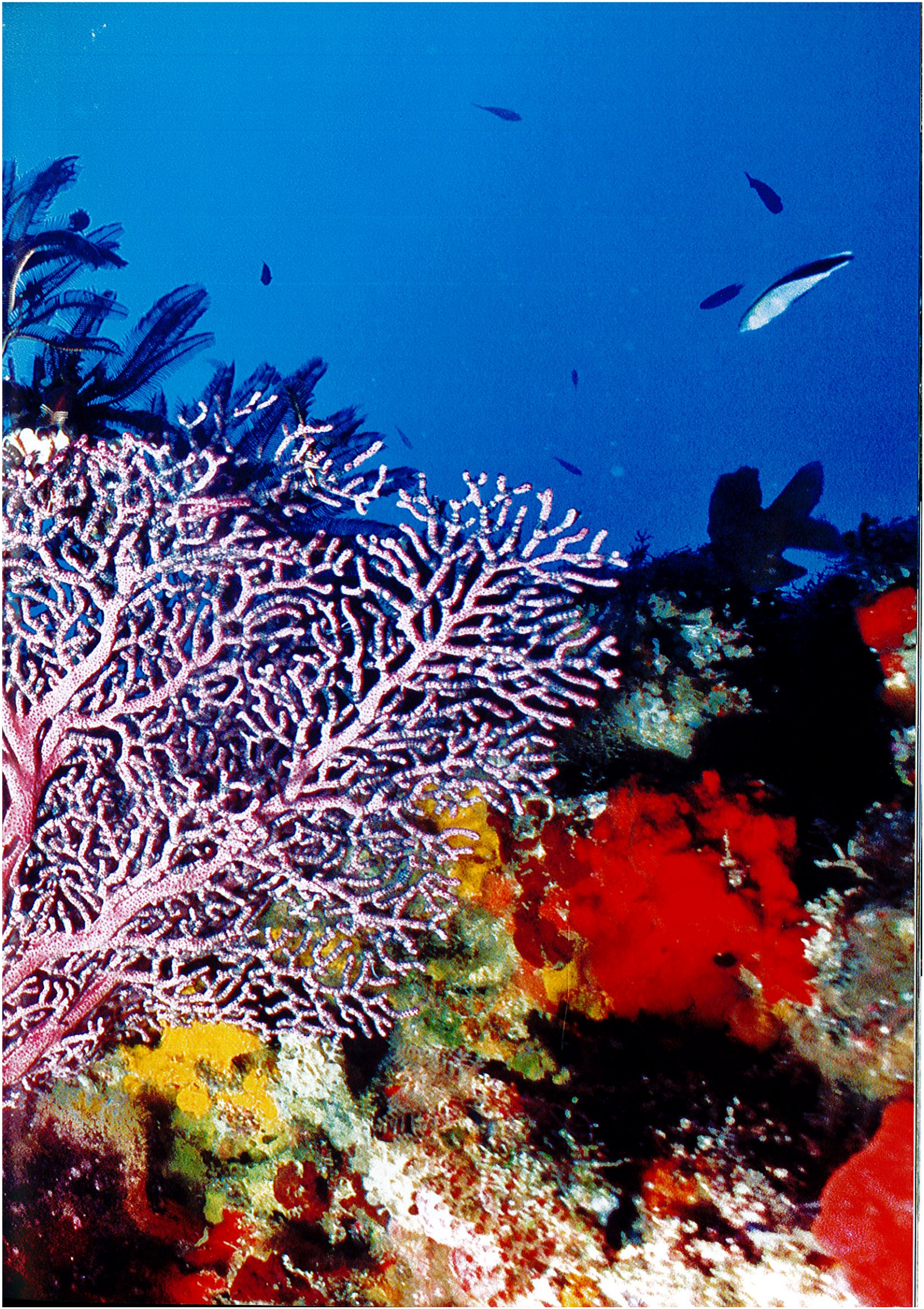
Cleaning for a living

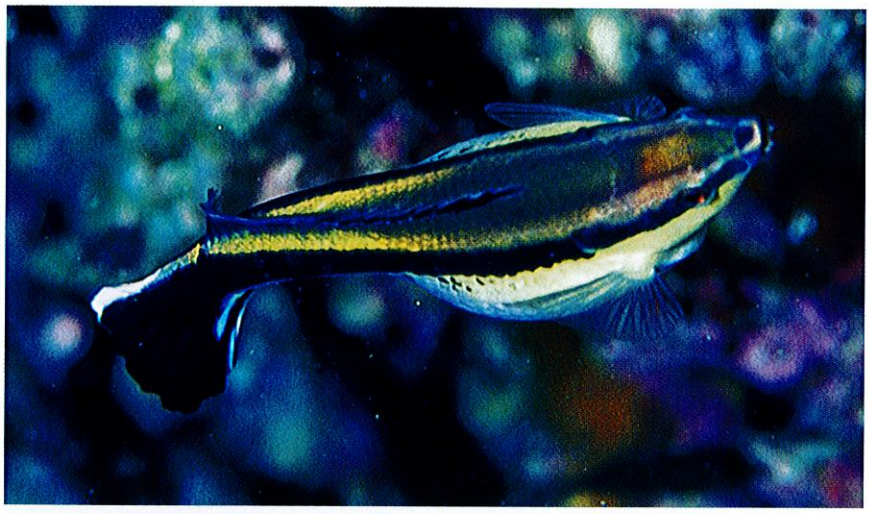
One of the most fascinating symbiotic relationships in the marine world is of cleaners and their 'clients'. More than 56 species of fish have been observed cleaning other fish. These cleaners include species of wrasse, butterflyfish, angelfish, perch, gobies and clingfish. Many species of crustacean also clean. It is a vitally important service for the health of many fish, both on tropical coral reefs and in temperate waters.

by Ann Storrie



Most people are familiar with the cleaner wrasse of the tropics. These fish are known as obligate cleaners as their main diet consists of parasites that live on other fish; hence they clean for a living. There are several species of cleaner wrasse. They choose areas on the reef known as 'cleaning stations' where they perform 'dances' to attract customers. The wrasses swim in a distinctive, jerky manner that indicates their presence and attracts both resident fish and visitors to their station. When 'clients' arrive, the cleaners swim to them and enthusiastically pick parasites, damaged scales, dead skin and mucus from their bodies. The cleaners often move inside the gills and mouths of large fish, picking up food particles as well as parasites and dead cells.

This symbiotic relationship is a very obvious example of animals benefiting from each other's actions, with the cleaners obtaining their food while the clients are cleaned. It is now also thought that this service has more far-reaching effects, especially on coral reefs. For example, resident fish that are deprived of the cleaning service are generally smaller in size than average and more prone to disease. Also, if cleaners are removed from an area of reef the numbers of resident fish decline and less fish visit.



To eat or not to eat

Hundreds of species of fish have been observed being cleaned. These include very large predatory fish such as gropers, emperors, eels and even sharks, yet very few cleaners are ever eaten, either by design or mistake. These tiny fish cleaners are quickly recognised by potential clients by their contrasting colours and jerky swimming motions. They also vibrate their fins continuously while inside the mouths of large fish to remind the fish to avoid swallowing while having their teeth cleaned. Large moray eels often share their lairs with cleaner shrimps that move over the eel's face, mouth and nostrils with impunity while cleaning.

Most clients also send specific messages to the cleaners when they wish to be cleaned. Many fish float, almost motionless, in a nearly vertical position. Some spread their fins and gills and open their mouths wide with anticipation. More than a dozen snapper have been observed resting on the sea bed while cleaner wrasse flit from fish to fish. It is interesting that several different species of fish may be present at cleaning stations without becoming territorial and aggressive towards one another as would be

Previous page
Main Fan coral in Ningaloo Marine Park with a few tiny fish, including cleanerfish, in the background.

Inset A giant moray eel (*Gymnothorax javanicus)* being cleaned by a common cleanerfish.

Above A pregnant common cleanerfish. These tiny fish grow to just 11.5 centimetres.

Left Blueband glidergobies (*Valenciennea strigata*) being cleaned by a common cleanerfish.
Photos – Ann Storrie

Above An estuary cod (*Epinephelus coioides*) opens its mouth to enable cleaner wrasse to clean inside.
Photo – Ross Gudgeon

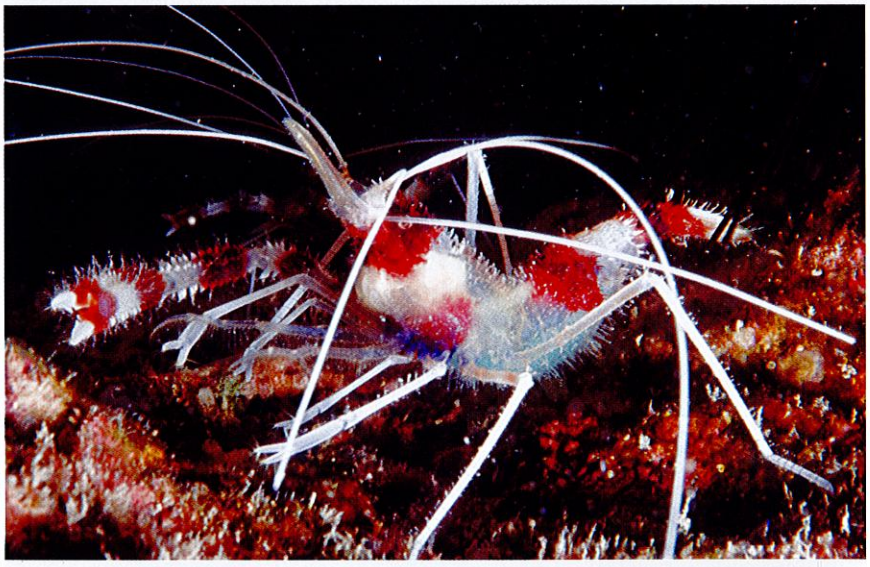
Right A bluegirdle angelfish (*Pomacanthus navarchus*) is cleaned by a common cleanerfish.
Photo – Sue Morrison

expected on 'their' patch of reef. They seem oblivious to anything but the prospect of being cleaned.

Cunning, clandestine copyists

One of the most common cleaners on tropical reefs is the common cleanerfish (*Labroides dimidiatus*). These small, energetic wrasse, up to 11.5 centimetres in size, are usually seen alone or in pairs and have a distinct dark stripe that begins at the snout and becomes progressively wider as it approaches the tail. Like all cleaner wrasse, the common cleanerfish has a small, narrow snout for picking parasites from its hosts. But like so many oddities of nature, there are others that take advantage of this trusting relationship. A sabretooth blenny by the name of *Aspidontus taeniatus* has mimicked the common cleanerfish. It is the same size and colour as the wrasse and it swims in a similar jerky motion to attract clients. It even has the common name false cleanerfish. One of the differences in its physical appearance is its snout, which is slightly larger than that of the cleaner wrasse. More importantly, especially to its clients, is that the blenny has two large canine teeth in its lower jaw that it uses to bite pieces out of the clients' fins!

The best way for divers to tell the fish is apart is to observe their behaviour at a cleaning station.

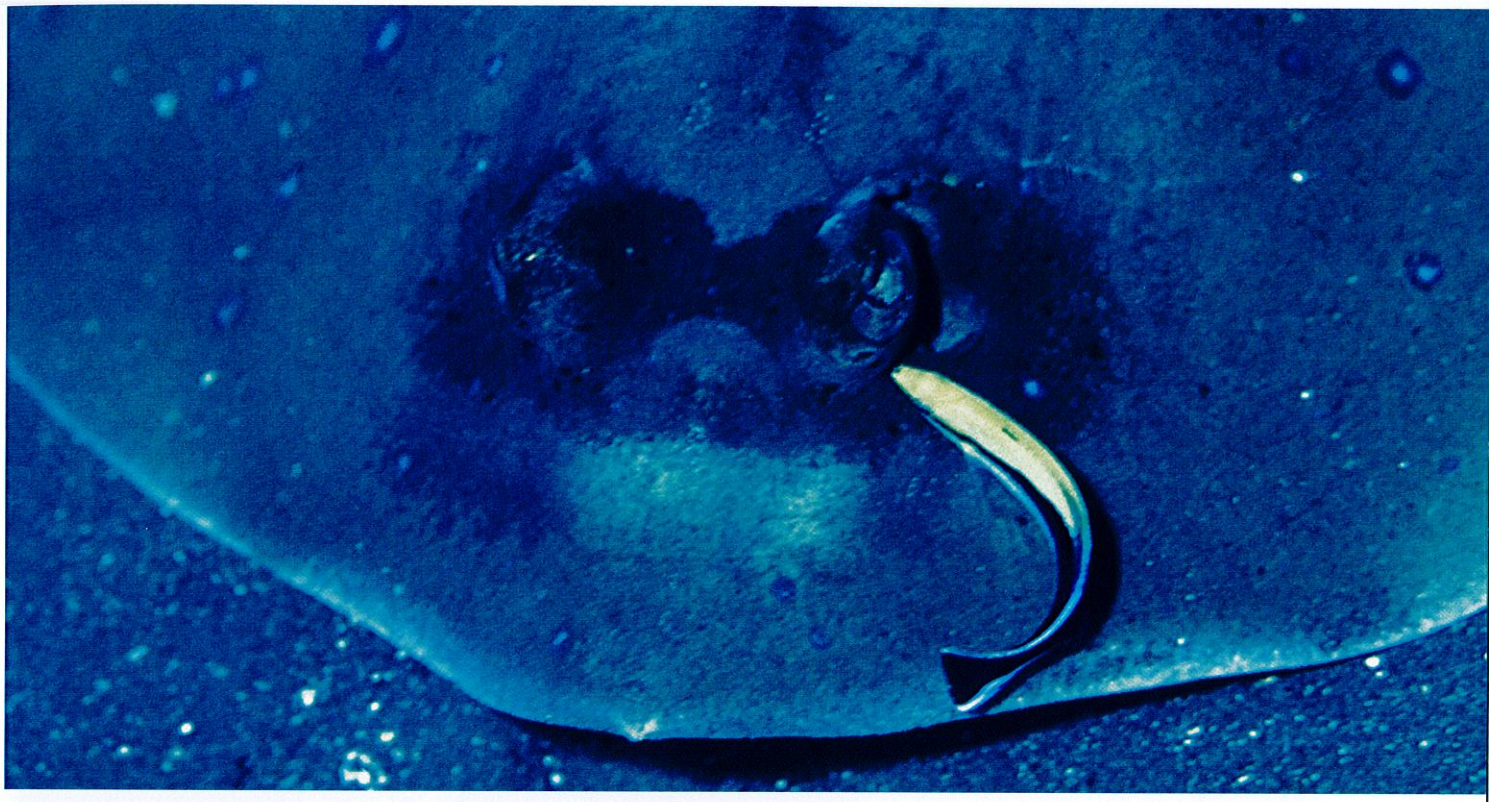


Above The white tip reef shark (*Triaenodon obesus*) will remain motionless while being cleaned.
Photo – Ross Gudgeon

Left Many shrimp also clean, and banded coral shrimps (*Stenopus hispidus*) are sometimes referred to as cleaner shrimps.

Below left It would not take long for these common cleanerfish to thoroughly clean a small neon fusilier (*Pterocaesio tile*).
Photos – Ann Storrie

Cleaner wrasse methodically swim over the fish's body, delicately picking off the parasites, usually with little reaction from their clients. Blennies may also appear delicate, but when they take a bite of flesh, they usually have to make a 'run' for it. Some blennies zoom in very quickly, bite, and then duck away. The client sometimes swims away just as quickly, although many do try to make a blenny breakfast. False cleanerfish also eat fish eggs and the tentacles of tubeworms. Although these fish are generally associated with tropical waters, the false cleanerfish is found as far south as the Turquoise Coast, while the common cleanerfish has been sighted around Rottnest, and in Marmion Marine Park.



Above A bluespotted maskray (*Neotrygon kuhlii*) lies motionless on the sand as it is cleaned.
Photo – Ann Storrie

Left The colourful yet diminutive western cleaner clingfish only grows to about four centimetres in length.
Photo – Sue Morrison

Charismatic cleaner clingfish

Although our warming waters may be responsible for the progressive migration of tropical species further south, there are some cleaners that are genuine temperate water inhabitants. Juvenile western king wrasse (*Coris auricularis*) particularly enjoy a supplementary meal of parasites from larger fish. Even adult king wrasse are sometimes inclined to clean compliant clients. Unlike their tropical counterparts, most temperate water cleaners do not set up cleaning stations and are more opportunistic. Unlike obligate (or dedicated) cleaners, they spend relatively little feeding time cleaning other fish as most of their food is found on the reef or in seagrass beds. However, there are exceptions to every rule.

A tiny clingfish, the western cleaner clingfish (*Cochleoceps bicolor*), lives in southern Australian waters from Port Phillip Bay in Victoria to Lancelin in Western Australia. It grows to a maximum of four cenitmetres long and can be very well camouflaged on the reef. Like all clingfish, its ventral fin is modified into a muscular suction disc on its breast that enables the fish to cling to many different surfaces including rocky reef, sponges and other fish. Its base colour is yellowish to pinkish-red, covered with closely packed red spots. The spots on the posterior portion are normally darker, producing a distinctly bicoloured appearance. There are also 12 to 15 narrow, iridescent blue bands that run across the fish's back. The fish can also reduce or enlarge the colour cells in its skin to either blend into its surroundings on the reef, or to emphasise its presence on a pale background. It is indeed very striking if sitting on a white sponge, which is where many set up their cleaning stations.

Given the size of these cleaners and their ability to camouflage themselves on many different surfaces, divers could be forgiven for never having seen a cleaner clingfish. Occasionally, the fish has been discovered after it has hopped onto a diver's hand that was resting on the reef! And once you have seen one, you will see many. A close look at a harlequinfish (*Othos dentex*), or a southern blue devil (*Paraplesiops meleagris*) may reveal one, or even several, tiny western cleaner clingfish hopping over their bodies.

Above Ribbon sweetlips (*Plectorhinchus polytaenia*) line up on the sea bed to be cleaned. There are two common cleanerfish on the sweetlip second from the left.
Photo – Ann Storrie

Left Spot the three western cleaner clingfish on this harlequinfish (*Othos dentex*).
Photo – Sue Morrison

Unlike the 'dance' of the tropical cleaner wrasse, the western cleaner clingfish advertises its presence by sitting on a rock, sponge, ascidian (sea squirt), or other sedentary animal that usually elevates it above the substrate and emphasises its colours. The clingfish will then swim over to any fish that arrives and exhibit submissive behaviour similar to that of tropical species at cleaning stations. Other clients such as the harlequinfish, banded seaperch (*Hypoplectrodes nigroruber*), or dusky morwong (*Dactylophora nigricans*) simply sit motionless on the bottom near the clingfish's station. In the blink of an eye, the little clingfish appears to hop over to the client where it commences cleaning the fish's body. Interestingly, it is not usually observed cleaning inside a fish's mouth or gills.

Conservation of cleaners

The unique symbiotic relationship between cleaners and their hosts at cleaning stations plays a significant role in the health of reef ecosystems. Unfortunately, many tropical cleaners are collected for the aquarium trade. The removal of these cleaners leaves resident fish more vulnerable to disease, while transient fish are not so inclined to visit. Divers can help keep the balance of the ecosystem by observing the natural behaviour of these animals within our marine parks rather than collecting or buying them for aquariums. Keeping cleaners in aquariums is rarely successful as their specialised diets cannot usually be met. Enjoy watching fish at cleaning stations and, if you are diving in our temperate waters, remember to look for colourful, tiny, blue-banded clingfish. If you see one on a sponge or rock, rest your hand nearby and, if you are very lucky, the cleaner may hop on and start cleaning. You can feel the tickle of the delicate suction of their modified ventral fin on the palm of your hand. And don't worry, as far as we know nothing has yet evolved that looks like a western cleaner clingfish with fangs!

Ann Storrie is a frequent contributor to *LANDSCOPE* magazine and an accomplished underwater photographer. She can be contacted by email (naturescapes.au@hotmail.com).

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