SEASEARCH SURVEY - NEWQUAY MCZ

13th and 14th May 2017

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This is a report on the findings of a weekend of Seasearch dive surveys carried out in and around Newquay and The Gannel Marine Conservation Zone, organized by Cornwall Wildlife Trust and funded by Sea-Changers.

Seasearch Survey - Newquay MCZ

THE NEWQUAY AND THE GANNEL MARINE CONSERVATION ZONE (MCZ)

Newquay and The Gannel MCZ was designated in the first tranche of MCZs in 2013.

Extending from Kelsey Head to the west to Trevelgue Headland in the east, this stretch of Cornwall's North Coast is rugged and wave-exposed with five rocky promontories and four sandy bays, and one brackish estuary - the Gannel. The west-facing sandy beaches of Crantock and Fistral beach are highly exposed to westerly swells, the smaller beaches of Porth to the east and Polly Joke to the west are narrow but still exposed and Towan Head provides a degree of shelter to the sandy beaches of Newquay Bay – Towan, Great Western, Tolcarne and Lusty Glaze which are separate beaches at high tide and joined together as one long arc of sand at low tide. There are several rocky islands and submerged reefs off the headlands including the Chick (just outside the boundary of the MCZ) to the west, a large rocky island, important as a haul out for grey seals, the Goose – a large rock off East Pentire and the submerged reefs of The Cribbar and Zarvans off Pentire. The Gannel estuary is sandy and its upper reaches have large areas of saltmarsh vegetation. The rocky headlands are made of slatey, metamorphic rock with many gullies and caves rich in micro habitats. Just outside the boundary of the MCZ, 1km to the north-east, lies Poltexas Reef and to the north-west of the Towan Head is Nanni Reef. Both are rich in biodiversity and are home to important species such as Pink Seafan and Crawfish.

CONSERVATION OBJECTIVES

The site's conservation objectives apply to the Marine Conservation Zone and the individual species and/or habitat for which the site has been designated (the "Designated Features" listed below). The conservation objective of the zone is that the protected habitats:

1. are maintained in favourable condition if they are already in favourable condition

2. be brought back to favourable condition if they are not already in favourable condition

For each protected feature, favourable condition means that, within a zone:

1. its extent is stable or increasing.

2. its structure and functions, its quality, and the composition of its characteristic biological communities (including diversity and abundance of species forming part of or inhabiting the habitat) are sufficient to ensure that its condition remains healthy and does not deteriorate.

Any temporary deterioration in condition is to be disregarded if the habitat is sufficiently healthy and resilient to enable its recovery.

For each species of marine fauna, favourable condition means that the population within a zone is supported in numbers which enable it to thrive, by maintaining:

1. the quality and quantity of its habitat.

2. the number, age and sex ratio of its population.

Any temporary reduction in numbers of a species is to be disregarded if the population is sufficiently thriving and resilient to enable its recovery.

Any alteration to a feature brought about entirely by natural processes is to be disregarded when determining whether a protected feature is in favourable condition.

DESIGNATED FEATURES FOR NEWQUAY AND THE GANNEL MCZ

- Estuarine rocky habitats
- Coastal saltmarshes and saline reedbeds
- Low energy intertidal rock
- Moderate energy intertidal rock
- High energy intertidal rock
- Intertidal coarse sediment
- Intertidal mixed sediments
- Intertidal sand and muddy sand
- Intertidal mud
- Moderate energy infralittoral rock
- High energy infralittoral rock
- Subtidal Sand

- Subtidal coarse sediment
- High energy circalittoral rock
- Giant goby (*Gobius cobitis*)

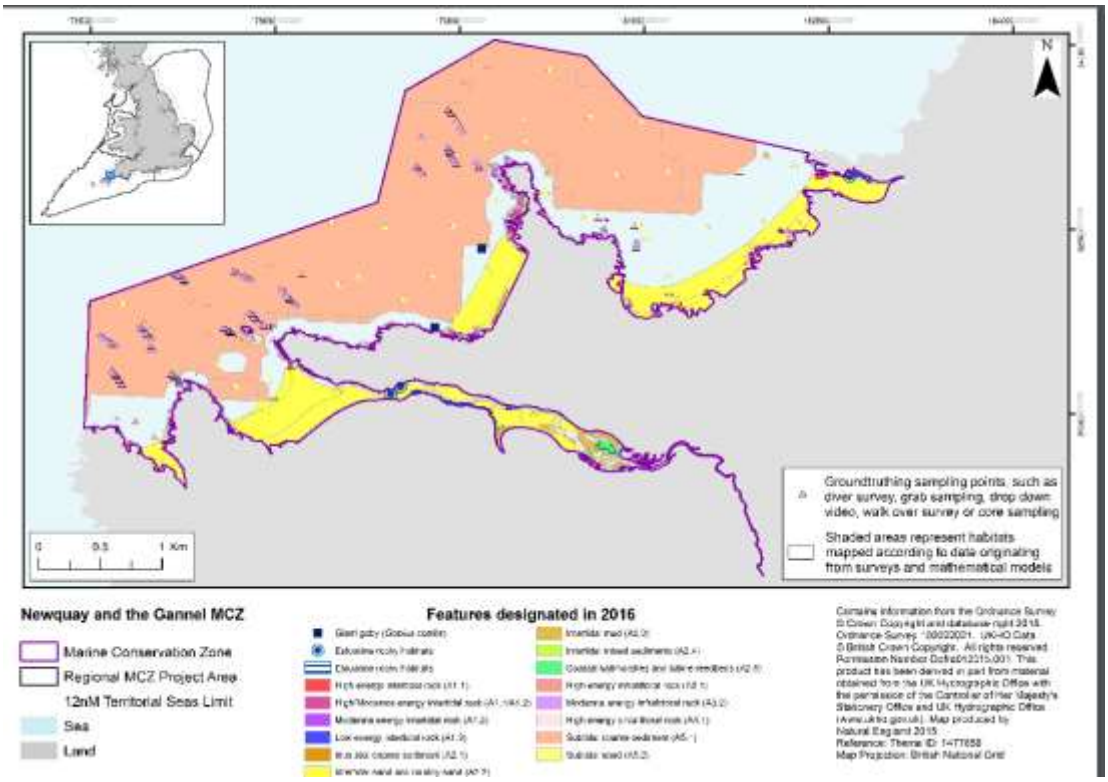

Figure 1 Protected features of Newquay and The Gannel MCZ from DEFRA www.gov.uk

Aim of the dive survey

Our aims for this survey were

- To collect data from some un-surveyed areas of the MCZ.
- To asses condition of one of the offshore reefs outside the boundary of the MCZ.
- To increase our knowledge of the species and habitats found in the area.
- To raise public awareness by photographing and filming marine life during the surveys to be a significant contribution to a documentary on the MCZ being made by www.hydromotionmedia.com
- To develop the skills of our team of volunteer divers.

Seasearch data collected in previous years was plotted on a map so we could see where there were gaps. We also had to factor in the likelihood for the prevailing westerly winds and swells making diving some sites difficult so back up options were agreed prior to the weekend.

Dive locations

The following dive locations were chosen

- Poltexas Reef
- West Pentire
- The Cribbar
- Seal Cove, off Polly Joke
- Backup – Listry Rocks (Newquay Bay)

On the weekend we had a relatively good forecast on the Saturday but the wind was forecast to increase through the weekend from the SW and the swell was forecast to increase. We decided with the help of expert Skipper Chris Lowe to dive Poltexas and West Pentire on the first day and on the second day we chose the more sheltered Seal Cove and Listry Rock for the last dive. Actually of all the sites Listry Rock was probably one of the most interesting as it is relatively rare to find a moderately sheltered reef in this area!

Figure 2 The Atlantic Diver

The team

We were very lucky to have an excellent boat and skipper to use when carrying out surveys on Cornwall's North Coast. Chris Lowe and his wife Annabelle have been running a successful charter boat business from Newquay harbour for over 20 years (www.atlanticdiver.co.uk). Chris and Annabelle have a wealth of knowledge about the area and they are passionate conservationists who support the work of Cornwall Wildlife Trust, as well as being active volunteers for Cornwall Seal Group, British Divers Marine Life Rescue and Newquay Marine Group. They offered us a special discount price for the weekend and the support they gave with the planning and execution of this survey weekend was invaluable. The boat – the Atlantic Diver - is a 10m Blyth catamaran with a wide working platform and a hydraulic diver lift. There is a galley and toilet and it is unbelievable luxury!

We were joined by the following volunteer divers:

Saturday 13th May

1. Thomas Daguerre – Seasearch Observer, zoologist and Film Maker www.hydromotionmedia.com
2. Matt Brown – videographer – assisting Tom
3. Jane Morgan – Underwater photographer and lecturer at Falmouth University
4. Jan Ziolo – Seasearch Observer
5. James Wright – Curator of National Marine Aquarium and Seasearch Observer
6. Mark Parry – Community Seagrass Initiative manager and Seasearch Observer
7. Veronika Kruse - Dive instructor and Seasearch Observer
8. Paddy Maher - Dive instructor and owner of Dive Newquay, Seasearch Surveyor
9. Andrew Grant – Seasearch Surveyor and photographer
10. Emma Coombe – Seasearch Observer and photographer
11. John Yarrow – Photographer and Seasearch Surveyor (trainee)
12. Matt Slater – Marine biologist, Seasearch Surveyor and tutor (trainee)

Sunday 14th May

The same team took part in dives but on day 2 Sally Sharrock – Underwater Videographer and Seasearch Surveyor and Tutor - replaced Jane Morgan.

Figure 3 The dive team (minus Sally who joined us on day 2)

The location of dives carried out

Figure 4 Dives carried out - each pin is the starting position of a buddy pair.

Dive 1 – Poltexas Reef Summary of findings

Poltexas Reef is a rocky reef off Watergate Bay approximately 1 kilometer North East of the boundary of the MCZ. The reef itself is a bell shape with a steep outer slope facing south and a stubby pinnacle on top of the reef – the other sides of the reef slope gradually to a subtidal gravel sea bed. With a maximum depth of 19m (bsl). We dived the site at approx. 1 pm on a neap tide, low water, slack. Divers were spread out along the reef, see Figure 4.

There was a considerable algae bloom in the water consisting of globular, slimy, 'may tide' – probably *Phaeocystis* and other species which made the visibility limited to approx. 5 m but it was easy to see and record animals and algae growing on the seabed.

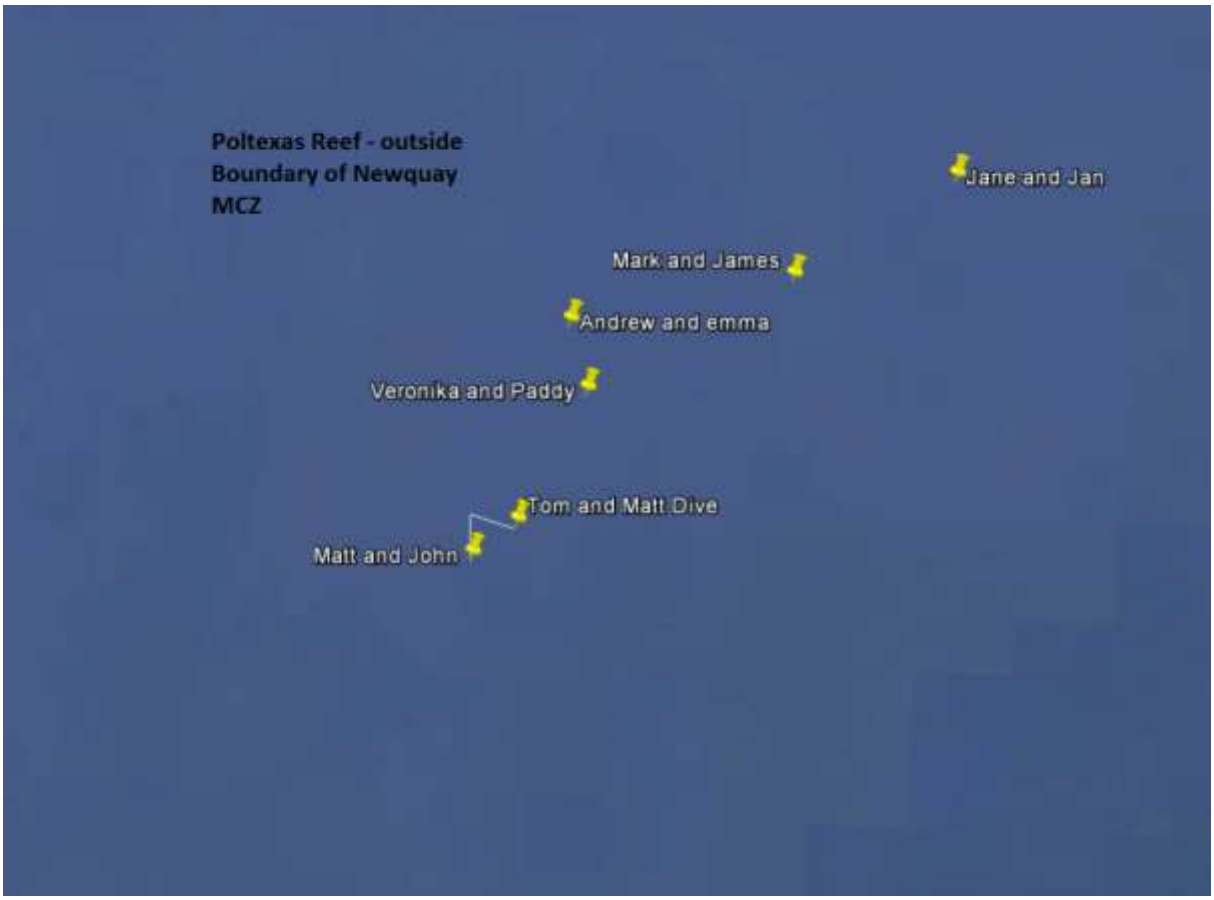

Figure 5 Dive buddies start positions plotted using Google Earth

50° 26.395'N 005° 04.655'W – Matt and John's position at start of dive (same as Tom and Matt) for reference only.

Notable features of this dive were the frequency of records of both Pink seafans, *Eunicella verrucosa*, and the Crawfish, *Palinurus elephas*. Although previous surveys of the reef indicated a good population of pink seafans the health of the

fans was notable and they appear to be thriving. Many of the fans were host to the seafan nudibranch *Tritonia nilsodhneri*.

Figure 6 Pink Seafan, Eunicella verrucosa. Photo by Matt Slater

Figure 7 Pink seafan nudibranch, Tritonia nilsodhneri. Photo by Jane Morgan

Crawfish

Something that had not been observed on this dive site over previous years was the presence of crawfish, a species that was once common on Cornwall's north coast but that was over exploited in the 1960's and 1970's to a point where they were rarely caught or seen. It was exciting to see one within the first square meter of rock that was observed! We

were placed at the front of the south facing reef and we were amazed to see crawfish in nearly every crevice! A total of 10 individuals were recorded by myself during the dive. It's a dive site that I have visited many times in the past between 2002 and 2016 but this is the first time I have seen a crawfish there. The animals were carefully photographed and were also witnessed by my buddy John Yarrow.

They were hiding in crevices and beneath overhangs on the south facing vertical faces on the edges of the reef at a depth of between 14 and 19 meters (bsl, low tide slack neaps).

All were relatively small varying between an estimated **carapace length** of 30mm to 100mm

Crawfish 1, approx. carapace length 30mm

Crawfish 2, approx. carapace length 35mm

Crawfish 3, approx. carapace length 60mm

Crawfish 4, approx. carapace length 30mm

Crawfish 5, approx. 100mm Carapace length

Crawfish 6, approx. 100mm carapace length

Crawfish 7, approx. 60mm carapace length

Crawfish 8, approx. 100mm carapace length

Crawfish 9, approx. 100mm carapace length

Crawfish 10, approx. carapace length 40mm

All photos were taken using an Olympus TG 2 with a Side kick duo LED video light.

The terrain was rocky and consisted of high energy circalittoral rock. But there was a fair amount of silty material on the rocks and animal turf. The top of the reef was at approx. 12 meters (bsl) and featured red seaweed cover made

up of *Delessaria sanguinea, Heterosiphonia plumosa, and Calleblepharis ciliata, and small brown seaweeds Dictyopteris polypoidioides* and *Dichtyota dichotoma*. Vertical faces at this depth were covered in Jewel anemones *Corynactis viridis*.

Figure 8 Habitat one - jewel anemones, sponge and red algae

Figure 9 Acanthodoris pilosa mating possibly or feeding on fleshy bryozoan

Figure 10 Edmundsella (formerly Flabellina) pedata

Figure 11 Doto fragilis – nudibranch. Photo by James Wright

Figure 12 Squirrel tail hydroid Sertularia argentea

Figure 13 Parazoanthus axinellae Yellow Cluster anemone.

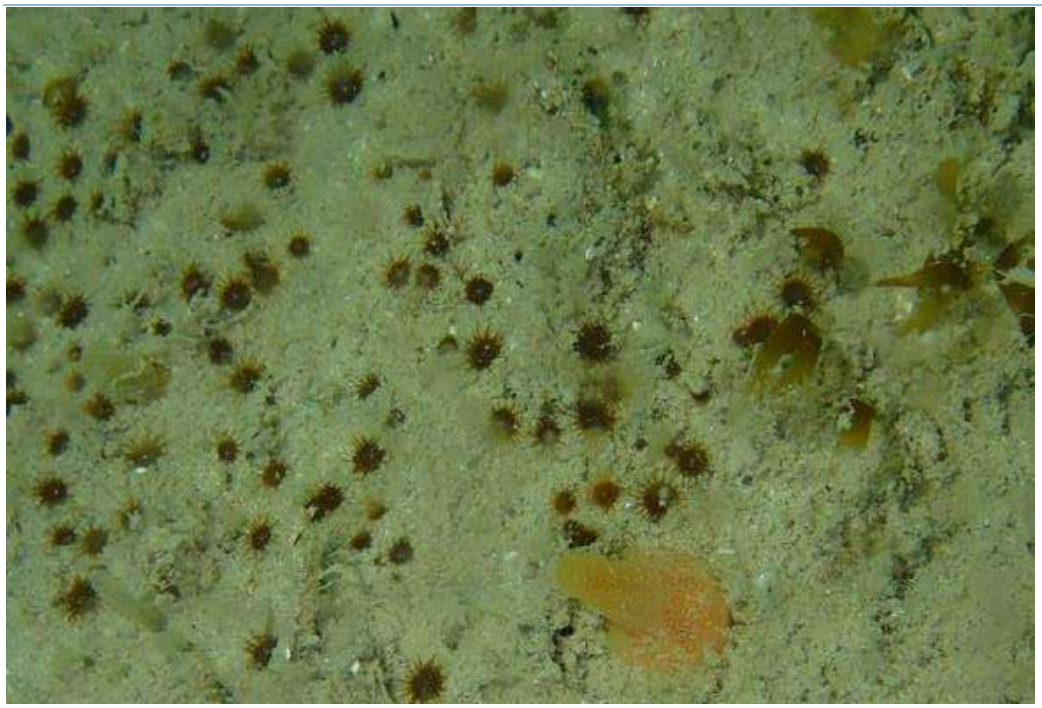

Figure 14 Ginger tiny anemones, Isozoanthus sulcatus

Deeper rocky vertical faces deeper than 14m down to 19m were dominated by hydroids, sponges and Pink Sea fans (*Eunicella verrucosa*). Notable species found were *Parazoanthus axinellae*, Ginger tinies *Isozoanthus sulcatus*. Crevice sea cucumbers were also common in crevices; there were areas with good coverage of hydroids such as *Aglaophenia, Haleicium halecium* and *Nemertesia ramosa,* Devonshire cup corals *Carophyllia smithii*. *Stolonica socialis* seasquirts were also common.

Rocky areas of boulders were common at the bases of the vertical sections and these were silty but featured many of the same species including edible urchins, crevice sea cucumbers, Potato crisp bryozoan and dead mens' fingers were also occasionally found here.

James Wright recorded the nudibranch *Doto fragilis, Henricia* starfish were relatively abundant and came in a variety of colours as were *Marthasterias glacias*. Edible crab, *Cancer pagurus* and Velvet swimming crab *Necora puber,* lobster, and spider crab were also recorded.

A wide variety of sponges were recorded by the divers including *Cliona celata (*boring sponge), *Raspalia ramosa* (chocolate finger sponge), *Axinella dissimilis* (yellow staghorn sponge), *Polymastia boletiformis* (hedgehog sponge), *Leucosolenia sp*. (lace sponge), *Dysidea fragilis* (goosebump sponge), *Hemimycale columella* (crater sponge) and what appeared to be many species of encrusting orange sponge.

Biotopes and species recorded – Poltexas reef (outside of MCZ)

CR.HCR.XFa Circalittoral rock, High Energy, bedrock or boulders with strong to moderately strong tidal streams. A diverse range of hydroids, bryozoans and sponges forming an often dense mixed animal turf.

CR.HCR.XFa.SpAnVt High energy circalittoral rock and boulders with Pink seafans on steep and vertical surfaces normally in smaller number amongst a mixed hydroid /bryozoan/sponge turf.

SPECIES LIST - POLTEXAS REEF	13/05/2107
Species Name	SACFORN
Actinothoe sphyrodeta (sandaled anemone)	C
Aglaophenia (feathery hydroid)	C
Aslia lefevrii (crevice cucumber)	C
Bugula (bryozoan)	C
Bugula flabellata (fluffy bryozoan)	C
Bugula turbinata (fluffy bryozoan)	C
Caryophyllia (Caryophyllia) smithii (cup coral)	C
Clavelina lepadiformis (light bulb squirt)	C
Corynactis viridis (Jewel anemone)	C
Delesseria sanguinea (sea beech)	C
Echinus esculentus (urchin)	C
Eunicella verrucosa (pink sea fan)	C
Haliclona (Rhizoniera) viscosa (volcano sponge)	C
Henricia (bloody henry starfish)	C
Heterosiphonia plumosa (feather weed)	C
Isozoanthus sulcatus (ginger tiny anemone)	C
Maja brachydactyla (spider crab)	C
Marthasterias glacialis (spiny starfish)	C
Morchellium argus (colonial squirt)	C
Pentapora foliacea (potato crisp bryozoan)	C
Polymastia boletiformis (chimney sponge)	C
Porifera indet crusts (sponge)	C
Stolonica socialis (orange squirt)	C
Trisopterus minutus (poor cod)	C
Axinella dissimilis (yellow finger sponge)	F
Ctenolabrus rupestris (goldsinney wrasse)	F
Dysidea fragilis (sponge)	F

Leucosolenia (sponge)	F
Palinurus elephas (crawfish)	F
Trisopterus luscus (bib)	F
Alcyonidium diaphanum (sea chervil , fleshy bryozoan)	O
Amphilectus fucorum (shredded carrot sponge)	O
Anemonia viridis (snakelocks anemone)	O
Bispira volutacornis (double spiral tube worm)	O
Calliblepharis ciliata (eyelash weed)	O
Cancer pagurus (brown crab)	O
Cliona celata (boring sponge)	O
Dendrodoa grossularia (squirt)	O
Dictyopteris polypodioides (brown winged weed)	O
Dictyota dichotoma (brown seaweed)	O
encrusting algae indet.	O
Gymnangium montagui (indian feather hydroid)	O
Halecium halecinum (herring bone hydroid)	O
Halichondria panicea (bread crumb sponge)	O
Hemimycale columella (crater sponge)	O
Labrus bergylta (ballan wrasse)	O
Luidia ciliaris (seven-armed starfish)	O
Maja brachydactyla (spider crab)	O
Necora puber (velvet crab)	O
Nemertesia ramosa (branched antennae hydroid)	O
Pachymatisma johnstonia (elephant hide sponge)	O
Pawsonia saxicola (sea gherkin crevice cucumber)	O
Pollachius pollachius (Pollack)	O
Porifera (sponge)	O
Prostheceraeus vittatus (candy striped flatworm)	O
Raspailia (Raspailia) ramosa (chocolate finger sponge)	O
Scyliorhinus canicula (lesser spotted catshark)	O
Sertularia argentea (squirrel tail hydroids)	O
Spirobranchus (keel worm)	O
Suberites (sponge)	O
Sycon ciliatum (purse sponge)	O
Tethya citrina (golf ball sponge)	O
Acanthodoris pilosa (nudibranch)	R
Aplysia punctata (sea hare)	R
Asterias rubens (common star)	R
Asterina gibbosa (cushion star)	R
Axinella (staghorn sponge)	R
Ciona intestinalis (squirt)	R
Dilsea carnosa (red rags seaweed)	R
Doto fragilis (nudibranch)	R

Edmundsella pedata (nudibranch)	R
Gaidropsarus vulgaris (three bearded rockling)	R
Homarus gammarus (lobster)	R
Idotea granulosa (sea slater)	R
Labrus mixtus (cuckoo wrasse)	R
Ophiuridae (brittle star)	R
Parazoanthus axinellae (yellow cluster anemone)	R
Polycera faeroensis (nudibranch)	R
Tritonia nilsodhneri (sea fan nudibranch)	R
Trivia monacha (cowrie)	R
	Total taxa 80

Dive 2, West Pentire – summary of findings

Figure 15 Position of starting points for each dive buddy pair

This, the second dive of the day, was carried out off West Pentire headland – to the South end of Crantock Bay. There is a large area of high energy and moderate energy infralittoral rocky reef here that is covered in dense kelp forest growing on rocky reef with shaded gullies with pebbles and sand at the bottom of some. It was a bit like a maze! Depths surveyed ranged from 5 to 10m (bsl), with the dives being carried out at mid tide, neap, flooding. Divers were instructed to swim east but due to the nature of the seabed none traveled further than 200m. The top of the reef was dominated by forest kelp *Laminaria hyperborea*, often with dulse, *Palmaria palmata* growing on the stipes of the kelp. The bryozoan *Membranipora membranacea* was common on the fronds of the kelp, and the bryozoan *Electra pilosa* was common on the red seaweeds.

Juvenile Pollack and wrasse were seen among the cover of the kelp, as were two spot gobies.

In the shaded under-story beneath the kelp and in the gullies red algae featured alongside animal turf of hydroids, bryozoans, sponges and squirts (*Stolonica socialis*, and *Distomus variolosus*, and more scattered *Polycarpa scuba* and the tiny golden squirt *Pycnoclavella aurilucens*). Bryozoans such as *Bugula* spp. were very common.

In one gully a solitary scarlet and gold cup coral polyp was found – this species *Balanophyllia regia* has been recorded intertidally within the MCZ at Fistral and off shore at Goose Rock on a previous Seasearch dive survey this year. It is a beautiful cup coral that is similar in color but smaller than its relative the sunset cup coral being only approximately one centimeter across the oral surface, and is classed as nationally scarce by JNCC.

Pink encrusting algae was scattered amongst the animal turf and on boulders and pebbles. Crevice sea cucumbers were found in the gullies as were velvet crabs. Nudibranches *Edmundsella pedata* and *Polycera faeroensis* were also photographed.

Figure 16 Kelp forest and under story dominated by short animal turf on vertical surface

Figure 17 Stolonica socialis - orange sea squirts

Figure 18 Scarlet and gold cup coral Ballanophyllia regia and Polycarpa scuba squirt

Figure 19 Polycera faeroensis on a brozoan and algae turf

Figure 20 Pink sponge Aplysilla rosea with velvet swimming crab Necora puber

Figure 21 Tiny squirts - Distomus variolosus - and Bugula plumosa

Figure 22 Edmundsella pedata pair and eggs on algae / hydroids

Figure 23 Actinothoe sphyrodeta (white form) Photo by Jane Morgan

BIOTOPES RECORDED – WEST PENTIRE

IR.HIR.KFaR.LhypR.Ft Infralittoral high energy rock, *Laminaria hyperborea* forest with foliose red seaweeds and encrusting pink algae.

IR.HIR.KFaR High energy infralittoral rock, substratum covered with kelp with foliose red and pink encrusting seaweeds and a range of animals such as dead men's fingers and anemones'

Species list - WEST PENTIRE	13/05/2017
Species Name	SACFORN
Bugula (fluffy bryozoan)	A
Laminaria hyperborea (forest kelp)	A
Palmaria palmata (dulse)	A
Anomiidae (saddle oyster)	C
Aplidium punctum (squirt)	C
Aslia lefevrii (crevice cucumber)	C
Asterina gibbosa (cushion star)	C
Bugula flabellata (fluffy bryozoan)	C
Bugula plumosa (fluffy bryozoan)	C
Calliostoma zizyphinum (painted top shell)	C
Clavelina lepadiformis (light bulb squirt)	C
Corallina officinalis (coral weed)	C
Delesseria sanguinea (sea beech)	C
Dilsea carnosa (Red Rags)	C
Distomus variolosus (squirt)	C
Electra pilosa (frosted sea mat)	C
encrusting algae indet.	C
Henricia (Bloody henry star)	C
Heterosiphonia plumosa (feather weed)	C
Labrus bergylta (Ballan Wrasse)	C
Maja brachydactyla (spider crab	C
Marthasterias glacialis (spiney star)	C
Membranipora membranacea (sea mat)	C
Neomysis (mysid shrimp)	C
Pachymatisma johnstonia (elephant hide sponge)	C
Pollachius pollachius (pollack)	C
Porifera	C
Rhodophyta	C
Saccharina latissima (sugar kelp)	C
Saccorhiza polyschides (furbelows kelp)	C
Stolonica socialis (orange squirts)	C
Sycon ciliatum (purse sponge)	C
Furcellaria lumbricalis (red alga)	F

Anemonia viridis (snakelocks anemone)	O
Bispira volutacornis (bispiral tube worm)	O
Cancer pagurus (brown crab)	O
Corynactis viridis (jewel anemone)	O
Dysidea fragilis (goosebump sponge)	O
Galathea squamifera (squat lobster)	O
Gobiusculus flavescens (two spot goby)	O
Haliclona (Rhizoniera) viscosa (volcano sponge)	O
Lanice conchilega (sand mason worm)	O
Nassarius reticulatus (netted dogwhelk)	O
Necora puber (velvet crab)	O
Oshurkovia littoralis (encrusting bryozoan)	O
Paguridae (hermit)	O
Polycarpa scuba (squirt)	O
Polycera faeroensis (nudibranch)	O
Porifera indet crusts (sponge)	O
Pycnoclavella aurilucens (golden light squirt)	O
Spirobranchus lamarcki (keel worm)	O
Symphodus melops (corkwing wrasse)	O
Trisopterus luscus (bib)	O
Urticina felina (dahlia anemone)	O
Acanthodoris pilosa (nudibranch)	R
Aplysia punctata (sea hare)	R
Balanophyllia regia (scarlet and gold cup coral)	R
Clathrina coriacea (lace sponge)	R
Dercitus (Dercitus) bucklandi (Black sponge)	R
Edmundsella pedata (violet sea slug)	R
Homarus gammarus (lobster)	R
Labridae (wrasse)	R
Labrus bergylta (ballan wrasse)	R
Luidia ciliaris (seven-armed starfish)	R
Pagurus bernhardus (hermit crab)	R
Parablennius gattorugine (tompot blenny)	R
Patella pellucida (blue rayed limpet)	R
Schizomavella sarniensis (red bryozoan encrust)	R
Spirobranchus (keel worm)	R
Taurulus bubalis (seascorpion fish)	R
Trivia arctica (cowrie)	R
	Total taxa 73

Dive 3 Seal Cove, Polly Joke Summary of findings

This was our first dive of day 2 and the wind had picked up a lot from the south west so we decided to dive at Seal Cove first – this is a relatively sheltered shallow dive site on the south side of Polly Joke bay near a sandy inaccessible gully where grey seals pup in autumn and seals use all year round for a hangout. The dive was shallow over rocky reef with high diversity of seaweeds, some of them intertidal.

The dive was carried out near to high water with an outgoing tide.

The only buddy pair who saw a seal was Mark and James the seal was identified later by Seal Expert Sue Sayer of Cornwall Seal Group as a pregnant female called Pebbles who was rehabilitated in 2007 by the Cornish Seal Sanctuary and released at Porth Towan (http://www.sealsanctuary.co.uk/pebblesg06.html).

The main feature of the dive site was rocky reefs with rich algae diversity but dominated by Kelp forest on upper surface made up of forest kelp *Laminaria hyperborea,* oar weed *L. digitata* and furbelows *Saccorhiza polyschides.* There were vertical rock faces and overhanging rock and between the reefs were waved sand / fine gravel. Maximum depth was 7m (bsl) and minimum was 3m (bsl).

Strawberry anemones were occasionally seen, Sean Dixon reported a queen scallop presumably on sand, lobsters, spider crabs and squat lobsters were recorded. Long spined sea scorpion was seen by Tom Daguerre and Tompot blenny seen by Veronika Kruse. *Callistoma zizyphinum* – painted topshell - was common on the dive site as were cowries and the sea slug *Janolus cristatus* was recorded. Light bulb sea squirts *Clavelina lepadiformis* were common as were purse sponge and in gullies leopard spotted gobies were seen.

Figure 24 Grey Seal 'Pebbles' photographed by James Wright

Figure 25 Plenty of algae - Sally didn't mind!

Figure 26 Chondrus crispus and Jania rubens with lots of other algal species

Figure 27 Colonial Squirt - pale form of Botryllus schlosseri

Figure 28 Cladostephus spongiosus and Corallina

Figure 29 Ahnfeltia plicata – scour weed

Figure 30 Crystal sea slug Janolus cristatus on Bugula and short algae turf on overhanging rock

Figure 31 Spotted Cowrie, Trivia monacha on overhanging rock

Figure 32 Furcellaria lumbricalis with Dictyota dichotoma and Halidrys siliquosa

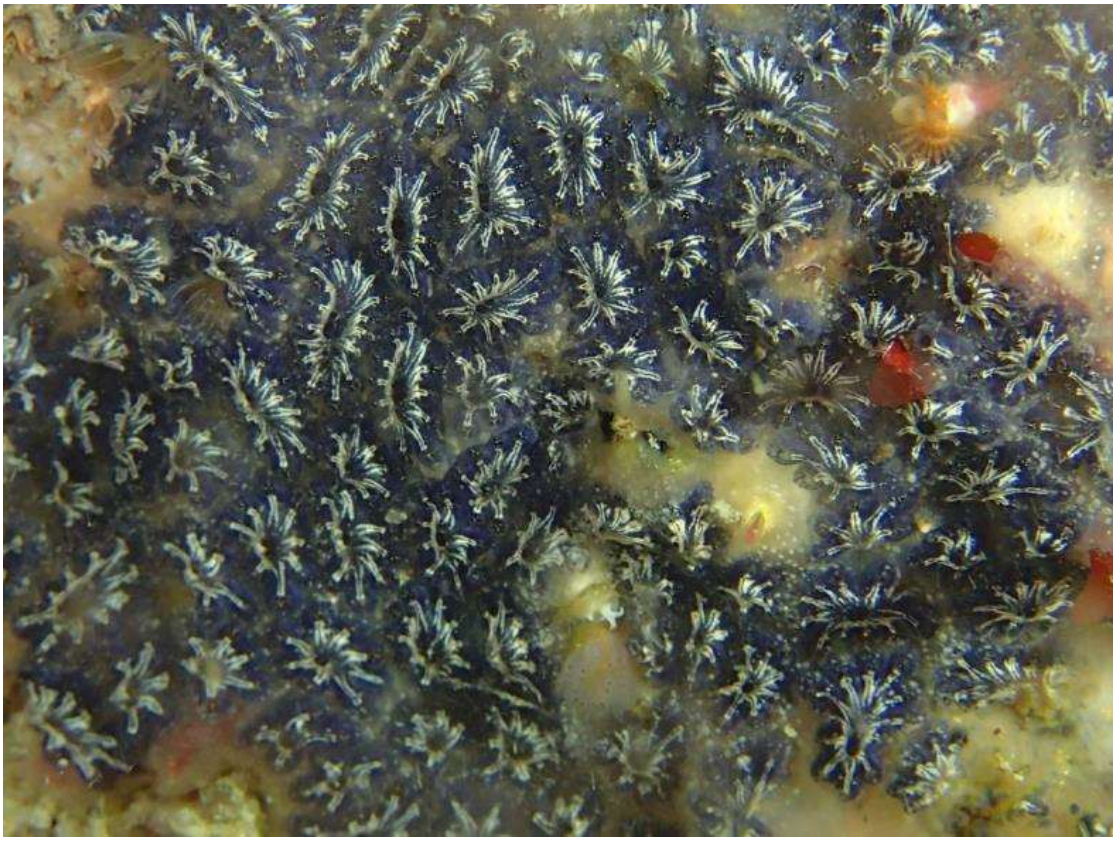

Figure 33 Star Ascidian Botryllus schlosseri

Figure 34 Sea hare Aplysia punctata - flying in the current! Photo by James Wright

Figure 35 Favorinus branchialis - a tiny seaslug that fees on the eggs of other seaslug species

Figure 36 Strawberry anemone and Crisia spp Bryozoan

BIOTOPES RECORDED – POLLY JOKE

IR.MIR.KR.Lhyp Infralittoral moderate energy rock Kelp *Laminaria hyperborea* community. (Designated feature of MCZ)

CR.HCR.XFa Circalittoral rock, High Energy, bedrock or boulders with strong to moderately strong tidal streams. A diverse range of hydroids, bryozoans and sponges forming an often dense mixed animal turf. (Designated feature of MCZ)

SS.SSa.IFiSa.IMoSa Infralittoral mobile clean sand with sparse fauna. The sand often formed into dunes. There may be mobile species such as hermit crabs shore crabs and common starfish on the surface but little infauna. (Designated feature of MCZ)

IR.MIR.KR Moderate energy Infralittoral rock with kelp. (Designated feature of MCZ)

SS.SSa Subtidal sand and muddy sands medium to fine, low silt content, usually on open coasts. (Designated feature of MCZ)

Species list - POLLY JOKE	14/05/2017
Species Name	SACFORN
Foliose red algae	A
Anomiidae (saddle oyster)	C
Aplysia punctata (sea hare)	C
Aslia lefevrii (crevice sea cucumber)	C
Asparagopsis armata (harpoon weed, non-native)	C
Bryozoa indet crusts	C
Bugula (fluffy bryozoan)	C
Cellaria (bryozoan)	C
Cirripedia (barnacles)	C
Corallina (coral weed)	C
Corallina officinalis	C
Dendrodoa grossularia (Squirts)	C
Dictyota dichotoma (brown algae)	C
Furcellaria lumbricalis (red seaweed)	C
Heterosiphonia plumosa (Feather weed)	C
Jania rubens (fine coral weed)	C
Laminaria hyperborea (Forest kelp)	C
Maja brachydactyla (Spider crab)	C
Marthasterias glacialis (Spiny starfish)	C
Palmaria palmata (dulse)	C
Phaeophyceae (Mixed Brown alga)	C
Porifera (Sponges)	C
Rhodophyta (Mixed Red Seaweed)	C
Saccorhiza polyschides (Furbellows kelp)	C
Spirobranchus (keel worms)	C
Stolonica socialis (orange squirts)	C
Suberites ficus (sea orange sponge)	C
Sycon ciliatum (purse sponge)	C
Ahnfeltia plicata (Scour weed)	F
Botryllus schlosseri (Star ascidian)	F
Calliblepharis ciliata (eyelash weed)	F
Chondrus crispus (irish moss)	F
Corynactis viridis (Jewel anemone)	F
Dilsea carnosa (Red Rags)	F
encrusting algae indet.	F
Porifera indet crusts	F
Ulvales (sea lettuce or gut weed)	F
Actinia fragacea (strawberry anemone)	O
Anemonia viridis (snakelocks anemone)	O
Bispira volutacornis (double spiral worm)	O
Calliostoma zizyphinum (painted topshell)	O

Cancer pagurus (brown crab)	O
Caryophyllia smithii (Devonshire cup coral)	O
Chondrus crispus(Irish moss)	O
Cladostephus spongiosus (hairy sand weed)	O
Clavelina lepadiformis (light bulb sea squirt)	O
Crisia (white clawed moss bryozoan)	O
Doris pseudoargus (nudibranch)	O
Gibbula cineraria (grey topshell)	O
Gobiusculus flavescens (two spot goby)	O
Halichoerus grypus (grey seal)	O
Halidrys siliquosa (sea oak brown seaweed)	O
Hemimycale columella (crater sponge)	O
Himanthalia elongata (thongweed)	O
Holothuria forskali (cotton spinner cucumber)	O
Laminaria digitata (oarweed kelp)	O
Morchellium argus (club sea squirt)	O
Necora puber (velvet crab)	O
Palaemon serratus (common prawn)	O
Patella (limpet)	O
Plocamium cartilagineum (cocks comb red seaweed)	O
Polyides rotunda (red seaweed)	O
Thorogobius ephippiatus (leopard spotted goby)	O
Trivia (cowrie)	O
Actinia equine (beadlet anemone)	R
Actinothoe sphyrodeta (anemone)	R
Aequipecten (queen scallop)	R
Asterina gibbosa (cushion star)	R
Bugula turbinata (bryozoan)	R
Cadlina laevis (white nudibranch)	R
Cliona celata (boring sponge)	R
Diogenes pugilator (south claw hermit crab)	R
Drachiella spectabilis (red algae)	R
Dysidea fragilis (goosebump sponge)	R
Filamentous brown algae	R
Galathea strigosa (blue striped squat lobster)	R
Gastroclonium ovatum (red grape weed)	R
Homarus gammarus (lobster)	R
Janolus cristatus (nudibranch)	R
Membranipora membranacea (sea mat)	R
Osmundea osmunda (pepper dulse)	R
Parablennius gattorugine (tompot blenny)	R
Polycera faeroensis (nudibranch)	R
Polycera quadrilineata (nudibranch)	R

Symphodus melops (corkwing wrasse)	R
Syngnathus acus (greater pipefish)	R
Taurulus bubalis (seascorpion fish)	R
Trivia monacha (spotted cowrie)	R **Total taxa 91**

Dive 4 Listry Rock – summary of findings

Figure 37 Position of dive 4 Listry Rock - off Newquay Harbour

By the time we had finished the Seal Cove dive the wind had continued to pick up so we cancelled the idea of diving off the Cribbar and instead opted to dive Listry Rock, a reef just inside Towan Bay which is far more sheltered from the SW wind! All the buddy pairs dived down the same shot line to access the reef which could be nicely circumnavigated in one dive. This is a relatively unexplored site. The reef is low lying and is surrounded by mobile sand. The rocks in marine life appearing scoured in places and often with a dusting of sand. Upper surfaces of the reef at a depth of approx. 6 meters (bsl) were host to kelp park mainly of *Saccorhiza polyschides* (furbelows). The reef meets the sand at the deepest point of the dive at 8 meters (we dived close to low water). There were a few overhanging edges to the reef which were festooned with colourful sponges and hydroids such as *Bugula plumosa* and *Bugula turbinata*.

Interestingly many surfaces of the reef had tiny mussel spat beginning to grow. We didn't see any large mussels though – perhaps they have been eaten by predators such as *Marthasterias glacias* and spider crabs? Or perhaps the sand prevents them from thriving.

Figure 38 Bugula plumosa and barnacles and other hydroids creating an animal turf

Figure 39 Maja brachydactyla - spider crab

Figure 40 Ascidia mentula - red seasquirt

Figure 41 Lobster, Homarus gammarus

Figure 42 Purple Sponge (unidentifiable to species level) and anemone

Figure 43 Strawberry anemone Actinia fragacea

Figure 44 Tiny Dahlia anemone Urticina felina

Figure 45 Sea Hare Aplysia punctate. Photo by John Yarrow

Figure 46 Overhang /cave covered in sponges of different species including Cliona celata

Figure 47 Female spider crab with parasitic anemone Calliactis parasitica and Distomus variolosus squirts

Figure 48 Calliostoma zizyphinum - painted topshell - with a wealth of sponges, algae and other species

Figure 49 Juvenile Saccorhiza polyschides

Figure 50 Diplosoma spongiforme - colonial sea squirt

Figure 51 Underside of overhang covered in sponges including Haliclona and other species including bryozoans -Bugula turbinata, and a rarely recorded squirt Microcosmus claudicans.

Figure 52 Rocks covered in tiny mussel spat plus red algae with unidentified barnacle

Figure 53 Sea slug Jorunna tomentosum found by Veronika Kruse Chesworth - feeds on sponge

Biotopes and species recorded – Listry Rocks

IR.MIR.KR Mixed faunal turf communities on circalittoral bedrock and boulders in extremely or very wave exposed situations. (Designated feature of MCZ)

CR.HCR.XFa Circalittoral rock, High Energy, bedrock or boulders with strong to moderately strong tidal streams. A diverse range of hydroids, bryozoans and sponges forming an often dense mixed animal turf. (Designated feature of MCZ)

SS.SSa Sublittoral sand and muddy sands medium to fine, low silt content, usually on open coasts. (Designated feature of MCZ)

LISTRY ROCK	abundance
Species Name	SACFORN
Amphilectus fucorum (shredded carrot sponge	C
Anemonia viridis (snakelocks anemone)	C
Aplysia punctata (sea hare)	C
Bugula (bryozoan)	C
Cladostephus spongiosus (brown algae)	C
Clathrina coriacea (Lace sponge)	C
Dendrodoa grossularia (Sea squirt)	C
Desmarestia ligulata (landladies wig algae)	C
encrusting algae indet.	C
Laminaria hyperborea (Forest kelp)	C
Maja brachydactyla (Spider crab)	C
Membranipora membranacea (sea mat)	C
Mysidae (shrimps)	C
Mytilus (tiny spat of mussels)	C
Palaemon serratus (Prawns)	C
Porifera indet crusts (sponge)	C
Saccorhiza polyschides (Furbellows kelp)	C
Spirobranchus (keel worms)	C
Stolonica socialis (orange squirts)	C

Sycon ciliatum (purse sponge	C
Trivia monacha (cowrie)	C
Bugula plumosa (bryozoan)	F
Distomus variolosus (tiny squirts)	F
Rhodophyta (red seaweed)	F
Spirobranchus triqueter (keel worms)	F
Actinia fragacea (strawberry anemone)	O
Aslia lefevrii (crevice sea cucumber)	O
Botryllus schlosseri (star ascidian)	O
Bugula flabellata (bryozoan)	O
Bugula turbinate (bryozoan)	O
Calliactis parasitica (parasitic anemone)	O
Calliostoma zizyphinum (painted topshell)	O
Clavelina lepadiformis (lightbulb sea squirt)	O
Cliona celata (boring sponge)	O
Corynactis viridis (jewel anemone)	O
Diplosoma spongiforme (colonial squirt)	O
Dysidea fragilis (goosebump sponge)	O
Electra pilosa (frosted sea mat)	O
Foliose red algae	O
Gibbula cineraria (grey top shell)	O
Haliclona (Haliclona) simulans (sponge)	O
Haliclona (Rhizoniera) viscosa (volcano sponge)	O
Jorunna tomentosa (nudibranch)	O
Leucosolenia (spiky lace sponge)	O
Marthasterias glacialis (spiny starfish)	O
Molgula (squirt)	O
Morchellium argus (club squirt)	O
Myxilla (Myxilla) incrustans (sponge)	O
Necora puber (velvet crab)	O
Pagurus (hermit crab)	O
Pagurus bernhardus (hermit crab)	O
Palaemon serratus (common prawn)	O
Polycera faeroensis (nudibranch)	O
Porifera (sponge)	O
Suberites ficus (ball sponge)	O
Thorogobius ephippiatus (leopard spotted goby)	O
Trivia (cowrie)	O
Urticina felina (dahlia anemone)	O
Actinia equina (beadlet anemone)	R
Actinothoe sphyrodeta (anemone)	R
Alcyonium digitatum (dead mens' fingers)	R
Ascidia mentula (red squirt)	R

Asterias rubens (common starfish)	R
Bispira volutacornis (double spiral tube worm)	R
Bryozoa indet crusts	R
Cancer pagurus (brown crab)	R
Cereus pedunculatus (daisy anemone)	R
Dendrodoa grossularia (squirt)	R
Doris pseudoargus (nudibranch)	R
Edmundsella pedata (violet nudibranch)	R
Homarus gammarus (lobster)	R
Inachus (small spider crab)	R
Laminaria (kelp spp)	R
Microcosmus claudicans (sea squirt)	R
Nucella lapillus (dog whelk)	R
Pachymatisma johnstonia (elephants hide sponge)	R
Pollachius pollachius (Pollack)	R
Psammechinus miliaris (green urchin)	R
Serpula vermicularis (tube worm)	R
Taurulus bubalis (seascorpion fish)	R
Tethya citrina (golf ball sponge)	R **Total taxa 82**

Summary

This expedition added to and updated the knowledge we already have of this important area for marine life. The high energy nature of the dive sites shows itself in the sheer diversity of sponge and squirts as well as filter-feeding bryozoans and hydroids. It is an amazing place that deservers protection. The establishment of the MCZ is a good first step but we are keen to see what management measures are brought in to protect further the listed features of the MCZ.

Additionally we would like to see the boundary of the MCZ extended to include Poltexas Reef to the east with its high energy circalittoral reef and high biodiversity including pink seafans and crawfish. As can be seen from this report this area in particular had high diversity with a significantly different community of species in relation to the other areas surveyed.

Although not surveyed on this weekend both Nanni Reef to the north of the MCZ boundary and Chick Rock to the east of the MCZ boundary are areas which also deserve protection. Nanni Reef has important high energy circalittoral rock with seafans and a rich community of marine life, while Chick Rock is a vitally important haul out site and breeding site for Atlantic grey seals, just a few meters to the west of the boundary.

Press Release

Seasearch uncovers Newquay's hidden underwater treasures

Thursday 18th May 2017

A Seasearch Dive expedition organised by Cornwall Wildlife Trust, exploring the Newquay and The Gannel Marine Conservation Zone, has led to some very exciting discoveries and confirmed that Newquay has a wealth of marine life. Divers with the Trust's Seasearch project went out at the weekend aboard the Atlantic Diver, skippered by Chris Lowe and sponsored by conservation fundraisers Sea-Changers. Matt Slater, Marine Awareness Officer at Cornwall Wildlife Trust, says, "Seasearch is great fun and it gives dives a new purpose. By documenting the wildlife divers spot our volunteers are helping us with our vital conservation work. We are really grateful for the funding Sea-Changers provided, as this expedition would not have gone ahead without their support." Four dives were carried out with twelve divers taking part each day and each pair had at least one underwater photographer between them so their discoveries were well documented.

Highlights of the weekend included:

• A very exciting discovery was that Crawfish appear to be making a comeback and recolonising our rocky reefs after decades of decline, with ten young Crawfish being recorded by one diver on just one dive. Crawfish became virtually extinct in Cornish waters following heavy fishing during the 1970's and '80's by both divers and fishermen.

• Pink sea fans – a beautiful species of cold water coral which is nationally scarce is actually common on reefs off Newquay. The specimens seen by divers were very large and in great condition.

• All of the divers recorded interesting sea slugs living beneath the Newquay Kelp forests. These bizarre and colourful molluscs come in a wealth of shapes and sizes.

• Colourful anemones, cup corals, sponges and a huge diversity of seaweeds are also a big feature of the Marine Conservation zone, and every dive site was alive with spider crabs, lobsters, velvet swimming crabs and starfish.

• And they were not alone. While recording the marine life divers were buzzed by a friendly grey seal. The MCZ is an important feeding and breeding area for this species. Also taking part were Perranporth based film maker Tom Daguerre

and his colleague Matt Brown from Hydromotion Media who are currently working on a documentary about the marine life of Newquay and The Gannel Marine Conservation Zone. This is scheduled for release later this year.

Matt Slater continues, “Newquay is home to some of the best diving in the UK and local people should be proud that we have such a healthy ecosystem just beneath the waves. The newly designated Marine Conservation Zone means that the marine life within this area is now better protected for future generations to enjoy.” Seasearch is a national project, which trains qualified divers to record the habitats and species they encounter on their dives. Any divers who would like to get involved in Seasearch are asked to contact the Trust. There are many more dives and training opportunities coming up this summer, all around Cornwall, including an expedition weekend in July with a survey of rocky reefs and wrecks of The Manacles Marine Conservation Zone. There will also be a Seasearch Surveyor Course, and Seaweeds Identification and Seasquirts Identification workshops. For more information please go to www.cornwallwildlifetrust.org.uk/seasearch The Facebook group “Seasearch Cornwall” has lots more photos and videos of the discoveries.

Media summary

After each day of diving Facebook posts were put up on our group "Seasearch Cornwall" and these were shared and liked! Participants also shared their best photos in this way. Two press releases were issued to all of Cornwall Wildlife Trust's local contacts and the photos and text featured on many online articles and in newspapers including Newquay Voice and West Briton.
Here are some links to social media posts and articles

http://www.divernet.com/home-diving-news/p320021-crawfish-back-in-cornwallseasearch-team-reports.html

http://www.cornwallwildlifetrust.org.uk/news/2017/07/20/vibrant-marine-life-surveyed-manacles-reef

https://www.facebook.com/HydroMotionMedia/videos/1679671122337277/

http://www.cornwallwildlifetrust.org.uk/news/2017/05/18/seasearch-uncovers-newquay%E2%80%99s-hidden-underwater-treasures

https://www.piratefm.co.uk/news/latest-news/2292005/photos-divers-uncover-newquays-underwater-treasures/

https://www.facebook.com/groups/443039552386703/permalink/1611912575499389/

https://www.facebook.com/groups/443039552386703/permalink/1612613232095990/

Feedback from Participants

Verbally all the participants were very pleased with their weekend and a total of 8 participants filled in one of our questionnaires All were positive about the event as a good use of Sea-Changers funding and a great opportunity to get involved in active conservation while improving ID skills and having fun diving with like-minded people.

> **Great weekend well organized by Matt Slater and Atlantic Diver, hard conditions but everyone made the most of it. This was a great use of Sea-Changers funding as it furthers the knowledge of marine diversity within Newquay and The Gannel MCZ, a special place**
> **Tom – Seasearch Diver**

Areas for further study

There are several sites that we would like to explore in more detail within the MCZ including Cribbar Reef which we sadly did not manage to dive due to weather conditions. More surveys are needed outside the MCZ at Nanni Reef, Chick Rock and Zorvans Reef.

Acnowledgments

I would like to thank our sponsors Sea-Changers, Chris and Annabelle Lowe for supporting the project and being such great hosts, and massive thanks all the divers who took part in this amazing weekend! Filling in the forms takes ages

and we really appreciate your hard work! Thanks to you all and we look forward to seeing the film produced by Hydromotion Media on the MCZ later this year!