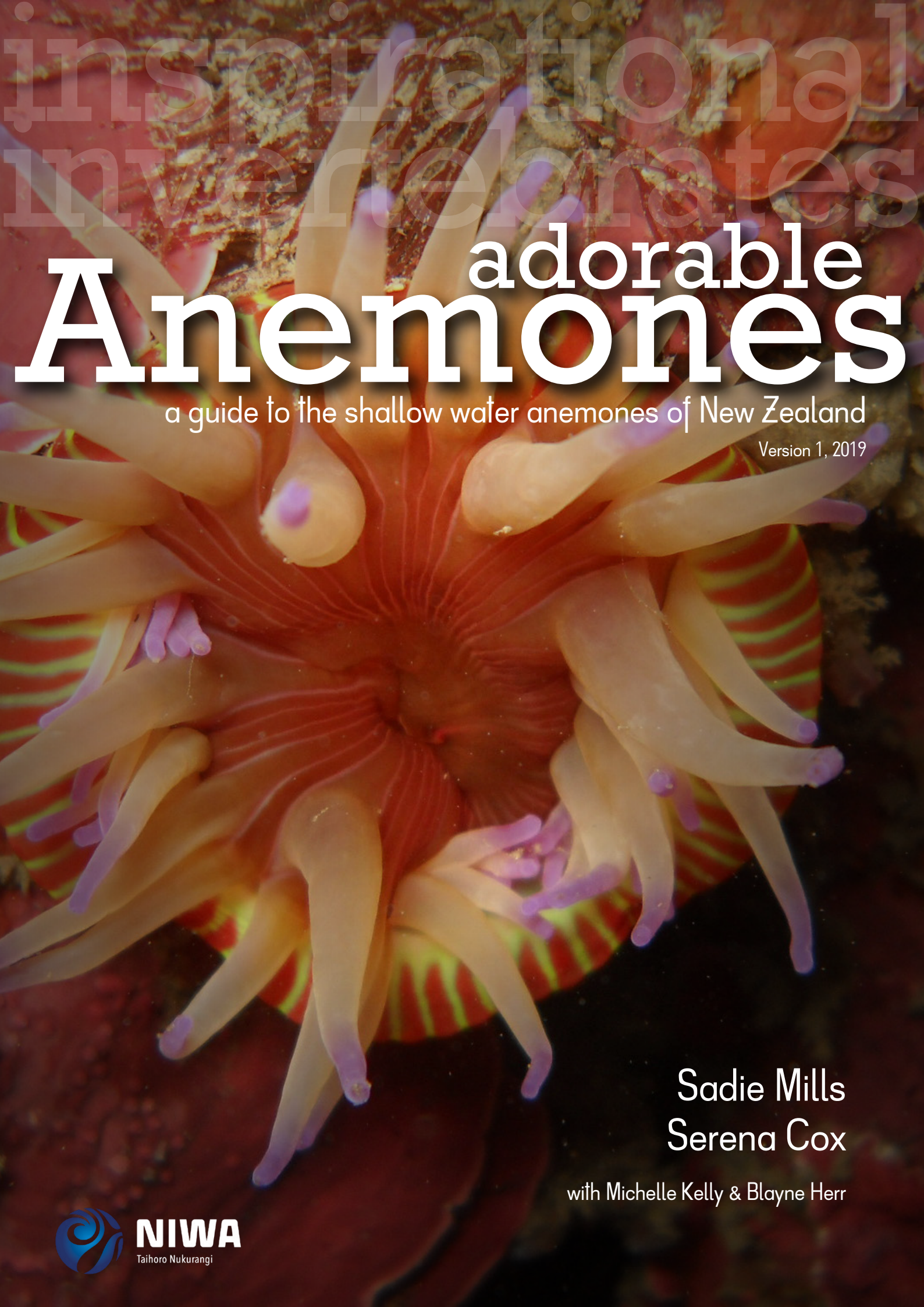




inspirational
invertebrates

adorable Anemones

a guide to the shallow water anemones of New Zealand

Version 1, 2019

Sadie Mills
Serena Cox

with Michelle Kelly & Blayne Herr

about this guide

Anemones are found everywhere in the sea, from under rocks in the intertidal zone, to the deepest trenches of our oceans. They are a colourful and diverse group, and we hope you enjoy using this guide to explore them further and identify them in the field.

ADORABLE ANEMONES is a fully illustrated working e-guide to the most commonly encountered shallow water species of Actiniaria, Corallimorpharia, Ceriantharia and Zoantharia, the anemones of New Zealand. It is designed for New Zealanders like you who live near the sea, dive and snorkel, explore our coasts, 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 and algae that NIWA's Coasts and Oceans group is presently developing.

The e-guide starts with a simple introduction to living anemones, followed by a simple colour 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.

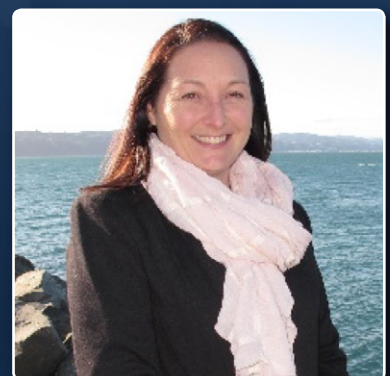
Each anemone species page illustrates and describes features that will enable you to differentiate the species from each other. Species are illustrated with high quality images of the animals in life. As far as possible, we have used characters that can be seen by eye or magnifying glass, and language that is non-technical. Outlying island groups, banks, platforms and plateaus are shown on the maps as a two-letter code: Ak = Auckland Islands; An = Antipodes Islands; Bo = Bounty Islands and platform; Ca = Campbell Islands and platform; Ch = Chatham Islands and Chatham Rise; Cp = Challenger Plateau; Ke = Kermadec Islands and the Southern Kermadec Ridge; Pb = Puysegur Bank; Sn = Snares Islands and platform. 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.

The contributors to this guide are:



Sadie Mills is the Collection Manager of the NIWA Invertebrate Collection

Dr Serena Cox is a marine scientist based in New Zealand. She has a particular interest in biosecurity, biofouling and invasive species, and is currently working on the parataxonomy of New Zealand coastal crabs.



For any ID advice on anemones you find,
please email your photos to sadie.mills@niwa.co.nz or serena.cox@niwa.co.nz

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



Remember to check the website for updated versions!

a typical species page layout

taxonomic name of species
Mimetridium cryptum

taxonomic authority
person(s) who first described this species
Hand, 1961

common name of species
plumose anemone

species classification
see species index for arrangement
Class Anthozoa | Order Actinaria | Family Acontophoridae

species images
inset images show variations and/or closeup detail

body plan icon
highlighting the basic shape, or a special characteristic, that defines a group of these organisms

life history icon
highlighting geographic distribution

scale bar
indicating relative size of organism in the main image
1.5 cm

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

depth range
common depth range around New Zealand
0 to 120 m

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
0 to 100

key taxonomic references
Grange, K. R., Watson, J., Cook S., de C., Barnett, T. J., Brook, F., & Cairns, S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). New Zealand Coastal Marine Invertebrates Volume One, p 137–248. Canterbury University Press, Christchurch, New Zealand.
Hand, C. H. (1961) Two new acontate New Zealand sea anemones. Transactions of the Royal Society of New Zealand, 1, 75–89.

it could also be ...
some species are difficult to tell apart without more detailed information, so check the other species in the guide listed here to make sure that you have the correct species
Leptoclinides marmoreus

Adherent base. Translucent white to dark green striped, smooth column. Edge of oral disc undulating, wider than the column, with a white to pale pink mouth. Five to eight cycles of long slender white-green tentacles, numbering up to 400.

Symbiotic algae lives within tissues in this species, hence the sometimes green colouration. Lives on hard substrates in Fiordland, but can also withstand being partially buried in muddy sand where it has been found in the Otago harbour in shady spots under wharf piles. This is a NZ endemic species.

It could also be.....
Leptoclinides marmoreus

about anemones

Anemones are found in very shallow water in the intertidal zone, under rocks in calm bays or in the splash zone on the rocky shore where they can stay moist. You can also find them in most tidal rock pools, and in the deepest reaches of the ocean in our abyssal trenches. Globally, they are found in tropical waters right through to the poles and there are many beautiful species in New Zealand waters.

Anemones are in Phylum Cnidaria, which means that they have a radial symmetry to their body shape and all of them have stinging cells or nematocysts, which help them to catch prey. All Cnidaria are fairly simple organisms with only two body layers, the ectoderm and endoderm, separated by a jelly-like layer called the mesoglea. In the middle of their body is a cavity called the coelenteron that they use to digest food, absorb nutrients and respire, which opens to a single mouth surrounded by a ring of tentacles.

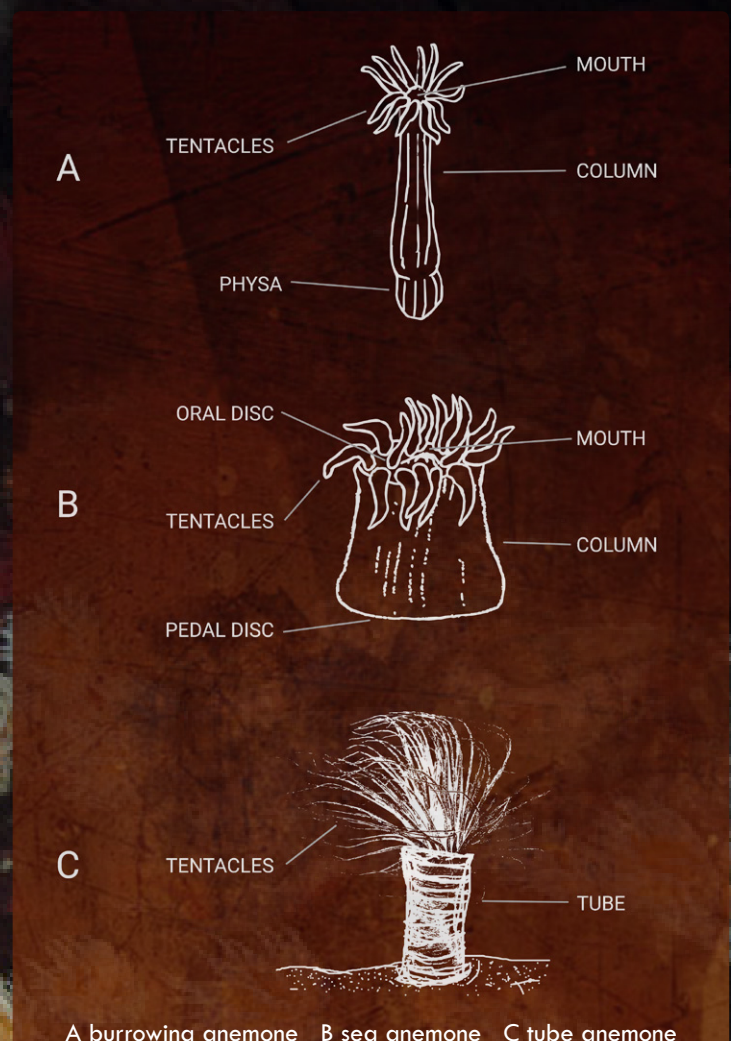
Generally, anemones are solitary animals, although some species like the jewel anemones live very closely packed together. Zoanthids are colonial and join multiple polyps together with a united base.

Anemones all have a column, an oral disc with a mouth in the middle and tentacles around the outside. Some have a pedal disc that is used to firmly or loosely fix onto a surface, and burrowing anemones have a physa, which is an inflatable bulb that helps them to anchor themselves in sand or mud.

They do not have any skeleton inside their bodies. The internal features of the anemones, particularly the number of layers of body wall tissues, called mesenteries, are commonly used when taxonomists identify and describe new species of anemones. We have not described any internal features in this guide.

There are four taxonomic orders of anemones or anemone-like creatures: sea anemones in Order Actiniaria, mushroom or jewel anemones in Order Corallimorpharia, tube anemones in order Spirularia (formerly Ceriantharia) and zoanthids in order Zoantharia.

Representatives of all four of these orders are found in shallow water in New Zealand and have been included in this guide.



A burrowing anemone B sea anemone C tube anemone

Anemones can reproduce in a variety of ways. Some species can reproduce asexually, either by fission i.e., splitting or fragmenting (e.g. *Diadumene neozelandica*) or by budding from the base (e.g. *Habrosanthus bathamae*). Asexual reproduction can result in the formation of large colonies of identical individuals. Some species, such as the red beadlet anemone (*Actinia tenebrosa*), are viviparous, which means that they hold on to their young inside their body cavity (or in a special brood pouch in some species) and then release them as mini anemones.

With broadcast spawning, fertilization of the eggs takes place in the water column and the resulting larvae then swim around in the plankton until they find a suitable habitat to settle. An unusual mode of reproduction occurs in the genus *Epiactis*, where fertilization takes place internally and fully formed larvae develop inside the adult and crawl out of the parent's mouth, down the column and then sink, where they grow and develop in very close proximity to the parent.

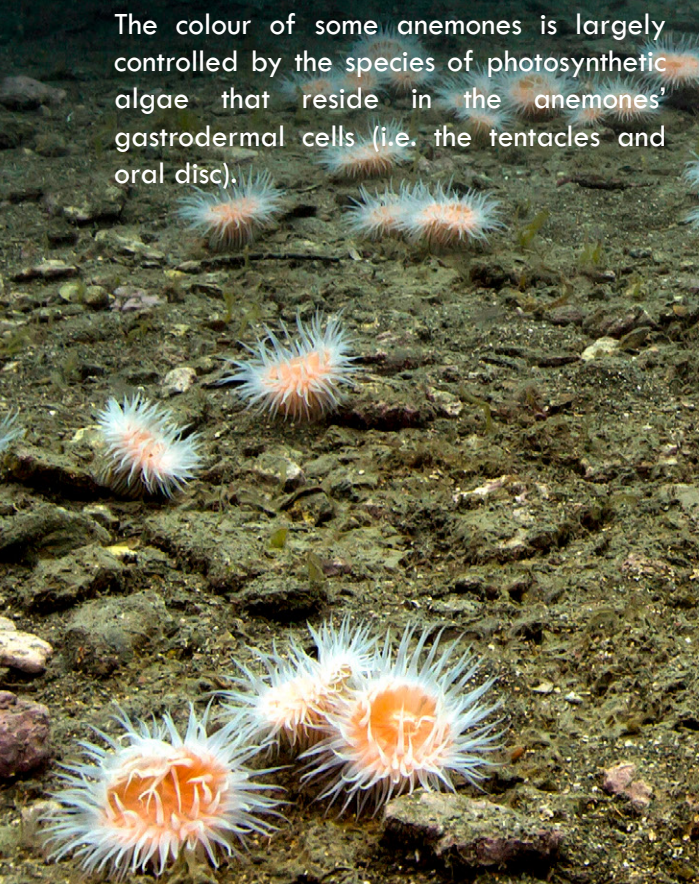
Anemones are typically predators, consuming small animals and plankton that come within reach of their tentacles immobilizing them with stinging cells (nematocysts). The tentacles then transfer food particles to the mouth.

Shallow water anemones have an important mutualistic relationship with certain single-celled algae that live in the tentacles and oral disc of the anemone. These algae are capable of photosynthesis, which provides the anemone with oxygen and food (in the form of glycerol, glucose and alanine), and in turn the algae benefit as they are ensured a reliable exposure to sunlight and protection.

The colour of some anemones is largely controlled by the species of photosynthetic algae that reside in the anemones' gastrodermal cells (i.e. the tentacles and oral disc).



A tube anemone (Cerianthidae sp. indet.) (Crispin Middleton, NIWA)





Alicia sp.

21



Mimetridium cryptum

9



Anthopleura aureoradiata

11



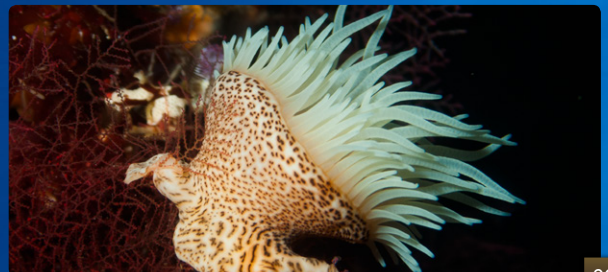
Anthothoe albocincta

25



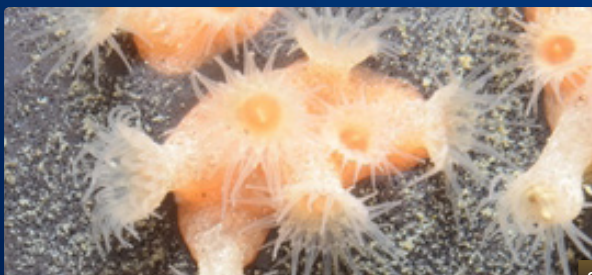
Anthothoe vagrans

26



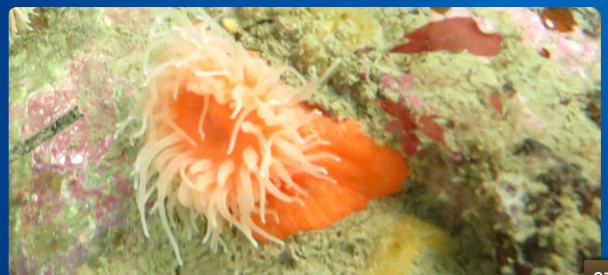
Antiparactis sp.

20



Epizoanthus sp.

30



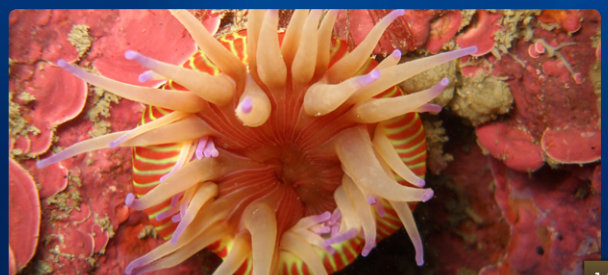
Habrosanthus bathamae

27



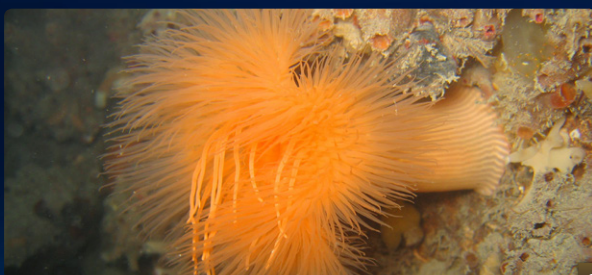
Aulactinia chrysobathys

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Epiactis thompsoni

15



Diadumene neozelanica

22



Handactis nutrix

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Parazoanthus elongatus



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Corynactis australis



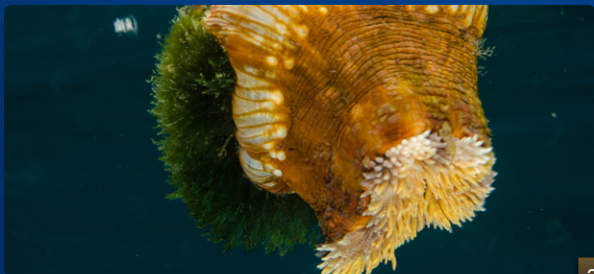
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Actinia tenebrosa



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Cerianthidae sp. indet.



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Calliactis polypus



16

Isactinia olivacea



14

Aulactinia veratra



12

Anthopleura rosea



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Oulactis muscosa



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Oulactis magna



19

Phlyctenactis tuberculosa

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PHYLUM Cnidaria	CLASS Anthozoa	ORDER Actiniaria	Family Acontiophoridae <i>Mimetridium cryptum</i>	9
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			Family Actinostolidae <i>Antiparactis</i> sp.	20
			Family Aliciidae <i>Alicia</i> sp.	21
			Family Diadumenidae <i>Diadumene neozelanica</i>	22
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			Family Incertae sedis <i>Habrosanthus bathamae</i>	27
		ORDER Spirularia	Family Cerianthidae <i>Cerianthidae</i> sp. indet.	28
		ORDER Corallimorpharia	Family Corallimorphidae <i>Corynactis australis</i>	29
		ORDER Zoantharia	Family Epizoanthidae <i>Epizoanthus</i> sp. Family Parazoanthidae <i>Parazoanthus elongatus</i>	30 31



1.5 cm

images: Malcolm P. Francis

morphology



surface



substrate



habitat



Adherent base. Translucent white to dark green striped, smooth column. Edge of oral disc undulating, wider than the column, with a white to pale pink mouth. Five to eight cycles of long slender white-green tentacles, numbering up to 400.

Symbiotic algae live within the tissues of this species, hence the occasional green colouration. Lives on hard substrates in Fiordland, but can also withstand being partially buried in muddy sand where it has been found in the Otago harbour, in shady spots under wharf piles. This is a New Zealand endemic species.

It could also be.....

Leptoclinides marmoreus





7 cm

main image: Crispin Middleton, NIWA inset images: Chris Woods, NIWA

morphology



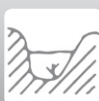
surface



substrate



habitat



Stongly adherent base. Column is smooth, light to very dark red, appearing lighter when the column is expanded and darker when contracted. Marginal spherules (acrorhagi) under the bases of the outer tentacles are light blue to white in colour. Oral disc and tentacles completely covered when retracted and anemone resembles a dome-shaped blob. The tentacles are conical, numerous (200 +) and in three cycles, and a lighter red than the column. The pedal disc is stongly attached and wider than the column.

Actinia tenebrosa is a common anemone on the rocky shore, in rock pools and cracks at mid to low tide level. This species is shade-loving so can usually be found under ledges or in caves, and on the bottom of boulders so they can stay cool and moist when the tide is out. Found around New Zealand (including Kermadecs and Auckland Islands) and in Eastern and Southern Australia (from Perth to New South Wales, Victoria and Tasmania) in the intertidal zone.

It could also be.....

Epiactis thompsoni

Corynactis australis





1 cm

main image and lower inset image: Jennifer Howe | middle inset image: Chris Woods, NIWA | top inset image: Crispin Middleton, NIWA

morphology

surface

substrate

habitat



Column is smooth and straight, light brown to grey with longitudinal white streaks of warts (verrucae). The column widens towards the tentacles. The tentacles (up to 72) are also brownish grey, banded or spotted with white, and arranged in four cycles. Twenty four marginal spherules are in a groove below the tentacles.

This anemone has been found to contain symbiotic algae, or zooxanthellae, in the cells lining its digestive cavity. It also captures its food from the water column. Most commonly attached to cockles in mudflats, tolerating being covered with sand, but can also be found in rockpools, attached to mudstone or small stones on rocky shores and tidal pools. It has a mutually beneficial association with the cockles, which provide them a hard substrate to attach to, while the anemone preys on the larvae of the trematode parasite that can infect the cockles. Found around New Zealand.

It could also be.....

Oulactis muscosa

Isactinia olivacea





2 cm

image: Jennifer Howe, VUCEL

morphology



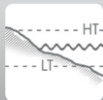
surface



substrate



habitat



Adherent pedal disc. Oral disc purple or whitish with dark rays expanding out to the edges, mouth brown. White to yellowish towards the margin. Variable column colour from white, grey, green to bright orange. Column covered with white warts (verrucae) in rows to which sand grains or pieces of shell can stick. Short pinkish tentacles banded with white and brown and arranged in three rows, about 48 total. Some individuals may have greenish brown-coloured tentacles due to presence of symbiotic algae.

Found attached to rock surfaces and stones in rockpools, or in fine gravel or coarse mud. Very common in the intertidal zone. Endemic to New Zealand, present around both North and South Islands, though more common in the South.

It could also be.....

Oulactis muscosa



apricot anemone



2 cm

main image: Chris Woods, NIWA inset image: New Zealand Marine Studies Centre

morphology



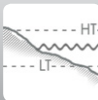
surface



substrate

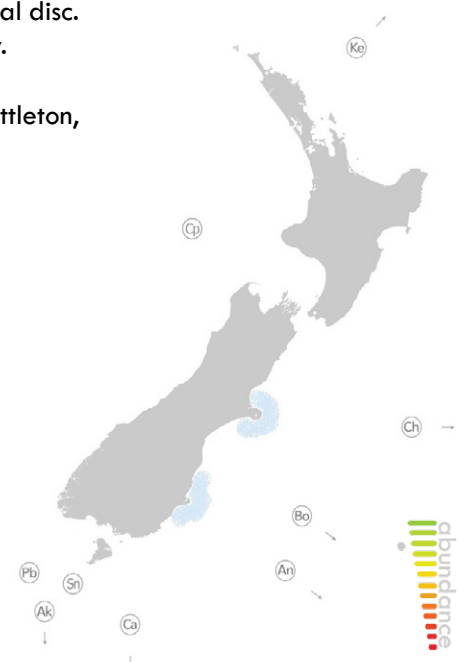


habitat



Semi-adherent base, can be knocked off the seabed easily. Column bold orange with rows of white warts (verrucae). Column can be paler orange to creamy white towards the base. Numerous white to pale orange tentacles (up to 100). Pale orange oral disc. This species is viviparous with young anemones retained inside the body cavity.

Found off-shore from about 4 m deep on the East coast of the South Island at Lyttleton, Akaroa and Otago. A New Zealand endemic.



Aulactinia veratra (Drayton in Dana, 1846)

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Class Anthozoa Order Actiniaria Family Actiniidae

green snaketongue anemone



6 cm

Images: Matthew Jones

morphology



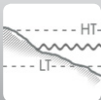
surface



substrate



habitat



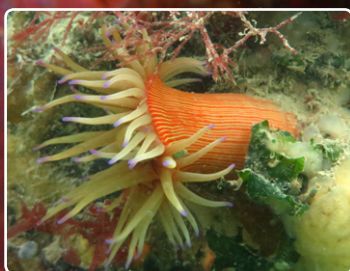
Firmly attached base. Column green with warts (verrucae) in rows. Numerous bright green tentacles varying in number between individuals (24–124). Oral disc varies in colour from olive green to reddish brown.

Lives on rocky shores and in rockpools, sometimes covered by sand with only the tentacles visible. Often in crevices and under boulders on open coastline. Found around both islands of New Zealand, around East and West Australia and Tasmania.

It could also be.....
Isactinia olivacea



red-striped anemone



2 cm

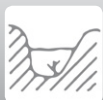
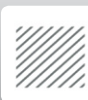
main image: Serena Cox, NIWA inset image: Chris Woods, NIWA

morphology

surface

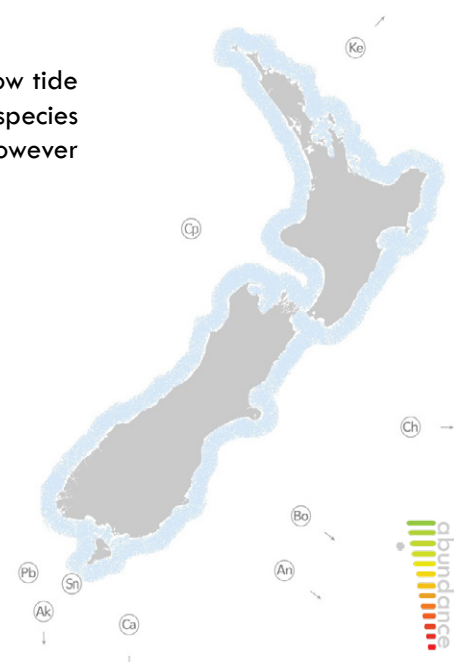
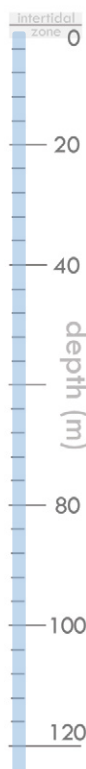
substrate

habitat



Adherent base. Distinctive red-striped column with either white or yellow alternating stripes. Oral disc red and also striped. Tentacles short, pale greenish, white or grey colour, often with pink or purple tips in three cycles, numbering over 60.

This species is viviparous. Can be found in sheltered sandy shores below the low tide mark, and in rockpools and on rocky reefs away from strong wave action. This species was thought to be a New Zealand endemic, more common in the South Island, however it has now also been recorded from Southern Australia.



Grange K. R., Watson J., Cook S. de C., Barnett T. J., Brook F. J. & Cairns S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). *New Zealand Coastal Marine Invertebrates Volume One*, p 137–248. Canterbury University Press, Christchurch, New Zealand.

Morton J. & Miller M. (1973) *The New Zealand Sea Shore*. Collins, UK 2nd Edition, 653 p.



2 cm

images: Jennifer Howe, VUCEL

morphology



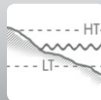
surface



substrate



habitat



Firmly attached base. Smooth column, bright green to olive-brown or yellowish-green. Can have brighter patches around the base. Numerous long, gently tapering green tentacles. Oral disc green to darker olive-brown with raised mouth pinkish brown.

Lives attached to hard substratum in rock pools or crevices between the upper to mid intertidal on the rocky shore. May be buried in sand with only tentacles visible. An endemic species found throughout New Zealand.

It could also be.....

Aulactinia veratra





5 cm

images: Matthew Jones

morphology



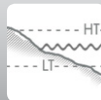
surface



substrate



habitat



Base firmly attached. Column, short, covered with creamy white warts (verrucae) in rows, usually covered with small pebbles and shell hash which stick to the column. Column is creamy white, but not usually visible. Margin of column and oral disc has a ruffle of white acrorhagi visible beneath the tentacles. Tentacles numerous (up to 190 in four cycles) and all one colour, but this is variable between individuals which sometimes have white, pink or purple tentacles. Oral disc is wide, and can be seen occasionally folded into a number of lobes. It is variable in colour and usually contrasting from tentacles which range from cream to brown to fluorescent green.

The anemone is found in rockpools and crevices on exposed rocky shores from the intertidal zone and shallow subtidal, sometimes covered with sand with only the tentacles visible. This species was originally described from Plimmerton, north of Wellington, but is found throughout New Zealand and Chatham Islands

It could also be.....

Oulactis muscosa





1.5 cm

Images: Jennifer Howe, VUCEL

morphology



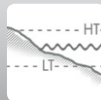
surface



substrate



habitat



Base firmly adherent. Column short, covered with creamy white warts (verrucae) in rows, usually covered with small pebbles and shell hash which stick to the column. Column is dark greenish brown or orange. Margin of column and oral disc have small white circular acrorhagi visible between tentacles. Tentacles are speckled or banded with brown and white with inner cycles dark brown and outer cycles of tentacles light pink. Oral disc wider than tall, variable in colour from dark red to light brown and usually banded with white v-shaped patterns at the base of the tentacles giving a mottled appearance.

Found in rockpools and crevices on exposed rocky shores from the intertidal zone and shallow subtidal throughout New Zealand. This species is also found in Southern Australia.

It could also be.....

Oulactis magna

Anthopleura rosea





9 cm

main image: Jennifer Howe, VUCEL top inset image: Chris Woods, NIWA bottom inset image: Crispin Middleton, NIWA

morphology



surface



substrate



habitat



Base only slightly adherent so the anemone can float or crawl and reattach to surfaces easily. Column entirely covered in simple, smooth, blister-like warts (verrucae) arranged in almost vertical rows. Column can be a variety of colours from orange to olive-green, to red-brown, to pale pink and light to dark grey-blue. Numerous short tentacles arranged in six cycles, yellow, brown or orange-coloured. Tentacles and oral disc can be completely hidden when withdrawn.

This is the largest shallow water anemone in New Zealand. Can be found in rockpools and subtidally on sheltered and exposed rocky coasts usually among algae or on rock. Found throughout New Zealand, including the Chatham Islands, and in southern Australia.

It could also be.....

Alicia sp.



leopard anemone



2 cm

main image: Malcolm P. Francis inset images: Crispin Middleton, NIWA

morphology



surface



substrate



habitat



Oral disc is yellow-white, with an orange mouth. Column is smooth, pale orange with dark red to brown leopard-like spots. Tentacles are long and semi-translucent to white. The identification of this animal in our waters is in doubt, as there are two genera that look very similar to this and no recently collected specimens are available in museums for dissection and microscopic examination.

Found attached to black corals, new anemones bud out of the base of other anemones and spread over the entire skeleton of dead black coral branches. Occasionally found on sponges. Occur on deep reefs just at the limit of recreational diving depths off White Island, Poor Knights and the Kermadec Islands.



stinging wandering anemone



5 cm

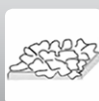
main image: Peter Schupp, ICBM inset images: ROV KIEL 6000, GEOMAR, SO254 PoriBacNewZ

morphology

surface

substrate

habitat



Column is smooth, translucent white to pink and covered with well separated warty knobs. There are five long false tentacles at the top of the column, which are also covered with numerous knobs and are the same colour as the column. The mouth and oral disc are completely covered when retracted. The margin of the column is simple. The very long, tapering true tentacles are white and can be completely withdrawn. The tentacles are numerous (more than 200).

This anemone can detach easily from the seafloor, so can be found attached to anything, for example straight onto rock surfaces or on top of black corals or gorgonians. It can float or roll along in the current. It has a powerful sting, so touching it should be avoided. Found around the offshore islands in Northern New Zealand (including Poor Knights, White Island and the Kermadec Islands) on deep rocky reefs.

It could also be.....

Phlyctenactis tuberculosa

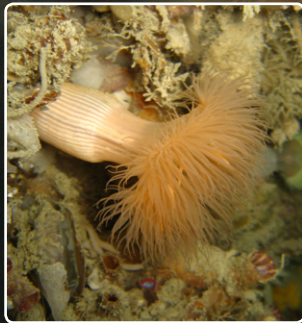


abundance

Duerden J. E. (1895). On the genus Alicia (Cladactis), with an anatomical description of *A. costae*, Panc. The Annals and Magazine of Natural History. Vol 87: 213-218.

Grange K. R., Watson J., Cook, S. de C., Barnett T. J., Brook F. J. & Cairns S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). *New Zealand Coastal Marine Invertebrates Volume One*, p 137-248. Canterbury University Press, Christchurch, New Zealand.

striped anemone



3 cm

images: Chris Woods, NIWA

morphology



surface



substrate



habitat



Disc semi-adherent, so anemone can move around. Column, orange, smooth with two distinct sections. The basal section thicker with white longitudinal stripes running down it, the upper part obviously narrower. The orange oral disc is folded into fat lobes and is usually difficult to see for the numerous tentacles covering it. There are two types of tentacles in this species: the outer slender, pale orange and more numerous, the inner longer and slightly thicker, darker orange and with a special type of nematocyst in them to catch prey. Acontia are released from the column if disturbed. This species can reproduce asexually through fission.

Lives in the low intertidal to shallow subtidal in shady spots, for example under wharf piles and often in association with mussels. An endemic found throughout New Zealand.

It could also be.....

Mimetricidium cryptum



pumice hitch-hiker



3 cm

image: Crispin Middleton, NIWA

morphology



surface



substrate



habitat



Adherent pedal disc. Warty, wrinkled column with dots around its base, which are characteristic of the genus *Calliactis*. The dots are holes through which defensive acontia can be shot.

This species is known from around the Indo-Pacific and is commonly found attached to hermit crab shells, but sometimes attaches to other hard things like pumice. It has only recently been recorded from New Zealand waters on some floating pumice near Burgess Island in the Mokohinau group off the northeast coast of the North Island of New Zealand.





1 cm

main image: Jennifer Howe, VUCEL bottom inset image: Malcolm P. Francis top inset image: Crispin Middleton, NIWA

morphology

surface

substrate

habitat



Small anemone with a smooth column. Column can be orange, dark brown, yellow, blue or green, and sometimes iridescent with small smooth papillae in longitudinal stripes down the column. Short, slender tentacles crowded at edge of disc in three or four cycles, orange to brown colour. About as long as the diameter of the oral disc. Iridescent blue-green mouth, but this can be variable.

This species has a brood pouch, a fold in the column about 1/3 up from the base, that it keeps young anemones in until formed. Lives on the fronds of kelp in the low intertidal and shallow subtidal zone on rocky shores. It occurs throughout New Zealand, in Southern Australia and Tasmania.



Grange K. R., Watson J., Cook S. de C., Barnett T. J., Brook F. J. & Cairns S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). *New Zealand Coastal Marine Invertebrates Volume One*, p 137–248. Canterbury University Press, Christchurch, New Zealand.

Stuckey F. G. A. (1909). A Review of the New Zealand Actiniaria known to Science, together with a Description of Twelve New Species. *Transactions of the New Zealand Institute*, 41, 374–398.



2 cm

main image: Crispin Middleton, NIVA Inset image: Jennifer Howe, VUCEL

morphology

surface

substrate

habitat



Column is smooth, yellow-orange or brown striped with white or pale green. Tentacles are slender and white and arranged in four cycles. Oral disc is orange to bright yellow. White coiling strings of acontia (stinging threads) may be visible coming from the mouth or from small pores (clinclides) on the side of the column.

Found in deep tidal pools and on shaded vertical walls on exposed coastlines, and also on sheltered wharf piles. This species is found around New Zealand and very common in shallow water (<20m). Also known from New South Wales, Australia.

It could also be.....

Anthothoe vagrans



abundance



2 cm

Images: Jennifer Howe, VUCEL

morphology

surface

substrate

habitat



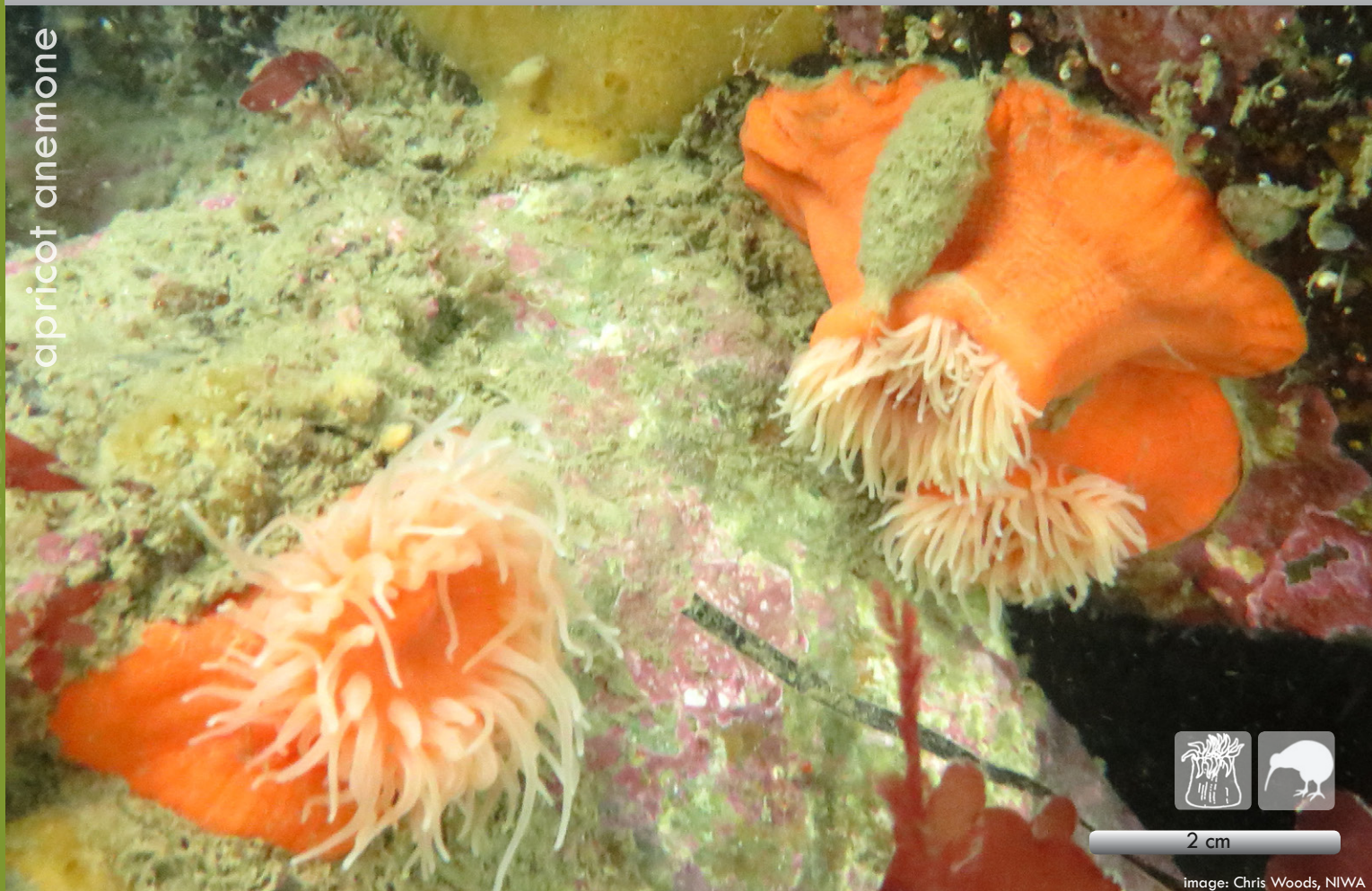
Column is smooth, and banded with thick white and brown stripes, although sometimes completely white, grey or pink. Tentacles are very numerous (up to 192) in several cycles, very thin and white, sometimes pink. Oral disc is variable in colour, usually olive-brown but can be completely white to pale green. The inner edge of the mouth and the stomach are red and can be seen as a rosette in the centre of the disc when the mouth is closed as it is partially everted. White coiling strings of acontia come from tiny pores in the middle of the white stripes on the column if disturbed.

Found on wharf piles, rocks and on mussel shells in the shallow subtidal and intertidal zones. This species is found in Plimmerton and Wellington, and has been reported from the Marlborough Sounds and around the North Island.

It could also be.....

Anthothoe albocincta





2 cm

image: Chris Woods, NIWA

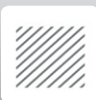
morphology



surface



substrate



habitat

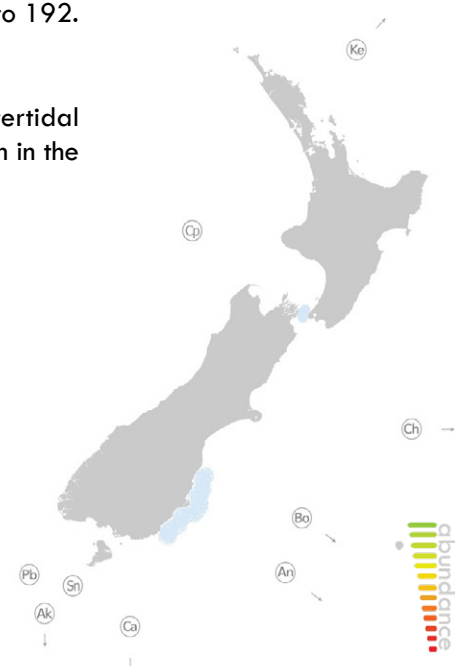


Wide adherent base. Apricot coloured, smooth column. Oral disc orange. Tentacles long, slender, white with inner tentacles longer than the outer and armed with special nematocysts to catch prey. Tentacles are arranged in six cycles numbering up to 192. This species can reproduce asexually by budding from the base.

A New Zealand endemic species. Found attached to rocks and shell hash in low intertidal and shallow subtidal in the Otago region of the South Island and in Wellington in the lower North Island.

It could also be.....

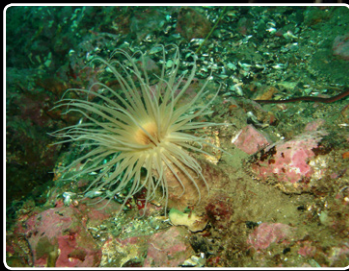
Aulactinia chrysobathys



Cutress C. E. (1961) *Habrosanthus bathamae* n. gen., n. sp. (Actiniaria: Sagartiidae) from New Zealand. Transactions of the Royal Society of New Zealand , 1, 95–101.

Grange K. R., Watson J., Cook S. de C., Barnett T. J., Brook F. J. & Cairns S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). New Zealand Coastal Marine Invertebrates Volume One, p 137–248. Canterbury University Press, Christchurch, New Zealand.

tube anemone



10 cm

main image: Crispin Middleton, NIWA lower inset image: Chris Woods, NIWA upper inset image: Malcolm P. Francis

morphology



surface



substrate



habitat



Cerianthid anemones have no pedal disc, instead they live buried in soft substrate, in a tube, which they secrete. Brown to cream coloured column is hidden by the leathery, corrugated tube, sometimes covered in sand grains or appearing pale cream. The anemone can retract completely into the tube at speed. The tentacles, which are in two cycles, are creamy brown, very numerous, long and slender. If the oral disc is visible it can be pale cream in colour.

The tube anemones of New Zealand are not well described as they are very quick to retract into their tubes, so specimens are rare. There are at least two undescribed species found around New Zealand, in Stewart Island, Fiordland, Marlborough Sounds and the Poor Knights Islands.



jewel anemone, humenga



1 cm

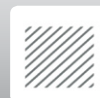
main image: Jennifer Howe, VUCEL bottom inset image: Crispin Middleton, NIWA middle inset image: Serena Cox, NIWA top inset image: Chris Woods, NIWA

morphology

surface

substrate

habitat



Column is smooth, and comes in a stunning variety of colours: pink, brown, fluorescent green, yellow, apricot. Tentacles are in several cycles, short becoming longer towards the margin of the column, and each tentacle has a small ball on the end, called an acrosphere. The tentacles tend to be slightly translucent with the acrosphere more solid and in a contrasting colour to the column. The oral disc is the same colour as the column. This species forms a calcareous basal plate corresponding to the beginnings of a stony coral-like cup. Current genetic research shows that this group is more closely related to stony corals than to anemones. This species reproduces asexually by splitting apart to form several new animals so they occur in close groups together.

Found in deep tidal pools and on shaded vertical walls and under ledges and boulders subtidally on the open coast. The different colour varieties were all thought to be distinct species but are now considered to be one species. This species is found around New Zealand and Australia.





2 cm

image: Crispin Middleton, NIWA

morphology



surface



substrate



habitat

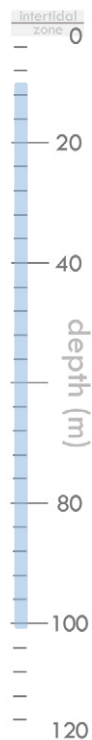


Tight clumps of small anemone-like polyps joined together at the base as a colony. Column tall and skinny, and embedded with sand grains and generally pale translucent pink to white colour. Tentacles very fine, translucent white, in two cycles (up to 24 in each cycle).

Usually found growing on sponges in recreational diving depths in small patches. Some deeper species have become specialised to live on the shells of hermit crabs. Known from Fiordland, but distribution is likely much wider than that around New Zealand and in deeper waters.

It could also be.....

Parazoanthus elongatus



yellow zoanthid anemone



1.5 cm

images: Crispin Middleton, NIWA



Clumps of small anemone-like polyps joined together as a colony with a thin layer of tissue joining them at the base. Column tall and thin, bright yellow to orange coloured. Pale yellow short tentacles in two cycles (23–24 in each cycle). Pale yellow oral disc and mouth.

Commonly covering over the branches of other invertebrates such as sponges or corals. These are found on subtidal reefs throughout New Zealand. This species was first described from Chile, and may be the same species as found in Australia, however zoanthids in this region are not well studied so further taxonomic research including gene sequencing may reveal more species.

It could also be.....
Epizoanthus sp.



Grange K. R., Watson J., Cook S. de C., Barnett T. J., Brook F. J. & Cairns S. D. (2009) Chapter 3 Phylum Cnidaria. In Cook S. de C. (ed.). *New Zealand Coastal Marine Invertebrates Volume One*, p 137–248. Canterbury University Press, Christchurch, New Zealand.

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icons

body plan		anemone	individual anemone with a base that may be growing close to others but never joined
		tube anemone	anemone living inside a leathery tube in the sand, which it can quickly retract into
		zoanthid	multiple individuals living in a colony with a joined base

life history		antipodean	naturally occurring around New Zealand and Australia only		native	naturally occurring around New Zealand, endemic
		Central-Pacific			Indo-Pacific	

morphology		adherent base	base of the anemone firmly attached to the surface it is sitting on		in tube	anemone living inside a leathery tube, which it can quickly retract into
		semi-adherent base	anemone is only loosely attached to the surface it is sitting on and can be easily dislodged or fall off and can re-attach elsewhere		acrosphere	rounded ball on end of a tentacle, often cloudy white, filled with stinging cells

surface		deeply wrinkled	bearing irregularly parallel ribs and grooves along the body wall		smooth	even, hairless, silky, can be slightly undulating
		bumpy	bearing small, rounded bumps or tubercles		warty	bearing large obvious warts or rounded bumps
		sandy	surface feels granular			

icons

substrate		artificial substratum	anything man-made such as mooring blocks, mussel lines, wharf piles
		flotsam	attached to floating debris such as pumice or wood
		living organism	living or growing on the external surface of an animal (epizoic) or seaweed, (epiphytic)
		mud	very fine muddy and silty sediments derived from terrigenous rocks, soils and clays

	rock	hard substratum such as mudstone, sandstone, basalt, compressed carbonates
	rubble	shell, stone, and pebble rubble
	sand	small coarse grains of worn silica, rock, and shell

habitat		algal beds	coralline algae, seagrass or algal beds
		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
		estuarine	estuarine, brackish or mangrove environments
		exposed water	exposed habitats with wind and wave action
		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

	rockpool	indentation in rock filled with water, intertidal
	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
	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
	Sea Grass Beds	meadows of marine plants growing on a sandy substrate
	wall	underwater cliffs and slopes, organisms exposed to wave surge and currents, and subdued illumination

glossary

acontia	stinging threads, strings or filaments expelled by the anemone containing a high concentration of nematocysts so may be used for defense
acrorhagi	outgrowths of the body wall found on the margin of the column in some anemones. May be rounded or even branching. Contains a strong concentration of nematocysts so may be used for extra defense
acrospheres	globular balls at the end of tentacles, found in Corallimorpharia, Filled with nematocysts
asexual	form of reproduction achieved without male and female gametes, occurs when one organism splits into two or more new individuals
calcareous	substance formed from molecules of calcium carbonate
clitellides	small pores on the side of the column from which defensive stinging cells fire
colony	group of individual animals living together and operating as a single unit
column	term used for the main body wall of anemones
fission	reproductive strategy for anemones, splitting the body in half or into numerous parts
margin(al)	top edge of the column just below the root of the tentacles
nematocysts	stinging capsules that can be fired out to sting prey
oral disc	surface at the top of the anemone where the mouth is located and where the tentacles attach
papillae	small rounded lumps
pedal disc	bottom “foot” of anemone that attaches it to the seafloor
polyp	basic body shape of an anemone is a polyp, that is a cylindrical column topped with tentacles opening to a central body cavity
tentacles	used to capture prey, by firing out nematocysts like a mini harpoon
verrucae	warts on the column of an anemone, can be slightly sticky with adherent sand grains or shell hash
viviparous	bearing live young that are fully formed when they emerge from the parent

acknowledgements

The image of the stinging wandering anemone, *Alicia* sp., on the seafloor was taken by ROV KIEL 6000, GEOMAR and Dr. Peter Schupp, University of Oldenburg, onboard the RV *Sonne* in 2017 during a voyage around New Zealand for the project PoriBacNewZ led by ICBM, University of Oldenburg. Permission to use the ROV image is kindly provided by GEOMAR.

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image credits

We would like to thank the following photographers for their amazing images of the anemones in this guide, without which we could not have produced this guide (in alphabetical order): Malcolm Francis, Jennifer Howe, Matthew Jones, Tessa Mills (New Zealand Marine Studies Centre), Crispin Middleton, Peter Schupp and Chris Woods

further reading

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