Easington / Dimlington Reef Nr Spurn Point East Yorkshire

Survey Report



Seasearch North East December 2009



Contents

Acknowledgements	3
Introduction	4
Methodology	6
Results	8
Summary of habitats recorded	9
Summary of species recorded	10
Discussion and Recommendations	21
References	22
Appendix 1: Survey Summary Forms	23
Appendix 2: List of Observation and Survey	25
Appendix 3: Species List	25





Seasearch North East

Carrie Pillow – Area Coordinator

Kat Sanders / Paula Lightfoot

Chris Wood – National coordinator

Acknowledgements

The Seasearch survey of the Holderness Coast in September 2009 was organised by Carrie Pillow, Seasearch North East.

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Dive Leader: Carrie Pillow

Seasearch Divers: Chris Wood Carrie Pillow

Paula Lightfoot Alison Gleadhill

Kat Sanders George Stoyle

Alison Holmes Ruth Sharratt

Paul Holmes Greg Knapton

Paul Webster Rebecca Webster

Skipper of Lady Nicola: Chris Fyson

Photographs: Paula Lightfoot (PL)

Carrie Pillow (CP)

Chris Wood (CW)

Paul Holmes (PH)

Cover photograph: Chris Wood (CW)



Seasearch is co-ordinated by the Marine Conservation Society on behalf of the Seasearch Steering Group which comprises the Marine Conservation Society, Wildlife Trusts, Joint Nature Conservation Committee, Natural England, Countryside Council for Wales, Scottish Natural Heritage, Environment and Heritage Service Northern Ireland, Environment Agency, Marine Biological Association, Nautical Archaeological Society, British Sub Aqua Club, Sub Aqua Association, Professional Association of Diving Instructors, Scottish Sub Aqua Club, Irish Underwater Council and independent marine life experts.

Financial support is provided by the following organisations:











Introduction

The area off Easington near Spurn was chosen following the publication of the Wildlife Trusts TLC report, within which it described a reef of "Easington-Dimlington made from chalk The reef was first reported in a geological survey dated 1998, then mentioned in two separate Natural England reports dated 2005, both of which discussed areas which could potentially be designated as SACs. The NESFC is aware of the reef as a productive fishing mark. None of the afore mentioned reports could give a firm position of the reef, therefore the dive sites chosen using the bottom composition information provided the on current admiralty charts.



Easington-Dimlington Reof

The Easington-Dimilington Reef, off Spurn Head in Yorkshire, is the only known area of reef in a vast expanse of sand and gravel. It is known to attract a range of wildlife that would otherwise be absent from the region. For this reason, it is considered to be important to the region and potentially worthy of protection. The reef is though: to consist of boulders and pebbles, possibly made of chalk (a rare underwater habitat). However, there is no detailed information about the reef complex, how big it is and what lives there. Current uses include commercial fishing, and there may be a risk of damage from oil and gas production, submarine cables and pipelines.

Other factors relevant to this site:



Seegrass bed. Photo by Paul Naylor, www.marinephoto.org.uk

Seasearch North East organised the survey and were supported by Surveyors of other areas and Chris Wood the National Coordinator. Two days of diving, 4 dives were planned; unfortunately the second day was cancelled due to adverse weather conditions.



The Seasearch divers have recorded numerous species including common lobsters, nine species of crab, humpback prawns, sea slugs, a variety of species of starfish, and colourful anemones. Various types of fish have also taken up residence including lemon sole, plaice and the aptly named slippery looking butterfish.

The Seasearch data will help to inform the establishment of Marine Conservation Zones under the new

Marine and Coastal Access Act. Seasearch North East is not only providing an invaluable service by gathering much needed data on our area's marine fauna and flora but is also raising awareness of local marine life by engaging directly with local divers and other users.

Methodology

Survey dives were carried out on the 12th September 2009 from aboard the vessel Lady Nicola. The divers adopted the standard Seasearch methodology of using slates and digital cameras to record information on habitats, species, notable features and human impacts. On completion of the dives, these data were entered into either Observation forms or more detailed Survey forms.

The list of Observation and Survey forms completed during this survey is attached as Appendix 2. On 12th September 2009, a team of 12 divers visited the following sites:

	<u>Easington</u>	<u>Dimlington</u>
Time of Dive:	11.15 to 12.15	14.57 to 15.57
Location: Depth:	From: 53° 39.203 N, 000° 08.395 E To: 53° 39.460 N, 000° 08.366 E	From: 53° 42.590 N, 000° 06.288 E To: 53° 43.126 N, 000° 05.788 E
	13.1 to 16.4 metres below sea level	15.0 to 16.0 metres below sea level

The locations of the dive sites are shown in Figure 1.

On the 12th September 2009, the underwater visibility ranged from around 3-5 metres.

The tidal current was very moderate (2-3kt), making the conditions suitable for recording habitats and species with a good degree of confidence.

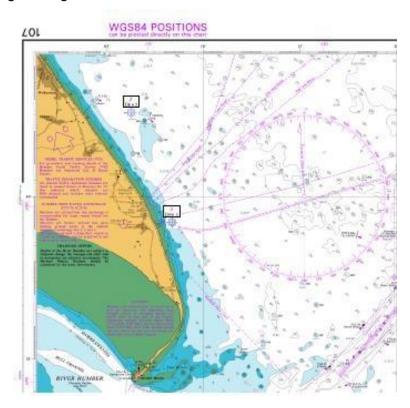


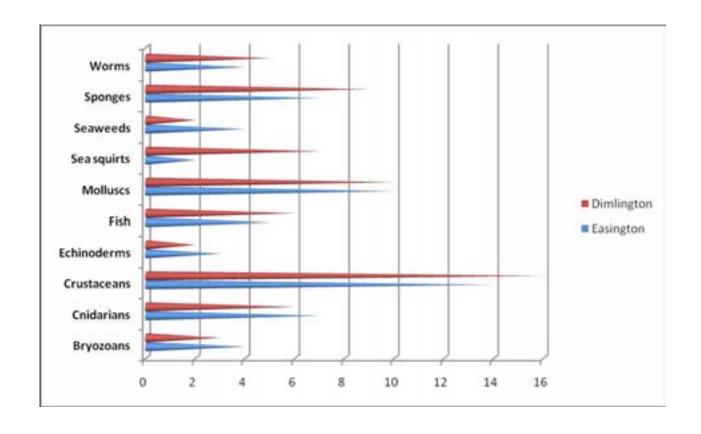
Figure 1: Chart of Spurn Point showing the location of the 2 dive sites (Reproduced from Admiralty Chart 107 by permission of the Controller of Her Majesty's Stationery Office and the UK Hydrographic Office (www.ukho.gov.uk). Not to be used for navigation)

Results

The habitats and species recorded at each site are described below, with the sites listed in order from north to south.

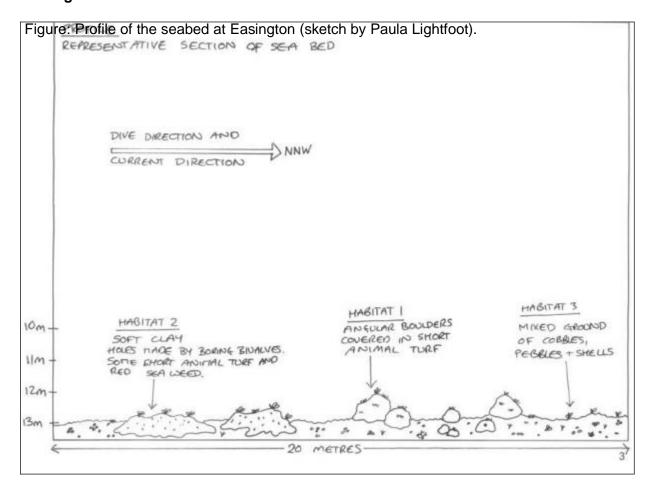
	Easington	Dimlington
Bryozoans	4	3
Cnidarians	7	6
Crustacean	14	16
Echinoderm	3	2
Fish	5	6
Molluscs	10	10
Sea squirts	2	7
Seaweeds	4	2
Sponges	7	9
Worms	4	5
Total	60	66

No. of Species found per site (See Appendix 3 for full Species List)



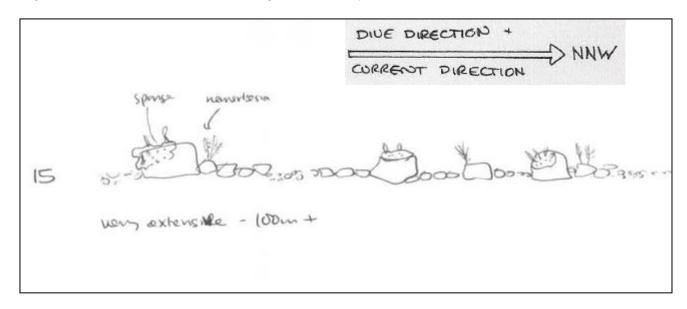
Survey Form Site Sketch

Easington



Dimlington

Figure: Profile of the seabed at Dimlington (sketch by Chris Wood)





Summary of habitats and species recorded

The main habitats were mixed ground (cobbles, pebbles and abundant shell pieces) with scattered large boulders and ridges of clay. Opinion amongst the divers differed, as to if these clay ridges were a natural phenomenon or spoil resulting from dredging to lay pipes. The boulders and cobbles were covered in animal turf, mostly sponges and hydroids.

The soft clay was home to lots of "boring" animals, such as piddocks, which we saw in abundance. The one habitat we were expecting to find but didn't, was sand.

The area seems very productive, with large lobsters and edible crabs. We only saw one piece of litter (car tyre) and no fishing debris. There was an incredible abundance of crystal sea slugs on the second dive.



The sea bed was covered in redundant horse mussel shells; unfortunately we did not record any live specimens. The presence of mussel debris indicates that there was a living horse mussel bed at



some time. Living horse mussel beds have been identified by the UK government as a Biodiversity Action Plan (BAP) habitat as many have been lost as a result of trawling on the seabed in the areas where they used to occur. This may well have also happened here. There are also records of old horse beds mussel off Flamborough and Whitby which indicates that there could still be some productive areas nearby which could be recorded through repeat surveys.

Sponges











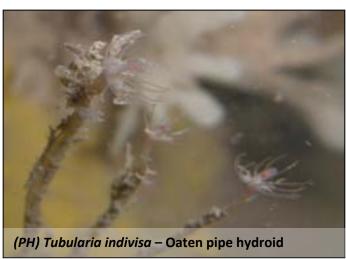


Cnidarians - hydroids, anemones, corals and jellyfish









Seaweeds





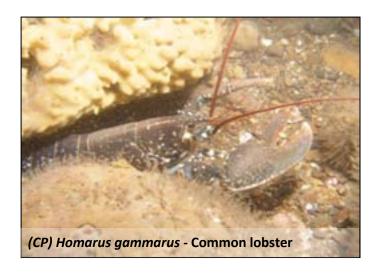
<u>Crustaceans</u> – barnacles, isopods, crabs, lobsters, shrimps, prawns, amphipods























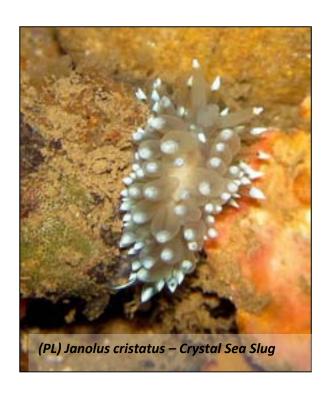
<u>Molluscs</u> – shells, sea slugs, bivalves and cephalopods











Sea Squirts





Echinoderms - featherstars. Brittlestars, starfish, sea urchins & sea cucumbers





Worms (right)



<u>Fish</u>













Background

The dives Seasearch NE undertook on 12th September were a first. Not only was it a new site for seasearch but it also presented a unique opportunity to dive an area seldom visited by any dive club or individuals. It's proximity to Spurn point and the Humber Estuary whose waters are heavily laden with sediment from the eroding boulder clay of the Holderness coast indicated that the visibility of the waters further north could have also been very poor.

The suspended sediment in the water keeps extensive inter tidal flats and forms mud and sand bars that make semi-permanent islands along the shores. It was these feature which we expected to find reference to during the dives but in fact were surprised to find a predominantly hard substrate of cobbles and pebbles; also contributing to fair visibility of 4-5m.

The divers entered the water in an area directly off the coast from Easington; where the Langeled gas pipeline brings natural gas from Norway to the England from where it is processed to supply the UK. This heavy industrial use of the area is one reason the dives were so intriguing and proved to be especially exciting when such a variety of marine life was recorded.

The Gas Terminal at Easington is one of three main gas terminals in the UK, and is situated on the North Sea coast. The whole site consists of three plants: two run by BP and one by Centrica.

The Easington gas terminal opened in March 1967.and was the first time that North Sea Gas had been brought ashore in the UK from the West Sole gas field. The Dimlington site opened in October 1988. The sites are run by and the gas is produced by BP, although gas is eventually transferred to a separate Centrica Storage plant at Easington, who control the UK mainland gas network. The control of the whole site actually takes place at the Dimlington site.

Since October 2006, gas has been brought into the UK direct from the Norwegian Sleipner gas field via the Langeled pipeline, the world's longest subsea pipeline. The pipeline was constructed from over 2 million tonnes of concrete and steel. It stretches 750-miles and provides around 20% of the UK's demand for natural gas.

The southern section runs between the Sleipner Platform and Easington. It is 44-inch diameter pipe which is 540 km long and was laid in 2005. The northern section from Nyhamna to Sleipner is a 42-inch diameter pipeline which is 626 km long and was laid in 2006. It is controlled at the UK end by Centrica, can transfer up to 2500m cubic feet of gas per day.

Discussion and recommendations

By far the most abundant habitat type recorded during these dives was cobbles/pebbles and mixed ground with intermittent areas of clay reef. The underwater landscape we observed was not anticipated following prior research on the area which largely referred to chalk reef or sand. The hard seabed found off Easington supports a range of benthic species which are likely to be uncommon or absent elsewhere in this part of the North Sea. The survey has recorded the unexpected presence of hard and reasonably stable seabed in an area of generally shifting sediments, which makes it of local conservation importance. It has also raised some interesting questions, not only from the perspective of biodiversity, but also in light of the coastal processes of the area. The Holderness coast is one of the most dynamic areas of coastline in the UK and in certain areas is eroding at an extremely rapid rate threatening land, homes and businesses. The results of the Seasearch surveys may also assist local authorities" such as East Riding of Yorkshire Council and the Environment Agency in their ongoing efforts to understand and predict what sediment movements are occurring in the inshore areas.

- Further survey dives in the area;
 - a) to establish the extent of the hard features and identify if chalk reef is present,
 - b) at different times of year to monitor any seasonal changes
 - c) to locate and record level of marine life on pipeline structures.
- Establish baseline data for site (and where possible obtain any existing data) and monitor over time.
- Work in partnership with Centrica and BP to provide updated information and data for pipeline areas.
- Further recording of both benthic and mobile species associated with the hard seabed.
- To establish if there are any live Modiolus habitats in the area and provide input to relevant Biodiversity Action Plans.
- Further surveys to enable the assessment of the environmental impact of the proposed offshore wind farm.
- To record the sediment type and extent to assist with ongoing management of coastal processes in the area (the Shoreline Management Plan is currently undergoing its review and subject to extensive consultation).
- Establish comprehensive data set to enable recommendations and information to be fed into the MCZ process (Net Gain) for this area of the North Sea.

1995 Barne JH, et al.	Coasts and seas of the United Kingdom. Region 6 Eastern England: Flamborough Head to Great Yarmouth. JNCC, Peterborough.
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2004 Department of Trade a	and Industry Atlas of UK Marine Renewable Energy Resources: Atlas Pages. A Strategic Environmental Assessment Report (No. 1106).
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2005 Gubbay S, et al	Subtidal sandbanks and reef features as potential Special Areas of Conservation in the 0-12 nm zone around the coast of England. English Nature, Peterborough.
1996 Hayward, P. J. et al.	Handbook of the Marine Fauna of North-West Europe Oxford University Press, Oxford
2005 Jones L	Identification of marine habitats relevant to Special Area of Conservation. English Nature Research Reports, No. 659. English Nature, Peterborough.
1994 Picton, B. E. et al.	A Field Guide to the Nudibranchs of the British Isles Immel Publishing Ltd, London
2005 Rudall Blanchard Ass	BG Group Channon Exploration Well: Environmental Impact Assessment. DTI Project Reference No. W/2471/2005
2005 Wood, C.	Seasearch Guide to Sea Anemones and Corals of Britain and Ireland Marine Conservation Society, Ross-on-Wye
2007 Wood, C	Seasearch Observer's Guide to Marine Life of Britain & Ireland. Ross-on-Wye: Marine Conservation Society

Marine Reserves, TLC for our seas and sea life. The Wildlife Trusts Newark

2007 Wildlife Trusts

Appendix 1

SURVEY SUMMARY FORM

This form should be completed by the event organiser.



N.B. Emboldened fields must be completed

Marine Recorder Id. No.

MRMCS016

ORGANISER'S DETAILS

Name Carrie Pillow	Tel. No. 01347 879055
Address 17 Laurels Garth	Email: carrie@seasearchne.org.uk
Sheriff Hutton	Your role in the survey: Regional Coordinator
York	Name of group Seasearch North East
Postcode YO60 6SE	

SURVEY DETAILS

Survey name	
2009 Seasearch Easington Dimlington Survey	
Start date 12/09/2009	End date 12/09/2009
Survey run by: Seasearch	Survey run for: Seasearch
Coordinate system: OS map / Lat. Long. (OSGB 36) / Lat. Long. (WGS 84) / OS N. Ireland	Derived from: OS map (1:25,000) / Chart (scale if known) / GPS / DGPS

Define a survey box that will encompass all the sites surveyed. Provide coordinates for two corners of the box using the same coordinate system selected above.

South west corner: TA390190 North east corner: TA416260

Location Easington and Dimlington Coast, North of Spurn Point

SURVEY DESCRIPTION

A Seasearch North East survey carried out by volunteer divers on the 12th September 2009. A British Geological Survey (Evans *et al.*, 1998) identified the "Easington-Dimlington reef" as an isolated area of stony reef surrounded by a vast expanse of sand and mud. The North East Sea Fisheries Committee state that it is a highly productive fishing mark, and the area has been considered by Natural England for SAC designation. However, the exact location and size of the reef were not known, and the nature of the seabed is constantly changing along this coastline as sediments are moved around. Impacts on the marine ecosystem in this area include aggregate extraction, commercial fishing, shipping and pipelines. The aim of this survey was to locate the stony reef and to record baseline data on the species and habitats present. Two sites were covered by this survey: "Easington Reef" and "Dimlington Drift".

DATA PROCESSING & VALIDATION

Field data held by:				
Seasearch (MCS HQ)	Other (please sta	ate):		
Seasearch North East (Paula Lightfo	oot)			
No. of Survey forms submitted with this form:	6			
Have these forms been validated?		Validated by:	Paula Lightfoot	Date: 29/11/09
Yes /	No			
No. of Observation forms submitted with this	form: 12			
Have these forms been validated?		Validated by:	Paula Lightfoot	Date: 29/11/09
Yes /	No			
Photographs held by:				
Paula Lightfoot Kat Sanders	Greg Knapton	Carrie Pi	llow	
Allison Gleadhill Chris Wood	Paul Holmes			

The following details are not essential. If complete they will provide additional information for entry onto Marine Recorder. See Survey Summary Guidance Notes for more information on these fields. **Do not complete these fields if you are at all unsure of them.**

LOCATION DETAILS

Marine landscape Open Coast	Salinity Full (30-35 ppt)
Wave exposure Exposed	Tidal currents Moderately strong 1-3 kt
Geology Soft (Clay)	Designations None for dive site.
Uses & impacts Pipelines Commercial shipping Fishing	But Humber Estuary is SPA, SAC and RAMSAR Dimlington Cliff and The Lagoons are SSSI
Aggregate extraction Fishing debris (line, lure) Some litter (bicycle tyre, car tyre, electric cable)	

This form should be returned with the raw data forms either to the Local Data Entry Point or to Seasearch, Marine Conservation Society, Unit 3 Wolf Business Park, Alton Road, Ross-on-Wye, Herefordshire HR9 5NB.

Appendix 2: List of Observation and Survey Forms

Form No	Date	Site Name/Location	Recorder	ObsSurv Form
NE9/099	12-Sep-09	Dimlington Drift	Carrie Pillow	Observation Form
NE9/109	12-Sep-09	Dimlington Drift	Paul Webster	Observation Form
NE9/111	12-Sep-09	Dimlington Drift	Rebecca Webster	Observation Form
NE9/116	12-Sep-09	Dimlington Drift	Kat Sanders	Observation Form
NE9/118	12-Sep-09	Dimlington Drift	Allison Gleadhill	Observation Form
NE9/153	12-Sep-09	Dimlington Drift	Greg Knapton	Observation Form
NE9/123	12-Sep-09	Dimlington Drift	Chris Wood	Survey Form
NE9/125	12-Sep-09	Dimlington Drift	Paula Lightfoot	Survey Form
NE9/145	12-Sep-09	Dimlington Drift	Paul Holmes	Survey Form
NE9/098	12-Sep-09	Easington Reef	Carrie Pillow	Observation Form
NE9/108	12-Sep-09	Easington Reef	Paul Webster	Observation Form
NE9/110	12-Sep-09	Easington Reef	Rebecca Webster	Observation Form
NE9/115	12-Sep-09	Easington Reef	Kat Sanders	Observation Form
NE9/117	12-Sep-09	Easington Reef	Allison Gleadhill	Observation Form
NE9/152	12-Sep-09	Easington Reef	Greg Knapton	Observation Form
NE9/122	12-Sep-09	Easington Reef	Chris Wood	Survey Form
NE9/124	12-Sep-09	Easington Reef	Paula Lightfoot	Survey Form
NE9/144	12-Sep-09	Easington Reef	Paul Holmes	Survey Form

Appendix 3: Species List

			Easington	Dimlington
			Average Abundance SAC FOR P	Average Abundanc e SACFOR P
Group	Scientific name	Common name	SACFOR P	SACFOR P
Sponges	Amphilectus fucorum	Shredded carrot sponge		С
Sponges	Dysidea fragilis	Goosebump sponge		F
Sponges	Halichondria panicea	Breadcrumb sponge	F	С
Sponges	Haliclona oculata	Mermaids glove	0	0
Sponges	Hemimycale columella	Crater sponge		0
Sponges	Myxilla incrustans	Encrusting yellow sponge	R	0
Sponges	Polymastia penicillus	Chimney sponge	Р	R
Sponges	Porifera	Encrusting yellow sponge (unidentified)	0	0
Sponges	Porifera	Yellow branching sponge (unidentified)	Р	
Sponges	Porifera	Encrusting orange sponge (unidentified)	0	0
Cnidarians	Hydroida	Feather hydroids	0	F
Cnidarians	Nemertesia antennina	Antenna hydroid	С	0
Cnidarians	Nemertesia ramosa	Branched antenna hydroid		0
Cnidarians	Tubularia indivisa	Oaten pipe hydroids	R	0
Cnidarians	Obelia geniculata	Kelp fir	R	
Cnidarians	Sagartia troglodytes		0	
Cnidarians	Urticina eques	Horseman anemone	0	0
Cnidarians	Urticina felina	Dahlia anemone	0	0
Worms	Bispira volutacornis	Double spiral worm		R
Worms	Filograna implexa	Vermicelli worm	F	0
Worms	Lanice conchilega	Sandmason worm	0	
Worms	Pomatoceros sp.	Keel worm	С	Р
Worms	Salmacina dysteri	Coral Worrm		R
Worms	Annelida	Worm Tubes	0	0
Crustaceans	Balanus perforatus	Barnacle	F	F
Crustaceans	Balanus balanus	Greater acorn barnicle	R	
Crustaceans	Cirripedia	Barnacles (unidentified)	0	F
Crustaceans	Cancer pagurus	Edible crab	0	0
Crustaceans	Carcinus maenas	Shore crab	R	
Crustaceans	Ebalia tumefacta	Bryers nut crab		R
Crustaceans	Galathea intermedia	Squat lobster		R
Crustaceans	Galatheidae	Squat lobster		R
Crustaceans	Galathea strigosa	Spiny squat lobster		R
Crustaceans	Homarus gammarus	Common lobster	0	0
Crustaceans	Hyas araneus	Sea toad	R	R
Crustaceans	Inachus sp	Small spider crab	0	R
Crustaceans	Inachus phalangium	Small spider crab		R
Crustaceans	Macropodia sp.	Long-legged spider crab	R	
Crustaceans	Liocarcinus depurator	Harbour crab	R	R
Crustaceans	Liocarcinus pusillus	Swimming crab		R
Crustaceans	Necora puber	Velvet swimming crab	С	R

Crustaceans Crustaceans Crustaceans Molluscs Molluscs	Pagurus bernhardus			
Crustaceans Molluscs		Hermit crab	0	0
Molluscs	Caridea	Shrimp	0	
	Pandalus montagui	Humpbacked prawn	0	F
Molluscs	Buccinum undatum	Common welk	F	
	Calliostoma zizyphinum	Painted topshell	0	R
Molluscs	Gibbula cineraria	Grey topshell	R	R
Molluscs	Nucella lapillus	Dog whelk	R	R
Molluscs	Trivia sp.	Cowry		0
Molluscs	Acanthodoris pilosa	fluffy white Nudibrach		R
Molluscs	Flabellina pedata	Violet sea slug		R
Molluscs	Janolus cristatus	Crystal sea slug	R	0
Molluscs		Nudibranch eggs	Р	R
Molluscs	Aequipecten opercularis	Queen scallop		R
Molluscs	Barnea candida	White piddock	Р	
Molluscs	Pholas dactylus	Common piddock	Р	
Molluscs	Pholadidae	Piddocks (unspecified)	Р	
Molluscs	Modiolus modiolus	Horse mussel (empty Shells)	С	F
Bryozoans	Bugula sp.	Spiral bryozoans	R	R
Bryozoans	Electra pilosa	Frosty sea mat	0	
Bryozoans	Flustra foliacea	Hornwrack	F	0
Bryozoans	Bryozoa	Encrusting white bryozoan (unidentified)		R
Bryozoans	Bryozoa	Encrusting oange bryozoan (unidentified)	F	
Echinoderms	Crossaster papposus	Common sunstar	R	0
Echinoderms	Henricia sp.	Bloody henry	R	0
Echinoderms	Ophiothrix fragilis	Common brittle star	R	
Sea squirts	Dendrodoa grossularia	Gooseberry sea squirt	0	0
Sea squirts	Didemnum maculosum	Colonial sea squirt		Р
Sea squirts	Ascidiacea	Orange sea squirt	R	Р
Sea squirts	Ascidiacea	Red sea squirt		0
Sea squirts	Perophora listeri	Dwarf sea squirt		Р
Sea squirts	Polycarpa scuba	Teapot sea squirt		Р
Sea squirts	Ascidiacea	Hairy yellow sea squirt		R
Fish	Callionymus lyra	Common dragonet	0	
Fish	Gobius niger	Black goby	F	
Fish	Pomatoschistus pictus	Painted goby		0
Fish	Microstomus kitt	Lemon Sole		R
Fish	Pleuronectes platessa	Plaice		R
Fish	Myoxocephalus scorpius	Short-spined sea scorpion		R
	Taurulus bubalis	Long-spined sea scorpion		R
Fish	Solea solea	Common sole	R	
Fish Fish	Pholis gunnellus	Butter fish	R	R
	-· · ·	Bib	R	
Fish	Trisopterus luscus	•	•	
Fish Fish	Trisopterus luscus Delessaria sanguinea	Sea beech	0	
Fish Fish Fish	·	Sea beech Red sea weed	0 C	
Fish Fish Seaweeds	Delessaria sanguinea			
Fish Fish Seaweeds Seaweeds	Delessaria sanguinea Heterosiphonia plumosa	Red sea weed	С	0
Fish Fish Seaweeds Seaweeds Seaweeds	Delessaria sanguinea Heterosiphonia plumosa Plocamiun cartilagineum	Red sea weed Red comb weed	C R	0