

**Report on an observational dive visit by J. Jaffrey to the
Long Bay artificial reefs on Friday 23rd January 2004.**

Zigzag Reef January 2004

Bottom Conditions:

- ?? Substrate: fine sand/shell, 1 – 2cm layer of clay/silt also covering Reef.
- ?? Visibility: 1-1.5m.
- ?? Reef Ball positioning: Scouring around reef to 30-40cm deep extending 2-3m either side of reef, Reef still flush with seafloor.
- ?? Minor lateral Reef Ball movement due to deeper scouring between Reef Balls, with two Bay Balls in Zigzag Reef now only 30cm apart.
- ?? The edge of the scour forming a 15cm wall next to one Bay Ball.
- ?? Some pockets of fine silt to 15cm deep near the reef.

Algal Growth :

The coverage of the filamentous algae has increased. There is some algal growth of the brown seaweed *Melanthalia abscissa* with most plants up to 6cm in length, irregularly dotted over Reef Balls. There were a few plants of an unidentified red seaweed to 6cm. No specimens of the green seaweed *Codium fragile* were seen.

Sessile Invertebrates:

Good colonisation of the Green lipped mussel (*Perna caniculus*) in clumps particularly around piercings and base of Reef Balls ranging in size up to 12cm.

A great increase in Ascidian (*Asterocarpa coerulea*) numbers with individuals up to 20cm in length and populations up to 40 per Reef Ball. There were significant numbers inside the Reefballs near the apertures.

Good coverage of the two barnacles (*Austrominius modestus*, *Balanus trigonis*), and tubeworms (*Spirobranchus cariniferus*, *Chaetopteros sp*, *Pomatoceros terranovae*) but with many dead specimens. The Reefball interiors are completely encrusted.

The encrusting sponge (*Cliona celata*) growth is irregular they are more common around the piercings and outer surface of the Reef Balls ranging in size to 15cm in length. A few Golf Ball sponges were present around outside of Reef Balls to 8cm in diameter.

Some sea anemones (*Anthopleura aureoradiata*) were seen, with 2-3 congregations of 20- 30, and a few scattered, isolated specimens.

Pacific Oyster (*Saccostrea glomerata*) was absent and no dead or empty shells evident.

Vagrant Benthos :

Hermit crabs (*Pagurus novaezelandiae*) were common in the piercings of Reef Balls and around the outer surfaces.

Whelks (*C adspersa*; etc) were also present in small numbers with clusters of their eggs up to 5cm in diameter.

Small numbers of starfish (*Patiriella regularis*) were seen in and amongst the Reefballs.

The first nudibranch (unidentified, 2cm long with a gray center and a white spotted margin) was observed.

Fish Species:

The number of fish species observed was reduced although this may have been because of the poor visibility. There were numerous triplefins including common, variable and possibly, estuarine. These ranged from 3cm to 12cm adults. Small black [spawning males?] about 3cm long were present at both reefs. There were 6-12 individuals on each Reefball.

There were shoals of Spotties ranging from 6–30cm with 20-30 fish in them.

There were some small Sweep to 15cm with perhaps 10-20 observe, and 2 or 3 adult Parore to 35cm.

On transects away from the reef there was the greatest abundance of snapper and stingray/eagleray divots I have observed so far. Some were clearly the work of rays and approximately 80cm long, with some at least 30 cm deep.

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Octagon Reef Jan 2004

Bottom Conditions:

- ?? Substrate: fine sand/shell, 2 – 5 cm layer of clay/silt. Reefballs more heavily covered in silty sludge.
- ?? Visibility: 1-1.5m, a lot of suspended material.
- ?? Reef Ball positioning: Scouring to 30 - 40cm deep extending 2-3m either side of the reef, Reef still flush with seafloor.
- ?? Minor lateral Reef Ball movement.

Colonisation General

Colonisation and marine life on the Octagon Reef was much lower in comparison to the Zigzag Reef. The silt sludge layer on the Octagon has smothered a lot of the previous existing life and prevented a lot of new growth.

Algal Growth :

The filamentous algae have increased. There is some growth of the brown seaweed (*Melanthalia abscissa*). Most plants were small, up to 5-8cm in length, irregularly dotted over Reef Balls.

No specimens of the green seaweed *Codium fragile* were observed.

A few specimens of an unidentified red seaweed was again present.

Sessile Invertebrates:

Mussels present around the Reef Ball piercings, up to 12cm in length in groups up to 8 or 10, numbers less than on zigzag reef.

Colonisation on outer surface of Reef Ball is still dominated by barnacles (*A.modestus*, *B.trigonis*) and tube worms (*S.cariniferous*, *P.terranovoe*).

Some Golf Ball sponges on outer surface of Reef Balls to 8cm in diameter with some colonisation of encrusting sponge (*Clione celata*) from 5 - 15cm diameter.

The sea squirt (*Ascidian*) population has increased with individuals reaching 20cm. There were significant numbers inside the Reefballs near the apertures, though overall numbers are fewer than the Zigzag Reef.

The interior surfaces were now completely encrusted with barnacles, tube worms, ascidians, etc.

Some sea anemones (*Anthopleura aureoradiata*) were observed, mostly in congregations of 20- 30, with a few scattered isolated specimens.

The oysters were again absent.

Vagrant Benthos:

Small numbers of whelk (*C. adspersa*) and the Hermit Crab (*P. novaezelandiae*; etc) were present on and around the outer walls of the Reefballs.

Small Turret shells (*Maoricolpus roseus*) to 2cm were in the piercings.

3 - 4 starfish (*P. regularis*) were seen to 20cm span.

Fish Species:

Shoals of Spotty up to 20 fish ranging 6 – 30cm and some small Sweep to 15cm were seen, as well as a range of Triplefin species. The triplefins ranged from 3– 10cm and included the small black form 3– 4cm long.

There was no evidence of snapper and stingray/eagle ray activity within the 4 transects I did to a distance of about 20m from the Reefball site. Perhaps the pervasive 2 –5cm thick blanket of silt has effectively killed the area?

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Comparison of surfaces:

There are still no significant differences in the colonisation of the smooth areas of concrete, the rough aggregate surfaces nor the slate plates.

Settlement:

There is still a significant depression some 30 - 40cm deep scoured around both reefs. This is much more marked at the Zigzag reef perhaps because it is shallower. The individual Reefballs still show no appreciable settlement into the sediment although one Bay Ball in the Zigzag reef looks close to being partially engulfed. The contents at the bottom of each unit vary greatly from coarse to fine broken shell to fine sandy mud in some. Overall the artificial reef appears to be remaining stable.