

## REEF-BUILDING CORALS OF CHRISTMAS ISLAND

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Scleractinian corals were identified from specimens collected in all study sites. Apart from a few specimens collected while wading in the supra-tidal rock pools at Steep Point and North West Point, all other specimens were collected during SCUBA surveys of the narrow fringing reef.

The collection of corals contained 420 specimens referred to 88 species in 38 genera (Table 5). By comparison with the species-rich reefs of Indonesia, about 290 km to the north, the diversity in the collection is very low. While some species were inevitably overlooked during collection, the low diversity of the collection is indicative of low diversity on the reef. Several factors may contribute to the low diversity: the small size of the island; its isolation from sources of planktonic coral larvae; and the limited range of habitats present (viz. the absence of both sheltered shallow water habitats and level deep-water (>15 m) habitats). Moreover, the extensive die-off of corals, which had taken place around the island early in the 1980s (Berry, 2000) may have resulted in severe depletion or local extinction of some species. Many corals (particularly *Acropora* spp.) were small (<10 cm) colonies which had settled since the die-off and it is probable that some species were overlooked.

The coral die-off had left a reef on which the cover of live coral over large areas was low, and on which recolonisation and regeneration were at an early stage during the 1987 survey. A clearer indication of the island's coral fauna and communities could have been made if the survey had been conducted before the die-off, and it may be several more years before the nature of the redeveloping coral community can be properly ascertained.

The only previous record of corals from Christmas Island is that of Bernard (1900) who listed 15 genera but gave only tentative species identifications because of the fragmentary nature of the material. Without examination of this collection, at the British Museum (Natural History) it is not possible to assess the status of these species and they are not included in the present list.

The taxonomy follows Veron (1986, 1993), Hoeksema (1989) and Cairns (1998).

### Addendum

On a private visit to Christmas Island in 1994 one of the authors (Marsh) noted a considerable increase in coral cover compared with that of 1987. In Flying Fish Cove the inner reef flat had c. 5–10% cover of *Pocillopora verrucosa* and few other corals (no corals in 1987). At 2–5 metres depth there was <50% coral cover of fairly diverse genera. Off West White Beach coral cover was higher with colonies of *Acropora hyacinthus* (Dana, 1986), c. 2 metres across and large colonies of other tabular, caespitose and corymbose *Acropora* sp. *Acropora hyacinthus* was not recorded in the 1987 survey.

### REFERENCES

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Table 5 List of reef-building corals

## Key to Symbols

Numbers = sampling stations (see Table 4.)

+ = station not specified

	Station numbers
<b>ANTHOZOA</b>	
Zoantharia	
Scleractinia	
<b>ASTROCOENIIDAE</b>	
<i>Stylocoeniella armata</i> Ehrenberg, 1834	15
<i>S. guentheri</i> Basset-Smith, 1890	1,3,11,15
<b>POCILLOPORIDAE</b>	
<i>Pocillopora damicornis</i> Linnaeus, 1758	4
<i>P. eydouxi</i> Edwards and Haime, 1860	1,5,13,14
<i>P. verrucosa</i> Ellis and Solander, 1786	1,2,3,4,5,11,14
<b>ACROPORIDAE</b>	
<i>Acropora clathrata</i> (Brook, 1891)	11,12
<i>A. cytherea</i> (Dana, 1846)	5
<i>A. gemmifera</i> (Brook, 1892)	11
<i>A. grandis</i> (Brook, 1892)	+
<i>A. listeri</i> (Brook, 1893)	1,3,11,14
<i>A. monticulosa</i> (Brüggemann, 1879)	1,3,4,10,11
<i>A. nana</i> (Studer, 1878)	11
<i>A. palifera</i> (Lamarck, 1816)	1,9,11
<i>A. stoddarti</i> Pillai and Scheer, 1976	3,4,5,12
<i>Acropora</i> sp.	2
<i>Acropora</i> sp. cf. <i>latistella</i> (Brook, 1892)	+
<i>Astreopora gracilis</i> Bernard, 1896	1,10,11,13,14
<i>A. listeri</i> Bernard, 1896	4
<i>Montipora grisea</i> Bernard, 1897	1,2,11
<i>M. informis</i> Bernard, 1897	1,3
<b>AGARICIIDAE</b>	
<i>Pavona clavus</i> (Dana, 1846)	1,15
<i>P. explanulata</i> (Lamarck, 1816)	1,3,13
<i>P. frondifera</i> Lamarck, 1816	13
<i>P. maldivensis</i> (Gardiner, 1905)	3,15
<i>P. minuta</i> Wells, 1954	1,3,9,11,14
<i>P. varians</i> Verrill, 1864	1,2,3,5,9,11,14
<i>P. venosa</i> (Ehrenberg, 1834)	1,3
<i>Leptoseris explanata</i> Yabe and Sugiyama, 1941	+
<i>L. hawaiiensis</i> Vaughan, 1907	11
<i>L. mycetoseroides</i> Wells, 1954	2,11
<i>L. scabra</i> Vaughan, 1907	2
<i>Gardineroseris planulata</i> (Dana, 1846)	1,3,5,9,11,13
<i>Pachyseris speciosa</i> (Dana, 1846)	1,3,5,11
<b>SIDERASTREIDAE</b>	
<i>Coscinaraea monile</i> (Forskål, 1775)	4
<i>Psammocora nierstraszi</i> Van der Horst, 1921	1
<i>P. superficialis</i> Gardiner, 1898	5,11,12
<b>FUNGIIDAE</b>	
<i>Fungia</i> ( <i>Fungia</i> ) <i>fungites</i> (Linnaeus, 1758)	1,2,5
<i>Fungia</i> ( <i>Lobactis</i> ) <i>scutaria</i> Lamarck, 1801	1,2,3,11,14
<i>Fungia</i> ( <i>Verrillofungia</i> ) <i>repanda</i> Dana, 1846	1,2,3,11
<i>Fungia</i> ( <i>Wellsofungia</i> ) <i>granulosa</i> Klunzinger, 1879	2,11
<i>Sandalolitha dentata</i> Quelch, 1884	1,11
<b>PORITIDAE</b>	
<i>Porites lobata</i> Dana, 1846	14
<i>P. lutea</i> Edwards and Haime, 1860	1,2,3,9,11,14
<i>P. rus</i> (Forskål, 1775)	1,2,3,4,5,9,11,13,14,15

Table 5 (cont.)

	Station numbers
<i>P. vaughani</i> Crossland, 1952	1,2,3,15
<i>Goniopora columna</i> Dana, 1846	15
<i>G. norfolkensis</i> Veron and Pichon, 1982	5,9,15
<i>G. stutchburyi</i> Wells, 1955	1,5,9
<i>G. tenuidens</i> Quelch, 1886	2
<i>Alveopora allingi</i> Hoffmeister, 1925	3
FAVIIDAE	
<i>Favia pallida</i> (Dana, 1846)	1
<i>F. rotumana</i> (Gardiner, 1899)	10,12
<i>Favites abdita</i> (Ellis and Solander, 1786)	1,4,10
<i>F. chinensis</i> (Verrill, 1866)	1,2,3,9,11,12
<i>F. pentagona</i> (Esper, 1794)	3,5,9,10,11
<i>F. russelli</i> (Wells, 1954)	+
<i>Goniastrea retiformis</i> (Lamarck, 1816)	3,4,10
<i>Platygyra daedalea</i> (Ellis and Solander, 1786)	4,5,12,15
<i>P. lamellina</i> (Ehrenberg, 1834)	4
<i>P. sinensis</i> (Edwards and Haime, 1849)	4
<i>P. verweyi</i> Wijsman-Best, 1976	3
<i>Leptoria phrygia</i> (Ellis and Solander, 1786)	1,2,3,14
<i>Montastrea curta</i> (Dana, 1846)	11,12
<i>Diploastrea heliopora</i> (Lamarck, 1816)	1,2,11,14
<i>Leptastrea pruinosa</i> Crossland, 1952	1,3,13
<i>L. transversa</i> Klunzinger, 1879	9
<i>Leptastrea</i> sp.	4
<i>Cyphastrea serailia</i> (Forskål, 1775)	1,2,9,11
<i>C. microphthalma</i> (Lamarck, 1816)	1,3,11
<i>Echinopora horrida</i> Dana, 1846	3,14
<i>E. hirsutissima</i> Edwards and Haime, 1849	2,3,9,12,15
OCULINIDAE	
<i>Galaxea astreata</i> (Lamarck, 1816)	3
<i>G. fascicularis</i> (Linnaeus, 1767)	1,2,3,9
MERULINIDAE	
<i>Hydnophora exesa</i> (Pallas, 1766)	3,15
<i>H. microconos</i> (Lamarck, 1816)	3,10
<i>Merulina ampliata</i> (Ellis and Solander, 1786)	1
<i>Scapophyllia cylindrica</i> (Edwards and Haime, 1848)	1,9,11
MUSSIDAE	
<i>Acanthastrea echinata</i> (Dana, 1846)	3
<i>Lobophyllia hemprichii</i> (Ehrenberg, 1834)	1,2,3,12,14
<i>L. corymbosa</i> (Forskål, 1775)	4
<i>L. hataii</i> Yabe, Sugiyama and Eguchi, 1936	1,2,5
<i>Symphyllia radians</i> Edwards and Haime, 1849	4
<i>S. valenciennesii</i> Edwards and Haime, 1849	14
PECTINIIDAE	
<i>Oxypora lacera</i> (Verrill, 1864)	5
CARYOPHYLLIIDAE	
<i>Plerogyra sinuosa</i> (Dana, 1846)	1,11
DENDROPHYLLIIDAE	
<i>Rhizopsammia verrillii</i> van der Horst, 1922	12,13
<i>Tubastrea</i> sp.	1
<i>Turbinaria stellulata</i> (Lamarck, 1816)	1