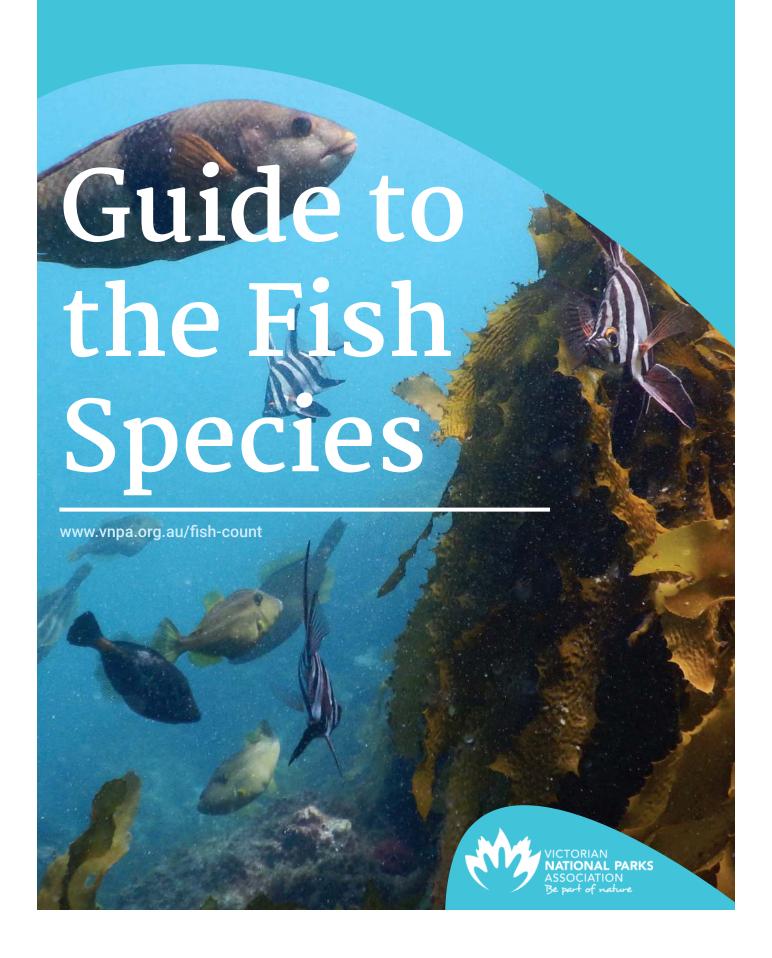
ReefWatch

Great Victorian Fish Count



Acknowledgements

The Victorian National Parks Association acknowledges the many First Peoples of the area now known as Victoria, honours their continuing connection to, and caring for, Country, and supports Traditional Owner joint-management of parks and public land for conservation of natural and cultural heritage.

Our office is located on traditional land of the Wurundjeri people of the Kulin Nation. We offer our respect to Elders past, present and future.

The Great Victorian Fish Count is supported by the Victorian Government.

Many of the photos in this guide were supplied to us from generous Fish Counters or uploaded to the Atlas of Living Australia under <u>Creative Commons by Attribution</u> as part of their Fish Count survey. We have also used images shared under <u>Creative Commons by Attribution</u> from Fishes of Australia and iNaturalist Australia.

Got a great photo of one of our target species that you think would help others with ID in the field? Send it through to reefwatch@vnpa.org.au.

Illustrations by Nicole Mertens.

Great Victorian Fish Count

Guide to the Fish Species

About the guide

This picture guide can be used by participating Fish Count groups to hone their fish identification skills prior to their survey, or to help clear up confusion when discussing what the group found after a survey. It cannot replace a good field book (see page 4), but it may help you to recognise what these species look like in the water.

If you're not sure about a fish you saw, have a look in this booklet to see if the depth, habitat and description matches up with what you encountered on your snorkel or dive. If a fish only lives in shallow waters and within seagrass beds, you probably didn't see it on a reef at 40 metres down.

As always we encourage you to take as many photos as possible! Photos can be uploaded to the Atlas of Living Australia when adding your survey online. You can also submit photos to Redmap to confirm sightings of unusual species/species outside their known range, and can be used to help identify what your group discovered on the day. Contact fishcount@vnpa.org.au if you'd like to borrow an underwater camera for your event.

Victorian National Parks Association



Our vision is to ensure Victoria is a place with a diverse and healthy natural environment that is protected, respected and enjoyed by all. We work with all levels of government, the scientific community and the general community to achieve long term, best practice environmental outcomes and help shape the agenda for creating and managing national parks, conservation reserves and other important natural areas across land and sea in Victoria.

ReefWatch

ReefWatch is the Victorian National Parks Association's marine citizen science program. It provides projects that engage divers, snorkelers, rock pool ramblers and beach combers to contribute their observations, images and knowledge to expand our understanding of Victoria's unique marine life.

Symbols used in this guide



Male

Female

Juvenile

Reef associated

Sandy/muddy substrates

Seagrass

Useful Resources for Fish ID

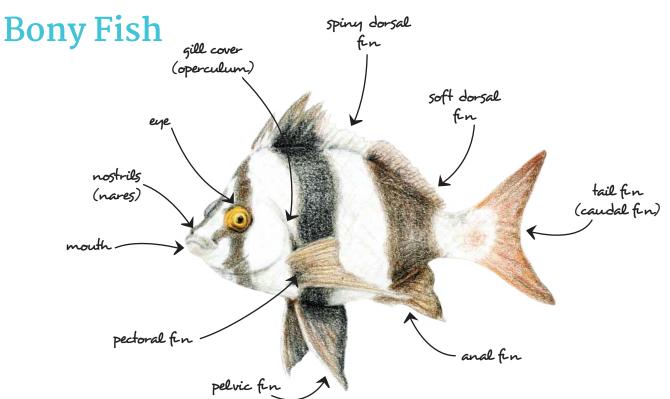
- http://fishesofaustralia.net.au/
- https://australianmuseum.net.au/learn/animals/fishes/
- https://reeflifesurvey.com/species/search.php
- http://portphillipmarinelife.net.au/
- https://vnpa.org.au/programs/great-victorian-fish-count/
- Sharks and Rays of Australia

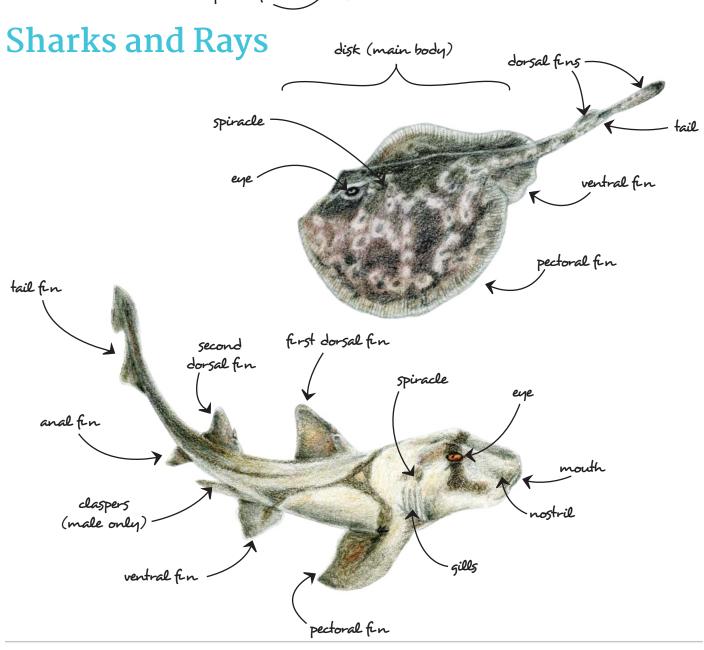
Peter Last and John Stevens

Fishes of Australia's Southern Coast

Edited by Martin Gomon, Dianne Bray and Rudie Kuiter

ReefWatch encourages everyone to get involved with our <u>Marine Life of Victoria project</u> on iNaturalist. The iNaturalist community of experts and enthusiasts can help you identify your fish species from underwater images and is not limited to the fish of the GVFC.





Dusky Morwong

Dactylophora nigricans

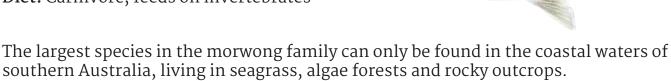
Max length: 120 cm

Habitat: Reefs and seagrass

Depth: 1-30 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Young fish are silvery with rows of orange-brown spots along their sides. Adults are grey to brown with a white belly. This species has thick lips, and their pectoral fins have thickened lower rays.



Red Morwong

Morwong fuscus

Max size: 65 cm

Habitat: Reef associated

Depth: 1-30 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Red morwongs are commonly seen resting on the bottom, perched on their long thickened pectoral fin rays. They stick together in a big group, and even though they separate at night to feed they come back to their "home" for the day.

Adults are pinkish-red on top, silvery-white below, with pale vertical marks at the rear of the body and white stripes on the snout, over their eyes and along their gill covers. Juveniles have prominent silvery-white stripes along their body.



Banded Morwong

Chirodactylus spectabilis

Max size: 100 cm

Habitat: Reef associated

Depth: 1-50 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



The banded morwong can live for up to 90 years. Their species name, spectabillis, is Latin for 'showy' or 'notable', in reference to their striking colour pattern of 7-8 broad, evenly spaced reddish-brown vertical bands. Their fins have dark, nearly black edges.



Magpie Perch

Pseudogoniistius nigripes

Max size: 41 cm

Habitat: Reef associated

Depth: 1-65 m

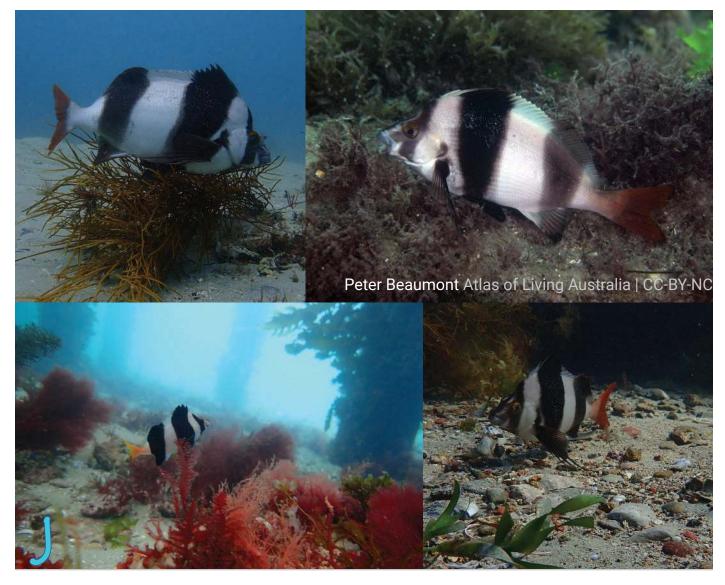
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Not a magpie, and not even a perch! The magpie perch belongs to the morwong family.

The magpie perch has three dark bands on its body, however it can "turn off" the middle band almost instantly, dramatically changing its appearance. The tail in juveniles is bright reddishorange, and darkens to brown as the fish matures.



Bastard Trumpeter

Latridopsis forsteri

Max size: 70 cm

Habitat: Reef associated

Depth: 2-60 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



This fish was named to distinguish it from another similar species, known as the "Real Trumpeter". There is one other species in this family of fish, and it is called the "Real Bastard Trumpeter".

A silvery grey fish with greeny-brown to copper horizontal stripes and markings, and brownish fins with dark edges. The dorsal fin is deeply notched and the tail base is narrow.



Herring Cale

Olisthops cyanomelas

No.

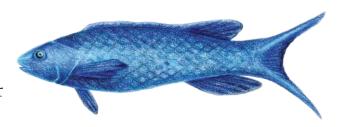
Max size: 51 cm

Habitat: Reef associated

Depth: 1-30 m

Position in water column: On or near seafloor

Diet: Herbivore, feeds on algae



This species is only found in the cool waters of Australia. Their mouth is shaped like a parrot's beak, and they use it feed on the common kelp, Ecklonia radiata.

Like most wrasse, the herring cale is able to change sex and colour throughout its life. Juvenile herring cale are greenish-greyish to brown above, yellow below, and are covered in dark blotches, spots and lines, with a broken silvery stripe on the side. Males are pale blue to nearly black with bright blue lines on the edges of the tail fin, pectoral fins and along the snout. Females are yellowish-brown with thin blue wavy lines on the head and fins, and each scale has a bluish-white spot.



Horseshoe Leatherjacket

Meuschenia hippocrepis

Max size: 60 cm

Habitat: Reef associated

Depth: 1-120 m

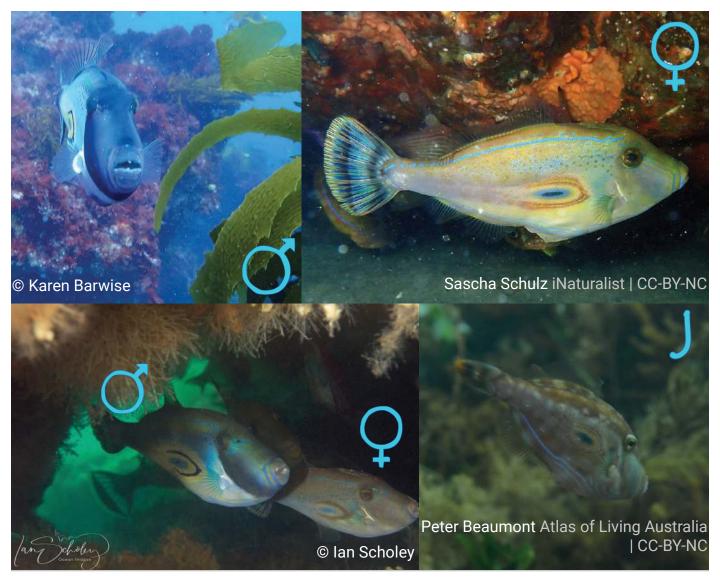
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Horseshoe leatherjackets are often found in kelp forests, and they eat small invertebrates that live on algae and in the sand, as well as jellyfish.

This species gets its name from the horseshoe-shaped marking on the side of its body. Males are more brightly coloured than females. Juveniles have bluish-grey markings surrounded by yellow. This species has 2 pairs of curved spines on each side near the base of the tail fin, and a prominent, serrated spine for the front dorsal fin.



Six Spined Leatherjacket

Meuschenia freycineti

Max size: 55 cm

Habitat: Reef associated

Depth: 1-45 m

Position in water column: On or near seafloor

Diet: Omnivore, feeds on invertebrates and algae



A variable coloured fish with blue lines and spots on the head and along the base of the fins. Males are bluish and often have a large, yellow/orange patch or yellow blotches on the sides. Females and juveniles are usually pale green, yellow or brown, with several broad darker stripes along the body. This fish has a large, barbed dorsal fin spine.

As its name suggests, this fish usually has 3 pairs of spines near the base of its tail fin (can be anything from 2-4 pairs). Males use these spines to fight for dominance.



Zebra Fish

Girella zebra

Max size: 54 cm

Habitat: Reef associated

Depth: 1-20 m

Position in water column: On or near seafloor

Diet: Herbivore, feeds on algae



Zebra fish are common on rocky reefs, estuaries and bays in shallow waters of southern Australia, and young zebra fish can be found in rock pools. They can be found schooling in small or large groups.

They are white to pale grey with 9-10 dark wedge-shaped bars on their sides. Their fins are yellow. Juveniles are darker with less distinct bars and can be confused with the Luderick, Girella tricuspidata.



Blue Devil

Paraplesiops meleagris

Max size: 35 cm

Habitat: Reef associated

Depth: 3-45 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on fish and crustaceans



Blue devils can live to up to 60 years old. They usually live in breeding pairs in a particular site, such as a cave or deep rocky overhang. Their eggs are guarded by the male until they hatch.

Dark blue to bluish-grey, covered in iridescent blue spots and fins with light blue edges. Each adult has a unique pattern of blue spots on the lower part of their gills.



Ornate Cowfish

Aracana ornata

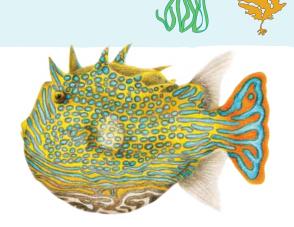
Max size: 15 cm

Habitat: Reefs and seagrass

Depth: 1-30 m

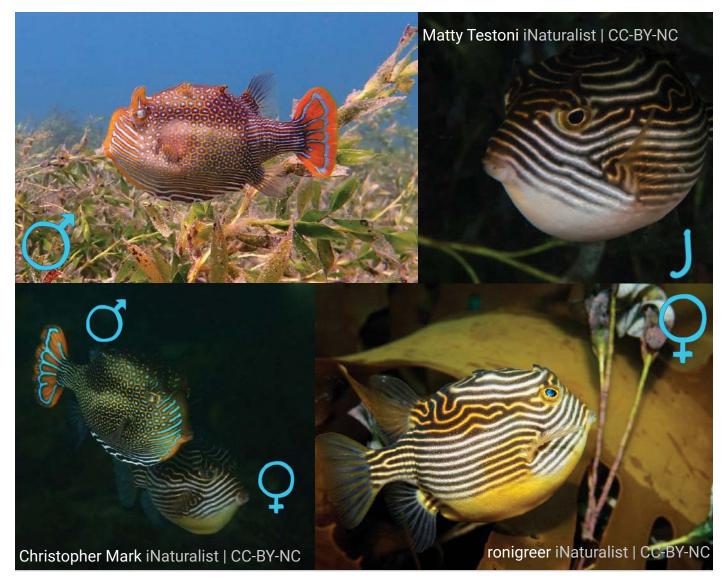
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



This cowfish (named after the horns on its head and back) is found in seagrass beds and rocky reefs.

Males and females have different colours- males are mostly yellow with blue stripes and spots, while females and juveniles are brown with a complex pattern of white, wavy stripes and circles. This species can easily be confused with Shaw's cowfish (Aracana aurita), however, the female ornate cowfish has diagonal lines along its snout (compared to nearly horizontal lines in female Shaw's cowfish) and the males have a distinct hump on their snout (lacking in male Shaw's cowfish).



Shaw's Cowfish

Aracana aurita

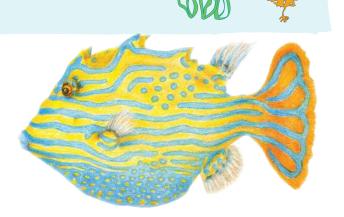
Max size: 25 cm

Habitat: Reefs and seagrass

Depth: 10-160 m

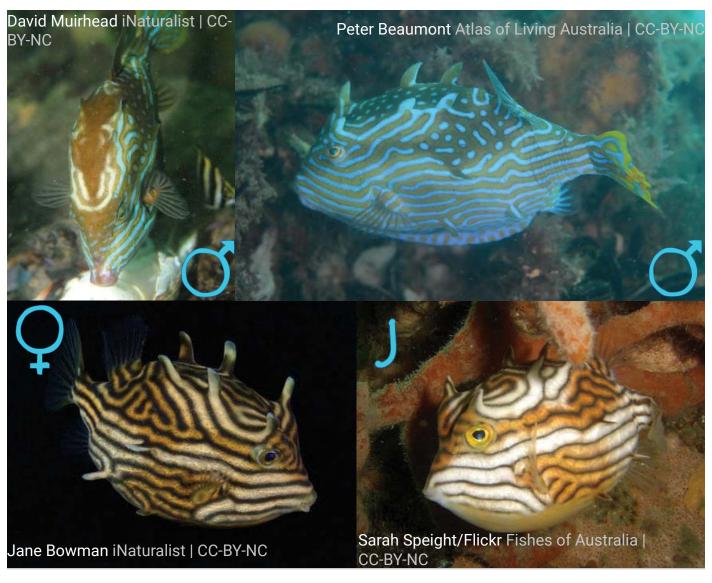
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Shaw's cowfish feed by blowing a jet of water at the sandy bottom and eating the small invertebrates and seaweed that are uncovered.

Similar to the ornate cowfish, males are bright blue and yellow while females are mostly brown with yellow-white stripes.



Victorian Scalyfin

Parma victoriae

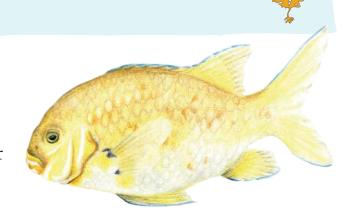
Max size: 25 cm

Habitat: Reefs and seagrass

Depth: 1-35 m

Position in water column: On or near seafloor

Diet: Herbivore, feeds on algae



This fish is very territorial and both males and females defend their home against predators. Scalyfins change colour over their lifetime. Young fish are bright orange with neon blue lines and spots and a "false eye" spot to help confuse predators. Large adults are dark greyish to black, or rusty yellow coloured.



Long Snouted Boarfish

Pentaceropsis recurvirostris

Max size: 50 cm

Habitat: Reef associated

Depth: 3-260 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on crustaceans



The long snouted boarfish is found only in Australia and is the most common boarfish in temperate Australian waters. Very little is known about their life cycle.

This fish has a large head with bony plates and a large, tubular snout. It is white with broad, dark vertically angled bands and large spiny fins. Juveniles have brownish blotches on their dorsal fins, anal fins and bodies.



Old Wife

Enoplosus armatus

Max size: 30 cm

Habitat: Reefs and seagrass

Depth: 0-85 m

Position in water column: On or near seafloor, midwater

Diet: Carnivore, feeds on invertebrates



The common name 'old wife' comes from the grinding sound that the fish makes with its teeth when stressed, for example, when accidently captured by fishers.

The Old Wife has venomous spines on its large dorsal fins. It is silvery-white to brownish in colour with prominent dark vertical bands.



Sea Sweep

Scorpis aequipinnis

Max size: 48 cm

Habitat: Reef associated

Depth: 1-25 m

Position in water column: On or near seafloor, midwater

Diet: Omnivore, feeds on algae and zooplankton



Sea sweep are a common fish species often seen swimming through the open water in small schools, and in the surge areas of rocky reefs.

This fish is silvery-to bluish-grey or greenish-brown, usually with two broad dusky bands ("saddles") on the upper side. These bands are more often seen in juveniles. Adults have a yellow tinge to the lower parts of their head. Their tails are large and forked, and their dorsal and anal fins have prominent raised lobes.



Silver Sweep

Scorpis lineolatus

Max size: 30 cm

Habitat: Reef associated

Depth: 1-30 m

Position in water column: On or near seafloor, midwater

Diet: Omnivore, feeds on algae and zooplankton



Silver sweep are commonly seen in large schools on rocky reefs, where they look for plankton and algae to eat.

Compared to sea sweep, silver sweep are mostly light grey and lack the darker bands on the upper sides of its body. They have a blackish area at the base of the pectoral fins and black outer rays on the tail fin.



Western Blue Groper

Achoerodus gouldii

Max size: 175 cm

Habitat: Reef associated

Depth: 5-100+ m

Position in water column: On or near seafloor, midwater

Diet: Carnivore, feeds on invertebrates



The largest carnivorous bony fish in southern Australia, Western Blue Groper are site-attached, meaning that they tend to remain in their 'home range' for their whole life- up to 70 years. They have been targeted by fishers in the past, causing numbers to decline, but they are now protected in Victoria.

Note: the western blue groper is only found west of Wilson's Promontory.

Juvenile fish are greenish, sometimes with yellow-white spots on their backs. Males are grey to blue, and females are greyish-green to red-brown.



Eastern Blue Groper

Achoerodus viridis

Max size: 120 cm

Habitat: Reefs and seagrass

Depth: 1-60 m

Position in water column: On or near seafloor, midwater

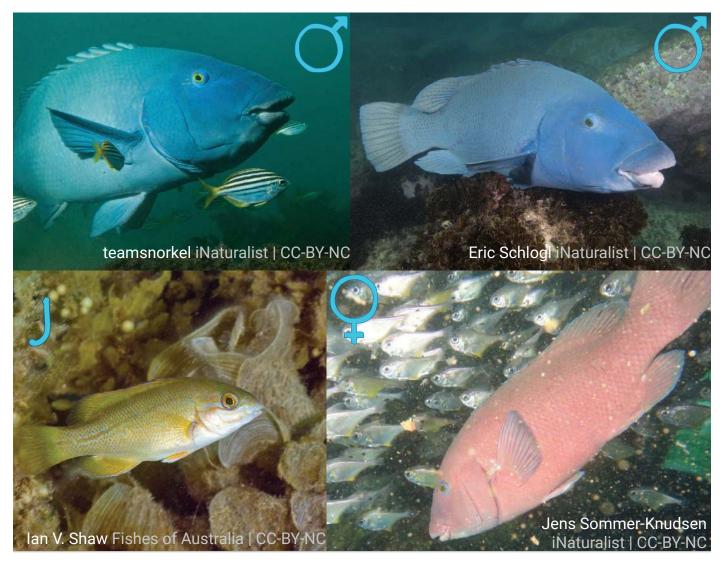
Diet: Carnivore, feeds on invertebrates



Like the western blue groper, this inquisitive fish is actually another species of wrasse. Juvenile fish live in seagrass beds and move to rocky reefs as they mature. Adult blue gropers feed on mussels and urchins by cracking open their shells with strong, crushing jaws.

Note: the eastern blue groper is only found east of Wilson's Promontory.

Male gropers are blue to greenish-blue, while females are usually reddish-brown to brown, often with pale spots and blotches. Juveniles are grey to greyish-brown, also with spots and blotches.



Blue Throat Wrasse

Notolabrus tetricus

100



Max size: 50 cm

Habitat: Reefs and seagrass

Depth: 1-160 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



The most common wrasse on rocky reefs of Victoria, this wrasse begins life as a female and later changes to male.

Males are mostly bluish-brown with a white band and blue chin, while females are green to reddish brown with a white and brownish black band.



Saddled Wrasse

Notolabrus fucicola

Max size: 50 cm

Habitat: Reef associated

Depth: 1-90 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



The species name fucicola is from the Latin word fuscus, meaning 'seaweed', and cola meaning 'dweller', in reference to the fact that this species lives amongst the seaweed on rocky reefs.

Adults are greenish-blue to brown with a purple tinge, with distinct yellowish bars on their body and fins. Juvenile saddled wrasse are reddish-brown with green and orange mottled patterns.



Senator Wrasse

Pictilabrus laticlavius

Max size: 30 cm

Habitat: Reef associated

Depth: 3-40 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



These colourful wrasse are found in kelp and other algae on rocky reefs.

Juveniles and females are reddish brown with a row of black spots along their midline and a black spot on the rear of the dorsal fin. 4-5 dusky bars are present along the lower sides. Young senator wrasse mature into females in their first year, and eventually change sex into brightly coloured males as they get older. Males are green with maroon-purple stripes along their sides.



Southern Maori Wrasse

Ophthalmolepis lineolata

Max size: 47 cm

Habitat: Reef associated

Depth: 1-60 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



These colourful wrasse are found in kelp and other algae on rocky reefs.

Juveniles and females are reddish brown with a row of black spots along their midline and a black spot on the rear of the dorsal fin. 4-5 dusky bars are present along the lower sides. Young senator wrasse mature into females in their first year, and eventually change sex into brightly coloured males as they get older. Males are green with maroon-purple stripes along their sides.



Harlequin Fish

Othos dentex

Max size: 86 cm

Habitat: Reef associated

Depth: 1-30 m

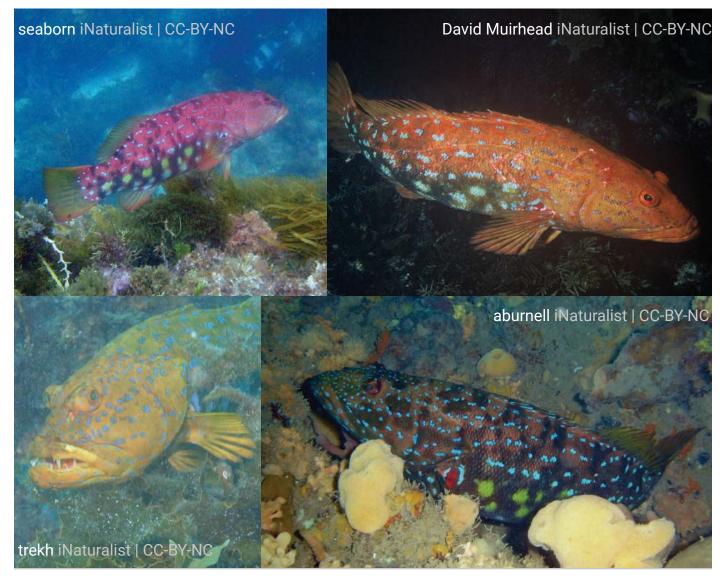
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates



Very little is known about this long lived species. It will spend its whole life on one patch of reef and is vulnerable to changes in habitat and overfishing. **Harlequin fish have not been recorded in Victoria for decades.** However, we remain hopeful that this colourful cod will one day return to Victorian waters.

This fish is highly variable in colour, from orange, to pink, red, green or brown. It has large yellow, green or blue spots and dashes along its sides and a large red blotch behind the base of the pectoral fin. Another notable feature is that the large canine teeth at the front of the jaws are visible even when the fish's mouth is closed.



Smooth Stingray

Bathytoshia brevicaudata

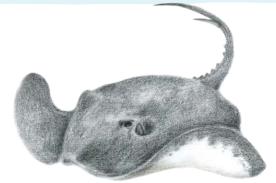
Max size: 430 cm (200 cm width)

Habitat: Sandy, muddy substrates

Depth: 1-150 m

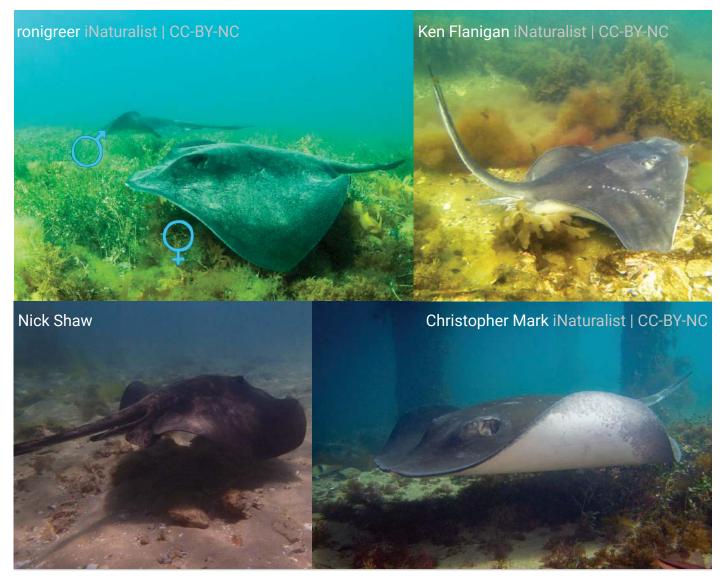
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



The smooth stingray is the largest of all Australian stingrays. You will often find them off sandy beaches, partly buried in the sand, and they are commonly seen visiting piers and jetties in search of food.

The disc is greyish-brown on top, pale underneath, angular and smooth. The tail is short with large tubercules, thorns and an venomous spine. The area around the eyes is somewhat darker, and there are white spots on the top of the head.



Black Stingray

Bathytoshia lata

Max size: 400 cm (180 cm width)
Habitat: Sandy, muddy substrates

Depth: 1-360 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



Uniformly greenish brown to black on top and pale underneath, the black stingray is similar in size and look to the smooth stingray. However, the black stingray has a tail much longer than its body (compared to the smooth stingray's tail, which is shorter than its body) and no white spots on the disc near the head.



Spotted Stingaree

Urolophus gigas





Max size: 70 cm

Habitat: Sandy, muddy substrates and seagrass

Depth: 1-50 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



Pups of the spotted stingaree hatch from their eggs while still inside their mother. They continue to grow inside their mother until they are eventually born.

The spotted stingaree is dark brown to black on top with many indistinct pale rings and spots and the margins of the disc and tail are grey or black. The disc itself is circular to oval in shape. The underside of the disc is white or cream. It possess a venomous spine on the tail behind the dorsal fin.



Southern Fiddler Ray

Trygonorrhina dumerilii

VIN



Max size: 150 cm

Habitat: Sandy, muddy substrates and seagrass

Depth: 1-205 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



This fish is also known as the Banjo Shark. It actually belongs to a group known as guitarfish, which have features of both rays and sharks.

The southern fiddler ray has a flattened body with a diamond shaped disc, a row of thorn-like denticles along the middle of its back to the first dorsal fin, and a long broad tail with two similarly sized dorsal fins. The upper tail lobe is well developed but the lower lobe is short. The upper side of the body is yellowish brown with dark-edged pale bands radiating from the eyes and on other sides of the middle of the disc. The underside is pale.



Southern Eagle Ray

Myliobatis tenuicandatus

Max size: 240 cm (120 cm width)

Habitat: Sandy, muddy substrates and seagrass

Depth: 1-130 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



Southern eagle rays are very fast swimmers, and can jump high out of the water. They can blow a jet of water out of their gill slits to expose molluscs and other invertebrates hiding in the sand, which they feed on.

The disc is wider than it is long, with angular tips. The snout is blunt, with conspicuous spiracles near the eyes. The dorsal fin is small, but the tail fin is long and whip like with a poisonous spine. The upperside is brown, grey, olive or yellowish with a variable pattern of blue-grey spots and bars, while the underside is pale grey.



Port Jackson Shark

Heterodontus portusjacksoni

Max size: 170 cm. Typically 95 cm (females) or 75 cm (males)

Habitat: Reefs, sandy substrates and seagrass

Depth: 1-275 m

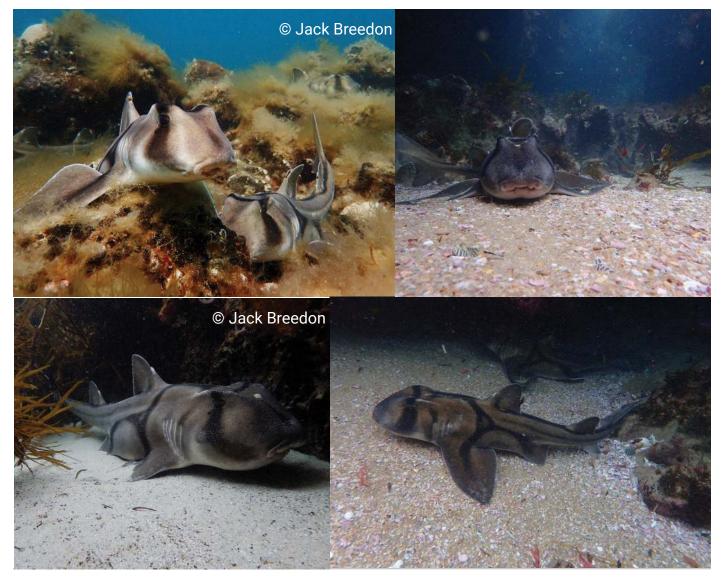
Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



Port Jackson sharks are one of the few species of shark that does not need to swim to breathe. It can pump water over its gills, allowing it to sit still under rocky ledges and wait for food. They lay spiral shaped eggs which the mother shark will place between cracks in rocky reefs for protection.

A small shark with a stocky head and body, a small mouth with unusual, curled appendages, a prominent bony ridge above each eye and a stout spine at the front of both dorsal fins. They are pale grey to brown with a "harness" of broad, dark, irregular lines on both sides of the body and a thick dark band running vertically across the head in line with the eyes.



Spotted Wobbegong

Orectolobus maculatus

Max size: 170 cm

Habitat: Reefs, sandy substrates and seagrass

Depth: 1-218 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes





Port Jackson sharks are one of the few species of shark that does not need to swim to breathe. It can pump water over its gills, allowing it to sit still under rocky ledges and wait for food. They lay spiral shaped eggs which the mother shark will place between cracks in rocky reefs for protection.

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Elephantfish/Australian Ghost Shark

Callorhinchus milii

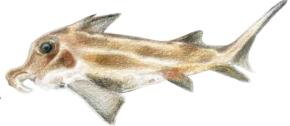
Max size: 150 cm

Habitat: Sandy, muddy substrates

Depth: 1-200 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



It usually lives in the deep ocean, however during the summer months they migrate inshore to lay pairs of eggs.

This unusual looking species has a strange, hoe-shaped snout which it uses to search the sandy seafloor for food. It has two dorsal fins, with a long venomous spine in front of the first one, large pectoral fins, and a long tail. The colour is silvery white, often with darker brownish-grey blotches along the body and fins.



Varied Carpetshark

Parascyllium variolatum

Max size: 92 cm

Habitat: Reef associated

Depth: 1-200 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on invertebrates and fishes



A small, nocturnal species, it shelters in caves, crevices, under ledges and in kelp and seagrass beds during the day.

This eel-like shark is also known as the Necklace Carpetshark due to the dark, white-speckled band around its neck behind the head. Small white spots and darker saddles span the length of the grey-brown body, and large, with dark blotches on the edges of the fins.



Draughtboard Shark

Cephaloscyllium laticeps

Max size: 100 cm

Habitat: Reefs and sandy substrates

Depth:2-60 m

Position in water column: On or near seafloor

Diet: Carnivore, feeds on fishes, squid and crustaceans



When the draughtboard shark is disturbed or scared it increases its body size by inflating its stomach with water in the same way that pufferfish do. This makes it hard for predators to take a bite, and is why this fish is also known as a swell shark.

Brownish to grey in colour with a broad dark saddle behind the eyes, and many irregular dark spots, blotches and saddles on the body. Occasionally paler flecks are present.

