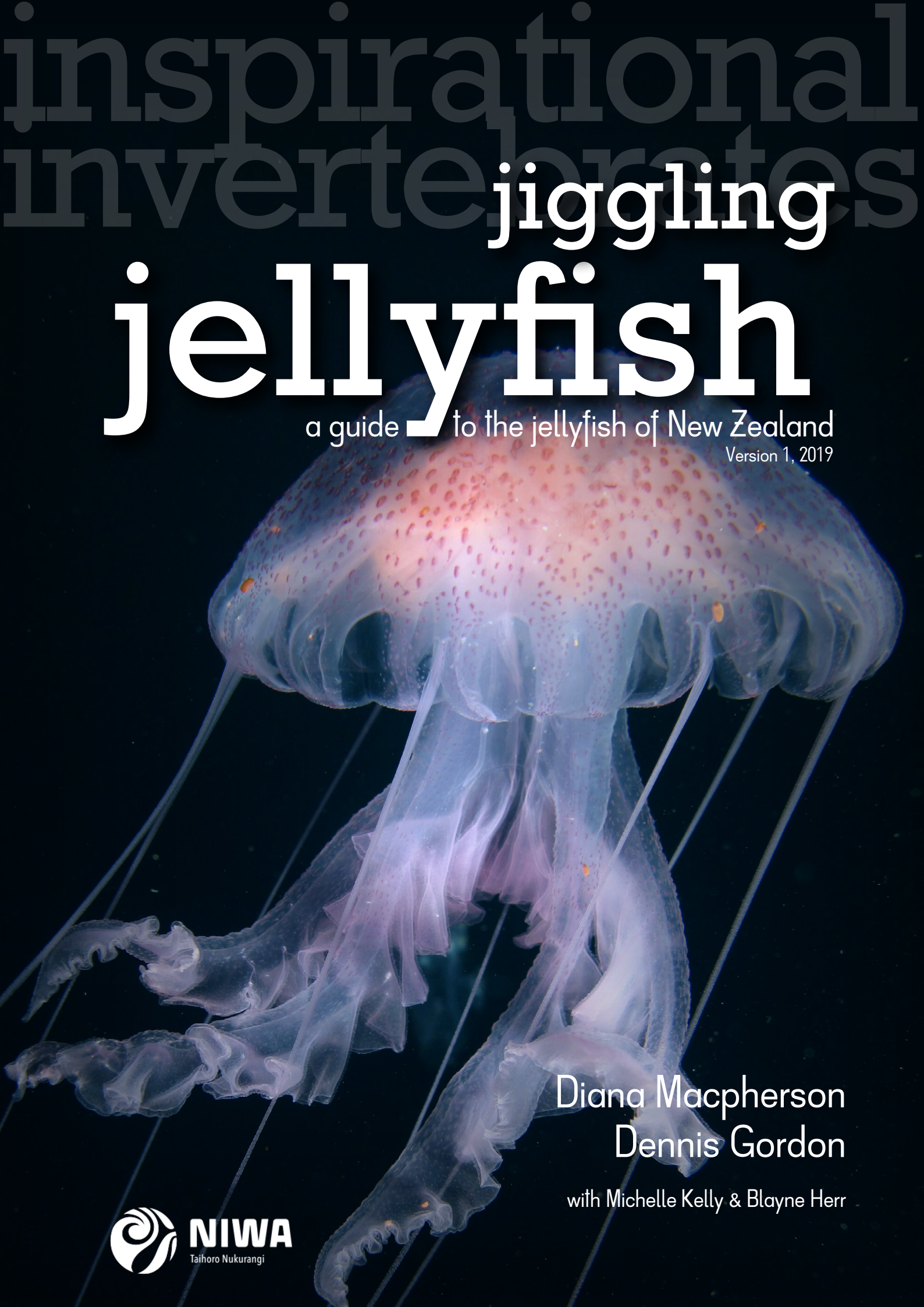
inspirational invertebrates

jiggling jellyfish

a guide to the jellyfish of New Zealand

Version 1, 2019



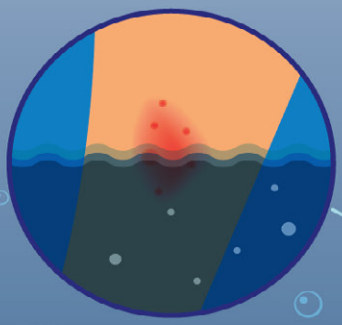
Diana Macpherson
Dennis Gordon

with Michelle Kelly & Blayne Herr

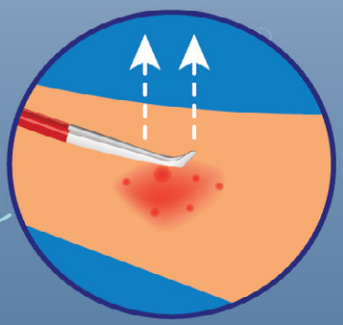
NIWA
Taihoro Nukurangi

How to treat a JELLYFISH STING

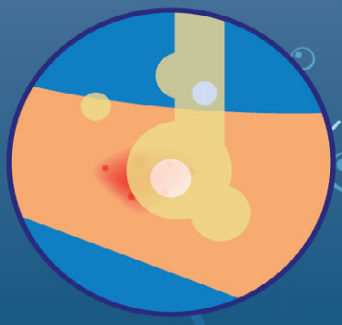
1. Get the person out of the water and reassure them



2. Clean the wound; rinse skin with sea water or vinegar to deactivate stinging cells



3. Gently remove the stingers with tweezers



4. Apply (bearable) hot water or ice in a bag

5. Treat discomfort; use mild hydrocortisone cream to help relieve itching and swelling

CALL 111... if

the person displays signs of a severe allergic reaction
the sting is on the face or eyes
the sting covers more than half an arm or leg

about this guide

Jellyfish and other gelatinous planktonic creatures are a stunning and diverse group of marine invertebrates found all over the world's oceans, from the surface coastal waters of every maritime country to the deep sea. The 'true jellyfish' (Class Scyphozoa) are well known, not only because some species sting, but also because of their rhythmic and graceful pulsating movements in the water and their beautiful shapes and colours. We hope you will enjoy reading and using this guide to help identify "Jiggling Jellies" in the wild.

JIGGLING JELLYFISH is a fully illustrated working e-guide to the most commonly encountered jellyfish and other jelly-like species 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 of a series of e-guides on New Zealand marine invertebrates that NIWA's Coasts and Oceans group has recently developed.

The e-guide starts with a simple introduction to living jellies, 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 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.

We have added a section on how to treat a jellyfish sting, and have included a section on each species page as to the "sting status" for each species, with special instructions on how to treat it if you have an unlucky encounter.

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.

Diana Macpherson is a marine biology technician and assistant collection manager at the NIWA Invertebrate Collection, with interest in jellyfish and hydroid parataxonomy, and collection care.

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

For any ID advice on jellyfish you find,
please email your photos to diana.macpherson@niwa.co.nz or dennis.gordon@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

taxonomic authority
person(s) who first described this species

common name of species

species classification
see species index for arrangement

depth range
common depth range around New Zealand

information
details on external and internal characters and habitat

key taxonomic references

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

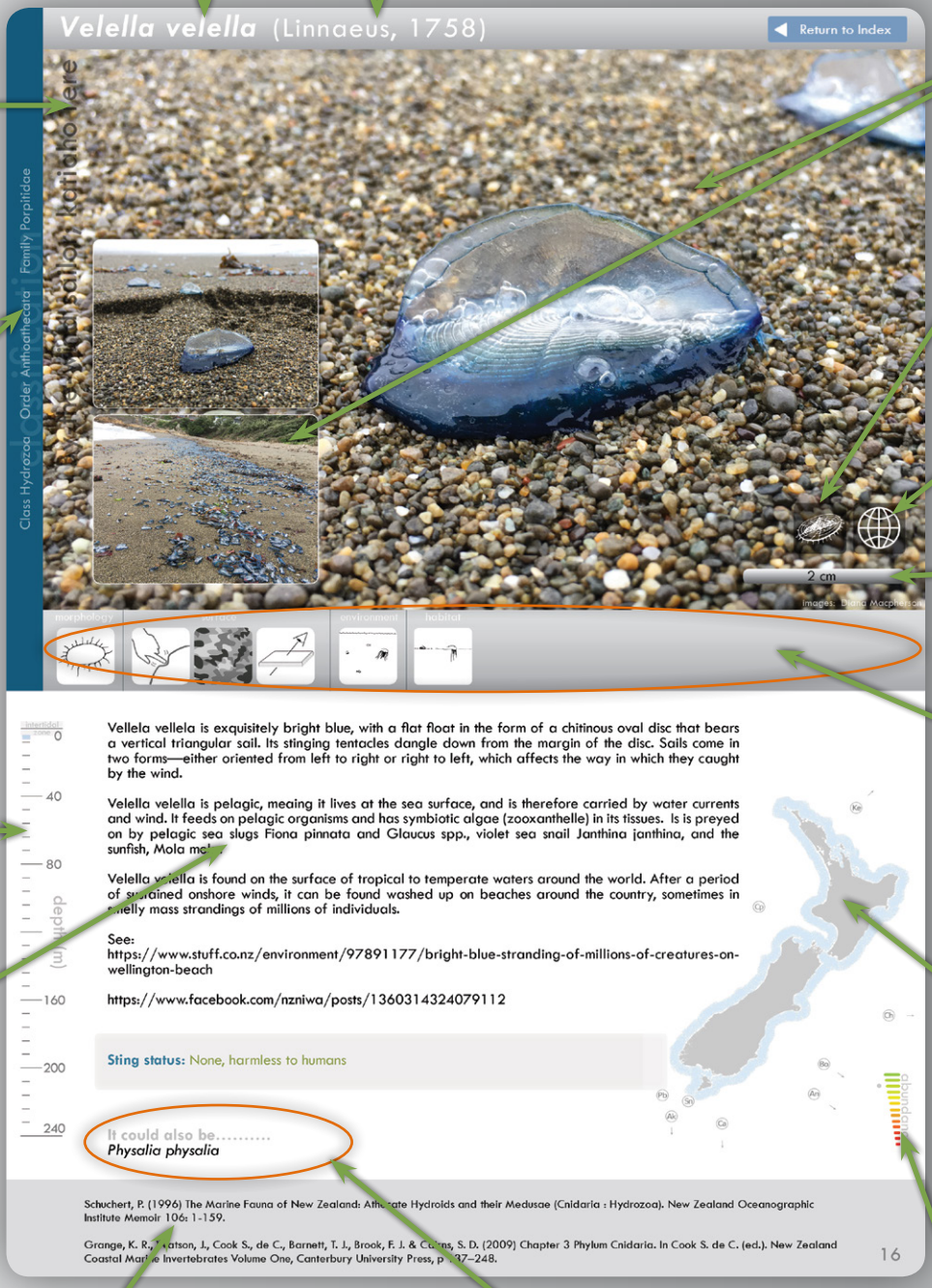
quick identification (ID) icons
highlighting shape, surface detail, habitat, and environment

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

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



about jellyfish

Gelatinous animal plankton, for which we use the general term 'jellies' or 'jellyfish', encompasses a diverse range of creatures in the open ocean (and some freshwater lakes), including jellyfish, comb jellies and salps. The most familiar are jellyfish, which are commonly found in any nearshore environment throughout the world. They can be seen washed ashore on beaches by strong onshore winds and storm surge, drifting in coastal currents, or just bobbing along near the sea surface on a calm day.

Blooms of jellies commonly occur in the summer when the water temperature is at its warmest and when there is plenty of food available. In spring, increasing daylength, light intensity and temperature lead to blooms of microscopic plant plankton (phytoplankton), which attracts larger animal plankton (zooplankton) that feed on it, in turn providing food for zooplankton predators like jellies. Some jellies at or near the sea surface can end up being completely controlled by prevailing winds and currents that can gather them into a dense group and strand them on beaches. Being often abundant, jellies play an important role in marine food webs as predators, or prey, or as decomposing scraps of food for suspension feeders in the water or on the seafloor, where bacteria finally process the products of decay.

jellyfish stings

Not all jellyfishes sting, and of those that do, some (notably the tropical box jellies) are more dangerous than others.

Stinging is caused by the simultaneous discharge of thousands of microscopic stinging capsules called nematocysts, located on the surface of the tentacles and, in some species, the body as well. Upon contact, the nematocysts discharge their mini-harpoons, loaded with venom, into the victim's skin. Most stings in New Zealand waters are not serious and over-treatment should be avoided.

Stings can be treated with vigorous flushing with seawater to remove stinging cells. Vinegar is also recommended as this weak acid instantly stops any stinging cells that have not yet discharged. If you vigorously flush the surface with seawater or vinegar, the stinging nematocysts will not spread to other areas when you attempt to remove the tentacles. The tentacles can then be plucked away carefully with tweezers. Scraping them off or rubbing with sand triggers any active stingers to release more venom. The application of heat helps to relieve the pain and permanently deactivates the venom. Dousing the stung area in urine is not a reliable way to treat stings because the pH and the chemical makeup of the urine is not known. For some people stings may result in an allergic reaction.

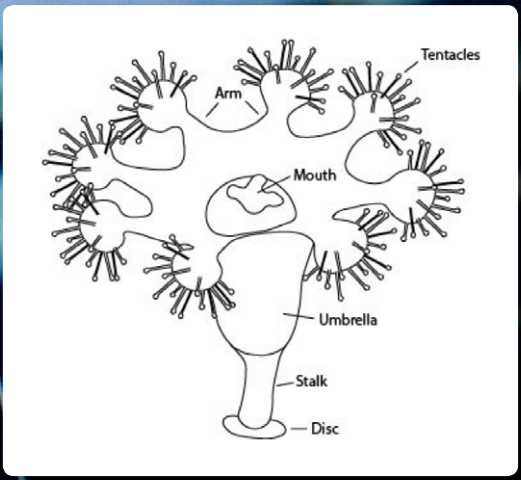
The term jellyfish is used broadly and groups together a wide and fascinating range of gelatinous creatures. The next few pages will describe and differentiate the different types of jellies.

Phylum Cnidaria

Most jellyfish belong to the phylum Cnidaria (pronounced nye-derry-a). The name is derived from the Greek word for nettle, *cnida*. Cnidarians have one thing in common – stinging cells, known as nematocysts, used for defence and capturing prey. Cnidarian jellyfish are technically called medusae and are at the adult stage of their life-cycle. They are a very diverse group and are spread across four taxonomic classes:

Class Staurozoa (stalked jellyfish)

These are the most primitive jellyfish, differing from all others in having a stalk that attaches them to the sea floor. Their life-cycle does not include a pelagic free-swimming stage, and they are small cryptic animals that grow only to a few centimetres tall. In New Zealand waters, they are most commonly encountered on brown seaweeds, where they are well camouflaged, but one whitish form is found on rock walls at the Poor Knights Islands and in the southern fiords. Individuals resemble inside-out umbrellas, with an adhesive disc at the base of the stalk. They usually have eight arms which each have a cluster of short tentacles at their tips. The mouth is located at the apex of the umbrella. There are only about 50 species worldwide. No stalked jellyfish are included in this version of the guide.



Class Cubozoa (box jellyfish)

These are a small group of jellies separated into two orders – Carybdeida and Chirodropida. Box jellyfish are characterised by their cube, or box-shaped bell, with single tentacles or clusters of long, thin tentacles found attached to a pedalium (a muscular thickening) on each corner of the bell. Members of Carybdeida only have one tentacle per pedalium, but may have more than one pedalium in each corner of the bell. In contrast, members of Chirodropida have more than one tentacle on each pedalium, but only one pedalium on each corner. Remarkably, box jellies contain sensory organs called rhopalia which contain a number of light-sensitive cells in functional eyes, plus a balance organ (a statocyst) to help tell the animal which way is up.

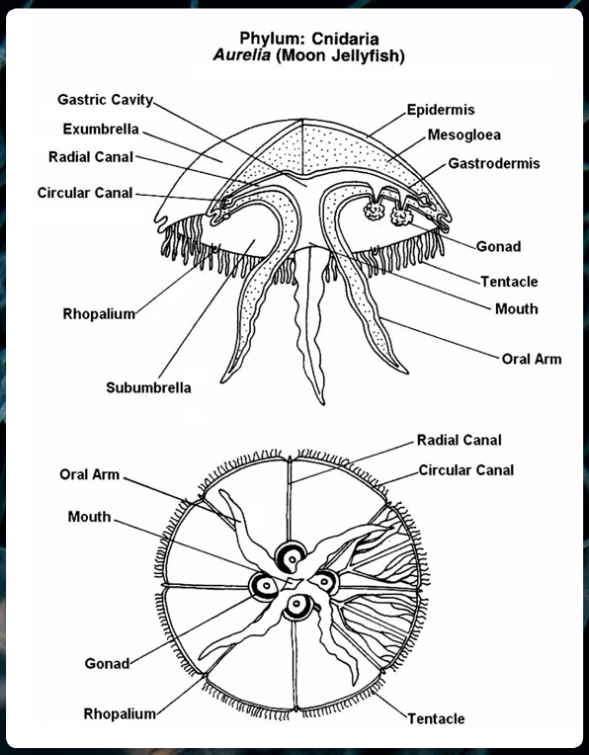
Box jelly tentacles are packed with nematocysts, and their venom is capable of causing pain and a rash. One very well-known chirodropid box jelly in Australia, *Chironex fleckeri*, has a lethal sting. It is considered to be one of the most dangerous animals in the world. Fortunately, no chirodropid box jellies are found in New Zealand, and in fact there is only one tiny species known from New Zealand waters. There are only 51 described species worldwide, none of which are featured in this version of the guide.

Class Scyphozoa (true jellyfish)

References to 'jellyfish' most often apply to this group because they are large, colourful, common and have the traditional round jellyfish look and shape. Scyphozoan jellyfish have what is called tetraradial symmetrical – although circular, the body has four quadrants. They are characterised by a large body (bell), which may or may not have a warty appearance, and gonads and a mouth located within the bell area. The bell margin is scalloped into semi-circles called lappets, from which the tentacles emanate. Nematocysts are found on the marginal tentacles and sometimes on the bell. The mouth contains four corners with usually four oral arms dangling below it.

There are three main types of scyphozoan jellyfish - **coronate** (order Coronatae), **semaeostome** (order Semaeostomeae) and **rhizostome** (order Rhizostomeae) jellyfish.

Coronate jellyfish are characterised by having a circular groove around the middle of the bell, creating two distinct sections. Short tentacles can be found hanging from the bell margin between the lappets. Coronate jellies are found mostly in oceanic waters in the deep-sea, so are not mentioned in this guide.



Semaeostome jellies (Order Semaeostomeae) are characterised by long hollow tentacles located on or near the bell margin, which is divided into lappets (see image of *Pelagia noctiluca* on page 14). The bell does not have a circular groove and it is large and dome-shaped. The oral arms are also large and frilly, around the central mouth.

Rhizostome jellies have one main characteristic difference from the above groups – they do not have tentacles on the bell margin. Also, the four corners of the mouth are elongated and divide into eight oral arms, called mouth-arms, with several mouth openings on each mouth-arm. Some tropical species have symbiotic algae; these 'upside-down' jellyfish live in shallow water with the tentacles facing upwards so the algae can photosynthesise.

There are only about 200 named species of 'true' (scyphozoan) jellyfish worldwide, but the real number of species could be twice that. There is much variation in appearance, and gene sequencing could be useful in determining the taxonomic importance of this variability, but there are surprisingly very few jellyfish specialists around the world.

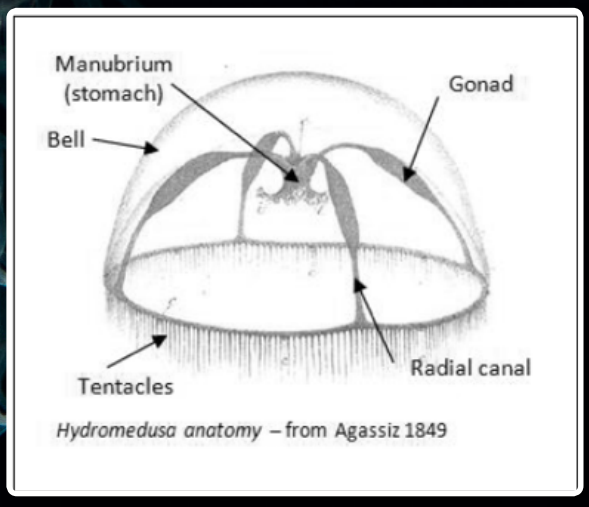
Class Hydrozoa hydroids, (hydromedusae)

Hydrozoa, including hydroids and hydromedusae, is the most diverse group of cnidarian animals. The number of known species in the world currently is about 3,800. Hydroids are divided into two subclasses – Hydroidolina and Trachylinae.

Hydroidoline hydroids are further split into three orders – Siphonophorae (siphonophores, in this guide), Anthoathecata (athecate hydroids and medusae, in this guide) and Leptothecata (thecate hydroids and medusae).

Trachyline hydroids are split between a further four orders - Limnomedusae (freshwater hydromedusae), Actinulida, Narcomedusae and Trachymedusae.

Hydrozoans generally have two main life-cycle stages – the polyp and the medusa. The polyp stage is normally referred to as a hydroid and may be solitary or colonial.



Taken from Gershwin et al. 2014

The medusa stage (called a hydromedusa) is the sexual phase. It resembles a small jellyfish (from about a millimetre to about 20 cm diameter). Its eggs and sperm are released into seawater and the fertilised egg develops into a planula larva. This typically settles on the seafloor and grows into a single feeding polyp or a colony of many tiny polyps. The polyp stage buds off tiny medusae to complete the life-cycle. Depending on the order to which a hydrozoan species belongs, one of these stages may be more dominant than the other, or one of them will be absent altogether. Some anthoathecate families comprise calcified colonies that superficially resemble small stony corals. The best known of these families in New Zealand is Stylasteridae.

Phylum Ctenophora

Comb jellies, or ctenophores (pronounced "teen-o-four") are mostly planktonic. They are harmless to humans because, unlike cnidarian jellyfish, they lack stinging cells. They are, however, voracious predators of other plankton. Most (in class Tentaculata) catch their prey with sticky cells called colloblasts found on their tentacles which helps to entangle small animals like crustaceans, fish and other zooplankton, while others (class Nuda) lack tentacles, having instead a specialised mouth that allows them to bite jelly-like prey.

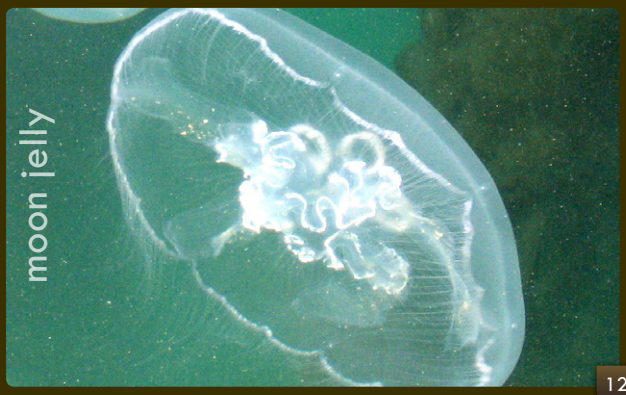
There are only about 100 – 150 species of comb jellies worldwide, but their lifestyle and body shapes are very diverse, from round and oval to long wide ribbons. One group (order Platyctenida) is benthic and characterised by a highly flattened body form that resembles some flatworms. All comb jellies except Platyctenida have radial rows of ciliary combs – plates of cilia that move back and forth in a sweeping motion to propel the animal through the water. This movement produces a beautiful shimmering rainbow effect as they diffract light. None of these beauties grace this guide yet.

Phylum Chordata

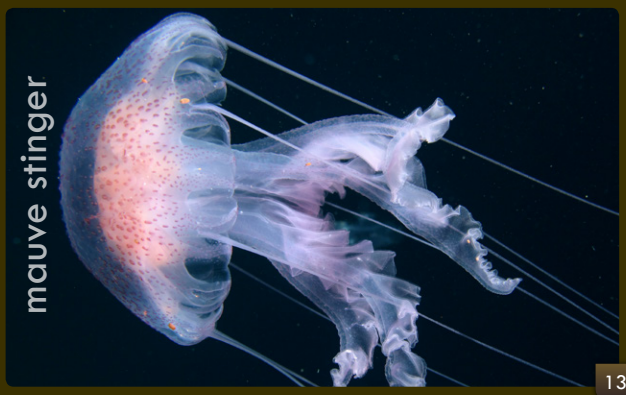
Salps are planktonic relatives of sea squirts. In summer months, salps wash ashore on many New Zealand beaches, and beachgoers wonder what they are and if they sting. They are completely harmless. Although salps are gelatinous, they are chordates – having a dorsal nerve cord like a vertebrate. The barrel-like salp body is commonly about a centimetre to several centimetres in length and wholly transparent except for the stomach, which appears as a small brown blob inside the body. Salps are open at both ends and move by jet propulsion using muscle contraction. Seawater is drawn in one end and exits at the other, with food particles being trapped by a filter as the water passes through the body. Salps have a complex life-cycle and are found together in long chains or as isolated individuals depending on the phase of growth. Salps can occur in such numbers as to comprise a very important part of marine food webs.

Fire salps (pyrosomes) are a related group, but always colonial. The colony is hollow like a sock, with thousands of connected individuals forming the sock, which can grow so massively in size as to allow a diver to fit inside. Pyrosomes get their name from their ability to glow in the dark.

colour index



Aurelia sp.



Pelagia noctiluca

Cyanea rosea

Desmonema gaudichaudi

Turritopsis rubra

Velella velella

Physalia physalis

species index

PHYLUM Cnidaria

CLASS Scyphozoa

ORDER Semaeostomeae

CLASS Hydrozoa

ORDER Siphonophorae

ORDER Anthoathecata

Cyanea rosea Quoy & Gaimard, 1824

Return to Index

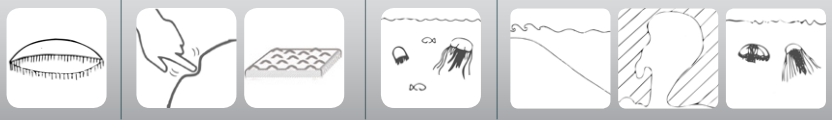
Class Scyphozoa Order Semaeostomeae Family Cyaneidae

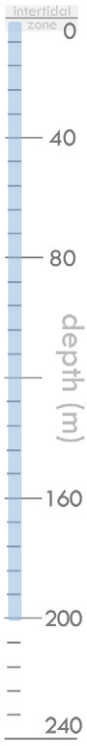
lion's mane jellyfish

12 cm

main and lower inset image: Crispin Middleton upper inset image: Rob Stewart

morphology | surface | environment | habitat





This large jellyfish is typically translucent with a bright brownish-pink apex, surrounded by a creamy to whitish margin. The frilly oral tentacles are peachy brown; along the scalloped margin are hundreds of translucent to whitish, short, curly tentacles. The four orals arms form thick, short, extremely dense, frilly structures.

Cyanea rosea is found around the entire coast of New Zealand, as far south as Campbell Island, and also along the eastern Australian coastline. It is commonly encountered in coastal areas, bays and harbours, as well as in the open ocean. Individuals occasionally swarm in large numbers in warm summer months in bays and harbours when there is an abundance of plankton to feed on. The genus *Cyanea* is found all over the world in polar, subpolar and temperate seas, and less commonly in tropical seas.

Sting status: Stinger!

Delivers a painful sting, even after being stranded onshore. May result in an allergic reaction.

1. Douse the area vigorously with seawater or vinegar
2. Pluck off the tentacles with tweezers.
3. Apply heat

It could also be.....
Desmonema gaudichaudi

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, Canterbury University Press, p 137–248.

Gershwin, L.-A. (2016) Jellyfish: a natural history. Ivy Press, 1–224 pp.

Desmonema gaudichaudi (Lesson, 1832)

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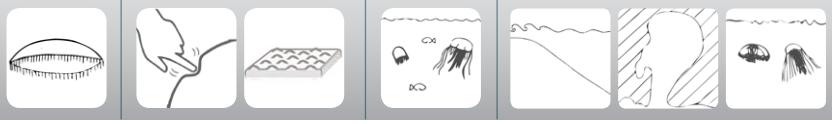
Class Scyphozoa Order Semaeostomeae Family Cyaneidae

spotted or speckled jelly

12 cm

images: Serena Cox

morphology | surface | environment | habitat



Desmonema gaudichaudi is a relative of the lion's mane jellyfish – they belong to the same family – and like *Cyanea rosea* can get quite large. It has a smooth bell which normally has black spots on the surface, but this is a variable character. The colour of the bell is also variable – either uniform white, white with dark patches or dark brown or purple. The margin of the bell is divided into 24 lappets and the long straight tentacles hang from inside the bell rather than the margin. There are four curtains of oral arms with highly folded lips.

Desmonema gaudichaudi lives in surface oceanic waters but can occur in shallow coastal bays and harbours. Although not as abundant as the lion's mane jellyfish, it is widespread, having been recorded in waters around Leigh, the Firth of Thames, Auckland, Wellington, Bay of Plenty and Portobello and is a known cold-water species from the Southern Ocean.

Sting status: Stinger!

Delivers a painful sting, even after being stranded onshore. May result in an allergic reaction.

1. Douse the area vigorously with seawater or vinegar
2. Pluck off the tentacles with tweezers.
3. Apply heat

It could also be.....
Cyanea rosea

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, Canterbury University Press, p 137–248.

Aurelia sp. Lamarck, 1816

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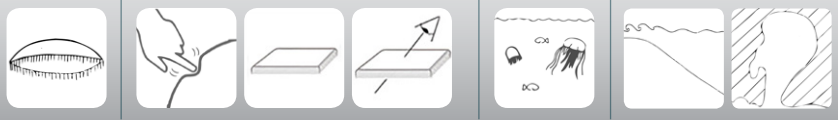
Class Scyphozoa Order Semaeostomeae Family Ulmaridae

moon jelly

12 cm

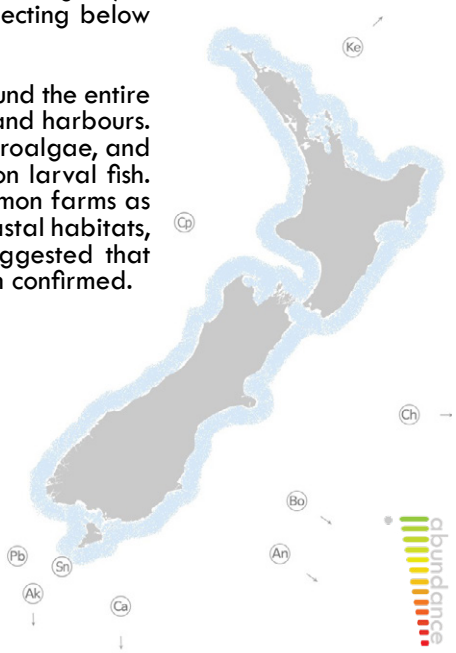
images: Chris Woods

morphology | surface | environment | habitat



Aurelia sp. is the most popular and beautiful of the jellyfishes to watch in aquariums. It has a discus-like, ghostly whitish-transparent bell with a scalloped margin that bears hundreds of short, fine tentacles. There are four conspicuous horseshoe-shaped internal rings inside the upper part of the bell, usually mauve in colour, which are its gonads (reproductive organs). It has four frilly oral arms that drape around the mouth beneath the gonads, projecting below the margin of the bell.

Aurelia sp. is the commonest true jellyfish species in New Zealand and is found around the entire coastline. It is most commonly encountered in shallow coastal water, usually bays and harbours. Adult *Aurelia* feed on tiny phytoplankton organisms such as diatoms and other microalgae, and zooplankton such as juvenile crustaceans and worms. Juvenile *Aurelia* will feed on larval fish. Occasionally they bloom in large swarms, which poses potential problems for salmon farms as they can cause mass fish kills. The genus *Aurelia* is found all over the world in all coastal habitats, however it is unclear which species is present in New Zealand. It has been suggested that *Aurelia aurita* and/or *Aurelia labiata* is the local species, but this has not yet been confirmed.



Sting status: little or no sting (harmless)

May feel warm on contact with skin

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, Canterbury University Press, p 137–248.

Gershwin, L.-A. (2016) Jellyfish: a natural history. Ivy Press, 1–224 pp.

Pelagia noctiluca (Forsskål, 1775)

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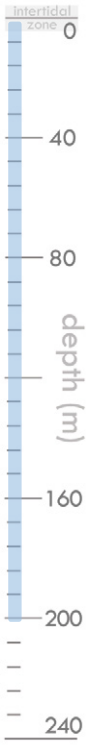
Class Scyphozoa Order Semaeostomeae Family Pelagiidae

mauve stinger; purple people eater

12 cm

main image: Crispin Middleton inset image: Malcolm Francis

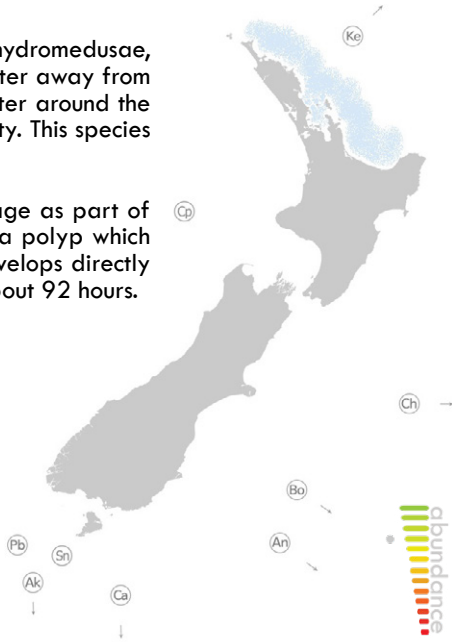
morphology surface environment habitat



Pelagia noctiluca has a hemispherical to flattened bell of thick jelly covered in colorful nematocyst warts. The margin of the bell is divided into 16 rectangular-shaped lappets with rounded corners, and there are eight long marginal tentacles alternating with eight dark marginal statocysts. The colour of the bell is variable, most often brownish-yellow or pinkish-purple. The tentacles and gonads are darker in colour than the bell. There are four long, pointed, very frilly oral arms.

Pelagia noctiluca is a voracious predator that will eat almost anything. Its prey include hydromedusae, ctenophores, small crustaceans and other plankton. It is usually found in oceanic deep water away from the coast but can swarm in large numbers and drift to the shore in late summer and winter around the northern waters of New Zealand, specifically Northland's east coast and the Bay of Plenty. This species is widely distributed in tropical and subtropical waters around the world.

Interestingly, unlike most scyphozoan jellyfish, *Pelagia noctiluca* doesn't have a polyp stage as part of its life-cycle. Usually the planula larva settles onto the seafloor before developing into a polyp which would then produce small jellyfish medusae by strobilation. Instead, *Pelagia noctiluca* develops directly from planula larva into a larval medusa, or ephyra, and the whole process takes only about 92 hours.



Sting status: Stinger!

Delivers a mild to severe sting
May result in an allergic reaction.

1. Douse the area vigorously with seawater or vinegar
2. Pluck off the tentacles with tweezers.
3. Apply heat

It could also be.....
Desmonema gaudichaudi

Gershwin, L.-A. (2016) Jellyfish: a natural history. Ivy Press, 1–224 pp.

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, Canterbury University Press, p 137–248.

Physalia physalis (Linnaeus, 1758)

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Class Hydrozoa Order Siphonophorae Family Physaliidae

Portuguese man-o'-war; bluebottle

12 cm

main image: Crispin Middleton inset image: Malcolm Francis

morphology surface environment habitat

intertidal zone 0 — 40 — 80 — depth (m) — 160 — 200 — 240

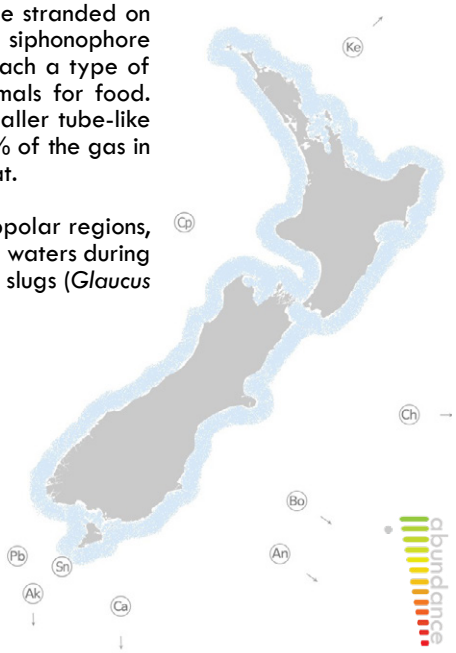
Blue bottles appear as clear, bluish gas-filled floats floating on the water surface, with many long bright-blue tentacles trailing behind the float under water. The float is smooth like a balloon and has a crest, catching the wind and allowing the blue bottle to be transported across the sea surface. Depending on whether the mass of tentacles is attached beneath the float more to the right or the left affects the direction of drift. Individuals with the correct alignment for an onshore wind then become stranded on land where they will likely die, but are still capable of producing stings. *Physalia* is a siphonophore so each individual is actually a colony of many smaller individuals. The tentacles are each a type of individual, called a dactylozooid, that has a defensive role and also stings prey animals for food. Tentacles can stretch out to 10 m or more in length. Between the tentacle bases are smaller tube-like feeding and reproductive polyps (respectively gastrozooids and gonozooids). About 14% of the gas in the float is carbon monoxide; other gases are atmospheric gases that diffuse into the float.

Blue bottles live at the ocean surface and are found worldwide except for polar and subpolar regions, but are mainly tropical/subtropical and warm-temperate. They are found in New Zealand waters during warm summer months and often wash up on beaches. They are preyed on by pelagic sea slugs (*Glaucus* spp.) and violet snails (*Janthina* spp.).

Sting status: Stinger!

Delivers a painful sting, even after being stranded onshore. May result in an allergic reaction.

1. Douse the area vigorously with seawater or vinegar
2. Pluck off the tentacles with tweezers.
3. Apply heat



It could also be.....
Velella velella

Gershwin, L.-A. (2016) Jellyfish: a natural history. Ivy Press, 1–224 pp.

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, Canterbury University Press, p 137–248.

Turritopsis rubra (Farquhar, 1895)

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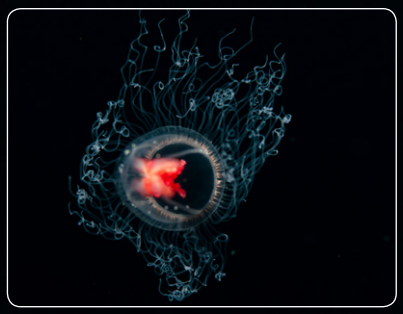
crimson jelly

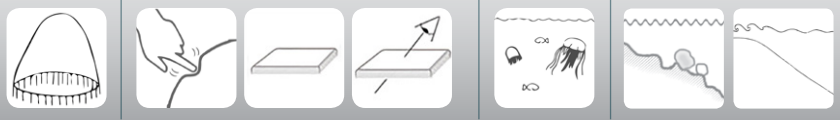
classification: Class Hydrozoa | Order Anthoathecata | Family Oceaniidae



1 cm

images: Crispin Middleton

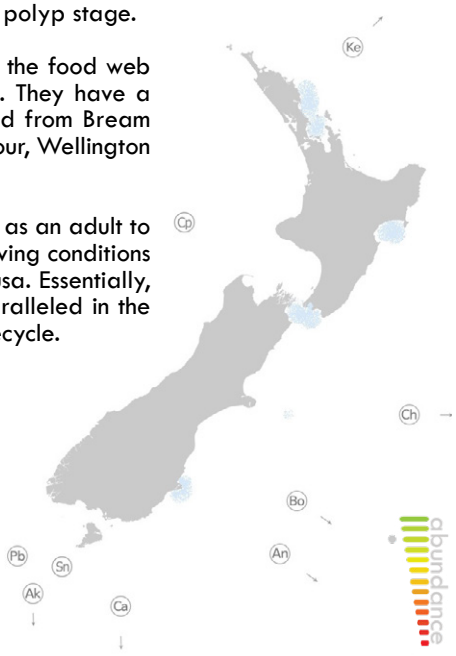
morphology | surface | environment | habitat



These jellyfish are quite small (adults are only about 1–2 cm diameter), with a bell-shaped umbrella that is taller than wide, with a fringe of up to 120 closely spaced long thin tentacles around the margin of the umbrella. The tentacles can either be coiled up close to the umbrella, or extended out in strings to catch food. The umbrella is transparent, allowing the bright-red stomach and gonads to be seen. It is an energetic swimmer. Individuals are released from the medusa bud of a tiny colonial polyp stage.

They can swarm around the coast in summer in shallow, coastal water. They contribute to the food web as part of the coastal plankton, capturing small planktonic animals with their tentacles. They have a South Pacific distribution and are found all around New Zealand, having been recorded from Bream Bay, Hauraki Gulf, Goat Island Marine Reserve, Whangateau Harbour, Waitemata Harbour, Wellington Harbour, Cook Strait, Hawke's Bay and Otago Harbour.

A close relative, *Turritopsis dohrnii*, is known as the immortal jellyfish because of its ability as an adult to reverse its lifecycle by turning back into a juvenile (polyp stage) instead of dying when living conditions get tough. It then waits for conditions to improve before turning back into an adult medusa. Essentially, *T. dorhnii* can escape death and potentially achieve immortality, and this ability is unparalleled in the animal kingdom. It is currently not known whether *Turritopsis rubra* can also reverse its lifecycle.



Sting status: Sting not noticible to humans

Schuchert, P. (1996) The Marine Fauna of New Zealand: Athecate Hydroids and their Medusae (Cnidaria : Hydrozoa). New Zealand Oceanographic Institute Memoir 106: 1–159.

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, Canterbury University Press, p 137–248.

Velella velella (Linnaeus, 1758)

Return to Index

Class Hydrozoa Order Anthoathecata Family Porpitidae

by-the-wind sailor; katiaho rere

2 cm

images: Diana Macpherson

morphology | surface | environment | habitat

Velella velella is exquisitely bright blue, with a flat float in the form of a chitinous oval disc that bears a vertical triangular sail. Its stinging tentacles dangle down from the margin of the disc. Sails come in two forms—either oriented from left to right or right to left, which affects the way that they catch the wind.

Velella velella is pelagic, meaing it lives at the sea surface, and is therefore carried by water currents and wind. It feeds on pelagic organisms and has symbiotic algae (zooxanthelle) in its tissues. Is is preyed on by pelagic sea slugs *Fiona pinnata* and *Glaucus* spp., violet sea snail *Janthina janthina*, and the sunfish, *Mola mola*.

Velella velella is found on the surface of tropical to temperate waters around the world. After a period of sustained onshore winds, it can be found washed up on beaches around the country, sometimes in smelly mass strandings of millions of individuals.

See:
https://www.stuff.co.nz/environment/97891177/bright-blue-stranding-of-millions-of-creatures-on-wellington-beach

https://www.facebook.com/nzniwa/posts/1360314324079112

Sting status: No sting

It could also be.....
Physalia physalis

Schuchert, P. (1996) The Marine Fauna of New Zealand: Athecate Hydroids and their Medusae (Cnidaria : Hydrozoa). New Zealand Oceanographic Institute Memoir 106: 1–159.

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, Canterbury University Press, p 137–248.

icons

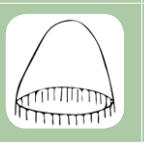
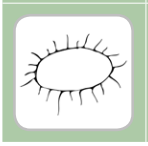
body plan

	true jellyfish	jellyfish belonging to Class Scyphozoa (true jellyfish) that have long trailing tentacles and long, big, frilly oral arms
	true jellyfish	jellyfish belonging to Class Scyphozoa (true jellyfish) that have short tentacles and short oral arms
	hydroid medusa (bell)	hydroid jellyfish belonging to Class Hydrozoa. They generally have a transparent bell-shaped umbrella through which the gonads and mouth area can be seen, and tentacles arising from the umbrella margin
	hydroid medusa (sail and float)	flattened oval float and vertical sail as in *Velella velella*
	siphonophore	balloon-shaped float and long trailing tentacles as in *Physalia physalis*

environment

	water column and/or pelagic	lives in the open ocean throughout the water column

morphology

	balloon float	balloon-shaped float seen floating on the sea surface, *Physalia physalis*
	bell	umbrella of a jellyfish or a hydromedusa shaped like a bell, the umbrella height is taller than the width
	disc or saucer	umbrella of a jellyfish or a hydromedusa shaped like a flattened disc or saucer, the umbrella is wider than it is tall
	oval float	flattened oval-shaped float seen floating on the sea surface, *Velella velella*

surface

	chitinous	tough to the touch, horny texture, *Velella velella*
	colour-based camouflage	organism is camouflaged at sea because of its bright blue appearance, *Velella velella* and *Physalia physalis*

habitat

	bays and harbours	bays and harbours, wind and water currents transport organisms into them where they can remain stuck or stranded
	pelagic and/or oceanic	open ocean
	sea surface pleustonic	found floating at the sea surface
	shallow coastal waters	shallow waters around the coastline near land

glossary

bell	see *umbrella*
cilia	tiny hair-like structures used for propulsion or feeding
colloblasts	adhesive cells unique to phylum Ctenophora, containing no venom
dactylozooid	a type of zooid found in colony-forming organisms used for the capture of prey or defence
diatom	a major group of microscopic unicellular algae that are a part of the phytoplankton
ephyra	or larval medusa, the free-swimming larval medusa stage, a mini jellyfish just before it becomes an adult medusa
gastrozooid	a type of polyp found in colony-forming organisms used for feeding
gonad	reproductive organ
gonozooid	a type of polyp found in colony-forming organisms used for reproduction
lappets	flap-like extension of the bell margin
lips	lobe-like extension of the edge of the manubrium surrounding the mouth
medusa	free floating, adult, sexual, pelagic stage in the lifecycle; typically has a disk-shaped body (bell) with oral arms and tentacles
medusa budding	asexual budding of medusae which give rise to a new juvenile medusa individual; in hydroids, budding occurs on the colonial polyp
manubrium	a projection from the underside of the bell which contains the stomach cavity, distally bearing the mouth and proximally leading to the radial canals
nematocysts	stinging organ unique to the phylum Cnidaria; typically, a capsule containing stinging cells which penetrate tissue of prey to paralyse it, or used as defence
oral arm	a structure that hangs from the mouth on the underside of the bell, usually four in number and can be described as frilly and is generally thicker than a tentacle; contains stinging cells and used in food capture
pedalium (pedalia)	a fleshy muscular pad, one or more tentacles are attached to each pedalium
pelagic	open body of water; open sea
phytoplankton	tiny floating marine plants that carry out photosynthesis
plankton	floating organisms found in the pelagic zone that are at the mercy of water movements, composed of microscopic plants and animals, including the larvae or larger animals such as fish; see *phytoplankton* and *zooplankton*
planula larva	the free-swimming first larval stage of many types of jellyfish, before it settles and becomes a polyp
polyp	In scyphozoans, the budlike part of the lifecycle after the planula stage that attaches to a hard substrate; in hydrozoans the basic individual of hydroids, may be isolated or forming colonies, may be of different types and perform different functions, but generally has tentacles and a mouth
rhopalium (rhopalia)	a sense organ used for visual or light-sensing capabilities, and controls the pulsations of the bell and balance
statocyst	a sense organ used to detect movement, orientation and equilibrium
strobilation	a form of cloning in scyphozoan jellyfish in which a polyp elongates and becomes segmented and each segment develops into an ephyra
symbiosis (symbiotic)	a relationship in which two different species live together
umbrella	the main body of the medusa, or jellyfish, not including the manubrium or tentacles, generally resembles the shape of a bell or an umbrella; the edge of the umbrella is called the margin
zooid	an individual member of a colony forming organism such as a siphonophore, hydroid, salp or pyrosome; each zooid has a particular function within the colony, e.g. zooids responsible for reproduction (gonozooid and phorozooids) and feeding (trophozooids)
zooplankton	tiny floating marine animals
zooxanthellae	single-celled symbiotic algae called a dinoflagellate

acknowledgements

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Permission to use the images from the following NIWA New Zealand photographers is gratefully acknowledged: Crispin Middleton, NIWA Bream Bay; Chris Woods, NIWA Christchurch; Rob Stewart, Serena Cox, Malcolm Francis, Jennifer Beaumont, Kate Neill, Diana Macpherson, NIWA Wellington.

further reading

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