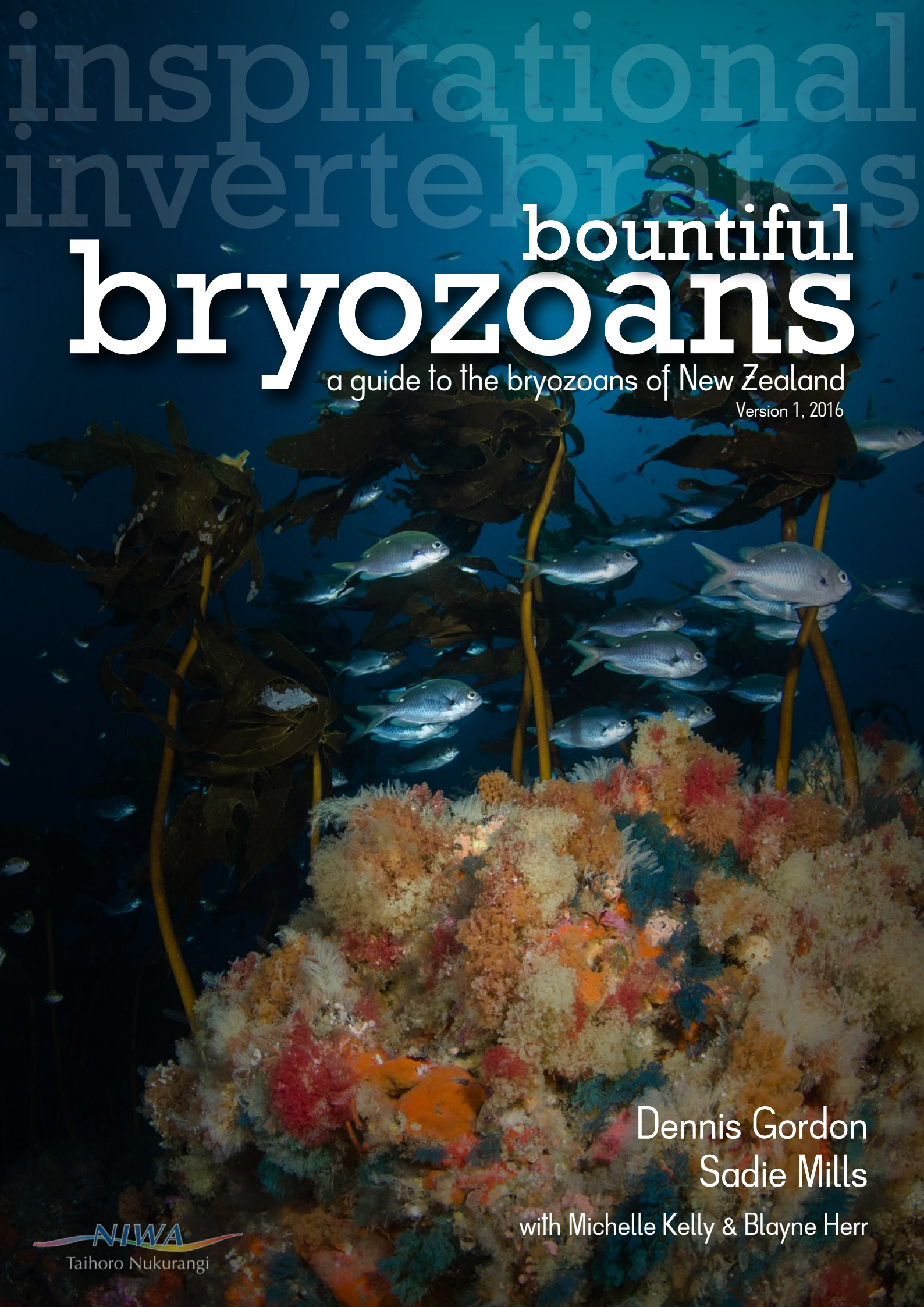


bountiful bryozoans

a guide to the bryozoans of New Zealand

Version 1, 2016

Dennis Gordon
Sadie Mills
with Michelle Kelly & Blayne Herr

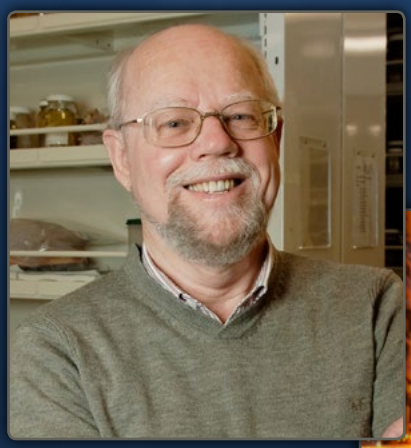
NIWA
Taihoro Nukurangi

about this guide

Bryozoans – also known as moss animals and sea mats – are adapted to live in many marine habitats, from the intertidal zone to the continental shelf, deep ocean trenches, and abyssal plains. They are a beautiful and diverse group and we hope you will enjoy reading and using this guide to help identify them in the wild. BOUNTIFUL BRYOZOANS is a fully illustrated working e-guide to the most commonly encountered shallow-water species of bryozoans of New Zealand. It is designed for New Zealanders who live near the sea, dive and snorkel, explore our coasts and make a living from it, and for those who educate and are charged with kaitiakitanga, conservation and management of our marine realm. It is one in a series of e-guides on New Zealand marine invertebrates that NIWA's Coasts and Oceans group is presently developing.

The e-guide starts with a simple introduction to living bryozoans, followed by a morphology (shape) index, species index, detailed individual species pages, and finally, icon explanations and a glossary of terms. As new species are discovered and described, new species pages will be added and an updated version of this e-guide will be made available.

Each bryozoan species page illustrates and describes features that enable you to differentiate the species from each other. Species are illustrated with high quality images of the animals in life. As far as possible, we have used characters that can be seen by eye or magnifying glass, and language that is non-technical. Many of the distinguishing characters of bryozoans are microscopic though, so we have also included a section on these characters should you want to take your identification further with the use of a microscope. Outlying island groups are shown on the maps as a two-letter code: Ke = Kermadec Islands; Ch = Chatham Islands; Bo = Bounty Islands; An = Antipodes Islands; Ak = Auckland Islands; Ca = Campbell Islands. Information is provided in descriptive text or quick-reference icons that convey information without words. Icons are fully explained at the end of this document and a glossary explains unfamiliar terms.



Dennis P. Gordon is an emeritus scientist at NIWA and a distinguished global authority on the biology, paleontology, systematics and evolution of phylum Bryozoa.

Sadie Mills is the Collection Manager of the NIWA Invertebrate Collection

For any advice on bryozoans you find, please email your photos and queries to Dennis (dennis.gordon@niwa.co.nz) or Sadie (sadie.mills@niwa.co.nz)

http://www.niwa.co.nz/coasts-and-oceans/marine-identification-guides-and-fact-sheets

Remember to check the websites for updated versions!

a typical species page layout

taxonomic name of species

taxonomic authority
person(s) who first described this species

common name of species

species classification
see species index for arrangement

species images
inset images show variations and/or closeup detail

body plan icon
the basic shape of the animal, characteristic of certain groups

life history icon
highlighting geographic distribution

scale bar
indicating relative size of organism in the main image

quick id icons
highlighting shape, surface detail, habitat, and environment

depth range
common depth range around New Zealand

information
details on external and internal characters and habitat

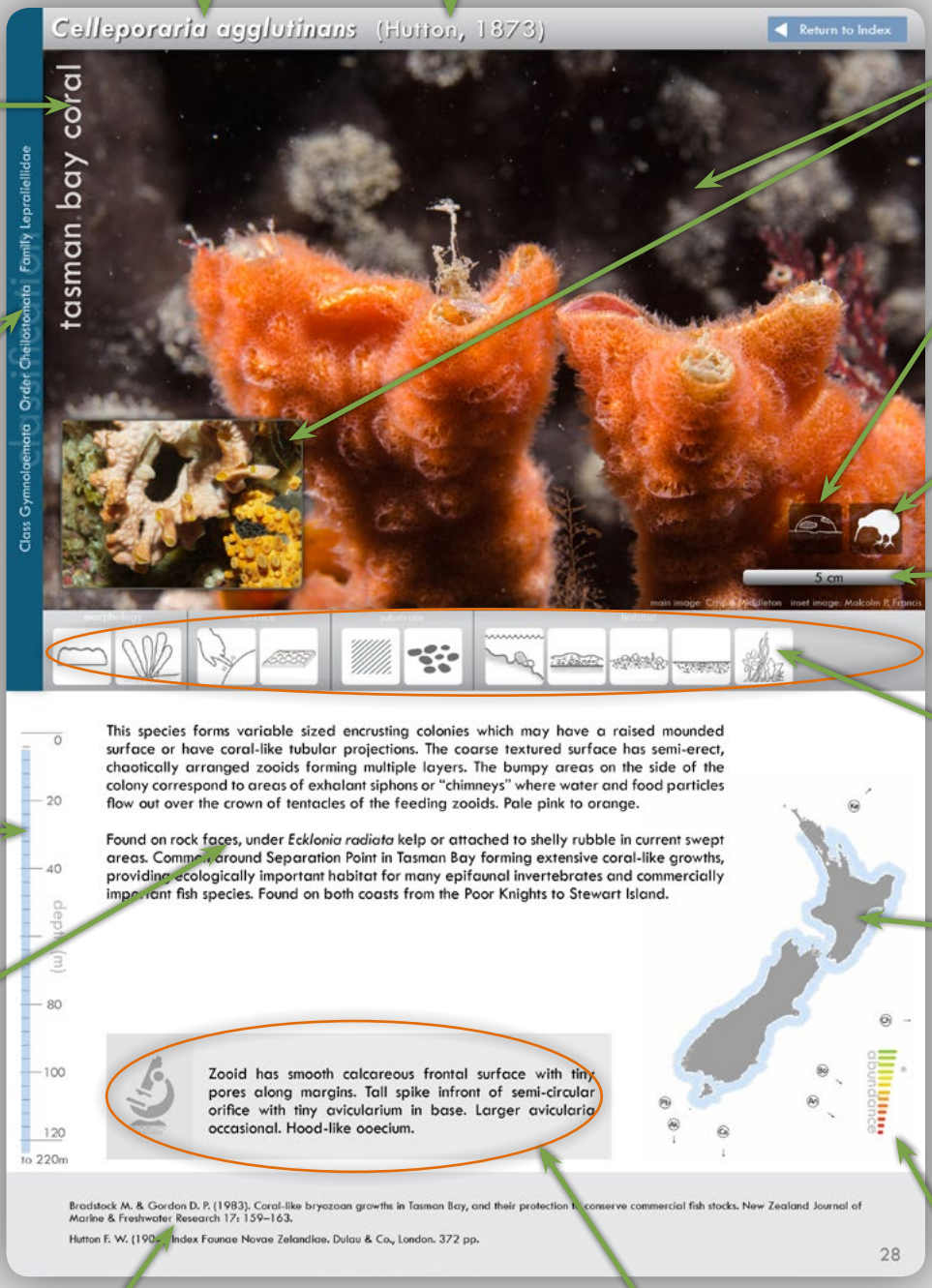
distribution
section of coastline where species is most commonly found

make notes of where you encountered this species and let us know if you find it at a new location

scale of abundance

key taxonomic references

microscopic characters
These characters are described in more technical terms and can help distinguish between species, but can only be seen with a microscope.



about bryozoans

Bryozoans are very common marine organisms of rocky coasts and can be found in the intertidal zone of your local sea shore, through diving depths and beyond onto the continental shelf and down to some of the deepest parts of our oceans, but few people will actually recognise what they are. They are commonly known as moss animals and sea mats as they can take on a wide variety of forms such as flat encrusting, soft bushy, or erect rigid coral-like colonies. There are about 6,500 recognised living species worldwide and more than 1000 in New Zealand, more than 300 of which are undescribed (Gordon *et al.* 2009). Eight of New Zealand's species can be found in freshwater but the great majority are marine.

Bryozoans are made up of lots of individuals, called zooids, united in a large colony. Whereas freshwater bryozoans and all bryozoans in the order Ctenostomata have uncalcified zooids, most marine bryozoans have a partially calcified, hard, body wall. Feeding zooids can be tubular (in the order Cyclostomata), or more or less box-like (order Cheilostomata) with a 'lid' (operculum) at the opening where the tentacles emerge. You can just see the feeding zooids on a bryozoan with the naked eye if you look very carefully, as they range in size from 0.3 to 1.5 millimetres long. Underwater photographers with a good macro lens and a steady hand can capture amazing photographs of the tentacle crowns when extended for feeding. Bryozoans capture small living and non-living organic particles from the surrounding water to eat, but they do not sting their prey, which is what distinguishes bryozoans from similar-looking cnidarian creatures called hydroids. The internal organs are very simple, essentially comprising only a nerve ganglion ('brain') at the base of the tentacle crown, U-shaped gut, retractor muscles and, in the breeding season, sex organs.

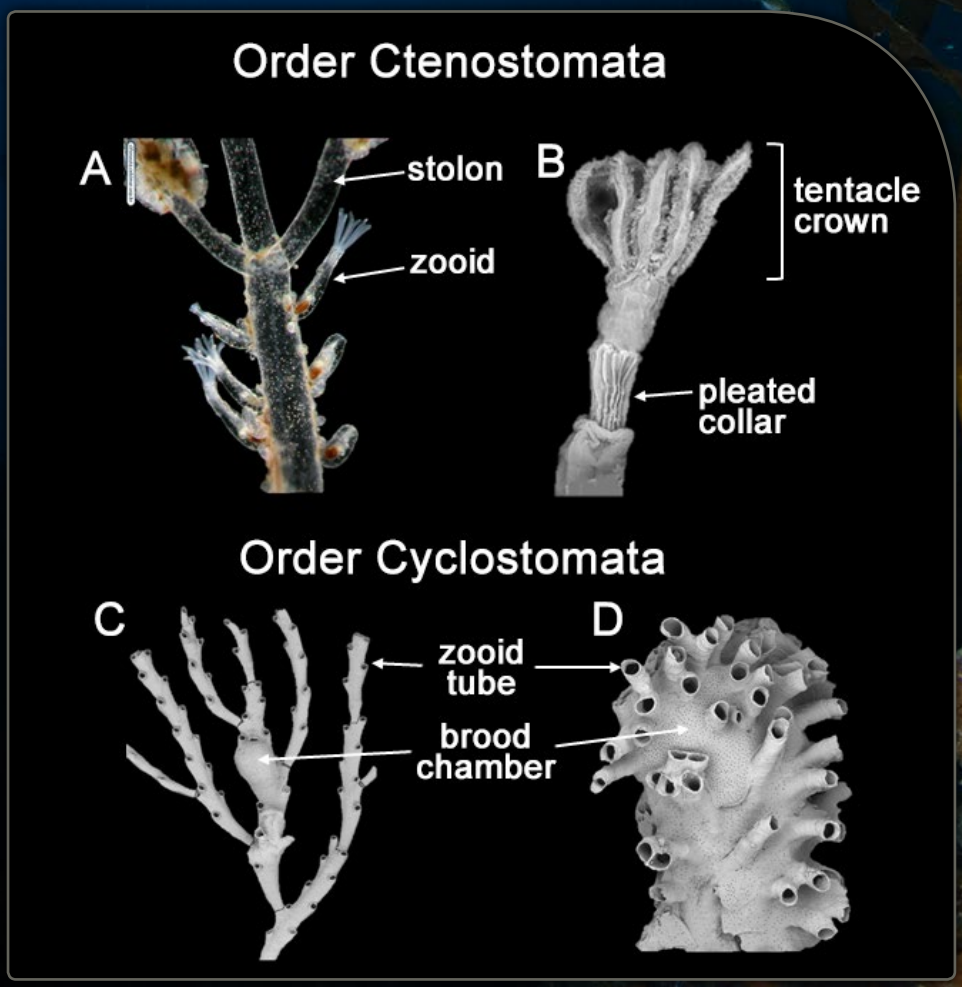
There are also many other types of zooids in bryozoans (zooid polymorphs), which perform various tasks such as colony strengthening, space-filling, defence, reproduction and nutrient storage.

Not many studies have been published on what eats bryozoans, but a recent review noted that the main predators of Bryozoa are fish, crustaceans (e.g. crabs), sea slugs, sea spiders, flatworms, some polychaete worms and nematode worms (Lidgard 2008). They are also eaten by grazing species such as chitons, echinoids, sea stars and brittle stars.

Bryozoans can form extensive thickets and coral-like clumps (Gordon 2003) which are important habitats for other marine invertebrate and fish species. Fishers might know of 'Tasman Bay Coral', which is actually a bryozoan species (*Celleporaria agglutinans*) that is widespread around New Zealand and forms extensive beds in parts of the Marlborough Sounds. A thicket-forming bryozoan, *Cinctipora elegans*, provides an important habitat for juvenile blue cod (*Parapercis colias*) on the Otago shelf and is the major frame-builder of biogenic reefs in Foveaux Strait that support invertebrates such as sponges, ascidians and commercially important Bluff oysters (Cranfield et al. 2004). Bryozoans also include some well-known invasive species, which encrust man-made structures such as boats and wharf piles as well as floating plastic rubbish. There are at least 24 introduced or 'alien' species known in New Zealand and 50 of our native species are foulers of vessels and other artificial substrata in New Zealand ports and harbours (Gordon et al. 2009).

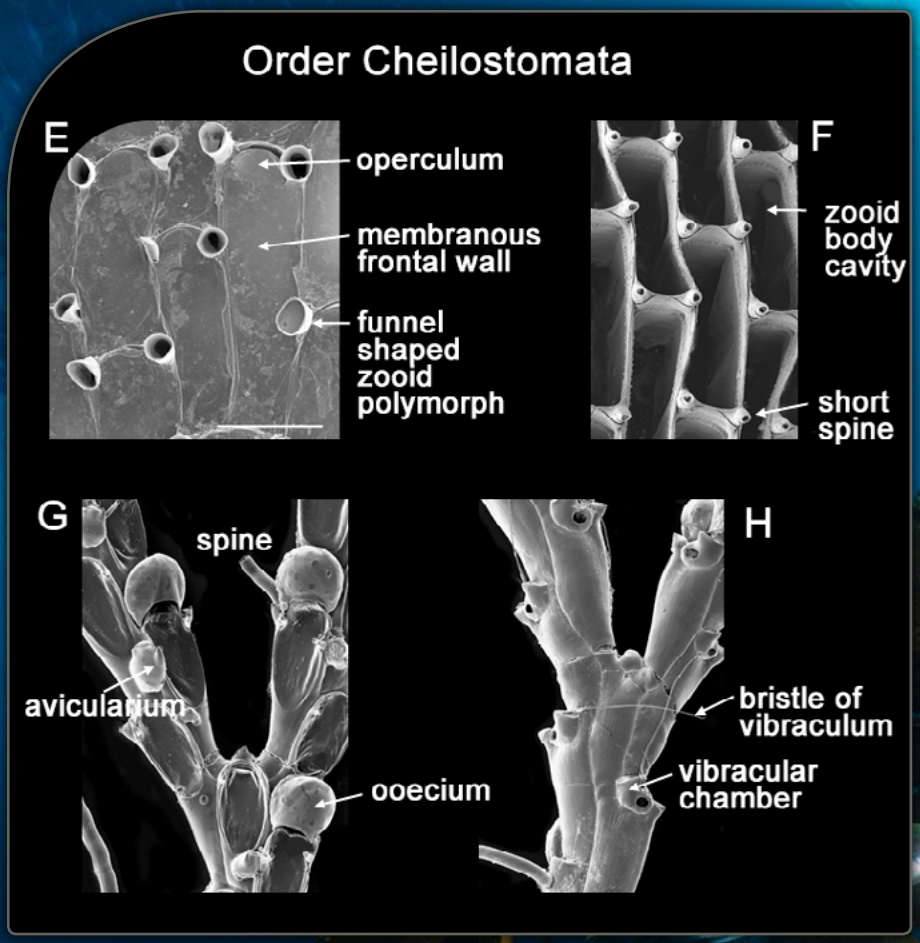
Some potentially exciting pharmaceutical applications of bryozoans have been discovered by researchers, in particular the bioactive compounds such as bryostatin-1 and janolusimide B, which have been isolated from *Bugula neritina* and *Bugulina flabellata*, respectively (Newman et al. 2000; Wang et al. 2014). These types of compounds have been shown to have a range of applications when trialling their anti-cancer, anti-fouling and anti-fungal properties.

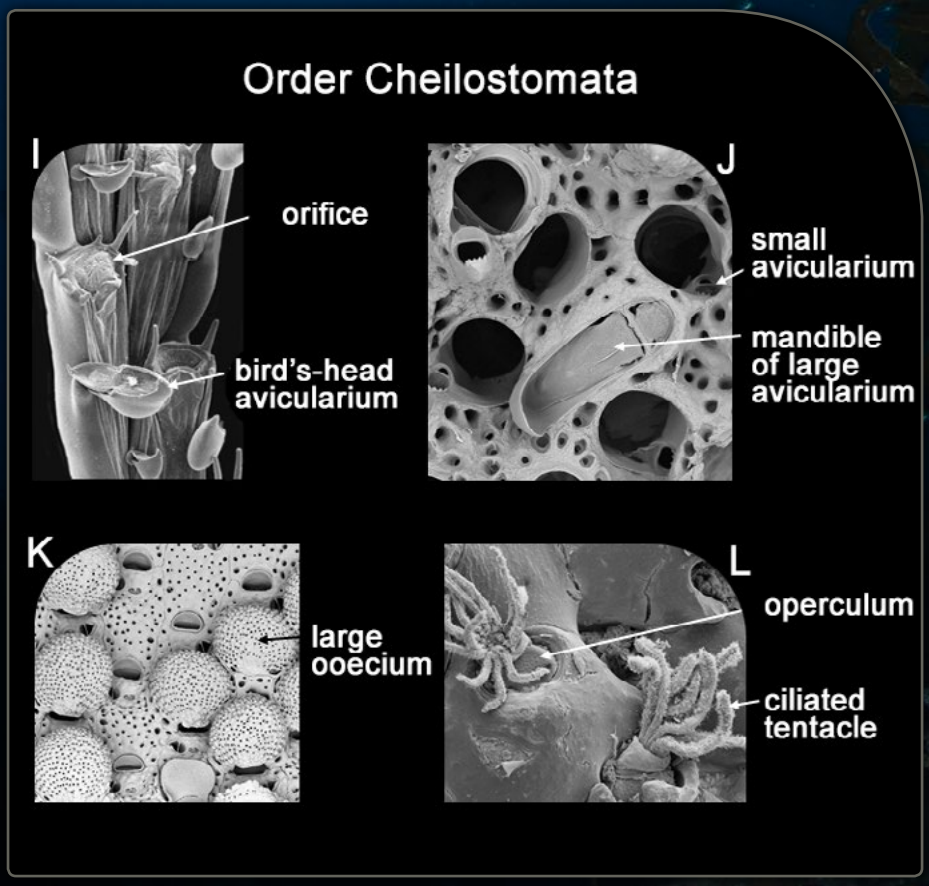
body plans and microscopic characteristics



The basic body plan of two of the orders of Bryozoa with labelled microscopic characters. Order Ctenostomata has a flexible body wall. (A) Image of a colony of *Amathia verticillata* (from CEBIMAR) with an extended zooid. (B) A scanning electron microscope (SEM) image of an extended zooid. Order Cyclostomata has a hard body wall with tubular feeding zooids. (C) An SEM image of *Crisia* sp. and (D) *Tubulipora* sp.

The basic body plan of several species in the order Cheilostomata with labelled microscopic characters. Order Cheilostomata has a hard body wall with box-like feeding zooids. Scanning electron microscope images of (E) *Membraniporopsis tubigera*, (F) *Membranipora membranacea*, (G & H) *Cladoscrupocellaria bertholletii*.





Scanning electron microscope images of (I) *Bugulina flabellata*, (J) *Celleporaria umbonatoidea*, (K) *Microporella ordo*, (L) *Rhynchozoon zealandicum*.

morphology index


11
Adeonellopsis sp.


12
Beania bilaminata


34
Steginoporella perplexa


35
Elzerina binderi


33
Steginoporella neozelanica


26
Galeopsis porcellanicus


25
Galeopsis polyporus


22
Cellaria immersa


37
Cinctipora elegans


39
Diaperoecia purpurascens


41
Hornera robusta


40
Hornera foliacea


31
Hippellozoon novaezelandiae


23
Cellaria tenuirostris


43
Idmidronea spp.


16
Menipea vectifera


15
Caberea zelandica


17
Catenicella elegans


18
Cornuticella taurina


19
Orthoscuticella innominata


20
Pterocella scutella

morphology index


21
Pterocella vesiculosa


14
Virididentula dentata


29
Margaretta barbata


38
Bicrisia edwardsiana


36
Amathia wilsoni


28
Celleporaria agglutinans


32
Parasmittina delicatula


30
Membranipora membranacea


27
Electra scuticifera


13
Beania magellanica


24
Celleporina sp.


42
Disporella novaehollandiae


44
Tubulipora anderssoni


45
Telopora lobata

species index

PHYLUM Bryozoa

CLASS Gymnolaemata

ORDER Cheilostomata

ORDER Ctenostomata

species index

PHYLUM Bryozoa
CLASS Stenolaemata
ORDER Cyclostomata

Adeonellopsis sp. MacGillivray, 1886

Return to Index

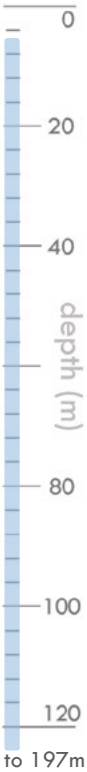
Class Gymnolaemata Order Cheilostomata Family Adeonidae

image: Malcolm P. Francis

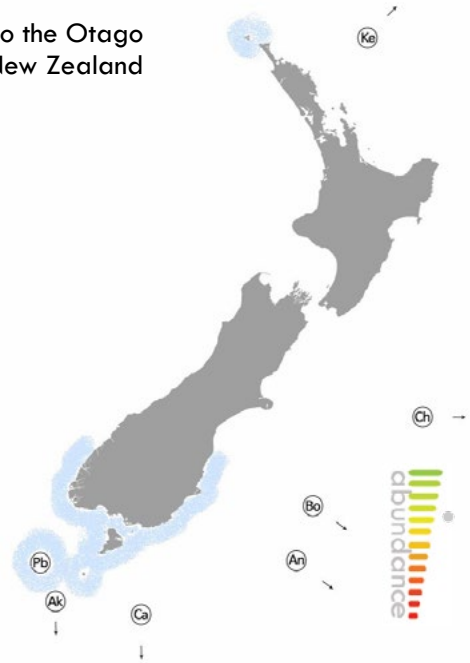
morphology | surface | substrate | habitat

A large, hard colony with many flattened branches. The branches are short and rounded, or lobed at their tip, erect, and branch like a stag's horn. The colony is purplish-cream with paler tips, but it can appear bleached white.

Adeonellopsis sp. can be found on rocky substrata from the Three Kings Islands to the Otago Shelf, Snares Platform and Puysegur Bank. There are at least four species in New Zealand and none of them are named.



Bilaminar. Zooid openings occur on both sides of the branches.



Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

Smith A. M. (2009). Bryozoans of southern New Zealand. Field Identification Guide. Department of Marine Science, University of Otago, Dunedin, New Zealand. Version 4. 30 p.

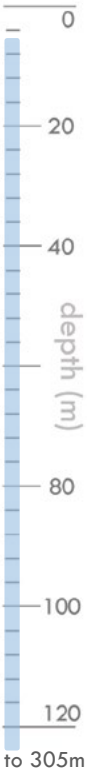
Beania bilaminata (Hincks, 1881)

Return to Index

Class Gymnolaemata Order Cheilostomata Family Beaniidae

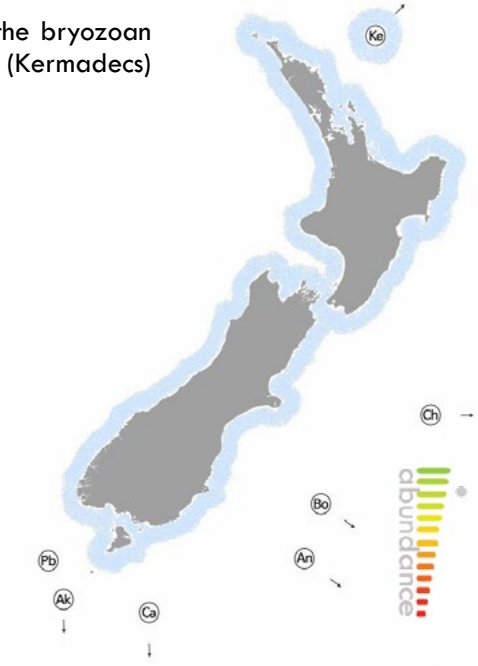
image: Malcolm P. Francis

morphology | surface | substrate | habitat



A small erect colony with flat and somewhat flexible, 2-layered fronds. If viewed underwater, Zooids can be seen extending out from openings on both sides of the frond. Fawn-coloured colony.

Found under rock overhangs and attached to brown algae, or the stalks of the bryozoan species *Steginoporella neozelanica*. An endemic species found on Macauley Island (Kermadecs) and throughout New Zealand.



Lightly calcified zooids with membranous frontal wall, small distal operculum. Corners of distal rim have slight projection, short stalked avicularium on most zooids. Tentacle crown with 24–26 tentacles. No ovicells, internal borders.

Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

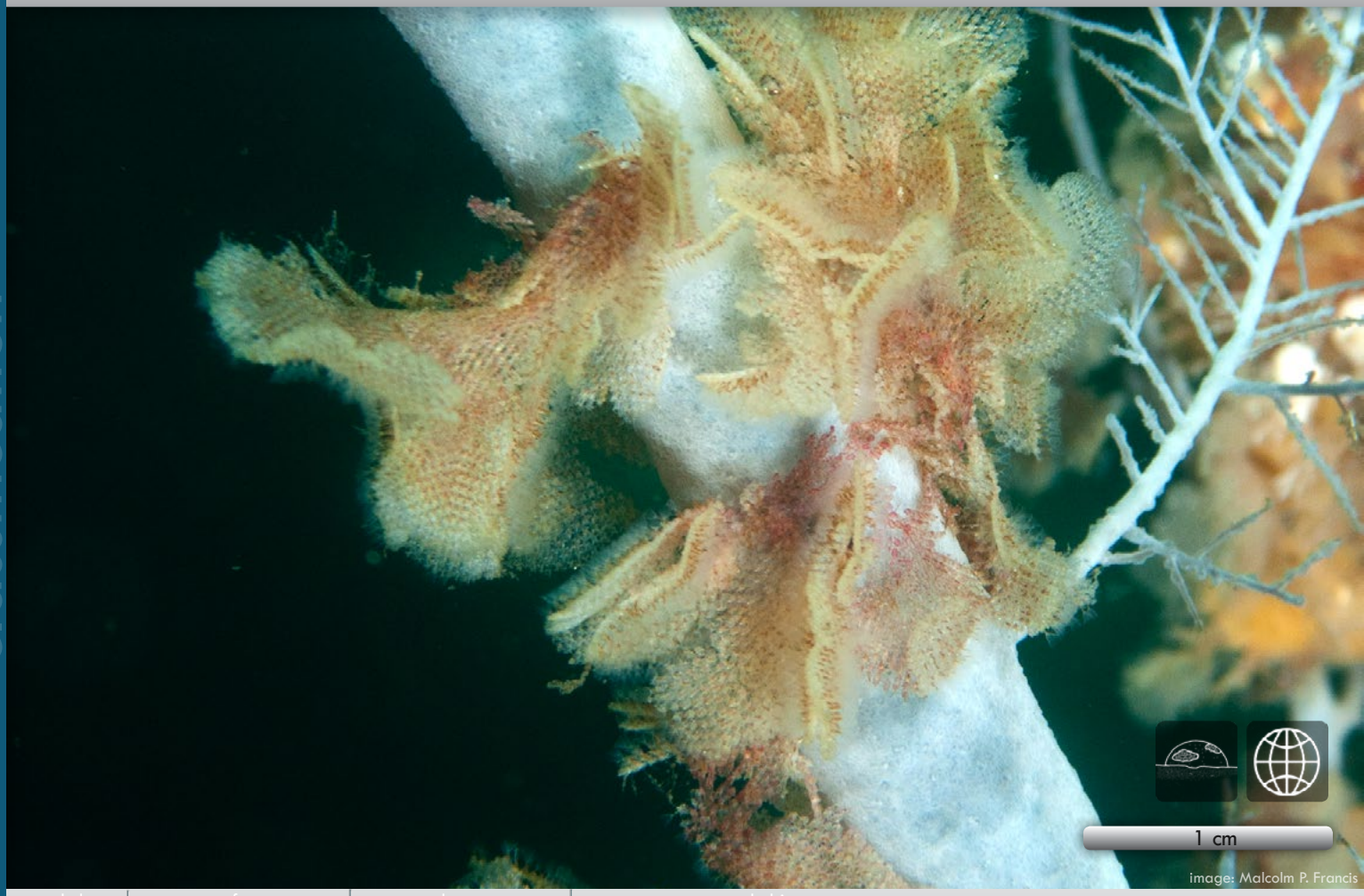
Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co, London. 372 pp.

Beania magellanica (Busk, 1852)

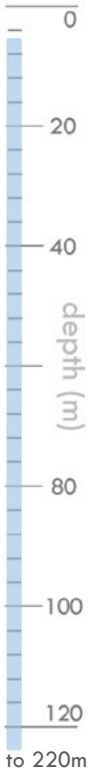
Return to Index

Class Gymnolaemata Order Cheilostomata Family Beaniidae

classification



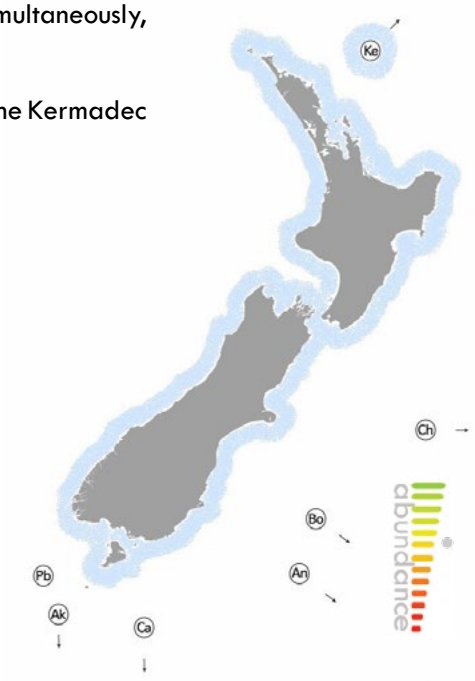
morphology | surface | substrate | habitat



This small colony is encrusting, but is very loosely attached and can easily be peeled off the substrate it is growing on. Occasionally this species grows outwards into the water as pictured. Zooids are large so might be visible to the naked eye when viewed under water. When disturbed, mandibles of structures called avicularia attached to zooids close simultaneously, which is visible as a tiny movement to the naked eye. Orange colony.

Found under boulders and on subtidal rock faces throughtout New Zealand from the Kermadec Islands to Foveaux Strait.

Lightly calcified, large zooids with membranous frontal wall. Zooids arranged in a distinct network, each linked by 6 tubes to its neighbour and not overlapping. 1–2 stalked bird's-head avicularia with pointed beak attached beside orifice of zooid. Tentacle crown with 27 tentacles. No spines and no ooecium.



Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co, London. 372 pp.

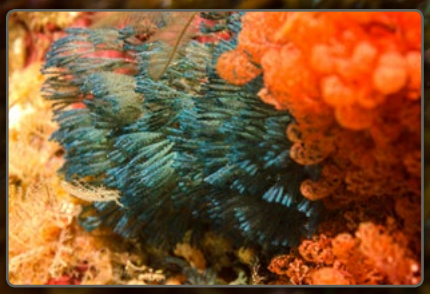
Viridentula dentata (Lamouroux, 1816)

Return to Index

Class Gymnolaemata Order Cheilostomata Family Bugulidae

classification

green bugula



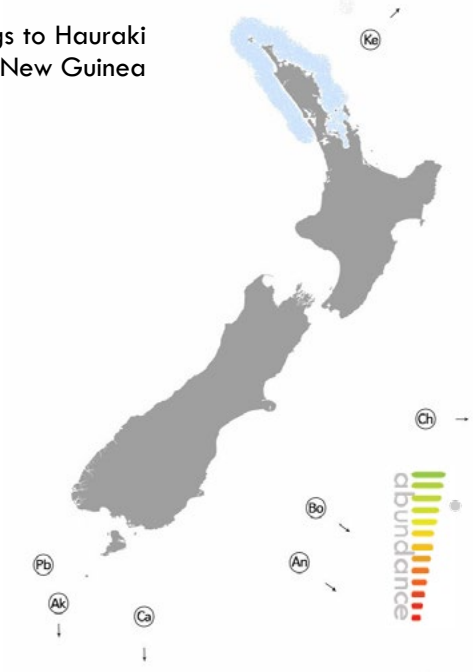
2 cm

main image: Malcolm P. Francis inset mage: Crispin Middleton

morphology surface substrate habitat

Colony bushy and flexible, with tree-like branching. The colony is anchored to the substratum by rootlets. This species is easily recognisable by its distinctive, vivid green-blue colour, which looks grey when dried.

Found on subtidal rock faces in Northern New Zealand waters from Three Kings to Hauraki Gulf. Also found in North Atlantic, southern and eastern Australia, South Africa, New Guinea and Indonesia.



Zooids with three spines at outer distal corner, 1 at inner corner. Bird's-head avicularium at proximal end of frontal membrane. Proximal third of frontal area calcified. Ooecium globular.

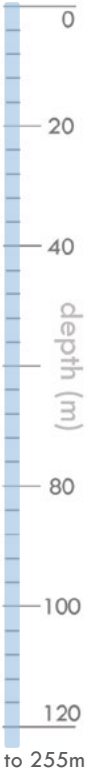
Fehlauer-Ale K. H., Winston J. E., Tilbrook K. J., Nascimento K. B. & Vieira L. M. (2015). Identifying monophyletic groups within Bugula sensu lato (Bryozoa, Buguloidea). Zoologica Scripta (online).

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co, London. 372 pp.

Caberea zelandica (Gray, 1843)

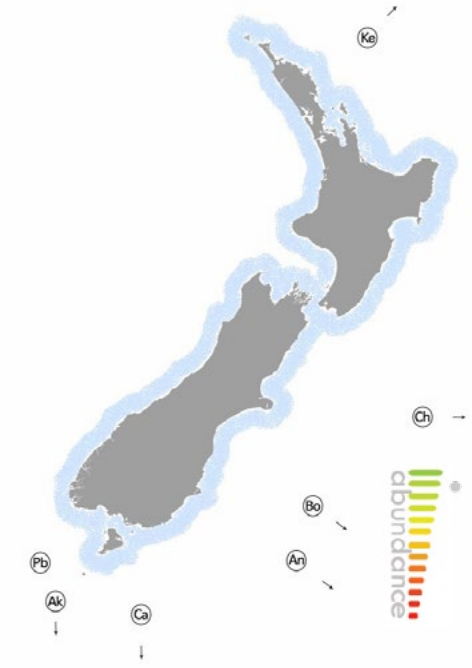
Return to Index

morphology | surface | substrate | habitat



Small and erect colony with simple branches spread out in fan. The colony is rooted to substratum and is flexible to the touch. The branches fork and are non-jointed with a double row of zooids. Orange.

Endemic, found New Zealand-wide.



Proximal part of zooid calcified, smooth, with narrow granular crypocyst under frontal membrane. Short pair of spines on either side of orifice, small avicularium adjacent to orifice. Dorsal side of each branch has diverging rows of vibracula, narrow chambers each with long serrated bristle. Just visible to the naked eye. On one side of each branch is a row of serrated bristles. When colonies are disturbed there is a visible movement of the bristles. Ooecium flattened.

Gordon D. P. (1986). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Ctenostomata and Cheilostomata Anasca) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 95. 121 pp.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co, London. 372 pp.

Menipea vectifera Harmer, 1923

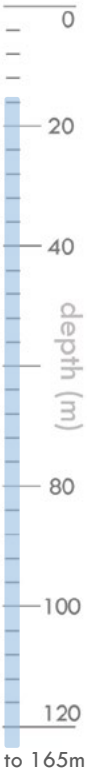
Return to Index

main image: Malcolm P. Francis inset image: Crispin Middleton

morphology | surface | substrate | habitat

Erect and flexible bush-like colony which is rooted to substratum. The branches are flattened, and frond-like, 2 mm wide. The colony is opaque beige.

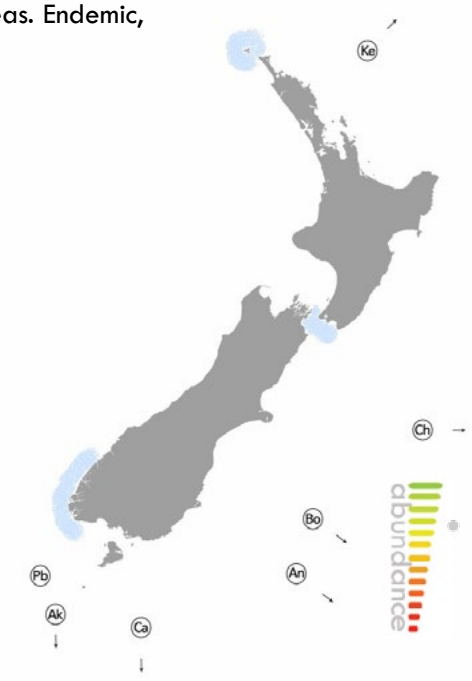
Lives on rock faces. Only occasionally found, but it can be common in those areas. Endemic, occurring at the Three Kings Islands, Cook Strait and Fiordland.



It could also be.....

Caberea zelandica

Zooids open on one-side, 3–10 longitudinally arranged across whole front wall of branch. Cryptocyst present along margins and under proximal third of zooids. 1–2 spines distally. Avicularia at proximal end of zooids that lack an ooecium. Ooecium prominent, flattened, smooth with pair of avicularia at distal corners. Dorsal surface of branch occasionally has large avicularia set transversely; smaller of these occur near branch axis.



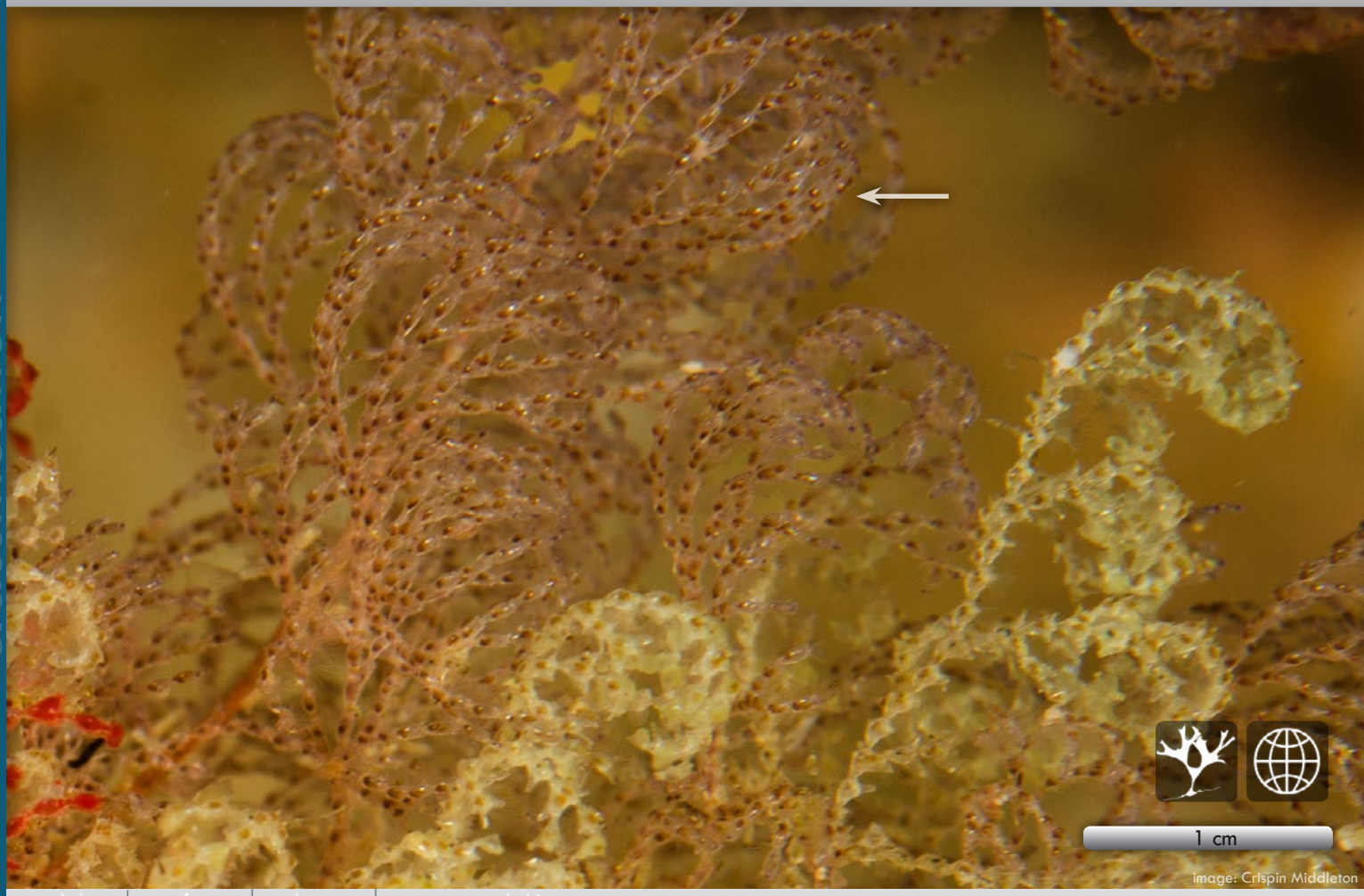
Gordon D. P. (1986). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Ctenostomata and Cheilostomata Anasca) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 95. 121 pp.

Hastings A. B. (1943). Polyzoa (Bryozoa) I. Scrupocellariidae, Epistomiidae, Farciminariidae, Bicellariellidae, Aeteidae, Scruparidae. Discovery Reports 22: 301–510.

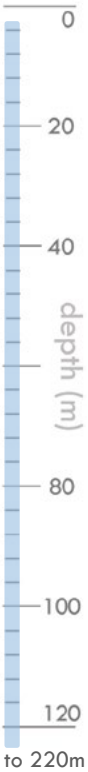
Catenicella elegans Busk, 1852

Return to Index

Class Gymnolaemata Order Cheilostomata Family Catenicellidae

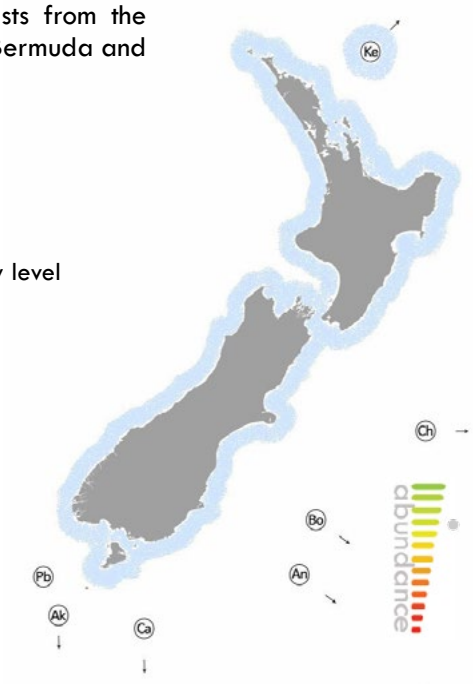


morphology | surface | substrate | habitat



Erect, flexible, delicately bushy translucent colony. Branches curl around slightly towards their tips and are composed of jointed chains of 1–2 zooids. Brownish-purple.

Found on rock faces and overhangs throughout New Zealand on both coasts from the Kermadec Ridge to Foveaux Strait. Also known from Australia, South America, Bermuda and Japan.



It could also be.....

Other *Catenicellid* spp.

We recommend microscopic examination of these species to identify further than family level

Body wall (gymnocyst) smooth with parallel pair of narrow porous slits. Smaller shallow openings next to orifice. Small, outward-facing avicularia at each outer corner. Fertile segment with 2 zooids, ooecium bulging in between, with slits curving from the sides to the front and 1 or 2 pores frontally.

Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

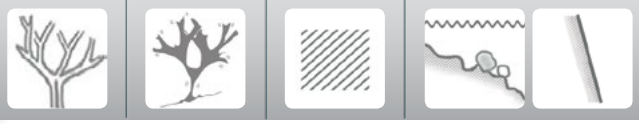
Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Cheilostomida Ascophorina) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

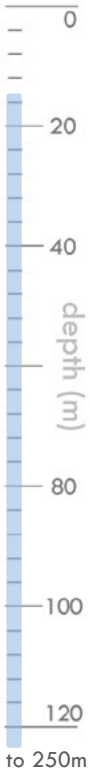
Cornuticella taurina (Busk, 1852)

Return to Index

image: Crispin Middleton

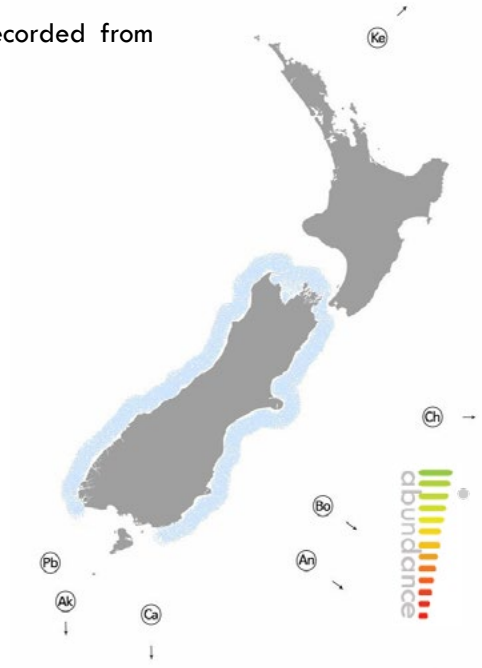
morphology | surface | substrate | habitat





Erect, flexible, bushy colony. The colony appears delicate and fluffy, with the bushy tips at the ends of the branches curling in on themselves. Branches composed of jointed chains of 1–2 zooids. Pinkish orange.

Found on rock faces from 15–250 m in Cook Strait to Fiordland. Also recorded from southeastern Australia and South Africa.



Single zooids 0.43–0.62 mm long, 0.32–0.49 mm wide, narrowing proximally. Zooid corners variable: expanded widely, or not at all, to a point, avicularia present or lacking. 2 zooids in fertile segment, ooecium more proximal, smooth at front, parallel pair of perforated grooves at back.

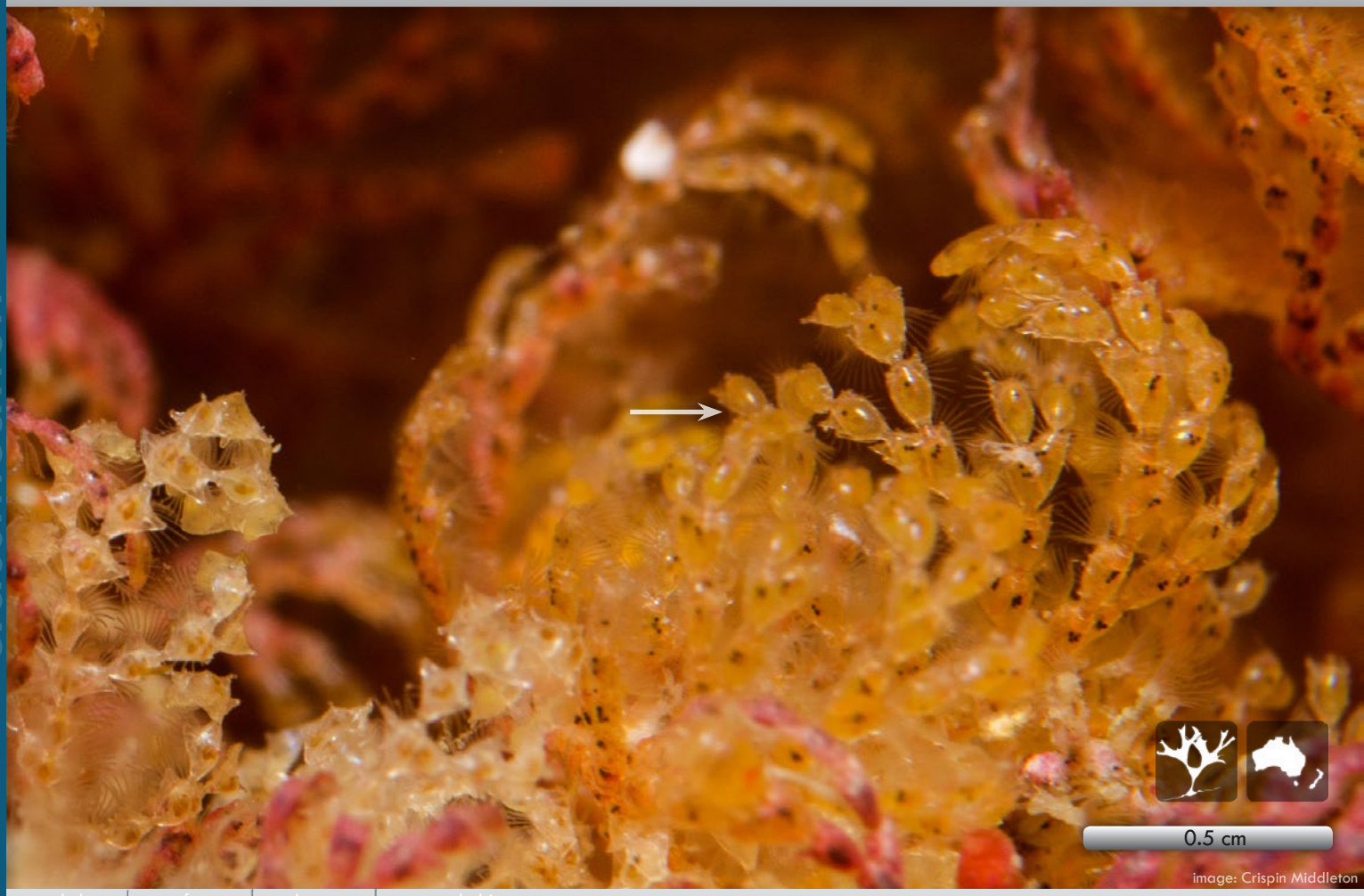
Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Cheilostomida Ascophorina) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

Powell N. A. (1967). Polyzoa (Bryozoa) – Ascophora – from north New Zealand. Discovery Reports 34: 199–393.

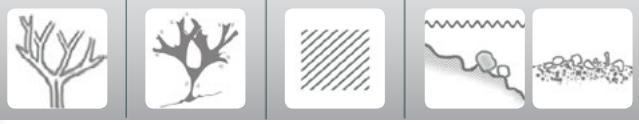
Orthoscuticella innominata Gordon, 1989

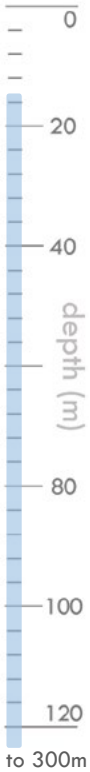
Return to Index

Class Gymnolaemata Order Cheilostomata Family Catenicellidae



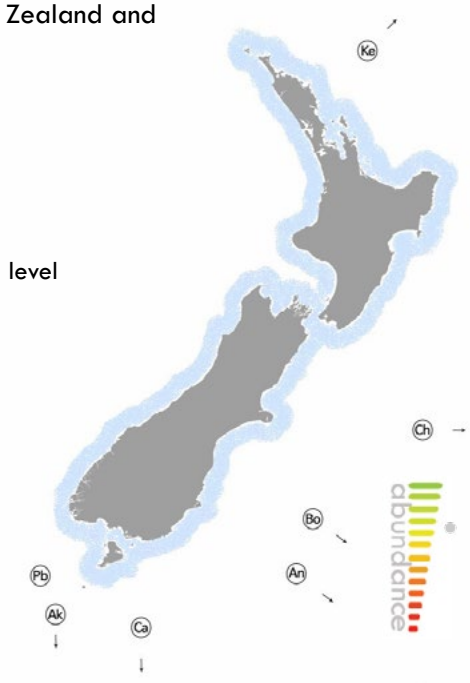
morphology | surface | substrate | habitat





Erect, flexible, and bushy colony. Branches curl slightly near the tips and are made up of chains of 1 or 2 zooids, joined by flexible chitinous joints. Yellow-orange.

Found on rock faces and growing amongst other bushy bryozoans around New Zealand and in Victoria and Bass Strait, Australia.



It could also be.....

Other catenicellid species

We recommend microscopic examination of these species to identify further than family level

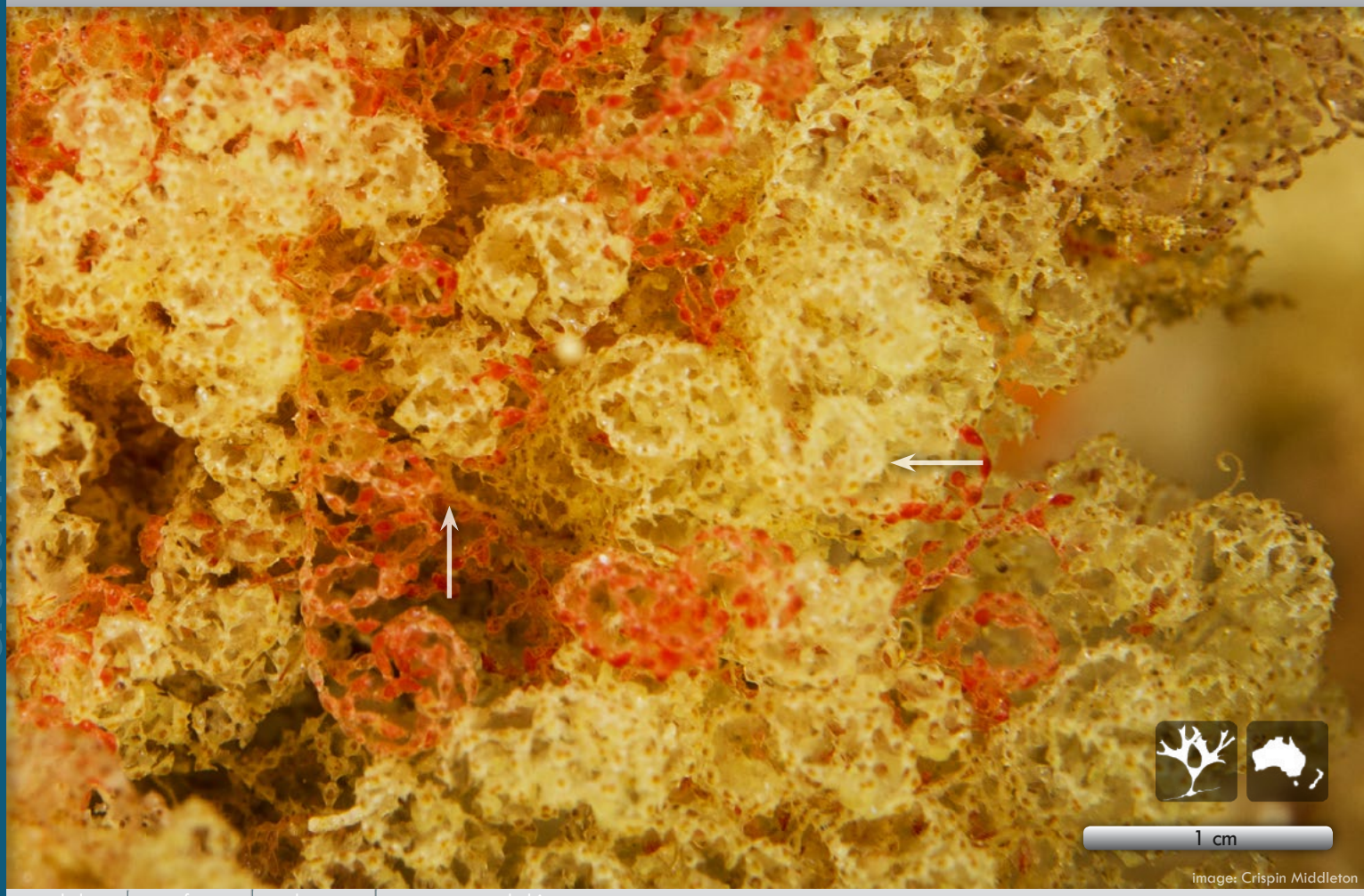
Frontal shield of zooids has 7 holes arranged in a V-shape. The similar species *Orthoscuticella ventricosa* has the same 7 holes, with the addition of an ascopore just below the zooid orifice, which is absent in O. *innominata*.

Gordon D. P. (1989) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Cheilostomida Ascophorina) fromthe Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

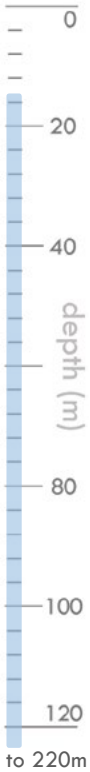
Gordon D.P., Taylor P.D., Bigey F.P. (2009) Phylum Bryozoa: moss animals, sea mats, lace corals. In Gordon D.P. (Ed), New Zealand Inventory of Biodiversity, Volume 1, Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. Canterbury University Press, pp. 271–297

Pterocella scutella (Hutton, 1880)

Class Gymnolaemata Order Cheilostomata Family Catenicellidae

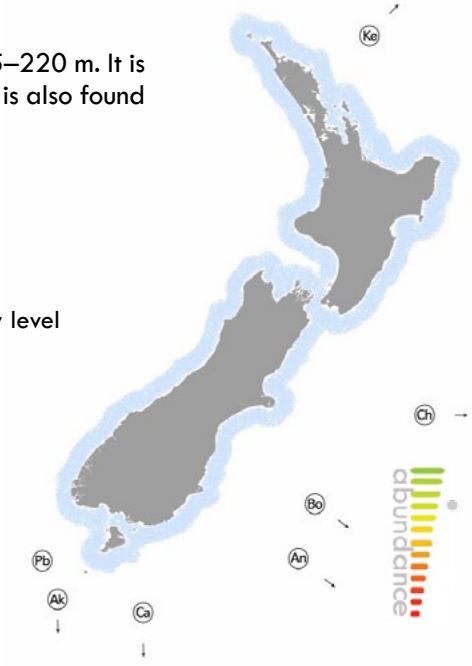


morphology | surface | substrate | habitat



Erect, flexible and bushy colony. Branches curl around at the tips and are made up of chains of 1 or 2 zooids separated by flexible chitinous joints. Single zooids are triangular. The photo shows two species of *Pterocella*. The pale yellow one (indicated by the horizontal arrow) is *P. scutella*, and the red one (indicated by the vertical arrow) is *P. vesiculosa*.

Usually found growing with other bushy bryozoans or on algal holdfasts from 15–220 m. It is found throughout New Zealand from the Three Kings Islands to Foveaux Strait. It is also found in Bass Strait and Victoria, Australia.



It could also be.....

Other pale catenicellid species having a similar colony form

We recommend microscopic examination of these species to identify further than family level

Triangular zooids generally a little wider than long because of projecting corners. Six pore chambers visible in frontal view of zooid, back of each segment is keel shaped. Fertile segment 3 zooids long with ooecium in first proximal zooid.

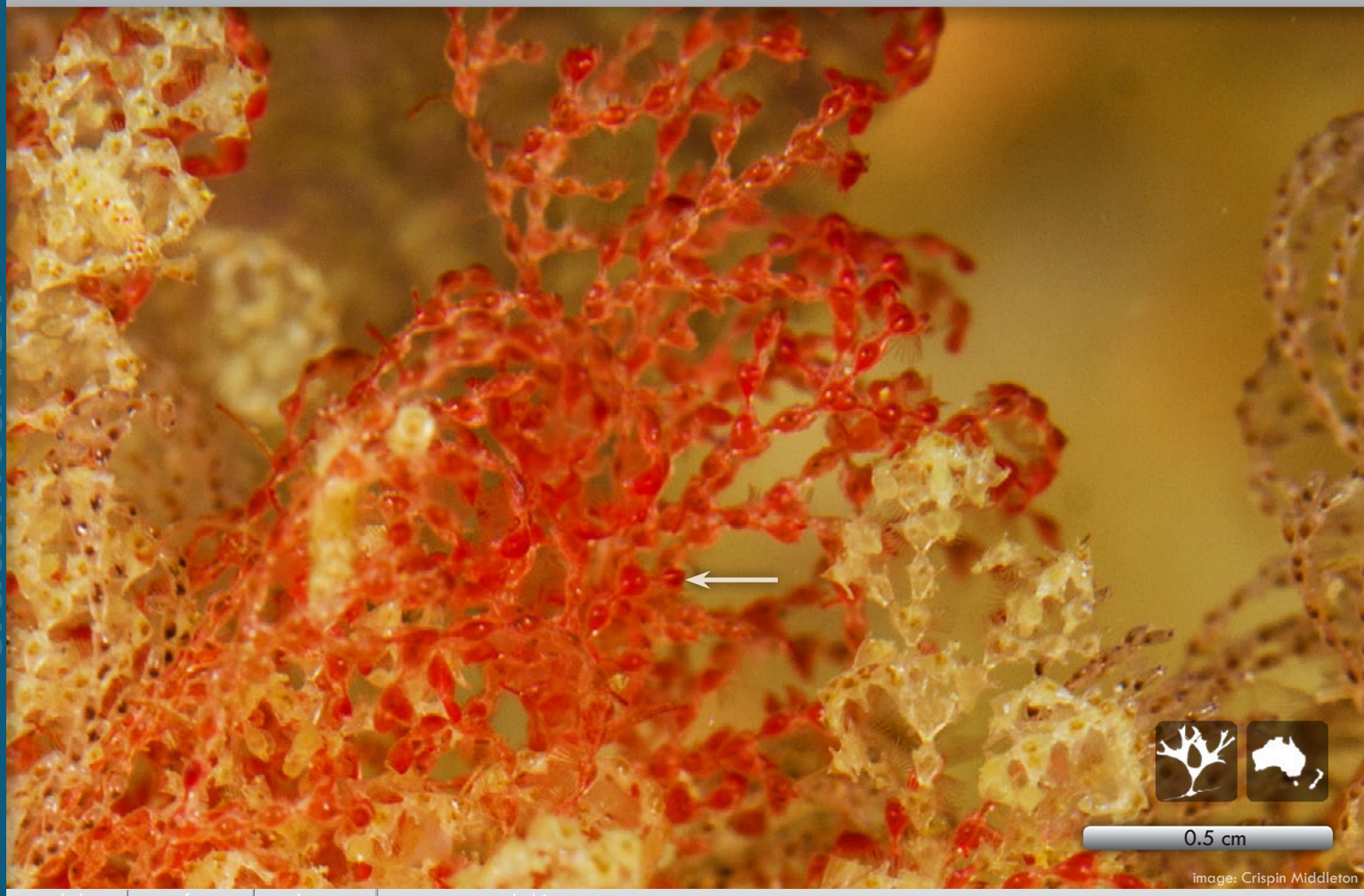
Gordon D. P. (1989) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Cheilostomida Ascophorina*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97: 1–158.

Powell N. A. (1967) Polyzoa (Bryozoa) – *Ascophora* – from north New Zealand. Discovery Reports 34: 199–393.

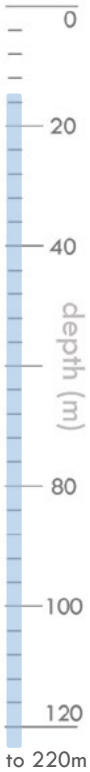
Pterocella vesiculosa (Lamarck, 1816)

Return to Index

Class Gymnolaemata Order Cheilostomata Family Catenicellidae



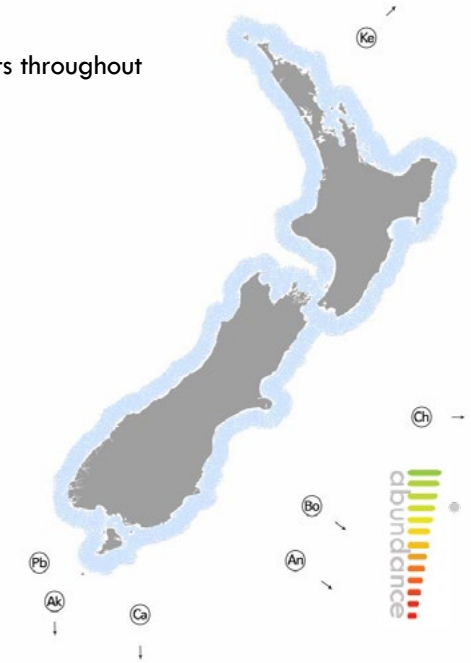
morphology | surface | substrate | habitat



Erect, flexible, bushy colony. Branches curl slightly at the tips and are composed of chains of 1 to 2 zooids. Individual zooids triangular, similar to *Pterocella scutella*, however the corners of *P. vesiculosa* do not project out as much so branches appear slightly narrower. This species is a distinctive bright red.

Found growing amongst other bushy colonies of bryozoan and on algal holdfasts throughout New Zealand.

No dorsal keel on zooids. Single zooids have five holes below the orifice instead of three as seen in similar species *P. scutella*.



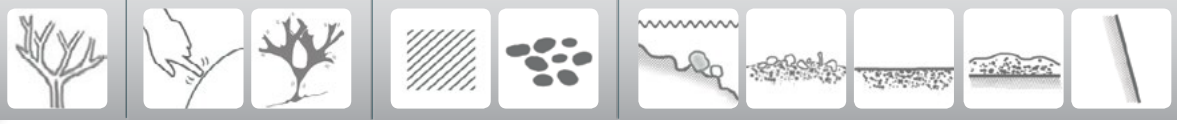
Gordon D. P. (1989) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Cheilostomida Ascophorina*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97: 1–158.

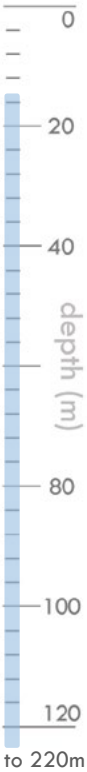
Powell N. A. (1967) Polyzoa (Bryozoa) – *Ascophora* – from north New Zealand. Discovery Reports 34: 199–393.

Cellaria immersa (Tenison-Woods, 1880)

Class Gymnolaemata Order Cheilostomata Family Cellariidae

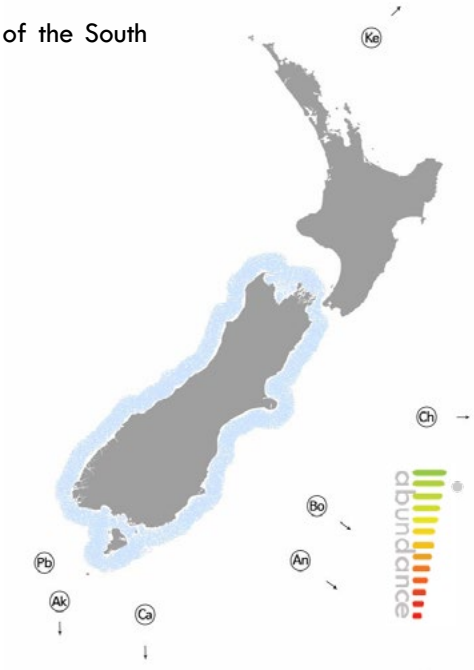
morphology | surface | substrate | habitat





An erect colony with jointed and fork-tipped cylindrical stems. The colony is anchored to substratum by rootlets giving it some flexibility. White to very pale pink. Colony pictured appears a lot more orange than in life.

Common subtidally to 220 m deep on rock and shelly gravel on both coasts of the South Island of New Zealand and in New South Wales, Australia.



It could also be.....

Cellaria tenuirostris (smaller, with slimmer branches)

Zooids alternating in 8–22 longitudinal series, with hexagonal or diamond-shaped outline. Membranous frontal wall has extensive, granular cryptocyst beneath. Orifice shaped like a cashew nut. No spines. Avicularia large, triangular and replace zooids in a series. Ooecia occur as inconspicuous bulges, each with small opening above the orifice.

Gordon D. P. (1986). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Ctenostomata* and *Cheilostomata Anasca*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 95. 121 pp.

Tenison-Woods J. E. (1880). Palaeontology of New Zealand, Part IV. Corals and Bryozoa of the Neozoic Period in New Zealand. Government Printer, Wellington. 34 pp.

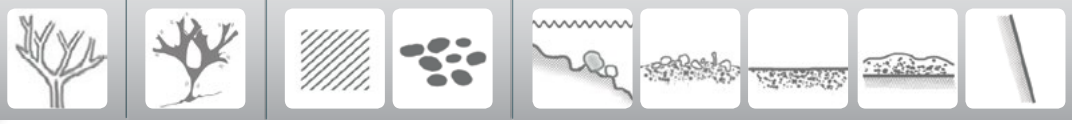
Cellaria tenuirostris (Busk, 1852)

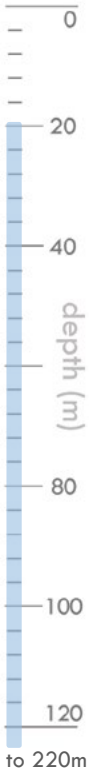
Return to Index

Class Gymnolaemata Order Cheilostomata Family Cellaridae

main image: Malcolm P. Francis inset image: Crispin Middleton

morphology | surface | substrate | habitat



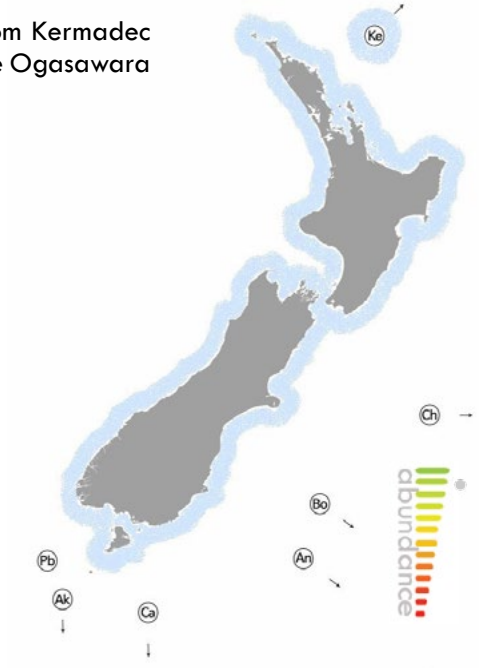


Erect, flexible branching colony with a forked cylindrical stem. The branches of this species are slender and forked, similar morphologically to *Cellaria immersa*, but with slimmer branches. White.

Found on rock faces and shelly gravel subtidally throughout New Zealand from Kermadec Islands to Foveaux Strait. Also recorded in southeastern Australia, Japan and the Ogasawara (Bonin) Islands south of Japan.

It could also be.....
Cellaria immersa (thicker, shorter branches)

Zooids 5–8 in longitudinal series. Cryptocyst has pair of curved longitudinal ridges. Orifice cashew nut-shaped and ovicell similar to *Cellaria immersa*, but avicularia narrower.

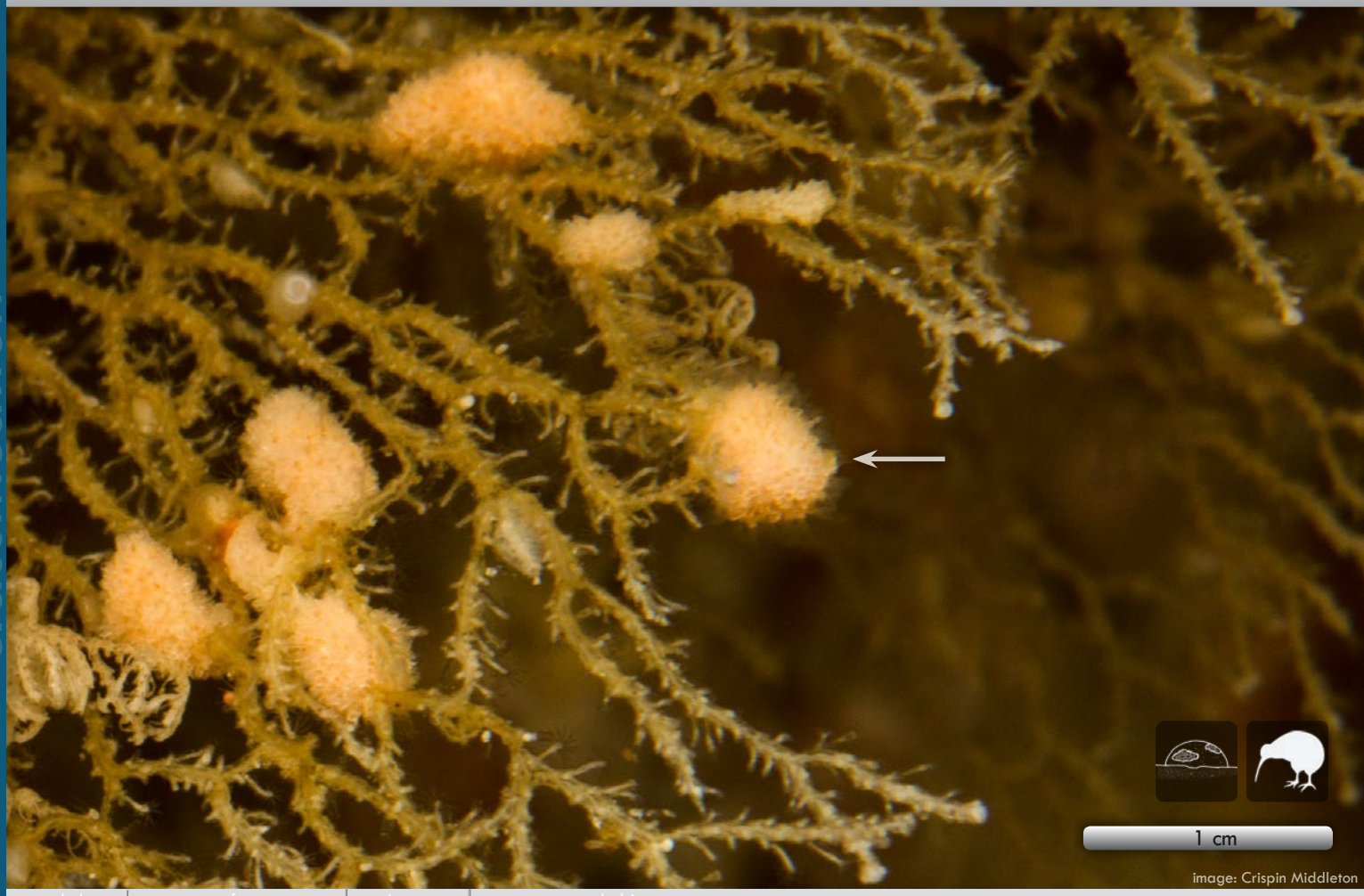


Gordon D. P. (1986). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Ctenostomata* and *Cheilostomata Anasca*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 95. 121 pp.

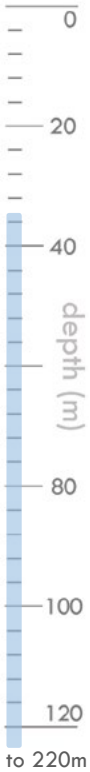
Uttley G. H., & Bullivant J. S. (1972). Biological Results of the Chatham Islands 1954 Expedition Part 7. Bryozoa *Cheilostomata*. New Zealand Oceanographic Institute Memoir 57: 59 pages.

Celleporina spp.

Class Gymnolaemata Order Cheilostomata Family Celleporidae

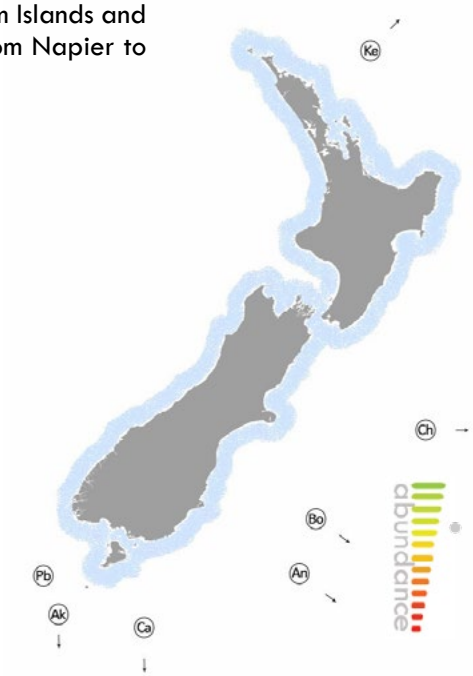


morphology | surface | substrate | habitat



Small, spiky colonies that are somewhat ball-like and spherical. They are exclusively found encircling hydroid stems. Pale orange to creamy white depending on species.

Celleporina proximalis (Uttley & Bullivant, 1972) is found in Cook Strait, Chatham Islands and Foveaux Strait; *Celleporina cribrillifera* (Hincks, 1885) is found further north from Napier to Cook Strait.



Zooids in jumbled arrangement, orifice with u-shaped or v-shaped notch (C. *proximalis*), or very narrow notch (C. *cribrillifera*). Tall column infront of each orifice gives spiky appearance and has avicularia on its frontal face. Spatulate avicularia present in northern species. Ooecium with distinct radial ribbing.

Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Cheilostomida Ascophorina*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

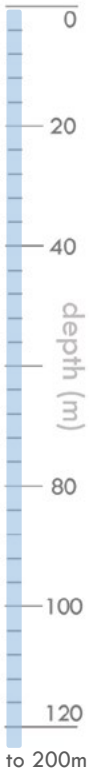
Uttley G. H. & Bullivant J. S. (1972). Biological Results of the Chatham Islands 1954 Expedition Part 7. Bryozoa Cheilostomata. New Zealand Oceanographic Institute Memoir 57: 59 pages.

Galeopsis polyporus (Brown, 1952)

Return to Index

Class Gymnolaemata Order Cheilostomata Family Celleporidae

morphology | surface | substrate | habitat

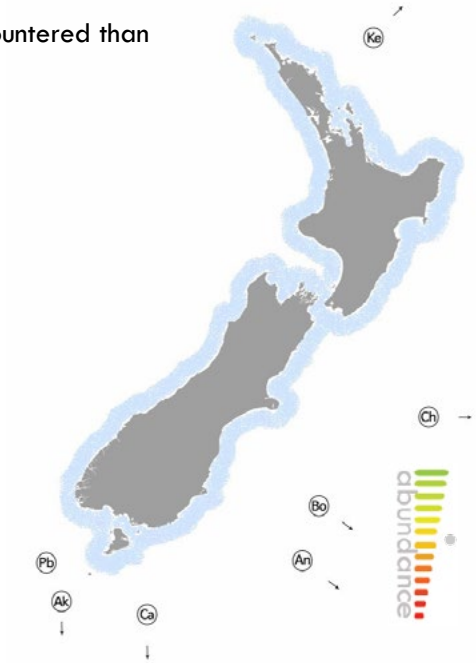


Colony firm, with a coral-like branching form. However, it can be found as an encrusting form in shallow water, for example under boulders at Leigh Marine Reserve, which develops into a branched erect form when mature. Cream colour.

Endemic, widespread around New Zealand, however much less commonly encountered than *G. porcellanicus*.

It could also be.....
Galeopsis porcellanicus

Morphologically similar to *Galeopsis porcellanicus* but with numerous small pores in frontal shields of zooids. Ooecium also has small ribbed area, not present in the other species.



Gordon D. P. (1984) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91: 1–198.

Gordon D. P. (1989) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Cheilostomida Ascophorina) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97: 1–158.

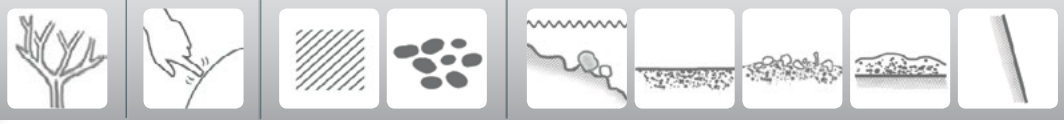
Galeopsis porcellanicus (Hutton, 1873)

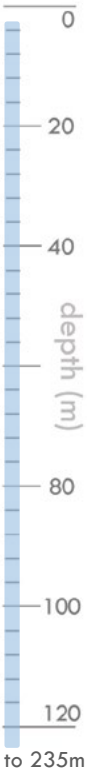
Return to Index

Class Gymnolaemata Order Cheilostomata Family Celleporidae

Image: Crispin Middleton

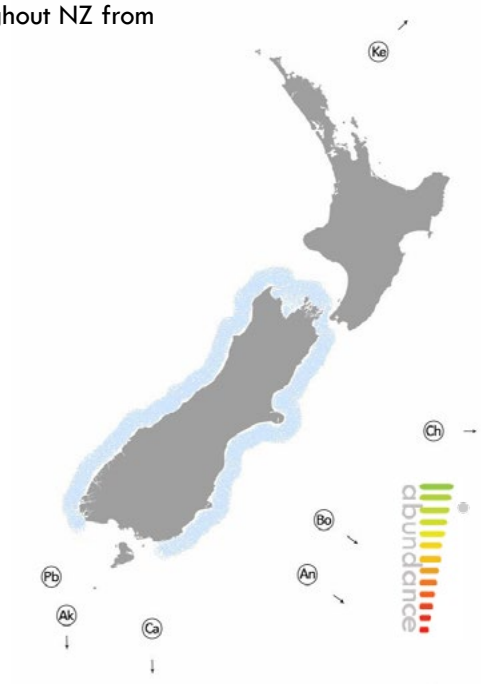
morphology | surface | substrate | habitat





Upright, rigid colony with unjointed stems and forked coral-like branching. Rough branches with obvious zooids. Whitish to pink when breeding.

Endemic, found on rock or shelly gravel in sublittoral fringe to 235 m on throughout NZ from Three Kings Islands to Foveaux Strait and the Antipodes Islands



It could also be.....

Cinctipora elegans
Galeopsis polyporus
use microscopic characters to distinguish between these species

Zooids arranged in whorls transversely but alternating with zooids above and below. Smooth calcareous frontal shield, with 2–4 pores on margins. Zooid orifice with small u-shaped notch. Pair of avicularia form bridge creating a large hole in front of orifice. Tentacle crown has 13–14 tentacles. Ooecium calcified, with a shallow subcircular area outlined on it at front and a short, wide process protruding into the orifice.

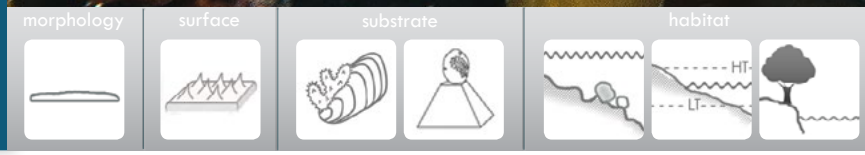
Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Cheilostomida Ascophorina*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

Electra scuticifera Nikulina, 2008

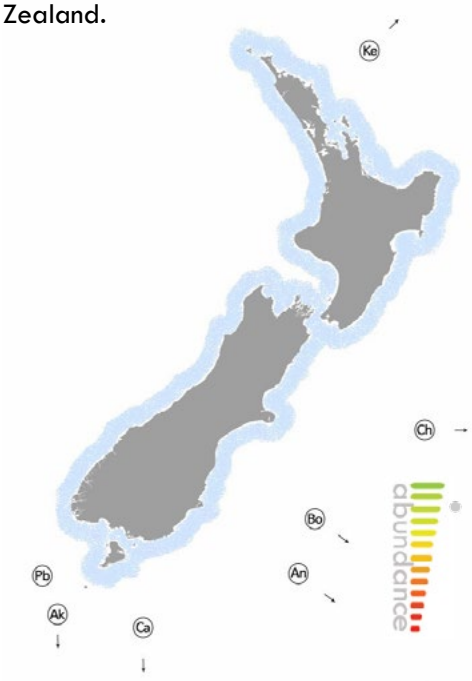
Return to Index

Class Gymnolaemata Order Cheilostomata Family Electridae



Encrusting colony forming irregularly circular, linear or lobed patches on blades of algae. The colony has a prickly or hairy appearance. White.

Found associated with red and brown algae, in shallow waters throughout New Zealand.



It could also be.....
Membranipora membranacea

Zooids oval to rectangular. Two-thirds of zooid covered with membranous surface, one third with calcareous wall (gymnocyst). 3–7, but usually 5 short chitinous spines on either side of membranous area; single long curved chitinous spine from middle of perforated gymnocyst. Tentacle crown has 11–12 tentacles.

Gordon D. P. (2009). New bryozoan taxa from a new marine conservation area in New Zealand, with a checklist of Bryozoa from Greater Cook Strait. Zootaxa 1987: 39–60.

Nikulina, E.A. (2008). Electra scuticifera sp. nov.: Redescription of Electra pilosa from New Zealand as a new species (Bryozoa, Cheilostomata). Schr. Naturwiss. Ver. Schlesw.-Holst., 70, 91–98.

Celleporaria agglutinans (Hutton, 1873)

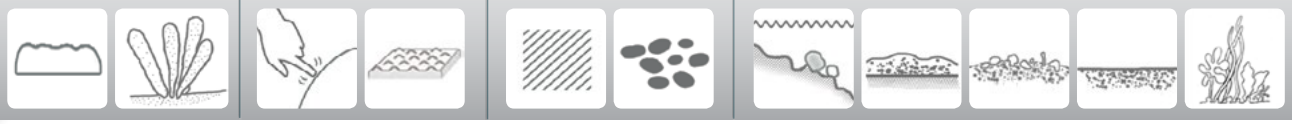
Return to Index

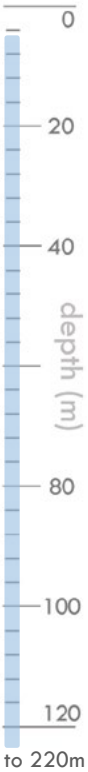
tasman bay coral

Class Gymnolaemata Order Cheilostomata Family Lepraliellidae

main image: Crispin Middleton inset image: Malcolm P. Francis

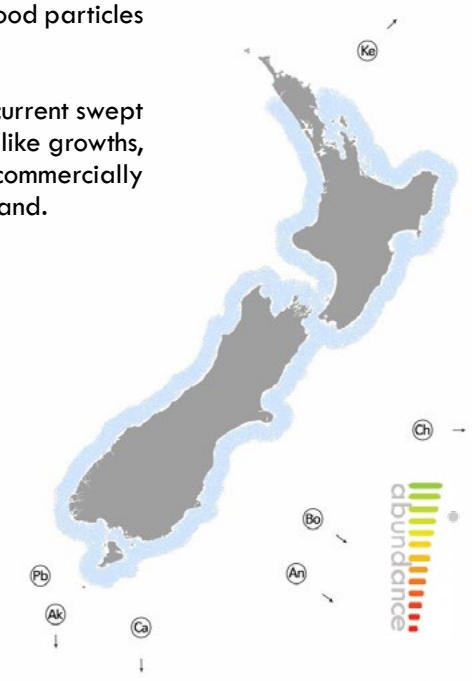
morphology surface substrate habitat





This species forms variable sized encrusting colonies which may have a raised mounded surface or have coral-like tubular projections. The coarse textured surface has semi-erect, chaotically arranged zooids forming multiple layers. The bumpy areas on the side of the colony correspond to areas of exhalant siphons or "chimneys" where water and food particles flow out over the crown of tentacles of the feeding zooids. Pale pink to orange.

Found on rock faces, under *Ecklonia radiata* kelp or attached to shelly rubble in current swept areas. Common around Separation Point in Tasman Bay forming extensive coral-like growths, providing ecologically important habitat for many epifaunal invertebrates and commercially important fish species. Found on both coasts from the Poor Knights to Stewart Island.



Zooid has smooth calcareous frontal surface with tiny pores along margins. Tall spike infront of semi-circular orifice with tiny avicularium in base. Larger avicularia occasional. Hood-like ooecium.

Bradstock M. & Gordon D. P. (1983). Coral-like bryozoan growths in Tasman Bay, and their protection to conserve commercial fish stocks. New Zealand Journal of Marine & Freshwater Research 17: 159–163.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Margaretta barbata (Hutton, 1873)

Return to Index

Class Gymnolaemata Order Cheilostomata Family Margarettidae

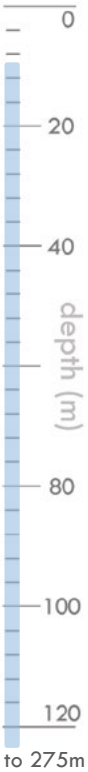
bearded Margaret

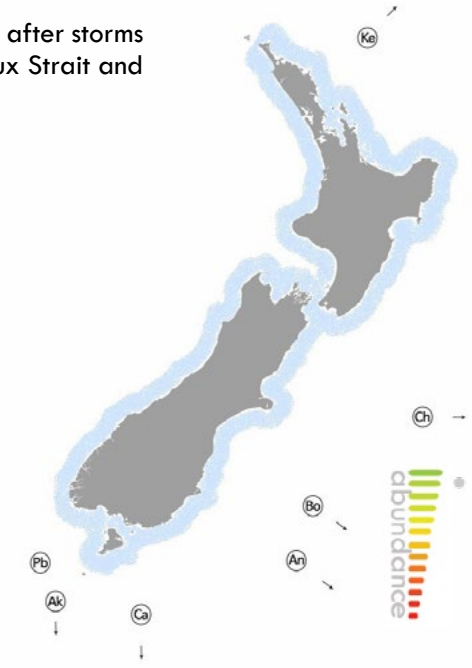
image: Malcolm P. Francis

morphology | surface | substrate | habitat

Erect, flexible colony, rooted to the substratum. The branches are jointed with 4–5 mm long bristles arising from each zooid, giving an overall and distinctive hairy appearance to colony. Light orange.

Lives on rock faces in high current areas. Common, often washed up on the beach after storms in the Cook Strait. Found throughout New Zealand, from Cape Reinga to Foveaux Strait and in South Australia to New South Wales.





Zooids 4-serial, alternating back-to-back pairs. Calcareous frontal shield with longitudinal network of granular ridges, separated by shallow grooves with minute pores. Zooid orifice and operculum concealed by tubular peristome with nearly circular opening. Small ascopore at base of peristome, flanked by bristles. No avicularia or oral spines. Female zooids have upturned spout-like peristome with swollen base.

Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (*Cheilostomida Ascophorina*) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

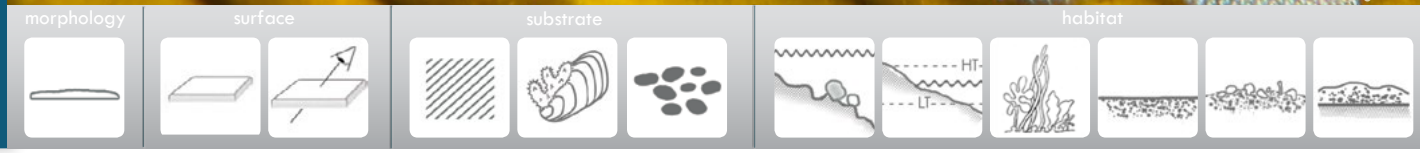
Gordon D.P., Taylor P.D., Bigey F.P. (2009). Phylum Bryozoa: moss animals, sea mats, lace corals. In Gordon D.P. (Ed), New Zealand Inventory of Biodiversity, Volume 1, Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. Canterbury University Press, pp. 271–297.

Membranipora membranacea (Linnaeus, 1767)

Return to Index

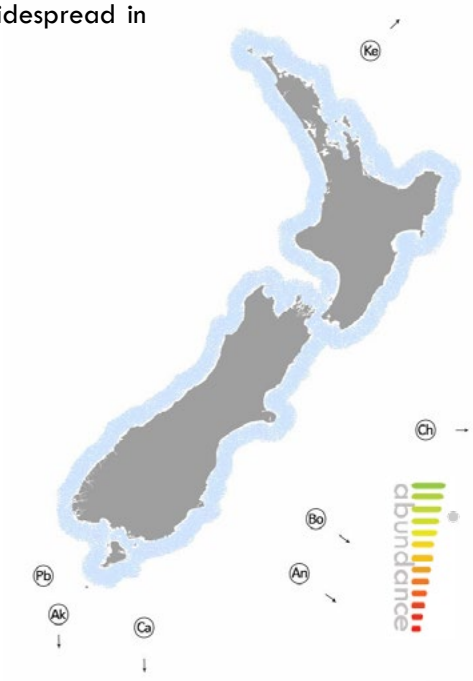
Class Gymnolaemata Order Cheilostomata Family Membraniporidae

classification



Sheet-like, lacy encrusting colony. The colony has distinctive rectangular zooids arranged in a brick-like pattern. White.

Encrusts kelp fronds in the low intertidal, common on less exposed shores. Widespread in New Zealand, with a cosmopolitan distribution.



It could also be.....

Electra scuticifera (spiky zooids)

Transparent membrane covers entire frontal area with semicircular operculum at one end. 17 tentacles on tentacle crown. Short tubercles at distal corners of rectangular zooids.

Morton J. & Miller M. (1973). The New Zealand Sea Shore. Second edition. Collins, Auckland. 653 pp.

Uttley G. H. (1951). The Recent and Tertiary Polyzoa (Bryozoa) in the collection of the Canterbury Museum, Christchurch. Records of the Canterbury Museum 6: 15–39.

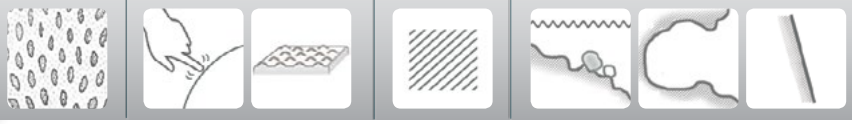
Hippellozoon novaezelandiae (Waters, 1895)

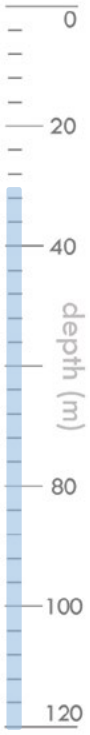
Return to Index

Class Gymnolaemata Order Cheilostomata Family Phidoloporidae

orange lace coral

morphology | surface | substrate | habitat





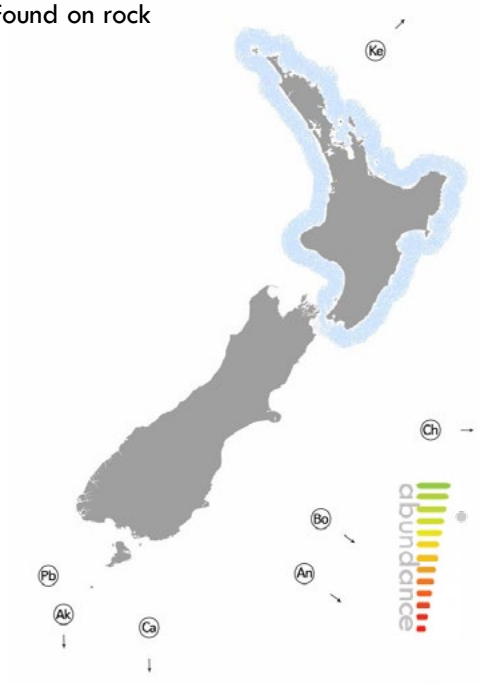
An erect rigid folded colony, which is hard to the touch and quite brittle. The colony has numerous large holes through it, causing it to resemble stiff lace. Orange.

Endemic, in the north Island of New Zealand from Three Kings to Cook Strait. Found on rock faces and overhangs at 30–120 m.

It could also be.....

Hornera foliacea

Zooids with no distinct boundaries, calcareous frontal shield smooth to granular with few pores near margin or inner edge. Rim of outer orifice with 6 spines in young zooids, 2 in older zooids. Proximal rim with U-shaped groove, adjacent ridges leading to the primary inner orifice, which has a broad notch bordered by a pair of stout club-like projections (condyles). Many zooids have avicularium orientated sideways in front of orifice. Back of branches with thin raised lines that meet at the large holes in the colony. Ooecium hood-like and widely open at the front.

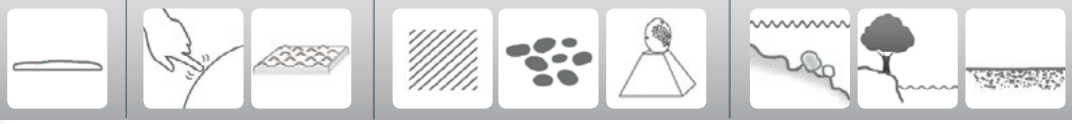


Gordon D. P. (1989). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Cheilostomida Ascophorina) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 97. 158 pp.

Powell N. A. (1967). Polyzoa (Bryozoa) – Ascophora – from north New Zealand. Discovery Reports 34: 199–393.

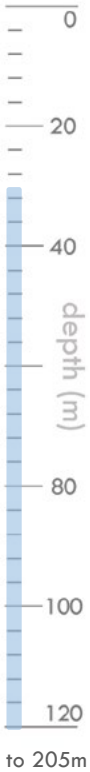
Parasmittina delicatula (Busk, 1884)

morphology | surface | substrate | habitat



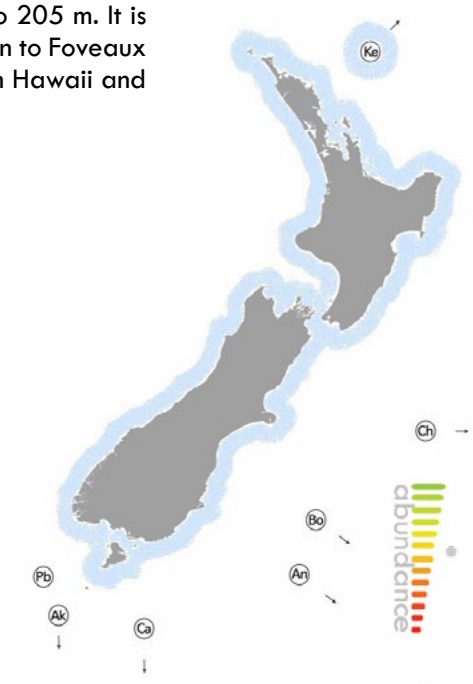
Encrusting colony, sometimes with an irregular, bumpy surface appears lace-like but spreading out over hard substrata. Pale pink or light orange.

Found on rock faces, wharf pilings and on shell gravel from the low intertidal to 205 m. It is found throughout New Zealand from the Kermadec and Three Kings Islands down to Foveaux Strait. It can also be found on a large part of the east coast of Australia, and in Hawaii and Japan.



to 205m

Smooth or granular calcareous frontal shield on zooids with pores around the margin. Zooid orifice with anvil shaped tooth in the bottom centre flanked by two tiny pointed spurs. Single oral spine at top rim of zooid orifice. Avicularia present and vary from very small to almost the same size as a zooid. Ooecium bulbous, with numerous small pores, overgrown by second layer of calcified body wall.



Gordon D. P. (1984) The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91: 1–198.

Gordon D. P. & Mawatari S. F. (1992) Atlas of Marine Fouling Bryozoa of New Zealand Ports and Harbours. New Zealand Oceanographic Institute Miscellaneous Publication 107: 1–52.

Steginoporella neozelanica (Busk, 1861)

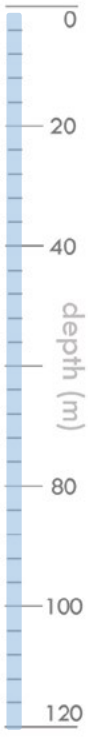
Return to Index

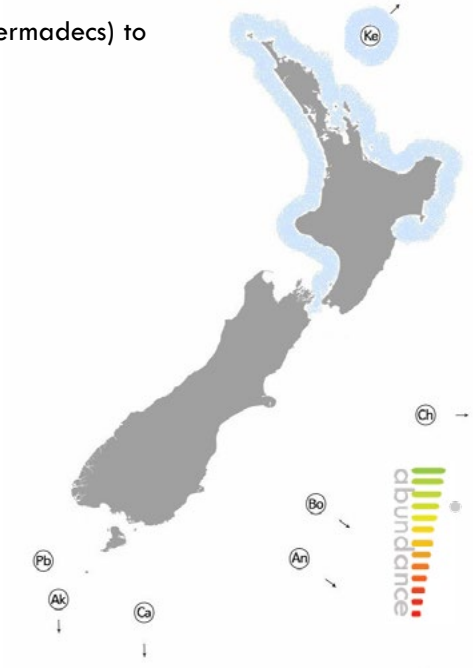
main image: Malcolm P. Francis, inset image: Vincent Zintzen

morphology | surface | substrate | habitat

Erect, hard, unbranched, blunt, finger-like stalks. These colonies are anchored by tangled rootlets, which gives them some flexibility. Colonies brownish-orange colour. The inset image shows the extended tentacle crowns on one stalk.

Found in high current areas on rock walls and overhangs, from Raoul Island (Kermadecs) to Northern New Zealand as far south as Hawkes Bay and the Wanganui Coast.





Zooids large, with porous cryptocyst and broad median projection. Tentacle crowns have 24 tentacles.

Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. New Zealand Oceanographic Institute Memoir 91. 198 pp.

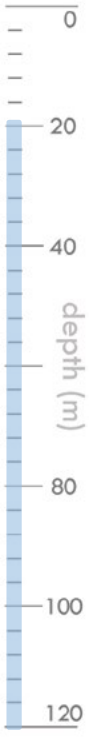
Livingstone A. A. (1929). Papers from Dr. Th. Mortensen's Pacific Expedition 1914–16. XLIX. Bryozoa Cheilostomata from New Zealand. Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening I Kj benhavn 87 (49): 45–104.

Steginoporella perplexa Livingstone, 1929

Return to Index

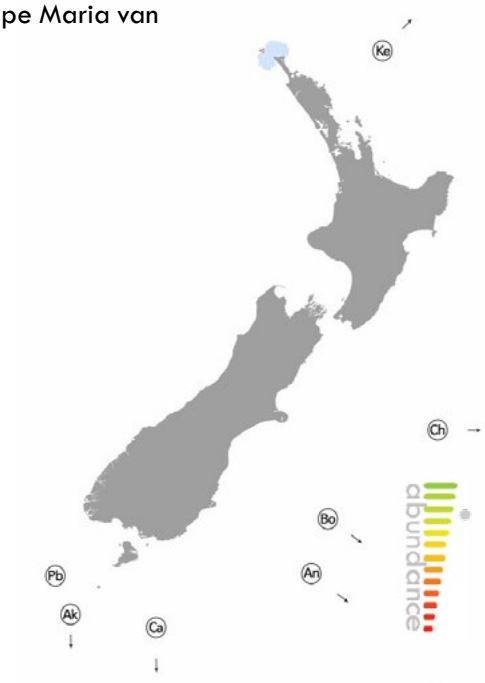
image: Sadie Mills

morphology | surface | substrate | habitat



Erect, thin hard colony forming a single fan-shaped frond. The colonies are anchored by flexible rootlets, which allow them to move slightly in water currents. Colony pale brown.

Lives on soft bottoms in the Far North of New Zealand, Spirits Bay and near Cape Maria van Diemen. Drift colonies are often seen on Te Werahi Beach near Cape Reinga.

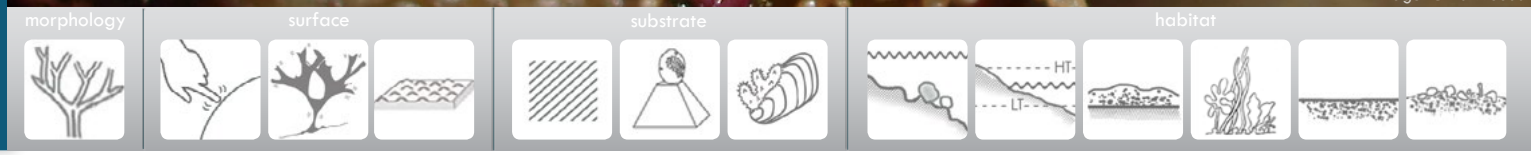


Zooids similar to *Steginoporella neozelanica* but operculum has no reticulate thickening.

Livingstone A. A. (1929). Papers from Dr. Th. Mortensen's Pacific Expedition 1914–16. XLIX. Bryozoa Cheilostomata from New Zealand. Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening I Kj benhavn 87 (49): 45–104.

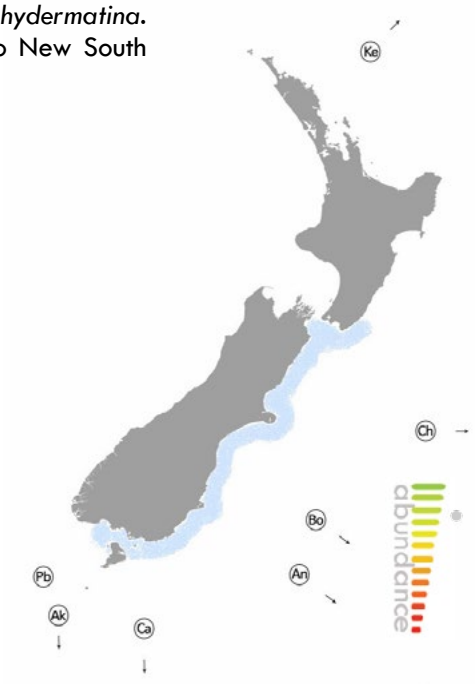
Elzerina binderi (Busk, 1861)

Return to Index



Erect branching, shrub-like colony with a flexible, bendy and bristly texture. Brown branches with paler tips.

Grow on rocks, wharf piles, on algae and on the stalk of the sea tulip *Pyura pachydermatina*. Found East coast of the South Island from Cook Strait to Stewart Island, Also New South Wales, Australia.



2–3 mm thick branches with 10–12 longitudinal rows of zooids, with intermediate rows of non-feeding kenozooids bearing conspicuous spines. 21–23 tentacles in Tentacle crown. Small zooids with an orifice marked by a pair of thickened 'lips' resembling a clasp purse.

Gordon D. P. (1984). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata from the Kermadec Ridge. NewZealand Oceanographic Institute Memoir 91. 198 pp.

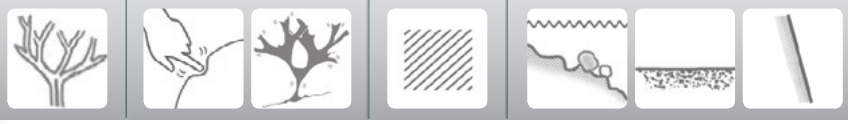
D'Hondt J -L. (1983). Tabular keys for identification of the recent ctenostomatous Bryozoa. Mémoires de l'Institute Océanographique, Monaco No. 14. 134 pp.

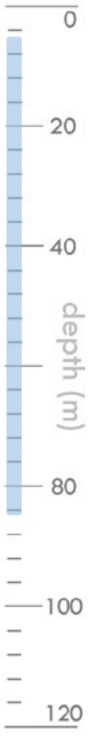
Amathia wilsoni Kirkpatrick, 1888

Return to Index

Class Gymnolaemata Order Ctenostomata Family Vesiculariidae

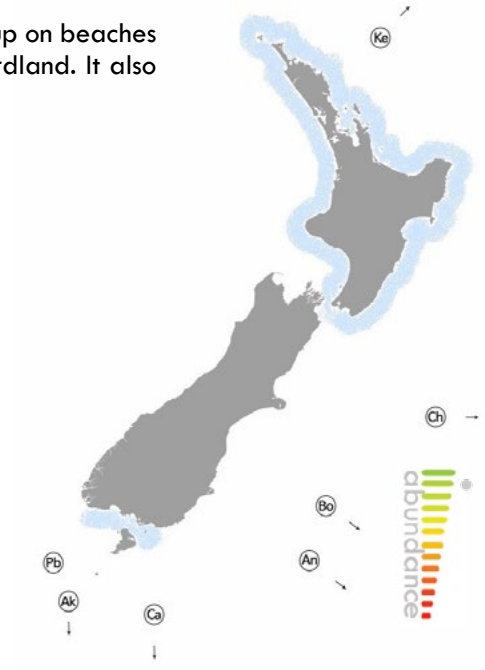
morphology | surface | substrate | habitat





Erect, bushy colony made up of transparent tubular segments with repeated dense 3-way branching. The stem of each branch is composed of stringy descending tubes, these resemble rootlets at base of colony. Colony appears fluffy and cream in colour.

This is the commonest *Amathia* species in New Zealand. Copious amounts wash up on beaches after storm events. It is found from Three Kings to Cook Strait and also in Fiordland. It also occurs in Victoria and New South Wales, Australia.



5–8 zooids on upper side of segments between branch points. No zooids on branch tips

Gordon D. P. (1986). The Marine Fauna of New Zealand. Bryozoa: Gymnolaemata (Ctenostomata and Cheilostomata Anasca) from the Western South Island Continental Shelf and Slope. New Zealand Oceanographic Institute Memoir 95. 121 pp.

Macken J. (1956). Studies on the recent Bryozoa of New Zealand I: On some members of the Ctenostomata. Records of the Dominion Museum, 3: 19–26.

Cinctipora elegans Hutton, 1873

Return to Index

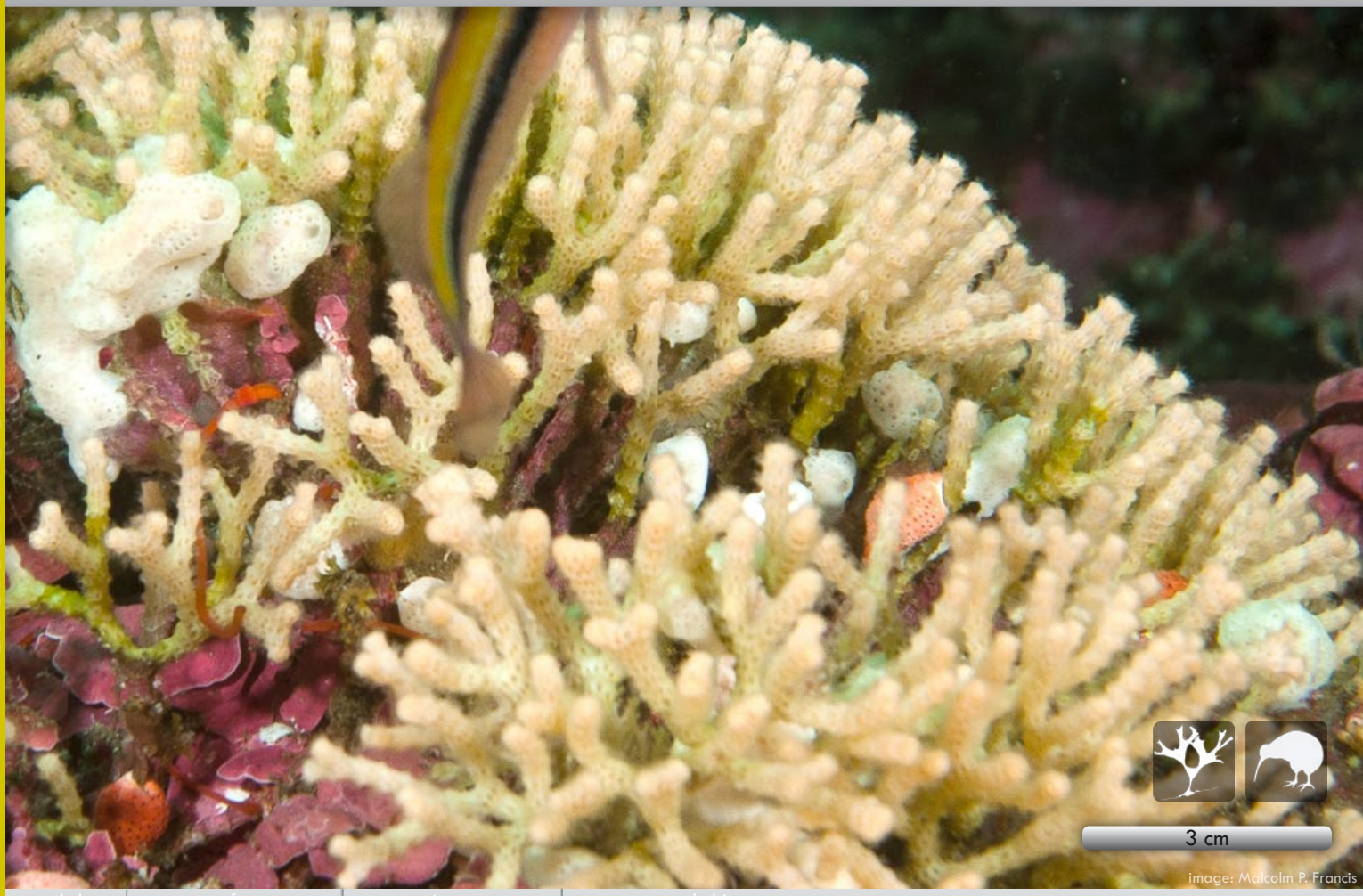
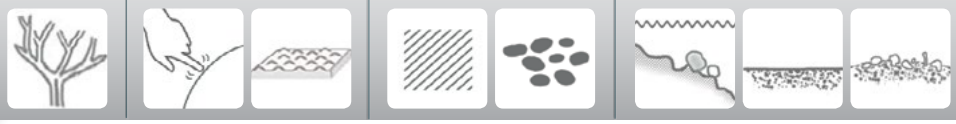
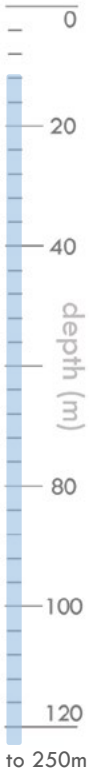


image: Malcolm P. Francis

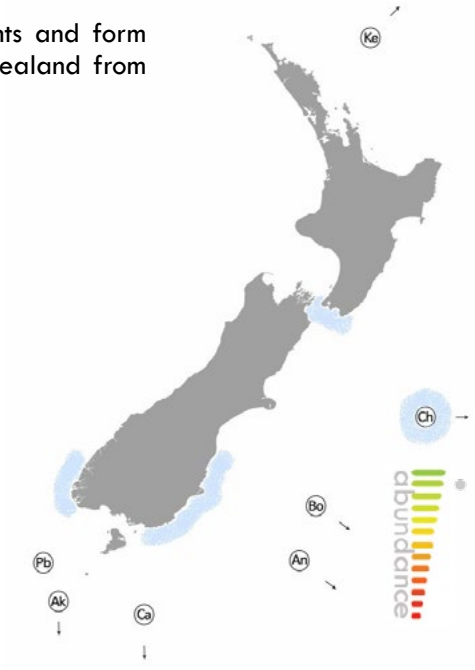
morphology | surface | substrate | habitat





Erect, hard, bushy and coral-like colony with 2 mm thick, cylindrical, forked branches. Obvious zooids make the branches appear rough, and these are arranged in spirals of 9–13 around branch. Colony white, branch tips pale pink.

Lives on shell gravel and on rock. Forms coral-like clumps that trap sediments and form habitat for other organisms. Endemic, commonly occurring in southern New Zealand from Cook Strait, Chatham Rise and Fiordland, to south of Campbell Island.



It could also be.....
Galeopsis polyporus

Zooid orifices appear sunken with flared rim, granular interior surface and longitudinal ridges between adjacent openings. Tentacle crown with 17 tentacles. Gonozooids absent.

Boardman R. S., McKinney F. K. & Taylor P. D. (1992). Morphology, anatomy, and systematics of the Cinctiporidae, new family (Bryozoa: Stenolaemata). Smithsonian Contributions to Palaeobiology 70: 81 pp.

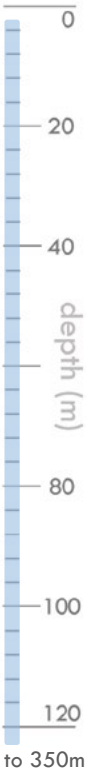
Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Bicrisia edwardsiana (d'Orbigny, 1841)

Return to Index

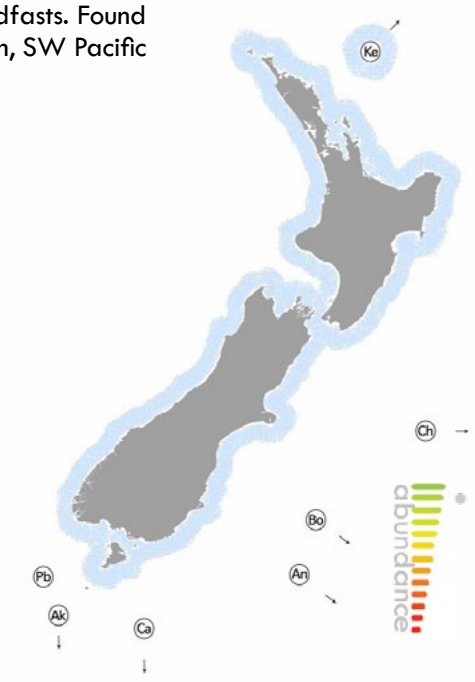
all images: Crispin Middleton

morphology | surface | substrate | habitat



Erect, flexible, sparsely bushy, delicate colony with branches curving inwards. Branches are jointed. Zooids each have a single long spine which projects out from branch. Colony white.

Common from sublittoral fringe to 350 m on rock faces and amongst algae holdfasts. Found throughout New Zealand from Kermadec Islands to Foveaux Strait. Also in Japan, SW Pacific and South America.



Branch internodes usually with two feeding zooids, three at branch points, but sometimes fertile specimens with 3–5 swollen female gonozooids. Gonozooid arising between the proximal pair of zooids, very swollen club-like, with tubular opening halfway along the side facing the branch axis.

Borg F. (1944). The stenolaematous Bryozoa. Further Zoological Results of the Swedish Antarctic Expedition 1901–1903, 3(5): 1–276.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Diaperoecia purpurascens (Hutton, 1873)

Return to Index

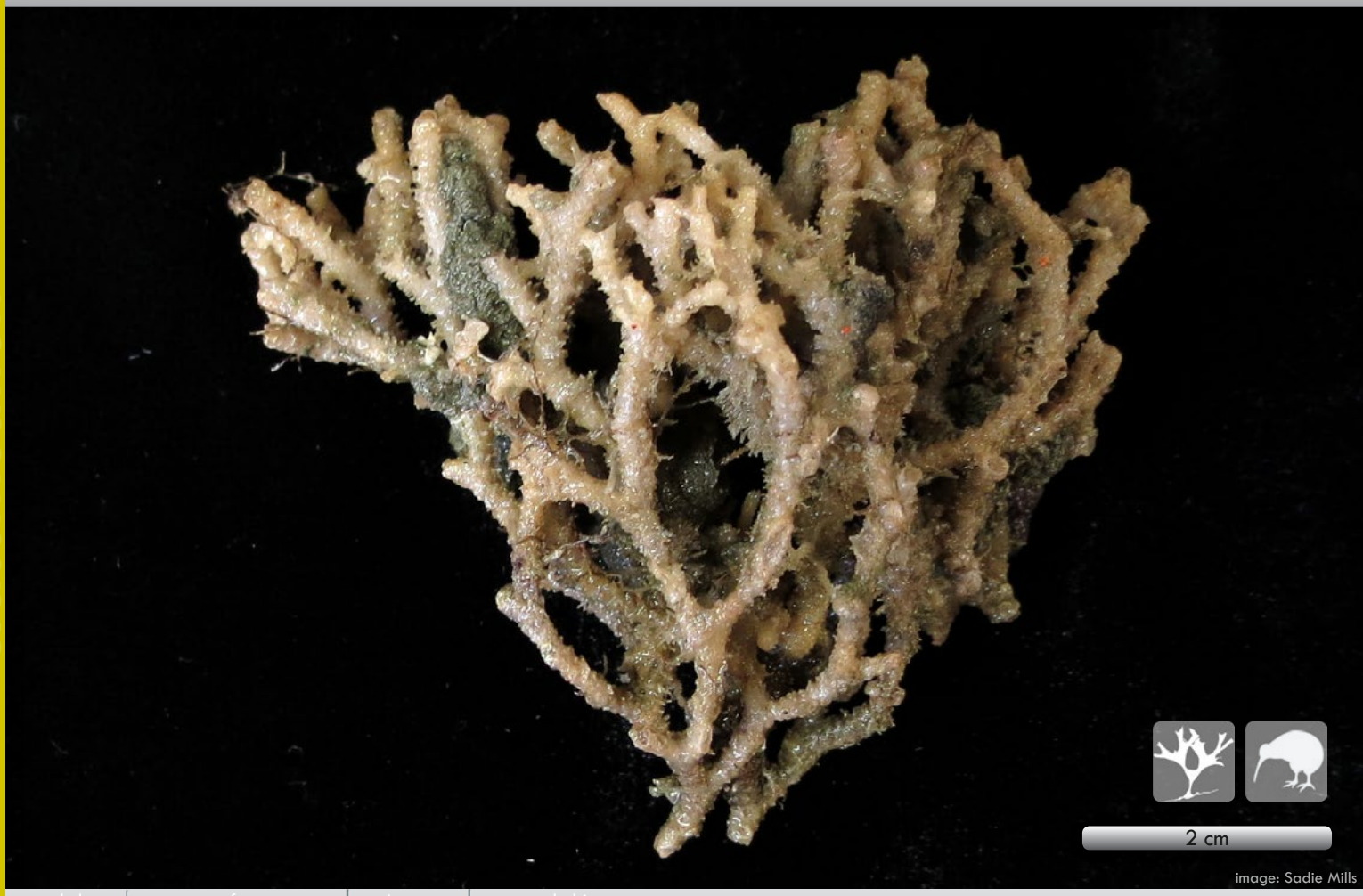
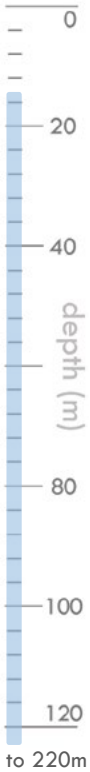


image: Sadie Mills

morphology | surface | substrate | habitat

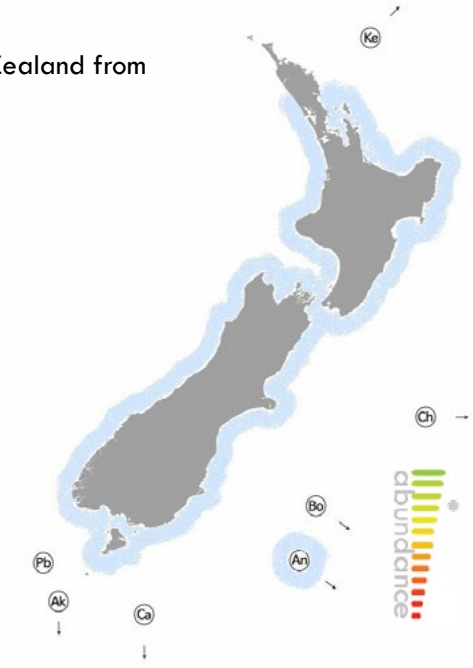


Erect, hard colony with coral-like branching. The overall colony shape is either irregular or in a rounded ball-like form, with forked branches. Colony cream when alive with vertical brownish lines; brownish-purple when dead. This species takes its name from the purple colour of the dead colony.

Lives on rock faces and can be locally common. Endemic, occuring across New Zealand from Hauraki Gulf in the north to the Antipodes Islands in the south.

It could also be.....
Cinctipora elegans

Zooids tiny (0.15 mm diameter), arranged in irregular whorls around branch with tubular peristomes that project slightly. Tentacle crown with 15 tentacles. Brood chamber near branch tips appears as wide crescent adjacent to peristomes.



Gordon D.P., Taylor P.D., Bigey F.P. (2009). Phylum Bryozoa: moss animals, sea mats, lace corals. In Gordon D.P. (Ed), New Zealand Inventory of Biodiversity, Volume 1, Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. Canterbury University Press, pp. 271–297.

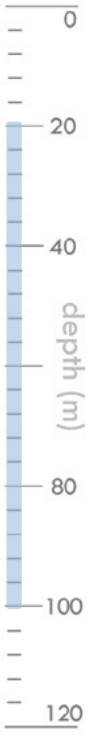
Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Hornera foliacea (MacGillivray, 1869)

Return to Index

image: Malcolm P. Francis

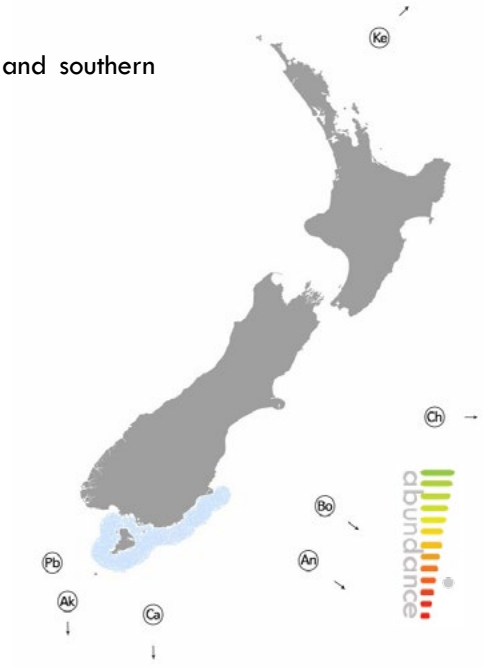
morphology | surface | substrate | habitat



Erect, rigid colony, with a pleated lacy form. The branches are parallel with cross-connections between forming the lace network pattern. Zooids occur on one face of branch so it is smooth to the touch on the opposite surface, similar to *Hornera robusta*. Cream coloured, with new growth pale orange and older areas greying.

Found in Fiordland, Otago and Foveaux Strait, also known from Tasmania and southern Australia, but its abundance is unknown.

It could also be.....
Hippellozoon novaezelandiae



Gonozooids occur only on smooth dorsal faces of well developed branches similar to *H. robusta*.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Taylor P. D. & Jones C. G. (1993). Skeletal ultrastructure in the cyclostome bryozoan Hornera. Acta Zoologica 74: 135–143.

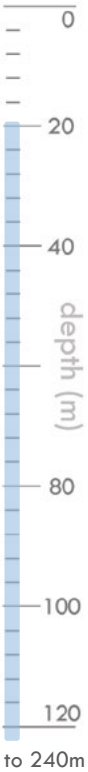
Hornera robusta MacGillivray, 1883

Return to Index

Class Stenolaemata Order Cyclostomata Family Horneridae

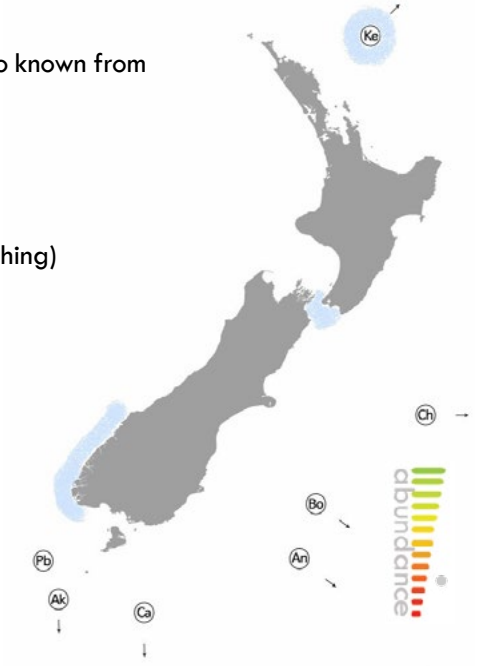
main image: Malcolm P. Francis inset image: Callum Lilley

morphology surface substrate habitat



Erect, rigid colony, with tree-like radiating branching, sometimes fusing between the branches. Branches becoming smaller from base to tips (0.5 – 3 mm). Scattered granular pores create rough feel to zooidal surface. Opposite face smooth but with ridges and grooves, similar to *Hornera foliacea*. Creamy-white, sometimes with warm pink or orange tinge.

Found along Kermadec Ridge, Bay of Plenty, Cook Strait and Fiordland, and also known from Tasmania and Victoria, Australia.



It could also be.....

Idmidronea spp. (but colonies are thinner and more delicate, with regular branching)

Zooids occur on one face of branch towards colony interior, with jagged orifices with flaring processes. Gonozooids, sometimes two-lobed, occur only on the back side of well developed branches but can be extensive and are honey comb-like in appearance.

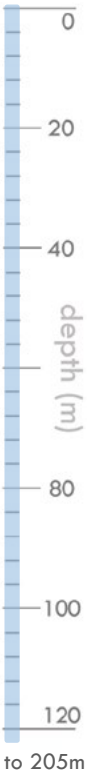
Taylor P. D. & Jones C. G. (1993). Skeletal ultrastructure in the cyclostome bryozoan Hornera. Acta Zoologica 74: 135–143.

Disporella novaehollandiae (d'Orbigny, 1841)

Return to Index

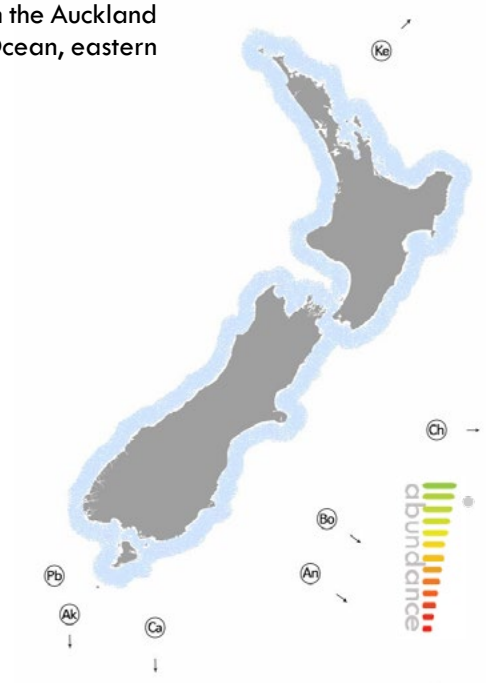
Class Stenolaemata Order Cyclostomata Family Lichenoporidae

morphology | surface | substrate | habitat



Encrusting, circular, disc-shaped and spiky. Colonies resemble an inverted mushroom with a flattened perimeter and a spiky interior. White.

Common, found on rock or shell gravel and the brown alga *Sargassum sinclairii* in the Auckland area. Widespread around New Zealand and also recorded in Japan, Indian Ocean, eastern Australia and western North America.



Zooids comprising fused tubes aligned in single rows radiating from near centre to edge of colony. Tubes highest near the centre. Short non-feeding tubes (alveoli) with spiny interior between zooidal tubes. Brood chamber in centre of colony, densely pitted with central opening between zooid rows. Tentacle crown with 9–10 tentacles.

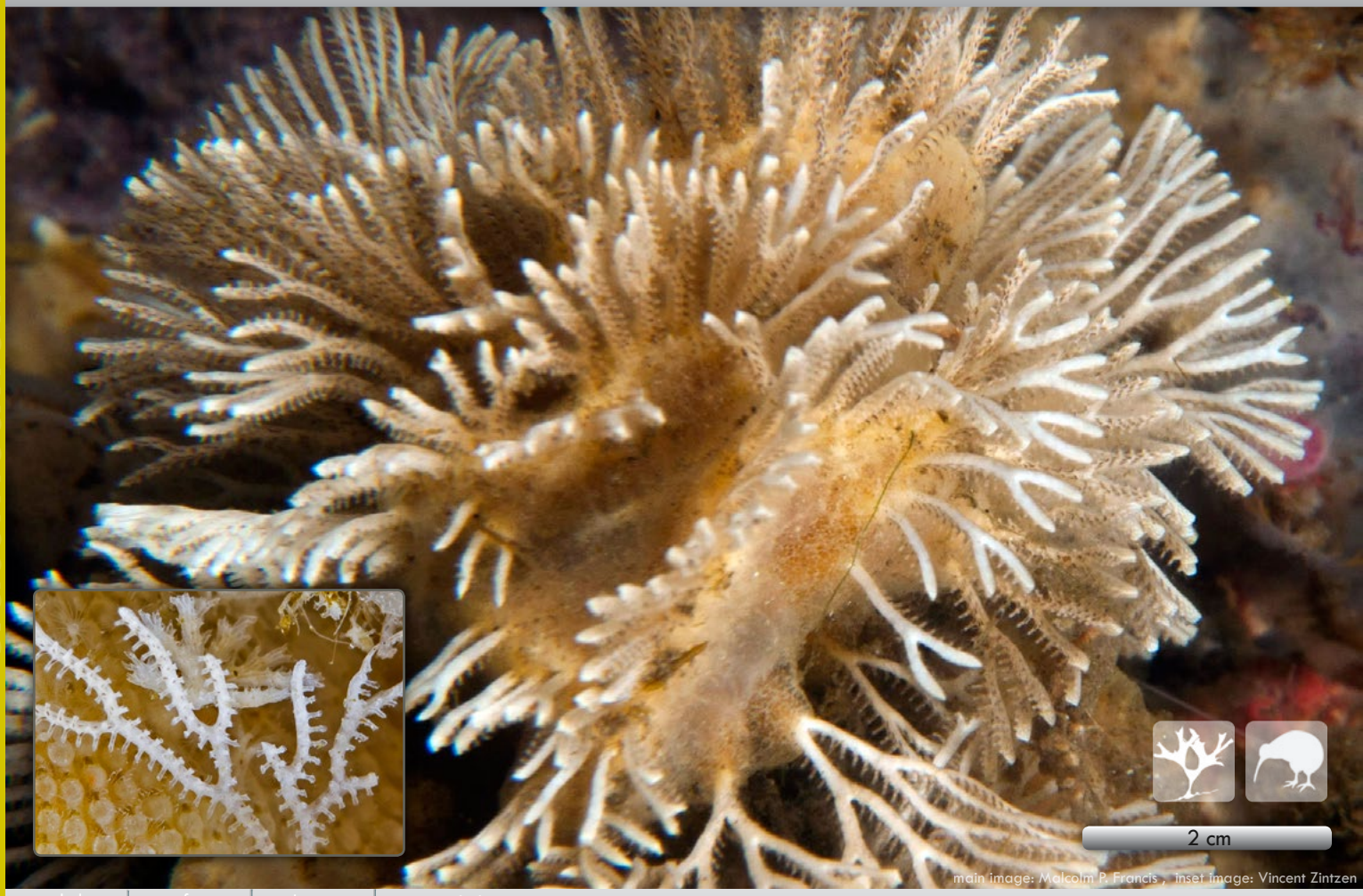
Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Morton J. & Miller M. (1973). The New Zealand Sea Shore. Second edition. Collins, Auckland. 653 pp.

Idmidronea sp.

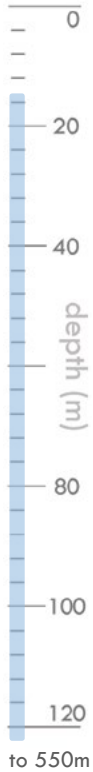
Return to Index

Class Stenolaemata Order Cyclostomata Family Tubuliporidae



main image: Malcolm P. Francis ; inset image: Vincent Zintzen

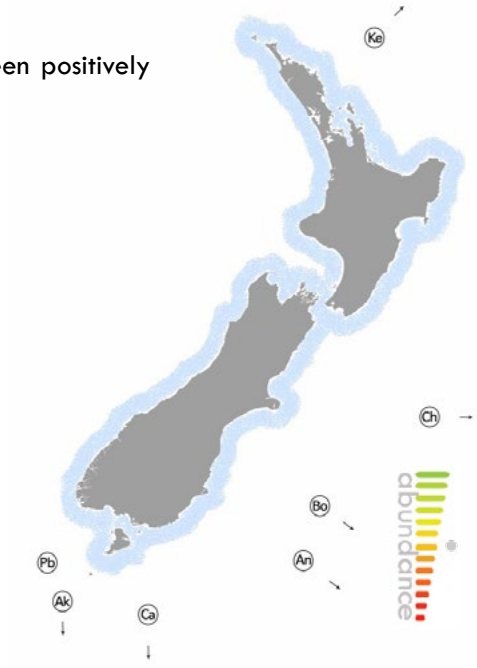
morphology | surface | substrate | habitat



Erect, delicate but firm colony which would snap easily if handled. It is usually inclined at an angle to substratum. The narrow branches fork regularly and repeatedly in one plane. Small tubes extend out alternately from each zooid along one face of the branches. Colonies white to very pale blue, violet or tinged with green, varying among species.

Eight species are thought to occur in New Zealand waters but none have been positively identified so their exact distribution is uncertain.

It could also be.....
Hornera robusta



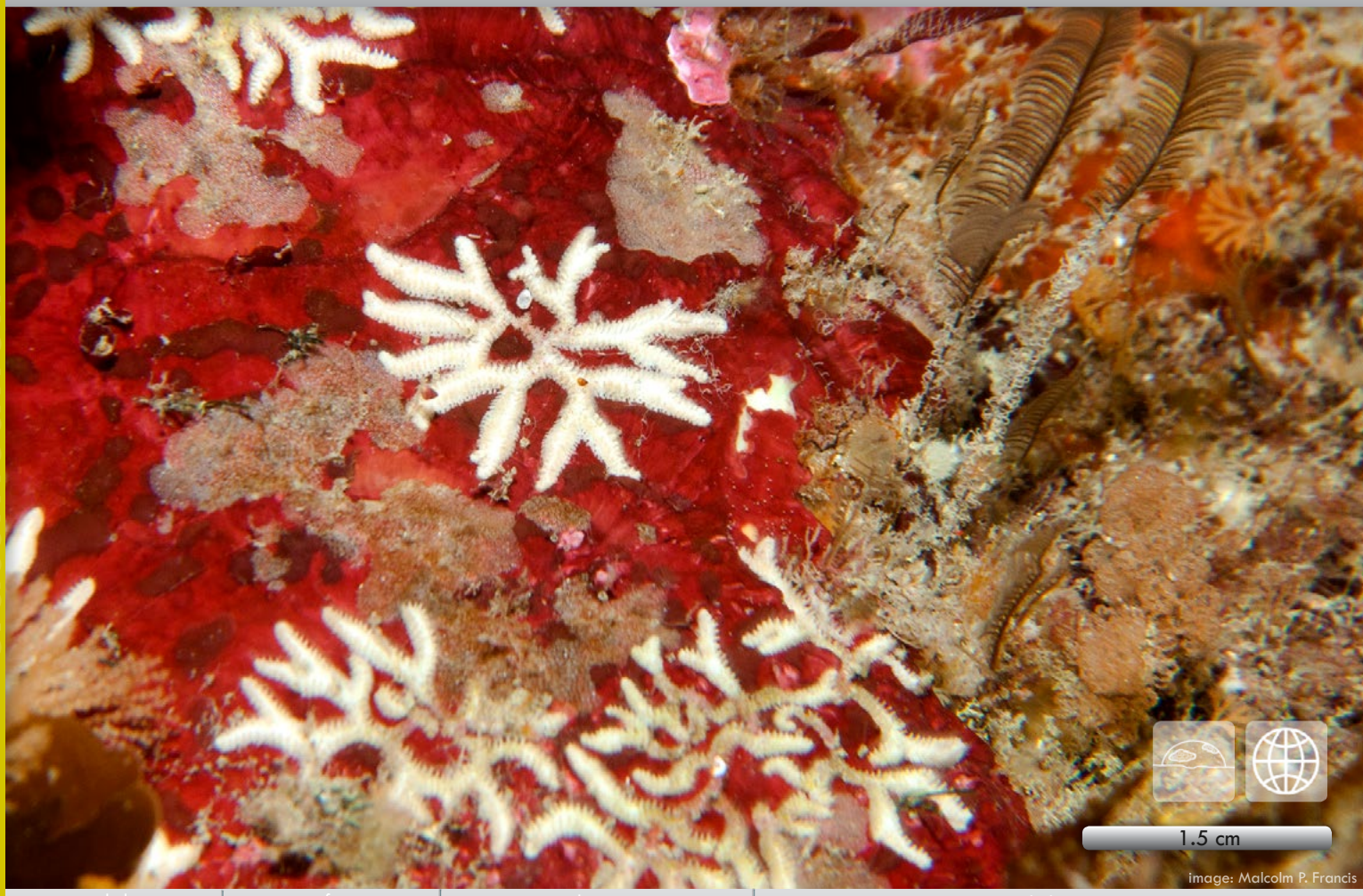
Lightly calcified zooids with membranous frontal wall, small distal operculum. Corners of distal rim have slight projection, short stalked avicularium on most zooids. Tentacle crown with 24–26 tentacles. No ovicells, internal borders.

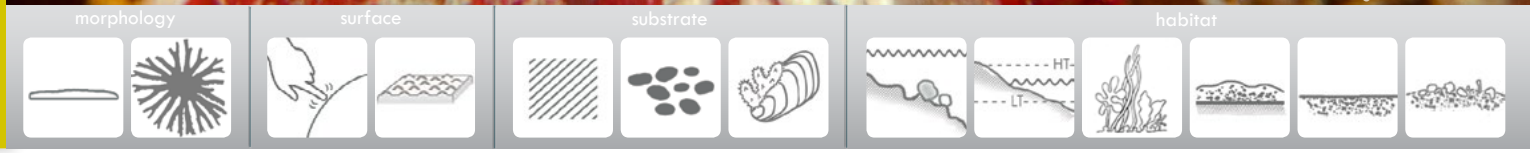
Canu F. & Bassler R. S. (1920). North American Early Tertiary Bryozoa. U.S .National Museum Bulletin 106: 1–879.

Gordon D.P., Taylor P.D., Bigey F.P. (2009). Phylum Bryozoa: moss animals, sea mats, lace corals. In Gordon, D.P. (Ed), New Zealand Inventory of Biodiversity, Volume 1, Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. Canterbury University Press, pp. 271–297.

Tubulipora anderssoni Borg, 1926

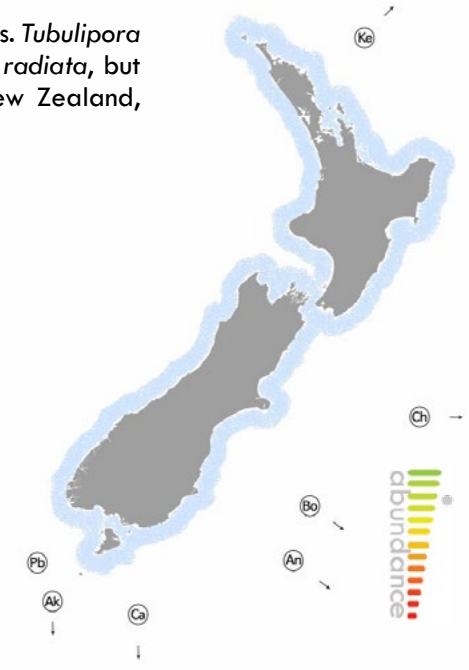
Return to Index





Hard, encrusting colony with a snowflake-shaped radiating branching pattern spreading out over the substrate. Peg-like outgrowths along edges of triangular shaped lobes help anchor it to alga. White.

There are also numerous undescribed species of *Tubulipora* in New Zealand waters. *Tubulipora anderssoni* is a kelp or red algal encruster, most common on fronds of *Ecklonia radiata*, but also found on rock and gravel from low intertidal to 20 m. Widespread New Zealand, Antarctic and South American distribution.



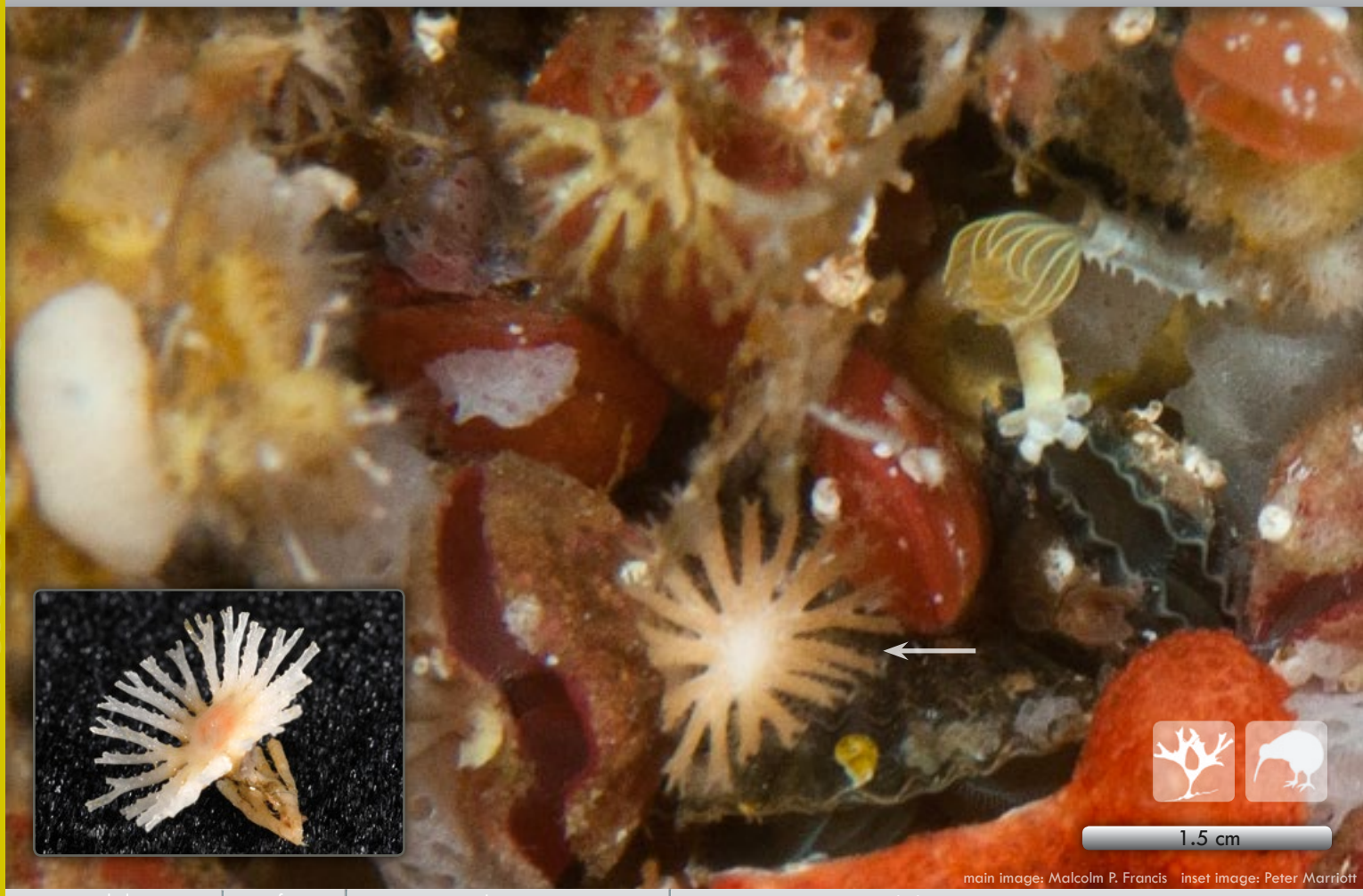
Tiny zooids in parallel rows of 2–6 either side of the midline of lobes. 10 tentacles on tentacle crown. Gonozooid branches along the mid-line of a lobe, extending between zooid rows.

Borg F. (1944). The stenolaematous Bryozoa. Further Zoological Results of the Swedish Antarctic Expedition 1901–1903, 3(5): 1–276.

Morton J. & Miller M. (1973). The New Zealand Sea Shore. Second edition. Collins, Auckland. 653 pp.

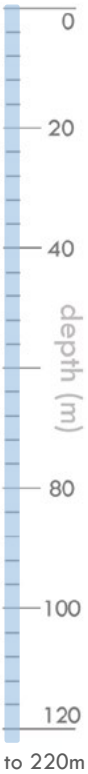
Telopora lobata (Tenison-Woods, 1880)

Return to Index



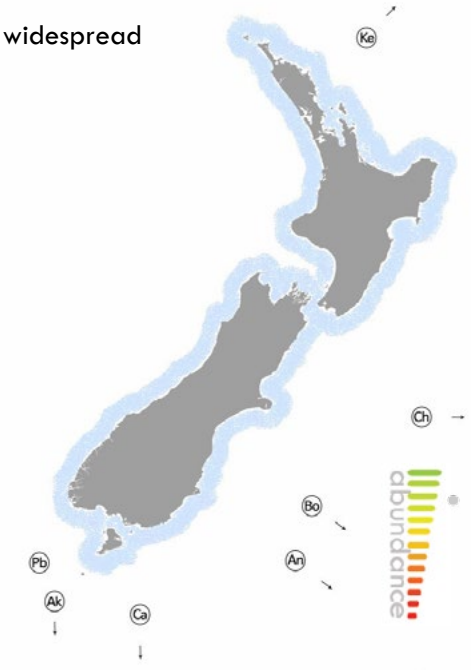
main image: Malcolm P. Francis inset image: Peter Marriott

morphology | surface | substrate | habitat



Small, hard, umbrella-like colony with narrow conical stalk radiating out with slender spiny brittle forked lobes to a stellate 'head'. Zooids arranged in the outward flaring, forked lobes. Off-white colony with pink centre when brooding embryos.

Found on rock faces, loose rock or shell rubble and other bryozoans. Probably widespread around New Zealand from extreme low intertidal to 220 m.



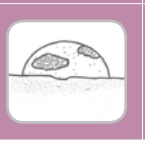
Centre of disc in mature colonies has flat-surfaced brood chamber with small hood-like openings.

Hutton F. W. (1904). Index Faunae Novae Zelandiae. Dulau & Co., London. 372 pp.

Tenison-Woods J. E. (1880). Palaeontology of New Zealand, Part IV. Corals and Bryozoa of the Neozoic Period in New Zealand. Government Printer, Wellington. 34 pp.

icons

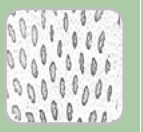
body plan

	erect	erect or upright colonies of bryozoans that are cemented to or loosely rooted into the substrate
	encrusting	flat, planar or lumpy colonies of bryozoans encrusting on rock or other substrate

life history

	antipodean
	widespread
	native

morphology

	ball	spherical, globular
	branching	tree or bush-like branching, may appear fluffy or feathery
	discoidal	round, or disc shaped, flattened
	lacy	net or lace-like colony, fenestrate
	lobate	flattened fan, frond, lobe or leaf-shaped sheet
	stellate	star or snowflake-shaped, radiating pattern
	thick encrusting	spreading over substratum, more than about 20 mm thick
	thin encrusting	spreading over substratum, less than about 5 mm thick
	tubular	Tube or club-shaped form to erect colonies

icons

surface

	bumpy	bearing small, rounded bumps
	hard	hard to the touch, not compressible, rigid
	flexible	colony bendy, can be flexed
	smooth	even, hairless, silky, can be slightly undulating

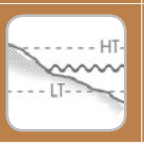
	soft	soft to the touch, easily compressible, elastic
	spiky	surface bearing peaks raised by underlying fibre or spicule skeleton
	transparent	gelatinous and see-through, translucent

substrate

	artificial substratum	anything man-made such as mooring blocks, mussel lines, wharf piles
	living organism	living or growing on the external surface of an animal (epizoic) or seaweed, (epiphytic)
	sand	small coarse grains of worn silica, rock, and shell

	rock	hard substratum such as mudstone, sandstone, basalt, compressed carbonates
	rubble	shell, stone, and pebble rubble

habitat

	algal beds	coralline algae, seagrass or algal beds
	bank	seabed raised into a bank of compacted rubbles and other carbonate materials including shell, kina and sealace hash, organisms exposed to wave surge and currents, and subdued illumination
	covered rock	sand and rubble spread over underlying hard substrate, organisms attached to basement rock susceptible to inundation and scouring from wave surge and currents, and subdued illumination
	indents	underwater caves, shelves and overhangs, organisms may experience wave surge, subdued illumination, or near darkness
	intertidal	exposed shoreline zone between high and low tides, including rock flats, pools, overhangs, crevices, organisms exposed to wave action, temperature extremes, full illumination, and desiccation

habitat

	littoral	the part of the sea that is closest to shore extending from high water mark
	seabed	composed of a variety of sedimentary substrates including coarse gravels, shell hash and sands to finer sand, mud, and silts, organisms susceptible to inundation and scouring from wave surge and currents, and subdued illumination
	subtidal	zone below the low tide, including rock flats, slopes, walls, crevices, overhangs, boulder fields, organisms exposed to wave surge and currents, and subdued illumination

glossary

abfrontal	the back or non-feeding surface of an erect bryozoan colony
algal beds	areas of seafloor with coralline algae, sea-grass or multiple seaweed species
artificial substratum	anything man-made such as mooring blocks, mussel lines, wharf piles
ascopore	a frontal pore that serves as the opening to the ascus, a water-filled flexible sac found in some cheilostome bryozoans, as part of the hydrostatic circulatory system.
antipodean	naturally occurring in New Zealand and Australia, and may include seamounts and ridges to the north
avicularium	a non-feeding zooid with an operculum that has been modified into a beak-like snapping mandible
ball	spherical, globular or semi-spherical
bank	seabed raised into a bank of compacted rubble and other carbonate materials including shell, kina and bryozoan hash; associated organisms are exposed to wave surge and currents, and subdued illumination
blunt	not sharp, rounded ends
brittle	fragile but rigid, breaks apart easily
bryozoan	scientific name for a moss animal or sea mat
colonial	multiple animals aggregated into a single unit
covered rock	sand and rubble spread over underlying hard substrata; associated organisms are attached to basement rock susceptible to inundation and scouring from wave surge and currents, and subdued illumination
cryptocyst	one of the two basic frontal-wall morphologies of bryozoans, consisting of wholly interior walls (in the opposite to gymnocyst, which is exterior wall)
diameter	the distance across the widest point of a circle
digitate	finger-like
discoidal	circular in shape, distinctively flattened
endemic	naturally occurring in New Zealand, but not elsewhere
environment	physical, chemical, ecological, behavioural and other conditions experienced by an organism
epiphytic	living or growing on the external surface of a plant
epizoic	living or growing on the external surface of an animal
fingers	finger-like, often arising from an encrusting or restricted base, digitate
firm	requires some pressure to compress
frontal	the feeding side or surface of a bryozoan colony
gelatinous	jelly-like, slippery
gonozooid	(or brood chamber) zooid involved in the reproduction of a bryozoan
granular	surface covered in small- to medium-sized rounded or angular granules, giving a sand-papery texture owing to calcareous or siliceous minerals in or on the surface of an organism
gymnocyst	calcified exterior-wall surface in bryozoans (in contradistinction to cryptocyst, which is interior wall)
habitat	the environment and local situation in which an organism lives
hard	solid to the touch, not compressible, rigid
indents	underwater caves, shelves and overhangs, organisms that live there may experience wave surge, subdued illumination, or near darkness
intertidal	exposed shoreline zone between high and low tides, including rock flats, pools, overhangs, crevices; organisms that live there are exposed to wave action, temperature extremes, full illumination, and desiccation
interzooidal	the position between zooids in bryozoans
introduced	species first described beyond New Zealand waters, now occurring in New Zealand and other locations, invasive, adventive
kenozooid	a non-feeding bryozoan zooid that strengthens the colony and fills in space
lateral	side of an animal
margins	edge of a surface
morphology	form and structure, shape
moss	animal popular name for a bryozoan, or sea mat
mud	very fine silty sediments derived from terrigenous rocks, soils and clays
native	naturally occurring in New Zealand, but may also occur naturally elsewhere, endemic
opaque	impenetrable by light
oral	related to the mouth of an animal
ooecium	skeleton of the ovicell found in cheilostome bryozoan zooids in which a developing larva is incubated to maturity
operculum	a structure like a lid which is used for covering an opening or orifice
orifice	an opening, for example a mouth
peristome	area surrounding the mouth or feeding orifice of various invertebrates such as echinoderms and bryozoans
polymorph	a structure that can occur in more than one morphological form in different species
range	extension since first described in New Zealand, this species has been recorded elsewhere
reticulate	thickening secondary body wall that is net-like or has a lacy framework of thickened calcified skeleton
rock	hard substratum such as mudstone, sandstone, basalt, compressed carbonates

rock pool	pool excavation in rock, filled with water, in the intertidal zone
rough	irregularly pitted and ridged surface, often tough
rubble	shell, stone, and pebble rubble
sand	small coarse grains of worn silica, rock, and shell
sea mat	a vernacular name for some bryozoans
seabed	composed of a variety of sedimentary substrata including coarse gravels, shell hash and sands to finer sand, mud, and silts; associated organisms are susceptible to inundation and scouring from wave surge and currents, and subdued illumination
smooth	even, hairless, silky, can be slightly undulating
soft	easily compressible, elastic
spined, spinose	surface covered with spines (echinoderms), or prickly bundles of very long spicules projecting from surface of the organism (sponges, bryozoans, ascidians)
stellate	star-shaped
subtidal	zone below the low tide, including rock flats, slopes, walls, crevices, overhangs, boulder fields; associated organisms are exposed to wave surge, currents and subdued illumination
surface	patterning or ornamentation on the surface of the body of an animal
tentacle	crown the feeding organ of a bryozoan, a ring of tentacles
thickly encrusting	spreading over substratum, more than about 20 mm thick
thinly encrusting	spreading over substratum, less than about 5 mm thick
translucent	lets light through body wall or surface of organism, but not enough to perceive distinct details through it
transparent	body wall can be gelatinous, see-through, with internal details visible
transverse	across the short axis of the body wall
vibraculum	modified avicularium with a very long bristle on the back (abfrontal) side of some branching bryozoans
wall	underwater cliff or slope; associated organisms are exposed to wave surge, currents and subdued illumination
widespread	species recorded globally
zooid	individual unit of a bryozoan colony

acknowledgements

Many of the specimens examined to produce this guide came from the NIWA Invertebrate Collection (NIC) and some of the specimens were collected under the following research programs:
Ocean Survey 20/20 Bay of Islands coastal biodiversity, sediment and seabed habitat project (voyages KAH0907 & TAN0906), funded by Land Information New Zealand (LINZ), Biogenic habitats on the continental shelf project (voyages TAN1105 & TAN1108), funded by New Zealand Ministry for Primary Industries (MPI (Fisheries) (Biogenic habitats Project ZBD200801), New Zealand Foundation for Research, Science and Technology (CCM contract CO1X0907), NIWA Capability Fund (Project CF111358) and Oceans Survey 20/20 R/V Tangaroa days funded by LINZ. TerraMarine Pharmaceuticals (TMP) Marine Natural Products (MNP) collection.

The preparation of this guide was funded by NIWA under Coasts and Oceans Research Programme 2 Marine Biological Resources: Discovery and definition of the marine biota of New Zealand (2014/2015 SCI).

Our heartfelt thanks are extended to the many and talented photographers whose work was used with permission in our guide, including: Crispin Middleton (including cover image of bryozoans and introduction background images), Chris Woods, Malcolm P. Francis, Peter Marriott, Rob Stewart, Mike Page, Dave Allen all from NIWA, Vincent Zintzen and Callum Lilley, Department of Conservation, New Zealand.

further reading

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