Our Larger Gobies

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Gordon talks us through the habitats and behaviours of two of Scotland's most common fish; The Leopard Spotted and Black Gobies ...

ENTER THE water off any shore in Scotland and there will be gobies in the vicinity. You may not see them and there may be a total lack of other fish but there will be gobies. From the shallows down to deeper water a number of different mainly small species are to be found. Typically they will be flitting across the sand, dashing into cover or hovering amongst the seaweed. Gobies belong to the family *Gobidae* notable because it is the largest grouping of different marine fish species in the world. It also contains the smallest recorded fish species.

In this edition of **SCOTTISH DIVER** we will look at the leopard spotted goby and the black goby. They are permanent residents at many of our regular dive sites and in goby terms are relatively large making them fairly easy to spot and identify.

Appearance

Gobies are characterised by prominent closely spaced eyes set above wide bulbous lips. Not so apparent to the casual observer are the pelvic fins, they are fused to form a downward facing concave bowl. The latter acts as a suction cup allowing the fish to adhere to hard substrate and hence hold station in moving water.

The leopard spotted goby has a blue-grey base colour broken up by rust coloured blotches. The fins have light blue coloured fringes. Leopard spotted gobies can reach a length of 13cm. The black goby despite the implications of its common name normally exhibits a grey-brown base colour mottled with darker irregular blotches and banding. Black gobies can reach a length of around 17cm.

It is unlikely that you will confuse the identification of the leopard spotted goby with any of our other native species. The black goby, could easily be misidentified as a rock goby *Gobius paganellus* particularly where their habitats overlap on rocky seabed. Check out the first dorsal fin, on the black goby this slopes up to a distinct peak whereas the equivalent fin on the rock goby is less prominent and can appear to be rounded. Black gobies sometimes have a black mark on the leading edge of each dorsal fin but this is not always distinct.

The black goby acquired its common name from individuals of the species that exhibited an overall dark colouration. This is an exception rather than a rule and it should be noted that sometimes the leopard spotted goby may also exhibit dark colouration.

Distribution

The black goby is most often seen off Scotland's west coast and around the Northern Isles, beyond this its range extends along the east Atlantic from Mauritania to Norway and the east coast of Greenland. It is also present in the Mediterranean Sea and the Baltic Sea.The leopard spotted goby has a range that extends from the Canary Islands to Norway and into the Mediterranean. In Scotland it is most frequently encountered off the west coast.

Habitat

Leopard spotted gobies are rarely found far from the security of an undercut, crevice or fissure. Typically a first observation may be on open seabed but an approaching diver will normally initiate an escape response with the fish to darting for nearby protective cover. Having distanced themselves from potential danger leopard spotted gobies tend to lurk on the periphery of fissures and crevices where they are easily observed. They may also be seen on wrecks and boulder slopes either of which can provide adequate bolt holes.

The highest black goby population densities occur in shallow water where ideal conditions appear to include boulder slopes adjacent to softer sand, gravel or mud seabed. In the winter months I have seen them occupying the burrows excavated by prawns in deeper muddy seabed. Black gobies are tolerant of low salinity and will often be found close to the head of sea lochs in areas where varying levels of dilution by freshwater runoff is the norm. Black gobies along with other fish and marine life that are tolerant of high salinity variation are termed euryhaline species.

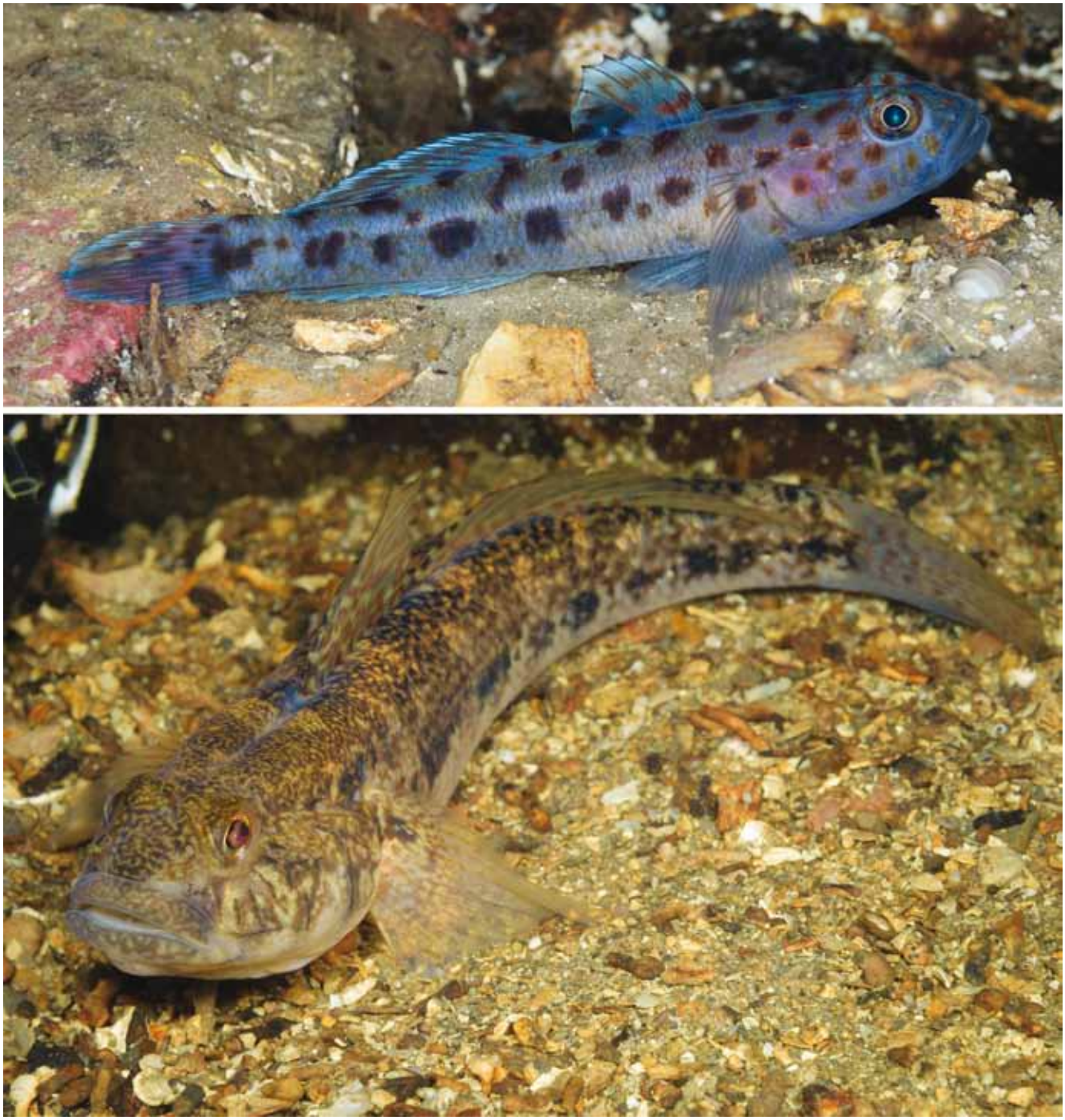
Biology

Most fishes use lateral lines (a row of sensory organs running along each side of the body) to detect water pressure change and hence localised movement, most fishes but not the gobies. Instead of lateral lines the gobies have an equivalent arrangement of sensory papillae concentrated around the head area. Look carefully at the supporting image of a black goby, you should be able to see what appear to be black lines radiating from the fishes eye, these are rows of sensory pores called papillae. The visual patterns produced by the rows of papillae are unique to each species and can be used as a means of accurate identification.

I have not placed great emphasis on using the papillae as an identification aid here because divers making a casual observation are unlikely to take the time to study the fish to this level of detail. Those who participate in Seasearch or similar surveys may wish to pursue this further, particularly if you have the opportunity to observe captive specimens or scrutinise photographic records.

For the leopard spotted goby lifestyle information is rather thin on the ground. Due to their cautious nature and specialised habitat conventional collecting methods historically provided scientists with very few specimens and hence the core of any serious study. It appears that so far the advent of the diving scientist has yet to seriously fill that knowledge vacuum.

More information is available regarding the black goby. Separate sexes breed during late spring and summer, it is likely that the precise timing will be determined by factors such as water temperature and hence latitude. The egg mass is deposited on a hard surface where it is tended and guarded by the male until the juveniles hatch. The juveniles become part of the plankton for a short period of time before completing their development in a suitable seabed habitat. Black gobies feed on small fishes and invertebrates.



*Top: Leopard Spotted Goby (*Thorogobius ephippiatus*), St Catherines, Loch Fyne*

*Bottom: Black Goby (*Gobius niger*), Torpedo Reef, Loch Fyne*

Where to See

I have seen leopard spotted gobies at numerous locations along the west coast from sea lochs to offshore islands. On the east coast my observations have been limited to the area around St Abbs and Eyemouth. The key factor is habitat, they are unlikely to be found far from the rocky reefs or wreckage that can provide them with adequate protection.

My observations of the black goby have all been in the west coast sea lochs particularly in Loch Long and Loch Fyne where they can be locally abundant at some sites. I would be most surprised if they are not present in numbers at some east coast sites.

How to Photograph

Some form of close-up lens combined with preferably two flashguns is the starting point for goby photographs. If you want to photograph either of the two species described in the open then the key to success is having everything preset, you will not have time to fiddle with controls, it will most likely be all or nothing on that first shot.

If the gobies are within their safety zone then you may get the chance to take more than one shot. Where black gobies are concerned this may be in open space close to cover and particularly if you have disturbed a gravel or sandy seabed they will sometimes come forward. With leopard spotted gobies the latter rarely happens, they will tend to remain still but often sandwiched between the roof and floor of a fissure. Directing light into such a scene can be difficult, the tendency is to over expose and 'burn out' the area of rock above and below the fissure opening. It is possible to get suitable lighting by moving flashguns close in to each side of the camera lens. By doing so you are reducing the spread of light and hence minimising the chances of over exposing any area outside the fissure.

When writing the creature feature articles I do refer to numerous publications and currently where fish are concerned the first book I reach for is the *The Marine Fishes of Wales and Adjacent Waters* by Paul Kay and Francis Dipper (previously reviewed in **SCOTTISH DIVER**). I refer to it again here not only because it contains lots of information about the goby species living in our waters but also because it has a useful couple of pages dedicated to recording and photographing gobies.