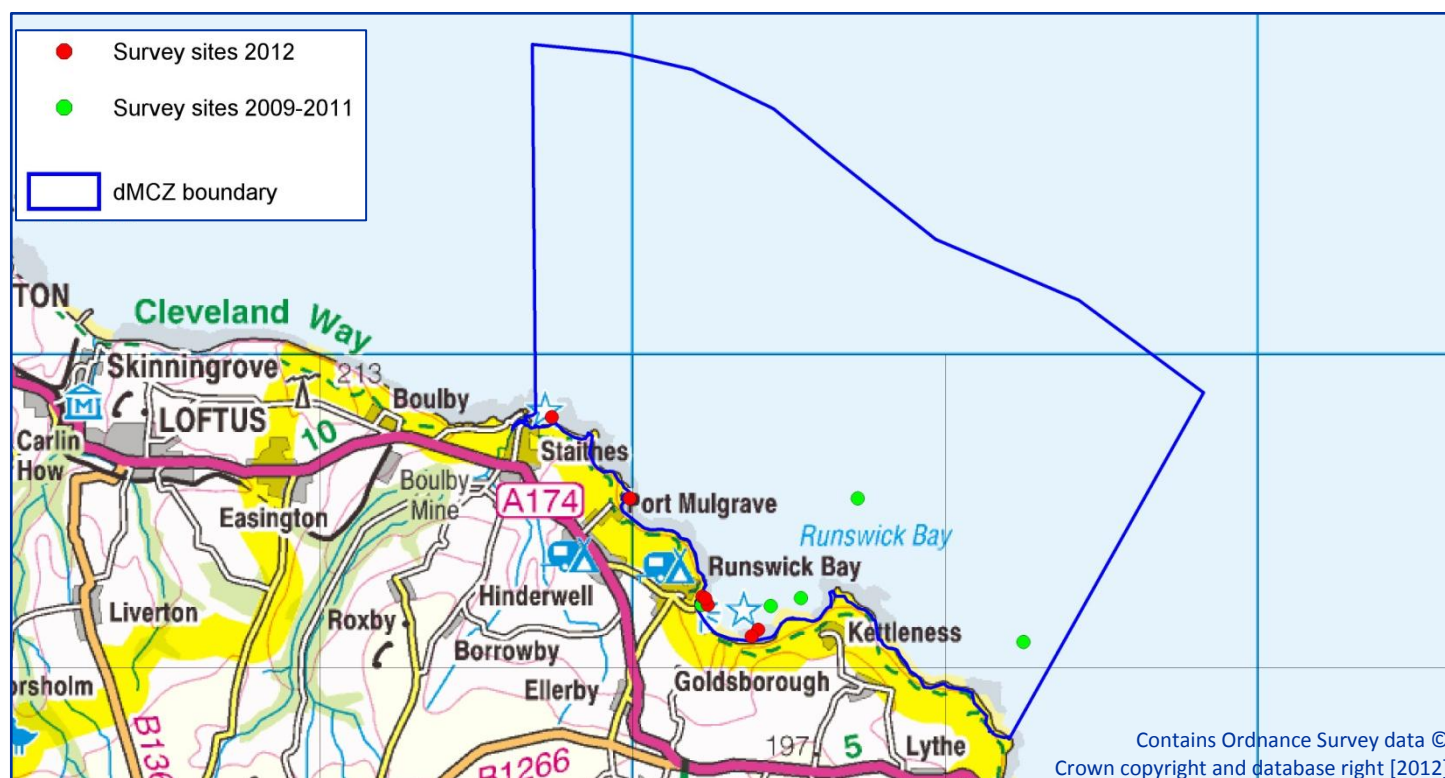


## Runswick Bay recommended MCZ

Seasearch Site Surveys 2012

This report summarises the results of intertidal and subtidal surveys carried out in the recommended Marine Conservation Zone by Seasearch volunteers between May and August 2012. The aim of the surveys was to add detail of the habitats and species found within the area to support the designation process and inform management. Attention was paid to the intertidal features, as the Net Gain Final Recommendations state that these features could be considered for designation in subsequent stages of the MCZ consultation process.



Boundary of dMCZ NG11 Runswick Bay, showing sites surveyed by Seasearch in 2012 and in previous years

## Physical Features of the Area

The recommended Marine Conservation Zone lies adjacent to the North Yorkshire and Cleveland Heritage Coast with its northern boundary at Staithes, its southern boundary just north of Sandsend and Runswick Bay at its centre (photo below).



It extends three nautical miles out to sea, encompassing a mosaic of habitats and reaching depths of up to thirty metres. The site is of particular interest as it contains a matrix of rock and sediment habitats, each supporting diverse and unique communities. Its waters provide suitable spawning ground for herring and lemon sole, and nursery areas for sprat, cod, whiting and plaice.

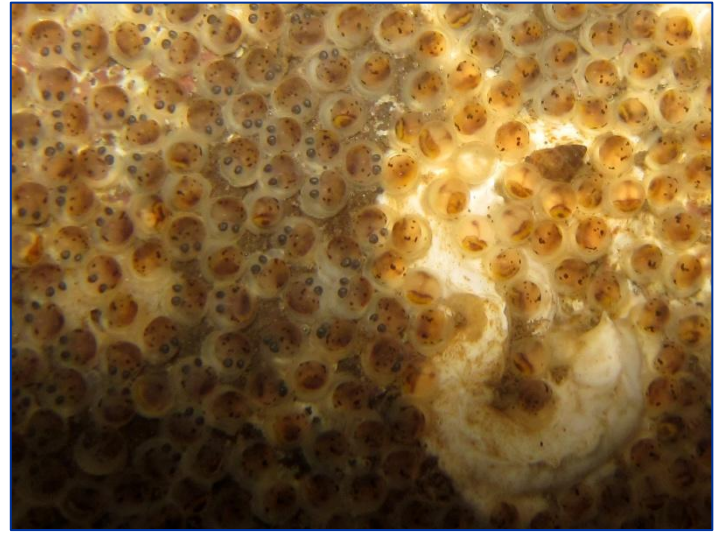
The geology consists predominantly of shale and sandstone from the Lower Jurassic. There are two Sites of Special Scientific Interest within the dMCZ, both designated for their geological importance.

The intertidal habitat comprises rockpools, boulders, caves and sandy beaches, and the sandstone cliffs provide ideal habitat for cliff-nesting birds, including kittiwakes, fulmars and gannets.



# Features of the Marine Life

The extensive intertidal rocky shore within the dMCZ provides habitat for rockpool fishes including butterflyfish, shore rockling, five bearded rockling, viviparous blenny and long-spined sea scorpion.



Shanny eggs in a rockpool in Runswick Bay

Crustaceans recorded in the intertidal zone include the spiny squat lobster, the 'sea toad' spider crab, shore crabs, hermit crabs and edible crabs. Female shore crabs and edible crabs were observed carrying eggs during the survey in May.



Five bearded rockling (top) and shore rockling (bottom) in rockpools at Runswick Bay

The area provides breeding and nursery habitat, as shannies were observed guarding eggs in May, and juveniles of various fish species were recorded on the shore, including viviparous blennies (below).



Juvenile edible crab having just finished moulting



The 'sea toad' spider crab covered in coralline algae for camouflage

The intertidal habitat was also rich in mollusc species, including the sea lemon nudibranch, the spotted cowry



and the photosynthetic sea slug *Elysia viridis*, for which there are very few available records on the east coast.



Sea lemon nudibranch on pink encrusting algae



The spotted cowry, which feeds on colonial sea squirts



'Solar-powered' *Elysia viridis*, which eats seaweed and keeps the photosynthetic cells alive in its own body to produce food for itself – hence it is found in shallow sunny areas.

The subtidal habitat consists of large boulders covered in kelp with an understory of mixed red seaweeds. The kelp supports many epiphytic seaweeds as well as hydroids and bryozoans and grazing molluscs such as grey topshells and banded chink shells.



The red seaweeds cock's comb and northern tooth weed on boulders beneath the kelp canopy



Kelp fir hydroid growing on a kelp frond

Numerous crustaceans were recorded amongst the boulders including velvet swimming crabs and common lobster (below).

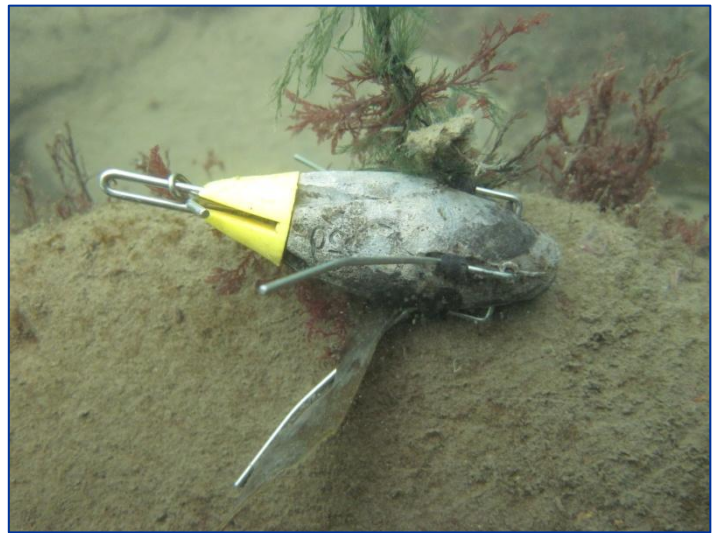


Extensive areas of subtidal sand in Runswick Bay provide habitat for sand gobies, lesser weever fish, brown shrimp, plaice and burrowing species including sand mason worms and lugworms.





European plaice on subtidal sand



Abundant lugworm casts in Runswick Bay



Brown shrimp very well camouflaged in subtidal sand

## Human uses and impacts

The main uses of the area are potting for crabs and lobsters, and sea angling from the shore.

Lead sinkers, lures, line and hooks were commonly found at both sites during both the intertidal and subtidal surveys (see photos opposite) and broken lobster pots were recorded at Port Mulgrave.

Runswick Bay is a popular tourist beach and is used by dog walkers, sea kayakers and surfers. There is an active sailing club at Runswick Bay and two launch slips. Jet skiers are said to use the bay occasionally, but none were seen during the surveys. There is an RNLI station at Staithes, and rescue drills were being carried out in Runswick Bay at the time of the surveys. Staithes harbour used to support a busy fishing fleet before the collapse of the herring stocks, but is now mainly a tourist destination. The Jurassic cliffs attract fossil hunters and bird watchers.

## Benefits of Protection

The entire site is already subject to a year-round ban on trawling to protect the seabed habitats. The seven habitats proposed for protection within the site are all deemed vulnerable to abrasion and penetration caused by fishing gear towed along the sea bed.

The intertidal habitats support considerable diversity of species and habitats and provide important nursery and breeding areas for many species. These habitats are vulnerable to human impacts such as bait digging, boulder turning, litter and fishing debris. There would be benefit in including the site's intertidal habitats amongst the features proposed for designation, but a designation based on the current proposal would be a key step towards recognising the importance of this unique area.

# Technical Appendix

This appendix contains more detailed information about the surveys undertaken and records made. It includes:

- Dive details
- Intertidal survey details
- Habitat sketches
- Biotope list
- Species list

The data have been entered into Marine Recorder and are available as an MS Access 'snapshot' file on request from Seasearch. Data from surveys up to 2011 are publicly available on the NBN Gateway.

## Current Proposal

The recommended MCZ boundary has been drawn to coincide with the boundary of the existing no trawl zone. The proposed MCZ extends from the intertidal zone to the three nautical mile limit, although intertidal habitats are not currently proposed for protection within the MCZ.

## The features proposed for designation are:

Broad scale habitats	A3.1	High energy infralittoral rock
	A3.2	Moderate energy infralittoral rock
	A4.1	High energy circalittoral rock
	A4.2	Moderate energy circalittoral rock
	A5.1	Subtidal coarse sediment
	A5.2	Subtidal sand
	A5.2	Subtidal mixed sediment
Species FOCI		Ocean quahog ( <i>Arctica islandica</i> )

## Features within the area but NOT proposed for designation are:

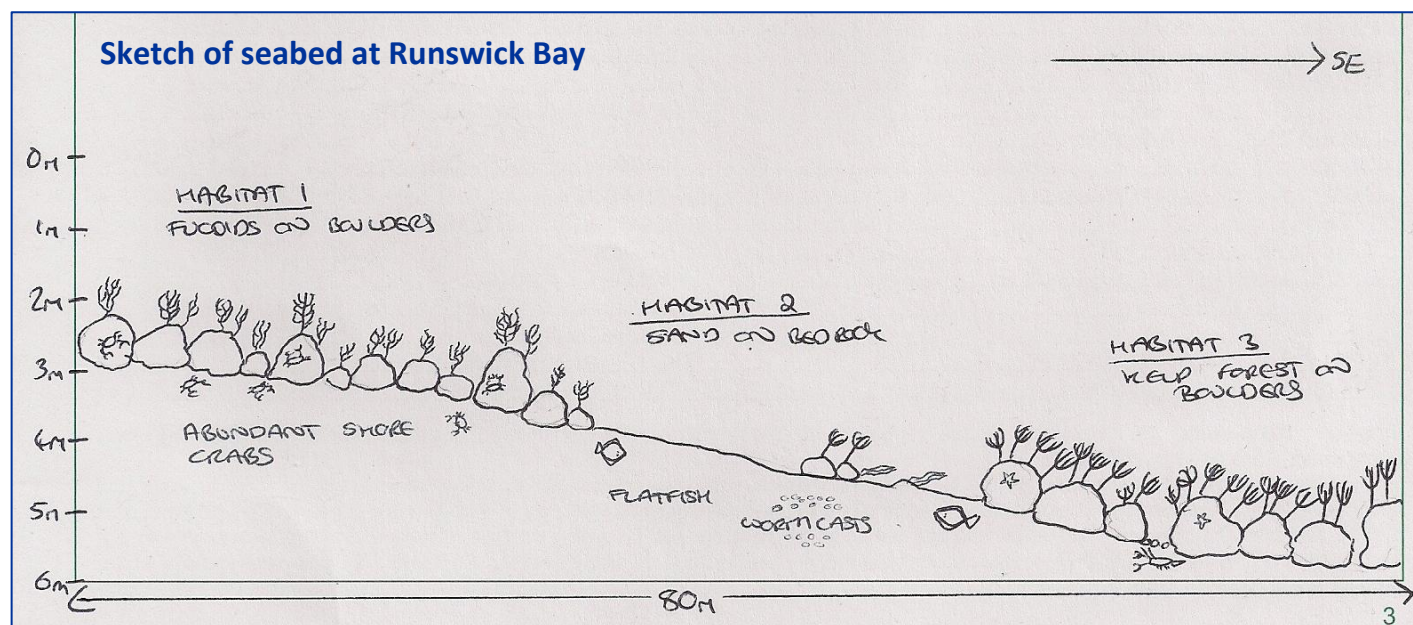
Broad scale habitats	A1.2	Moderate energy intertidal rock
	A1.3	Low energy intertidal rock
	A2.2	Intertidal sand and muddy sand
	A2.3	Intertidal mud
	A2.4	Intertidal mixed sediments
Habitat FOCI		Subtidal sands and gravels

## Survey details

18 <sup>th</sup> May 2012	Intertidal survey of the rocky shore to the east of Staithes Harbour, grid reference NZ787190. Low water 1.84m at 09:17.
	Intertidal survey of the rocky shore and boulders at the eastern end of Runswick Bay, grid reference NZ811161. Low water 1.47m at 21:29.
19 <sup>th</sup> May 2012	Intertidal survey of the rocky shore at Port Mulgrave, grid reference NZ798176. Low water 1.64m at 09:50.
20 <sup>th</sup> May 2012	Intertidal survey of the rocky shore at the western end of Runswick Bay, grid reference NZ819154. Low water 1.48m at 10:24.
18 <sup>th</sup> August 2012	Intertidal survey of the rocky shore at the western end of Runswick Bay, grid reference NZ820156. Low water 0.74m at 11:16.
	Dive survey of the eastern end of Runswick Bay, grid reference NZ812160.



## Habitat sketch



## Biotores recorded

Staites	LR.HLR.MusB.Sem.Sem	<i>Semibalanus balanoides</i> , <i>Patella vulgata</i> and <i>Littorina</i> spp. on exposed to moderately exposed or vertical sheltered eu littoral rock.
Staites	LR.HLR.FR.Coff	<i>Corallina officinalis</i> on exposed to moderately exposed lower eu littoral rock.
Staites	LR.HLR.FR.Osm	<i>Osmundea pinnatifida</i> on moderately exposed mid eu littoral rock.
Port Mulgrave	LR.LLR.F.Fspi.X	<i>Fucus spiralis</i> on full salinity upper eu littoral mixed substrata.
Port Mulgrave	LR.LLR.F.Asc.FS	<i>Ascophyllum nodosum</i> on full salinity mid eu littoral rock.
Runswick Bay (west)	LR.FLR.Rkp.Cor.Cor	Coralline crusts and <i>Corallina officinalis</i> in shallow eu littoral rockpools.
Runswick Bay (west)	LR.LLR.F.Asc.FS	<i>Ascophyllum nodosum</i> on full salinity mid eu littoral rock.
Runswick Bay (west)	SS.SSa.IMuSa	Infralittoral muddy sand
Runswick Bay (west)	IR.MIR.KR.Lhyp.Ft	<i>Laminaria hyperborea</i> forest and foliose red seaweeds on moderately exposed upper infralittoral rock
Runswick Bay (east)	LR.LLR.F.Fspi.X	<i>Fucus spiralis</i> on full salinity upper eu littoral mixed substrata.
Runswick Bay (east)	LR.FLR.Rkp.Cor.Cor	Coralline crusts and <i>Corallina officinalis</i> in shallow eu littoral rockpools.
Runswick Bay (east)	LR.MLR.BF.Fser.R	<i>Fucus serratus</i> and red seaweeds on moderately exposed lower eu littoral rock.

## Species List

Scientific name	Common name	Staites	Port Mulgrave	Runswick Bay east (intertidal)	Runswick Bay west (intertidal)	Runswick Bay west (subtidal)
<b>Porifera</b>						
<b>Sponges</b>						
<i>Halichondria panicea</i>	Breadcrumb sponge	R		O		
<i>Oscarella lobularis</i>	a sponge			R		
<b>Cnidaria</b>						
<b>Hydroids and anemones</b>						
<i>Actinia equina</i>	Beadlet anemone	O	F	R-O	O	O-F
<i>Dynamena pumila</i>	a hydroid			R-O	R	F

Scientific name	Common name	Staithe	Port Mulgrave	Runswick Bay east (intertidal)	Runswick Bay west (intertidal)	Runswick Bay west (subtidal)
<i>Obelia geniculata</i>	Kelp fir					O
<i>Urticina felina</i>	Dahlia anemone	R				R-O

**Annelida**                      **Segmented worms**

<i>Arenicola marina</i>	Lugworm		O			A
<i>Cirratulidae</i>	Hair worm					O
<i>Eulalia viridis</i>	Green leaf worm		P	R		R
<i>Harmothoe imbricata</i>	a scale worm	R		R		
<i>Hydroides norvegica</i>	Keel worms			O		
<i>Lanice conchilega</i>	Sandmason worm	R	O	O		O
<i>Lepidonotus clava</i>	a scale worm	R		R		
<i>Lineus bilineatus</i>	a nemertean worm			R		
<i>Nereis sp. 1</i>	Ragworm indet 1			R		R
<i>Nereis sp. 2</i>	Ragworm indet 2			R		
<i>Phyllodoceidae</i>	Paddle worm			R		
<i>Pomatoceros</i>	Keel worms	C	F	O-F	F	O-F
<i>Sabellaria spinulosa</i>	Ross worm			O		
<i>Spirorbis</i>	Spiral worm	F	C	F	C	F

**Crustacea**                      **Barnacles, crabs, shrimp and lobsters**

<i>Cancer pagurus</i>	Edible crab	R		R-O		O
<i>Carcinus maenas</i>	Shore crab	F	O	O	F	C
<i>Crangon crangon</i>	Brown shrimp					R
<i>Elminius modestus</i>	New Zealand barnacle	R				
<i>Galathea squamifera</i>	Brown squat lobster			O		
<i>Galathea strigosa</i>	Spiny squat lobster			R		R
<i>Gammaridae</i>	An amphipod	F	F	F	F	
<i>Honarus gammarus</i>	Common lobster					R-O
<i>Hyas araneus</i>	Sea toad			R		
<i>Idotea</i>	an isopod	F	O			
<i>Jaera albifrons</i>	an isopod		O	O		
<i>Mysidacea</i>	Mysid shrimp indet					F-C
<i>Necora puber</i>	Velvet swimming crab	R		R		F-C
<i>Paguridae</i>	Hermit crab	C		F-C	O	F-C
<i>Pilumnus hirtellus</i>	Hairy crab			R		
<i>Pisidia longicornis</i>	Long clawed porcelain crab	R		O	R	O
<i>Porcellana platycheles</i>	Broad clawed porcelain crab			R-O		
<i>Semibalanus balanoides</i>	A barnacle	A	C	C-A	A	C-A
<i>Verruca stroemia</i>	A barnacle	O		O-F	R	

**Mollusca**                      **Molluscs**

<i>Acanthochitona crinitus</i>	Hairy chiton			R		
<i>Acanthodoris pilosa</i>	A nudibranch			R		
<i>Anomia ephippium</i>	Saddle oyster	O		O	O	
<i>Doris pseudoargus</i>	Sea lemon			R		
<i>Elysia viridis</i>	Solar powered sea slug			R		

Scientific name	Common name	Staithes	Port Mulgrave	Runswick Bay east (intertidal)	Runswick Bay west (intertidal)	Runswick Bay west (subtidal)
<i>Gibbula cineraria</i>	Grey topshell	F	O	F-C	F	O-F
<i>Heteranomia squamula</i>	Saddle oyster			O		
<i>Jorunna tomentosa</i>	A nudibranch			R		
<i>Lacuna crassior</i>	A sea snail			O		
<i>Lacuna pallidula</i>	Pale chink shell			C		
<i>Lacuna vincta</i>	Banded chink shell			C		F
<i>Lasaea adansoni</i>	A bivalve			O		
<i>Lepidochitona cinerea</i>	Grey chiton		O	O	O	
<i>Littorina littorea</i>	Edible periwinkle	C	C	C	C	O
<i>Littorina mariaae</i>	Flat periwinkle			R		
<i>Littorina obtusata</i>	Flat periwinkle			R-O	O	
<i>Littorina saxatilis</i>	Rough periwinkle	O	O	C	O	
<i>Melarhaphe neritoides</i>	Small wrinkle			R		
<i>Modiolus modiolus</i>	Horse mussel			O		
<i>Mytilus edulis</i>	Edible mussels	R			R	
<i>Nassarius incrassatus</i>	Thick lipped dog whelk	R		O		
<i>Nucella lapillus</i>	Dog whelk	C	O	F-C	C	F
<i>Patella pellucida</i>	Blue rayed limpet			C		O
<i>Polycera quadrilineata</i>	Yellow lined polycera					R
<i>Patella vulgata</i>	Common limpet	C	F	C	C	C
<i>Rissoa parva</i>	A sea snail			C		F
<i>Tectura virginea</i>	White tortoiseshell limpet			R		
<i>Tonicella marnorea</i>	Marbled chiton			R		
<i>Tonicella rubra</i>	Red chiton	R		O		
<i>Trivia monacha</i>	Spotted cowry			R		

**Bryozoa**                      **Sea mats and sea mosses**

<i>Bryozoa</i>	Encrusting bryozoan indet	R		O		
<i>Celleporella hyalina</i>	Encrusting bryozoan					O
<i>Electra pilosa</i>	Frosty sea mat	R		O-F	R	C
<i>Membranipora membranacea</i>	Sea mat			R	R	F-C

**Echinodermata**                      **Starfish, urchins and brittlestars**

<i>Amphipholis squamata</i>	a brittle star	R		O	R	
<i>Asterias rubens</i>	Common starfish			R-O		
<i>Echinus esculentus</i>	Common sea urchin					R
<i>Ophiothrix fragilis</i>	Common brittle star			F-C	R	
<i>Ophiura sp</i>	Brittlestar indet.					R

**Tunicata**                      **Sea squirts**

<i>Botrylloides leachii</i>	A sea squirt	R		R-O		
<i>Botryllus schlosseri</i>	Flower sea squirt			R	R	
<i>Ciona intestinalis</i>	Yellow ringed sea squirt			R		



Scientific name	Common name	Staithes	Port Mulgrave	Runswick Bay east (intertidal)	Runswick Bay west (intertidal)	Runswick Bay west (subtidal)
<b>Pisces</b>		<b>Fishes</b>				
<i>Ciliata mustela</i>	Five bearded rockling				R	
<i>Echiichtys vipera</i>	Lesser weever fish					R
<i>Gaidropsarus mediterraneus</i>	Shore rockling					R
<i>Gobiusculus flavescens</i>	Two-spot goby					R-O
<i>Lipophrys pholis</i>	Shanny			R		R
<i>Nerophis lumbriciformis</i>	Worm pipefish			R		
<i>Pholis gunnellus</i>	Butterfish			R		R
<i>Pleuronectes platessa</i>	Plaice					O
<i>Pomatoschistus sp</i>	Goby					R
<i>Taurulus bubalis</i>	Long spined sea scorpion	R		R		R
<i>Viviparous blenny</i>	Zoarces viviparus			R		

<b>Aves</b>		<b>Birds</b>				
<i>Corvus monedula</i>	Jackdaws				O	
<i>Haematopus ostralegus</i>	Oystercatchers	O				
<i>Larus argentatus</i>	Herring gull			F		

<b>Algae</b>		<b>Seaweeds</b>				
<i>Ascophyllum nodosum</i>	Egg wrack		A	O-F	A	C
<i>Ceramium</i>	Banded pincer weed	O	O	O	O	
<i>Chondrus crispus</i>	Carrageen	O	O	O	O	O-C
<i>Cladophora</i>	Common green branched weed	O	F	F-C	O	R-O
<i>Cladostephus spongiosus</i>	Brown hairy sand weed		R	F	R	O
<i>Corallina officinalis</i>	Coral weed	A	C	O-C	C	O
<i>Corallinaceae</i>	Encrusting pink algae	A	C	C	C	O-C
<i>Cryptopleura ramosa</i>	Fine veined crinkle weed					R
<i>Delesseria sanguinea</i>	Sea beech					F
<i>Dilsea carnosa</i>	Red rags					O-F
<i>Dumontia contorta</i>	Dumont's tubular weed	F	F	F	F	
<i>Ectocarpus</i>	Filamentous brown weed		F			
<i>Fucus serratus</i>	Toothed wrack	F	F	C-A	C	C
<i>Fucus spiralis</i>	Spiral wrack	F	A	A	C	
<i>Fucus vesiculosus</i>	Bladder wrack	O	F	O	O	C
<i>Halidrys siliquosa</i>	Sea oak	R		R		
<i>Laminaria digitata</i>	Oarweed	O		C-A	F	F
<i>Laminaria hyperborea</i>	Cuvie			C	R	C-A
<i>Lomentaria articulata</i>	Bunny ears	O	O	F	F	R
<i>Mastocarpus stellatus</i>	Grape pip weed	R	R	O-F	R	O
<i>Membranoptera alata</i>	Winged weed				R	O
<i>Odonthalia dentata</i>	Northern tooth weed					R
<i>Osmundea hybrida</i>	False pepper dulse	R			R	

Scientific name	Common name	Staithes	Port Mulgrave	Runswick Bay east (intertidal)	Runswick Bay west (intertidal)	Runswick Bay west (subtidal)
<i>Osmundea pinnatifida</i>	Pepper dulse	A	F	F-C	C	O
<i>Palmaria palmata</i>	Dulse					O
<i>Plocamium sp</i>	Cock's comb					C
<i>Polyides rotundus</i>	Discoid fork weed		R			O
<i>Polysiphonia sp</i>	Red siphon weed		C			F-C
<i>Polysiphonia lanosa</i>	A red seaweed		C	O-F	C	C
<i>Porphyra sp</i>	Laver	O	R			
<i>Ralfsia verrucosa</i>	Brown limpet paint			O		O
<i>Rhodothamniella floridula</i>	Sandbinder		R	O	R	O
<i>Saccharina latissima</i>	Sugar kelp			O	R	O
<i>Ulva sp.</i>	Green seaweed	O		O	F	C
<i>Ulva intestinalis</i>	Gut weed		F			
<i>Ulva lactuca</i>	Sea lettuce	F	F	F	F	O
<i>Ulva linza</i>	Green seaweed			F		

## Acknowledgements

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