

Porcupine Marine Natural History Society
Intertidal Survey of the Gouliot Caves, 8th April 2012



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For the La Société Sercquaise

Introduction

Porcupine Marine Natural History Society (PMNHS) was inaugurated in 1977 (www.pmnhs.co.uk). The Society is named after HMS Porcupine which carried out hydrographic surveys in the 1800's discovering and giving its name to the extensive Porcupine Bank west of Ireland. Biological recording is an important aspect of the Society's objectives, organizing annual fieldtrips to conduct surveys, producing extensive species lists which are published in the Society's journals and more recently made available to the wider community via the National Biodiversity Network website (www.nbn.org.uk)

Guernsey was the location for the 2012 PMNHS fieldtrip. One of many areas to be surveyed during the trip was the Gouliot Caves on Sunday 8th April by five members of the Society. PMNHS first surveyed the Caves in 1980 and again in September 1994.

Background

The Caves lie on the west coast opposite the small island of Brecqhou. They were first discovered in 1853 by Mr Le Pelly, the then Seigneur, the head of Sark. Once word spread about these magnificent caverns Victorian scientists, who are well known for their sometimes overzealous collecting, came to see what they could discover. One such scientist was the eminent taxonomist Dr Bowerbank who visited Sark twice collecting many sponges several of which are cited in the Ray Society monographs of Alder & Hancock, and Bowerbank (Dr Allen 2007).

Interestingly the Reverend James Cachemaile wrote in the 1900's '*Many strangers visit these caves every year, and every one wishes to carry away some memento of his visit. Collectors have removed a great deal of what was of special interest, so that the walls are becoming more and more bare, and much of their beauty and interest are lost*'. Thankfully the Victorians haven't had a lasting detrimental impact on the diversity of the Caves as they were designated a Ramsar site in 2007 'as a unique site important for sponges, anemones and other intertidal and normally sub-tidal marine invertebrates.....As a result the Gouliot caves are where many of these animals were first described and studied in the 19th and early 20th centuries' (Dr M W Pienkowski, 2005).

There have been a number of surveys carried out in the Caves since their discovery several of which have been included in this report. A detailed examination of all the species records is beyond the scope of this report, however inclusion of species records from 4 detailed surveys prior to the PMNHS 2012 fieldtrip have been included to try and gain a better understanding of the biodiversity of the Caves and any changes over time.

2012 intertidal survey

The full cave system can only be accessed on foot on a good spring tide. On the 8th April the height of the tide at low water was 0.33 m, one of the lowest tides of the year. The main focus for the survey was in the area known as the 'Jewel' cave but conspicuous species were recorded in other areas on route.

Surveyors entered the caves via the boulder slope. The length of time this area is exposed during each tidal cycle and the enclosed cave environment limits the number of species that can colonise this area. Near the top of the slope *Gibbula umbilicalis*, *Melarhapha neritoides* and species of *Patella* were recorded. Moving further down the slope species of note include: , *Nucella lapillus*, *Balanus perforatus*, *Semibalanus balanoides* and *Actinia equina* which inhabit the boulders and cave walls.

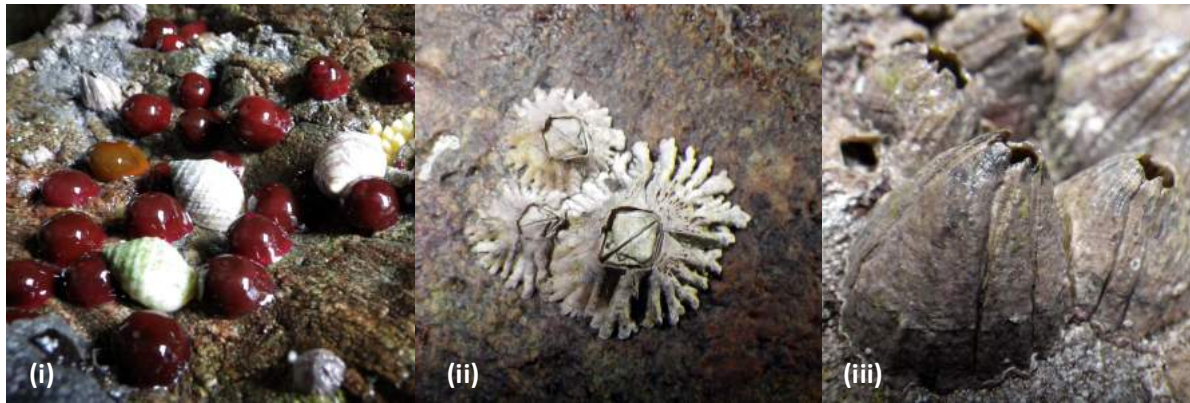


Figure 1 - Species recorded in the region of the boulder slope. i - *Actinia equina* and *Nucella lapillus*, ii - *Semibalanus balanoides*, iii - *Balanus perforatus*

Entering the 'Sponge' cave the light levels are reduced and the passage narrows. Within a small alcove along the passage heading towards the 'Jewel' cave can be found *Metridium senile*. This species of Cnidaria prefers areas with strong water movement and although common around



Figure 2 – Pycnogonid *Nymphon* sp.

British shores it is thought to be a rare species in southern waters. Within the intertidal this species is generally found under overhangs or in caves. A total of 12 species of sponge were recorded during the survey. Those that predominate within the 'Sponge' cave include *Grantia compressa*, *Halichondria panicea* and *Tethya citrina*. Amongst the sponges lurked a large Pycnogonid possibly *Nymphon gracile*.

Verification by Roger Bamber was difficult from the photographs.

At the end of the sponge cave the passage opens out into the magnificent and aptly named 'Jewel' cave. Light streams in through an opening in the ceiling. The cave is characterised firstly by a distinctive band of *Tubularia indivisa* that reaches from the cave floor for several metres up the walls on either side of the cave. This species is characteristic of current swept bedrock and boulders. *T. indivisa* is a large hydroid 10 – 15 cm in height. The polyp on top of an erect stem looks like a flower underwater. They are rather understated when exposed by the tide and are heavily predated by various species of nudibranchs.

Beneath *T. indivisa* can be found a variety of bryozoans, molluscs such as *Calliostoma zizyphinum* and the delicate cowries delicate *Trivia arctica* and *T. monacha* (see fig 3) and the species that gives the caves its name the jewel anemone, *Corynactis viridis*. Each anemone is a separate individual and can be found in a variety of colours. They reproduce by longitudinal fission with the animal stretching itself and then splits in the middle creating two animals. This results in patches of individuals of the same colour.



Figure 3 – Anemone and hydroid turf plus molluscs

Further up the walls of the 'Jewel' cave the bedrock is dominated by *Actinia equina* which look like gum drops with their tentacles withdrawn waiting for the return of the tide. The Gouliot Caves are unique in that you can find all colour morphs of *A. equina*; red, brown, green and orange. After an extensive search of scientific literature, there appears to be no explanation for the variety of colours. However, there is a separate green species, *Actinia prasina* that has 100 – 160 irregularly arranged tentacles rather than the 192 of *A. equina*. Although this species maybe present in the caves it is difficult to determine during an intertidal survey as the tentacles are withdrawn.



Figure 4 – Species recorded in the 'Jewel' cave. i – *Actinia equina*, ii – *Dercitus bucklandi* and iii – *Cliona celata*

Other species of cnidaria recorded within this area of the Caves included a variety of *Sargartia elegans*, *Caryophyllia smithii* and *Alcyonium digitatum*. The sponges were not confined to the 'sponge' cave. In the 'Jewel' cave large specimens of *Cliona celata* and *Pachymatisma johnstonia* flourish and in the crevices can be found *Dercitus bucklandi*. Tunicates recorded during the survey included: *Dendrodoa grossularia*, *Aplidium punctum* and *Morchellium argus*.

Several small samples of the faunal turf on the cave walls were collected with the permission of the La Société Sercquaise. Later examination by staff from the National Museum of Wales notably Andy Mackie resulted in some interesting species of polychaetes such as: *Haplosyllis spongicola*, *Brania pusilla* and *Proceraea picta*. Andy discovered other species that would require further samples for verification.



Figure 5 - *Proceraea picta*

A total of 73 species (appendix 1) were recorded during the survey. The species found in the 'Jewel' cave are indicative of tide swept cave communities. The shade diminishes the amount of desiccation species are exposed to resulting in a mix of littoral and sub-littoral species. The tidal range around Sark is approximately 10 metres and with the caves open at either end the current running through the caves is considerable.

Conclusions

The Gouliot Caves are a spectacular, unique and diverse habitat that well deserves their Ramsar site designation. Since the caves were discovered scientists have been recording species throughout the cave system with the main focus being the 'Jewel' cave. The amount of time that can be spent surveying the caves is limited by the tidal cycle (only exposed for several hours on a good spring tide) in the case of intertidal surveys. Subtidal surveys are restricted by the time of 'slack' water due to the strong currents that make it impossible to stay in the caves for more than 30 minutes.

The records collected during the 2012 survey have been compared to four other surveys conducted in the caves in an attempt to get a more complete picture of the diversity of species and to assess any changes over time (appendix 2). These surveys have been published and easily accessible and should not be interpreted as being the only records of species within the caves. For example a comprehensive study of Porifera was carried out in 2010 but the results were not available at the time of writing this report.

The first published survey found in the National Marine Biological Library (NMBL) at the Marine Biological Association (MBA) with a comprehensive species list was carried out by R. Koehler in 1885. PMNHS conducted two surveys prior to 2012 in 1980 and 1994 the results of the latter survey are presented in appendix 2. In 2007 Dr. Ann Allen produced an excellent species list, the highlights of which were published as a guide to the caves by the Guernsey Biological Records Centre. In comparison to the intertidal records Seasearch carried out a subtidal survey in 2008.

A total of 190 individual species were recorded during the 5 surveys included in this report. Surprisingly only 7 species were recorded during all five surveys: *Cliona celata*, *Halicondria panacea*, *Pachymatisma johnstonia*, *Actinia equina*, *Alcyonium digitatum*, *Corynactis viridis* and *Tubularia indivisia*. This is not surprising as these species are conspicuous, abundant and easy to identify.

Figure 6 demonstrates the number of species recorded in each phyla. Algae have been excluded as they were mainly recorded at the cave entrances as opposed to the main system i.e. the 'Jewel' and 'Sponge' caves.

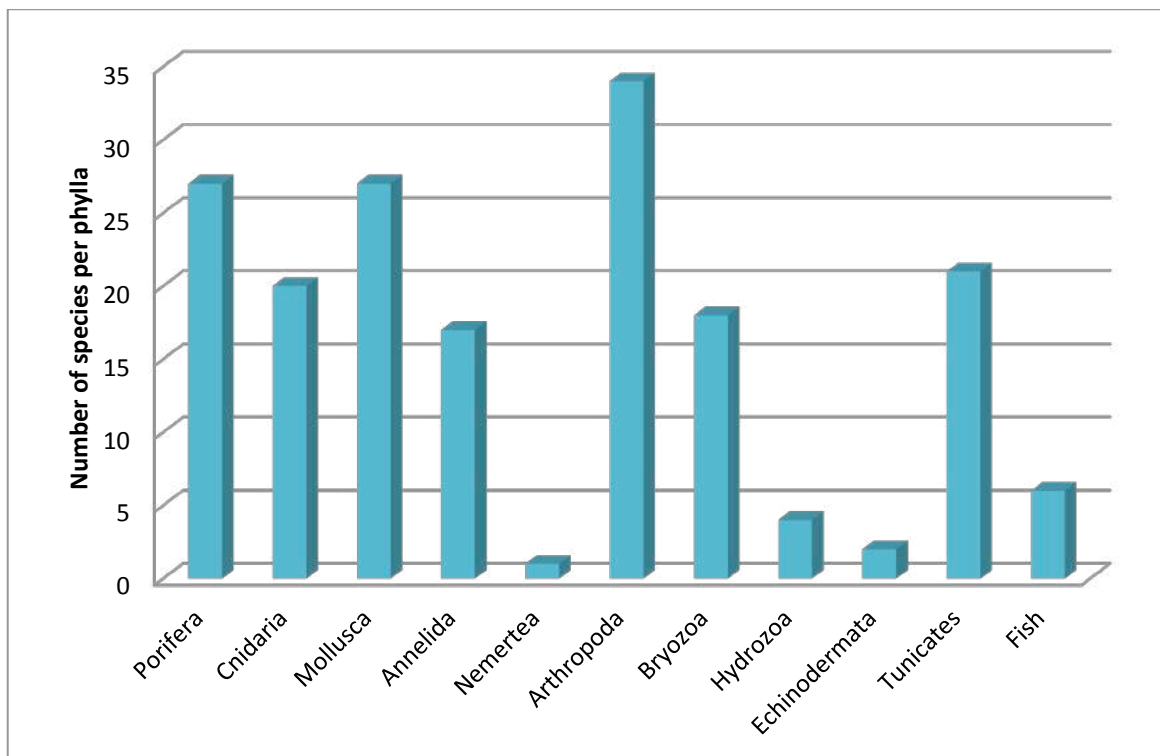


Figure 6 – The total number of species by phylum

Due to the reduced light levels within the Gouliot Caves the marine life is dominated by fauna. There is a good spread of species within the phyla with the exception of fish, hydroids and

echinoderms. The six species of fish were recorded during the Seasearch survey. Species such as *Centrolabrus exoletus* will come and go with the tide. However, *Parablennius gattorugine*, the tompot blenny and *Lipophrys pholis*, the shanny recorded during the intertidal surveys will be resident within the caves as they can retreat into the damp crevices and can survive long periods out of the water by retaining water in their gill cavities.

The highest numbers of species are the arthropods. Firstly, this is a large phylum that includes crabs, barnacles and isopods. The majority of the species were recorded by Koehler. His specialism was arthropods which demonstrates that survey results can have a bias towards a recorder's specialism. Those on the 2012 PMNHS would regard themselves as generalists.

The faunal assemblages found within the 'Jewel' cave are indicative of the biotope¹ IR.FIR.SG.CrSpAsAn -Anemones, including *Corynactis viridis*, crustose sponges and colonial ascidians on very exposed or wave surged vertical infralittoral rock' under the Marine Habitats Classification (Connor et al 2004). Although not all surveys have recorded species abundance those recorded in all five surveys are indicative of this biotope which would indicate that there has been no significant change in the 'Jewel' caves since Koehler's survey in 1885.

Recommendations

Surveys of the Caves have provided an excellent species list and assessment of the amazing biodiversity of the Gouliot Caves. They are a spectacular place to visit either diving or on foot. There are a number of further investigations that could be carried out to monitor the continued health of species over time.

Abundance records are important to assess change. This can be done by establishing fixed quadrats in selected areas such as the area of bedrock dominated by *T. Indivisia*. Surveys could be carried out twice a year on the largest tides around the spring and autumn equinox. The use of digital photographs is a recognised survey technique. Similar to the fixed quadrats sites could be selected to be photographed on a regular basis e.g. the patch of *M. Senile* in the 'Sponge' cave. Members of the La Société Sercquaise may have photographs taken during previous visits that could be used to select sites.

The number of species discovered in the small samples of sediment taken during the PMNHS 2012 survey demonstrates how many more species could be discovered under a microscope. Andy Mackie from the National Museum of Wales would be very interested in examining more samples as several of the species were difficult to identify so could not be validated.

¹ A biotope can be defined as a region that has a characteristic set of environmental conditions and consequently a particular type of fauna and flora.

Acknowledgements



Figure 7 - The 'Gouliot Girls'

I would like to thank our guide Sue Daly and La Société Sercquaise for allowing us to collect a few samples. The team of ecologists: Sara Birkett, Abby Crosby, Paula Lightfoot and Judith Oakley also known as the 'Gouliot Girls' plus the staff at the National Museum of Wales and Sara Birkett for examining the samples. Finally, I would like to thank staff at the National Marine Biological Library for their assistance in sourcing historical information

Images courtesy of Fiona Crouch and Paula Lightfoot.

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APPENDIX 1

2012 Gouliot Caves survey species list

Common name		Authority
Sponges	Porifera	
	<i>Clathria atrasanguinea</i>	(Bowerbank, 1862)
Boring sponge	<i>Cliona celata</i>	Grant, 1826
Black tar sponge	<i>Dercitus bucklandi</i>	(Bowerbank, 1858)
Goosebump sponge	<i>Dysidea fragilis</i>	(Montagu, 1818)
Purse sponge	<i>Grantia compressa</i>	(Fabricius, 1780)
Breadcrumb sponge	<i>Halicondria panicea</i>	(Pallas, 1766)
	<i>Hymeniacidon perleve</i>	(Montagu, 1818)
Spiky lace sponge	<i>Leucosolenia sp</i>	Bowerbank, 1864
	<i>Myxilla incrustans</i>	(Johnston, 1842)
Elephant hide sponge	<i>Pachymatisma johnstonia</i>	(Bowerbank in Johnston, 1842)
Ciliated sponge	<i>Sycon ciliatum</i>	(Fabricius, 1780)
Golf ball sponge	<i>Tethya citrina</i>	Sarà & Melone, 1965
Cnidaria		
Beadlet anemone	<i>Actinia equina</i>	(Linnaeus, 1758)
Dead men's fingers	<i>Alcyonium digitatum</i>	Linnaeus, 1758
Devonshire cup-corals	<i>Caryophyllia smithii</i>	Stokes & Broderip, 1828
Jewel anemones	<i>Corynactis viridis</i>	Allman, 1846
	<i>Dynamena sp.</i>	
Plumose anemones	<i>Metridium senile</i>	(Linnaeus, 1761)
	<i>Sagartia elegans var. miniata</i>	
	<i>Sagartia elegans var. Venusta</i>	(Dalyell, 1848)
Oaten pipe hydroid	<i>Tubularia indivisa</i>	Linnaeus, 1758
Mollusca		
	<i>Doris pseudoargus</i>	(Rapp, 1827)
Painted topshell	<i>Calliostoma zizyphinum</i>	(Linnaeus, 1758)
Slipper limpet	<i>Crepidula fornicata</i>	(Linnaeus, 1758)
	<i>Facelina ariculata plus eggs</i>	(Müller, 1776)
	<i>Gibbula pennanti</i>	(Philippi, 1846)
Purple topshell	<i>Gibbula umbilcalis</i>	(da Costa, 1778)
	<i>Heteranomia squamula</i>	(Linnaeus, 1758)
	<i>Lamellaria sp.</i>	Montagu, 1815
Small periwinkle	<i>Melarhaphe neritoides</i>	(Linnaeus, 1758)
	<i>Mussel sp.</i>	
Thick-lipped dogwhelk	<i>Nassarius incrassatus</i>	(Strøm, 1768)
Dogwhelk	<i>Nucella lapillus</i>	(Linnaeus, 1758)

Limpets	<i>Patella sp.</i>	Linnaeus, 1758
	<i>Placida dendritica</i>	(Alder & Hancock, 1843)
Arctic cowrie	<i>Trivia arctica</i>	(Pulteney, 1799)
Spotted cowrie	<i>Trivia monacha</i>	(da Costa, 1778)
Common name		Authority
Worms	Annelida	
	<i>Brania pusilla</i>	(Dujardin, 1851)
	<i>Eulalia viridis</i>	(Linnaeus, 1767)
	<i>Filograna sp.</i>	Berkeley, 1835
	<i>Haplosyllis spongicola</i>	(Grube, 1855)
	<i>Micromaldane ornithochaeta</i>	Mesnil, 1897
	<i>Proceraea picta</i>	Ehlers, 1864
	<i>Salmacina dysteri</i>	Huxley, 1885
	Nemertea	
	<i>Nemertea sp.</i>	
Crustaceans, gastropods....	Arthropoda	
	<i>Balanus crenatus</i>	Bruguière, 1789
Volcano barnacle	<i>Balanus perforatus</i>	Bruguière, 1789
Edible crab	<i>Cancer pagarus</i>	Linnaeus, 1758
Sea spider	<i>Pycnogonid sp.</i>	
	<i>Semibalanus balanoides</i>	(Linnaeus, 1758)
Bryozoans	Bryozoa	
	<i>Amathia lendigera</i>	(Linnaeus, 1758)
	<i>Bugula flabellata</i>	(Thompson, in Gray, 1848)
	<i>Crisia cornuta,</i>	(Linnaeus, 1758)
	<i>Crisia denticulata</i>	(Lamarck, 1816)
Hydriods	Hydrozoa	
	<i>Diphasia spp</i>	Agassiz, 1862
Starfish, urchins.....	Echinodermata	
Spiny starfish	<i>Marthasterias glacialis</i>	(Linnaeus, 1758)
Sea squirt	Tunicates	
Club sea squirt	<i>Aplidium punctum</i>	(Giard, 1873)
Star of Ascidian	<i>Botryllus schlosseri</i>	(Pallas, 1766)
Gooseberry sea squirt	<i>Dendrodia grossularia</i>	(Van Beneden, 1846)
	<i>Didemnidae sp.</i>	Giard, 1872
	<i>Diplosoma sp.</i>	Macdonald, 1859
	<i>Distomus variolosus</i>	Gaertner, 1774
Club sea squirt	<i>Morchellium argus</i>	(Milne-Edwards, 1841)

	<i>Pyura microcosmus</i>	(Savigny, 1816)
Fish	Fish	
Tompot blenny	<i>Parablennius gattorugine</i>	(Linnaeus, 1758)
Common name		Authority
Seaweed	Algae	
	<i>Bryopsis plumosa</i>	J.V.Lamouroux, 1809
	<i>Cladophora sp.</i>	Kützing, 1843
Coral weed	<i>Corallina sp.</i>	
Sea Beech	<i>Delesseria sanguinea</i>	(Hudson) J.V.Lamouroux, 1813
Oar weed	<i>Laminaria digitata</i>	(Hudson) J.V. Lamouroux, 1813
False Irish moss	<i>Mastocarpus stellatus</i>	(Stackhouse) Guiry, 1984
Pepper dulse	<i>Osmundea pinnatifida</i>	(Hudson) Stackhouse, 1809
Dulse	<i>Plumaria plumosa</i>	(Hudson) Kuntze, 1891

APPENDIX 2

Comparison of species recorded from 2012 and 4 previous intertidal and subtidal surveys of the Gouliot Caves

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
Porifera						
<i>Axinella polypoides</i>	Schmidt, 1862			✓		
<i>Clathria atrasanguinea</i>	(Bowerbank, 1862)	✓				✓
<i>Clathrina contorta</i>	(Bowerbank, 1866)	✓				
<i>Clathrina coriacea</i>	(Montagu, 1818)			✓		
<i>Cliona celata</i>	Grant, 1826	✓	✓	✓	✓	✓
<i>Dercitus bucklandi</i>	(Bowerbank, 1858)			✓		✓
<i>Dysidea fragilis</i>	(Montagu, 1818)					✓
<i>Geodia cydonium</i>	(Jameson, 1811)	✓				
<i>Grantia compressa</i>	(Fabricius, 1780)	✓		✓		✓
<i>Haliclona simulans</i>	(Johnston, 1842)	✓		✓		
<i>Halicondria panicea</i>	(Pallas, 1766)	✓	✓	✓	✓	✓
<i>Hemimycale columella</i>	(Bowerbank, 1874)				✓	
<i>Hymeniacion perleve</i>	(Montagu, 1818)	✓		✓		✓
<i>Leuconia nivea</i>	(Grant, 1826)	✓				
<i>Leucosolenia sp</i>	Bowerbank, 1864	✓			✓	✓
<i>Myxilla incrustans</i>	(Johnston, 1842)					✓
<i>Ophlitaspongia seriata</i>	(sensu Johnston, 1842)		✓	✓		
<i>Pachymatisma johnstonia</i>	(Bowerbank in Johnston, 1842)	✓	✓	✓	✓	✓
<i>Polymastia boletiformis</i>	(Lamarck, 1815)				✓	
<i>Polymastia penicillus</i>	(Montagu, 1818)			✓	✓	
<i>Porifera indet crusts</i>					✓	
<i>Scypha ciliata</i>	(Fabricius, 1780)				✓	
<i>Stelletta grubii</i>	Schmidt, 1862	✓				
<i>Sycon ciliatum</i>	(Fabricius, 1780)	✓				✓
<i>Terpios fugax</i>	Duchassaing & Michelotti, 1864			✓		
<i>Tethya aurantium</i>	(Pallas, 1766)	✓		✓		
<i>Tethya citrina</i>	Sarà & Melone, 1965				✓	✓
Cnidaria						
<i>Actinia equina</i>	(Linnaeus, 1758)	✓	✓	✓	✓	✓
<i>Actinia fragacea</i>	Tugwell, 1856			✓		
<i>Actinothoe sphyrodeta</i>	(Gosse, 1858)			✓		

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
<i>Alcyonium digitatum</i>	Linnaeus, 1758	✓	✓	✓	✓	✓
<i>Anemonia sulcata</i>	(Pennant, 1777)		✓			
<i>Caryophyllia smithii</i>	Stokes & Broderip, 1828		✓	✓		✓
<i>Corynactis viridis</i>	Allman, 1846	✓	✓	✓	✓	✓
<i>Dynamena sp.</i>						✓
<i>Metridium dianthus</i>	(Ellis, 1768)	✓				✓
<i>Metridium senile</i>	(Linnaeus, 1761)		✓	✓	✓	✓
<i>Obelia sp.</i>	Péron & Lesueur, 1810				✓	
<i>Plumularia setacea</i>	(Linnaeus, 1758)			✓	✓	
<i>Sagartia elegans</i>	(Dalyell, 1848)				✓	
<i>Sagartia elegans var. miniata</i>						✓
<i>Sagartia elegans var. nivea</i>				✓		
<i>Sagartia elegans var. rosea</i>				✓		
<i>Sagartia elegans var. Venusta</i>	(Dalyell, 1848)	✓		✓		✓
<i>Sarsia eximia</i>	(Allman, 1859)				✓	
<i>Tubularia indivisa</i>	Linnaeus, 1758	✓	✓	✓	✓	✓
<i>Tubularia larynx</i>	Ellis & Solander, 1786		✓	✓	✓	
Mollusca						
<i>Acanthochitona discrepans</i>	(Brown, 1827)	✓				
<i>Anomia ephippium</i>	Linnaeus, 1758	✓				
<i>Archidoris pseudoargus</i>	(Rapp, 1827)	✓		✓		✓
<i>Calliostoma zizyphinum</i>	(Linnaeus, 1758)				✓	✓
<i>Callochiton septemvalvis septemvalvis</i>	(Montagu, 1803)	✓				
<i>Crepidula fornicata</i>	(Linnaeus, 1758)					✓
<i>Facelina ariculata plus eggs</i>	(Müller, 1776)					✓
<i>Flabellina browni</i>	(Picton, 1980)			✓		
<i>Gibbula cineraria</i>	(Linnaeus, 1758)				✓	
<i>Gibbula pennanti</i>	(Philippi, 1846)					✓
<i>Gibbula umbilcalis</i>	(da Costa, 1778)					✓
<i>Heteranomia squamula</i>	(Linnaeus, 1758)					✓
<i>Hiatella arctica</i>	(Linnaeus, 1767)		✓			
<i>Lamellaria sp.</i>	Montagu, 1815					✓
<i>Melarhappe neritoides</i>	(Linnaeus, 1758)					✓

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
<i>Musculus discors</i>	(Linnaeus, 1767)	✓				
<i>Musculus subpictus</i>	(Cantraine, 1835)	✓				
<i>Mussel sp.</i>						✓
<i>Mytilus edulis</i>	Linnaeus, 1758	✓				
<i>Nassarius incrassatus</i>	(Strøm, 1768)					✓
<i>Nucella lapillus</i>	(Linnaeus, 1758)					✓
<i>Onchidella celtica</i>	Cuvier, 1817			✓		
<i>Patella sp.</i>	Linnaeus, 1758					✓
<i>Placida dendritica</i>	(Alder & Hancock, 1843)					✓
<i>Tricolia pullus</i>	(Linnaeus, 1758)		✓			
<i>Trivia arctica</i>	(Pulteney, 1799)					✓
<i>Trivia monacha</i>	(da Costa, 1778)			✓		✓
Annelida						
<i>Autolytus edwardsi</i>	Saint Joseph, 1887		✓			
<i>Brania pusilla</i>	(Dujardin, 1851)					✓
<i>Eulalia viridis</i>	(Linnaeus, 1767)					✓
<i>Filograna implexa</i>	Berkeley, 1835		✓			
<i>Filograna sp.</i>	Berkeley, 1835	✓				✓
<i>Haplosyllis spongicola</i>	(Grube, 1855)					✓
<i>Micromaldane ornithochaeta</i>	Mesnil, 1897					✓
<i>Nereis dumerilii</i>	Audouin & Milne Edwards, 1834	✓				
<i>Nereis pelagica</i>	Linnaeus, 1758		✓			
<i>Nudisyllis divaricata</i>	(Keferstein, 1862)	✓				
<i>Perinereis cultrifera</i>	(Grube, 1840)	✓				
<i>Proceraea picta</i>	Ehlers, 1864					✓
<i>Salmacina dysteri</i>	Huxley, 1885			✓		✓
<i>Syllis amica</i>	Quatrefages, 1866	✓				
<i>Trypanosyllis zebra</i>	(Grube, 1840)	✓				
<i>Typosyllis amillaris</i>	(O.F. Müller, 1776)		✓			
<i>Syllis variegata</i>	Grube, 1860		✓			
Nemertea						
<i>Nemertea sp.</i>						✓
Arthropoda						
<i>Aepophilus bonnairei</i>	Signoret, 1879	✓				
<i>Ammothella longipes</i>	(Hodge, 1864)	✓				
<i>Aora gracilis</i>	(Bate, 1857)	✓				
<i>Apsudes talpa</i>	(Montagu, 1808)	✓				

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
<i>Austrominius modestus</i>	(Darwin, 1854)			✓		
<i>Balanoidea</i>	Leach, 1817				✓	
<i>Balanus crenatus</i>	Bruguière, 1789			✓		✓
<i>Balanus perforatus</i>	Bruguière, 1789		✓	✓	✓	✓
<i>Boeckosimus edwardsi</i>	(Kroyer, 1846)	✓				
<i>Callipallene brevirostris</i>	(Johnston, 1837)		✓			
<i>Cancer pagarus</i>	Linnaeus, 1758					✓
<i>Caprella acanthifera</i>	Leach, 1814		✓			
<i>Caprella hystrix</i>	(Kroyer)	✓				
<i>Caprella tuberculata</i>	Guérin, 1836		✓			
<i>Colomastix pusilla</i>	Grube, 1861	✓				
<i>Homarus gammarus</i>	(Linnaeus, 1758)				✓	
<i>Jaera nordmanni</i>	(Rathke, 1837)	✓				
<i>Jaeropsis brevicomis</i>	Koehler, 1885	✓	✓			
<i>Janira maculosa</i>	Leach, 1814	✓				
<i>Lembos websteri</i>	Bate, 1857	✓				
<i>Leptochelia savignyi</i>	(Krøyer, 1842)	✓				
<i>Maja squinado</i>	(Herbst, 1788)				✓	
<i>Nicolea sp.</i>	Malmgren, 1866	✓				
<i>Parajassa pelagica</i>	(Leach, 1814)		✓			
<i>Podocerus capillimanus</i>	Nicholls, 1938	✓				
<i>Podocerus variegatus</i>	Leach, 1814		✓			
<i>Pseudoparatanais batei</i>	(G.O. Sars, 1882)	✓				
<i>Pycnogonid sp.</i>						✓
<i>Pycnogonum litorale</i>	(Strom, 1762)	✓				
<i>Semibalanus balanoides</i>	(Linnaeus, 1758)					✓
<i>Stenothoe marina</i>	(Bate, 1856)	✓				
<i>Stenothoe monoculoides</i>	(Montagu, 1815)		✓			
<i>Stenothoe monoculoides</i>	(Montagu, 1815)	✓				
<i>Stenothoe valida</i>	Dana, 1852		✓			
Bryozoa						
<i>Amathia lendigera</i>	(Linnaeus, 1758)					✓
<i>Bicellariella ciliata</i>	(Linnaeus, 1758)				✓	
<i>Bryozoa indet crusts</i>					✓	
<i>Bugula flabellata</i>	(Thompson, in Gray, 1848)				✓	✓
<i>Bugula plumosa</i>	(Pallas, 1766)			✓	✓	
<i>Bugula sp.</i>	Oken, 1815					
<i>Bugula turbinata</i>	(Alder, 1857)			✓		

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
<i>Caberea ellisii</i>	(Fleming, 1814)				✓	
<i>Cellepora pumicosa</i>	(Pallas, 1766)	✓			✓	
<i>Crisia cornuta</i> ,	(Linnaeus, 1758)	✓				✓
<i>Crisia denticulata</i>	(Lamarck, 1816)	✓				✓
<i>Disporella hispida</i>	(Fleming, 1828)				✓	
<i>Escharoides coccinea</i>	(Abildgaard, 1806)			✓		
<i>Electra pilosa</i>	(Linnaeus, 1767)	✓				
<i>Escharella immersa</i>	(Fleming, 1828)	✓				
<i>Pentapora fascialis</i>	(Pallas, 1766)	✓				
<i>Scrupocellaria scrupea</i>	Busk, 1852	✓				
<i>Tubulipora</i>	Lamarck, 1816				✓	
Hydrozoa						
<i>Diphasia spp</i>	Agassiz, 1862					✓
<i>Kirchenpaueria pinnata</i>	(Linnaeus, 1758)		✓			
<i>Plumularia</i>	Lamarck, 1816	✓				
<i>Sertularia</i>	Linnaeus, 1758	✓				
Echinodermata						
<i>Amphipholis squamata</i>	(Delle Chiaje, 1828)		✓			
<i>Marthasterias glacialis</i>	(Linnaeus, 1758)					✓
Tunicates						
<i>Aplidium albicans</i>	(Milne-Edwards, 1841)	✓				
<i>Aplidium nordmanni</i>	(Milne-Edwards, 1841)	✓		✓		
<i>Aplidium punctum</i>	(Giard, 1873)					✓
<i>Aplidium turbinatum</i>	(Savigny, 1816)			✓		
<i>Ascidia conchilega</i>	Muller, 1776	✓				
<i>Asciella aspersa</i>	(Müller, 1776)	✓				
<i>Asciella scabra</i>	(Müller, 1776)	✓				
<i>Botrylloides leachii</i>	(Savigny, 1816)			✓		
<i>Botryllus schlosseri</i>	(Pallas, 1766)			✓		✓
<i>Clavelina lepadiformis</i>	(Müller, 1776)			✓	✓	
<i>Dendrodoa grossularia</i>	(Van Beneden, 1846)					✓
<i>Didemnidae sp.</i>	Giard, 1872					✓
<i>Didemnum maculosum</i>	(Milne-Edwards, 1841)	✓	✓	✓		
<i>Didemnum tenue</i>	(Herdman, 1886)	✓				
<i>Diplosoma sp.</i>	Macdonald, 1859					✓
<i>Distomus variolosus</i>	Gaertner, 1774			✓		✓
<i>Eugyra arenosa</i>	(Alder & Hancock, 1848)	✓				
<i>Morchellium argus</i>	(Milne-Edwards, 1841)			✓	✓	✓

Species	Authority	Koehler 1885	PMNHS 1994	Dr. A. Allan 2007	Seasearch 2008	PMNHS 2012
<i>Polycarpa pomaria</i>	(Savigny, 1816)	✓				
<i>Pyura microcosmus</i>	(Savigny, 1816)			✓		✓
<i>Styela rustica</i>	Linnaeus, 1767	✓				
Fish						
<i>Chelon labrosus</i>	(Risso, 1827)				✓	
<i>Ctenolabrus rupestris</i>	(Linnaeus, 1758)				✓	
<i>Gobiusculus flavescens</i>	(Fabricius, 1779)				✓	
<i>Labrus bergylta</i>	Ascanius, 1767				✓	
<i>Lipophrys pholis</i>	(Linnaeus, 1758)			✓	✓	
<i>Parablennius gattorugine</i>	(Linnaeus, 1758)				✓	✓
Algae						
<i>Bryopsis plumosa</i>	J.V.Lamouroux, 1809					✓
<i>Chorda filum</i>	(Linnaeus) Stackhouse, 1797			✓		
<i>Cladophora sp.</i>	Kützing, 1843					✓
<i>Corallina sp.</i>						✓
<i>Delesseria sanguinea</i>	(Hudson) J.V.Lamouroux, 1813					✓
<i>Desmarestia aculeata</i>	(Linnaeus) J.V.Lamouroux, 1813			✓		
<i>Laminaria digitata</i>	(Hudson) J.V. Lamouroux, 1813			✓		✓
<i>Laminaria hyperborea</i>	(Gunnerus) Foslie, 1884			✓		
<i>Mastocarpus stellatus</i>	(Stackhouse) Guiry, 1984					✓
<i>Osmundea pinnatifida</i>	(Hudson) Stackhouse, 1809					✓
<i>Plumaria plumosa</i>	(Hudson) Kuntze, 1891					✓
Rhodophycota					✓	
<i>Saccorhiza polyschides</i>	(Lightfoot) Batters, 1902			✓		
		73	30	53	43	75