# Proposed southerly extension of the Manacles Marine Conservation Zone


The Manacles Marine Conservation Zone was designated in 2012 and additional features were added in 2016.[1 & 2]
Seasearch has carried out extensive surveys in the wider Manacles area since 2001 and has produced a overall report of them.[3]
Based on the earlier surveys, Seasearch considered that an area to the south of the existing MCZ boundary was particularly important for some of the identified features of the MCZ and merited the same level of protection. We therefore carried out additional surveys at two sites immediately south of the MCZ boundary in May 2017.
This report includes the results of these additional surveys and proposes a southerly extension to the MCZ for consideration in the third tranche of MCZ designations. The extension would encompass Lowland Point, the fringing reefs of Foam Rock, The Wreas, Davas Rock and the isolated Puskys Reef.


We also believe that the features for the MCZ as a whole should be amended by the addition of High Energy Infralittoral and Circalittoral rock to reflect the characterising communities at the Manacles.

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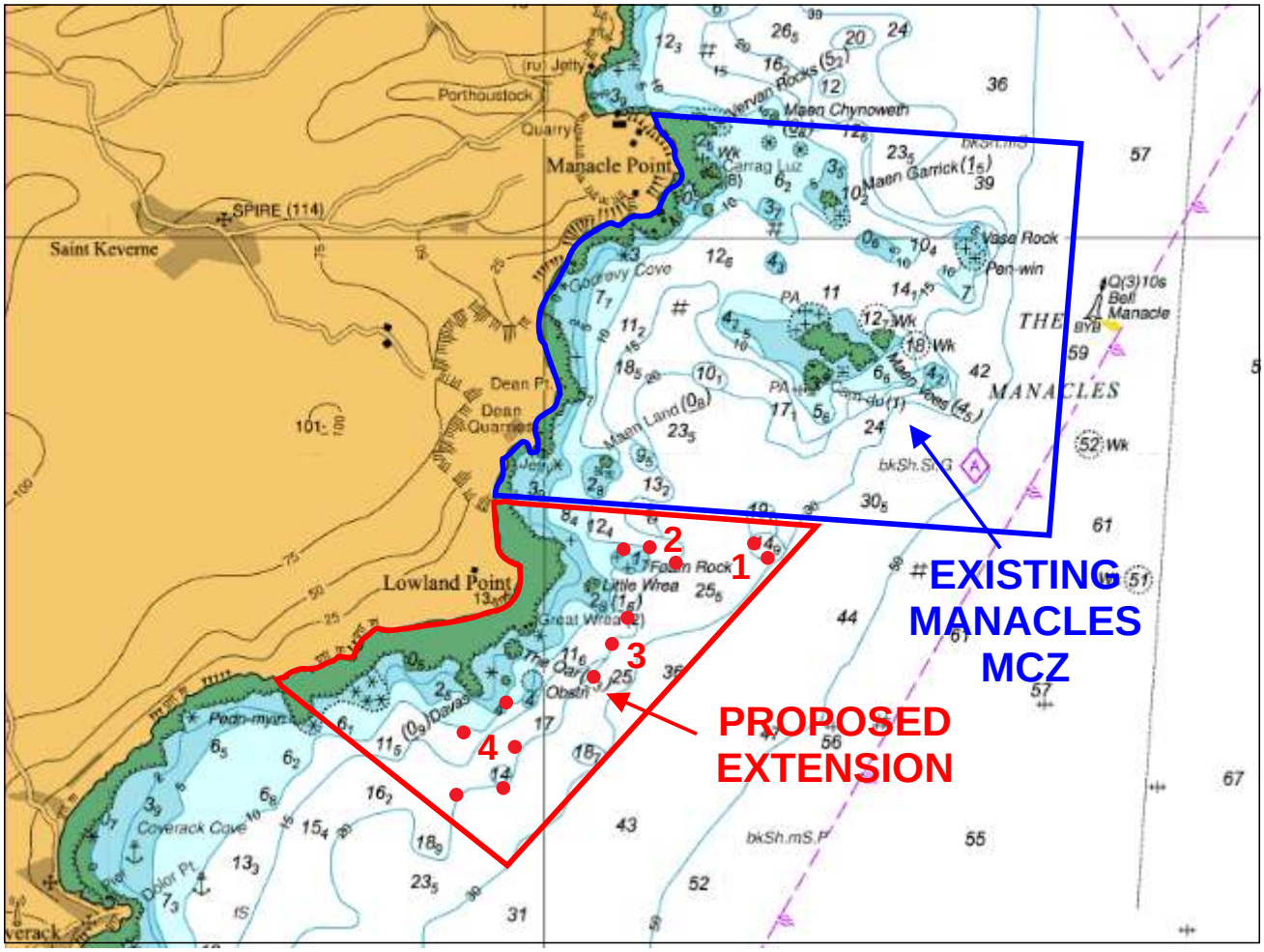


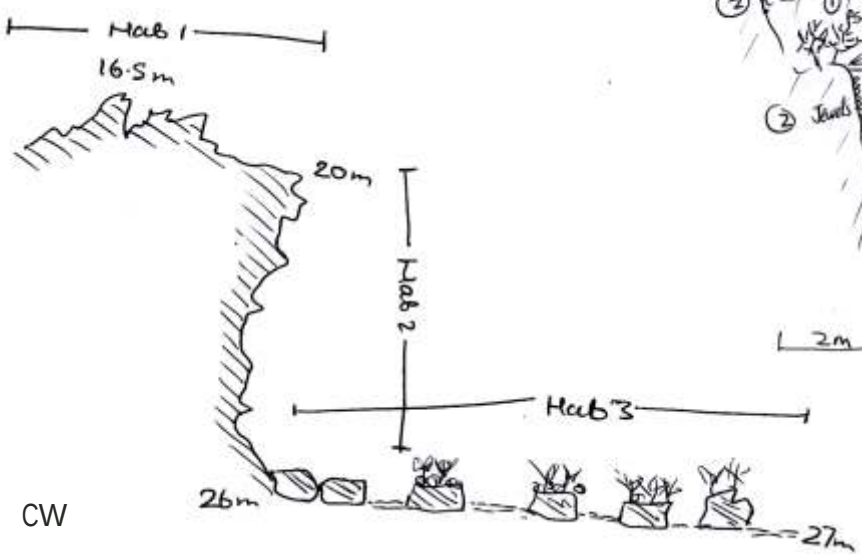

## Description of Proposed Extension

1. Pusky's Reef

Pusky's Reef was surveyed in 2015 and again in 2017.

The upper part of the reef is about 150m in length and lies in a NE-SW direction. The shallowest charted point is 14.3m below chart datum (bcd). On the NW facing side there was a steep rock wall from 18m-24m bcd and then a flat bottom of mixed boulders and sand at 24-25m bcd (below left). On the SE side the rock faces were more convoluted and extended deeper - to 30m bcd. Beyond this was a gravel seabed which could not be surveyed because of the depth. (below right).

Figure 1:
Profile of NW side of reef

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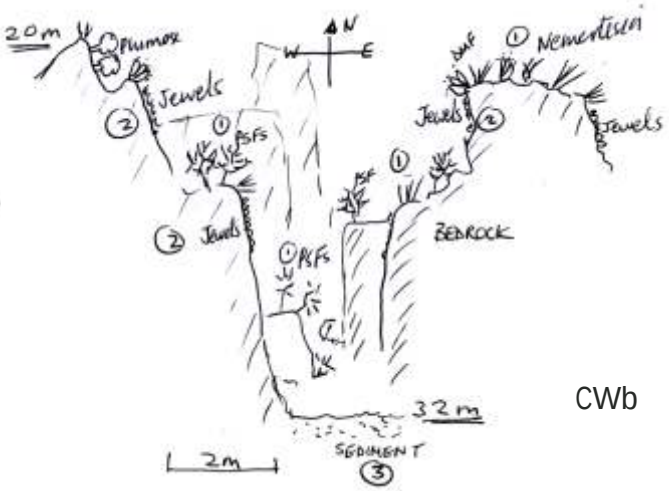
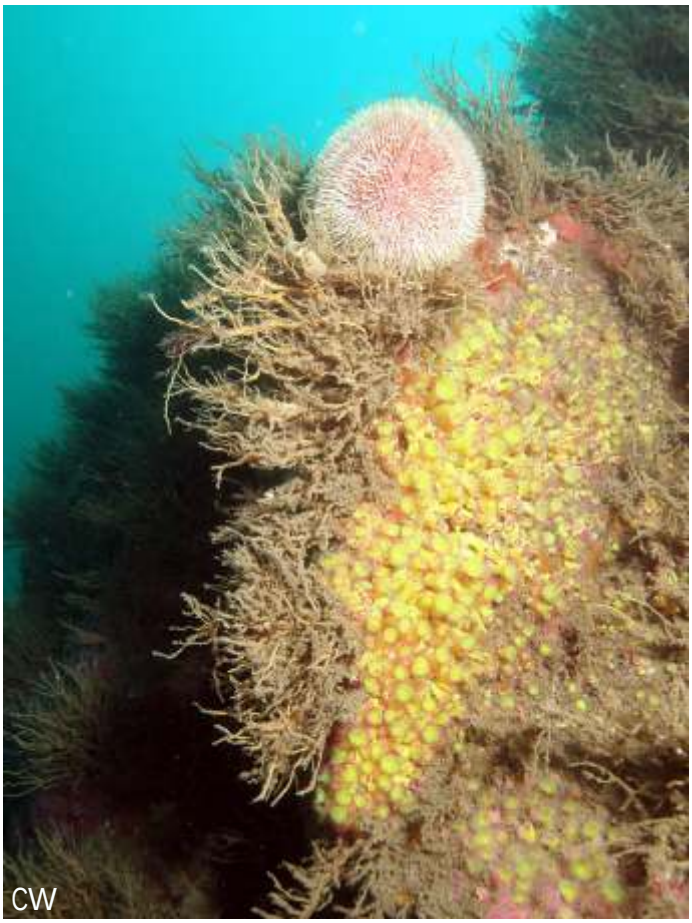



CWb

Figure 2:
Sketch of SE side of reef

Note: Depths given in sketches are as observed and not corrected to chart datum

The topmost parts of the reefs (14.5m-18m bcd) were dominated by Oaten pipe hydroid, *Tubularia indivisa,* together with mixed red and brown algae but no kelp. Deeper, upward facing and sloping rock surfaces (18-28m bcd) were dominated by Antenna hydroid, *Nemertesia antennina* with turf-forming hydroids and bryozoans and patches of Pink sea fans, *Eunicella verrucosa*.
The vertical and overhanging walls (18-30m bcd) were typical of the Manacles area and dominated by Jewel anemones, *Corynactis viridis*, with a variety of hydroids, soft corals and cup corals. Pink sea fans were also frequent in this habitat. Sea fan anemone, *Amphianthus dohrnii* was found frequently on the Pink sea fans.
The deeper flat boulder/sand habitat to the north west (24-25m bcd) had abundant Pink sea fans at a 'forest' density, together with Devonshire cup corals, *Caryophyllia smithii,* Orange sea squirts, *Stolonica socialis*, and a variety of branching and massive sponges.
Mobile species recorded included Sea urchins, *Echinus esculentus* (Frequent), Cottonspinner sea cucumbers, *Holothuria forskali* (Frequent), common Brittlestars, *Antedon bifida* (Common), Seven armed starfish, *Luidia ciliaris* (Frequent) and crustaceans including Crawfish, *Palinurus elephas* (Rare), Edible crab, *Cancer pagurus* (Occasional) and Velvet swimming crab, *Necora puber*.





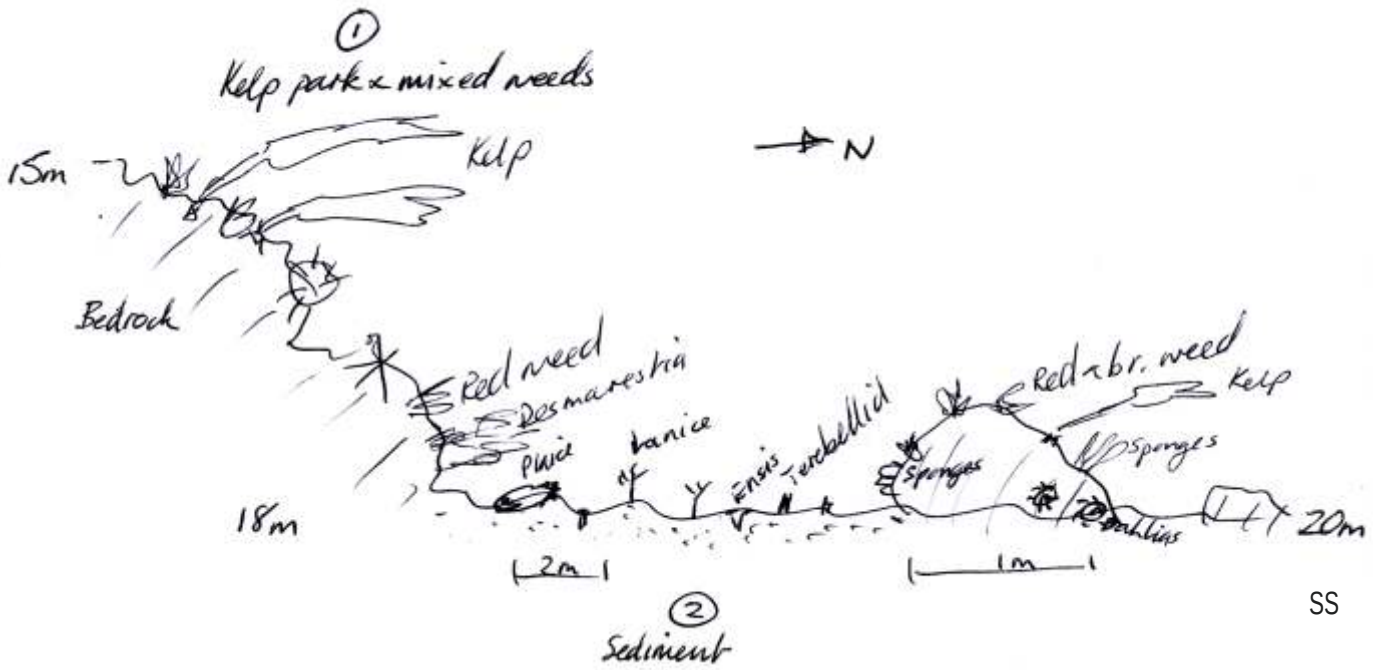

Puskys habitats
Top left: *Tubularia* and jewel anemones at the top of the wall
Top right: Jewel anemones on the wall
Bottom right: Pink sea fan forest on lower flat boulder seabed

2. Foam Rock, Lowland Point

Foam Rock forms the most easterly extent of the fringing reefs off Lowland Point and the area was surveyed in 2015. The shallow infralittoral areas were not surveyed and the records reflect the lower infralittoral and circalittoral habitats on the north side of the reef.

The shallowest habitat surveyed was a mixed kelp park at 11-14m bcd, predominately of Furbelows, *Saccohiza polyschides*, and forest kelp, *Laminaria hyperborea*, with an abundant understorey of mixed red and brown algae. With increasing depth the kelp thinned out and some of the algal understorey was replaced by a faunal turf of sponges, hydroids and anthozoa, including many Dead men's fingers, *Alcyonium digitatum,* and smaller numbers of pink sea fans, *Eunicella verrucosa*. There were patches of sand interspersed amongst the rock and boulders and this increased to become the dominant habitat from 18m bcd. The texture of the sand was coarse and there were many Sand mason worms, *Lanice conchilega,* protruding from it.

The habitats are shown in the sketch below.




SS

CW

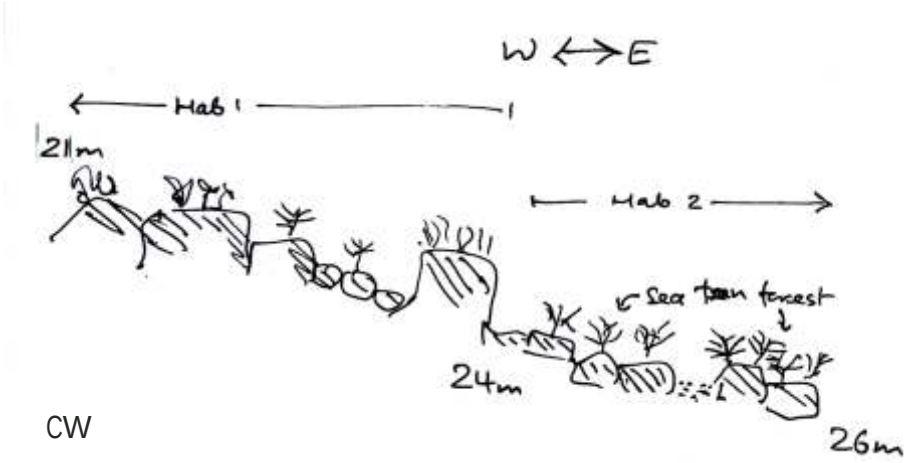
Rock with sponge and anthozoan turf and mixed red/brown algae

CW

Circalittoral coarse sand with Sand mason worms

3. Little Wrea and Great Wrea

The fringing reefs off Little Wrea and Great Wrea were surveyed in both 2015 and 2017. In each case the surveyors moved with a gentle NE drift so that the whole length of the reef at about 20m depth was surveyed. One pair also surveyed a shallower habitat in the same area.



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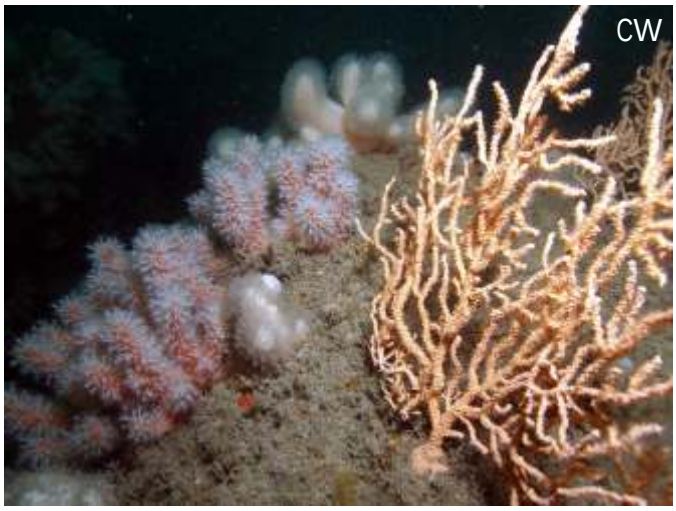
Along the length of the reef at a depth of between 18 and 22m bcd was a habitat of rugged bedrock and boulders with abundant pink sea fans and a faunal turf of hydroids and bryozoans. (Habitat 2 in sketch to left). At the base of this habitat the bedrock and boulders were overlain with a gravel veneer and a typically sand scoured fauna of sponges, bryozoans and ascidians.

The slightly shallower rugged rocky seabed (16-20m bcd - Habitat 1 above) had a cover of brown seaweed, predominantly *Dictyopteris polipodioides*, and a faunal turf of dead mens fingers and pink sea fans with an understorey of bryozoans (predominantly *Cellaria spp*.) and hydroids. In places there were upstanding rock pinnacles with steep sides and a faunal turf of hydroids, soft corals and jewel anemones

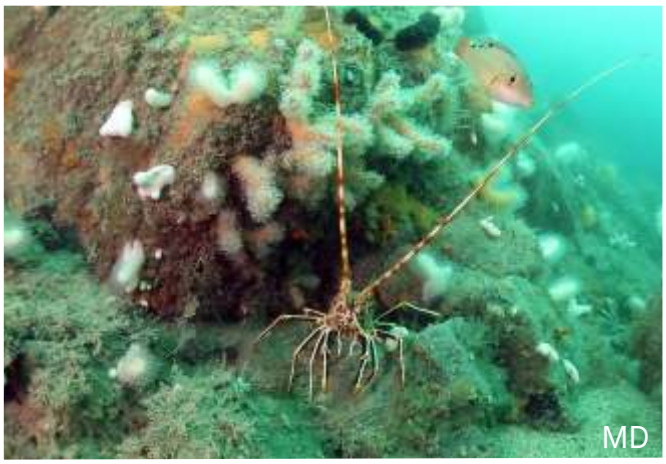
The shallowest habitat surveyed (8-11m bcd) comprised rocky pinnacles topped by a mixed kelp park of *Laminaria hyperborea* and *Sacchoriza polyschides* with an understorey of red seaweeds.

Circalittoral bedrock with pink sea fans and turf of hydroids and bryozoans



Circalittoral bedrock with pink sea fans and soft corals

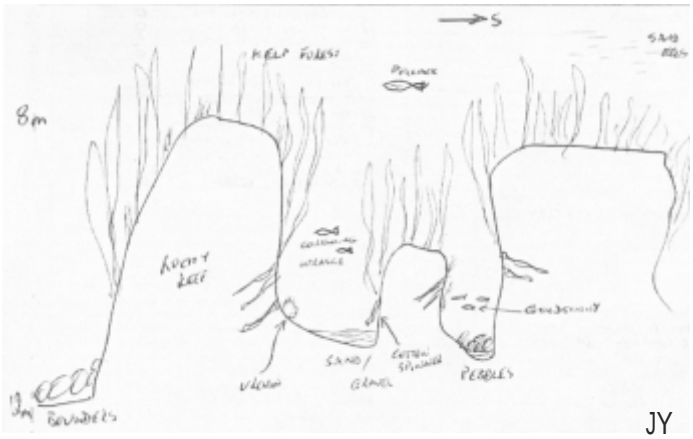
Vertical rock with jewel anemones



Circalittoral bedrock with soft corals, wrasse and crawfish (spiny lobster)

4. Davas Rock

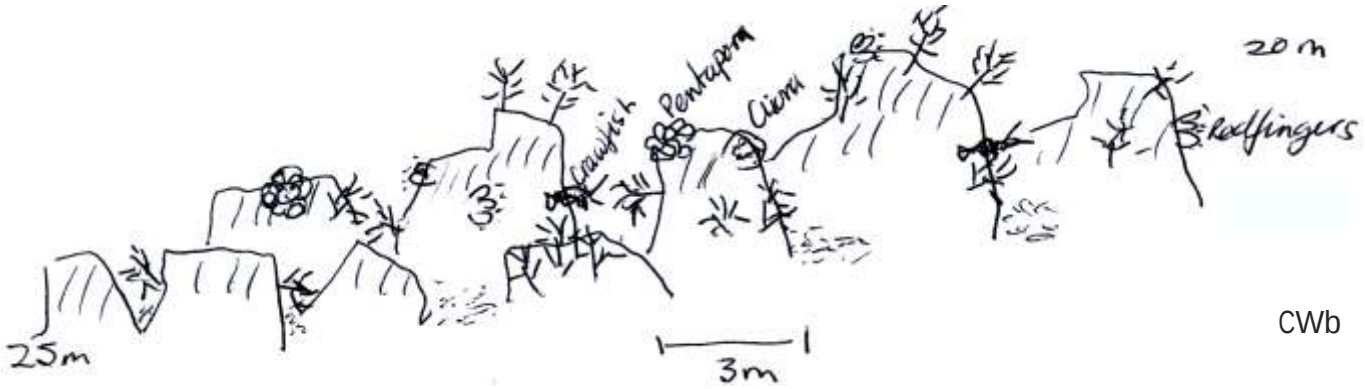
The fringing reefs south of Davas Rock were surveyed in 2017. One group of records was from infralittoral habitats close to Davas Rock (6-10m bcd). The other was from circalittoral habitats in the depth range 12.5-21m bcd.



JY

The shallow reef (6-10m bcd) sketch right, comprised rugged bedrock with a kelp forest of cuvie, *Laminaria hyperborea,* with an understorey of mixed seaweeds. Where there were overhangs and shaded surfaces the seaweeds were replaced by a faunal turf of sponges and bryozoans. Slightly deeper rocky pinnacles between 12.5m and 14.5m bcd were covered in Oaten pipe hydroids, *Tubularia indivisa*, and Jewel anemones, *Corynactis viridis*. The tubes of the oaten pipe hydroids were in turn colonised by a smaller hydroid, *Clytia hemispherica*.

Below this rock and boulders between 15m and 20m bcd also had vertical faces and overhangs. Here the faunal cover was chiefly of anthozoans and hydroids including Dead men's fingers, *Alcyonium digitatum*, Red fingers, *Alcyonium glomeratum*, Jewel anemones, *Corynactis viridis, Aglaophenia tubulifera* and Antenna hydroids, *Nemertesia antennina.*



CWb

The seabed between 15-21m bcd (sketch above) along the whole stretch surveyed by three pairs of divers comprised rugged bedrock with variously sized boulders and small patches of cobbles and coarse sand between them. The bedrock and boulders were dominated by abundant Pink sea fans, soft corals, sponges, Potato crisp bryozoans, *Pentapora foliacea*, Devonshire cup corals and a low silty turf of hydroids. This was a particularly diverse habitat with 19 species of sponge and 21 species of cnidarians (anemones, corals and hydroids) recorded. The images below show typical examples of this habitat.


MM


CW

Below 21m bcd to the south-east the habitat changed to coarse stony gravel with waves and burrowing sea cucumbers, *Neopentadactyla mixta*.

## Habitats and Species in the Proposed Extension

### Habitats

MNCR Biotopes recorded in the proposed extension are listed below. It should be noted that the habitats as recorded do not always have a perfect fit within the list of MNCR biotopes. For instance the first circalittoral rock biotope listed below contains *Urticina felina* within the description but this species was not recorded at this site. However the remainder of the description fits the sand-scoured rock sediment interface habitat recorded. In some cases the lack of a suitable biotope has led to the use of a more general one. For instance the circalittoral coarse sediment at Foam Rock contained large numbers of *Lanice conchilega,* but the only biotope listing this species is an infralittoral one and we have had to use the general circalittoral coarse sediment biotope SS.SCS.CCS.

| | | Puskys | Foam Rock | Wreas | Davas |
|---|---|---|---|---|---|
| Infralittoral Rock | | | | | |
| IR.MIR.KR | Kelp and red seaweeds | | X | | |
| IR.MIR.KR.Lhyp: | *Laminaria hyperborea* and foliose red seaweeds on moderately exposed infralittoral rock | | | X | |
| IR.MIR.KR.LhypT.Pk | *Laminaria hyperborea* park with hydroids, bryozoans and sponges on tide-swept lower infralittoral rock | | X | | |
| IR.HIR.KSed.Sac | *Saccorhiza polyschides* and other opportunistic kelps on disturbed sublittoral fringe rock | | X | | |
| Circalittoral Rock | | | | | |
| CR.MCR.EcCr.UrtScr | *Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock | | X | | |
| CR.HCR.XFa | Mixed faunal turf communities | X | X | | |
| CR.HCR.XFa.ByErSp | Bryozoan turf and erect sponges on tide-swept circalittoral rock | | X | X | |
| CR.HCR.XFa.ByErSp.Eun | *Eunicella verrucosa* and *Pentapora foliacea* on wave-exposed circalittoral rock | X | | X | X |
| CR.HCR.XFa.CvirCri | *Corynactis viridis* and a mixed turf of crisiids, *Bugula*, *Scrupocellaria*, and *Cellaria* on moderately tide-swept exposed circalittoral rock | X | | X | |
| CR.HCR.XFa.SpAnVt | Sponges and anemones on vertical circalittoral bedrock | | | X | X |
| CR.HCR.FaT.CTub | *Tubularia indivisa* on tide-swept circalittoral rock | X | | | X |
| Sublittoral sediment | | | | | |
| SS.SCS.ICS.SLan | Dense *Lanice conchilega* and other polychaetes in tide-swept infralittoral sand and mixed gravelly sand | | X | | |
| SS.SCS.CCS | Circalittoral coarse sediment | X | X | | |
| SS.SCS.CCS.Nmix | *Neopentadactyla mixta* in circalittoral shell gravel or coarse sand | | | | X |

Rock biotopes are classified as high energy, moderate energy or low energy. This is based primarily on wave exposure and tidal streams. The Manacles are sheltered from prevailing westerly winds and there are no accelerated tidal streams. Both factors suggest that the habitats recorded would come within the moderate energy classification and this is what is reflected in the MCZ designation. However the biotope system seeks to describe communities and therefore the species element is equally valid in assigning a biotope to any actual observation.

For infralittoral rock the majority of biotopes assigned do indeed fall within the moderate energy classification. However for circalittoral rock almost all the habitats we observed are assigned as high energy based on the species composition. Relevant characteristic species are Pink sea fans, *Eunicella verrucosa*, which is a listed species in the MCZ designation, Jewel anemones, *Corynactis viridis*, which are shown listed in the MCZ factsheet as characteristic of the area and Oaten pipe hydroids, *Tubularia indivisa*.

These habitats are characteristic of the Manacles area, but are not listed as features in the MCZ designation. We believe this is misleading and, if it is the primary aim of the MCZ to maintain the overall biodiversity of the Manacles and the listed species in a favourable condition, then it follows that the designation should include the types of habitat in which those species are found.

We believe it is the relatively less wave exposed situation of the Manacles compared to areas like Lizard Point and the Land's End peninsula that results in the wide biodiversity, including the exceptional density of pink sea fans and thus extensive habitat for sea fan anemones to thrive.
As these MCZ listed species are classified as being found in high energy biotopes we recommend that High Energy Circalittoral Rock be added to the features for maintenance in favourable condition within the Manacles MCZ.
There is further evidence on this in our earlier Manacles 2001-2015 report (Wood, 2017).

Moderate energy intertidal, infralittoral and circalittoral rock are all listed features in the Manacles MCZ. We did not survey the intertidal area but it is clear that there is rock around Lowland Point and both Davas and The Wreas break surface at low tide. We recorded moderate energy infralittoral rock and circalittoral rock (both moderate and high energy) and thus the proposed extension clearly includes features which it is the aim to maintain in favourable condition within the MCZ.

Species
Four species are listed in the MCZ designation, Pink sea fan, Sea fan anemone, Crawfish (Spiny lobster) and a stalked jellyfish. We did not visit suitable shallow habitats for stalked jellyfish in the proposed extension but recorded the three other species. The table below lists these and other important species found in the proposed extension.

| | | Puskys | Foam Rock | Wreas | Davas |
|---|---|---|---|---|---|
| Listed Species | | | | | |
| Pink sea fan | *Eunicella verrucosa* | A-O | F-R | A-F | A |
| Sea fan anemone | *Amphianthus dohrnii* | F-R | | F-R | O-R |
| Crawfish (Spiny lobster) | *Palinurus elephas* | R | | F-R | F-R |
| Other priority species | | | | | |
| Plaice | *Pleuronectes platessa* | | R | | |
| Characterising species | | | | | |
| Jewel anemone | *Corynactis viridis* | A-O | O | A-O | F |
| Dead men's fingers | *Alcyonium digitatum* | F-R | F-R | S-O | A-R |
| Red fingers | *Alcyonium glomeratum* | O-R | O | F-R | F-R |
| Potato crisp bryozoan | *Pentapora foliacea* | O-R | O | F-O | F |
| Sea fan nudibranch | *Tritonia nilsodhneri* | F | R | A-O | F-O |
| Sea fan false cowrie | *Simnia hiscocki* | | | | R |
| Brown fan weed | *Dictyota dichotoma* | C-F | F | C | C |
| Netted wing weed | *Dictyopteris polypodioides* | R | F | C-O | C-O |
| Crumpled duster sponge | *Axinella damicornis* | R | | | |
| Yellow cluster anemone | *Parazoanthus axinellae* | | | R | O |
| Indian feathers hydroid | *Gymnangium montagui* | | | R | R |
| Tassel weed | *Carpomitra costata* | | R | | R |

The list of characterising species is the same as in our earlier 2001-2015 Report (Wood, 2017)[3].
The table shows the range of abundance records using the semi-quantitative SACFOR scale (Superabundant, Abundant, Common, Frequent, Occasional, Rare)[4].

Measuring a crawfish, *Palinurus elephas*

*Amphianthus dohrnii* at Davas Rock

The table shows that three of the listed species in the MCZ designation are found in the proposed extension at abundances of frequent or higher. As these species are all listed as nationally scarce or requiring recovery to favourable condition this is a surprisingly high level of records. In addition many of the characterising species of the Manacles area are also found in the proposed extension and we conclude that the species composition is as diverse and important as within the current MCZ.


Multiple *Amphianthus dohrnii* on a pink sea fan, The Wreas. This is the result of asexual reproduction by basal laceration.


Pink sea fan tangled by fishing line, Davas Rock. This is a common occurrence and can lead to the colony being broken off and dying.

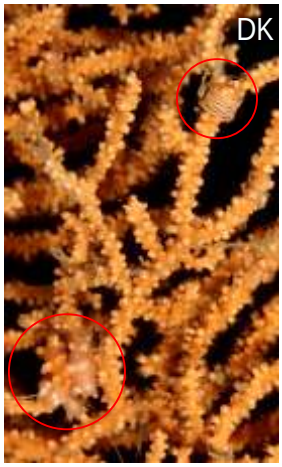
Conclusion

We believe that the area to the south of the Manacles MCZ is equally important in terms of habitats and species to that currently protected. We recommend that the area shown in th map on Page 2 of this report be added to the existing MCZ.

We also believe that high energy circalittoral rock should be added to the features to be maintained in favourable condition throughout the MCZ, This is consistent with protecting pink sea fans, jewel anemones and other characterising species of the MCZ which are found in high energy biotopes.


Cuckoo wrasse (male)


Potato crisp bryozoan, pink sea fan & cuckoo wrasse (female)




Sea fan nudibranch adult and eggs


Streaked gurnard, *Trigloporus lastoviza*


Nudibranch *Thecacera pennigera*

This report has been prepared by Chris Wood based on Seasearch data collected and photographs taken by Chris Webb (Cwb), Chris Wood (CW) , David Kipling (DK), Hugh Waite, John Yarrow (JY), Matt Doggett (MD), Matt Slater, Polly Whyte (PW), Sally Sharrock (SS), Sarah Bowen (SB) and Trudy Russell.
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References:

1 Ministerial Order 2013 No 13. The Manacles Marine Conservation Zone Designation Order 2013.
2 Ministerial Order 2016 No 27. The Manacles Marine Conservation Zone Designation (Amendment) Order 2016.
3 Wood, C (2017): Seasearch surveys within and adjacent to the Manacles Marine Conservation Zone 2001-2015. Seasearch/Marine Conservation Society. http://www.seasearch.org.uk/downloads/Manacles-2001-2015.pdf
4 SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards. http://jncc.defra.gov.uk/page-2684