



DIVE NEWQUAY



**Cornwall
Wildlife Trust**



Newquay Area & Newquay and the Gannel recommended Marine Conservation Zone

Seasearch Dives 2014

Newquay & the Gannel was put forward as a recommended Marine Conservation Zone by the Finding Sanctuary Regional MCZ project in 2011. In 2013 the designation of 27 sites was announced, and Newquay & the Gannel rMCZ was listed 'for further consideration' to gather more evidence of features before the next round of sites were assessed for consultation.

In order to provide opportunities to gather more dive survey evidence, Dive Newquay generously offered to provide free boat time, free air and equipment for Seasearch dive surveys. A collaboration was formed between Dive Newquay, Newquay Marine Group & Cornwall Seasearch (organised via Cornwall Wildlife Trust), to coordinate dives on a monthly basis within the rMCZ for locally based Seasearch divers. Since weather conditions frequently made the North Cornwall coast less favourable for diving, the planned schedule of dives was subject to change, and poor visibility following the storms of early 2014 prevented the start of dive surveying until late May.

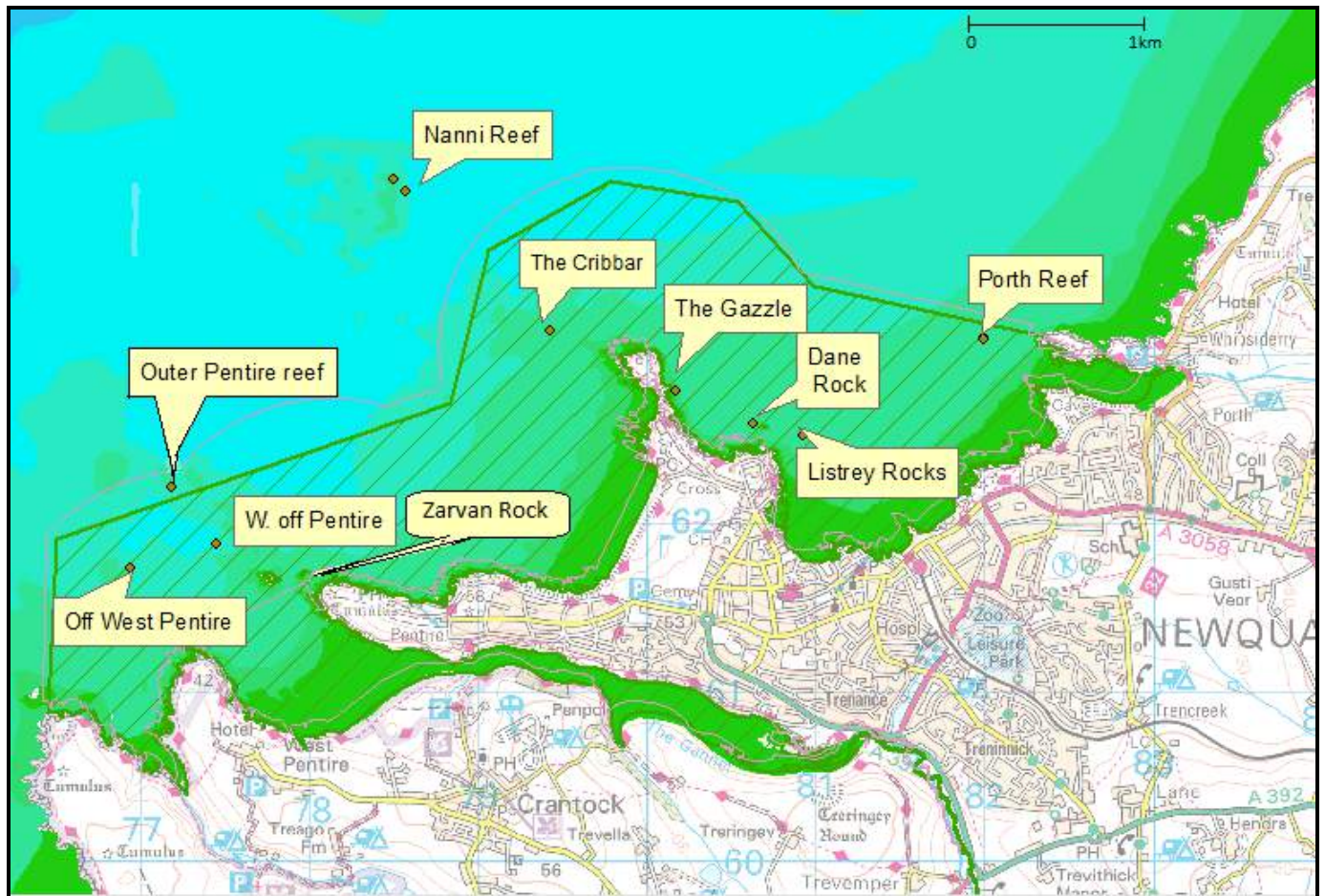
Dive sites were selected using some previously known dive sites and a number of sites not previously dived, but selected from nautical charts as areas likely to be subtidal reef, judged by the change in depth. National Biodiversity Network (NBN) records for MCZ SOCI (Species of Conservation Importance) such as pink sea fans or spiny lobsters were used to indicate possible locations. We aimed to locate pink sea fans in particular, listed as an MCZ SOCI (Species of Conservation Importance) for the site, as well as recording species and substrate for the subtidal reef in general. Additionally, a snorkel survey was carried out at Zarvan Rock, by trainees who had completed a snorkel Observer course as a local trial.

Features of the recommended MCZ

The original features put forward for the rMCZ by the Finding Sanctuary project were the following: Subtidal coarse sediment, Subtidal mud, Subtidal sand, Coastal saltmarshes and saline reedbeds, High energy intertidal rock, Intertidal coarse sediment, Intertidal mud, Intertidal sand and muddy sand, Low energy intertidal rock, Moderate energy intertidal rock, Pink sea-fan (*Eunicella verrucosa*), Giant Goby (*Gobius cobitis*), Native oyster (*Ostrea edulis*), sea snail (*Paludinella littorina*) and the European eel (*Anguilla anguilla*). The sea snail (*Paludinella littorina*) and the European eel (*Anguilla anguilla*) were later removed from the national MCZ feature list due to improved knowledge on the distribution of the snails and consideration of effective management measures to protect migratory species such as eels.

Subtidal Moderate energy infralittoral (seaweed dominated) rock, High energy infralittoral rock and High energy Circalittoral (deeper, animal dominated) rock were added as proposed features for the site in 2015, and the proposed boundary amended for ease of management.

Map



Not for Navigation. Contains data from Ordnance Survey mapping © and UK Seazone / UKHO data ©
Green hatching shows pMCZ boundary, pink curved line shows approximate boundary from Finding Sanctuary project. Shading shows depth – blue areas are deeper, dark green is intertidal.

Almost all sites had the starfish *Marthasterias glacialis*, fish including Pollack, ballan wrasse, goldsinny wrasse, rock cooks, corkwing wrasse, tompot blennies, leopard spotted gobies and bib (pouting) were commonly seen at most sites. The spider crabs *Maja squinado*, Edible crab *Cancer pagurus* and the velvet swimming *Necora puber* were recorded as common at most sites with lobsters *Homarus gammarus* also often seen suggesting from dive observations that local crustacean shellfish populations are healthy and in balance with existing fishing intensity. No MCZ SOCI (Species of Conservation Importance) such as pink sea fans or crawfish / spiny lobsters were seen within the proposed MCZ boundary.

The Gizzle (Lifeboat slip, Towan Headland) 3-10m

This shore dive from Towan Head by Little Fistral features Moderate energy Infralittoral (seaweed dominated) rock with seaweed cover of *Laminaria hyperborea*, and *Laminaria digitata*. Sugar kelp *Saccharina latissima* and furbelows *Saccorhiza polyschides* are also present and large dense aggregations of *Mytilus* mussels on rock, with anemones such as *Actinothoe sphyrodeta* and the spiny starfish *Marthasterias glacialis*. A range of topshells such as *Gibbula* spp. are often seen and this area is often a spot to see spider crabs *Maja squinado*. Sediment in the area is sandy / coarse with *Chorda filum* (mermaids tresses) seaweed and *Ulva* sp. sea lettuce. The finger bryozoan *Alcyonidium diaphanum* was seen

and colourful rainbow weed *Cystoseira tamariscifolia* – a possible climate change indicator species was also seen here. A range of fish were seen – leopard spotted gobies, tompot blennies, ballan wrasse, goldsinny wrasse, corkwing wrasse sea bass and Pollack. Non-native Invasive species seen here include *Sargassum muticum*, and Harpoon weed *Asparagopsis armata*.

Nanni Reef 15-19m

This dive site is NW off the Cribbar / Towan Headland and was outside the recommended MCZ but recommended by the local dive school as a potential nursery area for small shark species and a location with good numbers of pink sea fans. The area featured *Laminaria hyperborea* kelp forest with mixed red algae such as *Plocamium cartilagineum* with deeper rugged High Energy circalittoral (animal dominated) rock with potato crisp bryozoan / Ross *Pentapora foliacea*, frequent pink sea fans *Eunicella verrucosa*, with elasmobranch eggs attached. A 4ft Bull Huss (*Scyliorhinus stellaris*) was encountered at the dive site. Red sea fingers *Alcyonium glomeratum*, the black, white and orange nudibranch *Thecacera pennigera* and the purple nudibranch *Flabellina pedata* were found. A range of sponges were seen including shredded carrot sponge (*Amphilectus fucorum*), crater sponge (*Hemimycale columella*), chocolate finger sponge (*Raspailia (Raspailia) ramosa*), hedgehog sponge (*Polymastia boletiformis*), volcano sponge (*Haliclona (Rhizoniera) viscosa*), and a mixed animal turf of sea squirts and *Alcyonidium diaphanum* and *Bugula spp.* bryozoans.

The Cribbar (off Towan Headland) 16-20m

This site had high exposure to wave energy and requires calm conditions for diving and featured High energy Infralittoral rock with *L. hyperborea*, *Dictyota dichotoma* and *Heterosiphonia plumosa* with *Ceramium sp.*. Deeper High Energy Circalittoral rock with some vertical rock faces with mixed faunal turf of *Pentapora foliacea*, encrusting sponges, *Pachymatisma johnstonia*, *Leucandra gossei*, crater sponge *Hemimycale columella*, the large yellow golf ball sponge *Tethrya citrina*, sea squirts *Clavelina lepadiformis*, *Stolonica socialis*, *Pycnoclavella aurilucens*, *Bugula* bryozoans and anemones including jewel anemones *Anemonia viridis*, *Actinothoe sphyrodeta*, and cup coral *Caryophyllia smithii*. The nudibranch *Flabellina pedata* and large polychaete *Bispira volutacornis* were seen in the Circalittoral habitat with *Bugula spp.* and *Alcyonidium diaphanum* bryozoans. The starfish *Henricia sp.*, cuttle fish *Sepia officinalis*, the squat lobster *Galathea squamifera* and Montagu's crab *Xantho hydrophilus* were seen and the invasive sea squirt *Styela clava*.

Porth Reef / (locally also known as Milky Rough) 10-15m

This site had moderate exposure and featured High Energy Infralittoral rock dominated by a range of red algae *Halurus equisetifolius*, *Calliblepharis jubata*, *Plocamium cartilagineum*, *Rhodothamniella floridula*, sea beech *Delesseria sanguinea*, with *Desmerestia ligulata*, and *Dictyota dichotoma* and *Cladostephus spongiosus*, with sparse worn fronds of *Laminaria hyperborea* kelp park in some areas. High Energy circalittoral rock with mixed faunal turf was found on vertical faces of the rock with the anemones *Actinothoe sphyrodeta*, *Anemonia viridis*, dahlia anemone *Urticina felina* and cup coral *Caryophyllia smithii*, goosebump sponge *Dysidea fragilis*, elephant hide sponge *Pachymatisma johnstonia*, Colonial sea squirt *Morchellium argus*, Light bulb sea squirts *Clavelina lepadiformis*, tiny 'golden lights' squirts *Pycnoclavella aurilucens*, and the feather hydroid *Aglaophenia*. The topknot flatfish *Zeugopterus punctatus* was also seen.

Subtidal Coarse sediment was present with beds of dense sandmason worms *Lanice conchilega* on the southeast and south side of the reef.



Circalittoral rock at the Cribbar reef, with *Actinothoe sphyrodeta*, *Bugula* sp. bryozoans, *Polycarpa scuba* and *Dendrodea grossularia* & very cryptic Macropodia crab

Near Listry Rocks (9-12m)

A record of pink sea fan presence was recorded in NBN at this site from 2003. Although sheltered from SW winds, this site may have strong tidal current and features High Energy Infralittoral rock with *Laminaria hyperborea* kelp forest with brown forked algae *Dictyota dichotoma*, furbellows *Saccorhiza polyschides*, and understory of red algae including *Heterosiphonia plumosa*, *Schottera nicaeensis*, *Phycodrys rubens*, *Rhodymenia ardissoni* and sponges. In shallower areas the green seaweeds *Ulva lactuca* and *Cladophora* could be seen. Vertical rock faces formed High energy Circalittoral rock habitat with mixed faunal turf including the sea squirts star ascidian *Botrylloides schlosseri*, *Botrylloides leachii*, Orange sea squirts *Dendrodoa grossularia*, Colonial squirt *Morchellium argus*, *Polycarpa scuba* and the strawberry sea anemone *Actinia fragacea*, and snakelocks anemone *Anemonia viridis*, were seen. Crustose species included the lace-like bryozoan *Reteporella*, *Bugula* spp. bryozoans, the sponges crater sponge *Hemimycale columella*, shredded carrot sponge *Amphilectus fucorum*, and *Polymastia penicillus*, with the feather hydroid *Plumularia setacea*, and the polychaete worm *Bispira volutacornis*, small colourful nudibranch *Facelina auriculata*, sea spider *Pycnogonida*, and crevice sea cucumber *Pawsonia saxicola* also present within the circalittoral rock habitat.

No pink sea fans were observed at the site (4 divers were present, 2 Surveyor forms completed).

W Off Pentire point (18-22m)

This site has strong tidal current from the flow in / out of the Gannel estuary and high wave energy causing high water movement so requires calm conditions and more experienced divers even at slack tide. This site featured High Energy Infralittoral Rock dominated by *Laminaria hyperborea* kelp forest with red sea beech *Delesseria sanguinea*, brown flattened algae *Desmarestia ligulata*, and brown forked weed *Dictyota dichotoma*. There was an understory of red algae such as *Gelidium spinosum* and *Heterosiphonia plumosa* and red eyelash weed *Calliblepharis ciliata*. Animal-dominated High Energy Circalittoral Rock was also present, with a mixed faunal turf of bryozoans and erect sponges including finger bryozoans *Alcyonidium diaphanum*, *Bugula* spp. bryozoans, shredded carrot sponge *Amphilectus fucorum*, Goosebump sponge *Dysidea fragilis*, white lace sponge *Clathrina coriacea*, and chocolate finger sponge *Raspailia (Raspailia) ramosa*. Devonshire cup corals *Caryophyllia smithii* and sea squirts such as *Stolonica socialis* and *Dendrodia grossularia* were present with a squat lobster *Galathea squamifera*. Fish observed included the topknot *Zeugopterus punctatus*, a conger eel *Conger conger* and a range of wrasse species with leopard spotted gobies *Thorogobius ephippiatus* also present. Subtidal coarse sediment with sand mason worms *Lanice conchilega* was also seen.

Nr Dane Rock (8-12m)

A record of pink sea fan presence was recorded at this site from 2003 in NBN. Although sheltered from SW winds, this site may have strong tidal current and features Moderate Energy Infralittoral Rock dominated by *Laminaria hyperborea* kelp and foliose red seaweeds with *Delesseria sanguinea*, Furbellows *Saccorhiza polyschides*, *Desmarestia ligulata*, serrated wrack *Fucus serratus* and *Dictyota dichotoma* with an understory of Cocks / Red comb weed *Plocamium cartilagineum*, and siphoned feather weed *Heterosiphonia plumosa*. Another biotope present was dominated by dense foliose red seaweeds on silty moderately exposed infralittoral rock including red forked *Rhodomenia ardissoni*, *Cryptopleura ramosa*, Purple claw weed *Cystoclonium purpureum*, Cocks / Red comb weed *Plocamium cartilagineum*, *Heterosiphonia plumosa*, red rags *Dilsea carnosa*, spiny straggle weed *Gelidium spinosum* with a range of grazing molluscs present including the Grey topshell *Gibbula cineraria*, Purple topshell *Gibbula umbilicalis*, and Painted topshell *Calliostoma Zizyphinum*. Encrusting on the rocks were finger bryozoans *Alcyonidium diaphanum*, *Bugula* spp. bryozoans and the white encrusting bryozoan *Disporella hispida* with the star ascidian *Botryllus schlosseri*, boring sponge *Cliona celata*, and Goosebump sponge *Dysidea fragilis*. A sea spider *Pycnogonida* and skelton shrimp *Caprella* sp were seen as well as a range of larger crabs. Rocky reef areas were interspersed with subtidal coarse sediment of coarse sand and shell fragments. The non-native Ruby Bryozoan species *Bugula neritina* was recorded at this site. No pink sea fans were observed at the site by the 4 divers present.



Mixed red algae inc. forked *Rhodymenia ardissonae* and polychaete fan worm *Bispira volutacornis*

Outer Pentire Reef (17-20m) [close to the original site boundary limit, excluded from the site by the boundary amendment.]

This site had high exposure to wave energy and requires calm conditions for diving and featured Moderate Energy Infralittoral rock *Laminaria hyperborea* on tide-swept, infralittoral rock recorded by one surveyor with and understory of sea beech *Delesseria sanguinea*, *Desmarestia ligulata*, and *Dictyota dichotoma*. High Energy *Laminaria hyperborea* park with dense foliose red seaweeds on exposed infralittoral rock was recorded in a slightly different area with an understory of Irish sea moss *Chondrus crispus*, Red pincer weed *Ceramium* sp. red algae mermaid's ear *Meredithia microphylla*, Cocks / Red comb weed *Plocamium cartilagineum*, red sea oak *Phycodrys rubens*.

The site also featured High Energy Circalittoral rock with mixed faunal turf with areas dominated by sponges and anemones on vertical rock. Sponges included shredded carrot sponge *Amphilectus fucorum*, white lace sponge *Clathrina coriacea*, orange crater sponge Hemimycale columella, chocolate finger sponge *Raspailia (Raspailia) ramosa*, volcano sponge (*Haliclona (Rhizoniera) viscosa*), boring sponge *Cliona celata* and anemones such as the Sandalled anemone *Actinothoe sphyrodeta*, Devonshire cup coral *Caryophyllia smithii* and jewel anemones *Corynactis viridis* were common. In areas of Circalittoral rock with mixed faunal turf, hydroids such as Antenna hydroid, *Nemertesia antennina*, feather hydroids *Aglaophenia* spp., the star ascidian *Botryllus schlosseri* and colonial sea squirts *Diplosoma listerianum*, *Diplosoma spongiforme*, Ross / potato crisp bryozoan *Pentapora foliacea*, and mixed bryozoan species *Bugula* spp. were covering the rocks, in addition to sponges and anemones. Notable animal species included the less common cushion star *Asterina phylactica*, polychaete fan worm *Bispira volutacornis*, Bloody henry *Henricia* sp. and lesser spotted catchark (AKA dogfish) *Scyliorhinus canicula*. Within the coarse subtidal sediment of coarse sand and shell fragments the queen scallop was seen in small numbers.

Off W. Pentire headland (18.5-22m)

This site had high exposure to wave energy and requires calm conditions for diving and featured High Energy Infralittoral rock with Kelp with cushion fauna and/or foliose red seaweeds This included *Laminaria hyperborea*, with an understory of brown and red algae such as *Desmarestia ligulata*, and brown forked weed *Dictyota dichotoma*, red sea beech *Delesseria sanguinea*, Irish sea moss *Chondrus crispus*, red iridescent rainbow weed *Drachiella spectabilis*, siphoned feather weed *Heterosiphonia plumosa*, red sea oak *Phycodrys*

rubens, and Horsetail seaweed *Halurus equisetifolius*. Encrusting on the rocks was Goosebump sponge *Dysidea fragilis*, *Balanus* spp. barnacles, and *Spirorbis* sp. and *Spirobranchus* sp. (formerly *Pomatoceros* sp.) polychaete worms.

The site also feature High Energy Circalittoral (animal dominated) rock with mixed faunale turf including feather hydroids *Aglaophenia* spp, branched antenna hydroid *Nemertesia ramosa*, mixed bryozoans *Bugula* spp., hornwrack bryozoan *Flustra foliacea* and a range of sponges such as shredded carrot sponge *Amphilectus fucorum*, chocolate finger sponge *Raspailia* (*Raspailia*) *ramosa*, volcano sponge (*Haliclona* (*Rhizoniera*) *viscosa*), orange crater sponge *Hemimycale columella* , and the less common pink sponge *Aplysilla rosea*. A range of anemones and sea squirts was also present including jewel anemones *Corynactis viridis*, sea squirt *Polycarpa scuba*, golden lights squirts *Pycnoclavella aurilucens* , and the Orange baked bean squirt *Dendrodia grossularia*,. Molluscs present included mussels *Mytilus edulis* (likely to include *M. galloprovincialis* hybrids) , the carnivorous netted dog whelk *Nassarius reticulatus* and nudibranchs included the white black & orange spotted *Thecacera pennigera* and white and purple / red *Facelina auriculata*.

Subtidal coarse sediment was seen with coarse sand, broken shell and pebbles & cobbles with *Spirorbis* sp. and *Spirobranchus* sp. (formerly *Pomatoceros* sp.) polychaete worms and a Nemertean worm (unidentified) recorded.

Zarvan Rock (snorkel survey)

This small rocky island lies between Pentire Headland and The Goose rock, and was snorkelled by a number of Observer divers as a trial. The area has a fair amount of current and featured Infralittoral rock with *Laminaria digitata*, brown algae *Desmarestia aculeata*, the possible climate change indicator rainbow wrack *Cystoseira tamariscifolia*, channel wrack *Pelvetia canaliculata*, painted topshells *Calliostoma zizyphinum*, dog whelks *Nucella lapillus*, spiny starfish, *Marthasterias glacialis* and encrusting red algae, barnacles, edible crabs and spider crabs.



Flabellina pedata nudibranch on mixed faunal turf Circalittoral rock, the Cribbar

Summary of biotopes found at each site and total species with survey effort

	The Gazzle	Nanni Reef	Off Cribbar Reef	Porth Reef	Near Listrey Rocks
	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14
Biotopes recorded	IR.MIR.KR SS.SSa.IFiSa	IR.HIR.KFaR CR.HCR.XFa IR.HIR.KFaR.LhypFa CR.HCR.XFa.ByErSp.Eun MCZ SOCI – <i>Eunicella verrucosa</i>	IR.FIR.SG SS.SCS.ICS.SSh IR.HIR.KFaR CR.HCR.XFa CR.HCR.XFa.SpAnVt	IR.HIR SS.SCS.ICS CR.HCR.XFa IR.HIR.KFaR.FoR IR.HIR.KFaR.LhypR.Pk SS.SCS.ICS.SLan	IR.HIR.KFaR.LhypR.Ft CR.HCR.XFa SS.SCS.ICS IR.HIR.KFaR.LhypR.Pk
Total species recorded	82	70	82	84	87
Survey effort	6 Observer divers 1 Surveyor diver	2 Surveyor divers	2 Observer divers 2 Surveyor divers	3 Surveyor divers	2 Surveyor divers
	West Off Pentire point	Near Dane Rock	Outer Pentire	Off West Pentire Headland	Zarvan Rock
	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
Biotopes recorded	IR.HIR.KFaR.LhypR.Ft CR.HCR.XFa.ByErSp SS.SCS.CCS	IR.MIR.KR.XFoR IR.MIR.KR.Lhyp SS.SCS	IR.HIR.KFaR.LhypR.Pk CR.HCR.XFa.SpAnVt SS.SCS.CCS IR.MIR.KR.LhypT CR.HCR.XFa	IR.HIR.KFaR CR.HCR.XFa SS.SCS.CCS	Observer level Infralittoral rock
Total species recorded	45	53	85	77	24
Survey effort	1 Surveyor diver	1 Surveyor diver	2 Observer divers 2 Surveyor divers	2 Surveyor divers	3 Observers (snorkelling)

Species present	The Gazzle	Nanni Reef	Cribbar Reef	Porth Reef	Near Listrey Rocks	West Off Pentire	Near Dane Rock	Outer Pentire	Off West Pentire	Zarvan Rock
	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
Acanthodoris									✓	
Actinia equina										✓
Actinia fragacea	✓				✓					
Actinothoe sphyrodeta	✓	✓	✓	✓				✓		
Aequipecten opercularis								✓		
Aetea anguina									✓	
Aglaophenia				✓	✓			✓	✓	
Aglaophenia kirchenpaueri									✓	
Aglaophenia tubulifera		✓						✓		
Aglaopheniidae	✓							✓		
Alaria esculenta	✓									✓
Alcyonidium diaphanum	✓	✓	✓	✓		✓	✓	✓	✓	
Alcyonidium hirsutum		✓						✓		
Alcyonium digitatum				✓	✓					
Alcyonium glomeratum		✓								
Ammodytes tobianus	✓									
Ammodytidae	✓									
Amphilectus fucorum		✓	✓		✓	✓		✓	✓	
Amphisbetia operculata		✓	✓		✓			✓	✓	
Anemonia viridis	✓		✓	✓	✓	✓				
Aplidium punctum		✓	✓		✓				✓	
Aplysilla rosea									✓	
Apoglossum ruscifolium		✓								
Ascidia mentula			✓							
Asciacea				✓						
Aslia lefevrii						✓				
Asterias rubens			✓	✓				✓		
Asterina gibbosa						✓				
Asterina phylactica								✓		
Aurelia aurita										✓
Balanophyllia regia	✓	✓								
Balanus balanus					✓				✓	
Balanus crenatus			✓					✓	✓	
Bispira volutacornis	✓		✓	✓	✓			✓	✓	
Botrylloides leachii					✓					
Botryllus schlosseri	✓				✓		✓	✓	✓	
Bowerbankia citrina				✓						
Bryozoa indet crusts					✓				✓	
Buccinum undatum	✓				✓					

Selley, H. (2015) Newquay Area & Newquay and the Gannel recommended Marine Conservation Zone Seasearch Dives 2014. Conducted in collaboration with Dive Newquay, Cornwall Seasearch and Newquay Marine Group.

Species present	The Gazzle	Nanni Reef	Cribbar Reef	Porth Reef	Near Listrey Rocks	West Off Pentire	Near Dane Rock	Outer Pentire	Off West Pentire	Zarvan Rock
	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
Bugula	✓			✓		✓				
Bugula flabellata		✓	✓	✓	✓			✓	✓	
Bugula neritina							✓			
Bugula plumosa		✓	✓	✓	✓		✓	✓	✓	
Bugula turbinata			✓	✓	✓			✓	✓	
Bugulidae		✓								
Calliblepharis ciliata						✓				
Calliblepharis jubata				✓						
Callionymus lyra	✓			✓						✓
Calliostoma zizyphinum		✓	✓	✓	✓		✓		✓	✓
Callophyllis laciniata							✓	✓		
Cancer pagurus	✓	✓	✓	✓	✓		✓	✓	✓	✓
Caprella linearis							✓			
Caryophyllia smithii	✓	✓		✓		✓		✓		
Cellaria					✓					
Cellariidae								✓		
Centrolabrus exoletus		✓		✓						
Ceramium			✓					✓		
Chondrus crispus	✓		✓					✓	✓	
Chorda filum	✓			✓	✓					
Chromista						✓				
Chromophycota indet. (crusts)							✓			
Chrysaora hysoscella	✓									
Ciona intestinalis				✓					✓	
Cirripedia	✓		✓		✓					✓
Cladophora pellucida					✓					
Cladostephus spongiosus				✓	✓					
Clathrina coriacea		✓	✓			✓		✓	✓	
Clavelina lepadiformis	✓	✓		✓	✓					
Cliona celata	✓	✓	✓	✓	✓	✓	✓	✓		
Clytia hemisphaerica		✓					✓		✓	
Conger conger						✓				
Corallina officinalis	✓									✓
Corynactis viridis		✓	✓					✓	✓	
Coryne eximia			✓							
Crangon crangon	✓									
Crangonidae	✓									
Crisia		✓	✓			✓		✓	✓	
Crisia denticulata				✓	✓			✓		
Crisiidae		✓					✓			

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	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
<i>Cryptopleura ramosa</i>			✓	✓	✓		✓			
<i>Ctenolabrus rupestris</i>	✓		✓			✓		✓	✓	
<i>Cyanea lamarckii</i>					✓					✓
<i>Cystoclonium purpureum</i>							✓			
<i>Cystoseira tamariscifolia</i>	✓									✓
<i>Delesseria sanguinea</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Dendrodoa grossularia</i>				✓	✓	✓	✓		✓	
<i>Dercitus (Dercitus) bucklandi</i>		✓								
<i>Desmarestia</i>				✓						✓
<i>Desmarestia aculeata</i>				✓	✓					✓
<i>Desmarestia ligulata</i>	✓			✓	✓	✓	✓	✓	✓	
<i>Dicentrarchus labrax</i>	✓									
<i>Dictyopteris polypodioides</i>				✓	✓	✓		✓		
<i>Dictyosiphon foeniculaceus</i>					✓					
<i>Dictyota dichotoma</i>			✓	✓	✓	✓	✓	✓	✓	
<i>Dilsea carnosa</i>		✓		✓	✓		✓	✓	✓	
<i>Diplosoma listerianum</i>					✓			✓		
<i>Diplosoma spongiforme</i>								✓	✓	
<i>Disporella hispida</i>					✓		✓	✓		
<i>Drachiella spectabilis</i>	✓					✓			✓	
<i>Dysidea fragilis</i>		✓		✓	✓	✓	✓	✓	✓	
<i>Echinocardium cordatum</i>			✓							
<i>Echinus esculentus</i>		✓	✓							
<i>Electra pilosa</i>		✓	✓		✓	✓	✓	✓	✓	
encrusting algae indet.	✓		✓		✓		✓	✓		✓
<i>Eunicella verrucosa</i>		✓								
<i>Facelina auriculata</i>					✓				✓	
<i>Flabellina</i>			✓							
<i>Flabellina pedata</i>	✓	✓	✓							
<i>Flustra foliacea</i>		✓	✓						✓	
<i>Fucus</i>	✓									
<i>Fucus serratus</i>							✓			
<i>Galathea</i>	✓									
<i>Galathea squamifera</i>			✓			✓				
<i>Galathea strigosa</i>				✓						
<i>Gastroclonium ovatum</i>							✓			
<i>Gelidium</i>				✓						
<i>Gelidium spinosum</i>							✓			
<i>Gibbula cineraria</i>				✓	✓		✓	✓	✓	

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Species present	The Gazzle	Nanni Reef	Cribbar Reef	Porth Reef	Near Listrey Rocks	West Off Pentire	Near Dane Rock	Outer Pentire	Off West Pentire	Zarvan Rock
	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
<i>Gibbula umbilicalis</i>							✓			
<i>Gobiusculus flavescens</i>									✓	
<i>Grantia compressa</i>		✓						✓		
<i>Grateloupia subpectinata</i>			✓							
<i>Griffithsia</i>				✓						
<i>Gymnangium montagui</i>		✓		✓	✓					
<i>Halarachnion ligulatum</i>				✓	✓					
<i>Halecium</i>								✓		
<i>Halichoerus grypus</i>	✓									
<i>Halichondria panicea</i>			✓	✓						
<i>Haliclona viscosa</i>		✓			✓			✓	✓	
<i>Halidrys siliquosa</i>	✓							✓		
<i>Halurus equisetifolius</i>				✓	✓	✓			✓	
<i>Hemimycale columella</i>		✓	✓	✓	✓			✓	✓	
<i>Henricia</i>		✓	✓			✓		✓	✓	
<i>Henricia oculata</i>			✓							
<i>Heterosiphonia</i>			✓							
<i>Heterosiphonia plumosa</i>			✓	✓	✓	✓	✓	✓	✓	
<i>Himantalia elongata</i>	✓			✓						
<i>Homarus gammarus</i>	✓	✓	✓	✓	✓			✓		
<i>Hydrallmania falcata</i>	✓									
<i>Isozoanthus sulcatus</i>		✓								
<i>Labrus bergylta</i>	✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Labrus mixtus</i>	✓	✓						✓	✓	
<i>Laminaria</i>	✓		✓					✓		✓
<i>Laminaria digitata</i>										✓
<i>Laminaria hyperborea</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Lanice conchilega</i>				✓	✓	✓				
<i>Leucandra gossei</i>			✓							
<i>Leucosolenia</i>					✓					
<i>Limacia clavigera</i>		✓								
<i>Lipophrys pholis</i>	✓									
<i>Lissoclinum perforatum</i>								✓	✓	
<i>Loligo</i>	✓									
<i>Lomentaria articulata</i>								✓		
<i>Maja squinado</i>	✓	✓	✓	✓	✓	✓		✓	✓	✓
<i>Marthasterias glacialis</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Membranipora membranacea</i>	✓	✓	✓		✓	✓	✓	✓	✓	
<i>Membranoptera alata</i>								✓		

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	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
<i>Meredithia microphylla</i>			✓					✓		
<i>Metridium senile</i>	✓									
<i>Morchellium argus</i>	✓			✓	✓			✓	✓	
<i>Mytilus edulis</i>	✓		✓		✓			✓	✓	
<i>Nassarius reticulatus</i>	✓		✓	✓	✓				✓	
<i>Necora puber</i>	✓			✓	✓	✓	✓	✓	✓	
Nemertea									✓	
<i>Nemertesia antennina</i>	✓	✓						✓		
<i>Nemertesia ramosa</i>		✓							✓	
<i>Nucella lapillus</i>	✓			✓						✓
<i>Obelia</i>	✓		✓							
<i>Obelia geniculata</i>	✓	✓		✓	✓	✓	✓	✓	✓	
<i>Pachymatisma johnstonia</i>			✓	✓						
Paguridae	✓									
<i>Pagurus bernhardus</i>	✓				✓					
<i>Palaemon</i>				✓						
<i>Palaemon serratus</i>							✓	✓	✓	
Palaemonidae								✓		
<i>Palmaria palmata</i>				✓						
<i>Parablennius gattorugine</i>	✓	✓	✓	✓	✓	✓		✓		
<i>Parasmittina trispinosa</i>							✓			
<i>Parazoanthus axinellae</i>		✓								
<i>Patella</i>	✓									✓
<i>Patella pellucida</i>	✓						✓			
Patellidae	✓									
<i>Pawsonia saxicola</i>					✓					
<i>Pelvetia canaliculata</i>										✓
<i>Pentapora foliacea</i>		✓	✓					✓		
<i>Perforatus perforatus</i>				✓						
<i>Petalonia fascia</i>		✓								
Phaeophyceae	✓									
<i>Phoronis hippocrepia</i>			✓							
<i>Phycodrys rubens</i>			✓		✓	✓	✓	✓	✓	
<i>Plocamium cartilagineum</i>		✓		✓			✓	✓		
<i>Plumularia setacea</i>					✓					
<i>Pollachius pollachius</i>	✓	✓	✓	✓	✓	✓	✓			
<i>Polycarpa scuba</i>				✓	✓		✓		✓	
<i>Polydes rotunda</i>	✓									
<i>Polymastia boletiformis</i>		✓								
<i>Polymastia penicillus</i>					✓					

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	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
<i>Polysiphonia</i>			✓	✓	✓					
<i>Pomatoschistus</i>	✓					✓			✓	
Porifera indet crusts	✓		✓	✓	✓	✓		✓	✓	✓
<i>Pycnoclavella aurilucens</i>			✓	✓					✓	
<i>Pycnogonida</i>					✓		✓			
<i>Raspailia (Raspailia) ramosa</i>		✓				✓		✓	✓	
<i>Reteporella</i>					✓					
<i>Rhodophyllis</i>			✓							
<i>Rhizostoma pulmo</i>								✓		✓
Rhodophyta	✓	✓	✓			✓		✓		✓
<i>Rhodothamniella floridula</i>				✓			✓			
<i>Rhodymenia ardissoni</i>					✓		✓			
<i>Rhodymenia holmesii</i>								✓		
<i>Rissoa parva</i>									✓	
<i>Sabella pavonina</i>				✓						
<i>Saccharina latissima</i>				✓						
<i>Saccorhiza polyschides</i>	✓				✓		✓			
<i>Sagartia elegans</i>	✓			✓						
<i>Sargassum muticum</i>	✓									
<i>Schizomavella linearis</i>							✓			
<i>Schottera nicaeensis</i>		✓	✓	✓	✓			✓		
<i>Scrupocellaria</i>							✓		✓	
<i>Scyliorhinus canicula</i>		✓						✓		
<i>Scyliorhinus stellaris</i>		✓								
<i>Sepia officinalis</i>	✓	✓	✓	✓	✓					
<i>Sepiola atlantica</i>	✓									
<i>Serpula vermicularis</i>				✓	✓		✓	✓	✓	
<i>Sertularia argentea</i>		✓								
<i>Spirobranchus</i>		✓						✓	✓	
<i>Spirobranchus triqueter</i>				✓	✓					
<i>Spirorbis</i>			✓	✓	✓		✓	✓	✓	
<i>Stolonica socialis</i>			✓			✓				
<i>Styela clava</i>		✓	✓							
<i>Suberites ficus</i>			✓						✓	
<i>Sycon ciliatum</i>			✓		✓			✓		
<i>Symphodus melops</i>	✓	✓	✓	✓	✓					
<i>Syngnathus acus</i>	✓									
<i>Taonia atomaria</i>						✓				
<i>Taurulus bubalis</i>	✓		✓	✓						

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	May-Sept-14	05-Jun-14	16-Jun-14	14-Jul-14	23-Jul-14	07-Aug-14	23-Aug-14	03-Sep-14	09-Sep-14	11-Jul-14
<i>Tethrya citrina</i>			✓							
<i>Thecacera pennigera</i>		✓							✓	
<i>Thorogobius ephippiatus</i>	✓		✓		✓	✓		✓	✓	
<i>Tricolia pullus</i>			✓							
<i>Trisopterus luscus</i>	✓			✓	✓		✓		✓	
<i>Trisopterus minutus</i>									✓	
<i>Trivia</i>								✓		
<i>Trivia monacha</i>			✓	✓				✓	✓	
<i>Tubularia indivisa</i>		✓			✓				✓	
<i>Ulva</i>	✓	✓		✓			✓			
<i>Ulva lactuca</i>	✓				✓		✓			
<i>Urticina felina</i>			✓	✓					✓	
<i>Vesicularia spinosa</i>			✓							
<i>Xantho hydrophilus</i>			✓							
<i>Zeugopterus punctatus</i>			✓	✓		✓				
Grand Total	82	70	82	84	87	45	53	85	77	24