by jewel anemones, *Corynactis viridis* and other sloping surfaces by the yellow sponge and anthozoan turf typical of the Channel Islands. At 30m bsl there was a waved mobile gravel seabed with no obvious infauna but with dragonets, gobies and greater sand eels on and just above the surface.

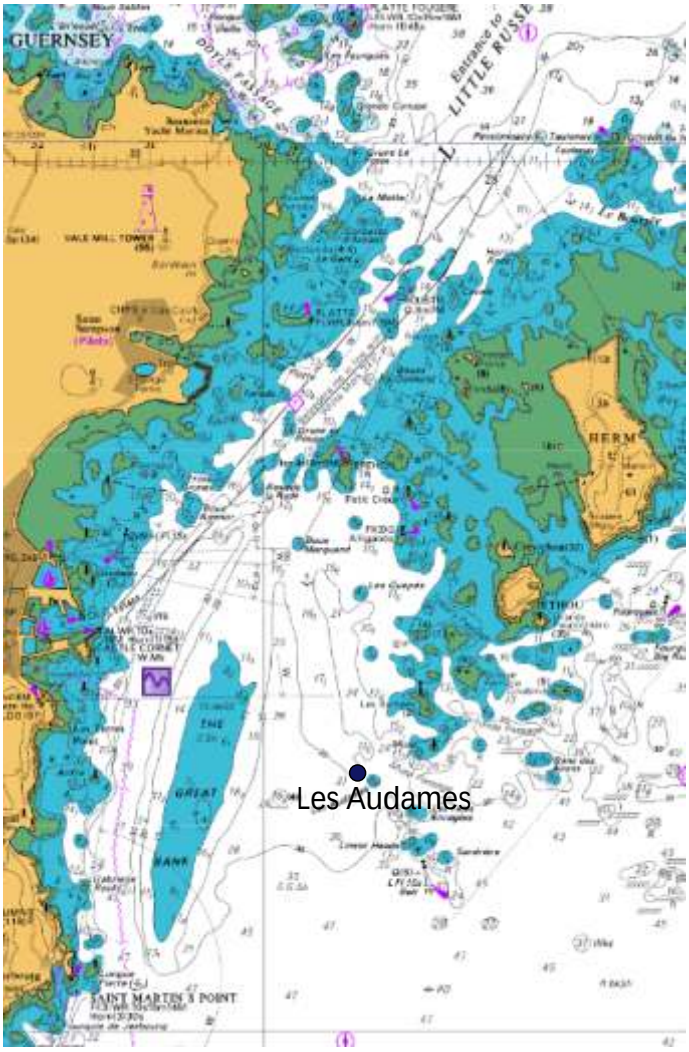


Figure 21: Les Audames

The sponge element of the 'yellow turf' was particularly diverse at this site with 20 species recorded. In addition to widely recorded species such as *Axinella dissimilis* and *Cliona celata*, there were a number of much rarer species such as *Axinella damicornis, Adreus fascicularis, Homaxinella subdola, Hexadella racovitzai, Ulosa stuposa* and *Thymosia guernei* which is the white sponge shown in Figure 22.

Figure 22: Sponge and Anthozoan turf at les Audames (CWb)

Pink sea fans, *Eunicella verrucosa*, were recorded as occasional in both the kelp park and rock wall habitats. As with other sites around Alderney and Guernsey, many of the colonies were in poor condition and we were told that those at Sark had similar problems (S. Daly pers. comm.). Some fans were entwined with angling line and others by catshark egg case tendrils (as in Figure 23). Some had a spindly appearance with few polyps in the living tissue and areas of die-back exposing the black skeleton and allowing the colony to become fouled with a silty turf.
The widespread dieback of sea fans has been recorded by Seasearch and others in other places, notably Lundy in 2001-4, and Bigbury Bay and was there thought to be caused by a viral infection (Wood 2008 and Hall-Spencer et al 2007).

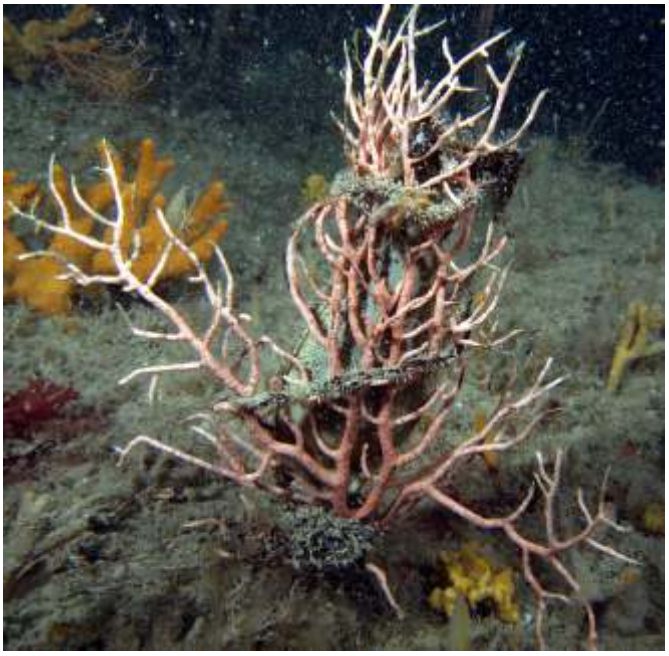


Figure 23: Pink sea fan withh egg case wrapped around, Les Audames (CWd)

Figure 24 is a close up of part of the same colony and shows the unnaturally smooth pink tissue and dead extremities to most of the branches.

Figure 24: close up of pink sea fan in Figure 23

4 Site surveyed at Sark

Les Vingt Clos

This was the only site visited in this expedition for which there were previous Seasearch records (Wood 2008 & Sharrock 2010). It was thus already known to be one of the most diverse sites around Sark and would make a useful comparison to the newly dived sites.

Figure 25: Crawfish and jewel anemones at Les Vingt Clos (MD)

Water clarity here was the best we experienced throughout the survey and there was little silt either suspended in the water column or on upper surfaces. Jewel anemones, *Corynactis viridis*, were abundant and there was a typical sponge, anthozoan and sea squirt turf on lower surfaces.

The most notable difference since earlier surveys was the number of crawfish, *Palinurus elephas,* present. Eight different individuals were seen, all juveniles. Crawfish is a priority species in English waters because of the rapid decline in populations due to over exploitation. Seasearch has recorded increasing numbers of crawfish since 2014 in south-west England but this site stands out as the one with the most seen on a single dive. This may well in part be the result of a ban on the taking of crawfish in Sark waters (S. Daly pers.comm.) and we hope these will all be able to survive to maturity and help bring the population of this species back to previous levels.

Pink sea fans here were also in much better condition than those recorded elsewhere. Figure 26 shows a large, multifaceted, colony which is in excellent condition.

Figure 26: large pink sea fan, *Eunicella verrucosa*, at Les Vingt Clos (RS)

5 SPECIES NOTES

A total of 235 species was recorded during the survey and these are listed in Appendix 1, which also shows the sites where they were recorded and the abundance in each case. The whole team dived at each site, except for Braye Harbour and Victoria Marina, and generally all records were combined into a single joint form. In some cases different habitats were dived by different buddy pairs and have generated additional forms. One of the team was working towards a Seasearch qualification and completed individual forms for some of the sites. The forms were divided into different habitats and thus the same species can appear, often with a different abundance, in different habitats on the same form.

The abundance scale used is a semi-quantitative scale known as SACFOR (Superabundant, Common, Frequent, Occasional and Rare). This does not require counts to be made of each species and allows an estimate to be made of the abundance of all species recorded.

In the notes nationally Scarce and Rare are designations defined by JNCC (JNCC, 2016). Priority species (formerly BAP) are listed in the same document. Neither of these strictly applies to the Channel Islands but are a useful indication of the importance of these species in England. There are no similar lists for the Channel islands but notes have been added, particularly where species occur in the Channel Islands but not elsewhere in the UK.

Phylum Porifera: Sponges

Sponges were a prominent part of the fauna at most sites, with 37 species recorded overall. The most diverse sites were The Casquets (26spp) and the Kaines (27spp) south of Guernsey. In each case two sites were dived and thus the survey effort was higher than elsewhere. The most commonly recorded sponge was *Axinella dissimilis*, yellow staghorn sponge and this formed a prominent part of the 'yellow turf' of sponges, anthozoans and sea squirts at many of the offshore sites (Figure 13). Other typical sponges found in this habitat were boring sponge *Cliona celata*, hedgehog sponge *Polymastia boletiformis* and golf ball sponge *Tethya citrina*. There were also two nationally scarce species: *Adreus fascicularis* (Casquets, Les Noires Putes and Les Audames) and crumpled duster sponge *Axinella damicornis* (Casquets, Les Noires Putes, Kaines and Les Audames) (Figure 14).

Phylum Cnidaria: Hydroids, Anemones and Corals

The most notable hydroid encountered during the survey was the oaten pipe hydroid, *Tubularia indivisa* (Figure 10). This is typical of tide-swept locations, and is also prominent in the spring before it is extensively predated by sea slugs. It was either superabundant or abundant at the Casquets, Nannels, Noires Putes and Les Audames but surprisingly absent from the two Kaines sites south of Guernsey. It is possible that the tidal streams are not as strong at these two sites which would also account for their silted nature. Surprisingly scarce were the two antenna hydroids, *Nemertesia antennina* and *N. ramosa.* In southern England these can form extensive carpets at some tide swept sites but were only either occasional or rare at the sites surveyed in the Channel Islands.

Apart from oaten pipe hydroid the other prominent hydroid was indian feathers hydroid, *Gymnangium montagui.* This is a striking species and has a southerly distribution so its relative abundance was not surprising.

Figure 27: Indian feathers hydroid, *Gymnangium montagui* (RS)

There were no surprises amongst the sea anemones recorded. Jewel anemones, *Corynactis viridis* (Figure 17) are typical of steep and overhanging bedrock and these were the sites which were most commonly dived. They were abundant or superabundant at the Kaines sites and Les Vingt Clos but surprisingly did not dominate at the Casquets and Alderney sites.

Amongst soft corals the prominent species was red fingers, *Alcyonium glomeratum*. Previous surveys have shown this to be the dominant soft coral in the Channel Islands, unlike in the rest of Britain and Ireland where dead men's fingers, *Alcyonium digitatum* is the dominant species. The latter was also recorded at most sites, which in itself is surprising for the area, but was always in low abundances.

Figure 28: Red fingers, *Alcyonium glomeratum* (RSh)

Cup corals were a prominent feature of the yellow sponge and anthozoan turf at many sites. Of the two species seen, Devonshire cup coral, *Caryophyllia smithii*, was the most widely recorded and had the higher abundances. This is by far the most common cup coral throughout Britain and Ireland. What was surprising was the number of scarlet and gold cup corals, *Balanophyllia regia,* seen at the Casquets and Alderney sites. This cup coral is classed as nationally scarce (JNCC 2016) and is normally found in shallow surge gullies. At these sites it was at a variety of depths, but the high exposure and tidal streams may create surge gully conditions. There appear to be two colour forms at these sites, the typical scarlet and gold form found elsewhere and a plain yellow/green form which we have not seen elsewhere (Figure 11). Because of its size, morphology and close association with the scarlet and gold form we assume it is the same species but this is not certain and further detailed investigation is needed.

Pink sea fans, *Eunicella verrucosa*, were encountered in small numbers at all of the offshore sites (Figures 23 and 26). We are concerned about the poor condition of many of the colonies around both Alderney and Guernsey and there is the possibility of viral infection of the form seen in Lundy and South Devon in the early 2000s. A theory was that this was caused by higher than usual sea temperatures, in which case there is little that can be done to prevent it spreading. It would be useful to set up a monitoring programme in the Channel Islands and to test some of the poor colonies for damaging bacteria.

Phylum Annelida: Segmented worms

There were only a limited number of worm records, partly because of the habitats surveyed. Feather duster worm, *Sabella spallanzani,* is a southerly species which was found in Victoria Marina and at Les Audames. There are previous Seasearch records from Sark and Jersey.

Phylum Crustacea: Crabs, Lobsters and associated species

Records of crustaceans were low, both in diversity of species and abundance. In the case of the larger species this may be due to commercial exploitation. The exceptions were the Casquets and Sark. In addition to crab and lobster records, these sites also had populations of crawfish, *Palinurus elephas*. In the case of the Casquets this included a very large and thus very old specimen (Figure 9) and at Les Vingt Clos the presence of 8 juveniles was a high abundance for this formerly very rare priority species. In both cases this may be due to reduced commercial exploitation, at the Casquets because of physical isolation and at Les Vingt Clos because of local management.

Phylum Mollusca: Sea shells and sea slugs

The most notable record was of ormer, *Haliotis tuberculata*, a species for which the Channel Islands are the most northerly limit. This was seen only at the Casquets but in general the sites we dived were deeper than normal for this species so the lack of other records is not representative.

There were limited records of gastropod molluscs with only the two species of cowrie, *Trivia arctica* and *T. monacha*, and painted topshell, *Calliostoma zizyphinum*, occurring at more than one site.

Sea slugs are often prominent in the spring and there was a wide diversity, 23 species being recorded. However in most cases numbers were small. The most commonly recorded species were *Cadlina laevis, Flabellina browni* (Figure 29) and *Diaphorodoris luteocincta,* all seen at 5 sites.

Of these commonly recorded species, *Flabellina brownii* is a specialised feeder on *Tubularia indivisa* and would be expected to occur in large numbers at this time of year where there were so many of their preferred hydroid prey.

Three nationally scarce or rare species were recorded. Sponge sea slug *Doris sticta,* scarce (Figure 30) was seen at Les Noires Putes, *Okenia elegans,* rare, at Les Vingt Clos (Figure 31) and *Tritonia nilsodhneri*, scarce, at 6 sites where there were pink sea fans.

Figure 29: *Flabellina browni* (MD)

Figure 30: *Doris sticta* (RS)

Figure 31: *Okenia elegans* (JC)

Sea fan sea slug, *Tritonia nilsodhneri* numbers vary considerably from year to year and 2016 was a good year for sightings throughout south west Britain. They are difficult to spot on sea fans which are in good condition as they mimic the polyps, but easier to see where there are few polyps, as was the case with many of the colonies during this survey. For instance it is possible to count 7 individuals on the single sea fan in Figure 23. Figure 32 shows a pair of *Tritonia* on a similarly polyp-poor sea fan.

Figure 32: Pair of *Tritonia nilsodhneri* (RS)

In addition to general mollusc records, gravel samples were taken from a number of sites and mollusc shells in them were analysed by Simon Taylor of the Conchological Society. The results are listed in Appendix 2. These records differ from the Seasearch ones in that the latter are of live species.

Phylum Bryozoa: Sea mats and sea mosses
Bryozoans did not form a prominent part of the turf fauna at any of the sites surveyed with no records of anything greater than occasional. There were two non-native species recorded in the Victoria Marina, *Bugula neritina* and *Watersipora subatra*.

Phylum Echinodermata: Starfish, sea urchins and sea cucumbers
Only nine species of echinoderms were recorded, 4 starfish, 1 urchin, 3 cucumbers and 1 brittlestar. The spiny starfish, *Marthasterias glacialis* was the most commonly recorded and previous surveys have shown that the common starfish, which predominates elsewhere in Britain and Ireland is largely absent from the Channel islands. There was one record, from the Casquets.

Subphylum Tunicata: Sea squirts
30 species of sea squirts were recorded. Orange sea squirt, *Stolonica socialis* (Figure 33) formed a prominent part of the yellow sponge, anthozoan and ascidian turf found at many of the offshore sites.

Figure 33: Orange sea squirt, *Stolonica socialis* (RSh)

Three species of colonial *Pycnoclavella* were observed, including the recently described pinhead squirt *Pycnoclavella stolonialis*. In Figure 34 the sea slug *Colpodapsis pusila* can be seen grazing on a mixture of *P. aurilucens* (orange) and *P. stolonialis* (white).
Fifteen different sea squirts were found in Victoria Marina including the nationally scarce *Phallusia mammiliata* and non native *Styela clava.*

Figure 34: *Colpodaspis pusila* feeding on *Pycnoclavella spp*.(RS)

Subphylum Pisces: Fishes
Relatively few fishes were seen during the survey. The most commonly recorded species were three of the wrasses, goldsinny, *Ctenolabrus rupestris*, ballan wrasse, *Labrus bergylta* and cuckoo wrasse *Labrus mixtus*. These are all widely distributed and common species. One priority fish species was observed, anglerfish, *Lophius piscatorius* (Figure 20).

Red, brown and green Seaweeds
Most of the sites surveyed were circalittoral and thus only had limited numbers of seaweeds. Amongst the prominent browns the Channel Islands has significant areas of golden kelp, *Laminaria ochroleuca*, which is only rarely found in extreme south-west England. Amongst non native species harpoon weed, *Asparagopsis armata* was frequent at The Nannels and three other non natives were found in Victoria Marina, devil's tongue weed, *Grateloupia tututuru*, wireweed, *Sargassum muticum* and wakame, *Undaria pinnafitida*.

Phylum angiospermae: Flowering plants

Eelgrass , *Zostera marina*, beds are a priority habitat in England, Wales, Scotland and Northern Ireland. Seasearch has previously recorded eelgrass beds around Alderney, at Longis Bay and Saye Bay (Wood 2010). The record of eelgrass in the middle of Braye Harbour is not therefore surprising. The site is likely to be impacted by mooring on a regular basis.

Species diversity at different sites

The two sites with the highest species diversity recorded during this survey were the Casquets (105) and the two Kaines sites south of Guernsey (100). However there were two sites surveyed in each case and thus the intensity of effort was higher than at the remaining offshore sites, The Nannels (86), Les Noires Putes (86) and Les Vingt Clos (83). It is likely that all of these sites have a similar number of species present. In the 2008 Seasearch survey of Sark (Wood, 2008) Les Vingt Clos had a species count of 80 and was the fourth most diverse of the 12 sites surveyed at Sark on that survey. The other sites were Guillaumesse (95), Pavaison (94) and Les Dents (83). This suggests that the Casquets, the two sites at Alderney and the Kaines sites south of Guernsey all have a similar diversity of species to the best sites on Sark, though of course the species composition will vary.

Victoria Marina and Braye Harbour are completely different habitats and have many fewer species recorded. In the case of Braye Harbour other parts of the harbour have been surveyed in the past and have a greater diversity than the sand in the middle of the harbour.

CONCLUSIONS

The broad aim of this survey was to visit sites without any previous Seasearch records which could only be reached with good boat support. This was fully achieved, despite a day confined by weather in St Peter Port Harbour. Eight new sites were dived, including two sites at The Casquets, an area from which we do not know of any other sublittoral habitat and species data.

The diversity of marine life at these new sites compares with the best sites around Sark previously recorded by Seasearch.

There were no major surprises in the habitats encountered or species recorded. Many of the circalittoral sites had the typical yellow faunal turf of sponges, anthozoans and sea squirts that we have previously recorded from Alderney and Sark and our species list is particularly diverse as far as sponges are concerned.

In Alderney the two colour morphs of the cup coral *Balanophyllia regia* require further investigation. This is a nationally scarce species and the identity of the green/yellow colour morph should be confirmed.

We are concerned about the condition of the pink sea fan populations which may be exhibiting signs of disease. We would like to set up a photo monitoring programme with the help of local divers to record the condition of individual colonies.

There remain further opportunities for more survey work to continue to fill in gaps, particularly in the Ramsar site around Burhou and on the south and west coasts of Guernsey. We hope to continue this work in 2017.

APPENDIX ONE: SPECIES RECORDED

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
PHYLUM PORIFERA	SPONGES									
Porifera indet crusts		OOORR	O			O			O	
Clathrina lacunosa		RR								
Grantia compressa	Compressed purse sponge		RR						R	
Leucosolenia				O		R	O	R	FOO	
Sycon ciliatum	Purse sponge	COR	FO	F		FOOOR	O	C	O	
Dercitus bucklandi	Black Tar Sponge	RR	R			RR			R	
Pachymatisma johnstonia	Elephant hide sponge	OOOORP	OO	FFO		FFOOOOR		OR	FF	
Thymosia guernei	Mashed potato sponge					RR		R		
Dysidea fragilis	Goosebump sponge	OORR	ORR	R		OO		OR	OORR	
Cliona celata	Boring sponge	COORRR	OOO	FOOO		OORR		O	CF	
Adreus fascicularis		ORR		O				R		Nationally scarce
Polymastia boletiformis	Hedgehog sponge	CFFFORRO	ORR	FOO		OORR		O	CCO	
Polymastia penicillus	Chimney sponge	OO	RRR	R		RR			O	
Stelligera rigida		OO	OR	R				O		
Stelligera stuposa				O		R				
Homaxinella subdola		OO		O		FO		O	O	
Suberites ficus	Sea orange						R			
Tethya citrina	Golf ball sponge	OOORP		FOOO		FOORRRR		OO	OO	
Axinella damicornis	Crumpled duster sponge	FOR		O		FOOO		OR		Nationally scarce
Axinella dissimilis	Yellow staghorn sponge	CCFFORRP	O	FFFOO		FFOOR		FO	C	
Axinella infundibuliformis	Prawn cracker sponge	OR				OORR		O		
Ciocalypta penicillus	Tapered chimney sponge					R				
Haliclona sp						R		O		
Haliclona fistulosa		R		R					R	
Haliclona oculata	Mermaid's glove	OR				OR				
Haliclona cinerea			O							
Haliclona viscosa	Volcano sponge					FOOOR				
Amphilectus fucorum	Shredded carrot sponge					R				
Ulosa stuposa								R		
Hemimycale columella	Crater sponge	COOR	ORR	O		FOOOOR		OR	OO	
Hymedesmia pansa						R				
Phorbas plumosus				R						
Mycale sp							R			
Myxilla incrustans				R		ORR				
Raspailia hispida		ORR				O		O		
Raspailia ramosa	Chocolate finger sponge	COOOOR	O	O		OOOOO		O	OO	
Hexadella racovitzai						R		R		southerly species
Total sponges	37	26	14	19	0	27	4	20	16	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
PHYLUM CNIDARIA	HYDROIDS, ANEMONES AND CORALS									
Subphylum Anthozoa	Anemones and Corals									
Anemonia viridis	Snakelocks anemone			R			O			
Metridium senile	Plumose anemone					R	F			
Actinothoe sphyrodeta	White striped anemone	OOORRRR	ORR	CFFF		COORR	O			
Sagartia elegans	Elegant anemone	RR		O		R			ORR	
Sagartia troglodytes	Mud sagartia		R							
Alcyonium digitatum	Dead men's fingers	COR		O		OORR	R	R	OO	
Alcyonium glomeratum	Red fingers	COOOOR		FO		CFFOOO		FR	FOOOO	
Eunicella verrucosa	Pink sea fan	OOORRRR	COR	OOO		RRRR		OO	FO	Nationally Scarce, Priority, W&CAct
Corynactis viridis	Jewel anemone	OOOOR	CFF	F		ACCOOOOO	O	AF	SAO	
Caryophyllia smithii	Devonshire cup coral	CFFFOORR	CFO	OOOO		FOOOR		O	COO	
Balanophyllia regia	Scarlet and gold cup coral	OORRRR	FOO	FO		R				Nationally scarce
Isozoanthus sulcatus	Peppercorn anemone	OOOR				R				
Parazoanthus axinellae	Yellow cluster anemone	FOORR	O	OO		CFO		O		
Subphylum Hydrozoa	Hydroids									
Coryne sp		RR		RR						
Coryne eximia			O			R				
Eudendrium ramosum							R			
Tubularia indivisa	Oaten pipe hydroid	SCFR	SSACO	AO			O	A	CO	
Aglaophenia kirchenpaueri									P	Nationally scarce
Aglaophenia pluma		O								
Gymnangium montagui	Indian feathers hydroid	OOOOR	FO	CF		OORR			CFOO	
Obelia geniculata	Kelp fur	F		CF		CFF			C	
Halecium halecinum	Herringbone hydroid	OO	RR							
Antennella secundaria		R								
Halopteris catharina				O						
Kirchenpaueria pinnata							O			
Nemertesia antennina	Antenna hydroid	O	R	R					OOR	
Nemertesia ramosa	Branched antenna hydroid		R							
Plumularia setacea							R	R		
Abietinaria abietina		R								
Sertularella gayi									O	
Sertularia sp									OO	
Total cnidarians	31	19	13	16	0	14	9	8	13	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
PHYLUM ANNELIDA	SEGMENTED WORMS									
Sabellaria sp						R				
Bispira volutacornis	Double sprial worm	R		CR		ORR		R	OOR	
Sabella pavonina	Peacock worm						O			
Sabella spallanzanii	Feather duster worm						F	R		Southerly species
Spirobranchus sp	Keelworm		ORR							
Lanice conchilega	Sand mason worm					R				
Total segmented worms	6	1	1	1	0	3	2	2	1	
PHYLUM PHORONIDA	HORSEHOE WORMS									
Phoronis hippocrepia	Horsehoe worm	FF								
Total phoronida	1	1	0	0	0	0	0	0	0	
PHYLUM CRUSTACEA	BARNACLES, ISOPODS, AMPHIPODS, CRABS, LOBSTERS AND PRAWNS									
Amphipoda	Amphipod				R					
Caprellidae	Skeleton shrimp						C			
Corophiidae							R			
Cancer pagurus	Edible crab	ORRR	P	R		RRR		R	R	
Galathea strigosa	Spiny squat lobster								R	
Maja squinado (brachydactyla)	Spiny spider crab	RRRR	O	R		ORR		R	R	
Homarus gammarus	Lobster							R	OR	
Paguridae	Hermit crab								R	
Palinurus elephas	Crawfish or Spiny lobster	OOR							FO	Priority species
Necora puber	Velvet swimming crab		R			R				
Anilocra sp						R			R	Southerly species
Megatrema anglicum						R				
Verruca stroemia			O							
Cirripedia	Barnacles		F							
Total crustaceans	14	3	5	2	1	5	2	3	7	
PHYLUM PYCNGONIDA	SEA SPIDERS									
Pycnogonida	sea spider						R			
Total pycnogonida	1	0	0	0	0	0	1	0	0	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
PHYLUM MOLLUSCA	SEA SHELLS, SEA SNAILS, SEA SLUGS AND CLAMS									
Loligo sp	Squid					R				
Calliostoma zizyphinum	Painted topshell	RRR	O	R				OR	OO	
Haliotis tuberculata	Ormer	RR								Southerly species - not in England
Patella sp	Limpet						CO			
Gibbula cineraria	Grey topshell		O							
Aplysia punctata	Sea hare				O					
Colpodaspis pusilla						O				
Trivia	Cowrie	O								
Trivia arctica	Arctic cowrie	RR	R	R		O			R	
Trivia monacha	European cowrie	RR	RR	R						
Buccinum undatum	Common whelk								R	
Nassarius reticulatus	Netted dogwhelk				O					
Cadlina laevis		O	R	RR		OOO		R		
Jorunna tomentosa									R	
Doris pseudoargus	Sea lemon					R				
Doris sticta	Sponge sea slug			R						Nationally scarce
Doto dunnei							R			
Doto maculata				R						
Embletonia pulchra		O		O		O				
Eubranchus pallidus		R								
Flabellina sp						C				
Flabellina browni		R	RP	RR		ORR			RR	
Flabellina pedata	Violet sea slug			R						
Goniodoris nodosa						R			O	
Okenia elegans										Nationally rare
Diaphorodoris luteocincta	Fried egg sea slug	PPP	R	O		OR		RR		
Diaphorodoris luteocincta var. alba		RR							R	
Crimora papillata									F	
Limacia clavigera			O							
Polycera faeroensis	Yellow edged polycera			RR		ORR		OR	R	
Thecacera pennigera				R						
Janolus cristatus	Crystal sea slug					R			R	
Cuthona foliata							R			
Tritonia lineata						R				
Tritonia nilsodhneri	Sea fan sea slug	P	CRR	OR		RR		RR	O	Nationally scarce
Total molluscs	35	11	9	13	1	14	3	5	11	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
PHYLUM BRYOZOA	SEA MATS AND SEA MOSS ANIMALS									
Bryozoa indet crusts		RRR	O	R		OOR		R		
Pentapora foliacea	Potato crisp bryozoan					ORR		R	FO	
Bicellariella sp			RR						R	
Bicellariella ciliata						R				
Bugula sp	Spiral bryozoan	RR				R			RR	
Bugula neritina							R			Non native
Bugula plumosa	Spiral bryozoan	O	OOO	O		R			O	
Cellaria sp			R			R		R		
Cellepora sp		R								
Electra pilosa	Frosty sea mat		OO			RR	O			
Flustra foliacea						R			O	
Membranipora membranacea	Sea mat	R	O							
Watersipora subatra							R			Non native
Alcyonidium diaphanum	Finger bryozoan		R			R			O	
Crisia sp	White clawed sea moss		O							
Disporella hispida				R						
Plagioecia patina		O							R	
Total bryozoans	17	5	8	3	0	9	3	3	6	
PHYLUM ECHINODERMATA	STARFISH, SEA URCHINS AND SEA CUCUMBERS									
Asterias rubens	Common starfish	R								
Marthasterias glacialis	Spiny starfish	OORRRR	COOOR	OO	R	OOORRR		RR	CFOR	
Henricia sp	Bloody Henry starfish	OOOORR	O	OOO		OOOOOR			OOR	
Asterina gibbosa	Cushion star	O	OOORR	R		O				
Echinus esculentus	Edible sea urchin					OORR		RR	OR	
Holothuria forskali	Cottonspinner					C				
Aslia lefevrii	Brown crevice sea cucumber		O			R				
Pawsonia saxicola	White crevice sea cucumber	OOR	R	OO						
Ophiura sp	Sand brittlestar						R			
Total echinoderms	9	5	5	4	1	6	1	2	3	
PHYLUM CORDATA	VERTEBRATES									
Subphylum Tunicata	Sea Squirts									
Clavelina lepadiformis	Light bulb sea squirt	OR		R			O		O	
Didemnidae							O			
Didemnum maculosum			R						F	
Diplosoma listerianum				O			R			
Diplosoma spongiforme	sponge sea squirt	R				R	O		O	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
Lissoclinum sp		R								
Lissoclinum perforatum	White perforated sea squirt	O	R	O			R		R	
Tridemnum cereum				O					F	
Aplidium elegans		R	O							
Aplidium glabrum						R				
Aplidium punctum	Club sea squirt	R	C	OO		OORR	F			
Aplidium turbinatum		R	R							
Morchellium argus	Four spotted sea squirt	OOR		O			O			
Synoicum incrustatum				O		F				
Pycnoclavella aurilucens		OOOO		F		O			C	Nationally scarce
Pycnoclavella producta		O								
Pycnoclavella stolonialis		FORRR		O		O				
Ascidia conchilega		F								
Ascidia mentula	Red sea squirt	OOR	OO	R			O		RR	
Ascidiella aspersa	Fluted sea squirt						O			
Phallusia mammillata							O			Nationally scarce
Ciona intestinalis	Yellow rimmed sea squirt						F			
Corella parallelogramma	Gas mantle sea squirt					O				
Perophora listeri		F		C			F		F	
Molgula complanata		F					O			
Pyura squamulosa		OR								
Botryllus schlosseri	Star sea squirt						R			
Polycarpa scuba	Teapot sea squirt								R	
Stolonica socialis	Orange sea squirt	ACCFFOR	O	CFFOO		CFOOR		FR	C	
Styela clava	Leathery sea squirt						O			Non native
Total sea squirts	30	17	7	12	0	8	15	1	10	
Subphylum Pisces	Fishes									
Scyliorhinus canicula	Smallspotted cat shark	R								
Scyliorhinus stellaris	Nursehound							O		
Pollachius pollachius	Pollack	OR	RR			R		R	R	
Diplecogaster bimaculata	Two spotted clingfish					R				
Lophius piscatorius	Anglerfish, Monkfish					R				Priority species
Hyperoplus lanceolatus	Great sand eel							O		
Parablennius gattorugine	Tompot blenny	R	R					R	R	
Callionymus sp	Dragonet							O		

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
Gobiidae	Goby								O	
Pomatoschistus pictus	Painted goby							O		
Thorogobius ephippiatus	Leopard spotted goby	R	R			R		R	R	
Centrolabrus exoletus	Rock cook								O	
Ctenolabrus rupestris	Goldsinny	R	R	R		ORRR			O	
Labrus bergylta	Ballan wrasse	FFFOOR	R	FO		OORR		R	OORR	
Labrus mixtus	Cuckoo wrasse	OR	CO			ORR		R	O	
Zeugopterus punctatus	Topknot					R				
Total fishes	16	7	6	2	0	8	0	9	8	
ALGAE	SEAWEEDS									
Division Rhodophycota	Red Seaweeds									
Rhodophycota indet.		FO	F	CP		COR				
Encrusting algae indet.	Pink paint weeds	OORRRRR	CFRRR	FRRP		CRR	R	F	CRRR	
Porphyra	Laver						R			
Asparagopsis armata	Harpoon weed		F							Non native
Ceramium	Banded pincer weeds						R			
Pterothamnion plumula	Bushy feather weed						R			
Heterosiphonia plumosa	Siphoned feather weed	ORRR	P	R		FO		R		
Apoglossum ruscifolium	Veined tongue weed						R			
Delesseria sanguinea	Sea beech		O	C				R		
Drachiella spectabilis	Rainbow weed	OO	FFFO						O	
Membranoptera alata	Winged weed	O		O						
Phycodrys rubens	Sea Oak			R						
Corallina sp	Coral weed						P			
Dilsea carnosa	Red rags		R							
Callophyllis laciniata	Beautiful fan weed			O					F	
Meredithia microphylla	Mermaid's ear		R	R						
Grateloupia turuturu	Devil's tongue weed						O			Non native
Palmaria palmata	Dulse	ORR	O	O					O	
Plocamium cartilagineum	Cock's comb weed		F							
Rhodymenia holmesii	Holmes' rose weed			R						
Rhodymenia pseudopalmata	Rosy fan weed	R	R				R			
Division Chromophycota	Brown Seaweeds									
Desmarestia ligulata	Desmarest's flattened weed		O				R			
Desmarestia viridis	Desmarest's green weed						R			
Dictyopteris polypodioides	Netted wing weed		OR	O				F	OR	

Species Name	Common Name	Casquets	Nannels	Noires Putes	Braye	Kaines	Victoria Marina	Audames	Vingt Clos	Note
Dictyota dichotoma	Brown fan weed	O	R	R						
Halidrys siliquosa	Pod weed		RR							
Sargassum muticum	Wireweed						R			Non native
Undaria pinnatifida	Wakame						FF			Non native
Laminaria sp	Kelp					P				
Laminaria digitata	Oarweed						O			
Laminaria hyperborea	Cuvie, Forest kelp	CCOOR	CCF	CCFR		CC			F	
Laminaria ochroleuca	Golden kelp	R	FF	CF				C	O	
Halopteris filicina	Sea fern weed		OR							
Division Chlorophycota	Green Seaweeds									
Bryopsis plumosa	Mossy feather weed					R	O			
Cladophora sp							O			
Ulva sp	Sea lettuce				O		O			
Ulva intestinalis	Gut weed						F			
Total seaweeds	37	10	18	14	1	6	17	5	7	
ANGIOSPERMAE	FLOWERING PLANTS									
Zostera marina	Eelgrass				C					Priority habitat
Total seagrasses	1	0	0	0	1	0	0	0	0	
Total species	235	105	86	86	5	100	57	58	82	

APPENDIX TWO: MOLLUSC RECORDS FROM SEDIMENT SAMPLES					
Site	Casquets (N)	Nannels	Noires Putes	Vingt Clos	Vingt Clos
Depth (BSL)	21m	13m	18m	16m	20m
Species					
Emarginula fissura				O	O
Diodora graeca	R	O	O	O	O
Tectura virginea		O		O	O
Patella vulgata		O	O		O
Helcion pellucidum		O	O	O	
Clelandella miliaris	R	O		O	O
Calliostoma zizyphinum			O	O	
Gibbula tumida			R	F	O
Gibbula umbilicalis	O				
Dikoleps nitens			R	R	O
Skenea serpuloides				R	O
Tricolia pullus	O	F	F	C	F
Bittium reticulatum		F		O	
Lacuna parva				R	R
Littorina saxatilis	O	O	O	O	O
Littorina neritoides			R		
Skeneopsis planorbis	R			R	O
Rissoa interrupta		O			
Rissoa parva	F	F	F	C	F
Alvania beanii	R	O	O	F	O
Alvania punctura	F	O	F	C	C
Alvania semistriata	F	F	F	C	C
Manzonia crassa	O	F	O	F	F
Obtusella alderi				O	O
Onoba semicostata	F	F	F	C	F
Pusillina inconspicua				O	O
Caecum glabrum	R			R	O
Tornus subcarinatus	O	O	O	O	O
Crepidula fornicata				O	
Trivia arctica		O	O		
Trivia monacha		O	R		
Euspira montagui				O	
Euspira nitida			R	O	R
Cerithiopsis tubercularis	O	O	O	O	O
Marshallora adversa	O	O	F	O	O
Epitonium clathrus	R			R	
Epitonium clathratulum		R		O	O
Melanella alba				R	
Ocenebra erinacea		O	O	O	O
Chauvetia brunnea	O	F	O	F	O
Hinia incrassata	R		O	F	O
Hinia reticulata		O			
Mangelia coarctata			R		

Site	Casquets (N)	Nannels	Noires Putes	Vingt Clos	Vingt Clos
Depth (BSL)	21m	13m	18m	16m	20m
Species					
Raphitoma linearis	R	R	O	O	O
Raphitoma purpurea				R	
Odostomia plicata				O	
Odostomia unidentata	O	R	R	O	O
Brachystomia carrozzi				O	R
Brachystomia scalaris		O	O	O	O
Chrysallida obtusa				O	O
Partulida spiralis		R	R		F
Turbonilla lactea	R	O	O	O	O
Eulimella laevis				R	
Philine punctata					R
Retusa obtusa				O	O
Retusa truncatula			O	O	O
Nucula nucleus		O	O	O	O
Arca tetragona				R	
Striarca lactea	R	R	F	F	F
Glycymeris glycymeris				O	O
Mytilus edulis				O	
Musculus discors				O	
Limatula subauriculata				O	R
Chlamys distorta			O	R	
Mimachlamys varia	O	O	R	O	O
Aequipecten opercularis		O			
Anomia ephippium			O		
Kellia suborbicularis				O	
Mysella bidentata				O	
Goodallia triangularis				O	R
Parvicardium ovale				O	O
Spisula elliptica				O	
Spisula solida				R	O
Moerella donacina				R	
Gari tellinella				R	R
Venus verrucosa			O		O
Gouldia minima			R	O	O
Clausinella fasciata				O	
Lasaea adansoni	O	R			
Parvicardium ovale		R			
Tellina pygmaea		R			
Gouldia minima		O			
Timoclea ovata	R	F	O	F	F
Tapes rhomboides					R
Turtonia minuta				R	
Spheniia binghami				O	
Hiatella arctica		O		F	O
Alvania cancellata	R	O	F	C	F

Site	Casquets (N)	Nannels	Noires Putes	Vingt Clos	Vingt Clos
Depth (BSL)	21m	13m	18m	16m	20m
Species					
Chrysallida interstincta			R	O	
Menestho divisa				R	
Ividella excavata				O	
Modiolarca subpicta				O	F
Turbonilla jeffreysi					O
Manzonia zetlandica				O	O
Crenella prideauxi				O	O
Jujubinus striatus	R	O		O	O
Alvania carinata				R	
Turbonilla jeffreysi		R		R	
Turbonillla pusilla				R	
Monia squama				O	
Cerithiopsis pulchella				O	O
Menestho divisa					O
Turbonilla pusilla					R
Chrysallida interstincta					O
Neolepton sulcatulum					R

REFERENCES

Hall-Spencer, J.M., Pike,J. and Mun, C.B. 2007. Diseases affect cold-water corals too: *Eunicella verrucosa* (Cnidaria: Gorgonacea) necrosis in SW England. Dis. Aquat. Org. 76: 87-97

JNCC 2016, Marine Taxon Designations 2016/11/24 http://jncc.defra.gov.uk/page-3408

Sharrock, S.E. 2010. Seasearch Survey of Sark 2010. Seasearch

Wood, C. 2008. Seasearch Pink Sea Fan Surveys 2004-6. Seasearch

Wood C. 2008. Seasearch Survey of Sark, June 2008. Seasearch

Wood, C. 2010. Seasearch Survey of Alderney, May 2010. Seasearch

seasearch