



FISHERIES FACT SHEET

BARCHEEK CORAL TROUT



Barcheek coral trout

Plectropomus maculatus

Top picture shows deep water
colour pattern, lower shows
shallow water colour pattern

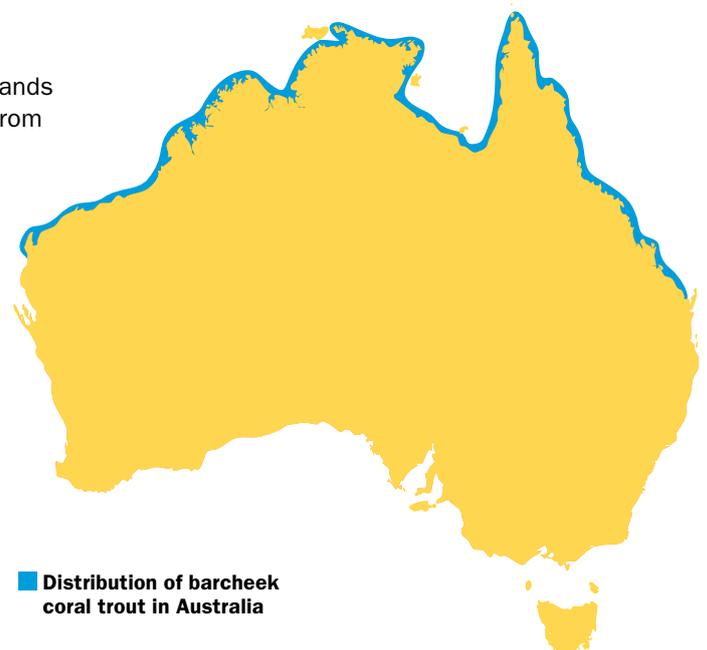
Trout of the Tropics

Barcheek coral trout are a long-lived and slow-growing fish. Generally they can reach 100 cm long, weigh 25 kg and live up to 20 years. However, the fish found in WA belong to a different genetic stock to those on the east coast of Australia and have generally been reported as large as 70cm and 6kg.

Widely distributed

Barcheek coral trout live around inshore and coastal reefs and islands in tropical waters. They are found in the western tropical Pacific (from southern Japan through Taiwan, Thailand, Cambodia, Malaysia, Indonesia, the Phillipines, Papua New Guinea and the Solomon Islands to Tahiti) and around northern Australia (from the Ningaloo Reef in WA to Gladstone in Queensland).

In WA, barcheek coral trout are widespread along the continental shelf between Ningaloo and the Northern Territory border. They have been reported as far south as Geraldton.



■ Distribution of barcheek coral trout in Australia



Depending on what depth they live at, the colour pattern of barcheek coral trout can vary. Barcheek living in deep water are usually bright red whilst those in shallow water are usually dark brown.

A different kind of trout

When Europeans settled in Australia, they named many fish after those they resembled at home. Coral trout species have spots along their back like brown and rainbow trout. They live around tropical coral reef and belong to the family Epinephelidae. Their closest relatives are cods and groupers.

Of all the types of coral trout in WA, the barcheek is the most widespread and commonly caught. Other coral trout (*Plectropomus*) species include the common coral trout, bluespotted coral trout, vermicular coral trout, passionfruit coral trout and roving coral trout.

Coral and coronation trout species are prized for their striking appearance. In Asia they are in demand for the live reef fish and aquarium trade. Their delicate flesh makes excellent eating.

There can be considerable variation in the colour of coral trout, depending on the water depth they live at – generally the deeper water fish will be lighter than the shallow water ones. In addition, there are two colour forms in the bluespotted coral trout – a darker one which can be red, olive or even black (see below) and one which is yellow-whitish and has five black-brown blotches or bars (see back page).



Colour variations (a and b) in bluespotted coral trout



Vermicular coral trout (left, shallow water colour pattern and right, deeper water colour pattern)



Passionfruit coral trout



Roving coral trout

Good and bad feeding habits

Like most bony fish, newly hatched coral trout larvae have an egg sac which nourishes them for a few days until they are large enough to feed on micro-plankton. Larval and juvenile coral trout are found in similar habitats to the adults. The juveniles feed on small crustaceans (particularly prawns) and squid. As adults, coral trout eat a wide variety of small reef fish, whose mix alters seasonally as different species move in and out of the trouts' territory.



Juvenile barcheek coral trout

Adult coral trout have large mouths with multiple rows of sharp teeth. They are voracious predators and even their own young are fair game. If possible, they feed every couple of days, though are able to go for some time without eating.

Coral trout feed during daylight, mostly at dusk and dawn, and use two main hunting methods: by remaining quite still near the bottom or hiding on the reef and ambushing unwary passing fish, or by cruising slowly along higher in the water column and then attacking in a flash. They have also been seen chasing schools of small fast fish, such as anchovy and herring.

Coral trout grow very rapidly during their first three years and can reach 14 cm long in just six months. However, individuals have varying success as hunters, so their growth rate can vary from fish to fish. This may explain differences in the size-to-age ratio of adult fish. Coral trout usually eat more in winter to prepare for breeding in spring.

Like all coral trout, barcheek coral trout are protogynous hermaphrodites. This means they begin life as females, sexually maturing at about two years old, then changing into males permanently when between three and seven years old. They will breed as females at least once before becoming males.

Female barcheek over six years old are rare. It is thought that 50 per cent of females sexually mature at around 18 months old and 30cm fork length (from the tip of the snout to the start of the tail fork). The triggers for the sex change are unknown – it happens between spawnings and may depend on the size of the fish and local conditions, such as water temperature. Although males and females can be found at most lengths, generally small fish will be females and large fish males.



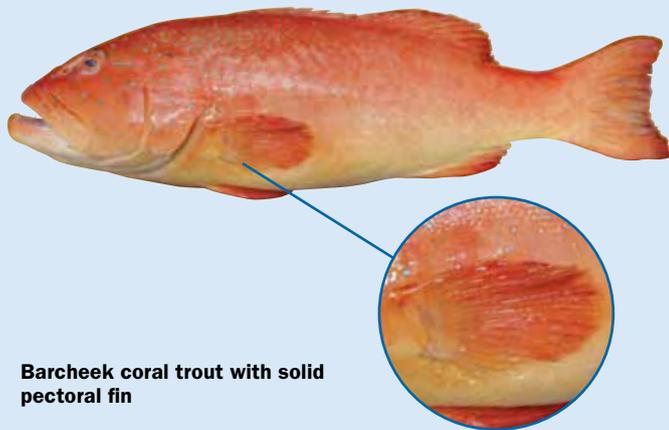
A barcheek coral trout straight from the water

The ID parade

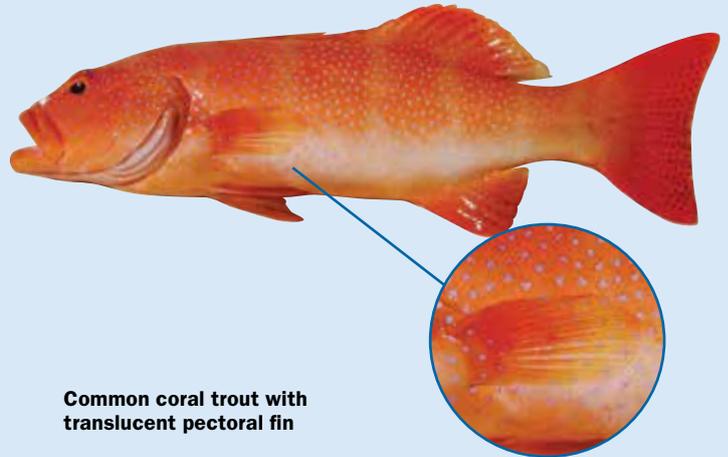
The barcheek coral trout (*Plectropomus maculatus* - from the Latin *macula* meaning 'mark' or 'spot' - is similar in shape and colouring to its close relative the common coral trout (*Plectropomus leopardus*) and is sometimes mistaken for it.

The common coral trout has only two main populations in WA, at Scott Reef in the Kimberleys and at the Houtman Abrolhos Islands, and is uncommon between these two population centres. However the barcheek is more widely found.

The barcheek coral trout has several elongated brilliant blue marks with dark edges on its cheeks and side of the head. It has a solid opaque pectoral fin, whereas this fin is translucent in the common coral trout, as shown in the photograph below.



Barcheek coral trout with solid pectoral fin



Common coral trout with translucent pectoral fin

Home on the range



Common coral trout
Photo: Richard Ling/www.rling.com (Courtesy Wikimedia Commons)

Barcheek are the dominant coastal coral trout species in WA, living at depths of five to 100 metres on mixed algae and coral reefs and around inshore islands. They tend to be solitary and normally patrol their home reefs, but may travel a short distance away to spawn.

Barcheek are more vulnerable to overfishing and localised depletion than the other coral trout species, owing to living closer inshore and thus being relatively easily reached by line and spear fishers.

Studies of the common coral trout in WA suggest they seldom move from one reef system to another, usually returning to the reefs where they were spawned after any movements. This settled non-migratory behaviour means fisheries managers need to guard against individual reefs being overfished. If currents are favourable, the larvae of coral trout may be carried to other reefs away from their home territory.

You can hurry love

Coral trout have very energetic breeding behaviour. Normally solitary fish, they gather in dense groups (called aggregations) of between 60 and 130 fish to spawn during a 30 to 40 minute period at sunset. When this occurs depends on when the water is warm enough - usually October to December in the cooler waters to the south of their range, and September to February in the hotter northern waters.

The male stakes out a territory near the sea floor then greets any female entering his space with an elaborate courtship dance. He swims closely around the female, lying on his sides, flashing colour changes along his fins, shaking his head and quivering. If the female accepts him as a mate, the pair launch into a spawning 'rush', racing for the surface and releasing their eggs and sperm at the last minute as they turn to dive again.

The fertilised eggs float just below the water surface until they hatch. Spawning happens particularly during ebb tides, when the water carries eggs away from the reef and its predators but the returning tides bring the resulting larvae back to their home reef.

The newly spawned eggs are a feast for other reef creatures and a feeding frenzy among the latter is an obvious sign of coral trout spawning.

Tracking the trout

Most of the information on barcheek coral trout comes from studies carried out on the Great Barrier Reef. Fish are captured, measured, weighed and the growth rings on their earbones (otoliths) enable researchers to determine their ages. Tagging studies provide information on their range of movement, while direct observation reveals their daily routines, feeding and mating behaviour.



Coral trouts are highly prized by both commercial and recreational fishers

The barcheek coral trout has recently been added to the list of potential indicator species by Department of Fisheries researchers. These species are used as an indicator of the status, or 'health', of demersal fish (those who live on or near the sea bottom) resources in the North Coast Bioregion, which runs from the Ashburton River, south of Onslow, to the WA/NT border.

This means any variations in the catch rate or catch quantity of barcheek coral trout may indicate changes in their populations and spur investigation into why this has occurred.

Keeping the gender balance right

In WA, coral trout are primarily caught by recreational fishers using lines or spearfishing. Barcheek coral trout are not a target species for commercial fishers in the Gascoyne and Pilbara/Kimberley, but 13 tonnes (of a State total of over 9,000 tonnes of all fish species) were caught by line, trap and trawl during 2010/2011. Coral trout caught commercially fetch a high price on both overseas and local fish markets.

Studies on the Great Barrier Reef have shown that fishing for coral trout (and other reef species) can alter the ratio of males to females. As fishers like to target the largest fish, in the case of coral trout this means males are more likely to be removed from the population than females. Fishery managers have to consider how this could potentially affect the reproduction and health of coral trout populations and set guidelines/fishing rules so there are enough of both sexes to breed in large numbers.



Bluespotted coral trout in footballer colour phase

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Glossary

Aggregation

A group formed when normally solitary fish gather for spawning or feeding.

Demersal

On or near the sea floor or around reef systems.

Indicator species

A species whose population is likely to reflect major changes in the environment or in fishing practices. Monitoring programs are devised for indicator species so researchers and managers can get a more accurate picture of the health of fisheries and aquatic habitats.

Length class

Fish of the same length, e.g. 15 to 20 cm total length or fork length.

Otolith

Tiny bones found in the centre of bony fishes' heads that lay down growth rings. They are also called earbones, owing to their association with hearing and balance mechanisms. By counting these rings, researchers can estimate the age of the fish.

Protogynous hermaphrodite

An organism capable of changing sex, which begins life as a female then becomes male.

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Fish illustrations
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FURTHER INFORMATION

Visit the Department's website at www.fish.wa.gov.au or contact:

DEPARTMENT OF FISHERIES – HEAD OFFICE

3rd Floor, The Atrium,
168 St Georges Terrace, Perth 6000
T: (08) 9482 7333 F: (08) 9482 7389
E: headoffice@fish.wa.gov.au
ABN: 55 689 794 771