

Sussex IFCA

Fish ID Guide

**Focussing on species and life stages
caught on small fish surveys**



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Acknowledgements

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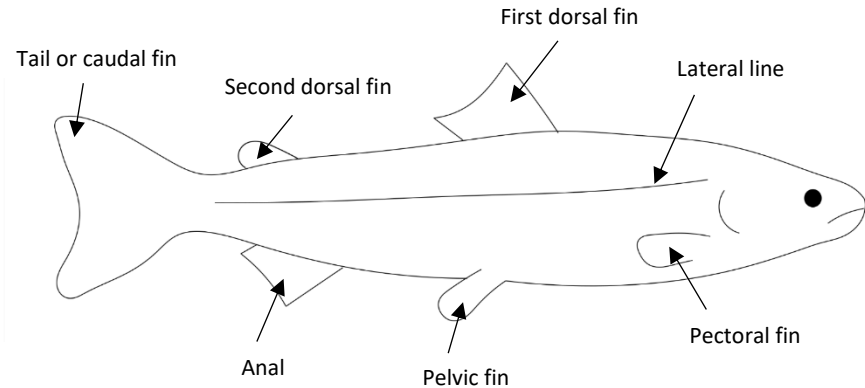
Introduction

For a number of years, Sussex IFCA has been conducting fish surveys in collaboration with a range of partner organisations. During this time, we have gained a great deal of experience in identifying small fish - both the juvenile stages of larger fish and those fish which are relatively small when fully grown. Whilst there are a number of fantastic fish identification books available, we have found that they focus on the adult features. For some species, the juveniles look quite different to the adults. We also found it frustrating to be looking through a book with several hundred species, when we have caught 'only' seventy different species in Sussex and catch only a fraction of these regularly. In addition, we wanted some simple, key features to look for whilst out on the beach or on a boat. We didn't want to be counting fin rays or judging the size of the caudal peduncle compared to the operculum, for example, or comparing a feature relative to another species which we had not caught.

To that end, this guide aims to:

- Minimise technical language,
- Highlight clear, simple, key identifying features,
- Provide photographic examples of what the species is likely to look like at various life stages, in particular as a juvenile. The photographs used in this guide were taken on fish surveys in Sussex. This is what the fish we catch actually look like.

Whilst we have endeavoured to minimise technical language, a basic understanding of the parts of a fish are useful, as indicated below.



There is a mnemonic (**FLEMMS**) that can help you systematically look at the features of a fish for identification purposes:

Fins: number, shape, colour and relative size of the dorsal, tail, anal, pelvic and pectoral fins

Lateral line: shape, colour and prominence

Eyes: position on the head, relative size

Mouth: position and angle on the head, relative size, shape, relative length of the jaws, lips, barbels, spines

Markings: spots, lines, patterns, stripes, blotches, colour (although this can be very variable)

Shape: the general body shape or outline of the fish, size

Bass *Dicentrarchus labrax*

Key identification features

Bass have two dorsal fins, the first spiny and the second with soft rays. The tail fin is large and concave. The scales are large and obvious and the curved lateral line is clearly visible. Young fish may have scattered dark spots on the back and sides. Very young bass are pale, almost translucent, with dark lines dorsally and ventrally in front of the tail. Typically 60 cm in length, but may reach 100 cm.



Similar species

Juvenile bass can sometimes be confused with juvenile mullet, but bass have a distinctive lateral line, and often spots on the group 0-1 age classes.

Habitat preference

Bass can be found in a range of habitats, depending on their age. Adults are usually found in the vicinity of inshore rocky reefs but can be caught offshore down to 100 m. Young fish are often in estuaries and saltmarsh creeks. Young fish up to 40cm also tend to live close inshore up to the surf zone. Young bass are able to cope with a wide range of salinities.



Age class	Size mm
Gp-0	1-69
	70-89
Gp-1	90-139
	140-169
Gp-2	170-209
	>210

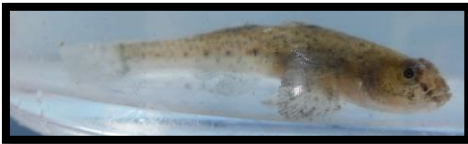
Gobies

Gobies are a family of small, mostly bottom dwelling fish. 14 species of goby have been found in British waters, 8 of which have been caught on Sussex IFCA fish surveys. They are a difficult group to identify to species level as the characteristics they share, such as their markings, size and colour, can be similar.

Gobies less than 40mm are recorded as 'juvenile' as they are too small to identify to species level. Juvenile gobies made up 14% abundance of all gobies found. Gobies could be confused with blennies, but gobies have two separate dorsal fins, whereas blennies have a single long dorsal fin. Here are the eight species which have been found in Sussex.



Juvenile goby



Common – sandy colour, stout body, tolerant of low salinity



Sand – sandy colour, slim body



Rock – free fin rays on top edge of pectoral fins, stout tail



Two spot – one spot at the base of the tail, slender body



Black – black pelvic fin, triangular first dorsal fin, stout body



Painted – tall dorsal fins with dots in rows



Transparent – pink area behind head, brown pigmentation dots along lateral line and top and bottom of body



Crystal – white with a few black pigmentation dots along top and bottom of body

Common goby *Pomatoschistus microps*

Key identification features

A moderately stout, tadpole shaped, sandy-coloured goby with darker patches on the sides. The common goby has black tinted pelvic and anal fins. They also have small, black triangular marks at the base of their pectoral fins. Males have a dark spot on the rear of the first dorsal fin. The membrane connecting the gill cover to the throat connects along its whole length and creates a smooth circular shape. Individuals may reach up to 9 cm in length.

Similar species

Common gobies are very similar to sand gobies (page 9) but the common is stouter and its shape reminiscent of a tadpole, whereas the sand is more slender and carrot shaped. The common goby has black mark at the base of the pectoral fins but this is not always distinct. Another technique, used to separate these two species is to carefully hold the goby upside down and gently push its head back. The opening between the gill cover and the throat is more rounded and smaller than the sand. Consider fish welfare when using this technique. If unsure, record as juvenile goby.

Habitat preference

Common gobies preferably inhabit shallow waters with a soft, sand or mud substrate and estuaries. Common gobies can tolerate reduced salinities and are often found in estuaries and coastal lagoons; dominating upper less-saline reaches.



Sand goby *Pomatoschistus minutus*

Key identification features

A slender, carrot shaped, sandy-coloured goby with dark spots or cross hatching across the back. Male sand gobies have a dark spot outlined in pale blue or white the rear of the dorsal fin. The membrane connecting the gill cover to the throat connects only at the front and creates a right angle, with the gill cover reminiscent of a bat wing. Individuals may reach up to 7 cm in length.

Similar species

Very similar to the common goby (page 8) but the sand goby is generally more slender and carrot shaped. If you very carefully hold the goby upside down and gently push its head back, the opening between the gill cover and the throat is more open and like a bat wing, compared to the common. Consider fish welfare when using this technique. If unsure, record as juvenile goby.

Habitat preference

The sand goby has a strong preference for clean sand substrates, but can be found over other substrates such as mud and small gravel. The sand goby has no tolerance for low salinities and is not found in estuaries or coastal lagoons. During the winter months, most sand gobies migrate into deeper water.



Rock goby *Gobius paganellus*

Key identification features

Rock gobies are highly varied in their colour, from green to brown with mottled dark blotches and some specimens can be almost black. They have a creamy orange band along the top edge of the first dorsal fin. The upper fin rays of the pectoral fins are not connected by a membrane. Stout tail. Individuals may reach up to 13 cm in length.

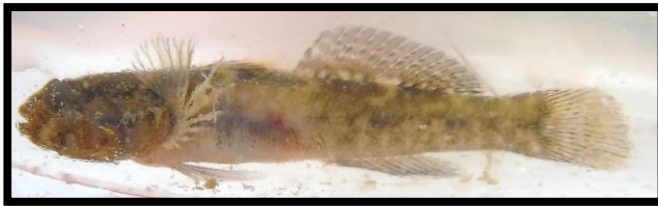


Similar species

Rock gobies may be confused with black gobies (page 10), as they can be similar in size, shape and colour. However, the rock goby has free rays on the upper edge of its pectoral fin, it has a creamy orange band along the top edge of the first dorsal fin and the pelvic fin of the rock goby is not black.

Habitat preference

The rock goby prefers hard substrates and is commonly found in rock pools and on rocky reefs, down to 15 m depth. Rock gobies can tolerate lower salinities and can be found in estuarine habitats.



Black goby *Gobius niger*

Key identification features

The black goby is a heavy-set goby with a broad body shape. Despite their name, only some individuals are black. Black gobies can vary in colour from light brown/grey to black. They often have dark spots or blotches and a black pelvic fin. They have two, comparably tall dorsal fins which have a black mark near the front edge. As adults, the rays of the first dorsal fin are elongated, forming a triangular shape and stand taller than the second dorsal fin. Individuals may reach up to 18 cm in length.

Similar species

Black gobies may be confused with rock gobies (page 10), as they are similar in size, shape and colour. However, the black goby has a black pelvic fin and is chunkier in body shape with a taller, triangular first dorsal fin.

Habitat preference

Black gobies are an inshore species and can be found at depths ranging from 1 to 50 m. They prefer highly vegetated habitats over gravel, sand or mud substrates. Black gobies can tolerate lower salinities and can be found in estuaries and tidal lagoons.



Painted goby *Pomatoschistus pictus*

Key identification features

The painted goby is slender and a light brown to yellow-olive in colour with darker brown patches. It has a row of four double dark brown spots along the sides, although these can be difficult to distinguish. It has tall dorsal fins with rows of dots, orange to dark brown in colour, sometimes with bands of iridescent pink and blue. There is often a dark spot on the front edge of the first dorsal fin. Paint goby grow up to 6 cm long, occasionally up to 9.5 cm.



Similar species

Painted gobies may be confused with common (page 8) or sand (page 9) gobies as the colouration, size and shape can be similar. However, the painted goby has taller dorsal fins with rows of spots across them.

Habitat preference

Painted gobies can be found at depths down to 55m. They prefer sandy or gravelly seabed.



Two-spot goby *Gobiusculus flavescens*

Key identification features

Only the male two-spot, or two-spotted, goby actually has two spots; one at the base of the tail fin and one just behind the pectoral fins. The female only has one spot at the base of the tail. It is a slender goby, yellow to pale brown in colour with darker brown patches and cross hatching. They can be red to green-brown in colour. There can be bands of blue/white across the dorsal fins and tail fin. Breeding males have blue marking along the sides of their bodies. The eyes are more on the sides of their heads than on top, compared to other gobies. Individuals may reach up to 6 cm in length.

Similar species

The two-spot goby could be confused with the common (page 8), sand (page 9) or painted gobies (page 11) but it has a distinct spot at the base of the tail.

Habitat preference

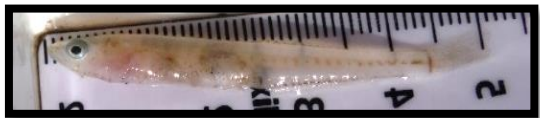
Two-spot gobies live in seaweed and seagrass in coastal areas down to 20m deep, often in loose shoals.



Transparent goby *Aphia minuta*

Key identification features

The transparent goby is, as the name suggests, almost transparent. Their internal organs can be seen clearly through their body. The body often has a pink tinge and a few lines of pigmented spots can be seen near the bases of the dorsal and anal fins as well as down the lateral line. Individuals may reach up to 6 cm in length.



Similar species

The transparent goby may be confused with the crystal goby (page 13) but the transparent goby has a slightly larger dorsal fin and more colouring. The crystal goby has less pronounced or even no pigmentation down the lateral line and its body shape is more rounded.

Habitat preference

The transparent goby is a pelagic species of goby, living in the water column rather than near the seabed. They occur at a range of depths from 5 m down 100 m. Due to the pelagic nature of transparent gobies, they can be found over a range of seabed types. However, they are more abundant over soft substrates and eel grass beds.



Crystal goby *Crystallogobius linearis*

Key identification features

The crystal goby is almost transparent. Their internal organs can clearly be seen through their body. The body often has a pink tinge and a few lines of pigmented spots can be seen near the bases of the dorsal and anal fins. Individuals may reach up to 5 cm in length.

Similar species

The crystal goby may be confused with the transparent goby (page 12) but the crystal goby has less pronounced or no pigmentation down the lateral line.



Habitat preference

The crystal goby can be found at depths of between 20 and 400 m. This pelagic species is not particularly influenced by the type of seabed but during the breeding season, crystal gobies prefer a soft substrate such as sand.



Grey mullet

There are three grey mullet species in Sussex, which all have a torpedo-shaped body, large scales and two separate dorsal fins. They feed on the rich organic layer on the surface of the muddy seabed and browse on the algae found on rocks, and are often seen in marinas. They have a thick-walled gizzard-like stomach and a very long intestine. The adults leave these feeding marks on the surface on the mud.

Mullet less than 50 mm can be recorded as 'juvenile' as they are too small to identify to species level. Any handling is likely to be fatal with individuals smaller than this. Juvenile grey mullet made up 14% abundance of all grey mullet found. They are pale underneath and dark grey on top with rainbow-coloured dots, and no visible scales.





Golden grey mullet: Golden spot on gill cover. Pectoral fin is long, if bent forward it reaches to or beyond the eye.



Thin lipped grey mullet:
Black mark at base of pectoral fin. Pectoral fin is short, does not reach eye if bent forward.



Bottom fish - Thick lipped grey mullet: Upper lip thick, at least half the diameter of the eye. Pectoral fin is long, if bent forward it reaches past the pupil of the eye.

Golden grey mullet *Chelon aurata*

Key identification features

The golden grey mullet has a long torpedo-shaped body with large scales and two separate dorsal fins. They are silver grey with longitudinal stripes. Golden grey mullet have a golden yellow spot on the gill cover. They also have a long pointed pectoral fin which, if folded forward, would reach the eye. The golden grey grows to about 60 cm in length.

Similar species

The golden grey mullet could be confused with other grey mullets but the golden spot is distinctive, even on small fish.

To separate the golden grey mullet from thin lipped grey mullet (page 17), a comparison of the length of the pectoral fins is required with the fin reaching the eye in golden grey mullet, but not in thin lipped grey mullet.

To separate golden grey mullet from thick lipped grey mullet (page 18) a comparison of the size of the upper lip is required. The upper lip is over half the diameter of the eye in thick lipped grey mullet and under half the diameter of the eye in golden grey mullet.

Be very careful if moving their fins. If unsure of species, record as juvenile.

Habitat preference

Golden grey mullet is tolerant of brackish water and during the summer they can be found close inshore in sheltered bays, estuaries and lagoons over sand and mud. During the winters months they move offshore in to deeper waters.



Thin-lipped grey mullet *Chelon ramada*



Key identification features

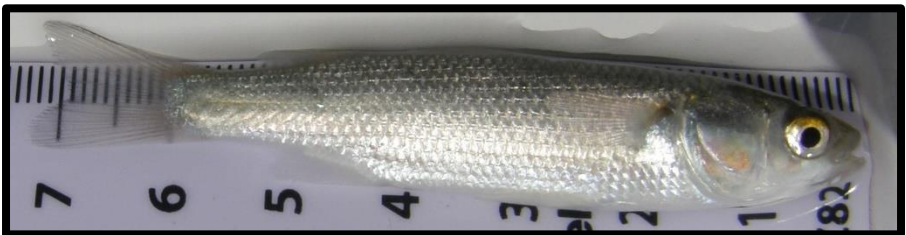
The thin-lipped grey mullet has a long torpedo-shaped body with large scales and two separate dorsal fins. The key distinctive feature of the thin-lipped grey mullet is their short pectoral fins that do not reach the eye if folded forward. Thin lipped grey mullet also has a dark spot at base of pectoral fin. Individuals may reach up to 70 cm in length.

Similar species

The thin-lipped grey mullet may be confused with other grey mullets but thin-lipped grey mullet has a dark spot at base of their pectoral fin. They can sometimes have a golden sheen on the gill cover but it is not a distinct spot like with the golden grey mullet (page 16). Be very careful if moving their fins. If unsure of species, record as juvenile.

Habitat preference

Thin lipped grey mullet is tolerant of brackish water and during the summer they can frequently be found in the inshore waters of sheltered bays, estuaries and lagoons. Thin lipped grey mullet prefers soft substrates such as sand and mud. During the winter months thin lipped grey mullet move offshore in to deeper waters.



Thick-lipped grey mullet *Chelon labrosus*



Key identification features

The thick lipped grey mullet has a long torpedo-shaped body with large scales and two separate dorsal fins. A key distinctive feature of the thick lipped grey mullet is the length of the pectoral fin, when it is folded forward it reaches beyond the pupil of the eye. Another identifying feature is the thickness of their upper lip which is thicker than half the diameter of the eye. Individuals may reach up to 75 cm in length.

Similar species

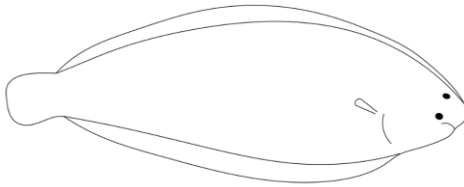
The thick lipped grey mullet could be confused with other grey mullet species. The thick lipped grey mullet does not have a dark spot at the base of the pectoral fin found on thin lipped grey mullet (page 17). They also do not have the golden spot on the gill cover that identifies the golden grey mullet (page 16). The thick lipped grey mullet has a thick upper lip which is at least half the diameter of its eye. Be very careful if moving their fins. If unsure of species, record as juvenile.

Habitat preference

The thick lipped grey mullet is highly tolerant of low salinities and adults are frequently found inshore in estuaries and brackish water bodies. Thick lipped grey mullet prefers soft substrates such as sand and mud but do occur over hard substrates as well.

Flat fish

Flatfish all start out as round fish, metamorphosing into flat fish when they settle on the seabed, usually at a few weeks old. Some settle out to be right-eyed (sole, dab, flounder, plaice) or left-eyed (brill, turbot). Turn the fish so that the eyes are above the mouth. If it is facing right, it is a right-eyed fish. Both eyes have migrated round to the right side of the fish.



Soles - right eyed, general oval shape

Dover sole – dorsal and anal fins joined to tail fin, fringe around head

Sand sole – nostril on blind side rosette-shaped and as large as eye

Thickback sole – dorsal and anal fins separate from tail fin

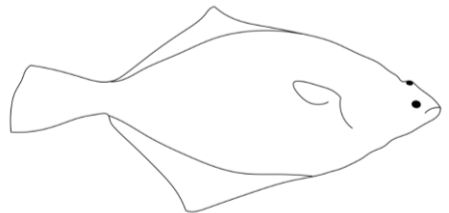
Solenette – black lines on dorsal and anal fins, every 4th-6th ray

Plaice/flounder/dab - right eyed, general diamond shape

Plaice – topside smooth, apart from bony tubercles (lumps) between eyes (on larger plaice)

Flounder –rows of short prickles along where the dorsal and anal fins join the body

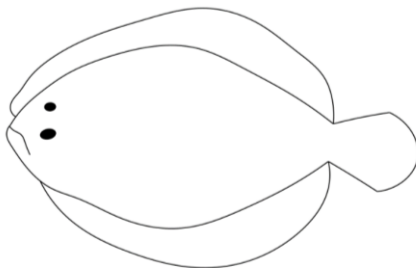
Dab – lateral line curved above pectoral fin



Brill/turbot - left eyed, general circular shape

Brill – the front of the dorsal fin is branching with partially free rays, forming a frill

Turbot – lack of frill, bony tubercles over the body (in larger turbot)



Dover sole *Solea solea*

Key identification features

Dover soles are right-eyed flatfish. Their colouration is medium to dark brown with irregular dusky patches on the eyed side, while the underside is creamy-white. Dover sole has small filaments fringing the head, these filaments resemble white stubble. The upper side pectoral fin has a black mark at the edge. The lower side pectoral fin is about the same size as the upper one. The dorsal and anal fins are joined to the tail fin. Dover sole grow up to 70 cm long.



Similar species

Dover sole may be mistaken for other sole species. Sand sole have a large, rosette-shaped nostril on the lower side. The thickback sole has a gap between the tail fin and the dorsal and anal fins. Solenettes (page 21) are very similar to young Dover sole, but the solenette has regular black lines on the anal and dorsal fins, and a smaller maximum size.

Habitat preference

Dover sole are more commonly found over soft substrates such as sandy or muddy seabed. Dover sole occur at a range of depths from 5 m down to 100 m, although Dover sole occupy shallow inshore waters during the summer months.



Solenette *Buglossidium luteum*

Key identification features

The solenette is a left eyed flat fish with coarse scales and small eyes. The solenette is a sandy or light brown coloured fish with small spots of brown. Solenette, like other members of the sole family, have a relatively long and narrow, oval body shape. A key identifying feature of the solenette is the presence of black fin rays on both the dorsal and anal fins. These black rays occur every 4th to 6th fin ray. Individuals may reach up to 15 cm in length.

Similar species

Solenette may be confused with other species of sole. The most common error occurs between solenette and juvenile dover sole (page 20). However, solenette have regular black lines on the dorsal and anal fins.

Habitat preference

Solenette are predominately found over sandy or muddy substrates. Solenette are frequently found in inshore regions at depths of between 5 m and 50 m.



Plaice *Pleuronectes platessa*

Key identification features

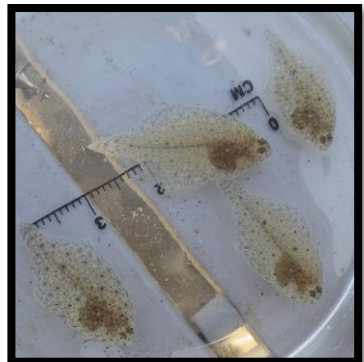
The plaice is a right eyed flat fish with a small head and mouth. They have a series of bony tubercles or nodules on the head (in larger fish) but the rest of the body is smooth. The plaice is a sandy brown colour with bright red or orange spots in some individuals, less commonly present on juveniles. When at rest, the overall body shape is roughly diamond. The dorsal fin does not extend past the eyes. Most are about 40 cm long, but may reach up to 1 m.

Similar species

Plaice may be confused with flounder (page 23) or dab (page 24). However, if you very gently run a finger along the base of the anal and dorsal fins from tail to head, a plaice will feel smooth whereas the flounder will feel rough. Dab have a semi-circular curve above the pectoral fin, much like the letter D, whereas the plaice's lateral line has a much more subtle curve. Very young plaice may also be confused with solenette (page 21) but plaice have a more pointed head shape.

Habitat preference

Plaice prefer soft substrates such as sand, although they also live on gravel and mud. They are most common between 10 – 50 m but do occur from the tide line down to 200 m. Young fish in their first year can be found in sandy tidal pools; living mostly in very shallow water. Plaice will rarely enter freshwater, unlike the flounder.



Flounder *Platichthys flesus*

Key identification features

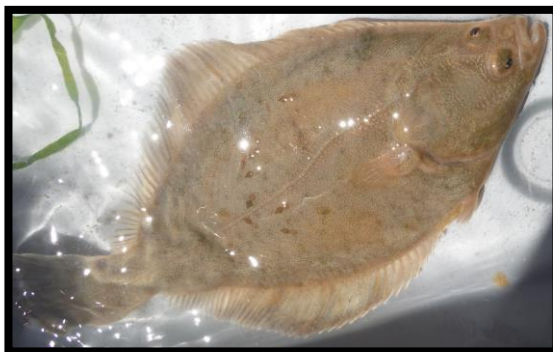
Flounder (40 – 60 cm long) are right-eyed flatfish, although some specimens can be left eyed. Flounder are a sandy brown colour; however, this is variable and dependent on their habitat. A key distinguishing feature of flounder is the presence of small, sharp spines along the bases of the dorsal and anal fins. These spines can be felt on very small flounder by stroking gently from tail to head.

Similar species

Flounder may be confused with plaice (page 22) or dab (page 23). However, if you very gently run a finger along the base of the anal and dorsal fins from tail to head, a plaice will feel smooth whereas the flounder will feel rough. Dab have a semi-circular curve above the pectoral fin, whereas the flounder's lateral line is straight.

Habitat preference

Flounder prefer soft substrates such as sand and mud, they are frequently found from the tide line down to depths of 100 m. Flounder are tolerant of low salinities (the only juvenile flatfish found in low salinities) and can be found in estuaries.



Dab *Limanda limanda*

Key identification features

A right-eyed flatfish with a diamond body shape and rounded caudal fin. Colouration is often mottled and sandy-brown, although this is habitat dependent. A dab may or may not have faint orange spots on the upper side of its body. Dab have two key identifying features; a distinct curve in their lateral line above their pectoral fin (D for dab) and the upper side of their body feels rough when gently stroked from tail to head. Most grow to about 25 cm long, but may reach 40 cm.

Similar species

This species is very similar to flounder (page 23) and plaice (page 22). However, dab have a distinct curve in their lateral line above their pectoral fin.

Habitat preference

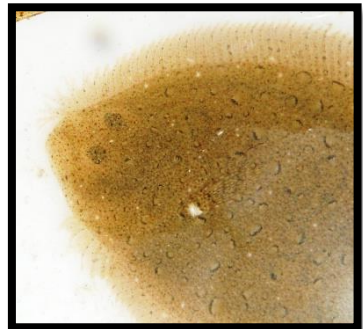
Dab prefer to live on sandy substrates, from a few meters of water depth down to about 100 m. Some individuals have been found down to 150 m. Juvenile dab are more common in inshore waters and move out into deeper water as they mature. Adults move inshore during the summer as a part of their breeding behaviour.



Brill *Scophthalmus rhombus*

Key identification features

Brill are a left-eyed flatfish with a circular body shape and a rounded tail fin. They are brown with dark and light brown spots in a highly speckled pattern, although colouration is habitat dependent. A key identifying feature of brill is the presence of a frill formed of branched fin rays at the front of the dorsal fin between the eyes and the mouth. Typically 50 cm, but may reach 75 cm in length.



Similar species

Brill may be mistaken for with other flat fish, in particular turbot (page 25). However, brill have a frill at the front end of their dorsal fin between their eyes and upper jaw. Brill are also slightly more oval in their body shape and lack the bony tubercles present on the back of turbot.

Habitat preference

Frequently found on sandy or mixed seabed at depths of 10-70 m, may occasionally be found in estuaries as they are tolerant of brackish water. Juveniles occur close inshore.



Turbot *Psetta maxima*

Key identification features

Turbot are left-eyed flatfish. They are a sandy brown, with dark and light speckles across their back and white underneath. The dorsal and anal fins do not reach the tail fin. Turbot have a circular body shape. They have bony bumps known as tubercles which are irregularly scattered on their upper side. These tubercles are present even on very small specimens of turbot. Turbot grow up to 81 cm long, but commonly 40 cm.

Similar species

Turbot could be confused with other flat fish, particularly brill (page 24). However, brill lack the bony tubercles across their backs that are found on turbot. Also, brill have a frill.

Habitat preference

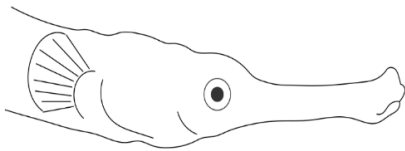
Turbot predominantly live in the inshore shelf region in areas of around 80 m depth, with the juveniles closer inshore. Turbot prefer to inhabit areas of sandy and gravel substrates but have been found on both shell and mud-based substrates. Turbot are tolerant of low salinities and are often found in the brackish waters of estuaries.



Pipefish

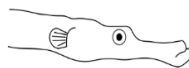
Pipefish are in the same family as seahorses. They have small mouths and tubular snouts. They live in shallow water and hide in seaweed and seagrass. Like seahorses, the male carries the eggs in a pouch on his underside.

There are six species of pipefish found in the British Isles, all of which have been caught on Sussex IFCA fish surveys. Look at the tail and pectoral fins, the shape of the head and whether they have angular body rings to distinguish them.



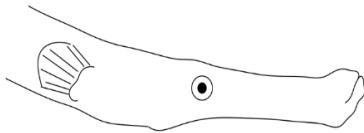
Greater pipefish

Distinct hump behind the head.
Distinct tail and pectoral fins.
Distinct body rings.
Largest maximum size.



Lesser pipefish

No distinct hump behind the head and shorter snout than the greater.
Distinct tail and pectoral fins.
Distinct body rings.



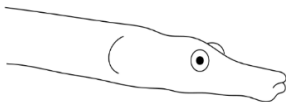
Broad nosed pipefish

Snout almost as deep as head.
Distinct tail and pectoral fins.
Distinct body rings.



Snake pipefish

Distinct marking through eye.
No distinct pectoral fins, tail fin minute.
No distinct body rings.



Straight nosed pipefish

Straight snout.
Tail and pectoral fins absent.
No distinct body rings.



Worm pipefish

Upturned snout.
Tail and pectoral fins absent.
No distinct body rings.

Greater pipefish *Syngnathus acus*

Key identification features

The greater pipefish (45 – 50 cm long) has a brown-green colour with darker saddles across its back, with a pale cream underside. The greater pipefish has pronounced body rings and four-sided tail rings. This pipefish has a long snout which is more than half the length of its head and rounded in the cross section. There is also a distinctive hump on the top of the head behind the eye, in the midline of the nape.



Similar species

The greater pipefish may be confused with other pipefish, particularly the lesser pipefish (page 28) but the greater pipefish has a longer snout and distinct hump behind the head.

Habitat preference

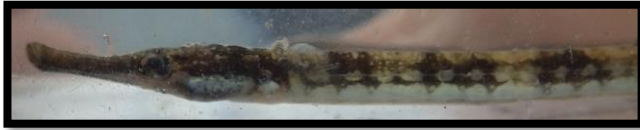
Greater pipefish are frequently found in a range of habitats including rocky, muddy and sandy seabed as well as seagrass beds and sometimes can be found in outer estuarine environments.



Lesser pipefish *Syngnathus rostellatus*

Key identification features

Lesser, or Nilsson's, pipefish have a mottled brown colouration with saddles across its back with a pale cream underside. Lesser pipefish also have distinct body and tail rings and well-developed pectoral and tail fins. The snout is rounded in the cross section and relatively short, being less than half the head length. Individuals may reach up to 17 cm in length.



Similar species

Lesser pipefish could be confused with other pipefish, particularly a juvenile greater pipefish (page 27), but the lesser pipefish has no distinct hump on its head and it has a shorter snout relative to its head length.

Habitat preference

Predominately found in sandy habitats, amongst floating or attached seaweeds. Lesser pipefish are also commonly found in estuaries.



Broad nosed pipefish *Syngnathus typhle*

Key identification features

The broad nosed, or deep snouted, pipefish has a green-brown back with a pale brown to yellow underside. The deep snouted pipefish has distinct body and tail rings and well-developed pectoral and tail fins. They have a laterally flattened snout which is almost as deep as the head. The broad nosed pipefish grows to about 35 cm long.



Similar species

The deep snouted pipefish could be confused with other pipefish, particularly the greater (page 27) or the lesser (page 28), but it has a deeper snout than other pipefish.

Habitat preference

Broad nosed pipefish are commonly found in shallow coastal waters and are particularly common in sea grass beds to a depth of 20 m.



Worm pipefish *Nerophis lumbriciformis*

Key identification features

Worm pipefish have a green to brown colouration and is often habitat dependent. These pipefish often have lighter markings under their throat and on their abdomen. Worm pipefish have a long, slender body with smooth body rings and lack pectoral, anal and tail fins. The body is rounded in cross section. The key distinguishing feature of this species is the short, upturned snout. Males may reach up to 15 cm in length, whilst females may reach up to 16 cm.



Similar species

Could be confused with other pipefish in particular both the snake and straight nosed pipefishes. The main distinction from these species is the very short snout which is slightly upturned.

Habitat preference

Worm pipefish are often found in rocky areas where algae is abundant. This species is frequently found in rock pools within the intertidal zone and down to depths of 30 m.

Sand smelt *Atherina presbyter*

Key identification features

Sand smelt are small, slender fish; reaching about 20 cm long, with two dorsal fins, large eyes and a forked tail. Sand smelt have a silvery line which runs horizontally along the length of the fish; begins as a very defined black line in post larval stage. The area above the silvery line is yellow/green, and the edges of the scales have small black speckles, which forms a cross-hatch appearance. The underside of the fish is silver. The diameter of their eye is equal to the length of their snout.

Similar species

Sand smelt are a completely different species to smelt (page 30), so be careful not to misrecord. Smelt have a distinctive cucumber smell, a more pointed snout, one dorsal fin and an adipose fin. Anchovy also look similar but have a protruding upper jaw.

Habitat preference

Sand smelt prefer warmer waters and as such they inhabit inshore regions during the summer months. Sand smelt can also be found in harbours, estuaries, rivers and can tolerate very low salinities. Sand smelt are frequently found over sandy or muddy seabed at depths of 20 m. Large shoals can be caught inshore in the autumn.



Smelt *Osmerus eperlanus*

Key identification features

Smelt (sometimes called sparring) have a single dorsal fin and a smaller adipose (non-bony) fin nearer to the tail. Closer examination shows a black shading to the caudal fin. The back of the fish is a light olive green which changes to silver/cream beneath the lateral line. The mouth is large with sharp teeth. Smelt have a distinctive smell of cucumber when freshly caught. The eye is approximately a third of the snout length. Individuals may reach up to 30 cm in length.



Similar species

Smelt can be mistaken for sand smelt (page 30) but sand smelt have a much larger eye, which is equal to the snout length. Be careful not to misrecord the two species as they have similar names. The closest relatives of smelt in British waters are trout and salmon.

Habitat preference

Smelt are an inshore species and are commonly found in coastal waters, close to river mouths and estuaries. Some populations of smelt can be found in landlocked lakes in Northern Europe and live their entire lives in fresh water.



Herring *Clupea harengus*

Key identification features

Herring are a pelagic species with a blue green back and silver sides. They have a large eye with a smooth keel. Herring have fragile scales which are easily removed upon handling of the fish. They have a single dorsal fin, the origin of which is in front of the pelvic fin. Individuals may reach up to 40 cm in length.

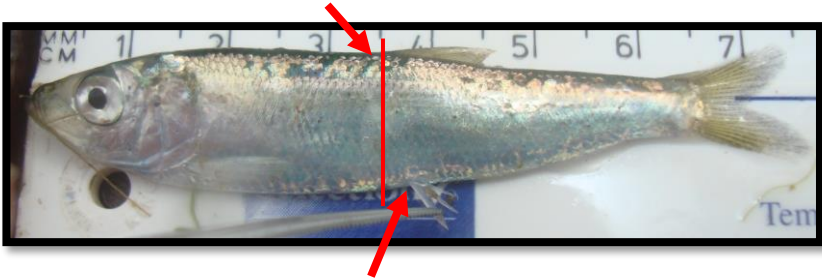


Similar species

Herring could be confused with sprat (page 32), with mixed shoals of juvenile sprat and herring occurring together. The position of the dorsal fin relative to the pelvic fin is one way of separating these two species. In herring, the dorsal fin begins in front of the pelvic fin, whereas sprat have a dorsal fin which is either in line with or behind the pelvic fin. Another technique to separate these two species is the presence of a serrated keel on larger sprats.

Habitat preference

Herring are a pelagic species and they live in large shoals in coastal waters at depths ranging from the surface to 200 m.



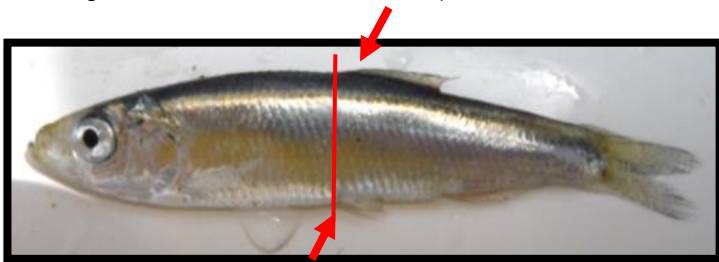
Sprat *Sprattus sprattus*

Key identification features

Sprat have a dark blue/green back with silver sides and belly. The scales on the keel of a sprat point backwards, so if you gently run a finger along the keel towards the head, the keel will feel sharp and serrated. The start of the dorsal fin is in line with or behind the start of the pelvic fin. Individuals may reach up to 16.5 cm in length.

Similar species

Sprat may be confused with herring (page 31). Sprats often form mixed shoals with juvenile herring. The easiest way to separate sprat and herring is to look at the relative positions of the dorsal and pelvic fins. In sprat, the front of the dorsal fin is behind the front of the pelvic fin. Whereas, in herring the dorsal fin starts in front of the pelvic fin.



Habitat preference

Sprat are a pelagic species that forms large shoals in inshore areas and estuaries. Sprat can be very tolerant of low salinities. Sprats exhibit both seasonal and diel migrations. During the summer, sprats occur inshore at depths ranging between 10 m and 50 m, while during the winter months the shoals move offshore into deeper water down to approximately 150 m. Sprats also migrate through the water column throughout the course of a day, occurring closer to the surface during the night and in deeper water during the day.



Twaiite shad *Alosa fallax*

Key identification features

A species not yet found during IFCA small fish surveys but juveniles have recently been captured nearby. Twaiite are herring-like fish with a heavy-head and deep body; reaching about 50 cm long, with one dorsal fin and a forked tail. Twaiite have a line of dark round blotches on its flanks, level with the eye. Young may only have one dark spot behind the gills. The back of the fish is deep blue in colour, the underside has a sharp keel and is silver and the sides a golden yellow. There are 40 – 60 gill rakers on the first gill arch.



Similar species

Twaiite may be confused with allis shad which is rarer and has 80 – 130 gill rakers on the first gill arch. Allis shad also have the occasionally dusky blotches running down the sides so be careful not to misrecord. Young twaiite may also be confused with herring (page 31).

Habitat preference

The only known spawning populations of twaiite are in the Severn catchment and it is unknown whether we yet have spawning population in the South East. Twaiite shad were positively identified in the Thames estuary in 2020 so they may be appearing in other estuaries soon. The fish enter rivers to breed in late spring. Twaiite can be found in the lower reaches of large rivers with easy access to spawning grounds.

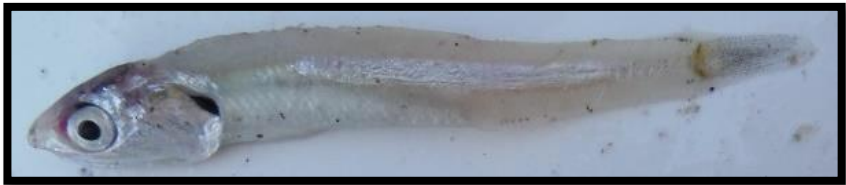
Anchovy *Engraulis encrasicolus*

Key identification features

Anchovy have a rounded snout which extends past the lower jaw. The mouth extends back well past the eye. Anchovy have a slender, rounded body without a serrated keel. Anchovy have a yellowy-green back, with bright silvery sides and underneath and large scales which can be easily detached. Juveniles have a silver strip along their flank which disappears with age as the fish matures. Individuals may reach up to 20 cm in length.

Similar species

Anchovy are similar to sand smelt (page 30) which are also yellowy-green on top with a silver stripe, but anchovy have a pronounced, rounded snout. Anchovy also only have a single dorsal fin. Sand smelt have a more pointed snout and two dorsal fins. Anchovies are in the same order as herring and sprat, but the lower jaw of both sprat and herring extends past the upper jaw. Sprats also have a serrated keel, which is absent in anchovy.



Habitat preference

Anchovy are an open water pelagic species. During the summer, they can be found in shallow inshore waters and may enter estuaries especially during spawning. They move further offshore into deeper water during the winter. Anchovy are tolerant of a range of salinities.



Lesser weever *Echiichthys vipera*

HANDLE WITH CAUTION



Key identification features

The lesser weever is a sandy coloured fish with pale silvery sides and underneath. The first dorsal fin is black. The second dorsal fin is much longer and sandy coloured. The tail fin is yellow with black band on its edge. It has an upward facing mouth and eyes on the top of the head. Individuals may reach up to 15 cm in length.

Lesser weevers have venomous spines on their first dorsal fin and gill covers. The sting is similar to a wasp sting. If someone is stung, the best remedy is to immerse the sting in water as hot as the person can tolerate, ideally hotter than 45°C, as this will denature the toxin. Some people can have an anaphylactic shock from the sting, so call the emergency services if there is any swelling.



Similar species

The lesser weever may be confused with a juvenile greater weever. However, the greater weever is predominately found in deeper offshore waters. The greater weever also has a larger maximum size of 410 mm and spines in front of and above each eye.

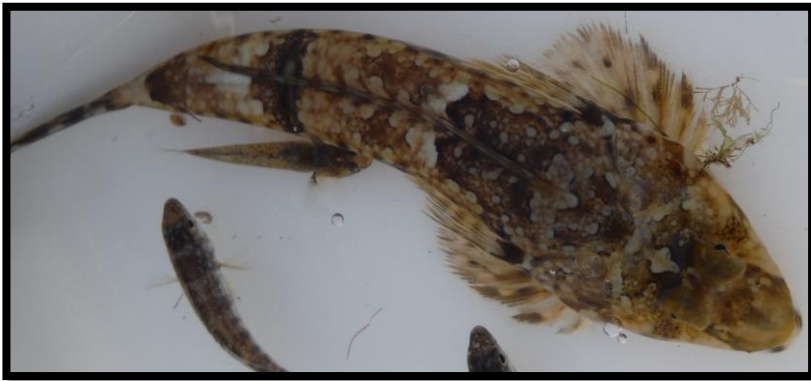
Habitat preference

Mostly found on soft substrates including sand and mud. They are often inactive during the day and burrow in the sand. Lesser weevers migrate into inshore regions during spring and reach a maximum abundance in May.

Common dragonet *Callionymus lyra*

Key identification features

The common dragonet has a dorsally flattened body. They are a light brown to yellow speckled colouration with darker saddles. Common dragonets have broad pectoral fins and two dorsal fins, the first triangular and mostly black, the second rectangular. A key distinction for common dragonets is the presence of four spines on the gill cover, three of these spines point backward and the remaining spines forward. Common dragonet may grow up to 30 cm in length if male, 25 cm in length if female.



Similar species

Common dragonets look very similar to reticulated dragonets (page 37) but the common has four spines on the gill cover, three pointing back and up and one pointing forwards (although these can be difficult to see). The reticulated has three spines on the gill cover all pointing back. The common has a larger maximum size, so anything over 100mm long is likely to be common. If unsure, record as dragonet unspecified.

Habitat preference

Common dragonets prefer sand and mud substrates, they can be found across a range of depths from 5 m down to 100 m and occasionally have been found as deep as 430 m.

Reticulated dragonet *Callionymus reticulatus*

Key identification features

The reticulated dragonet has a dorsally flattened body with a speckled light brown to yellow colouration and dark saddles across the back. Reticulated dragonets have two dorsal fins, the first triangular and mostly black, the second rectangular. They have three spines on the gill cover, all of which point backwards and up. Reticulated dragonet may grow up to 10 cm in length if male, 8 cm if female.

Similar species

Reticulated and common dragonets (page 36) look very similar. The key distinction between the two species is the number of spines on the gill cover. The reticulated dragonet has three spines on the gill cover, all of which point back and up. The common dragonet has four spines on the gill cover, three pointing back, one pointing forwards. The common has a larger maximum size, so anything over 100mm long is likely to be common. If unsure, record as dragonet unspecified.



Habitat preference

Reticulated dragonets predominately occur in inshore waters, at depths of between 1-40 m. Reticulated dragonets prefer a sandy seabed, but can be found over gravel or mud.



Ballan wrasse *Labrus bergylta*

Key identification features

Ballan wrasse are the largest species of wrasse found in British waters. Ballan wrasse have a highly varied colouration and can occur as either a greenish brown through to red. A key distinguishing feature for Ballan wrasse is the lack of dark spots on either the dorsal fin or on base of the tail fin. Another identifying feature is a smooth edge at the front of the gill cover. Any specimen over 20 cm in length is almost certainly a Ballan wrasse. Typically 50 cm, but may reach 66 cm in length.

Similar species

Juvenile Ballan wrasse may be mistaken for corkwing (page 39), Baillon's wrasse or goldsinny. Ballan wrasse can be separated from both of these species by the smooth edge at the front of the gill cover. Ballan wrasse also lack the dark spot near the base of the tail fin that can be found on both corkwing and Baillon's wrasse.

Habitat preference

Ballan wrasse are commonly found close to rocky seabed or around rocky reefs and kelp forests. They are usually found at depths between 10 m and 50 m.



Corkwing wrasse *Symphodus melops*

Key identification features

Corkwing wrasse, like all wrasse species, have a single long dorsal fin. The colouration of corkwing wrasse is highly variable and often dependent on their habitat and surrounding environment. They often have blue and orange markings on the face, particularly the male during the breeding season. Corkwing wrasse have a dark spot near the base of their tail fin just below the lateral line and a comma shaped mark behind the eye, sometimes obscured by other markings. They have a serrated edge at the front of the gill cover. The corkwing wrasse grows to about 28 cm, but commonly 20 cm.



Similar species

Corkwing wrasse may be confused with other wrasse species, particularly juvenile Ballan wrasse (page 38). However, corkwing wrasse have a dark spot at the base of the tail fin on the midline and a comma shaped mark behind the eye.

Habitat preference

Corkwing wrasse are territorial fish that are commonly found in the intertidal zone. This species is prominent along rocky coastlines with large amounts of algal cover and also occurs within seagrass beds.



Black seabream *Spondyliosoma cantharus*

Key identification features

Black seabream is laterally compressed with a deep body shape and a forked tail fin. Black seabream is silver grey with faint horizontal bands, although small juveniles may exhibit dark brown and yellow vertical stripes. A faint black line may be present at the margin of the tail fin. Black seabream also has a large eye, a single dorsal fin, and a distinct lateral line. Individuals may reach up to 60 cm in length.

Similar species

Black seabream is similar to gilthead seabream (page 41), but black seabream lacks the dark spot on the gill cover at the end of the lateral line and also have a more pointed snout. If unsure, record as seabream juvenile.

Habitat preference

Black seabream is commonly found in large schools, amongst seagrass beds and over rocky and sandy seabed. Black seabream is more common in inshore regions, but can be found at depths of up to 300 m. The juveniles can be found in estuaries and harbours.



Gilthead seabream *Sparus aurata*

Key identification features

The gilthead seabream is silver grey in colour with a single long dorsal fin. They have a distinct lateral line and large eyes. Gilthead seabream have a golden bar that runs between their eyes. They may also have a dark margin at the edge of their forked caudal fin. A key feature of the gilthead seabream is the presence of a dark spot behind the gill cover at the start of the lateral line. They commonly grow to about 35 cm in length, but some may approach 70 cm.

Similar species

The gilthead seabream could be confused with the black seabream (page 40). The juveniles in particular look very similar, however the gilthead has a more rounded snout and a dark mark behind the gill cover at the start of the lateral line. If unsure, record as seabream juvenile.

Habitat preference

Gilthead seabream is commonly found in seagrass beds and sandy seabed. They range from the littoral zone down to approximately 30 m. There are also some reports that the adults may be found at depths of 150 m. Gilthead seabream are tolerant of low salinity and during the spring, they are often found in the brackish waters of estuaries and coastal lagoons.



Tub gurnard *Chelidonichthys lucernus*

Key identification features

The tub gurnard has a wedge-shaped head with eyes near the top of the head. The head and back of the tub gurnard are a reddish-brown to grey colour with a pale creamy white underside. This species has very large pectoral fins. The pectoral fins are often a yellow-green colour with bright blue border. A key feature of this species is a dark blue spot speckled with turquoise dots on the pectoral fins, near the body. The tub gurnard has adapted fin rays in front of the pectoral fins which look like legs that the fish uses to detect prey that is buried under the seabed. Typically 35 cm, but may reach 75 cm.

Similar species

The tub gurnard can be mistaken for other gurnards, such as the red and grey gurnards but only the tub gurnard has the colourful markings on the pectoral fins.

Habitat Preference

Tub gurnards prefer to inhabit soft substrates such as sand, mud or small gravel and can be found at depths ranging from 2 m to 200 m.



Red mullet *Mullus surmeletus*

Key identification features

The red mullet is a misleading name as they are not related to the grey mullet family. Red mullet are actually members of the goat fish family. This distinctive fish is the only type of goat fish that occurs in British waters. Red mullet can be identified by their red and pink colouration with yellow longitudinal stripes down their sides. Red mullet also has two long barbels on the underside of their lower jaw. Individuals may reach up to 40 cm in length.

Similar species

Red mullet could initially look similar to a gurnard but red mullet has two barbels on their chin and lack the leg-like fins of gurnards.

Habitat preference

Red mullet is found predominately over soft sandy and muddy seabed and are common at depths ranging from 10 m to 100 m.



Hooknose *Agonus cataphractus*

Key identification features

The hooknose, also known as a pogge, has a mottled dark brown to black colouration on the back with a paler underneath. It has a broad head with many short barbels on the underside. The body is covered with hard bony plates. The hooknose has two short dorsal fins and a spine on each gill cover. They get their name from the two prominent hooks at the end of their snout. Typically 10-15 cm long, but may reach 20 cm.

Similar species

The hooknose may be confused with a sea scorpion. The main distinguishing feature for the hooknose is that they have distinct spines on their nose and a smaller mouth and maximum size.



Habitat preference

The hooknose prefers soft substrates such as sand, mud, shell or gravel down to 270 m. Juveniles often found inshore in shallower water. The hooknose prefers cooler waters and at the southern extent of their range during the height of summer they migrate out into deeper water.

Long-spined sea scorpion *Taurulus bubalis*

Key identification features

The long-spined sea scorpion has a large head with large eyes situated at the top. The patterning of long-spined sea scorpions is highly mottled. The colouration is variable and dependent on the habitat, with colours ranging from yellow-brown to dark green, but also may be red to pink. Long-spined sea scorpions have a long spine on their gill cover, which is larger than the diameter of their eye. Long-spined sea scorpions also have a small white barbell at the corners of their mouth. The gill membrane attaches to the underside either side of the throat. Individuals may reach up to 25 cm in length.

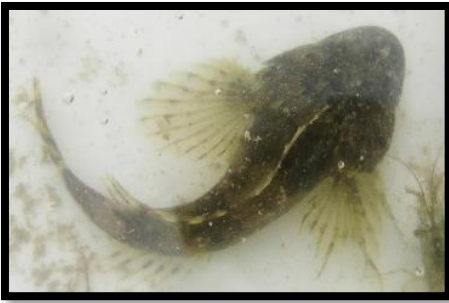


Similar species

The long-spined sea scorpion may be mistaken for both the short-spined sea scorpion and the Norway bullhead. The short-spined sea scorpion can be identified by the lack of a barbel in the corners of their mouth. The Norway bullhead does have small barbels in the corners of their mouth, but they also have a row of spines in the skin just above the lateral line.

Habitat preference

The long-spined sea scorpion is most frequently found over rocky shores with abundant seaweed growth. They can be found in rocky areas from intertidal regions down to depths of 30 m.



Pollack *Pollachius pollachius*

Key identification features

Pollack are members of the cod family. They have three dorsal and two anal fins, the first anal fin is long and starts below the first dorsal fin. Pollack are dark in colour generally; brown or green along their back which becomes golden splotches down the flanks to a white underside. The lower jaw of pollack extends past the upper jaw and lacks a barbell. The lateral line curves downward behind the pectoral fin. Individuals may reach up to 130 cm in length.



Similar species

Pollack are similar to other species in the cod family but have a distinctive curve in the lateral line and a lower jaw that protrudes past the upper jaw.

Habitat preference

Pollack are common over rocky reefs and wrecks. Pollack are usually found at depths between 30-200 m. Young pollack can range into river estuaries and into shallower waters.



Pouting *Trisopterus luscus*

Key identification features

Also known as bib, pouting are members of the cod family and have three dorsal and two anal fins. As adults, pouting has distinctive vertical copper and silver bands down their flanks, but as juveniles their colouration is more predominately gold to silver. Pouting have a deeper body than other members of the cod family. Pouting also have

long barbel under their lower jaw. The upper jaw protrudes past the lower jaw. The diameter of the eye is equal to the snout length. Individuals may reach up to 46 cm in length.



Similar species

Small pouting can be confused with poor cod, as both species have the similar heads and colouration. However, the first and second anal fins are connected in pouting whereas poor cod have a gap between these fins.

Habitat preference

Older pouting is found in offshore areas down to depths of 300 m around reefs and wrecks. Young pouting is found in sheltered sandy areas and are also abundant in estuaries during the summer.

Whiting *Merlangius merlangus*

Key identification features

Whiting are members of the cod family and have three dorsal and two anal fins. The dorsal fins have only a small gap between each fin. Whiting have a pale yellow-green back with silvery white flanks and underside. Whiting have a dark spot at the base of the pectoral fin. The upper jaw extends past the lower jaw. Whiting have a very small chin barbell which can be very difficult to see in the field. When alive, whiting has a white border on both of their anal fins, although the colour and markings fade very quickly after death. Individuals may reach up to 70 cm in length.

Similar species

Whiting can be mistaken for other members of the cod family, such as the Norway pout, poor cod and blue whiting. However, only whiting has a black spot at the base of their pectoral fin. Larger whiting may be mistaken for pollack (page 45) or saithe. However, the lower jaw of whiting ends before the upper jaw, while both the pollack and saithe have protruding lower jaws.

Habitat preference

Whiting usually prefer mud and gravel substrates but can be found over sandy and rocky seabed as well. Although whiting can be found very close inshore at depths of less than 10 m, they are more frequently found at depths of between 25 m to 100 m but can also be caught as deep as 200 m.



Four-bearded rockling *Enchelyopus cimbrius*

Key identification features

Four bearded rocklings are long eel-like soft-bodied fish with a dark to mid brown and sometimes reddish colouration with a pale cream underside. They have two dorsal fins, the first of which has a long fin ray followed by a fringe of very short rays. The second dorsal is larger and reaches the tail. The four bearded rockling has dark marks at the end of the second dorsal and anal fins near the tail. Four bearded rocklings have four barbels surrounding the mouth. One on the underside of the lower Jaw, one downward pointing barbel on the upper lip and two in front of the nostrils. Individuals may reach up to 41 cm in length.



Similar species

Could be confused with a ling or other rockling (three-bearded, five-bearded (page 48), Northern or shore) but the four-bearded rockling has four distinct barbels around the mouth.

Habitat preference

Four-bearded rocklings are sedentary bottom dwelling fish and are predominately found over mud or sand. These cold-water fish occur at depths down to 250 m, but have also been recorded at depths of over 500 m.

Five-bearded rockling *Ciliata mustela*

Key identification features

Five-bearded rocklings are long eel-like soft-bodied fish, a golden to dark brown on the back with a pale underside. Five bearded rocklings have two dorsal fins, the first is a short fringe situated in a groove. The second dorsal fin is much larger and extends down to the tail. Five bearded rocklings have five barbels around the mouth. One is located on the underside of the lower jaw, two are on the upper lip and another two further up on the head close to the nostrils. Individuals may reach up to 25 cm in length.



Similar species

Five-bearded rockling may be confused with ling or other rockling species (three-bearded, four-bearded (page 48), Northern or shore). The key identifying feature is the five distinct barbels near the mouth. The Northern rockling also has five barbels, but the pair on the upper lip are small. The Northern rockling also has lobes of skin called papillae along the upper lip.

Habitat preference

The five-bearded rockling is abundant in the intertidal region and are commonly found in rock pools. Five bearded rocklings prefer softer substrates including sand, mud and shell gravel. Five-bearded rockling is common through the intertidal region and down a depth of 20 m.

Greater sandeel *Hyperoplus lanceolatus*

Key identification features

The greater sandeel is a long (up to 40 cm in length) slender bodied fish with a distinctive black spot on its snout. The upper jaw swings forward from a fixed hinge point. They have a bifid tooth (with two points) situated on the roof of their mouths. The length of their snout is nearly three times the diameter of the eye.



Similar species

Greater sandeels may be mistaken for other species of sandeel. One key factor for the identification of sandeels is the location they are observed; if inshore, then the sandeel is unlikely to be a smooth sandeel, a Raitt's sandeel or a Corbin's sandeel, as these species predominately occur in offshore waters.

The key distinguishing feature between the two remaining species of sandeel (greater and lesser (page 50)) is the presence a black spot on the snout of the greater sandeel in front of the eyes. Also, the greater sandeel has a longer snout than the lesser. The greater's snout is three times the diameter of the eye. If unsure, record as sandeel – unknown species.



Habitat preference

The greater sandeel is predominately found in inshore waters from the shoreline down to depths of approximately 50 m depth. They are predominately found over sandy substrates into which they can burrow during the winter months and in response to danger.

Lesser sandeel *Ammodytes tobianus*

Key identification features

Lesser sandeels are long (up to 20 cm in length) slender bodied fish. Their backs are yellow to blue green with a silvery white underside. The jaws of a lesser sandeel move forward to form a tube-like mouth. Lesser sandeels have no teeth in the roof of their mouths. The length of a lesser sandeel's snout is nearly twice the diameter of the eye.

Similar species

Lesser sandeels may be mistaken for other species of sandeel. One key factor for the identification of sandeels is the location they are observed; if the location is inshore then the sandeel is unlikely to be a smooth sandeel, a Raitt's sandeel or a Corbin's sandeel as these are offshore species.

The key distinguishing feature between the two remaining species of sandeel (lesser and greater (page 49)) is the presence a black spot on the snout of the greater sandeel in front of the eyes. Also, the lesser sandeel has a shorter snout than the greater. The lesser's snout is twice the diameter of the eye. If unsure, record as sandeel – unknown species.

Habitat preference

The lesser sandeel is found almost exclusively in inshore waters from the shoreline down to approximately 30 m depth. They are predominately found over sandy substrates into which they can burrow in response to danger or in inclement environmental conditions.



European eel *Anguilla Anguilla*

Key identification features

The European eel has a long (up to 60 cm in length) eel shaped body, with a small head. The lower jaw is slightly longer than the upper jaw. The European eel has a single long fin, which starts well down the back and runs around the tail and onto belly (dorsal, tail and anal fins are merged). European eels are a dark greenish brown colour, sometimes with a yellowish or a silvery grey tinge.

Similar species

The European eel could be confused with a juvenile conger eel. However, the conger eel has jaws which are equal in length and its dorsal fin starts near the head.



Habitat preference

In the marine environment, the European eel is commonly found in the inshore region in shallow water often amongst seaweed and under boulders. The European eel is also common in muddy habitats. European eels are found in freshwater systems, estuaries and in the sea down to 700 m.



Shanny *Lipophrys pholis*

Key identification features

Shanny have a mottled colouration which is highly variable and can change depending on the local environment. They are often green with sandy to dark brown markings. During the breeding season males become very dark, almost black with light lips. They have two dorsal fins but these are joined giving the appearance of a single dorsal fin with a slight dip half way down the length. Individuals may reach up to 16 cm in length.

Shanny are the only European blenny that does not have any fronds or tentacles on the top of their heads.

Similar species

Shanny may be confused with other species of blenny. The easiest way of distinguishing shanny from other blennies is the lack of fronds or tentacles on top of their heads. During the breeding season the male shanny is easy to identify due to their very dark colour with light coloured lips.

Habitat preference

Shanny are common in rock pools and rocky reefs. Shannies are found from the high tide line down to 30 m. They prefer rocky habitats with high levels of algal growth.



Fifteen-spined stickleback *Spinachia Spinachia*

Key identification features

The fifteen-spined stickleback has a very distinctive body shape with a long, thin tail ending in a small, fan-shaped tail fin. Despite being called the fifteen-spined stickleback, these fish can have a range of 14-17 spines along the back. It is usually a dark green-brown colour on its back which becomes a yellow-silver on the underside. The fifteen-spined stickleback also features a brown stripe that runs from the snout through the eye and may reach up to 20 cm long.

Similar species

The distinctive body shape and colouration of the fifteen-spined stickleback greatly reduces the probability that this fish could be mistaken for another species.

Habitat preference

The fifteen-spined stickleback is predominantly found in sheltered coastal waters with an abundance of algae or sea grass, down to depths of about 10 m.



Three-spined stickleback *Gasterosteus aculeatus*

Key identification features

The three-spined stickleback has a golden brown-green colour across its back, which becomes silvery white down the sides and onto the underneath of the fish. During the breeding season, the males develop a strong orange-red colouration across the lower jaw and the throat. Three-spined sticklebacks have three spines on their back, before the start of the dorsal fin, although these can be difficult to see. Their bodies are flattened side to side and narrow to a small tail and fan-like tail fin. Individuals may reach up to 11 cm in length.



Similar species

The spines on the back of the three-spined stickleback, along with the colouration and shape, reduces the probability that this fish could be mistaken for another species.

Habitat preference

Three-spined sticklebacks are a common fish found in coastal waters down to approximately 10 m depth. Three-spined sticklebacks are frequently found in both marine and fresh water environments as they can tolerate a range of salinities from fresh water to fully marine. They are commonly found in brackish lagoons as well as rivers, lakes and coastal habitats.



Garfish *Belone belone*

Key identification features

The garfish is a long, slender fish with long, thin jaws filled with widely spaced sharp teeth. The lower jaw of a garfish is slightly longer than the upper jaw. Garfish have a small, single dorsal fin set near the tail. The garfish is green-blue across the back and silvery white down the flanks and underside of the fish. Individuals may reach up to 104 cm in length.

Similar species

The garfish could be confused with the short-beaked garfish or the skipper. The key distinctive feature that separates the garfish from these species is its large, widely spaced teeth in a long jaw. The location of the sighting is also significant as the short-beaked garfish and the skipper are rarely sighted in the English Channel as they are more predominate in the open waters of the Atlantic Ocean.

Habitat preference

The garfish is an open water pelagic species that is commonly found near the surface. The garfish spends most of its time offshore but moves into inshore regions during the summer.



Mackerel *Scomber scombrus*

Key identification features

Mackerel are distinctive fish with black and dark blue-green, zebra-like patterning across its back extending down to the lateral line. The underside of the fish is an iridescent silvery white colour. Mackerel have a pointed snout, two dorsal fins and a forked tail and may reach up to 60 cm long.

Similar species

Mackerel are a distinctive fish and are unlikely to be confused with other species.

Habitat preference

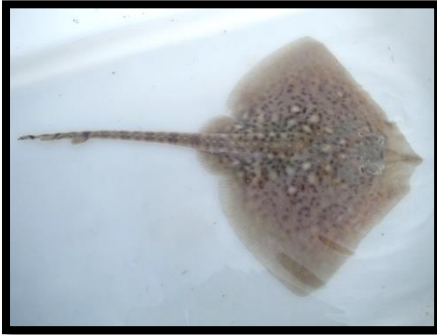
Mackerel are an open water, pelagic species of fish, living in the water column away from the seabed. Mackerel will move into shallow inshore waters during summer to feed on zooplankton blooms and aggregates of smaller shoaling fish such as sprats and herring. During the winter months, mackerel will move into deeper waters.



Thornback ray *Raja clavata*

Key identification features

The thornback ray has alternating dark and light bars along the length of its tail. They also have large thorns which run down the midline of the body and tail to the first dorsal fin. Thornback rays are a mottled greyish sandy brown colour with a number of dark and light spots across the back of the fish with a pale underside. They commonly grow to about 80 cm long, but some may approach 105 cm.



Similar species

Thornback rays could be confused with other rays, but they have thorns, like rose thorns, along back and tail, with other smaller thorns all over the body, more so in the adults. The thorns are larger and more distinct than the thorns found on other ray species.

Habitat preference

They are most common at depths between 10 m and 60 m. But can be found anywhere between the shoreline to 300 m. Rays are commonly found in sandy areas but the thornback ray can be found on all different types of sediments including sandy, muddy and gravelly bottoms.

Small-eyed ray *Raja microocellata*

Key identification features

The small-eyed ray is also known as the painted ray or the sandy ray. The small eyed ray has a pale underside and a sandy coloured back with pale splotches. Small-eyed rays have cream coloured streaks across their backs, which run parallel to the edge of the rays' fins (although these may not be obvious in juveniles). They have a row of small thorns down their backs on to their tails. Individuals may reach up to 86 cm long.

Similar species

The small-eyed ray could be confused with other ray species, particularly the undulate ray. However, the small-eyed ray has much smaller eyes; the length of the eye and spiracle (the breathing holes next to the eyes) is less than half the distance between the eyes. Also look at the overall body shape, compared to other rays.



Habitat preference

The small-eyed ray is a benthic species which means it lives on or near the seabed. They are most frequently found over soft substrates, preferably sand, down to approximately 100 m. Most frequently found in inshore areas from depths of 10 m.

Starry smooth hound *Mustelus asterias*

Key identification features

The starry smooth hound is a slender shark species with a pointed snout, five gill slits, two similarly sized dorsal fins and anal fins. They are generally grey in colour across the back with a creamy white underside. Starry smooth hounds are named due to the presence of white spots down both sides of the back above the lateral line. The visibility of these spots is variable and they are not always obvious. The eyes of a starry smooth hound are yellow. The teeth are blunt and flattened. Individuals may reach up to 140 cm in length.

Similar species

The starry smooth hound may be confused with common smooth hound and spurdogs. The variability in the presence and clarity of white spots across the backs of starry smooth hounds make separating the two species of smoothhounds very difficult, however, if white spots are absent, record as common smooth hound. Spurdogs, which also have white spots, can be separated from starry smooth hounds by the presence of a spine in front of each of the spurdog's dorsal fins and their lack of an anal fin.

Habitat preference

These small sharks mostly swim near the seabed in coastal waters and are most common in shallow water down to about 100 m. Starry smooth hounds prefer sandy or shingle seabed.



Sussex IFCA Fish ID Guide

This was a summary of the main species caught on fish surveys led by Sussex IFCA and conducted in collaboration with a wide range of partner organisations. We wanted to produce a guide that would support further partnership working, encouraging others to take part or set up fish surveys.

There are numerous excellent identification guides available and we would recommend that anyone taking part in fish surveys consults a number of these resources. What we hoped to add to the literature with this guide was particular emphasis on the early life stages which are often caught in inshore surveys. For some species, these can look very different to the adults. We also wanted to highlight the key distinguishing features to make fish ID more accessible and less daunting to volunteers and others who are not looking at fish every day.

Guidance on conducting fish surveys is available in the IFCA Fish Survey Best Practice Guidance document, available online from www.sussex-ifca.gov.uk/research.

Please have a look at our website www.sussex-ifca.gov.uk for further information on the fish surveys we conduct and the other work we do. Also, follow us on Instagram, Twitter and Facebook to keep up to date with the latest news.



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