



EVROPSKÁ UNIE
Evropský námořní a rybářský fond
Operační program Rybářství



MINISTERSTVO ZEMĚDĚLSTVÍ

FISH FLESH ENCYCLOPEDIA

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INTRODUCTION

Dear colleagues,

You are now in possession of work intended to provide guidance for monitoring and control by the supervisory authorities in the area of traceability of fish products. It is for the use of the general public and professionals, and it offers a wide range of species that may be encountered in the fish trade, including species that are not subject to normal commercial farming or hunting.

Information on each species includes, among other things, photographs of fresh and deep-frozen muscle meat, their descriptions and possible confusions. In view of the number of species listed, the similarities and possible confusions, the authors recommend familiarising oneself first with the species for which quality and authenticity are to be assessed and then with the families and species listed as potentially interchangeable. It should be noted that for a significant number of species, it is not possible to assign the muscle under consideration precisely by means of a differential description, but it is only possible to get a rough idea of which taxon it should belong to. As an example, the family Sparidae includes some of the most commonly traded species, and it is virtually impossible to assign an unknown sample objectively to a particular species. The situation is similar in other families and often extreme similarities can be seen across families, not only between the typically exotic species of the families Carangidae or Scombridae, but also, for example, between the families Xenocyprididae and Cyprinidae.

It always depends primarily on the experience of the assessor and their ability to objectively and critically assess the sample to be determined. Here, among other things, knowledge of the areas of occurrence, which may also help to classify the species more accurately, is also applicable.

We wish the publication to serve its purpose and at the same time to enable the general public to improve their knowledge of the species traded.

Explanation of terms and abbreviations used:

FAO	Food and Agriculture Organization of the United Nations
Gaping	Mechanical separation of individual segments of muscle tissue, more precisely a disruption of their connective tissue, with gaps, cracks between the segments. Gaping is often a symptom of careless handling or improper storage, but at the same time there are species whose muscle has such characteristics that gaping is virtually unavoidable.



Drawing	A pattern, usually light, which is visible on the muscle or fillet after filleting. Its shape, distribution and visibility are often one of the key characteristics of a species or family.
Segmentation	More or less a visible division into individual separate muscle parts, together forming a whole in the form of a fillet.
Thickness of the fillet	Indicates the thickness of the muscle layer, normally highest in the dorsal part of the fillet
Fillet height	Defines the dimension determining the distance between the ventral and dorsal edges of the fillet

Synonyms of the commercial designation were taken from the official FAO websites. Considering their abundance, only the most common ones were critically selected.

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Determination descriptions of individual fish species

Acipenseridae

Acipenser gueldenstaedtii (Brandt & Ratzeburg, 1833)

Commercial designation

Danube Sturgeon

Commercial designation synonyms

Russian Sturgeon, Diamond Sturgeon

Taxonomic classification

Order *Acipenseriformes*

Family *Acipenseridae*

Genus *Acipenser*

Species *Acipenser gueldenstaedtii*

Distribution – FAO areas

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea



Species description



The body is elongated, with a distinctly concave profile of the back and head, the greatest body height being in the area of the first dorsal scute. The snout is short, broad and snub, measuring 4-7 % of the total body length. The inferior lip is split, the barbels are smooth, and there usually are larger stellate plates between the rows of scutes. It can grow to over 200 cm in size and reaches a weight of over 120 kg.¹ It has 8-19 dorsal scutes, 24-50 lateral scutes, 6-13 ventral scutes and 15-31 gill rakers. The dorsum is golden brown and the belly yellowish white.²

Fresh flesh

¹ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes) 1.* Vyd. 1. Praha: Academia, 1995. 623 pages, [8], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-5. Pages 392.

² KOTTELAT, M., FREYHOF, J. *Handbook of European Freshwater Fishes.* Berlin: Publications Kottelat, Cornol and Freyhof, 2007. 646 pages. ISBN 978-2-8399-0298-4. Page 51.



The flesh is white to reddish in colour with clear segmentation visible throughout the whole fillet. The parts with a higher fat content are deep yellow. Dorsal arching is evident in larger pieces. A very thin ventral part tends to roll towards the centre of the fillet. The fillet is elongated and low, tapering caudally from its $\frac{1}{4}$ to the level of the thin caudal peduncle, which forms $\frac{1}{5}$ of the cranial height of the fillet. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{3}{4}$ of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh may be confused with the flesh of *Huso huso* and *Acipenser ruthenus*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadii* and *Huso huso* are considerably more robust. The yellow colouration of the fatty parts darkens significantly with increasing age. There is also an evident resemblance to the flesh of *Anarhichas lupus*, although its flesh is noticeably finer, completely lacking the yellow fatty colouration, and the abdominal cavity extends only up to $\frac{1}{3}$ of the length of the fillet.

Deep-frozen flesh



The flesh is consistently white to pink except for the fatty parts, which retain a distinct yellow tinge. Segmentation is clearly visible throughout the height of the fillet. Dorsal arching is noticeable in larger pieces. The ventral part is very thin. The fillet is elongated and low, tapering caudally from its 1/4 to the level of the thin caudal peduncle, which forms 1/5 of the cranial height of the fillet. The abdominal cavity area reaches 1/2 of the height and 3/4 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh may be confused with the flesh of *Huso huso* and *Acipenser gueldensteadtii*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadtii* and *Huso huso* are considerably more robust. There is also a noticeable resemblance to the flesh of *Anarhichas lupus*, although its flesh completely lacks the yellow fatty colouration, and the abdominal cavity extends only up to 1/3 of the length of the fillet.

Fresh and deep-frozen flesh confusability

Acipenseridae; Anarhichadidae.

Acipenser ruthenus (Linnaeus, 1758)

Commercial designation

Sterlet Sturgeon



Commercial designation synonyms

None

Taxonomic classification

Order	Acipenseriformes
Family	Acipenseridae
Genus	<i>Acipenser</i>
Species	<i>Acipenser ruthenus</i>

Distribution – FAO areas

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, with a concave profile of the back and head. The dorsal side is greyish brown or greenish brown, the ventral side is yellowish or dirty brown, sometimes pinkish, and the dorsal and anal fins are rusty red.³ It can grow up to 125 cm in size and weigh 16 kg. Distinguishing features: the inferior lip with a split in the middle, 4 short barbels of a circular

³ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes) 1*. Vyd. 1. Praha: Academia, 1995. 623 pages., [8], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-5. Page 384.



section fimbriated on the inner side, 56-71 rhomboid-shaped lateral scutes overlapping one another, the first dorsal scute not fused to the head, 11-27 gill rakers.⁴

Fresh flesh

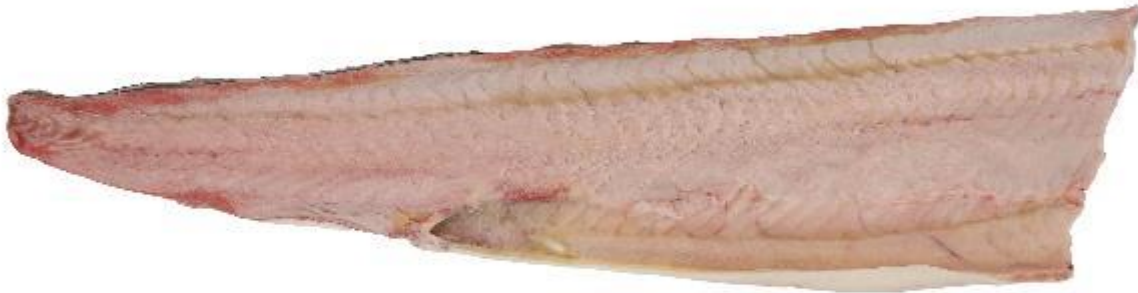


The flesh is white to reddish with clear segmentation visible throughout the whole height of the fillet. The parts with a higher fat content are deep yellow. Dorsal arching is evident in larger pieces. A very thin ventral part tends to roll towards the centre of the fillet. The fillet is elongated and low, tapering caudally from its 1/4 to the level of the thin caudal peduncle, which forms 1/5 of the cranial height of the fillet. The abdominal cavity area reaches 1/2 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh may be confused with the flesh of *Acipenser gueldensteadii* and *Huso huso*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadii* and *Huso huso* are considerably more robust. The yellow colouration of the fatty parts darkens significantly with increasing age. There is also a noticeable resemblance to the flesh of *Anarhichas lupus*, although its flesh is clearly finer, completely lacking the yellow fatty colouration, and the abdominal cavity extends only up to 1/3 of the length of the fillet.

⁴ KOTTELAT, M., FREYHOF, J. *Handbook of European Freshwater Fishes*. Berlin: Publications Kottelat, Cornol and Freyhof, 2007. 646 pages. ISBN 978-2-8399-0298-4. Page 55.



Deep-frozen flesh



The flesh is consistently white to pink except for the fatty parts, which retain a distinct yellow tinge. Segmentation is clearly visible throughout the height of the fillet. Dorsal arching is noticeable in larger pieces. The ventral part is very thin. The fillet is elongated and low, tapering caudally from its 1/4 to the level of the thin caudal peduncle, which forms 1/5 of the cranial height of the fillet. The abdominal cavity area reaches 1/2 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh may be confused with the flesh of *Huso huso* and *Acipenser gueldensteadii*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadii* and *Huso huso* are considerably more robust. There is also a noticeable resemblance to the flesh of *Anarhichas lupus*, although its flesh completely lacks the yellow fatty colouration, and the abdominal cavity extends only up to 1/3 of the length of the fillet.

Fresh and deep-frozen flesh confusability

Acipenseridae; Anarhichadidae.



Huso huso (Linnaeus, 1758)

Commercial designation	Beluga	
Commercial designation synonyms	Beluga Sturgeon, Great Sturgeon	
Taxonomic classification	Order	Acipenseriformes
	Family	Acipenseridae
	Genus	<i>Huso</i>
	Species	<i>Huso huso</i>

Distribution – FAO areas

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated and relatively low, the snout is moderately long, pointed, turning slightly upward. The inferior mouth is crescent-shaped, with the lower lip interrupted at the centre. There are 4 oval or flat barbels on the upper jaw. The dorsal fin has 62-73 rays, and the anal fin has 28-41 rays; both fins are without spines. The caudal fin is heterocercal. There are five rows of bony scutes on the body. The dorsal ones are oval with a longitudinal denticulate comb. They caudally enlarge with the first one being the smallest. The lateral scutes are smooth, the ventral ones are hidden beneath the skin. The back is ash-grey to greenish, the sides are paler, the belly is white, and the snout is yellowish. It can grow up to six metres and its weight may exceed 1,000 kg. The usual size is 120-260 cm and the usual weight is up to 363 kg.⁵

Fresh flesh

⁵ *Huso huso* (Linnaeus, 1758) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-03-15]. Retrieved from: <https://www.fao.org/fishery/en/aqspecies/huh>



The flesh is white to reddish with clear segmentation visible throughout the whole height of the fillet. The parts with a higher fat content are deep yellow. Dorsal arching is evident in larger pieces. A very thin ventral part tends to roll towards the centre of the fillet. The fillet is elongated and low, tapering caudally from its $\frac{1}{4}$ to the level of the thin caudal peduncle, which forms $\frac{1}{5}$ of the cranial height of the fillet. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{2}{3}$ of the length of the fillet. The lining of the abdominal cavity is silvery white and may be with a grey tinge. The flesh may be confused with the flesh of *Acipenser gueldensteadii* and *Acipenser ruthenus*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadii* and *Huso huso* are considerably more robust. The yellow colouration of the fatty parts darkens significantly with increasing age. There is also a noticeable resemblance to the flesh of *Anarhichas lupus*, although its flesh is clearly finer, completely lacking the yellow fatty colouration, and the abdominal cavity extends only up to $\frac{1}{3}$ of the length of the fillet.

Deep-frozen flesh



The flesh is white to reddish with clear segmentation visible throughout the whole height of the fillet. The parts with a higher fat content are deep yellow. Dorsal arching is evident in larger pieces. A very thin ventral part tends to roll towards the centre of the fillet. The fillet is elongated and low, tapering caudally from its $1/4$ to the level of the thin caudal peduncle, which forms $1/5$ of the cranial height of the fillet. The abdominal cavity area reaches $1/2$ of the height and $2/3$ of the length of the fillet. The lining of the abdominal cavity is silvery white and may be with a grey tinge. The flesh may be confused with the flesh of *Acipenser gueldensteadii* and *Acipenser ruthenus*, or possibly with other species of the family concerned, as the basic characteristics of the flesh are virtually identical in most species. Size may be a guide, as the fillets of *Acipenser gueldensteadii* and *Huso huso* are considerably more robust. The yellow colouration of the fatty parts darkens significantly with increasing age. There is also a noticeable resemblance to the flesh of *Anarhichas lupus*, although its flesh is clearly finer, completely lacking the yellow fatty colouration, and the abdominal cavity extends only up to $1/3$ of the length of the fillet.

Fresh and deep-frozen flesh confusability

Acipenseridae; Anarhichadidae.



Anarhichadidae

Anarhichas lupus (Linnaeus, 1758)

Commercial designation	Atlantic Wolffish	
Commercial designation synonyms	Atlantic Catfish, Seawolf	
Taxonomic classification	Order	Perciformes
	Family	Anarhichadidae
	Genus	<i>Anarhichas</i>
	Species	<i>Anarhichas lupus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

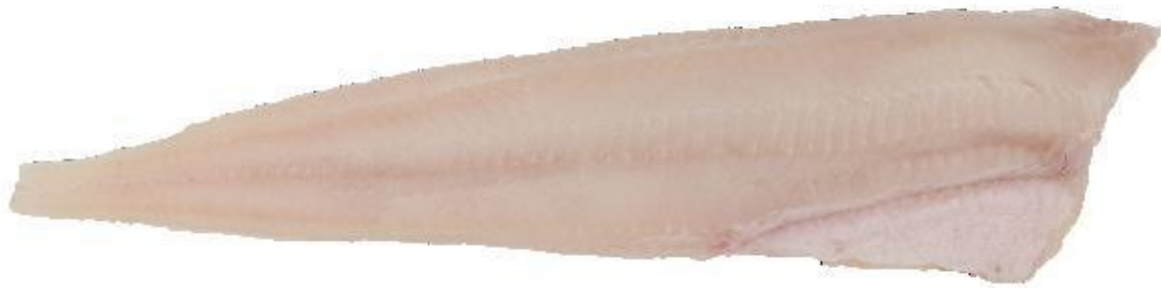
Species description



The body is yellowish brown or bluish grey with 8–13 dark brown or blackish bars on the sides and the dorsal fin. Some specimens have small black spots on the head and the back. The head is large, the snout is snub, and the body is moderately elongate. The dorsal and anal fins form separate edges. The amount of anal fin rays is lower than 50. The caudal fin is more or less truncate, sometimes slightly rounded. The vomerine tooth patch is longer than the palatine tooth patches, extending posteriorly beyond them. The jaw teeth are caniniform in the front, rounded and frequently rather worn posteriorly. The rows of teeth in the lower jaw narrow behind the canines.⁶

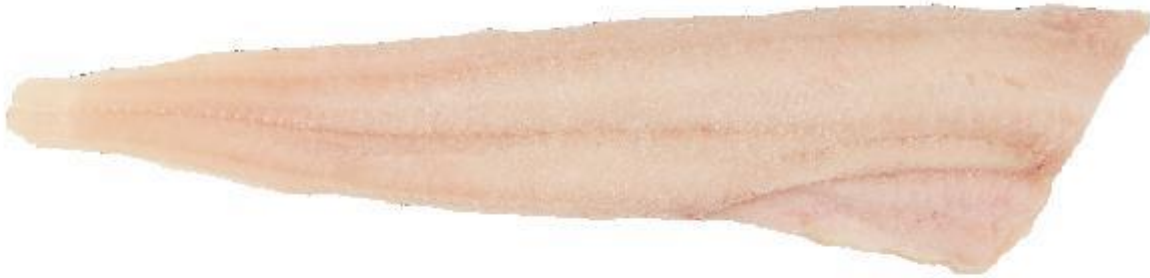
Fresh flesh

⁶ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page 400.



The flesh is white to pinkish with clear segmentation visible throughout the whole height of the fillet. Dorsal arching is minimal. The fillet is elongated and low, visibly tapering caudally from its $1/4$ to the level of the thin caudal peduncle, which forms $1/5$ of its cranial height. There are 3 less visible darker longitudinal bars throughout the length of the fillet in the dorsal, central and ventral parts, except for the abdominal cavity area, which reaches $1/2$ of the height and $1/3$ of the length of the fillet. The lining of the abdominal cavity is silvery white, possibly with sparsely occurring tiny grey spots. The flesh is very tender and soft with frequent gaping. The flesh may be confused with the flesh of *Acipenser gueldensteadii*, *Acipenser rhutenus* and *Huso huso*, or possibly with other species of the family concerned. Size may be a guide, as the fillets of the family *Acipenseridae* are considerably more robust, lacking the darker longitudinal bars, and the abdominal cavity area reaches up to $2/3$ of the length of the fillet.

Deep-frozen flesh



The flesh is white to yellowish white with clear segmentation visible throughout the whole height of the fillet. Dorsal arching is minimal. The fillet is elongated and low, visibly tapering caudally from its 1/4 to the level of the thin caudal peduncle, which forms 1/5 of its cranial height. There are 3 less visible darker longitudinal bars throughout the length of the fillet in the dorsal, central and ventral parts, except for the abdominal cavity area, which reaches 1/2 of the height and 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery white, possibly with sparsely occurring tiny grey spots. The flesh is very tender and soft with frequent gaping. The flesh may be confused with the flesh of *Acipenser gueldensteadii*, *Acipenser rhutenus* and *Huso huso*, or possibly with other species of the family concerned. Size may be a guide, as the fillets of the family *Acipenseridae* are considerably more robust, lacking the darker longitudinal bars, and the abdominal cavity area reaches up to 2/3 of the length of the fillet.

Fresh and deep-frozen flesh confusability

Anarhichadidae; Acipenseridae.



Anguillidae

Anguilla anguilla (Linnaeus, 1758)

Commercial designation	European Eel
Commercial designation synonyms	Common Eel, River Eel, Weed Eel
Taxonomic classification	Order Anguilliformes
	Family Anguillidae
	Genus <i>Anguilla</i>
	Species <i>Anguilla anguilla</i>

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



A fish with a snake-like body, with the dorsal and anal fins confluent with the caudal fin, forming one unique fin in which soft rays are formed. It has small elliptical non-overlapping scales embedded deep in the epidermis. The head is small, narrow, conical, with a terminal mouth. The lateral line is conspicuous. Juveniles have a dark greenish brown to brownish black back and a yellowish to whitish belly during their freshwater life. Once they are ready to reproduce and begin to migrate back to the sea, eels change their colour. Their sides are metallic shiny, their back is dark, even black, and the belly is silvery white. Males grow up to 50 cm, females are larger and can reach a length of 150 cm. ^{7 8}

Fresh flesh

⁷ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes)* 2. Vyd. 1. Praha: Academia, 1995. 698 s., [12], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-9. Pages 315-316.

⁸ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 182-185.



The flesh is white, greyish white to light olive grey with visible veins in the dorsal part. There is a distinct white pattern throughout the whole fillet, with segmentation being almost imperceptible. The fillet is elongated, narrow, without dorsal arching, and with a hardly discernible darker central line. The caudal tapering is short, occurring only in the terminal part. The abdominal cavity area reaches $1/2$ of the height and $2/5$ of the length of the fillet. The lining of the abdominal cavity is silvery white, possibly with a grey tinge. The flesh may be confused with the flesh of *Squalus acanthias*, which is much whiter, with the abdominal part reaching up to $1/2$ of the length of the fillet, and is almost without pattern, but with much more noticeable segmentation and completely without the darker central line. Further identification of the European Eel is also made possible by the high fat content of the flesh, which can be recognised even just by touch.

Deep-frozen flesh



The flesh is white, greyish white to light olive grey with visible veins in the dorsal part. There is a distinct white pattern throughout the whole fillet, with segmentation being almost indistinguishable. The fillet is elongated, narrow, without dorsal arching, and with a well noticeable darker central line. The caudal tapering is short, occurring only in the terminal part. The abdominal cavity area reaches 1/2 of the height and 2/5 of the length of the fillet. The lining of the abdominal cavity is silvery white, possibly with a grey tinge. The flesh may be confused with the flesh of *Squalus acanthias*, which is much whiter, with the abdominal part reaching up to 1/2 of the length of the fillet, and is almost without pattern, but with much more noticeable segmentation and completely without the darker central line.

Fresh and deep-frozen flesh confusability

Squalidae.

Anoplopomatidae

Anoplopoma fimbria (Pallas, 1814)

Commercial designation

Sablefish

Commercial designation synonyms

Black Cod, Blue Cod, Bluefish, Coal Cod

Taxonomic classification

Order

Scorpaeniformes



Čeľad'	Anoplopomatidae
Genus	<i>Anoplopoma</i>
Species	<i>Anoplopoma fimbria</i>

Distribution – FAO areas

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 – Pacific, Eastern Central

Species description



The body is elongate, blackish or greenish-grey in colour; usually with slightly paler spots or a chain pattern on the dorsum and fading downwards. One lateral line has 190-195 scales, running along the body axis. The dorsal fins are well separated, the first has 19-27 spines; and the second dorsal fin has 16-20 soft rays. The caudal fin has 3 spines and 15-19 soft rays. Reaches a length of 120 cm and a weight of 57 kg, has a common length of 80 cm ^{9 10}

⁹ *Anoplopoma fimbria* (Pallas, 1814) In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-09-15]. Retrieved from: <https://www.fishbase.se/summary/512>



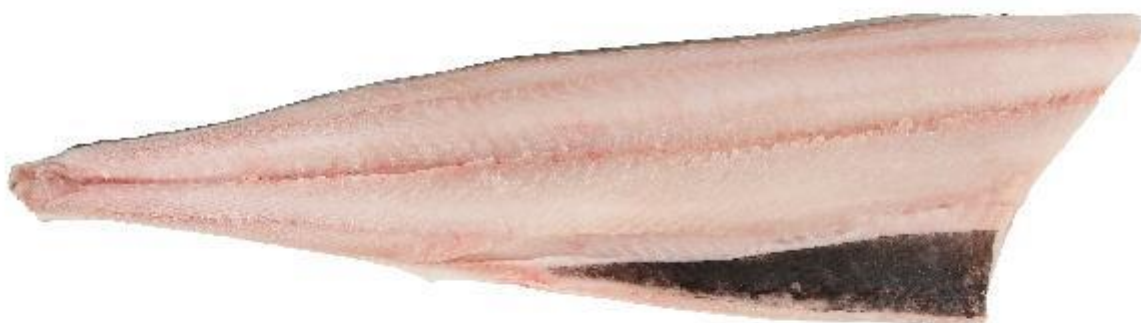
Fresh flesh



Has a white to pink colour with a clear muscular segmentation forming right between the concave and convex arches, running mirror-like along the longitudinal axis and breaking in the opposite direction at the level of the abdomen with the black lining. The abdominal part reaches $\frac{3}{5}$ of the height and $\frac{1}{2}$ of the length of the fillet. The shape of the fillet is symmetrically conical and widens from the caudal to the cranial part. In the longitudinal axis there is a noticeable darker line following the spinal region. The darker line is also noticeable in the upper third of the fillet in areas prone to gaping.

Deep-frozen flesh

¹⁰ *Anoplopoma fimbria* (Pallas, 1814) [Aquatic Species Fact Sheets]. In: Fisheries and Aquaculture Division [online]. Rome: Food and Agriculture Organization of the United Nations, 2023. [cit. 2023-09-15]. Retrieved from:
[https://www.fao.org/figis/pdf/fishery/species/3341/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Species%20Fact%20Sheets%20-%20Anoplopoma%20fimbria%20\(Pallas%2C%201814\)](https://www.fao.org/figis/pdf/fishery/species/3341/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Species%20Fact%20Sheets%20-%20Anoplopoma%20fimbria%20(Pallas%2C%201814))



Has a white to pink colour with clear a muscular segmentation forming right between the concave and convex arches, running mirror-like along the longitudinal axis and breaking in the opposite direction at the level of the abdomen with the black lining. The abdominal part reaches $\frac{3}{5}$ of the height and $\frac{1}{2}$ of the length of the fillet. The shape of the fillet is symmetrically conical and widens from the caudal to the cranial part. In the longitudinal axis there is a noticeable darker line following the spinal region. The darker line is also noticeable in the upper third of the fillet in areas prone to gaping.

Fresh and deep-frozen flesh confusability

Confusion is unlikely.

Arripidae

Arripis trutta (Forster, 1801)

Commercial designation	Australian Salmon	
Commercial designation synonyms	Kahawai	
Taxonomic classification	Order	Perciformes



Family	Arripidae
Genus	<i>Arripis</i>
Species	<i>Arripis trutta</i>

Distribution – FAO areas

Area 57 – Indian Ocean, Eastern

Area 71 – Pacific, Western Central

Area 81 – Pacific, Southwest

Species description



The body is mediumly elongated, and aerodynamic. The eyes are small, and the mouth is relatively large. Has a margin of bone below the eye with prominent serrations in smaller fish. The scales are smooth to touch in larger specimens.¹¹ The dorsal fin has a long base, consisting of 9 spines and 15-17 rays. The anal fin has 3 spines and 9-10 rays. The caudal fin is bipinnate. Adults dorsally are dark blue-green, and ventrally they are silvery. The dorsal

¹¹ BRAY, D. and GOMON, M. *Arripis trutta* (Forster, 1801), Eastern Australian Salmon. In: Museums Victoria Collections [online]. 2011 [cit. 2023-07-27]. Retrieved from: <https://collections.museumsvictoria.com.au/species/13728>



part of the flanks are dotted with irregular dark spots arranged in the indistinct stripes. Grows to 89 cm, common size is 47 cm¹²

Fresh flesh

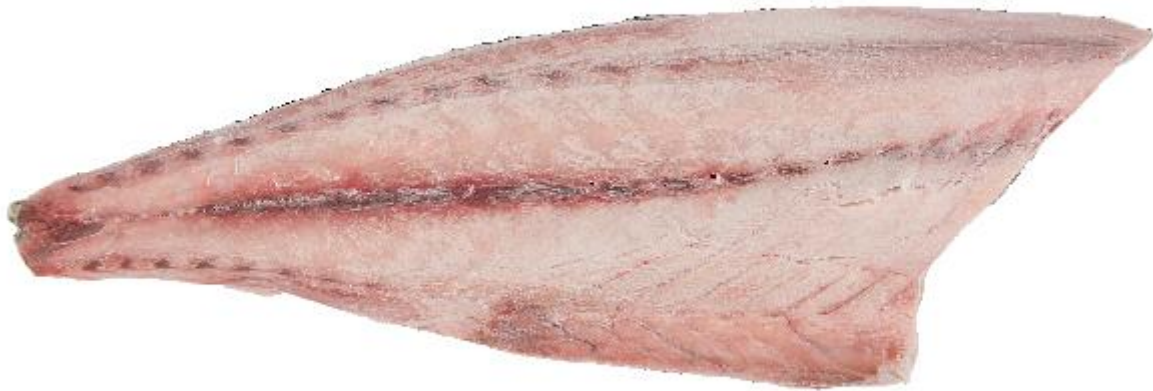


Has a pink to dark red colour with darker dashed lines in the dorsal, central and ventral-caudal part of the fillet. In some cases, the points may merge into the entire line, especially in the central and dorsal-cranial part. There is a distinct pattern throughout the fillet and a less noticeable segmentation. The fillet is robust, slender, with a gradual dorsal arch and symmetrical conical tapering throughout, and is more pronounced in the last 1/5, up to 1/4 of the cranial height. The flesh is very firm with no specific odour. The abdominal partition extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is pinkish-white. Can be confused with *Argyrosomus regius*, but is much lighter overall with less pronounced longitudinal lines. Also can be confused with *Seriola dumerili*, where the spherical cavities in the dorsal part of the ribs are clearly visible, and *Seriola quinqueradiata*, with a much narrower caudal peduncle. Easily confusable in portion form with many species of the families Carangidae and Serranidae.

¹² *Arripis trutta* (Forster, 1801) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-06-15]. Retrieved from: <https://www.fishbase.se/summary/Arripis-trutta.html>



Deep-frozen flesh



Pink to dark red colour with darker dashed lines in the dorsal, central and ventral-caudal part of the fillet. In some cases, the points may merge into the entire line, especially in the central and dorsal-cranial part. There is a distinct pattern throughout the fillet and a less noticeable segmentation. The fillet is robust, slender, with a gradual dorsal arch and symmetrical conical tapering throughout, more pronounced in the last 1/5, up to 1/4 of the cranial height. The flesh is very firm with no specific odour. The abdominal partition extends to 1/2 the height and 1/2 the length of the fillet. Lining of the abdominal cavity pinkish-white. Can be confused with the muscle of *Argyrosomus regius*, but is much lighter overall with less pronounced longitudinal lines. Also can be confused with *Seriola dumerili*, where the spherical cavities in the dorsal part of the ribs are clearly visible, and *Seriola quinqueradiata*, with a much narrower caudal peduncle. In the form of portions, it is also not easily confused with a number of species of the families Carangidae and Serranidae.

Fresh and deep-frozen flesh confusability

Carangidae; Sciaenidae; Serranidae.



Atherinidae

Atherina boyeri (Risso, 1810)

Commercial designation	Big-scale Sand Smelt	
Commercial designation synonyms	None	
Taxonomic classification	Order	Atheriniformes
	Family	Atherinidae
	Genus	<i>Atherina</i>
	Species	<i>Atherina boyeri</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



It has a small, elongated, laterally compressed body and a small head with large eyes. The mouth is small, oblique and in a terminal position with significantly longer lower jaws. The dorsal fin rays have 6 to 9 flexible spines (generally 7 or 8) in the first dorsal fin and 9 to 15 (generally 10 to 13) soft rays in the second dorsal fin. The anal fin has 1 spine and 12 to 18 soft rays. The dorsum is greenish grey with small black dots, the belly is white, and there is a silver stripe along the side. The fins are clear, almost colourless. The size is up to 13 cm, usually 7 to 9 cm.¹³

Fresh flesh

¹³ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 s. [Str. 1511-2342]. ISBN 9789251092668. Str. 2111-2115.



The flesh is olive green with a well noticeable central line of black spots and without a pattern. Segmentation is less visible. The fillet is evenly conical without dorsal arching. The height of the caudal peduncle forms $\frac{1}{4}$ of the cranial height. The flesh is fine with no specific aroma. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{1}{3}$ of the length of the fillet. The abdominal cavity lining is silvery grey to silvery black. Given the size of the species and its use, it is highly unlikely to be confused.

Deep-frozen flesh



The flesh is olive green with a well noticeable central line of black spots and without a pattern. Segmentation is less visible. The fillet is evenly conical without dorsal arching. The height of the caudal peduncle forms $\frac{1}{4}$ of the cranial height. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{1}{3}$ of the length of the fillet. The abdominal cavity lining is silvery grey to silvery black. Given the size of the species and its use, it is highly unlikely to be confused.

Fresh and deep-frozen flesh confusability

It is very unlikely.

Belonidae

Belone belone (Linnaeus, 1760)

Commercial designation	Garfish	
Commercial designation synonyms	Garpike, Greenbone, Sea Needle	
Taxonomic classification	Order	Beloniformes
	Family	Belonidae



Genus	<i>Belone</i>
Species	<i>Belone belone</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



It has a dark bluish green back and silvery sides. The body is elongated and moderately compressed. The caudal peduncle is not compressed and is without a lateral keel. The upper and lower jaws are extended into long beaks with sharp teeth, the lower jaw being slightly longer than the upper one. The dorsal and anal fins are positioned opposite each other, very close to the caudal peduncle. The caudal fin is strongly forked. The scales are small, cycloid and deciduous. The usual length of the fish caught is up to 75 cm, albeit there have been specimens over 100 cm in length.¹⁴ The colour is bright bluish green on the back, the fins have bluish green tinges, and the belly and sides are silvery white.¹⁵

Fresh flesh

¹⁴ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page. 166.

¹⁵ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages. 1511-2342]. ISBN 9789251092668. Page 2122.



The flesh is olive grey with indistinct segmentation in the dorsal part of the fillet and poorly distinguishable segmentation in the ventral part. It is only more visible in the dorsal-cranial part of the fillet. The veins are clearly visible in all parts of the fillet. Green colouration caused by biliverdin is evident in some areas. A darker thin line runs down the central axis of the fillet. The fillet is low, elongated and practically without arching, with the flesh being much thinner in the abdominal area, evenly tapering caudally in its terminal third, until it reaches the thin part of the caudal peduncle, which forms $\frac{1}{4}$ of its cranial height. The abdominal cavity area extends to $\frac{2}{3}$ of the height and $\frac{2}{3}$ of the length of the fillet. The lining of the abdominal cavity is silvery white.

Deep-frozen flesh



The flesh is white to grey with clearly visible segmentation in the ventral and dorsal-cranial part of the fillet. Signs of biliverdin colouration and vein patterns are unnoticeable or completely missing. A darker thin line runs down the central axis of the fillet. The fillet is low, elongated and practically without arching, with the flesh being much thinner in the abdominal area, evenly tapering caudally in its terminal third, until it reaches the thin part of the caudal peduncle, which forms 1/4 of its cranial height. The abdominal cavity area extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white.

Fresh and deep-frozen flesh confusability

Given the characteristics, confusion is virtually impossible.

Bramidae

Brama brama (Bonnaterre, 1788)

Commercial designation

Atlantic Pomfret

Commercial designation synonyms

Ray's Bream, Angel Fish, Black Sea Bream

Taxonomic classification

Order

Perciformes



Family	Bromide
Genus	<i>Brama</i>
Species	<i>Brama brama</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is relatively high, strongly flattened on the sides, with a thin caudal peduncle. The head is bluntly rounded. The caudal fin is distinctly concave with pointed lobes. The mouth is oblique pointing upward, with the lower jaw projecting. The dorsal and anal fins are long. The dorsal fin starts above the base of the pectoral fin. The pectoral fin is long, extending to the centre of the anal fin. The small pelvic fins are located below the base of the pectoral fins. The fish is metallic silvery black with black tips of the fins. The upper part of the pectoral fins is black, with the colour lightening towards the tip. The lining of the mouth is black.¹⁶ The common length is 40 cm, with the maximum length and weight being 100 cm and 6 kg.¹⁷

Fresh flesh

¹⁶ SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages. ISBN 978-3-642-82860-7. Page 634.

¹⁷ *Brama brama* (Bonnaterre, 1788). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-31]. Retrieved from: <https://www.fishbase.se/summary/Brama-brama.html>



The flesh is pink to pinkish white and red to reddish brown in the abdominal cavity area. Segmentation is particularly visible in the central part of the fillet. The dorsal part has 2 white lines. The first one is clearly visible along the whole length of the fillet, while the second one, albeit noticeable, is only clearly visible from 1/2 of the fillet caudally onwards. There is a distinct groove in the central part. Ventrally, 2 lighter lines are less visible, running from the end of the abdominal cavity to the caudal peduncle. The abdominal cavity area reaches 1/2 of the height and 2/5 of the length of the fillet (including the dorsal-cranial part). The lining of the abdominal cavity is blackish grey with a silvery pattern and is very easy to remove, with the underlying connective tissue being white. Given the characteristics, the flesh is unlikely to be confused.

Deep-frozen flesh



The flesh is pink to pinkish white and red to reddish brown in the abdominal cavity area. Segmentation is poorly visible. The dorsal part has 2 lines. The first one is only visible in 1/2 cranially, then fading away. The second one is clearly noticeable due to the different tinge of the flesh throughout the length of the fillet. There is a distinct darker groove in the central part. Ventrally, 1 lighter line is noticeable, running from the end of the abdominal cavity to the caudal peduncle. The abdominal cavity area reaches 1/2 of the height and 2/5 of the length of the fillet (including the dorsal-cranial part). The lining of the abdominal cavity is blackish grey with a silvery pattern. Given the characteristics, the flesh is unlikely to be confused.

Fresh and deep-frozen flesh confusability

Not possible.

Carangidae

Caranx ignobilis (Forsskal, 1775)

Commercial designation

Giant Trevally

Commercial designation synonyms

Black Ulua, Forsskal's Indo-pacific Jack Fish,



Giant Kingfish

Taxonomic classification

Order	Perciformes
Family	Carangidae
Genus	<i>Caranx</i>
Species	<i>Caranx ignobilis</i>

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description

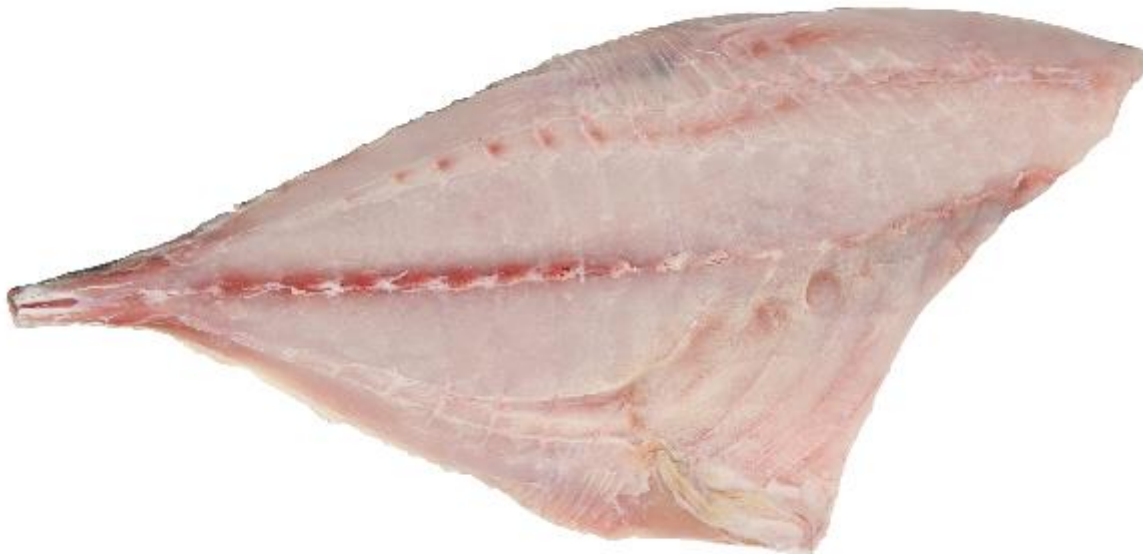


It is the largest species of the genus *Caranx*. It has a characteristically steep head profile. The lateral line is straight with 26-38 sharp scutes. Adults are mainly silvery grey to black above and usually paler below, without a dark spot at the upper end of operculum. The fins are



grey to black, except for fish from turbid coastal waters that often have yellow fins.¹⁸ The anal fin is usually brighter. It attains 170 cm, with the common length being 100 cm. The maximum published weight is 80 kg.¹⁹

Fresh flesh



The flesh is white to greyish pink with darker red patches (dots) in the central and dorsal parts of the fillet, without distinct segmentation. In some cases, the dots may merge into an entire line. The marginal part of the dorsal and ventral parts of the fillet shows the typical pattern of this family. There is high dorsal arching and radical reduction in the height of the fillet from 1/2 of its length to a thin caudal peduncle that forms 1/12 of its cranial height. In the dorsal part of the ribs there are tiny spherical cavities, which are a distinguishing feature. The abdominal cavity area reaches 2/3 of the height and 1/5 of the length of the fillet, where it extends caudally to a narrow tube. The lining of the abdominal cavity is dull white. The height of the fillet and the thin caudal peduncle reduce the possibility of confusion with other species of the family, such as *Seriola lalandi* and *Pseudocaranx dentex*. In addition, the flesh may be confused with members of the families Serranidae (e.g. *Cephalopholis sonnerati* and *Epinephelus flavocaeruleus*) and Lutjanidae (e.g. *Lutjanus campechanus*, *Lutjanus*

¹⁸ SMITH-VANIZ, W. F. Carangidae. In: SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 str. ISBN 978-3-642-82860-7. Str. 647.

¹⁹ *Caranx ignobilis* (Forsskål, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-19]. Dostupné z: <https://www.fishbase.se/summary/1895>



argentimaculatus and *Lutjanus bohar*). All of the mentioned species, with the exception of the family Carangidae, have a significantly more robust part of the caudal peduncle.

Deep-frozen flesh



The flesh is white to greyish pink with darker red patches (dots) in the central and dorsal parts of the fillet, without distinct segmentation. In some cases, the dots may merge into an entire line. There is high dorsal arching and radical reduction in the height of the fillet from 1/2 of its length to a thin caudal peduncle that forms 1/12 of its cranial height. The marginal part of the dorsal and ventral parts of the fillet shows no pattern. Base on the way of processing, there may be tiny spherical cavities near the area of the ribs, but this is not a norm. The abdominal cavity area reaches 2/3 of the height and 1/5 of the length of the fillet. The lining of the abdominal cavity is dull white. The height of the fillet and the thin caudal peduncle reduce the possibility of confusion with other species of the family, such as *Seriola lalandi* and *Pseudocaranx dentex*. In addition, the flesh may be confused with members of the families Serranidae (e.g. *Cephalopholis sonnerati* and *Epinephelus flavocaeruleus*) and Lutjanidae (e.g. *Lutjanus campechanus*, *Lutjanus argentimaculatus* and *Lutjanus bohar*). All of the mentioned species, with the exception of the family Carangidae, have a significantly more robust part of the caudal peduncle.

Fresh and deep-frozen flesh confusability



Carangidae; Serranidae; Lutjanidae.

Caranx latus (Agassiz, 1831)

Commercial designation

Horse-eye Jack

Commercial designation synonyms

Horse-eye Trevally, Horse-eye Crevalle, Black
Jack

Taxonomic classification

Order Perciformes

Family Carangidae

Genus *Caranx*

Species *Caranx latus*

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 21 – Atlantic, Northwest

Area 31 – Atlantic, Western Central

Area 41 – Atlantic, Southwest

Species description



The body is elongated, high, and moderately compressed. The eye is large. The upper jaw extends to the posterior eye margin. The dorsal and anal fin lobes are elongated. The pectoral fins are longer than the head. The lateral line has a strong, moderately long anterior arch; the straight part has 32 to 39 scutes. The scales are small and cycloid (smooth to touch). Bilateral paired caudal keels are present. The dorsum is dark blue to bluish grey and the underside is silvery white or golden below, with the dorsal-fin lobe and sometimes posterior scutes black or dark, and no oval black patch on the pectoral fins. Juveniles have about 5 dark bars on the body. The maximum size is uncertain, it reaches at least 80 cm and possibly 16 kg. The common length is up to 50 cm.²⁰

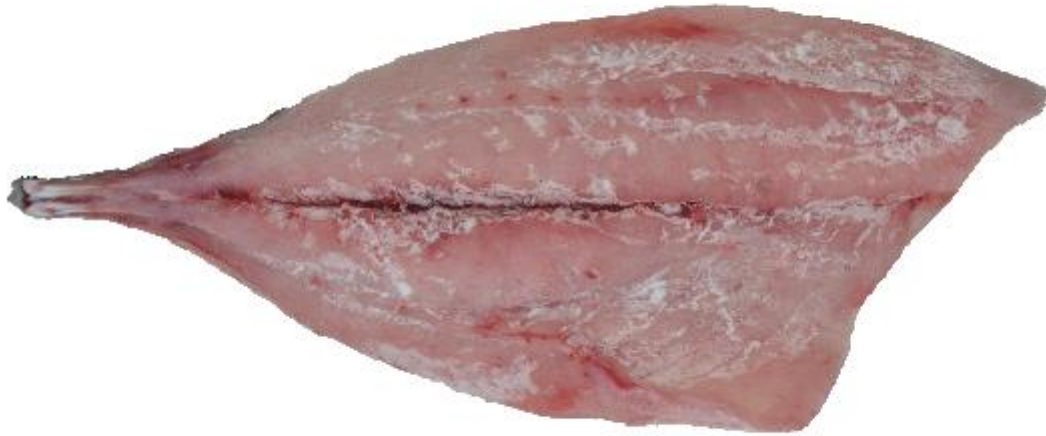
Fresh flesh

²⁰ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opisthognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 s. [Str. 1375-2127]. ISBN 978-9251048276. Str. 1441.



The flesh is light to dark pink with darker red patches (dots) in the central and dorsal parts of the fillet, with noticeable but not distinct segmentation. In some cases, the dots may merge into an entire line. In the marginal part of the dorsal and ventral parts of the fillet there is a pattern typical of this family. There is high dorsal arching and a radical reduction of the fillet height from 1/2 of its length to a thin caudal peduncle, which forms 1/12 of the cranial height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet, where it is extended caudally to a narrow tube. The lining of the abdominal cavity is dull white. Its colouration and characteristics make the species difficult to be confused in the form of a whole fillet. In the case of only part of it, it may be confused, especially with the species *Elagatis bipinnulata*.

Deep-frozen flesh



The flesh is light to dark pink with darker red patches (dots) in the central and dorsal parts of the fillet, without noticeable segmentation. In some cases, the dots may merge into an entire line. In the marginal part of the dorsal and ventral parts of the fillet there is a very hardly noticeable or undetectable pattern. High dorsal arching and a radical reduction of the fillet height from 1/2 of its length to a thin caudal peduncle, which forms 1/12 of the cranial height, is an important identifying feature. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet, where it is extended caudally to a narrow tube. The lining of the abdominal cavity is pinkish white. Due to its colouration and characteristics, the species can be confused mainly with *Pseudocaranx dentex* and *Caranx ignobilis*.

Fresh and deep-frozen flesh confusability

Carangidae.

Caranx sexfasciatus (Quoy & Gaimard, 1825)

Commercial designation	Bigeye Trevally
Commercial designation synonyms	Great Trevally, Sixband Trevally
Taxonomic classification	Order Perciformes
	Family Carangidae



Genus *Caranx*
Species *Caranx sexfasciatus*

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 6 – Oceania – Inland waters

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

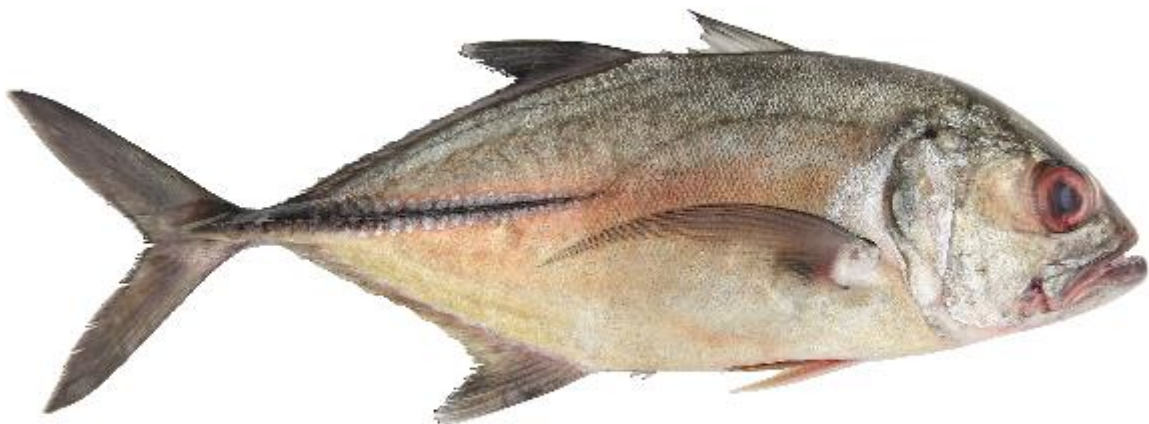
Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description

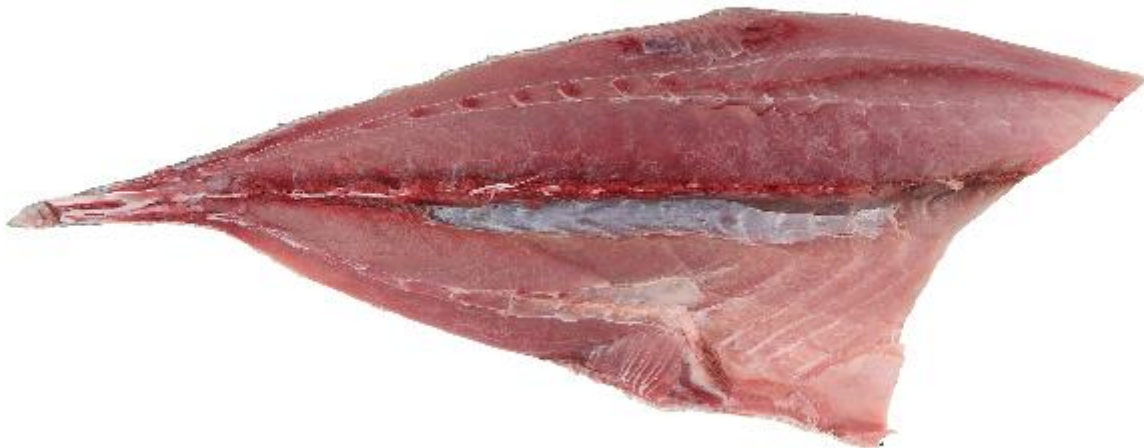


Body elongated and compressed. The end of the upper jaw extends to beyond the posterior margin of the eye. There are two separate dorsal fins, the first with 8 spines, the second with



1 spine and 19 to 22 soft rays. The anal fin has 2 detached spines followed by 1 spine and 14 to 17 soft rays. The dorsal and anal fin lobes are elongated. The head and the body are silvery olive to iridescent. The dorsum is blueish green while the sides are silvery olive to whitish. At the upper margin of the operculum, there is a small blackish spot. The lateral line is dark to black.²¹ It attains 120 cm, with the common length being 60 cm. The maximum published weight is 18 kg.²²

Fresh flesh



The flesh is pinkish white to brownish red with poorly noticeable segmentation. Dorsally, a dark red line is clearly visible, starting as a solid line in the cranial part and becoming broken from about 1/2 fillet with the onset of a typical rectangular pattern. The central part is dominated by a solid dark stripe running the entire length of the fillet, together with a cavity starting in the cranial part just below the dark line and running up to 2/3 of the length. There is continuous dorsal arching and a radical reduction in the height of the fillet from 1/2 of its length to a thin caudal peduncle, which forms 1/12 of the cranial height. The abdominal

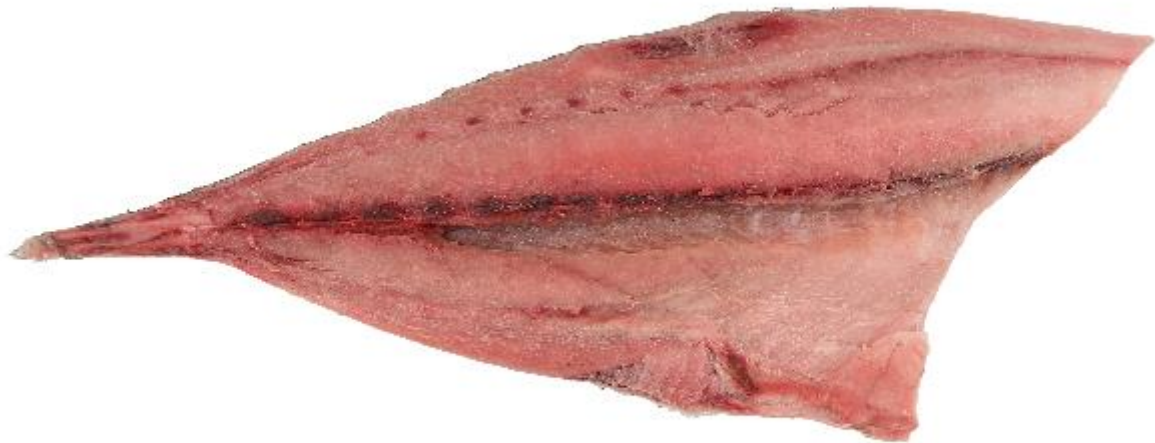
²¹ Family: Carangidae [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-07-28]. Dostupné z: <https://www.fao.org/3/ad468e/AD468eBY.pdf>

²² *Caranx sexfasciatus* (Quoy & Gaimard, 1825). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-19]. Dostupné z: <https://www.fishbase.se/summary/Caranx-sexfasciatus.html>



cavity area reaches $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet, where it is extended caudally to a narrow tube. The lining of the abdominal cavity is dull white.

Deep-frozen flesh



The flesh is pink to brownish red and black completely without segmentation. Dorsally, a dark red line is clearly visible, starting as a solid line in the cranial part and becoming broken from about $\frac{1}{2}$ fillet. The typical rectangular pattern is not noticeable. The central part is dominated by a solid dark stripe running the entire length of the fillet, together with a cavity starting in the cranial part just below the dark line and running up to $\frac{2}{3}$ of the length. There is continuous dorsal arching and a radical reduction in the height of the fillet from $\frac{1}{2}$ of its length to a thin caudal peduncle, which forms $\frac{1}{12}$ of the cranial height. The abdominal cavity area reaches $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet, where it is extended caudally to a narrow tube. The lining of the abdominal cavity is dull pink.

Fresh and deep-frozen flesh confusability

It is unlikely.



Elagatis bipinnulata (Quoy & Gaimard, 1825)

Commercial designation

Rainbow Runner

Commercial designation synonyms

Runner, Yellow Tail, Spanish-Jack

Taxonomic classification

Order	Perciformes
Family	Carangidae
Genus	<i>Elagatis</i>
Species	<i>Elagatis bipinnulata</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

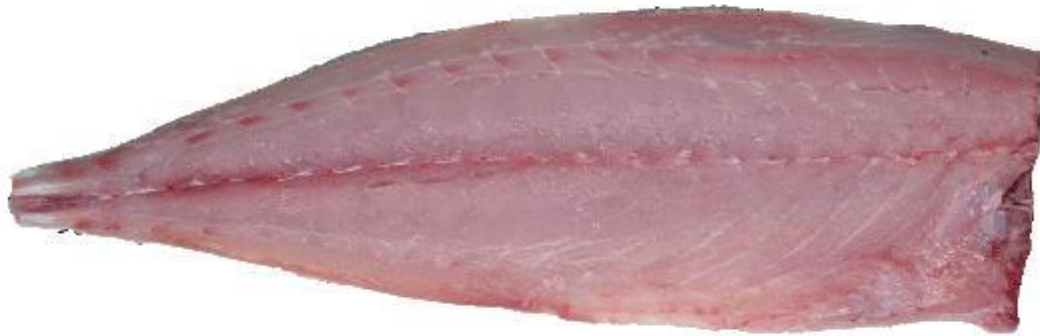
Species description



The body is greatly elongated and fusiform. The head is pointed with a small mouth, the upper jaw ending distinctly before the eye. Two dorsal fins are followed by an additional finlet. The caudal fin is homocercic and deeply forked. The lateral line has a slight anterior arch above the pectoral fin. The body is covered with ctenoid scales. The dorsum is dark olive blue or green and the belly is white. There are 2 narrow light blue or bluish white stripes along each side, with broader olive or yellowish stripes between them. The fins are dark with an olive or yellow tint. It attains a maximum of 120 cm. The common size is 80 cm and weight up to 10 kg.²³

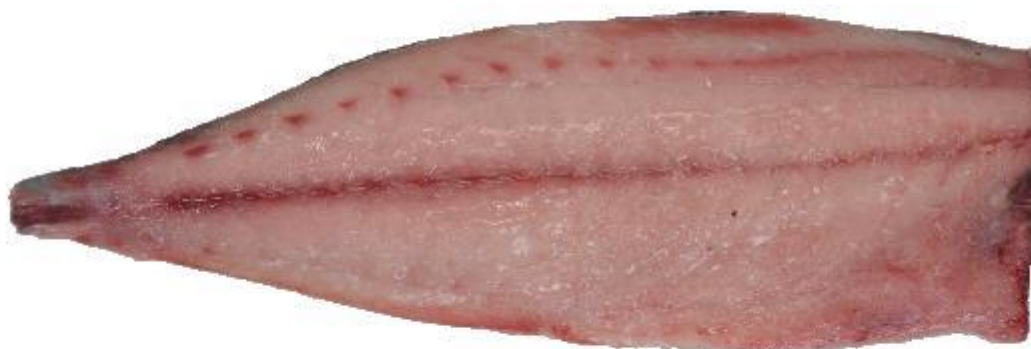
Fresh flesh

²³ CARPENTER, K.E. (ed.) *The living marine resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 s. [Str. 1375-2127]. ISBN 978-9251048276. str. 1448.



The flesh is pink, greyish pink to red with darker patches (spots), mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. The darker colouration forms an entire line around the spinal area. A typical rectangular pattern is evident throughout the dorsal part. The pattern of the ventral part starts from the end of the abdominal part and is clearly visible up to the caudal peduncle part. The fillet is elongated, low, with a gradual conical tapering to the thin caudal peduncle, which forms $\frac{1}{4}$ of the cranial height of the fillet. The abdominal area reaches $\frac{1}{2}$ of the height and $\frac{1}{2}$ of the length of the fillet. The lining of the abdominal cavity is pinkish white. The flesh in the form of a whole fillet is difficult to be confused, the exception being the species *Seriola dumerili*, which has almost identical characteristics except for the tiny spherical cavities in the dorsal part of the rib region.

Deep-frozen flesh



The flesh is pink, greyish pink to red with darker patches (spots), mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. The darker colouration forms an entire line around the spinal area. The rectangular pattern in the marginal part of the dorsal and ventral parts of the fillet is not noticeable. The rectangular pattern in the marginal part of the dorsal and ventral parts of the fillet is not noticeable. The fillet is elongated, low, with a gradual conical tapering to the thin caudal peduncle, which forms 1/4 of the cranial height of the fillet. The abdominal cavity area reaches 1/2 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is pink. The flesh in the form of a whole fillet is difficult to be confused, the exception being the species *Seriola dumerili* and *Arripis trutta*, which have almost identical characteristics except for the tiny spherical cavities in the dorsal part of the rib region. The species *Arripis trutta* has much brighter and darker spots in the longitudinal lines.

Fresh and deep-frozen flesh confusability

Carangidae; Arripidae.

Pseudocaranx dentex (Bloch & Schneider, 1801)

Commercial designation

Blue Trevally

Commercial designation synonyms

Jackfish, Skipjack, Skippy



Taxonomic classification

Order	Perciformes
Family	Carangidae
Genus	<i>Pseudocaranx</i>
Species	<i>Pseudocaranx dentex</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

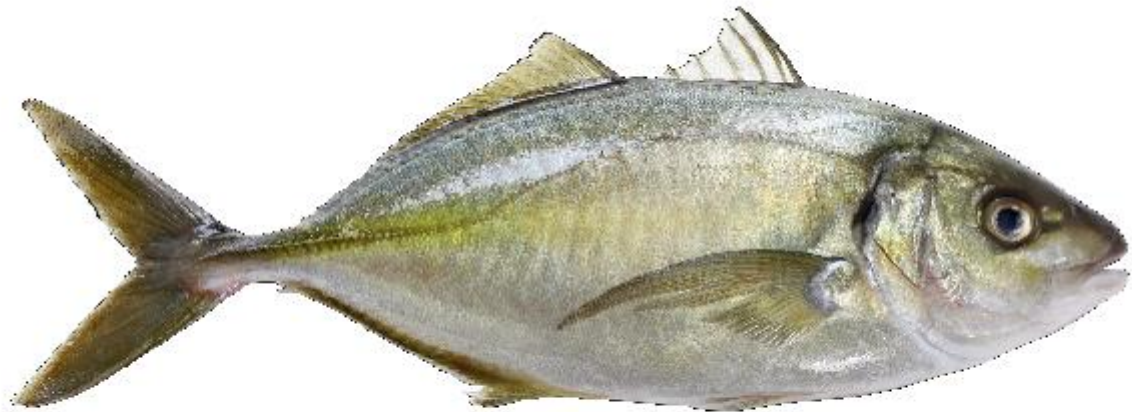
Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

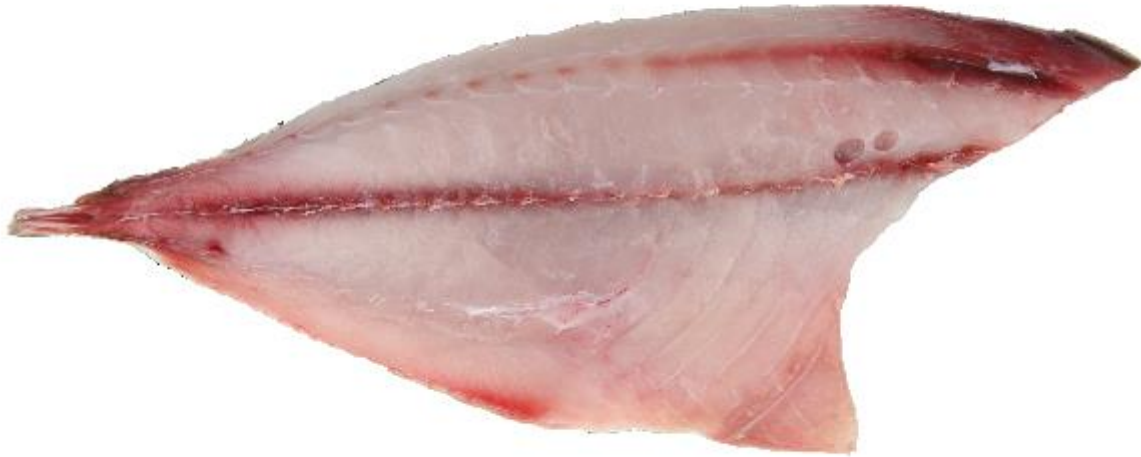
Species description



The body is elongated, moderately high and laterally compressed. The eye is relatively small with a poorly developed adipose eyelid. The lips are noticeably papillose, the end of the upper jaw does not reach the front edge of the eye and projecting beyond the lower jaw in large adults. There are two separate dorsal fins, the first with 8 spines and the second with 1 spine and 24 to 28 soft rays. The pectoral fins are longer than the head. The dorsum is pale greenish to steely blue and the sides are silvery. There is a yellow stripe along the sides and at bases of the soft dorsal and anal fins. The caudal fin and dorsal fins are dusky yellow. There is a black spot on the upper margin of the operculum. The common size is up to 40 cm and weight up to 10,7 kg. The maximum length is 82 cm.²⁴

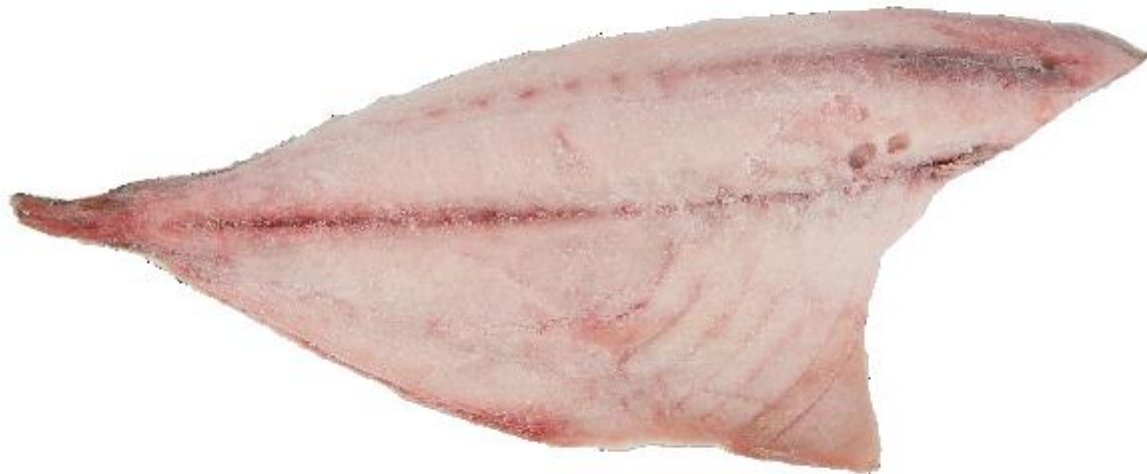
Fresh flesh

²⁴ CARPENTER, K. E., NIEM, V. H. (eds.). *The Living Marine Resources of the Western Central Pacific. Volume 4: Bony fishes part 2 (Mugilidae to Carangidae)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 1999. [Str. 2069-2790]. ISBN 92-5-104301-9. Str. 2730.



The flesh is very pale, whitish pink on most of the surface, without noticeable segmentation. Dorsally, a dark red line is clearly visible, starting as a solid line in the cranial part and becoming broken from about 1/2 of the fillet. A typical rectangular pattern is visible throughout the dorsal part. The pattern of the ventral part starts from the end of the abdominal part and is clearly visible up to the caudal peduncle part. The central part is dominated by a solid dark stripe along the entire length of the fillet with tiny spherical cavities in the cranial part just above the line. Dorsal arching is continuous, with a radical reduction in the height of the fillet from 3/4 of its length to the thin caudal peduncle, which makes up 1/8 of its total height. The abdominal cavity area reaches 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh is unlikely to be confused with other species given its characteristics.

Deep-frozen flesh



The flesh is very pale, whitish pink on most of the surface, without noticeable segmentation. Dorsally, a dark red line is clearly visible, starting as a solid line in the cranial part and becoming broken from about 1/2 of the fillet. The typical rectangular pattern is not visible. The central part is dominated by a solid dark stripe along the entire length of the fillet with tiny spherical cavities in the cranial part just above the line. Dorsal arching is continuous, with a radical reduction in the height of the fillet from 3/4 of its length to the thin caudal peduncle, which makes up 1/8 of its total height. The abdominal cavity area reaches 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is whitish pink. The flesh is unlikely to be confused with other species given its characteristics.

Fresh and deep-frozen flesh confusability

It is unlikely.

Seriola dumerili (Risso, 1810)

Commercial designation	Greater Amberjack
Commercial designation synonyms	Amberjack, Great Amberfish, Great Yellowtail
Taxonomic classification	Order Perciformes



Family	Carangidae
Genus	<i>Seriola</i>
Species	<i>Seriola dumerili</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description

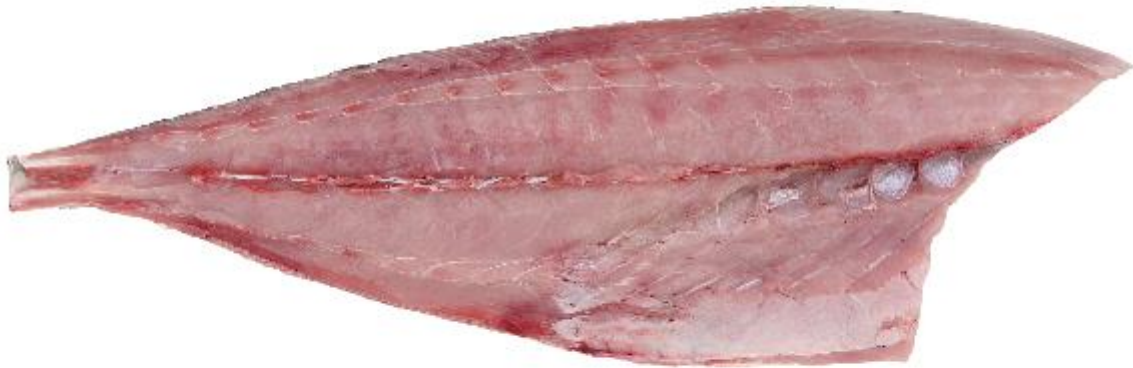


The body is elongated and slightly compressed, with the upper profile slightly more convex than the lower. The lateral line is curved. The dorsum is bluish grey or olivaceous while the sides and belly are silvery white, sometimes brownish or with a pinkish tinge. A dark nuchal bar extending through the eye to the first dorsal-fin origin and an amber stripe from the eye along the middle of the body are usually noticeable.²⁵ There are two dorsal fins, the first one significantly smaller with hard rays only. The first hard ray may be missing or embedded in larger fish. It attains 188 cm and more than 80 kg, the common length being up to 100 cm.²⁶

Fresh flesh

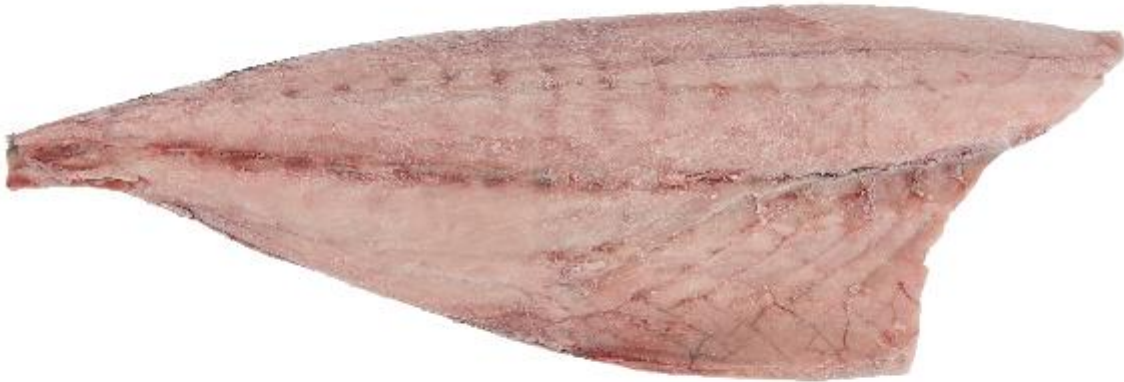
²⁵ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 s. [Str. 2343-3124]. ISBN 9789251092675. Str. 2499.

²⁶ SMITH-VANIZ, W. F. Carangidae. In: SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 str. ISBN 978-3-642-82860-7. Str. 657.



The flesh is pink, greyish pink to red with darker areas (spots), mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. The darker colouration forms a whole line in the area of the spine. In the marginal part of the dorsal and ventral parts of the fillet, a rectangular pattern typical of this family is clearly visible. The fillet is elongated, low, with a gradual conical tapering to a thin caudal peduncle, the height of which is $\frac{1}{5}$ of the cranial height of the fillet. In the dorsal part of the ribs there are tiny spherical cavities, which are a distinguishing feature. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{2}{5}$ of the length of the fillet. The lining of the abdominal cavity is pinkish white. The flesh in the form of a whole fillet is difficult to be confused, the exception being *Elagatis bipinnulata*, which has almost identical characteristics, except for the aforementioned tiny spherical cavities.

Deep-frozen flesh



The flesh is pink, greyish pink to red with darker areas (spots), mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. The darker colouration forms a whole line in the area of the spine. In the marginal part of the dorsal and ventral parts of the fillet, a rectangular pattern typical of this family is poorly visible. The fillet is elongated, low, with a gradual conical tapering to a thin caudal peduncle, the height of which is $\frac{1}{5}$ of the cranial height of the fillet. In the dorsal part of the ribs there are tiny spherical cavities, which are a distinguishing feature. The abdominal cavity area reaches $\frac{1}{2}$ of the height and $\frac{2}{5}$ of the length of the fillet. The lining of the abdominal cavity is pinkish white. The flesh in the form of a whole fillet is difficult to be confused, the exception being *Elagatis bipinnulata* and *Arripis trutta*, which have almost identical characteristics, except for the aforementioned tiny spherical cavities. The species *Arripis trutta* also has much brighter and darker spots in the longitudinal lines.

Fresh and deep-frozen flesh confusability

Carangidae; Arripidae.

Seriola lalandi (Valenciennes, 1833)

Commercial designation

Yellowtail Kingfish



Commercial designation synonyms

Yellowtail Amberjack

Taxonomic classification

Order Perciformes
Family Carangidae
Genus *Seriola*
Species *Seriola lalandi*

Distribution – FAO areas

Area 31 – Atlantic, Western Central

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description





The body is elongated, moderately slender and slightly compressed, with the upper and lower profiles similar; the eye is relatively small. The dorsum is blue to olivaceous, while the sides and belly are silver to white, sometimes with a rosy tinge. A narrow bronze stripe from the snout extends through the eye and along the midside of the body up to the caudal peduncle, which is darker in the cranial part, becoming paler posteriorly. The bases of the fins are yellowish. The dorso-posterior part of the upper jaw is reasonably slender and round, reaching below the anterior edge of the pupil. There are two dorsal fins, with the seventh spine reduced or embedded in adult fish (VII + I, 30–35). It attains 150 cm and 50 kg.²⁷

Fresh flesh



The flesh is white to greyish pink with darker red patches (dots) in the dorsal, central and ventral parts of the fillet, without distinct segmentation. The majority of the dorsal and ventral parts of the fillet shows a white pattern typical of this family. The ribs have characteristic white marbling that is absent in most other species. Dorsal arching is continuous with a conical decrease in the height of the fillet from 1/4 of its length to the thin caudal peduncle which forms 1/5 of its total height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is pure

²⁷ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 s. [Str. 2343-3124]. ISBN 9789251092675. Str. 2502.



white. The flesh is unlikely to be confused with another species given its characteristics, except for *Seriola quinqueradiata*, which has very similar characteristics but is much darker and the reddish brown patches are much more extensive.

Deep-frozen flesh



The flesh is white with darker red patches (dots) in the dorsal, central and ventral parts of the fillet. Segmentation is not visible. The majority of the dorsal and ventral parts of the fillet shows a pattern typical of this family. The ribs have characteristic white marbling that is absent in most other species. Dorsal arching is continuous with a conical decrease in the height of the fillet from 1/4 of its length to the thin caudal peduncle which forms 1/5 of its total height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is greyish white. The flesh is unlikely to be confused with another species given its characteristics, except for *Seriola quinqueradiata*, which has very similar characteristics but is much darker and the reddish brown patches are much more extensive.

Fresh and deep-frozen flesh confusability

Carangidae.



Seriola quinqueradiata (Temminck & Schlegel, 1845)

Commercial designation	Japanese Amberjack	
Commercial designation synonyms	None	
Taxonomic classification	Order	Perciformes
	Family	Carangidae
	Genus	<i>Seriola</i>
	Species	<i>Seriola quinqueradiata</i>

Distribution – FAO areas

Area 61 – Pacific, Northwest

Area 77 – Pacific, Eastern Central

Species description

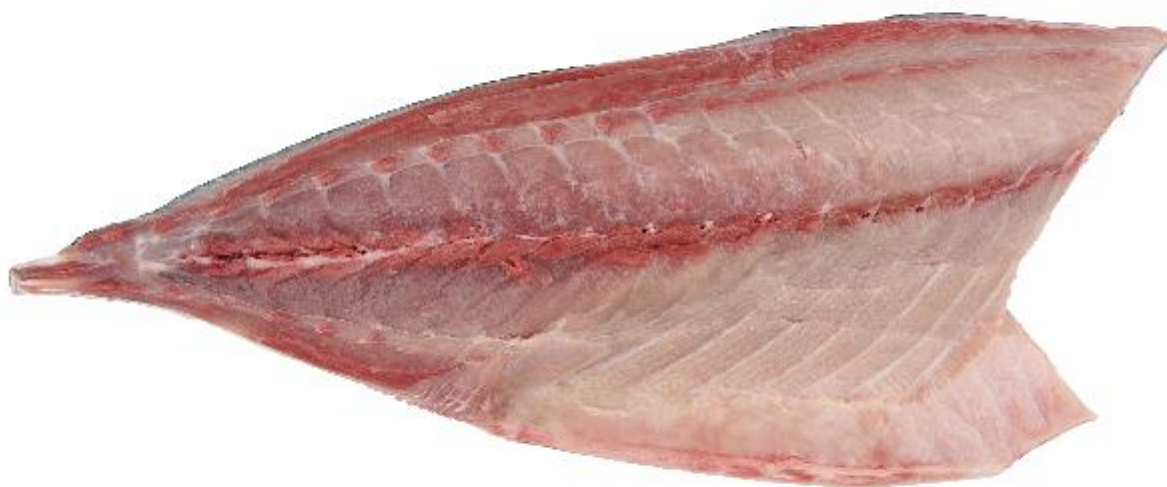


The body elongated, slightly laterally compressed with a curved lateral line without scutes. Only part of the caudal peduncle is reinforced laterally. The dorsum is blue, blueish green to grey or black, from the midline of the body the flanks and belly are silvery white, sometimes brownish or with a pinkish tinge. A yellow stripe runs from the eye to the tail in the central axis of the body. There are two dorsal fins (VI–VII, 29–36). Yellow to yellowish brown



colouration of the caudal fin is typical. As opposed to *Seriola lalandi*, the species' dorsoposterior corner of the upper jaw is angular and the pectoral and pelvic fins are almost equal in length. It reaches a length of 150 cm and a weight of 40,0 kg.^{28 29}

Fresh flesh



The flesh is pink, greyish pink to reddish brown with darker spots and lines, mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. In the peripheral part of the dorsal area and the spinal region, the darker colouration forms an entire line. In the ventral part, darker spots occur only caudally from the end of the abdominal area. In the peripheral part of the dorsal and ventral parts of the fillet, a rectangular pattern typical of this family is clearly visible. The fillet is elongated, low, with a gradual conical tapering to a thin caudal peduncle, the height of which is 1/7 of the cranial height of the fillet. The

²⁸ *Seriola quinqueradiata* (Temminck & Schlegel, 1845) [FAO Species Fact Sheets]. Food and Agriculture Organization of the United Nations [online]. Rome, Italy: FAO, 2023, [cit. 2023-04-19]. Dostupné z: https://www.fao.org/figis/pdf/fishery/culturedspecies/Seriola_quinqueradiata/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Cultured%20Aquatic%20Species%20Information%20Programme%20-%20Seriola%20quinqueradiata%20%28Temminck%20%26amp%3B%20Schlegel%2C%2C%201845%29

²⁹ *Seriola quinqueradiata* (Temminck & Schlegel, 1845) In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-19]. Dostupné z: <https://www.fishbase.se/summary/381>



abdominal cavity area reaches $\frac{2}{3}$ of the height and $\frac{3}{5}$ of the length of the fillet. The lining of the abdominal cavity is pinkish white. In the form of a whole fillet, it may be confused with *Seriola lalandi*, which has similar shape characteristics but is significantly paler. It is unlikely to be confused with other species.

Deep-frozen flesh



The flesh is light pink with darker reddish brown spots and lines, mainly in the dorsal, central and ventral parts of the fillet, without distinct segmentation. In the peripheral part of the dorsal area and the spinal region, the darker colouration forms an entire line. In the ventral part, darker spots occur only caudally from the end of the abdominal area. A rectangular pattern typical of this family is not noticeable. The fillet is elongated, low, with a gradual conical tapering to a thin caudal peduncle, the height of which is $\frac{1}{7}$ of the cranial height of the fillet. The abdominal cavity area reaches $\frac{2}{3}$ of the height and $\frac{3}{5}$ of the length of the fillet. The lining of the abdominal cavity is pinkish white. In the form of a whole fillet, it may be confused with *Seriola lalandi*, which has similar shape characteristics but is significantly paler, and with *Arripis trutta*, which, however, has a significantly wider part of the caudal peduncle.

Fresh and deep-frozen flesh confusability

Carangidae; Arripidae.



Trachinotus bailloni (Lacepède, 1801)

Commercial designation

Small Spotted Dart

Commercial designation synonyms

Black-spotted Dart, Blackspotted Swallowtail

Taxonomic classification

Order Perciformes

Family Carangidae

Genus *Trachinotus*

Species *Trachinotus bailloni*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

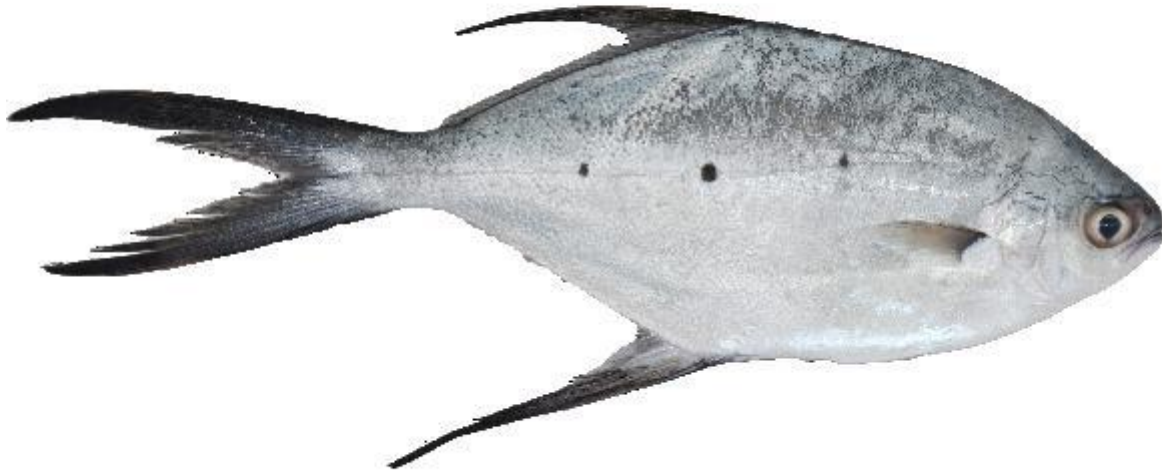
Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The body is oval and strongly compressed. The head is small, bluntly pointed, with a large eye and a small anterior mouth. The caudal fin is heterocercal, deeply forked. The body is covered with scales and the lateral line is almost straight. The dorsal part of the body is silvery blue to grey, while the ventral part is silvery white. The lateral line has 1-5 small black spots (they are absent in fish smaller than 15 cm), with the number of spots generally increasing with age. The dorsal, anal and caudal fins are grey to black; the lobes are usually darkest. ³⁰ It attains a maximum of 60 cm, with the common length being 35 cm. The maximum published weight is 1,50 kg.³¹

Fresh flesh

³⁰ SMITH-VANIZ, W. F. Carangidae. In: SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages. ISBN 978-3-642-82860-7. Pages 658-659.

³¹ *Trachinotus baillonii* (Lacepède, 1801). In: FROESE, R., PAULY, D. (eds.). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 06-2023 [cit. 2023-04-19]. Available from: <https://www.fishbase.se/summary/trachinotus-baillonii>



The flesh is pinkish white to olive grey without noticeable segmentation. In the dorsal part, a rectangular pattern accompanied by a line of darker brownish red spots is clearly visible throughout the whole length. The central line is narrow and dark red. The ventral line of darker spots is indistinct, as is the less visible rectangular pattern. Dorsal arching forms a smooth arc with a radical decrease in the fillet height in the last 1/5 of its length to a thin caudal peduncle, which forms 1/4 of the cranial height. The abdominal cavity area reaches 2/3 of the height and 3/5 of the length of the fillet, where it is extended caudally to a narrow conical tube. The lining of the abdominal cavity is silvery white. The flesh can be easily confused with species of the families Lethrinidae and Sparidae. The key difference lies in the shortened dorsal arching, with the representatives of the mentioned families lacking the entire cranially descending part.

Deep-frozen flesh



The flesh is pink to olive grey without noticeable segmentation. In the dorsal part, a rectangular pattern accompanied by a line of darker brownish red spots is clearly visible throughout the whole length. The central line is narrow and dark red. The ventral line of darker spots is indistinct, as is the less visible rectangular pattern. Dorsal arching forms a smooth arc with a radical decrease in the fillet height in the last 1/5 of its length to a thin caudal peduncle, which forms 1/4 of the cranial height. The abdominal cavity area reaches 2/3 of the height and 3/5 of the length of the fillet, where it is extended caudally to a narrow conical tube. The lining of the abdominal cavity is silvery white. The flesh can be easily confused with species of the families Lethrinidae and Sparidae. The key difference lies in the shortened dorsal arching, with the representatives of the mentioned families lacking the entire cranially descending part.

Fresh and deep-frozen flesh confusability

Lethrinidae; Sparidae.

Trachurus trachurus (Linnaeus, 1758)

Commercial designation

Atlantic Horse Mackerel

Commercial designation synonyms

Common Scad, European Horse Mackerel

Taxonomic classification

Order Perciformes



Family	Carangidae
Genus	<i>Trachurus</i>
Species	<i>Trachurus trachurus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 61 – Pacific, Northwest

Area 81 – Pacific, Southwest

Species description



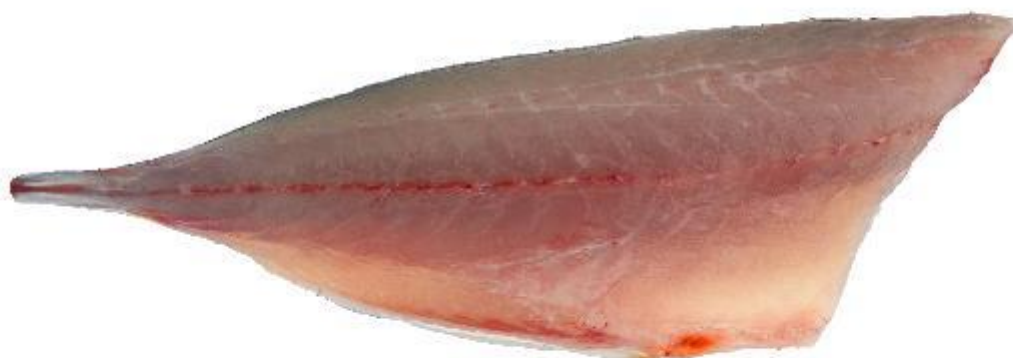
The body is elongated, deeper and slightly laterally compressed, with the upper and lower profiles similar. The eye is large.³² The bluish green, grey to almost black dorsum transitions into a silvery white belly. A curved lateral line and a black spot on the operculum constitute

³² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Pages 2511.



prominent features. It has two dorsal fins, the first one being significantly shorter, with spines only (VIII+I, 30–36), and two anal fins (II+I, 24–32). The scales in the lateral line are elongated, with a keel. It can reach a length of 70 cm and a weight of 2.0 kg, with the common length being 22 cm.³³

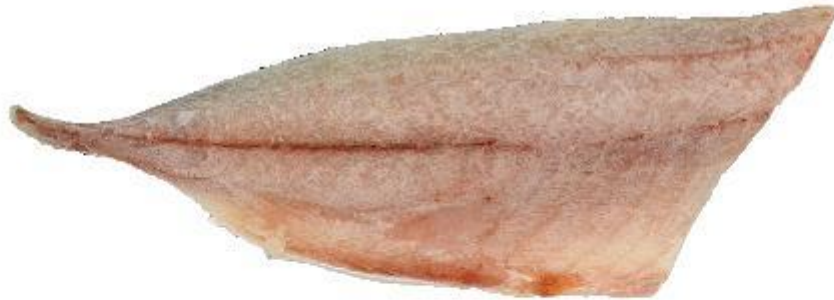
Fresh flesh



The flesh is yellowish white to olive grey with less visible brownish red spots in the dorsal part. The central and ventral lines are red. Segmentation is relatively well distinguishable. The dorsal and ventral rectangular patterns are well noticeable. The fillet is low, elongate, conical, with minimal dorsal arching, rapidly tapering in the last 1/4 to 1/8 of its cranial height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet, where it is extended caudally to form a narrow conical tube. The lining of the abdominal cavity is silvery white. Due to its size and characteristics, the flesh is unlikely to be confused with other species.

Deep-frozen flesh

³³ *Trachurus trachurus* (Linnaeus, 1758) In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 06-2023 [cit. 2023-08-27]. Available from: <https://www.fishbase.se/summary/1365>.



The flesh is yellowish white to olive grey with less visible brownish red spots in the dorsal part. The central and ventral lines are red. Segmentation is relatively well distinguishable. The dorsal and ventral rectangular patterns are well noticeable. The fillet is low, elongate, conical, with minimal dorsal arching, rapidly tapering in the last 1/4 to 1/8 of its cranial height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet, where it is extended caudally to form a narrow conical tube. The lining of the abdominal cavity is silvery white. Due to its size and characteristics, the flesh is unlikely to be confused with other species.

Fresh and deep-frozen flesh confusability

It is unlikely.

Carcharhinidae

Prionace glauca (Linnaeus, 1758)

Commercial designation	Blue Shark
Commercial designation synonyms	Blue Dog, Blue Pointer, Great Blue Shark
Taxonomic classification	Order Carcharhiniformes



Family	Carcharhinidae
Genus	<i>Prionace</i>
Species	<i>Prionace glauca</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



Has a slender, fusiform body, the snout is considerably elongated. There are two dorsal fins: the first dorsal fin is with a narrowly rounded apex, larger than the second. The pectoral fins are long, narrow, and slightly crescent-shaped with rounded tips. A weak keel is present on each side of the caudal peduncle. The dorsum is dark blue, and the flanks are bright blue. The abdomen is white, fading to a purplish blackish colour after death. The tips of the pectoral and anal fins are dark. Maximum total length is up to 380 cm, most specimens are up to 335 cm. Size at birth is about 34-48 cm.³⁴

Fresh flesh

³⁴ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 1: Introduction, molluscs, crustaceans, hagfishes, sharks, batoid fishes and chimaeras* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. [Pages 0-600]. ISBN 92-5-104825-8. Page 493.



White to off-white with no noticeable segmentation, except in the transverse section, which divides the fillet into loin and ventral parts. Two white lines are clearly visible throughout the dorsal part. The ventral part reaches $\frac{3}{4}$ of the height and $\frac{2}{3}$ of the length of the fillet. The lining of the abdominal cavity is silvery-white and pinkish throughout. The flesh is very fine and difficult to confuse, and the fillet is robust. There is a partial similarity in the case of the *Conger conger*, which is similar in colour, without white lines but with a white pattern and a darker central line. At the same time, a strong seminal odour is noticeable. Then there is the species *Aphanopus carbo*, whose fillet is incomparably thinner.

Deep-frozen flesh



Uniform light pink with a noticeable segmentation in the dorsal part. Two light lines are less visible throughout the dorsal part. The abdominal cavity reaches 3/4 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is uniformly light pink. The fillet is robust and the flesh difficult to confuse.

Fresh and deep-frozen flesh confusability

Congridae; Trichiuridae.

Cichlidae

Oreochromis niloticus (Linnaeus, 1758)

Commercial designation	Nile Tilapia	
Commercial designation synonyms	None	
Taxonomic classification	Order	Perciformes
	Family	Cichlidae
	Genus	<i>Oreochromis</i>
	Species	<i>Oreochromis niloticus</i>



Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 2 – America, North - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 6 – Oceania - Inland waters

Species description



It is a large, stout, deep-bodied fish with a relatively small head. Males are bluish pink, sometimes with a dark throat and belly. The pelvic and anal fins may also be dark. Females



are usually brownish with a silvery white belly and about 10 thin vertical bars. The caudal fin is striped transversely with numerous thin vertical bars. In smaller fish they are relatively wide, forming an arc and beginning at the base of the caudal fin.³⁵ The number of bars ranges from 3 to 40, with the number increasing with age.³⁶ The fish has one dorsal fin with 15-17 spines and 11-13 rays. The caudal fin has 3 spines and 9-11 rays. The maximum length is 60 cm and weight over 4 kg.³⁷

Fresh flesh



The flash is greyish white to bright red with clearly visible segmentation and blackish grey lining of the abdominal cavity. A distinct red line is noticeable especially in the spine area and the marginal parts of the base of the fins. However, these parts are usually removed during processing. The flesh is firm, without a tendency to gapping. The fillet is robust and high with a slight arch and a very short part of the caudal peduncle, which forms 1/3 of the cranial height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet. In shape and colouration, it may resemble individuals of the family Carangidae or

³⁵ GENNER, M. J., TURNER, G. F., NGATUNGA, B. P. *A guide to the Tilapia Fishes of Tanzania* [online]. 08-2018 [cit. 2023-04-21]. 29 pages. Page 22. Retrieved from:

https://martingenner.weebly.com/uploads/1/6/2/5/16250078/tanzania_tilapia_guide_edition1_2018.pdf

³⁶ KOTTELAT, M., FREYHOF, J. *Handbook of European Freshwater Fishes*. Berlin: Publications Kottelat, Cornol and Freyhof, 2007. 646 pages. ISBN 978-2-8399-0298-4. Pages 543.

³⁷ *Oreochromis niloticus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-20]. Retrieved from:

<https://www.fishbase.se/summary/oreochromis-niloticus.html>



Sparidae. However, the Carangidae family individuals tend to be much larger, with a smaller proportion of the caudal peduncle, and have a clearer dorsal pattern. Members of the family Sparidae lack the distinctive red flesh. Nonetheless, if the fillet is skinned and carved, it can be very easily confused with the flesh of *Ctenopharyngodon idella*!

Deep-frozen flesh



The flesh is white with dark red to brown parts, mainly in the spine area. Segmentation is even more distinct in a large and high fillet than in fresh flesh, as it is clearly visible throughout the whole fillet, thus reducing confusion with members of the family Carangidae. The fillet is short, robust and high, with a slight arch and a very short part of the massive caudal peduncle, which reaches 1/3 of the cranial height. The abdominal cavity area reaches 2/3 of the height and 1/2 of the length of the fillet. If the fillet retains its black and grey lining, the possibility of confusion is very minor.

Fresh and deep-frozen flesh confusability

Carangidae; Sparidae; Xenocypridae.



Clariidae

Clarias gariepinus (Burchell, 1822)

Commercial designation	North African Catfish
Commercial designation synonyms	African Sharptooth Catfish, Common Catfish, African Walking Catfish
Taxonomic classification	Order Siluriformes
	Family Clariidae
	Genus <i>Clarias</i>
	Species <i>Clarias gariepinus</i>

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Species description



The body is elongated and cylindrical with a large, flattened head. The head is highly ossified, with a large mouth, bearing four pairs of barbels. The dorsal and anal fins are extremely long, consisting only of soft rays. The pectoral fin has one hard spine, the pelvic fin has six soft rays, and the caudal fin is rounded. The body is covered with a smooth, scaleless skin. The colour of the whole body is marbled, changing from greyish olive to blackish. On exposure to light, it generally becomes paler.³⁸ It reaches a maximum length of 170 cm, with the common length being 90 cm.³⁹ It can be confused with *Heterobranchus longifilis*, which additionally has a large adipose fin, a shorter dorsal fin, and fewer dorsal fin rays (26–35).⁴⁰

Fresh flesh

³⁸ DE GRAAF, G. J., JANSSEN, J. A. L. *Artificial Reproduction and Pond Rearing of the African Catfish Clarias gariepinus in Sub-Saharan Africa: A Handbook*. [FAO Fisheries Technical Paper No. 362] [online]. Rome: FAO, 1996 [Cit. 2023-04-21]. 73 Pages. ISBN 92-5-103916. Dostupné z <http://www.nefisco.org/downloads/Clarias.PDF>. Page 16.

³⁹ *Clarias gariepinus* (Burchell, 1822) In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-20]. Retrieved from: <https://www.fishbase.se/summary/1934>

⁴⁰ LEGENDRE, M., et al. A comparative study on morphology, growth rate and reproduction of *Clarias gariepinus* (Burchell, 1822), *Heterobranchus longifilis* (Valenciennes, 1840) and their reciprocal hybrids (Pisces, Clariidae). *Journal of Fish Biology*. 1992, 40(1), Pages. 59-79. Page 64.



The flesh is pale pink to dark red with typical transverse paler to white lines throughout the whole fillet, which sometimes can almost be seen as marbling. 3 longitudinal white lines in the central part and 2 red lines in the dorsal and ventral parts are less visible depending on the processing. Segmentation is very distinct, clearly noticeable even by touch, with occasional gaping, especially in the dorsal part. The lining of the abdominal cavity is silvery white and the abdominal cavity area extends to 2/3 of the height and 1/3 of the length of the fillet. The fillet is very robust, conical in shape, gradually tapering conically towards the caudal part. *Clarias gariepinus* appears narrow and low compared to *Heterobranchus longifilis* x *Clarias gariepinus*. It can almost certainly be confused with the aforementioned species.

Deep-frozen flesh



The flesh is white, pinkish to red with recognisable typical transverse lighter to white lines throughout the whole fillet. 5 longitudinal lines are clearly visible, especially the dorsal, central and ventral ones. Segmentation is very distinct with occasional gaping, especially in the cranial-dorsal part. The lining of the abdominal cavity is silvery white and the abdominal cavity part extends to between 2/3 and 1/3 of the length of the fillet. The fillet is very robust, conical in shape, gradually tapering conically towards the caudal part. *Clarias gariepinus* appears narrow and low compared to *Heterobranchus longifilis* x *Clarias gariepinus*. It can almost certainly be confused with the aforementioned species.

Fresh and deep-frozen flesh confusability

Clariidae.

Heterobranchus longifilis (Valenciennes, 1840)
x *Clarias gariepinus* (Burchell, 1822)

Commercial designation	Heteroclarias	
Commercial designation synonyms	None	
Taxonomic classification	Order	Siluriformes



Family	Clariidae
Genus	<i>Heterobranchus</i>
Species	<i>Heterobranchus longifilis</i> x <i>Clarias gariepinus</i>

Distribution – FAO areas

Area 1 – Africa - Inland waters

Species description

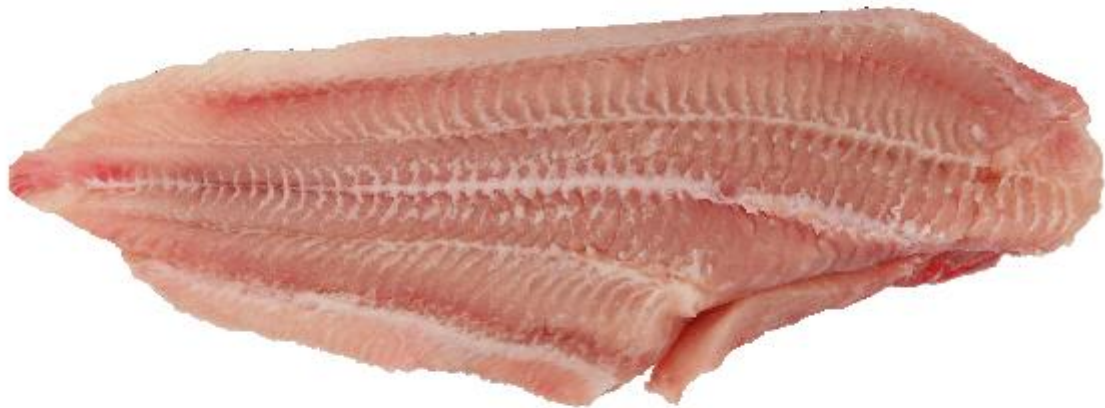


The head is long and broad. The frontal fontanelle is long and narrow. The occipital fontanelle is oval-shaped. The teeth are arranged in wide brush-like plates. The suprabranchial organ is well developed. The caudal fin is rounded. The openings of the secondary canals are barely visible nevertheless displaying a regular pattern. The back and sides are grey, greyish brown to dark brown, and the belly is light brown to whitish. Some individuals are marbled, especially on the back part of the body. The caudal fin is often crossed by several vertical bars, one of them being whitish, and the posterior part of the fin is often white-edged. The back part of the adipose fin is darker than the front part. The maximum length is 150 cm and weight 55 kg.⁴¹

⁴¹ *Heterobranchus longifilis* (Valenciennes, 1840). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-28]. Retrieved from: <https://www.fishbase.de/summary/Heterobranchus-longifilis>



Fresh flesh



The flesh is pale pink to dark red with typical transverse paler to white lines throughout the whole fillet, and 3 longitudinal white lines in the central part and 2 red lines in the dorsal and ventral parts. Segmentation is very distinct, clearly noticeable even by touch, with occasional gaping, especially in the dorsal part. The lining of the abdominal cavity is silvery white and the abdominal cavity area extends to 2/3 of the height and 1/3 of the length of the fillet. The fillet is very robust, gradually tapering conically towards the caudal part. Compared to *Clarias gariepinus*, it appears short and robust. It can almost certainly be confused with the aforementioned species.

Deep-frozen flesh



The flesh is white to pinkish with less visible typical transverse paler to white lines throughout the whole fillet. The 5 longitudinal lines are without colour differences but clearly visible. Segmentation is very distinct, clearly noticeable even by touch, with occasional gaping, especially in the cranial-dorsal part. The lining of the abdominal cavity is silvery white and the abdominal cavity part extends to between 2/3 and 1/3 of the length of the fillet. The fillet is very robust, gradually tapering conically towards the caudal part. Compared to *Clarias gariepinus*, it appears short and robust. It can almost certainly be confused with the aforementioned species.

Fresh and deep-frozen flesh confusability

Clariidae.



Clupeidae

Sardina pilchardus (Walbaum, 1792)

Commercial designation	European Pilchard
Commercial designation synonyms	Pilchard, Sardine, True Sardine
Taxonomic classification	Order Clupeiformes
	Family Clupeidae
	Genus <i>Sardina</i>
	Species <i>Sardina pilchardus</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 4 – Asie – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body fairly slender, subcylindrical, with scutes in the abdominal area but not sharply keeled. The dorsum is green to olive and the sides are golden, shading to silvery white on the belly. Three to five distinct bony striae radiate downwards on the lower part of the operculum, which is without fleshy outgrowths. The dorsal fin is at about midpoint of the



body and has no spines. The last two soft anal-fin rays are enlarged. It can reach a length of 25 cm, with the common size being 15-20 cm.⁴²

Fresh flesh



The flesh is pinkish grey to olive in the dorsal part, ventrally pinkish to yellowish in the part of the abdominal cavity. There is distinct segmentation throughout the fillet. There may be bright red spots in the lateral line area, joining together to form a line. The fillet is elongated, low, narrowing dorsally in the caudal part from one side. The flesh is very fine, very similar in texture and fillet structure to *Engraulis encrasicolus*, which on the other hand is much smaller, similarly to *Sprattus sprattus*. There are also significant similarities with *Clupea harengus*, which is, however, much larger and more robust, like *Clupea harengus membras*. All of the mentioned species can be very easily confused with regards to the flesh, as they virtually have identical flesh descriptions, including a black to blackish grey abdominal cavity lining.

Deep-frozen flesh

⁴² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 s. [Pages 1511-2342]. ISBN 9789251092668. Page 1734.



The flesh is solid white to pinkish throughout the whole fillet with no significant differences. A richer pink to red colour is noticeable in the spine area. Segmentation is distinct and clearly distinguishable. The flesh can be confused with *Engraulis encrasicolus* and *Sprattus sprattus*, the only clue being its size. The species *Clupea harengus* and *Clupea harengus membras* are much larger and more robust and are relatively easy to identify when frozen. Despite that, the flesh still may be confused relatively easily.

Fresh and deep-frozen flesh confusability

Clupeidae; Engraulidae.

Clupea harengus (Linnaeus, 1758)

Commercial designation	Atlantic Herring
Commercial designation synonyms	Herring, Sea Atlantic Herring, Yawling
Taxonomic classification	Order Clupeiformes
	Family Clupeidae
	Genus <i>Clupea</i>



Species

Clupea harengus

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 5 – Europe – Inland waters

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

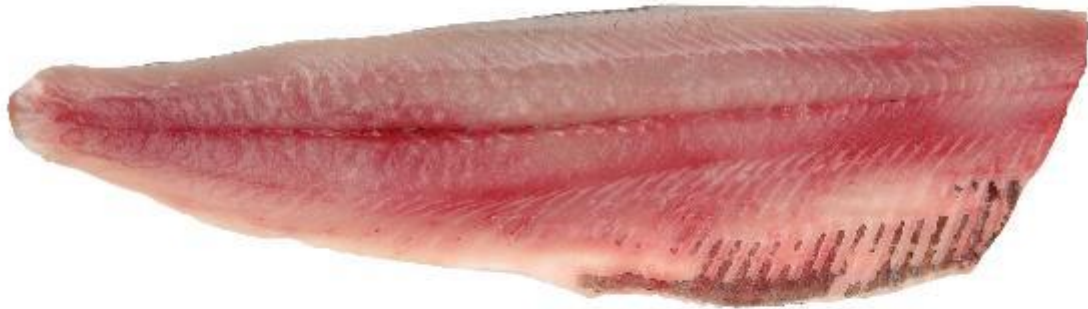
Species description



The body is elongated and fairly slender, with a rather rounded belly. The dorsal part is greenish blue, ventrally changing to silvery. The scutes are without a keel. The operculum is without radiating bony striae. The base of the pelvic fins is located behind the vertical axis of the first dorsal fin ray. It can reach a length of 40 cm, the common size being 20 -25 cm.⁴³

Fresh flesh

⁴³ WHITEHEAD, P. J. P. *FAO species catalogue. Vol. 7. Clupeoid Fishes of the World (suborder Clupeoidei): Chirocentridae, Clupeidae, and Pristigasteridae. An annotated and illustrated catalogue of the herrings, sardines, pilchards, sprats, shads, anchovies and wolf-herrings.* [FAO fisheries synopsis]. Rome: FAO, 1985. 579 s. ISBN 9251023409, 9789251023402. Page 116.



The flesh is pinkish white to olive, often with extensive red spots, but these may be completely absent. In general, the variation in colouration of the herring flesh is very wide, ranging from white to red. Segmentation and patterning in the dorsal part of the fillet are clearly visible. The lining of the abdominal cavity is greyish black to black. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Sprattus sprattus*, the important feature being its significantly smaller size, similarly to *Engraulis encrasicolus*. The flesh of *Clupea harengus membras* is almost identical.

Deep-frozen flesh



The flesh is pinkish white to olive, often with extensive red spots, but these may be completely absent and are not distinctly outlined. Local variations in colouring have virtually disappeared and only smooth transitions from one shade to another are noticeable. Segmentation and patterning throughout the fillet are less distinct. The lining of the abdominal cavity retains a greyish black to black colouration. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Sprattus sprattus*, the important feature being their significantly smaller size, similarly to *Engraulis encrasicolus*. The flesh of *Clupea harengus membras* is almost identical.

Fresh and deep-frozen flesh confusability

Clupeidae; Engraulidae.

Clupea harengus membras (Linnaeus, 1758)

Commercial designation	Baltic Herring	
Commercial designation synonyms	None	
Taxonomic classification	Order	Clupeiformes



Family	Clupeidae
Genus	<i>Clupea</i>
Species	<i>Clupea harengus membras</i>

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 5 – Europe – Inland waters

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Indian Ocean, Western

Species description



The body is elongated with an oval belly and cycloid scales. There is one smaller dorsal fin. The caudal fin is homocercal and rather deeply excavated. The dorsum is grey to black, the sides are silvery to metallic shiny, and the belly is pale. So are the fins. It grows to a size of 20



cm and reaches a weight of 25-50 g.⁴⁴ The Baltic Herring (*Clupea harengus membras*) is considered a subspecies of the Atlantic Herring (*Clupea harengus*).⁴⁵

Fresh flesh

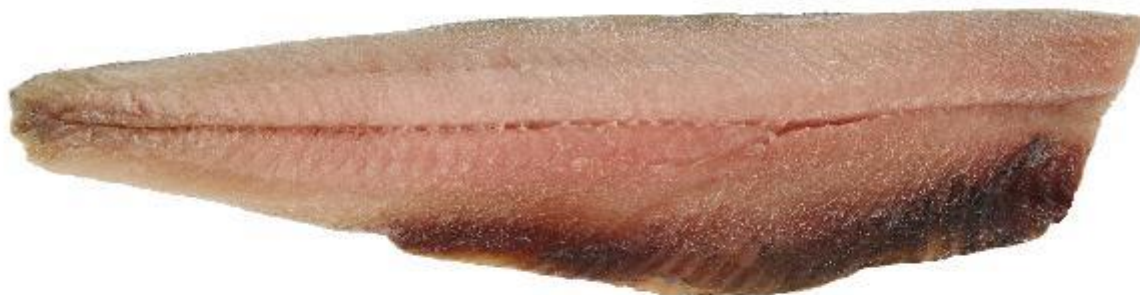


The flesh is pinkish white to olive, often with extensive red spots, but these may be completely absent. In general, the variation in colouration of the herring flesh is very wide, ranging from white to red. Segmentation and patterning in the dorsal part of the fillet are clearly visible. The lining of the abdominal cavity is greyish black to black. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Sprattus sprattus*, the important feature being their significantly smaller size, similarly to *Engraulis encrasicolus*. The flesh of *Clupea harengus* is almost identical.

Deep-frozen flesh

⁴⁴ *Baltic Herring*. *The Great Soviet Encyclopedia*. The Gale Group, Inc. 1970-1979. [cit. 2023-08-28]. Available from: <https://encyclopedia2.thefreedictionary.com/Baltic+Herring>

⁴⁵ *FACT SHEET ON CLUPEA HARENGUS MEMBRAS, BALTIC HERRING (CLUPEIDAE)* [Assessment reports, HELCOM Indicator Fact Sheets, Species/biotopes Fact Sheets and working practices] [online]. HELCOM HABITAT 11/2009. Kotka, Finland: Helsinki Commission, 2009 [cit. 2023-06-19]. Available from: <https://portal.helcom.fi/Archive/Shared%20Documents/HABITAT11-2009-6-1%20Fact%20Sheet%20on%20Clupea%20harengus%20membras.pdf>



The flesh is pinkish white to olive, often with extensive red spots, but these may be completely absent and are not distinctly outlined. Local variations in colouring have virtually disappeared and only smooth transitions from one shade to another are noticeable. Segmentation and patterning throughout the fillet are less distinct. The lining of the abdominal cavity retains a greyish black to black colour. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Sprattus sprattus*, the important feature being their significantly smaller size, similarly to *Engraulis encrasicolus*. The flesh of *Clupea harengus membras* is almost identical.

Fresh and deep-frozen flesh confusability

Clupeidae; Engraulidae.

Sprattus sprattus (Linnaeus, 1758)

Commercial designation	European Sprat
Commercial designation synonyms	Brisling, Garvie, Garvock
Taxonomic classification	Order Clupeiformes



Family	Clupeidae
Genus	<i>Sprattus</i>
Species	<i>Sprattus sprattus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



It has a long, narrow, slightly cylindrical body. The lower jaw is slightly projecting. The gill cover is without bony radiating striae. The insertion of origin of the pelvic fin is under or before the dorsal fin origin. The last two anal fin rays are not enlarged. The belly has a strong



keel of scutes.⁴⁶ The dorsum is dark grey to black and the sides are silvery, without dark spots. It attains a size of 16 cm, with the common size being 12 cm.⁴⁷

Fresh flesh



The flesh is pinkish white to olive; in general the variation in colour of the sprat flesh is very wide, from pinkish white to red. Segmentation is clearly visible in the dorsal part of the fillet. The lining of the abdominal cavity is greyish black to black. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Engraulis encrasicolus*, the important feature being their significantly bigger size, similarly to *Clupea harengus* and *Clupea harengus membras*, which have very similar characteristics.

Deep-frozen flesh

⁴⁶ WHITEHEAD, P. J. P. *FAO species catalogue. Vol. 7. Clupeoid Fishes of the World (suborder Clupeoidei): Chirocentridae, Clupeidae, and Pristigasteridae. An annotated and illustrated catalogue of the herrings, sardines, pilchards, sprats, shads, anchovies and wolf-herrings.* [FAO fisheries synopsis]. Rome: FAO, 1985. 579 s. ISBN 9251023409, 9789251023402. Pages 49-50.

⁴⁷ *Sprattus sprattus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-13]. Available from: <https://www.fishbase.se/summary/Sprattus-sprattus.html>



The flesh is pinkish white to yellowish brown, local differences in colour have practically disappeared and only smooth transitions from one shade to another are noticeable. Segmentation throughout the fillet is less visible. The lining of the abdominal cavity retains a greyish black to black colouration. The whole fillet is conical, the narrowing being more noticeable in the dorsal direction. The flesh may be confused with *Sardina pilchardus* and *Engraulis encrasicolus*, the important feature being their significantly smaller size, similarly to the flesh of *Clupea harengus* and *Clupea harengus membras*, which is virtually identical. However, both species are much larger and more robust.

Fresh and deep-frozen flesh confusability

Clupeidae; Engraulidae.

Congridae

Conger conger (Linnaeus, 1758)

Commercial designation	European Conger
Commercial designation synonyms	Conger Eel, Eel
Taxonomic classification	Order Anguilliformes



Family	Congridae
Genus	<i>Conger</i>
Species	<i>Conger conger</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



It has an elongated slender body, and a flattened, thin tail. The mouth is small, slightly inferior, not extending beyond the level of the eye, and the lips are well developed. The nostrils are located on the sides of the head, before the front edge of the eyes. The pectoral fins are present. The fin edge has segmented rays. The body is scaleless and the colour is pale cream to black, paler on the ventral side. The median fins have a typically dark edge. The lateral line is well distinguishable, usually extending onto the head as clearly visible pores.⁴⁸

⁴⁸ SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 Pages. ISBN 978-3-642-82860-7. Page 161.



The dorsal fin begins closer to the pectoral fin than to the anus.⁴⁹ The maximum length is 3 m, with the common length being 1 m.⁵⁰

Fresh flesh



The flesh is white to pinkish with a more distinct pink to reddish brown line in the spine area. The flesh is regularly and clearly segmented, including a distinct ladder pattern throughout the dorsal and second half of the ventral part of the fillet. The lining of the abdominal cavity is silvery white. The fillet is relatively low and quite robust. In the case of a whole fillet, the risk of confusion is minimal, but if only an individual skinless portion is considered, it is very likely to be confused with the species of the family Gadidae. The typical spermatic smell of the European Conger flesh may be a guide, so can the darker dorsal pattern of the cod flesh. It can also be confused with the species *Prionace glauca*, which, however, lacks the above-mentioned pattern and is considerably more robust.

⁴⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages. 1511-2342]. ISBN 9789251092668. Page 1680.

⁵⁰ Conger conger (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Retrieved from: <https://www.fishbase.se/summary/conger-conger>



Deep-frozen flesh



The flesh can be pinkish with a more distinct pink to reddish brown line in the spine area. The lining of the abdominal cavity is silvery white to yellowish. Segmentation is less noticeable and the overall appearance of the flesh is homogeneous. The fillet is relatively low and very robust. In the case of a whole fillet, the risk of confusion is minimal, but if only an individual portion or skinless part are considered, they are very likely to be confused with the species of the family Gadidae, or possibly the genus *Hippoglossus*. A clue may be the darker dorsal pattern of the flesh in some cod species, which is, however, also difficult to distinguish when frozen.

Fresh and deep-frozen flesh confusability

Gadidae; Carcharhinidae; *Hippoglossus sp.*

Coryphaenidae

Coryphaena hippurus (Linnaeus, 1758)

Commercial designation

Common Dolphinfish



Commercial designation synonyms

Mahi-mahi, Green Dolphin, Dorado

Taxonomic classification

Order	Perciformes
Family	Coryphaenidae
Genus	<i>Coryphaena</i>
Species	<i>Coryphaena hippurus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

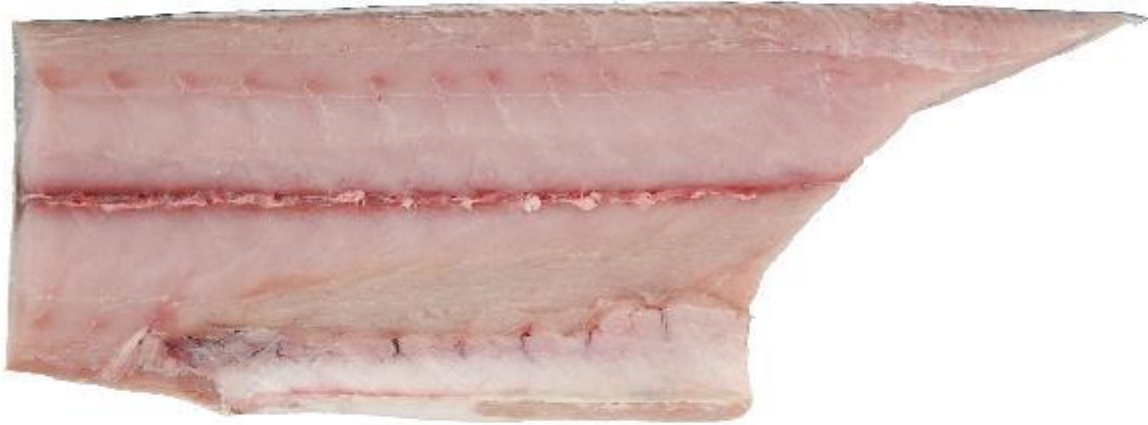
Species description



The body is elongated, laterally compressed, with a large mouth containing many small teeth. Larger males have a bony crest on the front of the head. The dorsal and anal fins are very long, extending almost to the caudal fin, without sharp spines, with only soft rays. The dorsal fin extends from above the eye and the anal fin starts in the middle of the body. The pectoral fin is longer than half the length of the head. The caudal fin is deeply forked, without keels on the fin or caudal peduncle. The scales are small and cycloid (smooth). The colouration is highly variable. The dorsum is brilliant metallic blueish green. The sides are silvery with a golden sheen, with 1 row of black spots running below the dorsal fin and 1, 2 or more rows of black spots on and below the lateral line, some scattered irregularly. The maximum size is 2 m and maximum weight is 40 kg.⁵¹

Fresh flesh

⁵¹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages. 2343-3124]. ISBN 9789251092675. Pages 2450 and 2453.



The flesh is pink to reddish brown with a distinct dark red stripe in the area of the spine. Darker reddish spots and a partial pattern are evident in the dorsal and ventral parts. The flesh is without visible segmentation. The fillet is symmetrical and robust in the longitudinal axis. The abdominal area extends to 1/2 of the height and 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. When assessing a portion, it is possible to confuse it with species of the family Carangidae or Serranidae, whose flesh is very similar in colour, pattern and shape of the portion.

Deep-frozen flesh



The flesh is white to greyish pink with a brownish red stripe in the spine. The segmentation evident in the form of flaking, especially in the ventral part. The abdominal area extends to 1/2 of the height and 1/3 of the length of the fillet. The lining of the abdominal cavity is yellow-pink without silvery sheen. The fillet is symmetrical and robust. It can be easily confused with species of the family Carangidae or Serranidae, whose flesh is very similar in colour, pattern and shape of the portion.

Fresh and deep-frozen flesh confusability

Carangidae, Serranidae.

Cyprinidae

Abramis brama (Linnaeus, 1758)

Commercial designation

Aral Bream

Commercial designation synonyms

Bronze Bream, Carp Bream, Common Bream

Taxonomic classification

Order Cypriniformes

Family Cyprinidae



Genus	<i>Abramis</i>
Species	<i>Abramis brama</i>

Distribution – FAO areas

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Species description



The body is high, laterally compressed, with smaller cycloid scales firmly embedded in the epidermis. The head is short with a golden yellow iris. On the anterior part of the dorsum there is a scaleless groove extending from the head. On the underside of the body posterior to the pelvic fins there is a scaleless keel. A juvenile is silvery grey, older individuals are greenish to bluish with a grey-black dorsum. The fins are distinctly dark, grey to blackish, only the paired fins are paler, but even these darken with age. The sides have a silvery sheen but are golden or yellowish in older individuals. The fish can grow up to 85 cm and weigh 7 kg, though the usual size is 30-50 cm and weight 1-2 kg. It reaches an age of 17 years.⁵²

⁵² HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 244.



Fresh flesh



The flesh is whitish grey, pinkish to olivaceous, with distinct segmentation and a pattern of 4-5 longitudinal light to white lines, typical of the flesh of the families Cyprinidae and Xenocyprididae. The fillet is high but not robust and is highly dorsally arched at first sight. The flesh is very fine. The abdominal cavity area extends to 2/3 to 3/4 of the height and 1/2 of the length of the fillet and is very thin. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Deep-frozen flesh



The flesh is white, pinkish to red with noticeable segmentation and evident longitudinal lines, darkened due to frost. The fillet is high but not robust and is highly dorsally arched at first sight. The abdominal cavity area extends to 2/3 to 3/4 of the height and 1/2 of the length of the fillet and is very thin. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Barbus barbus (Linnaeus, 1758)

Commercial designation	Barbel	
Commercial designation synonyms	None	
Taxonomic classification	Order	Cypriniformes
	Family	Cyprinidae
	Genus	<i>Barbus</i>



Species

Barbus barbus

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Species description



The body is elongated, cylindrical with an elongated snout. The dorsum is arched from the nape. The mouth is inferior, with fleshy lips, and there are two pairs of barbels on the lower jaw. The first pair is smaller, located at the end of the snout, and the second pair of longer barbels is at the corners of the mouth. The caudal fin is often asymmetrical, its lower lobe usually being longer than the upper one. The last non-forked ray of the dorsal fin is saw-shaped on the posterior side. The dorsum is olive green, the sides are greenish or golden, and the belly is whitish yellow. It can reach a length of up to 120 cm and weigh up to 6 kg.⁵³

Fresh flesh

⁵³ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 233-235.



The flesh is white, whitish grey to olivaceous, pinkish to red in places with distinct segmentation and a clearly visible pattern of 4-5 longitudinal pale to white lines, typical of the flesh of the families Cyprinidae and Xenocyprididae. The fillet is elongated, robust and significantly lower than those of the other species, noticeably dorsally arched in the anterior part. The abdominal cavity area extends to 2/3 of the height and 2/3 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, in smaller sizes especially with *Cyprinus carpio*, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Deep-frozen flesh



The flesh is white, in the spine area red, with less noticeable segmentation and almost indistinguishable longitudinal lines. The fillet is high and robust. The abdominal cavity area extends to 2/3 of the height and 2/3 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, especially with *Leuciscus aspius* in smaller sizes, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae, Xenocyprididae.

Carassius gibelio (Bloch, 1782)

Commercial designation	Gibel Carp
Commercial designation synonyms	Giebel Carp, Golden Carp
Taxonomic classification	Order Cypriniformes
	Family Cyprinidae
	Genus <i>Carassius</i>



Species

Carassius gibelio

Distribution – FAO areas

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Species description



The body is high, laterally compressed, and entirely covered with slightly deciduous large scales. The mouth is without barbels and the opercula are slightly convex. The dorsum is dark grey and the sides are silvery. The scales have darker edges. The dorsal and caudal fins are dark grey, while the paired fins and the anal fin are paler. The last non-forked ray of the dorsal fin has about 15 small denticles of varying sizes. It grows to a size of 50 cm and a weight of up to 3 kg.⁵⁴ It can be easily confused with young age categories of *Cyprinus carpio*.

Fresh flesh

⁵⁴ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 263.



The colouration varies from light pink to red to whitish grey to olivaceous. Compared to other species, segmentation is less noticeable, as is the pattern of 4-5 longitudinal pale to white lines, typical of the flesh of the families Cyprinidae and Xenocyprididae. There is darker, red to reddish-brown colouration in the area of the spine and just posterior to the head. The fillet is high and robust, slightly dorsally arched. The texture is less firm. The abdominal cavity area extends to $\frac{4}{5}$ of the height and $\frac{2}{3}$ of the length of the fillet. The lining of the abdominal cavity is black marbled. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Deep-frozen flesh



The flesh is white, pinkish to reddish brown, with visible segmentation and poorly noticeable longitudinal lines. Darker colouration remains in the area of the spine and just posterior to the head. The fillet is high and robust, slightly dorsally arched. The abdominal cavity area extends to 4/5 of the height and 2/3 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, in smaller sizes especially with *Cyprinus carpio*, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Cyprinus carpio (Linnaeus, 1758)

Commercial designation

Common Carp

Commercial designation synonyms

Carp, European Carp

Taxonomic classification

Order Cypriniformes

Family Cyprinidae



Genus *Cyprinus*
Species *Cyprinus carpio*

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 2 – America, North - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 6 – Oceania - Inland waters

Species description



The body shape is highly variable, usually elongated with a massive body frame, laterally compressed, covered in whole or in part with cycloid scales. The head is relatively short and snub, with an inferior mouth. There are 4 barbels on the upper lip. The first hard ray of the dorsal and anal fins is provided with tiny backward hooks. The dorsum is usually dark green to brown, with the sides being dirty yellow. The underside of the belly is white to yellowish



white. The dorsal and caudal fins are of the same colour as the dorsum, with the caudal one having a reddish tinge. The paired fins are yellowish or reddish. The common carp grows to a length of 120 cm and a weight of 37 kg.⁵⁵

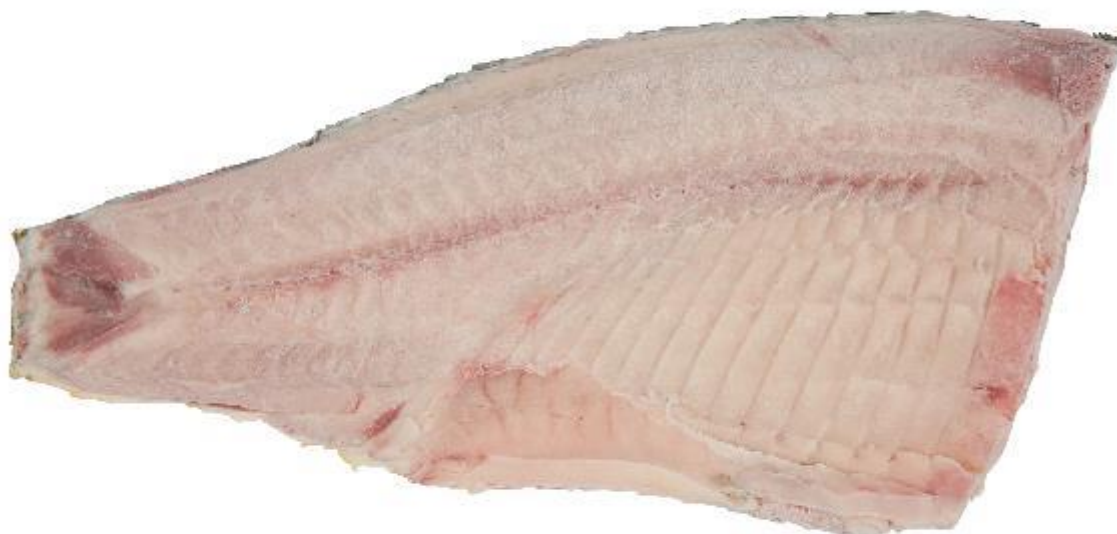
Fresh flesh:



The colour is very variable depending on the food, ranging from white, whitish grey to olivaceous, pinkish to bright red, with distinct segmentation and a pattern of 4-5 longitudinal light to white lines, typical of the flesh of the families Cyprinidae and Xenocyprididae. Darker, red to reddish-brown colouration is present in the spine area and just posterior to the head. The fillet is high and robust, slightly dorsally arched. The flesh is firm and elastic. The abdominal cavity area extends to 2/3 of the height and 1/2 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Deep-frozen flesh:

⁵⁵ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 268.



The flesh is white, pinkish to reddish brown, with visible segmentation and poorly noticeable longitudinal lines. Darker colouration remains in the area of the spine and just posterior to the head. The fillet is high and robust, slightly dorsally arched. The abdominal cavity area extends to 2/3 of the height and 1/2 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocyprididae, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Leuciscus aspius (Linnaeus, 1758)

Commercial designation	Aral Asp	
Commercial designation synonyms	Chrup	
Taxonomic classification	Order	Cypriniformes
	Family	Cyprinidae



Genus	<i>Leuciscus</i>
Species	<i>Leuciscus aspius</i>

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Species description



The body is elongated, slender, laterally compressed. The mouth is deeply forked, reaching below the eye level. The lower jaw extends beyond the upper. The caudal fin is distinctly concave. There is a keel covered with scales on the belly posterior to the pelvic fins. The base of the pelvic fins is situated anterior to the base of the dorsal fin. The dorsum is greyish blue, sometimes greenish, the sides are silvery, and the belly is white. The dorsal and caudal fins are grey, with darker margins. The anal and paired fins are reddish. It commonly grows to 60-80 cm and weighs 4-8 kg, rarely up to 100 cm and 15 kg. ⁵⁶

⁵⁶ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 209-210.



Fresh flesh



The flesh is whitish grey, pinkish to olivaceous with distinct segmentation and a pattern of 4-5 longitudinal light to white lines, typical of the flesh of the families Cyprinidae and Xenocypridae. The fillet is high but not robust. The abdominal cavity area extends to 2/3 of the height and 1/2 of the length of the fillet. In the case of a whole fillet or parts of it, it may be confused with other species of the families Cyprinidae and Xenocypridae, especially *Barbus barbus*, except for the species *Tinca tinca*, which has a different characteristic of the flesh.

Deep-frozen flesh



The flesh is pinkish to red, with indistinct segmentation and poorly noticeable longitudinal lines. The fillet is high but not robust. The abdominal cavity area extends to 2/3 of the height and 1/2 of the length of the fillet. It can be confused with almost any species with paler flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Tinca tinca (Linnaeus, 1758)

Commercial designation

Doctor Fish

Commercial designation synonyms

Green Tench, Tench

Taxonomic classification

Order Cypriniformes

Family Cyprinidae

Genus *Tinca*

Species *Tinca tinca*

Distribution – FAO areas

Area 1 – Africa - Inland waters



Area 2 – America, North - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 6 – Oceania - Inland waters

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



A stocky fish with a short, higher body, small eyes and a terminal extendable mouth with one pair of small barbels on the upper lip. The scales are very small, deeply embedded in the epidermis, and covered by a thick mucous layer. All the fins are rounded in shape. The caudal fin is only slightly concave. The predominant colour is dark green, the dorsum is darker, and the sides are greenish brown to greenish grey with a yellowish to golden sheen. Males have a



distinctly longer pelvic fins overlapping the anus. It can live up to 19 years, reaching a length of 30-80 cm and a weight of 1,2-6 kg.⁵⁷ It cannot be confused with other species.

Fresh flesh



The fillet is robust and solid with a distinctly short part of the caudal peduncle and clearly visible segmentation with almost indistinguishable 5 linear paler lines. Only the line in the spine area is clearly visible. The colour is very variable, ranging from white to whitish grey, or possibly pinkish in the ventral region with silvery-white lining of the abdominal cavity. The cranial part has a bright red tinge over the whole height of the fillet. The dorsal flesh is white, whitish grey, olive to bluish. The abdominal area reaches 3/4 of the height and 3/5 of the length of the fillet. The whole fillet is highly unlikely to be confused with another species.

Deep-frozen flesh

⁵⁷ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 214.



The fillet is robust and solid with a distinctly short part of the caudal peduncle and clearly visible segmentation with almost indistinguishable 5 linear paler lines. Only the line in the spine area is clearly visible. The colour is very variable, ranging from white to whitish grey, or possibly pinkish in the ventral region with silvery-white lining of the abdominal cavity. The cranial part has a bright red tinge over the whole height of the fillet. The dorsal flesh is white, whitish grey, olivaceous to bluish. The abdominal area reaches 3/4 of the height and 3/5 of the length of the fillet. The whole fillet is highly unlikely to be confused with another species.

Fresh and deep-frozen flesh confusability

Not possible.

Engraulidae

Engraulis encrasicolus (Linnaeus, 1758)

Commercial designation	European Anchovy
Commercial designation synonyms	Black Sea Anchovy
Taxonomic classification	Order Clupeiformes



Family	Engraulidae
Genus	<i>Engraulis</i>
Species	<i>Engraulis encrasicolus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is slender, fusiform, oval in cross section. The rostrum is elongated, projecting in front of the lower jaw. The mouth is inferior, with the upper jaw margin reaching well behind the posterior margin of the eye. The tip of the lower jaw reaches the level of the nostrils. The dorsal fin is short, consisting of 12-13 rays, with its origin being approximately mid-length of the body. The anal fin has 13-15 rays and begins just posterior to the caudal margin of the dorsal fin. The dorsum is bluish green, quickly fading to grey, and the abdomen is pale. There is a distinct silver stripe on the sides, edged with a dark grey line above, disappearing



with age. The caudal fin has a dark margin. The maximum size is 20 cm, while the common size is 12-15 cm.⁵⁸

Fresh flesh



The flesh is whitish grey, yellowish pink to olivaceous in the dorsal part and pinkish to yellowish in the ventral part. A darker pinkish stripe extends along the entire midline of the body. Segmentation is noticeable throughout the fillet, less visible to the naked eye given the actual size of the fillet. The fillet is elongated and low. The flesh is very fine, much similar in texture and structure to *Sardina pilchardus* and *Sprattus sprattus*, the latter being almost identical. It is also similar to the species *Clupea harengus* and *Clupea harengus membras*; however, these are considerably larger.

Deep-frozen flesh

⁵⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 1717.



The flesh is solid white to pinkish throughout the fillet without significant differences. There is a noticeable deeper pink to red colour in the spine area. The fillet is elongated and low. Segmentation is distinct and very well noticeable. The flesh is very similar in texture and structure to *Sardina pilchardus* and *Sprattus sprattus*, the latter being almost identical. It is also similar to the species *Clupea harengus* and *Clupea harengus membras*; however, these are considerably larger.

Fresh and deep-frozen flesh confusability

Clupeidae.

Esocidae

Esox lucius (Linnaeus, 1758)

Commercial designation	Northern Pike
Commercial designation synonyms	Common Pike, Great Northern Pickerel, Jackfish
Taxonomic classification	Order Esociformes



Family	Esocidae
Genus	<i>Esox</i>
Species	<i>Esox Lucius</i>

Distribution – FAO areas

Area 1 – Africa - Inland waters

Area 2 – America, North - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 27 – Atlantic, Northeast

Species description



The body is cylindrically elongate, the anterior part of the head is noticeably flattened from above, and the posterior part is laterally compressed. The dorsal fin is positioned in the posterior part of the body above the level of the anal fin.⁵⁹ The mouth opens wide, having a toothed lower jaw. The teeth are also on the palatine bones and on the vomer. The body is covered with cycloid scales. The lateral line is often interrupted, but above and below there are parallel shorter supplementary lateral lines. The primary colours are green, black, yellow,

⁵⁹ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 297.



merging into usually yellowish green on the sides with numerous pale spots. The paired fins tend to be yellowish white, sometimes reddish. The unpaired fins are covered with spots, sometimes arranged in rows.⁶⁰ It can grow up to 150 cm and weigh about 28 kg, with a normal size being 55 cm.⁶¹

Fresh flesh



The flesh is pinkish to orange with a brighter red line in the spine area and a silvery white abdominal cavity lining, which reaches 2/3 the height and 4/5 the length of the fillet. Segmentation is clearly visible. Just above the line in the spinal region there is another parallel interrupted pale line. Slight black veining may be noticeable in some parts. The fillet is elongated and robust, without dorsal arching and with a notably short part of the caudal peduncle. The flesh is very fine. The fresh fillet has a very specific aroma and is unlikely to be confused with other species.

Deep-frozen flesh

⁶⁰ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes) 1*. Vyd. 1. Praha: Academia, 1995. 623 pages., [8], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-5. Page 560.

⁶¹ *Esox lucius* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-25]. Retrieved from: <https://fishbase.de/summary/Esox-lucius.html>



The flesh is pinkish to orange with a brighter red line in the spine area and a silvery white abdominal cavity lining, which reaches 2/3 the height and 4/5 the length of the fillet. Segmentation is clearly visible. The parallel interrupted pale line above the line in the spinal region is indistinguishable. Slight black veining may be noticeable in some parts. The fillet is elongated and robust, without dorsal arching and with a notably short part of the caudal peduncle. It is unlikely to be confused with other species.

Fresh and deep-frozen flesh confusability

Unlikely.

Gadidae

Gadus morhua (Linnaeus, 1758)

Commercial designation	Atlantic Cod
Commercial designation synonyms	Cod, Codling, Haberdine
Taxonomic classification	Order Gadiformes



Family	Gadidae
Genus	<i>Gadus</i>
Species	<i>Gadus morhua</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Species description



The Head is relatively narrow. Has a protruding upper jaw, a conspicuous barbel on the lower jaw, and a light lateral line curved above the pectoral fins. 3 dorsal fins are separated from each other by small gaps and 2 anal fins, also separated by a gap. The pelvic fins are significantly shifted to the cranial part below the level of the pectoral fins. Has a colour that is brownish to greenish or gray dorsally and on the upper sides, becomes pale and silvery ventrally.⁶² Attains 2 m in length and 96 kg in weight.⁶³

⁶² *Gadus morhua* (Linnaeus, 1758) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023, [cit. 2023-04-24]. Available from:

<https://www.fao.org/figis/pdf/fishery/species/2218/en>

⁶³ *Gadus morhua* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://www.fishbase.se/summary/gadus-morhua.html>



Fresh flesh



Pure white to white-grey, with three brown to brownish-yellow interrupted lines, typical of this family. One line runs along the entire spinal region and the other two are always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 1/2 of the height and 1/3 of the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated and tapers symmetrically and conically caudally. Dorsal arching is absent. The muscle is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Merlangius merlangus*. However, compared to these species, the fillet is much more robust without the dorsal arch and the muscle is lighter. Species *Gadus macrocephalus* is identical, including the black-grey marbled abdominal lining.

Deep-frozen flesh



Pure white to white-grey, with three brown to brownish-yellow interrupted lines, typical of this family. One line runs throughout the spine and the other two are always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 1/2 of the height and 1/3 of the length of the fillet. Segmentation is less marked to imperceptible. The fillet is elongated and tapers symmetrically and conically caudally. Dorsal arching is absent. The muscle is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Merlangius merlangus*. However, compared to these species, the fillet is much more robust without a dorsal arch and the muscle is lighter. The species *Gadus macrocephalus* is nearly identical, including the black-grey marbled abdominal lining.

Fresh and deep-frozen flesh confusability

Gadidae.

Melanogrammus aeglefinus (Linnaeus, 1758)

Commercial designation	Haddock
Commercial designation synonyms	Seed Haddock



Taxonomic classification

Order	Gadiformes
Family	Gadidae
Genus	<i>Melanogrammus</i>
Species	<i>Melanogrammus aeglefinus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central



Species description

The body is robust and fusiform. The upper jaw and snout strongly protrude beyond the lower jaw. The Chin barbel is much smaller than the eye diameter. There are three dorsal fins, the first highest, are almost triangular. There are two anal fins. The dorsal and anal fins contain soft rays only. The caudal fin is slightly emarginate to truncate. The pectoral fin does not reach the first anal fin. The back is dark gray with a purple tint or greenish brown, the sides silvery gray, and the belly is white. There is a large black blotch between the pectoral fin



and the lateral line. The lateral line is dark. Attains 112 cm, common size in the North Sea 30-40cm and 47-66 in the Barents Sea.⁶⁴

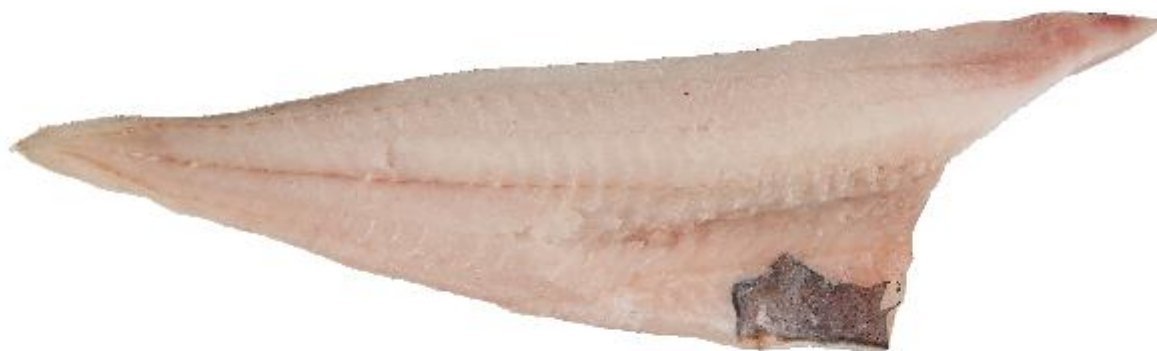
Fresh flesh



Pink to pinkish grey, fillet with three brown to brownish yellow interrupted lines, typical of this family. One line runs all along the spine and the other two are always just below the margin, especially in the second half of the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 2/3 of the height and 1/2 of the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, slightly arched dorsally in the cranial part, narrowing symmetrically and tapering caudally. The flesh is confusable with other species of the family Gadidae, especially *Pollachius pollachius*. Compared to this species, however, the fillet is considerably smaller. A prominent feature is the black-grey lining, which is absent in *Pollachius pollachius*.

Deep-frozen flesh

⁶⁴ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page 152.



Pink to pinkish-white, fillet with three brown to brownish-yellow interrupted lines, typical of this family. One line runs through the entire spine area and the other two always just below the margin, especially in the second half of the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 2/3 of the height and 1/2 of the length of the fillet. There is a marked segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, with a symmetrical conical taper caudally. The flesh is confusable with other species of the family Gadidae, especially *Pollachius pollachius*. However, compared to this species, the fillet is significantly smaller. A prominent feature is the black-grey lining, which is absent in *Pollachius pollachius*.

Fresh and deep-frozen flesh confusability

Gadidae.

Merlangius merlangus (Linnaeus, 1758)

Commercial designation	Whiting
Commercial designation synonyms	European Whiting
Taxonomic classification	Order Gadiformes



Family	Gadidae
Genus	<i>Merlangius</i>
Species	<i>Merlangius merlangus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Species description



The body is slender, and the head is small. The upper jaw slightly protrudes over the lower jaw. The beard on the lower jaw is small or absent. The dorsal fin is divided into three spaced parts. The caudal fin is divided into two parts,, the anterior longer parts, and the parts that are touching or almost touching. The dorsal colour is grey brown to green-blue. The sides are silver, sometimes grey with yellowish spots. The abdomen is white and above the base of the pectoral fin is often a black spot. The lateral link is visible and dark than the flanks. Confused with *Micromesistius poutassou*, which has a more protruding upper jaw and larger gaps



between dorsal fins.⁶⁵ Maximum recorded length 91,5 cm, common length 23,5 cm, maximum published weight 3,1 kg.⁶⁶

Fresh flesh



Greyish-white, pinkish to pinkish-brown, fillet with three brown to brownish-yellow interrupted lines, typical of this family. One line runs throughout the spine and the other two are always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled but lighter than in *Gadus morhua*. The ventral part extends up to 2/3 of the height and 1/3 of the length of the fillet. Distinct segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, slightly arched dorsally, tapering symmetrically caudally. The muscle is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Gadus morhua*. In contrast to these species, however, the fillet is much darker and slightly dorsally arched.

Deep-frozen flesh

⁶⁵ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page 155.

⁶⁶ *Merlangius merlangus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-23]. Available from: <https://www.fishbase.se/summary/Merlangius-merlangus.html>



Greyish-white, pinkish to pinkish-brown, the longitudinal lines are almost imperceptible, except for the line in the axis of the spine. Segmentation is very clearly visible. The abdominal lining is blackish-grey marbled but lighter than in *Gadus morhua*. The ventral part extends up to 2/3 of the height and 1/3 of the length of the fillet. The fillet is elongated, slightly arched dorsally and tapering symmetrically caudally. The muscle is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Gadus morhua*. In contrast to these species, however, it is only slightly dorsally arched.

Fresh and deep-frozen flesh confusability

Gadidae.

Pollachius virens (Linnaeus, 1758)

Commercial designation

Saithe

Commercial designation synonyms

American Pollack, Coley, Coal-fish, Pollock

Taxonomic classification

Order Gadiformes

Family Gadidae



Genus	<i>Pollachius</i>
Species	<i>Pollachius virens</i>

Distribution – FAO areas

Area 18 – Arctic sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Species description



The lower jaw extends beyond the upper jaw, and the chin barbel on the lower jaw is very short. Three dorsal fins, the space between the first and second is smaller than between the second and third. The pectoral fin does not reach to the beginning of the first anal fin. The dorsal colour is dark green, flanks silvery grey, and the belly white. The lateral line is white, reaching the first dorsal fin and not markedly curved above the pectoral fin. Attains a size of 130 cm, common size 30-110 cm. Confused with *Pollachius pollachius*, but lacking the beard on the lower jaw and the lateral line is greenish with a distinct curve around the pectoral fin.⁶⁷

Fresh flesh

⁶⁷ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Pages 158-159.



Grey, grey-pink to purplish, fillet with three distinctive brown to brownish-yellow interrupted lines, typical of this family. They are very distinctive in this species. The lines in the dorsal and central part of the fillet are visible throughout its length. Ventral lines only in the caudal half. The abdominal lining is silvery white. The ventral part extends up to 2/3 of the height and 1/2 of the length of the fillet. The segmentation is clearly visible with a possible massive gaping. The fillet is elongated, slightly arched dorsally, and tapering symmetrically caudally. The fresh flesh is confusable with other species of the Gadidae family, but it is much darker, with a light abdominal lining and both upper lines are clearly visible throughout the body.

Deep-frozen flesh



Grey, grey-pink to pink. Of the three brownish-yellow dashed lines typical of this family, only the line in the middle of the fillet is visible, and even that very faintly. The ventral line is only in the caudal half. The abdominal line is silvery white. The ventral part extends up to 2/3 of the height and 1/2 of the length of the fillet. The segmentation is clearly visible with a possible massive gaping. The fillet is elongated, slightly arched dorsally, tapering symmetrically caudally. The deep-frozen flesh is confusable with other species of the Gadidae family but is considerably darker.

Fresh and deep-frozen flesh confusability

Gadidae.

Trisopterus luscus (Linnaeus, 1758)

Commercial designation

Pouting

Commercial designation synonyms

Bib, Pout, Pout whiting

Taxonomic classification

Order Gadiformes

Family Gadidae



Genus	<i>Trisopterus</i>
Species	<i>Trisopterus luscus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 - Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is high and compressed. The lower jaw is shorter than the upper jaw, and the upper jaw reaches beyond the middle of the eye. Three dorsal fins are touching or nearly touching. The anal opening is at the level of the anterior part of the first dorsal fin. Has pelvic fins with slightly elongated rays. The colour dorsally is red-brown, flanks silver with a tinge of grey-blue, and the belly is white. The lateral line is golden, distinctly arched over the pectoral fin, reaching to the end of the caudal peduncle. 4-5 faint dark stripes on sides of the body. Black spot above base of pectoral fin. Reaches up to 45 cm in size, common size 15-20 cm.⁶⁸

⁶⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2034.



Fresh flesh



Pure white to white-grey, with three darker interrupted lines, typical of this family. In this case they are very difficult to see. One line runs throughout the spine and the other two always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 1/2 the height and 1/2 the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated, highly dorsally arched and rapidly tapers caudally symmetrically. The fresh flesh is confusable with other species of the family Gadidae, especially *Gadus morhua*, *Gadus macrocephalus* and *Merlangius merlangus*. However, compared to these species, the fillet is significantly shorter and higher with a high dorsal arch.

Deep-frozen flesh



Pure white to white-grey. Of the three brownish-yellow dashed lines typical of this family, only the line in the middle of the fillet is visible, but very clearly. The lining of the abdominal cavity is blackish-grey marbled. The belly extends up to 1/2 the height and 1/2 the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated, highly dorsally arched and rapidly tapers caudally symmetrically. The deep-frozen flesh is confusable with other species of the family Gadidae, especially *Gadus morhua* and *Merlangius merlangus*. However, compared to these species, the fillet is significantly shorter and higher without dorsal arching.

Fresh and deep-frozen flesh confusability

Gadidae.

Micromesistius poutassou (Risso, 1827)

Commercial designation	Blue whiting
Commercial designation synonyms	Couch's Whiting, Poutassou
Taxonomic classification	Order Gadiformes
	Family Gadidae



Genus	<i>Micromesistius</i>
Species	<i>Micromesistius poutassou</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 34 - Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is slender, spindle-shaped. The head is longer than the body height, and the eye is large. The mouth is anterior, and the lower jaw is protruding before the upper, whiskers are absent. Three separate dorsal fins, a gap between 2nd and 3rd larger than between the 1st and 2nd. The third is lower and longer. Two contiguous anal fins, the first with a much longer base. The caudal fin is double-lobed. The pectoral fins are longer than the pelvic fins. The lateral line is visible, straight. The colour is blue-grey on the dorsum, flanks are lighter, and



the belly is white. Sometimes has dark spots at the base of pectoral fins. Grows to 50 cm, normal size 15-30 cm.⁶⁹ Maximum published weight 830 g.⁷⁰

Fresh flesh



Pink to pinkish grey, fillet with three brown to brownish yellow interrupted lines, typical of this family. One line runs all along the spine and the other two always just below the margin, especially in the second half of the caudal part of the fillet. The lining of the abdominal cavity is black. The ventral part extends up to 1/2 of the height and 2/3 of the length of the fillet. Distinct segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, minimally dorsally arched in the cranial part, and symmetrically tapering caudally. The fresh flesh is confusable with other species of the family Gadidae, especially *Melanogrammus aeglefinus*. Compared to this species, however, it is smaller and has a completely black abdominal lining.

Deep-frozen flesh

⁶⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2033.

⁷⁰ *Micromesistius poutassou* (Risso, 1827). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://www.fishbase.se/summary/Micromesistius-poutassou>



Pink to pinkish-orange, fillet with three poorly visible interrupted lines, typical of this family. One line runs through the entire spine area and the other two always just below the edge, especially in the second half of the caudal part of the fillet. The lining of the abdominal cavity is black. The ventral part extends up to 1/2 of the height and 2/3 of the length of the fillet. There is a distinct segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, minimally dorsally arched in the cranial part, and symmetrically tapering caudally. The deep-frozen flesh is confusable with other species of the family Gadidae, especially *Melanogrammus aeglefinus*. However, compared to this species, it is smaller, more orange in colour and has a completely black abdominal lining.

Fresh and deep-frozen flesh confusability

Gadidae.

Trisopterus minutus (Linnaeus, 1758)

Commercial designation	Poor cod	
Commercial designation synonyms	None	
Taxonomic classification	Order	Gadiformes
	Family	Gadidae



Genus	<i>Trisopterus</i>
Species	<i>Trisopterus minutus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 - Atlantic, Eastern Central

Species description



The body is relatively high, and the tail is rather long than high. The head is relatively large with a large eye, mouth anterior, and a beard well developed on the chin. Three dorsal and two anal fins, contiguous or with a minimal gap. Fins formed only by rays. The second dorsal and first anal fin are the longest. The third dorsal and second anal is similar in size and shape. The caudal fin is slightly concave. The pelvic fins are with slightly elongated rays. The lateral line is conspicuous, forming a slight arc over the pectoral fin and continuing to the end of the caudal peduncle. The colour is yellowish brown dorsally, flanks lighter, and the belly is silvery grey. Has a black spot at base of the pectoral fin. Grows to 40 cm, common size is 15-20 cm.⁷¹

⁷¹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2035.



Fresh flesh



Pure white to white-yellow, with three brown to brownish-yellow interrupted lines, typical for this family. One line runs along the entire spine area and the other two always just below the margin, especially in the caudal part of the fillet, which is significantly smaller in size than in the other species. The lining of the abdominal cavity is blackish-grey marbled. The abdominal part extends up to 1/2 the height and 1/2 the length of the fillet. Distinct segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated and tapers symmetrically and conically caudally. Dorsal arching is absent. The fresh flesh is confusable with other species of the Gadidae family (e.g. *Gadus macrocephalus* or *Gadus morhua*). In all cases, the best identifying feature is size.

Deep-frozen flesh



Solid yellow-white, with a single visible darker line in the central part of the fillet, which is significantly smaller in size than the other species. The lining of the abdominal cavity is blackish-grey marbled. The belly extends up to 1/2 the height and 1/2 the length of the fillet. There is marked segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated and tapers symmetrically caudally. The dorsal arching is practically absent. The deep-frozen flesh is confusable with other species of the family Gadidae (e.g. *Gadus macrocephalus* or *Gadus morhua*). In all cases, the best identifying features are the size and the distinctive yellowish colouration.

Fresh and deep-frozen flesh confusability

Gadidae.

Pollachius pollachius (Linnaeus, 1758)

Commercial designation	Pollack
Commercial designation synonyms	Collah, Coalfish, Green Whiting
Taxonomic classification	Order Gadiformes
	Family Gadidae



Genus *Pollachius*
Species *Pollachius pollachius*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Species description



The lower jaw significantly overhangs the upper jaw, the whisker on the lower jaw is absent. Three dorsal fins. The dark lateral line is curving sharply over the pectoral fin and continuing over the whole body. No dark spot at base of pectoral fin. Interspaces between the dorsal and anal fins are short. Sensory canals with large pores on head. The body colour is variable. Has dark dorsum, sharply differentiated from the silver-grey flanks and abdomen. Upper body has yellow to orange stripes or spots. Lateral line is greenish. Fins uniformly dark except for the pelvic fins which are yellowish. Maximum length 130 cm and weight 18 kg. Common size 75 cm and weight 8 kg.⁷²

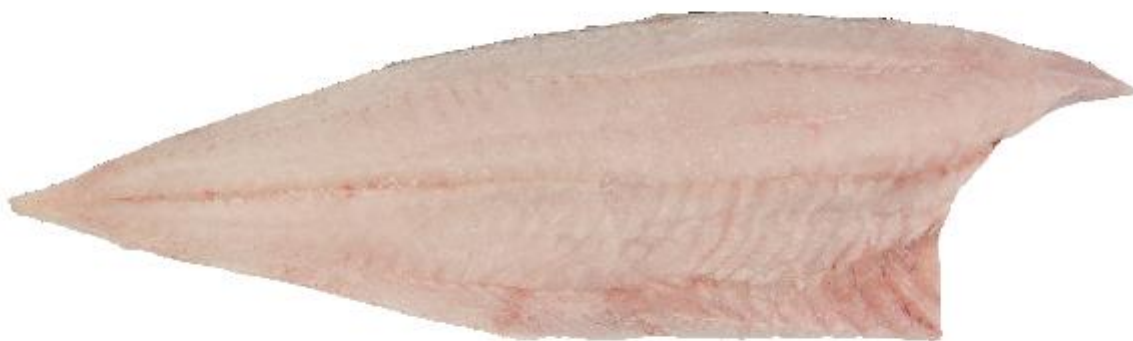
Fresh flesh

⁷² *Pollachius pollachius* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Available from: <https://www.fishbase.se/summary/Pollachius-pollachius.html>



Pink to pinkish grey, fillet with three brown to brownish yellow interrupted lines, typical of this family. One line runs all along the spine and the other two always just below the margin, especially in the second half of the caudal part of the fillet. The lining of the abdominal cavity is silvery white. The ventral part extends up to $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. Distinct segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, robust, slightly dorsally arched in the cranial part, becoming symmetrically tapered caudally from the second half. The flesh is confusable with other species of the family Gadidae, especially *Melanogrammus aeglefinus*. However, the fillet is more robust compared to this species. A prominent feature is the absence of a black-grey lining.

Deep-frozen flesh



Uniformly pink, fillet with three very poorly visible lines. One line runs throughout the spine, and the other two always just below the margin, ventral mainly in the second half of the caudal part of the fillet. The lining of the abdominal cavity is pink. The ventral part extends up to 2/3 of the height and 1/2 of the length of the fillet. There is a significant segmentation with a tendency to gaping, especially in the dorsal-cranial and central part of the fillet. The fillet is elongated, robust, slightly dorsally arched in the cranial part, becoming symmetrically tapered caudally from the second half. The flesh is confusable with other species of the family Gadidae, especially *Melanogrammus aeglefinus*. However, the fillet is more robust compared to this species. A prominent feature is the absence of a black-grey lining.

Fresh and deep-frozen flesh confusability

Gadidae.

Gadus macrocephalus (Tilesius, 1810)

Commercial designation

Pacific Cod

Commercial designation synonyms

Grey Cod, Cod



Taxonomic classification

Order	Gadiformes
Family	Gadidae
Genus	<i>Gadus</i>
Species	<i>Gadus macrocephalus</i>

Distribution – FAO areas

Area 61 - Pacific, Northwest

Area 67 - Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description



The body is quite large, has a large head, and a long beard on the lower jaw. The gap between the second and third dorsal fin is shorter than the diameter of the eye. The Lateral line is with a pronounced arc below the 1st and 2nd dorsal fin, straight towards the tail and ending below the 3rd dorsal fin. The colour is dorsally brown or grey, lighter ventrally. Dark spots or patterns on sides, the fins are dark. Has dorsal, anal and caudal fins with white margins, which



are wider on the anal and caudal fin than on the dorsal fin. Grows to 119 cm and weighs 22,7.⁷³

Fresh flesh



Pure white to white-grey, with three brown to brownish-yellow interrupted lines, typical of this family. One line runs along the entire spinal region and the other two always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 1/2 of the height and 1/3 of the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated and tapers symmetrically and conically caudally. Dorsal arching is absent. The flesh is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Merlangius merlangus*. However, compared to these species, the fillet is much more robust without a dorsal arch and the muscle is lighter. The species *Gadus morhua* is virtually identical, including the black-grey marbled abdominal lining.

Deep-frozen flesh

⁷³ *Gadus macrocephalus* (Tilesius, 1810). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-19]. Available from: <https://www.fishbase.se/summary/308>



Pure white to white-grey, with three brown to brownish-yellow interrupted lines, typical of this family. One line runs along the entire spinal area and the other two always just below the margin, especially in the caudal part of the fillet. The lining of the abdominal cavity is blackish-grey marbled. The ventral part extends up to 1/2 of the height and 1/3 of the length of the fillet. Pronounced segmentation with a tendency to gaping, especially in the dorsal-cranial part of the fillet. The fillet is elongated and tapers symmetrically and conically caudally. Dorsal arching is absent. The flesh is confusable with other species of the family Gadidae, especially *Trisopterus luscus* and *Merlangius merlangus*. However, compared to these species, the fillet is much more robust without a dorsal arch and the muscle is lighter. The species *Gadus morhua* is practically identical, including the black-grey marbled abdominal lining.

Fresh and deep-frozen flesh confusability

Gadidae.

Gempylidae

Lepidocybium flavobrunneum (Smith, 1843)



Commercial designation

Escolar

Commercial designation synonyms

Black Oil Fish

Taxonomic classification

Order Perciformes

Family Gempylidae

Genus *Lepidocybium*

Species *Lepidocybium flavobrunneum*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 - Atlantic, Western Central

Area 34 - Atlantic, Eastern Central

Area 41 - Atlantic, Southwest

Area 47 - Atlantic, Southeast

Area 51 - Indian Ocean, Western

Area 57 - Indian Ocean, Eastern

Area 61 - Pacific, Northwest

Area 71 - Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 - Pacific, Southwest

Area 87 - Pacific, Southeast

Species description

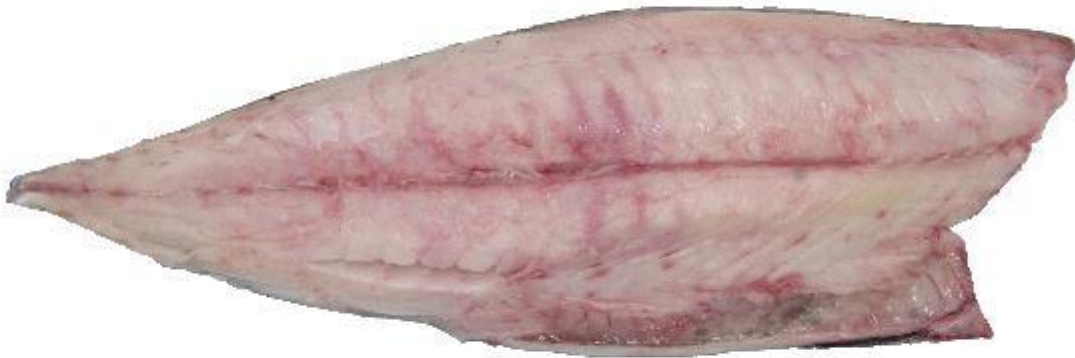


The body is spindle-shaped, slightly compressed. The head is medium-sized, the mouth is anterior. Two dorsal fins are separated by a gap. The first dorsal fin is very low, with 8-9 spines, and the second dorsal fin has 16-18 rays, followed by 4-6 additional fins. The caudal fin has 1-2 compound spines and 12-14 rays. The caudal peduncle has a strong median keel, flanked on each side by 2 supplementary keels. The lateral lines zigzag, the scales are moderately small. The body is uniformly dark brown, almost black with age.⁷⁴ Grows up to 2 m in size, common size 1,5 m, maximum published weight 45,0 kg.⁷⁵

Fresh flesh

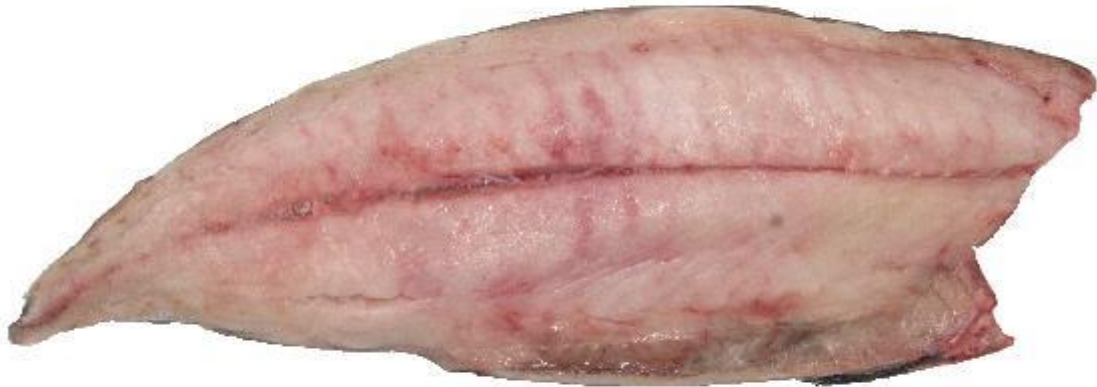
⁷⁴ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1819.

⁷⁵ *Lepidocybium flavobrunneum* (Smith, 1843). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://www.fishbase.se/summary/1042>



Uniformly creamy white to white-grey with possible pink spots, mostly caused by handling. Very visible segmentation inclined to gaping throughout the fillet. The fillet is robust, slightly dorsally arched in the middle. From the second half, it tapers symmetrically to a thin tail which forms $\frac{1}{8}$ of the cranial height of the fillet. The ventral part extends to $\frac{1}{2}$ the height and $\frac{3}{5}$ the length of the fillet. The lining of the abdominal cavity is light grey. In fillet form, the flesh is difficult to confuse with other species.

Deep-frozen flesh



Uniform creamy white to white-grey with possible pink spots due to handling. Very visible segmentation inclined to gaping throughout the fillet is preserved. The fillet is robust, slightly dorsally arched in the middle. It tapers symmetrically from the second half to a thin tail which forms 1/8 of the cranial height of the fillet. The ventral part extends to 1/2 the height and 3/5 the length of the fillet. The lining of the abdominal cavity is light grey. In fillet form, the flesh is difficult to confuse with other species.

Fresh and deep-frozen flesh confusability

Unlikely

Hexanchidae

Hexanchus griseus (Bonnaterre, 1788)

Commercial designation	Bluntnose Sixgill Shark	
Commercial designation synonyms	Atlantic Mud Shark	
Taxonomic classification	Order	Hexanchiformes
	Family	Hexanchidae
	Genus	<i>Hexanchus</i>



Species

Hexanchus griseus

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description

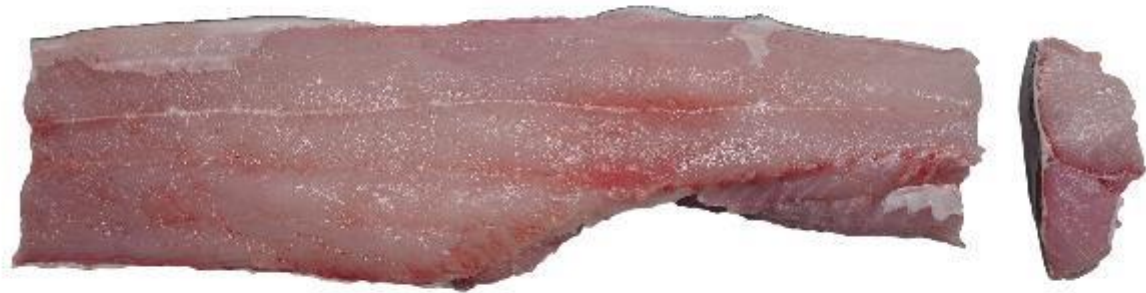


The body is fusiform, rather stocky. The head is massive, the rostrum is broadly rounded, and the mouth is lower. There are 6 distinctly long gill slits. Has 1 dorsal fin, beginning from behind the pelvic fins. The anal fin is smaller than the dorsal fin. The caudal fin is strongly asymmetrical, with a distinct subterminal notch, and the lower lobe is very short. The caudal peduncle is without keels and precaudal notches. The dorsum is grey, blackish or brown, and the flanks are lighter, with a light stripe along the side. The fins are with white edges. Maximum total length is 600 cm, common length is 300 cm.^{76 77}

Fresh flesh

⁷⁶ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 1: Introduction, molluscs, crustaceans, hagfishes, sharks, batoid fishes and chimaeras* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. [Pages 0-600]. Pages 374-376.

⁷⁷ *Hexanchus griseus* (Bonnaterre, 1788) In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-11-02]. Retrieved from: <https://www.fishbase.se/summary/Hexanchus-griseus.html>



Pink to pinkish-orange with a white line throughout the fillet. In the central part, there is a visible ligament line. The flesh is fine but firm, with clearly visible segmentation. The structure and separation of the dorsal and ventral parts are clearly visible on the cut of the fillet, which is relatively flat. The lining of the abdominal cavity is silvery white. In the case of steaks, the flesh is easily confused with that of *Acanthocybium solandri*. In other cases, confusion is almost impossible.

Deep-frozen flesh



Pink to pinkish-orange with a white line throughout the fillet. In the central part, there is a visible ligament line. The flesh is fine but firm, with clearly visible segmentation. The structure and separation of the dorsal and ventral parts are clearly visible on the cut of the fillet, which is relatively flat. The lining of the abdominal cavity is silvery white. In the case of steaks, the flesh can be easily confused with that of *Acanthocybium solandri*. In other cases, confusion is almost impossible.

Fresh and deep-frozen flesh confusability

Scombridae.

Istiophoridae

Istiophorus platypterus (Shaw, 1792)

Commercial designation

Indo-Pacific Sailfish

Commercial designation synonyms

Bayonet Fish, Billfish, Boohoo, Sailfish

Taxonomic classification

Order Carangiformes

Family Istiophoridae



Genus *Istiophorus*
Species *Istiophorus platypterus*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 31 - Atlantic, Western Central

Area 41 - Atlantic, Southwest

Area 47 - Atlantic, Southeast

Area 51 - Indian Ocean, Western

Area 57 - Indian Ocean, Eastern

Area 61 - Pacific, Northwest

Area 71 - Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 - Pacific, Southwest

Area 87 - Pacific, Southeast

Species description



The body elongates and is slightly compressed at the sides. The upper jaw elongates into a long, hard spike of a circular cross-section. Two dorsal fins. The first is large and sail like, and the second dorsal fin is small. Two anal fins. The pectoral fins are very long, reaching almost to the anus, consisting of 1 spine and several rays fused together. The fins are retractable into the ventral grooves. The caudal handle with double keels on each side. The dorsum is dark blue, abdomen is light blue to white, and the flanks brownish blue. 20 rows of transverse stripes on sides, composed of many light blue circular spots. The first dorsal fin is dark blue or blackish blue, with scattered black spots. The remaining fins are blackish brown or dark blue. Maximum size beyond 340 cm in total length and 100 kg in weight.⁷⁸

Fresh flesh

⁷⁸ NAKAMURA, I. Billfishes of the World: FAO Species Catalogue, Volume 5. Food & Agriculture Organization of the United Nations (FAO), 1985. 225 pages. ISBN 9251022321. Page 24.



Pink to deep red, noticeably interwoven with connective tissue, dividing the fillet into individual parts. The flesh is very fine and firm, divided into smaller ellipsoidal segments on the section, similar to those of the genus *Sphirna*, with which the flesh is easily confusable, and is without any effective differential description. Confusion with other species is unlikely.

Deep-frozen flesh



Pink to deep red, noticeably interwoven with connective tissue, dividing the fillet into individual parts. The flesh is very fine and firm, divided into smaller ellipsoidal segments on the section, similar to those of the genus *Sphirna*, with which the flesh is easily confuseable, and is without any effective differential description. Confusion with other species is unlikely.

Fresh and deep-frozen flesh confusability

Sphirna spp.

Labridae

Labrus bergylta (Ascanius, 1767)

Commercial designation	Ballan Wrasse
Commercial designation synonyms	None
Taxonomic classification	Order Perciformes
	Family Labridae
	Genus <i>Labrus</i>
	Species <i>Labrus bergylta</i>



Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 - Atlantic, Eastern Central

Species description



Powerful head with a terminal mouth and prominent jaws with thick lips and powerful canines in front. The dorsal fin is long, uninterrupted with 18-21 spines and 9-13 soft rays. The caudal fin is composed of 3 spines and 8-12 rays. Body, head and fins are mostly brown to reddish, and some individuals greenish, with numerous white spots. The body is covered with dark vertical stripes or with a broad white lateral stripe. The stripes may be absent. The lateral line is slightly curved.⁷⁹ Maximum size 65.9 cm, common size 50 cm. Maximum published weight 4,4 kg.⁸⁰

Fresh flesh

⁷⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2750.

⁸⁰ *Labrus bergylta* (Ascanius, 1767). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://fishbase.mnhn.fr/summary/labrus-bergylta>



Uniform light to dark pink with clear segmentation and a white pattern of long rectangles throughout the fillet, which is robust, high, conical and slightly dorsally arched, with a massive caudal peduncle that is almost $1/2$ of the cranial height. The abdominal lining is silvery white. The ventral partition extends to $3/4$ of the height and $1/2$ of the length of the fillet. Confusion is possible mainly with representatives of the family Mulidae, where the characteristic feature is the marked difference in common size. Then with *Scarus gibbus* and *Scarus ghobban*, which have identical characteristics except for the smaller ratio of the caudal to the cranial height of the fillet.

Deep-frozen flesh



Dirty white, light pink to pink with clear segmentation without any other distinctive markings. The fillet is robust, tall, conical and slightly dorsally arched, uniformly coloured with a robust tail section. Abdominal lining silvery white. The ventral partition extends to 3/4 of the height and 1/2 of the length of the fillet. It can be confused in colour and shape with practically any exotic species of similar shape, especially those of the families Mulidae, Scaridae, Sparidae or Carangidae. In all cases, the ratio of the caudal peduncle to the cranial height of the fillet is a clue.

Fresh and deep-frozen flesh confusability

Mulidae; Scaridae; Sparidae; Carangidae.

Lampridae

Lampris guttatus (Brünnich, 1788)

Commercial designation

Opah

Commercial designation synonyms

Kingfish, Moonfish, Jerusalem Haddock

Taxonomic classification

Order

Lampriformes



Family	Lampridae
Genus	<i>Lampris</i>
Species	<i>Lampris guttatus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 - Atlantic, Western Central

Area 34 - Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 - Atlantic, Southwest

Area 47 - Atlantic, Southeast

Area 48 - Atlantic, Antarktic

Area 51 - Indian Ocean, Western

Area 57 - Indian Ocean, Eastern

Area 61 - Pacific, Northwest

Area 67 - Pacific, Northeast

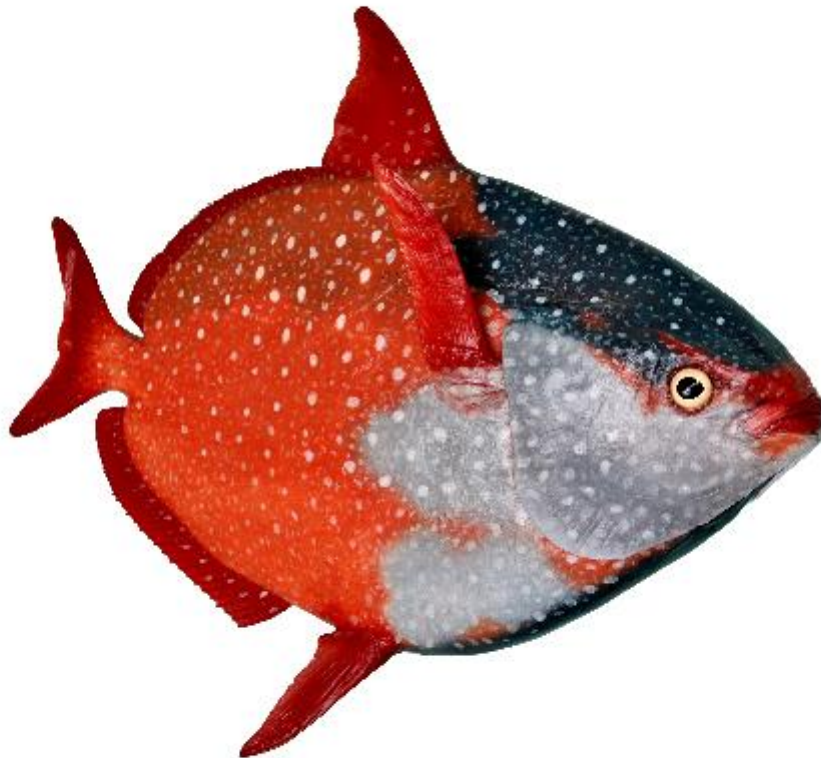
Area 71 - Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 - Pacific, Southwest

Area 87 - Pacific, Southeast

Species description



The body is large, high, and compressed at the sides. The mouth is small and toothless, and the dorsal and anal fins are long, with a high frontal lobe. Pectoral fins elongate, are scythe-shaped, and set high on the body. The lateral line is distinctly curved above the pectoral fin. The body is covered with very small, smooth scales. The dorsal colour is metallic blue to bottle green. Sides are greenish or bluish with highlights of gold and purple. Abdomen and flanks ventrally are red, jaws and fins are bright scarlet. Entire body is covered with small silver spots. Grows to 185 cm and 220-275 kg, common size is 120 cm.⁸¹

Fresh flesh

⁸¹ CARPENTER, K. E. (ed.). *The living marine resources of the Western Central Atlantic. Volume 2. Bony fishes part 1 (Acipenseridae to Grammatidae)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 781 pages. [Pages 601-1374]. ISBN 9251048266. Page 952.



Pinkish brown with clearly visible segmentation and multiple white 'V' shaped patterns throughout the dorsal part of the fillet. The flesh is fine but firm, with a tendency to gaping, similar to that of the *Thunnus* genus. A number of ellipsoidal segments are clearly visible on the section. The flesh is very specific in shape, colour and texture and is difficult to confuse. Confusion with the muscle of the genus *Thunnus*, especially *Thunnus albacares* and *Thunnus alalunga*, is rarely possible, but all other commercially fished species have a much redder and darker flesh.

Deep-frozen flesh



Pinkish brown with clearly visible segmentation and multiple white 'V' shaped patterns throughout the dorsal part of the fillet. The flesh is fine but firm, with a tendency to gaping, similar to that of the *Thunnus* genus. A number of ellipsoidal segments are clearly visible on the section. The flesh is very specific in shape, colour and texture and is difficult to confuse. Confusion with the flesh of the genus *Thunnus*, especially *Thunnus albacares* and *Thunnus alalunga*, is rarely possible, but all other commercially fished species have a much redder and darker flesh.

Fresh and deep-frozen flesh confusability

Thunnus spp.; Lampridae.

Latidae

Lates calcarifer (Bloch, 1790)

Commercial designation

Barramundi

Commercial designation synonyms

Asian Seabass, Cock-up, Silver Perch,
Barramunda, Palmer



Taxonomic classification

Order	Perciformes
Family	Latidae
Genus	<i>Lates</i>
Species	<i>Lates calcarifer</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 6 – Oceánia – Inland waters

Area 51 – Indian Ocean, Western

Area 57 – India Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description



The body is medium high, elongated and compressed from the side and the head is pointed. Lower margin of preoperculum with 3 or 4 (rarely more) large flat triangular spines. Snout pits on each side of head close to eye. The mouth is large, jaws reach to the eyes. The dorsal fin is deeply incised, with 7-9 hard and 10-11 soft rays. Caudal fin with 3 hard and 7-8 soft rays. Caudal fin rounded. Scales firmly fixed, ctenoid. Adults silver with olive grey or grey-



blue back (fish from muddy waters are darker and duller). Common size 1,5 m and 55 kg, maximum length 2 m.⁸²

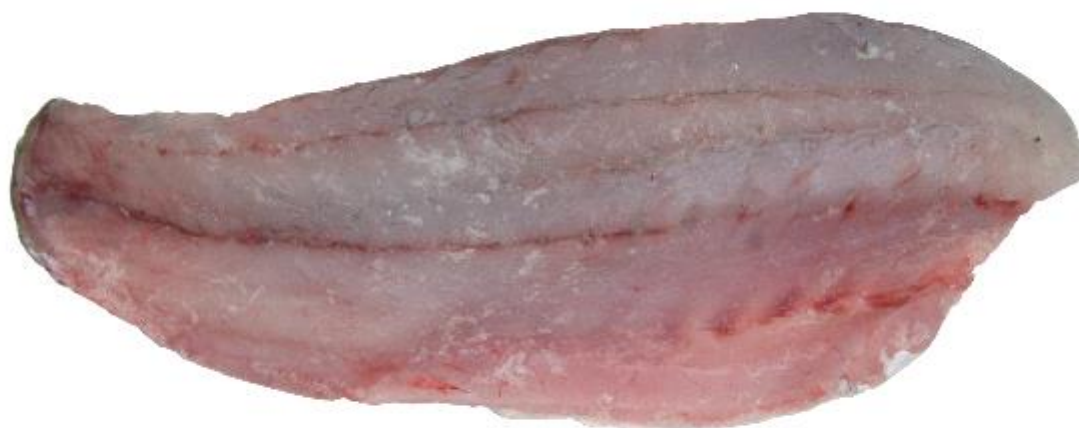
Fresh flesh



Light pink to grey with significant segmentation and susceptibility to gaping, especially in the dorsal-cranial part. In the cranial part of the fillet, white connective tissue forming an irregular pattern is also very visible, especially in the cranial part just above the longitudinal axis. There are also 2 red lines, 1 interrupted in the dorsal part and 1 solid in the central part. The fillet is elongate with a strong dorsal arch in the central part and a gradual conical tapering to the caudal peduncle, which forms about 1/2-1/3 of the cranial height. The belly reaches 1/2 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is silvery white. It is easy to confuse with the fillet of *Lates niloticus*, which is practically identical except for the noticeably lighter colour of the muscle and the pink lining of the abdominal cavity.

Deep-frozen flesh

⁸² FULTON-HOWARD, B. *Lates calcarifer*. In: DEWEY, T. et al. (eds.) *Animal Diversity Web* [online]. 2023 [cit. 2023-07-26]. Available from: https://animaldiversity.org/accounts/Lates_calcarifer/



Pale pink to grey with preserved noticeable segmentation and susceptibility to gaping, especially in the dorsal-cranial part. In the cranial part of the fillet, white connective tissue forming an irregular pattern is also very visible, especially in the cranial part just above the longitudinal axis. There are also 2 red lines, 1 interrupted in the dorsal part and 1 solid in the central part. The fillet is elongate with a pronounced dorsal arch in the central part and a gradual conical tapering to the caudal peduncle, which forms about 1/2-1/3 of the cranial height. The belly reaches 1/2 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is silvery white. It is easy to confuse with the fillet of *Lates niloticus*, which is practically identical except for the noticeably lighter colour of the muscle and the pink lining of the abdominal cavity.

Fresh and deep-frozen flesh confusability

Latidae.

Lates niloticus (Linnaeus, 1758)

Commercial designation

Nile Perch

Commercial designation synonyms

African Snook, Victoria Perch

Taxonomic classification

Order

Perciformes



Family	Latidae
Genus	<i>Lates</i>
Species	<i>Lates niloticus</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 2 – America, North – Inland waters

Species description



The body elongates and is high, compressed at the sides. Head concave in profile, operculum with one spine. The dorsal fin is divided into two parts. The first composed of 7-8 hard rays, the second of one hard and 8-11 soft rays. The anal fin has three spines and 6-9 soft rays. The caudal fin is rounded. The lateral line is reaching to base of the caudal fin.⁸³ The body is all

⁸³ *Lates niloticus* (Linnaeus, 1758) [FAO Species Fact Sheets]. Food and Agriculture Organization of the United Nations [online]. Rome, Italy: FAO, 2023 [cit. 2023-08-02]. Retrieved from: <https://www.fao.org/figis/pdf/fishery/species/2275/en?title=FAO%20Fisheries%20%26amp%3B%20Aquaculture%20-%20Aquatic%20species>



silver, dorsally dark grey-blue, grey-silver on sides and belly, and the fins greyish. Maximum size 200 cm and 200 kg, common size 100 cm.⁸⁴

Fresh flesh



Light to dark pink with marked segmentation and prone to gaping, especially in the dorsal-cranial part. In the cranial part of the fillet, white connective tissue forming an irregular pattern is also very visible, especially in the cranial part just above the longitudinal axis. The fillet is of a conical shape with a strong dorsal arch in the central part and a gradual conical taper up to the tail section, which forms about 1/2-1/3 of the cranial height. The belly reaches 1/2 the height and 3/5 the length of the fillet. The lining of the abdominal cavity is light pink. It is easy to confuse with the *Lates calcifer* fillet, which is virtually identical except for the noticeably darker colour of the flesh and the silvery-white abdominal lining.

Deep-frozen flesh

⁸⁴ *Lates niloticus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-08-02]. Available from: <https://www.fishbase.se/summary/lates-niloticus.html>



Pale pink to white, with preserved segmentation, prone to gaping, especially in the dorsal-cranial part. The fillet is conical in shape, with a pronounced dorsal arch in the central part and a gradual tapering to the caudal peduncle, which forms about 1/2-1/3 of the cranial height. The belly reaches 1/2 the height and 3/5 the length of the fillet. The lining of the abdominal cavity is light pink. It is easy to confuse with the *Lates calcifer* fillet, which is virtually identical except for the noticeably darker colour of the flesh.

Fresh and deep-frozen flesh confusability

Latidae.

Lethrinidae

Lethrinus microdon (Valenciennes, 1830)

Commercial designation	Smalltooth Emperor
Commercial designation synonyms	Long-nose Emperor, Long Face Emperor
Taxonomic classification	Order Perciformes
	Family Lethrinidae
	Genus <i>Lethrinus</i>



Species

Lethrinus microdon

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description

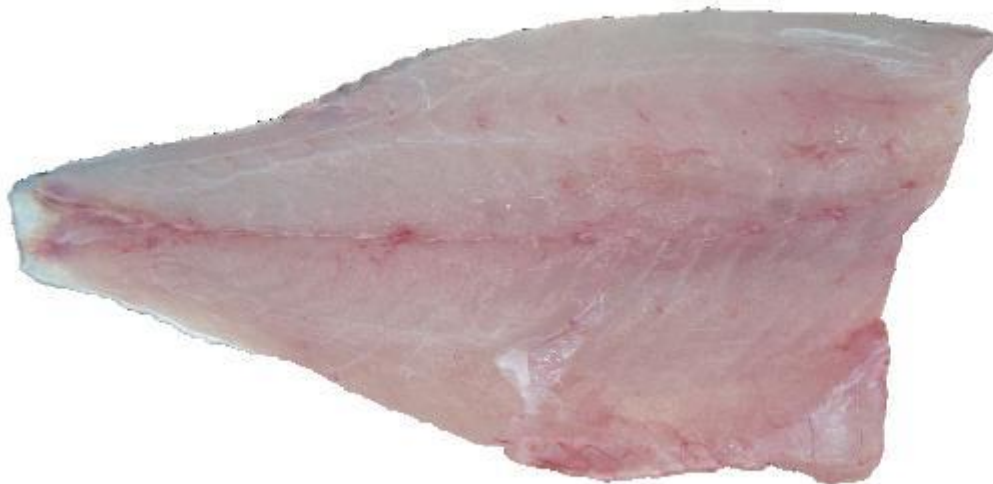


Quite an elongated body. Dorsal profile slightly concave. Dorsal fin has 10 hard and 9 soft rays. Caudal fin with 3 hard and 8 soft rays. Inner surface of pectoral fin base without scales. (*Lethrinus nebulosus* has this surface covered with scales). The dorsal part of the operculum is fully scaled. Body is grey or brown with scattered irregular dark spots on the sides.



Sometimes 3 dark stripes coming forward from the eye. Fins pale or orange.⁸⁵ Maximum length 80 cm and highest published weight 4.9 kg, normal length 40 cm.⁸⁶

Fresh flesh



Light pink to pink with a interrupted line of brown longitudinal spots in the second half of the dorsal-caudal part of the fillet, clear segmentation and numerous rectangular patterns in the dorsal and ventral peripheral part. Gradual dorsal arching transitions from the mid-ventral half of the fillet to a conical taper to the caudal peduncle, which forms about 1/3 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery-white to white-pink. Confusion is likely with *Lethrinus nebulosus*, which is identical. There is also the species *Trachinotus baillonii*, which has a larger dorsal-cranial arch, and a large number of species of the family Sparidae, in which the only distinguishing features are the darker central line and the narrower parts of the caudal peduncle.

⁸⁵ CARPENTER, K. E., NIEM, V. H. (eds.). *The Living Marine Resources of the Western Central Pacific. Volume 5: Bony Fishes Part 3 (Menidae to Pomacentridae)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2001. 589 pages. [Pages 2791-3380]. ISBN 92-5-104587-9. Page 3035.

⁸⁶ *Lethrinus microdon* (Valenciennes, 1830) . In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://www.fishbase.se/summary/1845>



Deep-frozen flesh



Light pink to pink with a interrupted line of brown longitudinal spots in the second half of the dorsal-caudal part of the fillet, clear segmentation and numerous rectangular patterns in the dorsal and ventral peripheral part. Gradual dorsal arching transitions from the mid-fillet into a conical taper to the caudal peduncle, which forms about 1/3 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery-white to white-pink. Confusion is likely with *Lethrinus nebulosus*, which is identical. There is also a species of *Trachinotus bailloni*, which has a larger dorsal-cranial arch, and a large number of species of the family Sparidae, whose only characters are a darker central line and narrower caudal peduncle.

Fresh and deep-frozen flesh confusability

Carangidae, Lethrinidae; Sparidae.

Lethrinus nebulosus (Forsskål, 1775)

Commercial designation

Spangled Emperor

Commercial designation synonyms

Green Snapper, Mata-Hari, Parrot Fish

Taxonomic classification

Order

Perciformes



Family	Lethrinidae
Genus	<i>Lethrinus</i>
Species	<i>Lethrinus nebulosus</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest



Species description

Medium height body. Dorsal profile is almost straight at the eye, or in large specimens strongly concave. The dorsal fin is with 10 hard and 9 soft rays. The caudal fin is with 3 hard and 8 soft rays. The inner surface of the pectoral fin base is densely covered with scales



(*Lethrinus microdon* has this surface without scales). The posterior part of operculum is fully scaled. The colour of the body is yellowish or bronze and lighter underneath. 3 blue stripes or series of blue spots arise anteriorly and ventrally from the eye. The fins are whitish or yellowish and the dorsal fins are dark. Dorsal fin has a reddish margin.⁸⁷ Maximum length 87 cm and highest published weight 8,4 kg, normal length 70 cm.⁸⁸

Fresh flesh



Light pink to pink with an interrupted line of brown longitudinal spots in the second half of the dorsal-caudal part of the fillet, clear segmentation and numerous rectangular patterns in the dorsal and ventral peripheral part. Gradual dorsal arching transitions from the mid-fillet into a conical taper to the caudal peduncle, which forms about 1/3 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery-white to white-pink. Confusion is likely with *Lethrinus microdon*, which is identical. There is also the species *Trachinotus bailloni*, which has a larger dorsal-cranial arch, and a large number of species of the family Sparidae, in which the only distinguishing features are the darker central line and the narrower parts of the caudal peduncle.

⁸⁷ CARPENTER, K. E., NIEM, V. H. (eds.). *The Living Marine Resources of the Western Central Pacific. Volume 5: Bony Fishes Part 3 (Menidae to Pomacentridae)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2001. 589 pages. [Pages 2791-3380]. ISBN 92-5-104587-9. Page 3037.

⁸⁸ *Lethrinus nebulosus* (Forsskål, 1775). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-24]. Available from: <https://www.fishbase.se/summary/1846>



Deep-frozen flesh



Light pink to pink with an interrupted line of brown longitudinal spots in the second half of the dorsal-caudal part of the fillet, clear segmentation and numerous rectangular patterns in the dorsal and ventral peripheral parts. Gradual dorsal arching transitions from mid-ventral to conical tapering to the caudal peduncle, which forms about 1/3 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery-white to white-pink. Confusion is likely with *Lethrinus microdon*, which is identical. Also with *Trachinotus bailloni*, which has a larger dorsal cranial arch, and a large number of species of the family Sparidae, in which the only distinguishing features are the darker central line and the narrower parts of the caudal peduncle.

Fresh and deep-frozen flesh confusability

Carangidae, Lethrinidae; Sparidae.

Lophiidae

Lophius piscatorius (Linnaeus, 1758)

Commercial designation

Angler



Commercial designation synonyms

Angler Fish, Monk, Monk Fish

Taxonomic classification

Order Lampriformes

Family Lophiidae

Genus *Lophius*

Species *Lophius piscatorius*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 34 - Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The head and body are very broad in front, horizontally flattened, and narrowing caudally. The whole body and head are covered with numerous fleshy projections. Dorsal and lateral sides of head are bearing many sharp spines. The mouth is large and cavernous. The skin is loose and without scales. Spines of the first dorsal fin is long, strong and bearing many projections. The first cephalic spine has transformed into a light attraction for prey. The colour



dorsally is mottled grey to dark brown, and ventrally light brown. Distinct dark stripe on pectoral fins. Grows up to 200 cm, common length 100 cm, highest published weight 57,7 kg.^{89 90}

Fresh flesh



White to yellow-white with no significant fluctuations throughout the fillet, which is cylindrical in shape with a very robust cranial and central part. It tapers and thins caudally. The segmentation is clearly visible with a conspicuous 'W' in the caudal part. Due to its shape and colour, it is more or less only confusable with the flesh of other species of the family Lophidae or the dorsal part of the fillet of representatives of the family Gadidae (e.g. *Gadus morhua* or *Gadus macrocephalus*).

Deep-frozen flesh

⁸⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2049.

⁹⁰ *Lophius piscatorius* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-26]. Available from: <https://www.fishbase.se/summary/Lophius-piscatorius.html>



White to grey-white with no significant fluctuations throughout the fillet, which is cylindrical in shape with a very robust cranial and central part. It tapers and thins caudally. Segmentation is less obvious with a conspicuous 'W' in the caudal part. Due to its shape and colour, it is more or less only confusable with the flesh of other species of the family Lophidae or the dorsal part of the fillet of representatives of the family Gadidae (e.g. *Gadus morhua* or *Gadus macrocephalus*).

Fresh and deep-frozen flesh confusability

Gadidae; Lophidae.

Lotidae

Molva molva (Linnaeus, 1758)

Commercial designation	Ling	
Commercial designation synonyms	European Ling	
Taxonomic classification	Order	Gadiformes
	Family	Lotidae



Genus *Molva*
Species *Molva molva*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



The body is long, serpentine. The head is slender, elongate, and the upper jaw is slightly projecting, and the whiskers are on the lower jaw longer than diameter of the eye. Two dorsal fins, one anal fin, containing only soft rays. The pelvic fins are short, not extending beyond the end of the pectoral fins, caudal fin truncate. The colour dorsally is reddish brown to greenish grey, ventrally lighter to white. Has a dark spot at the posterior end of first dorsal fin. Common size 106 cm, maximum length 200 cm and maximum published weight 45,0 kg.^{91 92}

⁹¹ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Pages 133-134.

⁹² *Molva molva* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-27]. Available from: <https://www.fishbase.se/summary/33>



Fresh flesh



White to pink with poor segmentation. A darker band in the central part of the fillet, which is very massive, without dorsal arching, from 2/3rds it tapers caudally until it is lost. The flesh is fine and firm. The belly reaches 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh of the whole fillet is confusable with other species of the Lotidae family. If only portions are compared, it is easily confusable with many species of the genus *Gadus* (e.g. *Gadus morhua*, *Gadus macrocephalus*). The 3 dark lines typical of this genus may be a clue. Then with *Silurus glanis*, which lacks the dark midline.

Deep-frozen flesh



White to pink with poor segmentation. A darker band in the central part of the fillet, which is very massive, without dorsal arching, from 2/3rds it tapers caudally until it is lost. The flesh is fine and firm. The belly reaches 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh of the whole fillet is easily confusable with other species of the family Lotidae. If only portions are compared, it is easily confused with many species of the genus *Gadus* (e.g. *Gadus morhua*, *Gadus macrocephalus*). The 3 dark lines typical of this genus may be a clue. Then with *Silurus glanis*, which lacks the dark midline.

Fresh and deep-frozen flesh confusability

Gadidae; Lotidae; Siluridae.

Lutjanidae

Aprion virescens (Valenciennes, 1830)

Commercial designation

Green Jobfish

Commercial designation synonyms

Blue-green Snapper Fish, Blue-grey Snapper

Grey Snapper, Job Fish



Taxonomic classification

Order	Perciformes
Family	Lutjanidae
Genus	<i>Aprion</i>
Species	<i>Aprion virescens</i>

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description

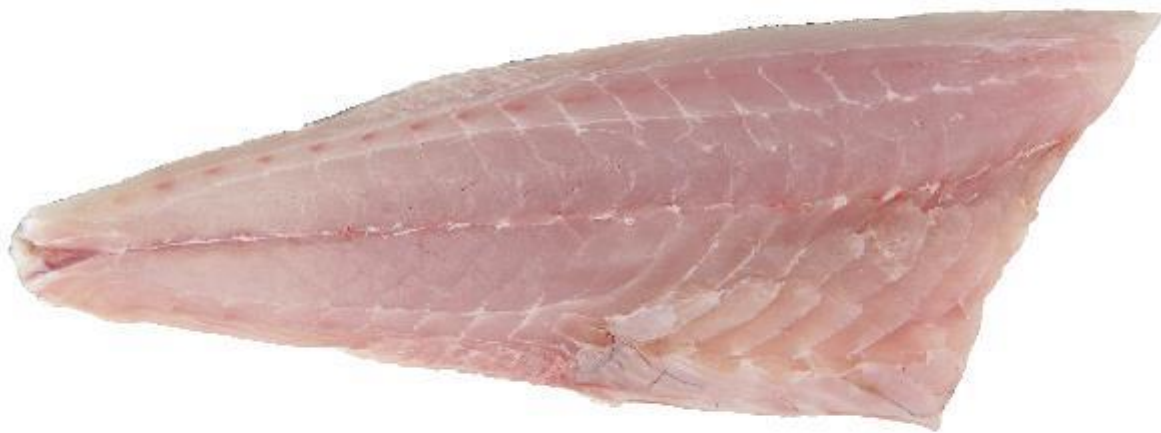


The body is elongated and robust. There is a distinct horizontal groove on the snout ventral to nostrils; the teeth in both jaws are in bands, with strong canines anteriorly. The last rays



from the dorsal and anal fins are longest. The caudal fin is bilobed. The scales in the lateral line are with canals. The body colour is dark green, bluish or bluish grey. It grows up to 112 cm in size, with the common size being 90 cm.⁹³

Fresh flesh

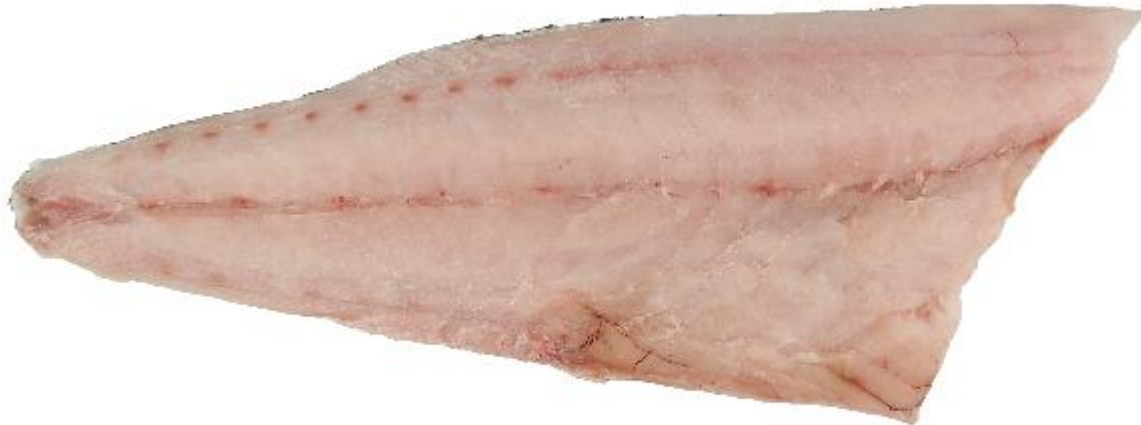


The flesh is pale to dark pink with darker broken lines in the dorsal and ventral-caudal part of the fillet. In some cases, the spots may merge into an entire line, especially in the dorsal-cranial part. The entire fillet shows a distinct pattern and well-defined segmentation. The fillet is robust, slender, with minimal dorsal arching and symmetrical conical tapering throughout its length, more distinct in the last 1/5 to 1/4 of the cranial height. The flesh is very firm with no specific aroma. The abdominal cavity area extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is pinkish white. Unlike most species of the family concerned, it has no convexly curved dorsal darker line and no darker line in the central part. There is considerable resemblance of the fresh flesh to representatives of the family Mullidae, which have very similar characteristics but are considerably smaller in size. Therefore, any confusion is virtually impossible.

⁹³ *Aprion virescens* (Valenciennes, 1830). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-15]. Retrieved from: <https://www.fishbase.se/summary/Aprion-virescens.html>



Deep-frozen flesh



The flesh is light pink with darker broken lines in the dorsal and ventral-caudal part of the fillet. In some cases, the spots may merge into an entire line, especially in the dorsal-cranial part. The entire fillet shows a distinct pattern and well-defined segmentation. The fillet is robust, slender, with minimal dorsal arching and symmetrical conical tapering throughout its length, more distinct in the last 1/5 to 1/4 of the cranial height. The flesh is very firm with no specific aroma. The abdominal cavity area extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity pinkish white. Unlike most species of the family concerned, it has no convexly curved dorsal darker line and no darker line in the central part. There is considerable resemblance of the deep-frozen flesh to representatives of the family Mullidae, which have very similar characteristics but are considerably smaller in size. Therefore, any confusion is virtually impossible. It may be confused with the species *Agyrosomus regius*, which, however, has very distinct dark red spots in the dorsal, central and ventral parts of the fillet.

Fresh and deep-frozen flesh confusability

Sciaenidae.



Lutjanus argentimaculatus (Forsskål, 1775)

Commercial designation

Mangrove Red Snapper

Commercial designation synonyms

Creek Red Bream, Dog Bream, Grey Snapper,
Malabar Red Snapper, Mangrove Jack

Taxonomic classification

Order Perciformes

Family Lutjanidae

Genus *Lutjanus*

Species *Lutjanus argentimaculatus*

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 6 – Oceania – Inland waters

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

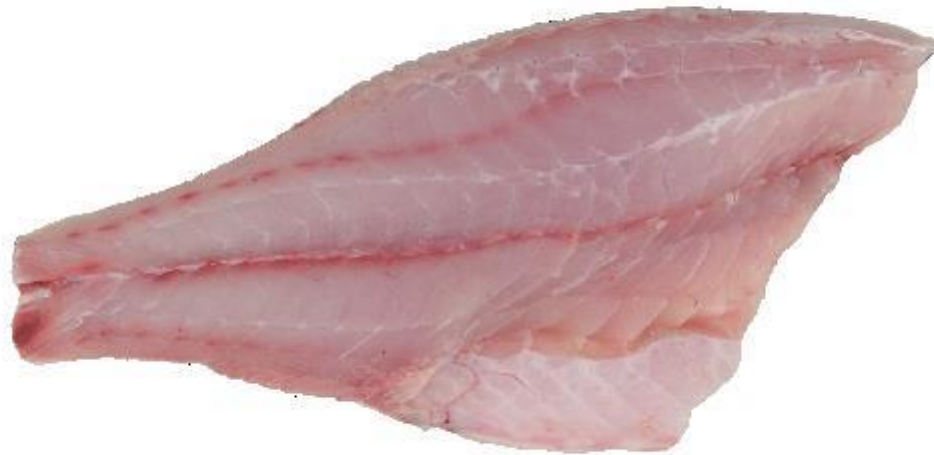
Species description



The body is fusiform, moderately deep, with a large head and an anterior mouth. The preopercular process is little developed. The dorsal fin is composed of 10 spines and 13-14 rays. The anal fin has 3 spines and 8-10 rays. The caudal fin is slightly curved or truncate. The body colour is greenish brown on the back, turning to red. The belly is silvery or whitish (individuals living in deep waters are usually reddish overall). Juveniles have a row of about 8 white stripes on the body and 2 blue stripes across the cheeks. It reaches up to 150 cm in size, with the common size being 80 cm.⁹⁴

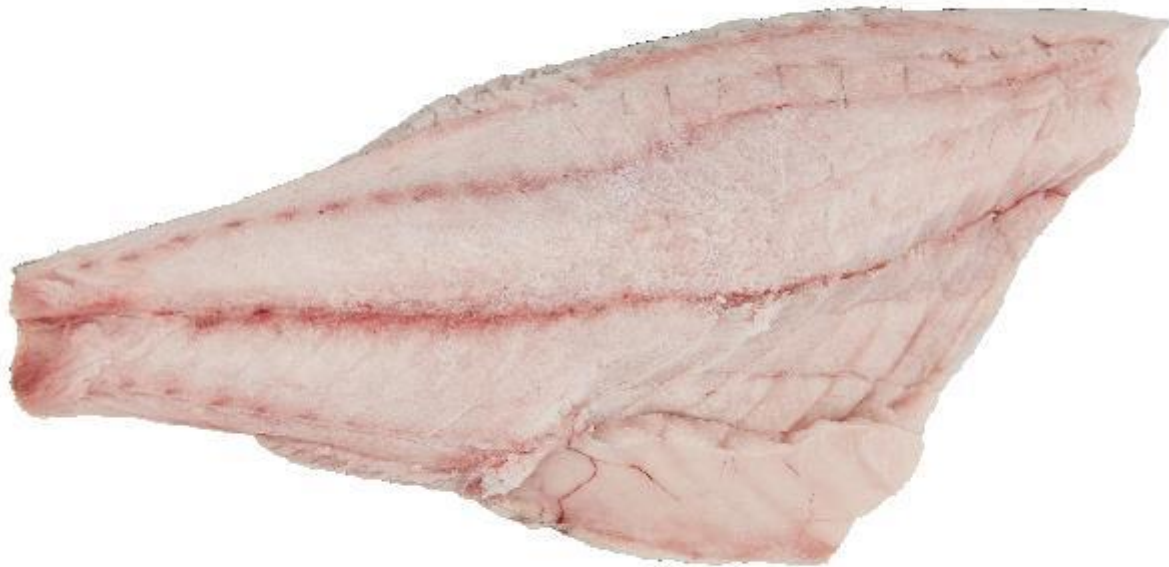
Fresh flesh

⁹⁴ Lutjanus argentimaculatus (Forsskål, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-26]. Retrieved from: <https://www.fishbase.se/summary/Lutjanus-argentimaculatus.html>



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus bohar*, which is practically identical, with more distinct lines and the ratio of the caudal peduncle to the cranial height of 1/4, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Cephalopholis sonnerati*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Deep-frozen flesh



The flesh is white or light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity. A rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The deep-frozen flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus bohar*, which is practically identical, with more distinct lines and the ratio of the caudal peduncle to the cranial height of 1/4, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Cephalopholis sonnerati*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Lutjanus bohar (Forsskål, 1775)

Commercial designation

Two-spot Red Snapper

Commercial designation synonyms

Bohar Snapper, Kelp Bream, Kelp Sea Perch,
Mylah, Red Bass, Red Sea Bass

Taxonomic classification

Order	Perciformes
Family	Lutjanidae
Genus	<i>Lutjanus</i>
Species	<i>Lutjanus bohar</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description

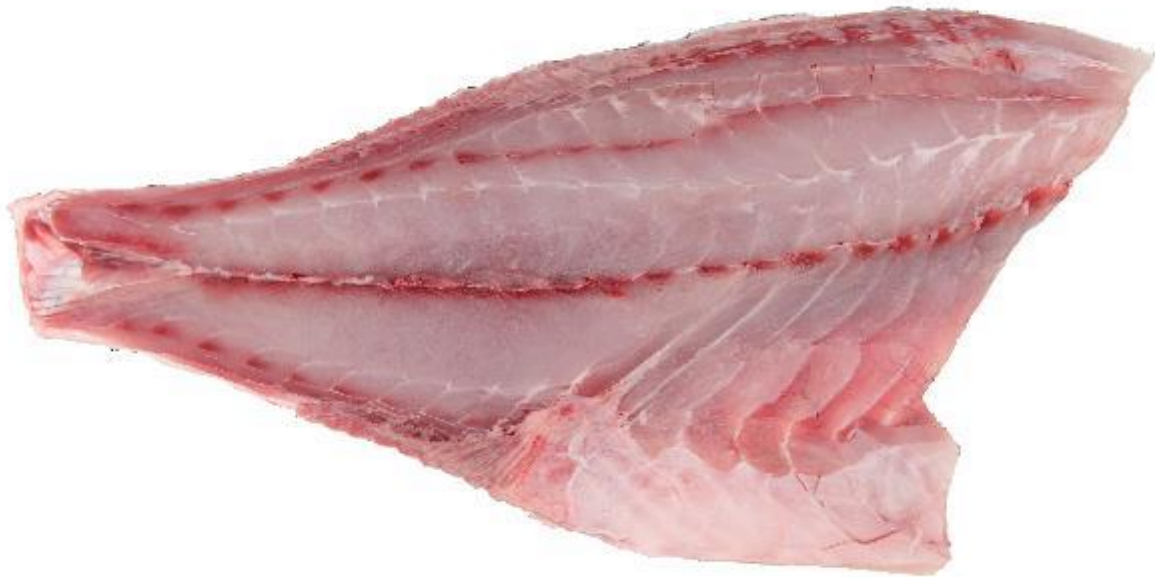


It has a medium-height body. There is a distinct groove or dent from the nostrils to the front of the eye. The preopercular margin has a distinct shallow notch and serration. The dorsal fin has 10 spines (rarely 11) and 14 soft rays. The caudal fin is slightly forked. The lateral line is straight to slightly arched. The body colour is dark reddish brown with faint dark stripes. Juveniles and some adults have two silvery-white spots on the back. The pectoral fins are pink with a distinct black edge. The caudal part of the body and tail is sometimes white in juveniles. The common length is up to 76 cm, rarely 90 cm and the maximum weight is 12.5 kg.^{95 96}

Fresh flesh

⁹⁵ Lutjanus bohar (Fabricius, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-26]. Retrieved from: <https://www.fishbase.se/summary/1417>

⁹⁶ Family: LUTJANIDAE [FAO Species Fact Sheets]. In: FISCHER, W., WHITEHEAD, P. J. P. (eds.). *Eastern Indian Ocean-Fishing Area 57 and Western Central Pacific-Fishing Area 71. Bony Fishes: Families* [online]. Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 1974. [Cit. 2023-07-26]. Retrieved from: <https://www.fao.org/3/e9163e/e9163e2l.pdf>



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area at the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus argentimaculatus*, which is practically identical, with less distinct lines and the ratio of the caudal peduncle to the cranial height of 1/3, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus morio*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Deep-frozen flesh



The flesh is white or light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity. A rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is pinkish white. The deep-frozen flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus argentimaculatus*, which is practically identical, with less distinct lines, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus morio*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Lutjanus campechanus (Poey, 1860)

Commercial designation

Northern Red Snapper

Commercial designation synonyms

Carribbean Red Snapper, Mexican Red Snapper,
Mutton Snapper, Pensacola Red Snapper

Taxonomic classification

Order Perciformes

Family Lutjanidae

Genus *Lutjanus*

Species *Lutjanus campechanus*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 31 – Atlantic, Western Central

Species description



The body is relatively high with a large mouth. The dorsal fin is simple, with the spinous part of the fin not deeply incised at the junction with the soft part. The soft dorsal and anal fin membranes are with scales. The anal fin is angularly truncated in specimens longer than 5



cm. The caudal fin is truncate to slightly excised. There are porous scales in the lateral line. The colour is dorsally scarlet to brick-red, with the ventral side and belly being pink. The iris of the eye is red and there is a dark spot under the anterior part of the soft dorsal fin. The fins are mostly red, the caudal fin being with a dark distal margin. The maximum total length can be more than 100 cm, with the common size being up to 60 cm.⁹⁷

Fresh flesh



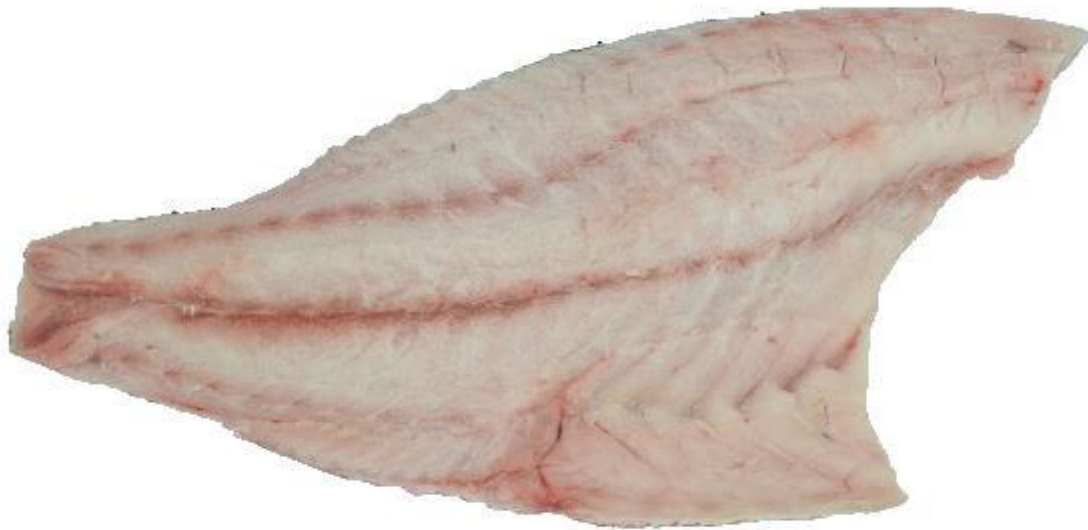
The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area at the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus argentimaculatus*, which is practically identical, with more distinct lines, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an

⁹⁷ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1492.



option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus marginatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Deep-frozen flesh



The flesh is white or light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity. A rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The deep-frozen flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus argentimaculatus*, which is practically identical, with more distinct lines, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus marginatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.



Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.

Lutjanus gibbus (Forsskål, 1775)

Commercial designation

Humpback Red Snapper

Commercial designation synonyms

Humphead Snapper, Paddletail Snapper,
Paddletail, Paddletail Seaperch

Taxonomic classification

Order	Perciformes
Family	Lutjanidae
Genus	<i>Lutjanus</i>
Species	<i>Lutjanus gibbus</i>

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description



It is a little snapper with a high body. The preopercular notch is deep and narrow, into which a long interopercular spine fits. The soft parts of the dorsal and anal fin have scaly sheaths. The caudal fin is deeply forked, its upper lobe being larger than the lower lobe in adults, and the lobes are distinctly rounded. The scales on the head begin behind the eye. The colour is red to greyish, with an orange tinge on the base of the operculum and in the axil of the pectoral fin. The pectoral fins are red or usually dark brown to blackish. The soft part of the dorsal fin, as well as the anal and caudal fins have narrow white margins. Juveniles have a large round black spot at the base of the caudal fin. The maximum published size is 56.8 cm, with the common size being 45 cm.^{98 99}

Fresh flesh

⁹⁸ Family: LUTJANIDAE [FAO Species Fact Sheets]. In: FISCHER, W., WHITEHEAD, P. J. P. (eds.). *Eastern Indian Ocean - Fishing Area 57 and Western Central Pacific - Fishing Area 71. Bony Fishes: Families* [online]. Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 1974. [Cit. 2023-07-26]. Retrieved from: <https://www.fao.org/3/e9163e/e9163e2l.pdf>

⁹⁹ *Lutjanus gibbus* (Forsskål, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-28]. Retrieved from: <https://www.fishbase.se/summary/lutjanus-gibbus.html>



The flesh is light to dark pink with 2 more or less visible broken lines of dark spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area at the end of the abdominal cavity and is less visible. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus sabae*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus chlorostigma*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Deep-frozen flesh



The flesh is white or light to dark pink with 2 more or less visible broken lines of dark spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity and is less visible. A rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is pinkish white. The deep-frozen flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus sabae*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus chlorostigma*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Lutjanus sebae (Cuvier, 1816)

Commercial designation

Emperor Red Snapper

Commercial designation synonyms

Emperor's red-snapper, Government Bream, King
Snapper, Queenfish, Red Emperor

Taxonomic classification

Order	Perciformes
Family	Lutjanidae
Genus	<i>Lutjanus</i>
Species	<i>Lutjanus sebae</i>

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 81 – Pacific, Southwest

Species description



It is a high snapper with a straight or convex head profile. It has a distinct interopercular spine, growing with age. The margins of preoperculum are finely serrated. The soft parts of the dorsal and anal fins pointed. Adult individuals are dark red, while younger and smaller adults are pinkish with a dark red band from the first dorsal spine across the eye to the tip of the rostrum; a second dark band runs from the middle of the dorsal fin spine to the pelvic fin and a third band runs from the base of the last dorsal fin spines obliquely down across the caudal peduncle and along the lower caudal fin rays. The margin of the soft part of the dorsal fin, as well as the upper edge of the caudal fin and the anterior rays of the anal fin are dark. It can grow up to 116 cm, with the common size being 60 cm. The highest published weight is 32,7 kg.^{100 101}

Fresh flesh

¹⁰⁰ Family: LUTJANIDAE [FAO Species Fact Sheets]. In: FISCHER, W., WHITEHEAD, P. J. P. (eds.). *Eastern Indian Ocean-Fishing Area 57 and Western Central Pacific-Fishing Area 71. Bony Fishes: Families* [online]. Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 1974. [Cit. 2023-07-26]. Retrieved from: <https://www.fao.org/3/e9163e/e9163e2l.pdf>

¹⁰¹ *Lutjanus sebae* (Cuvier, 1816). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-26]. Retrieved from: <https://www.fishbase.se/summary/Lutjanus-sebae.html>



The flesh is light to dark pink with 2 more or less visible broken lines of dark spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area at the end of the abdominal cavity and is less visible. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus gibbus*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus chlorostigma*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Deep-frozen flesh



The flesh is white or light to dark pink with 2 more or less visible broken lines of dark spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area at the end of the abdominal cavity and is less visible. A rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal area reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is pinkish white. The deep-frozen flesh can be very easily confused with other species of the family Lutjanidae, including, for example, *Lutjanus gibbus*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Epinephelus chlorostigma*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Serranidae is rather close to 1/2.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Menidae

Mene maculata (Bloch & Schneider, 1801)

Commercial designation	Moonfish
Commercial designation synonym	Razor Moonfish, Razor Trevally
Taxonomic classification:	Order Carangiformes
	Family Menidae
	Genus <i>Mene</i>
	Species <i>Mene maculata</i>

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description



The body is extremely deep, disc-shaped, strongly flattened at the sides, and ventrally very sharply arched. The mouth can be extended far. The fins are without spines, and the base of anal fin is markedly elongated. The first ray of the pelvic fin is noticeably extended. The body colour is dorsally dark metallic blue and the rest is silvery. There is a series of round to ovoid, dark slate blue spots above and below lateral line. The dorsal fins are bluish, and the other fins are translucent or slightly dark. Grows up to 30 cm, common size is 20 cm.^{102 103}

Fresh flesh

¹⁰² Mene maculata (Bloch & Schneider, 1801). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-04]. Retrieved from: <https://www.fishbase.se/summary/Mene-maculata.html>

¹⁰³ NELSON, J. S., GRANDE, T., WILSON, V. H. M. *Fishes of the world: Fifth edition*. Hoboken, New Jersey: John Wiley & Sons, 2016. 711 pages ISBN: 9871118342336. Page 387.



Pale to dark pink with less noticeable segmentation and two lines forming a Y shape. The two start together already in the caudal peduncle area and continue through the central part. The dorsal line is red, and the closer it is to the cranial part, the more it curves dorsally. The ventral line is formed by ligaments and is white. Its arching is in the opposite direction, and the closer it is to the cranial part, the more it arches ventrally. The shape of the fillet is almost an equilateral triangle, with a shorter cranial base. The shape of the fresh flesh resembles that of a *Zeus faber* fillet, but this is the only similarity between the species, and confusion is highly unlikely.

Deep-frozen flesh



Pale to dark pink with a less noticeable segmentation and two lines forming a Y shape. The two start together already in the caudal peduncle area and continue through the central part. The dorsal line is red, and the closer it is to the cranial part, the more it curves dorsally. The ventral line is made of ligaments and is white. Its arching is in the opposite direction, and the closer it is to the cranial part, the more it arches ventrally. The shape of the fillet is almost an equilateral triangle, with a shorter cranial base. In shape, the deep-frozen muscle resembles the fillet of *Zeus faber*, but this is the only similarity between the species, and confusion is highly unlikely.

Fresh and deep-frozen flesh confusability

Improbable.

Merlucciidae

Merluccius capensis paradoxus (Franca, 1960)

Commercial designation

Deep-Water Cape Hake

Commercial designation synonyms

Deep Water Hake



Taxonomic classification

Order	Gadiformes
Family	Merlucciidae
Genus	<i>Merluccius</i>
Species	<i>Merluccius capensis paradoxus</i>

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Species description



Has an elongated body. The head is large and the mouth has relatively small teeth. Has two separate dorsal fins, the first is short, triangular and taller than the second dorsal fin with a long base. The caudal fin is similar to the second dorsal fin. The pectoral fins are long and slender. The pelvic fins have a throaty position. The caudal fin has a slightly convex margin. The head is completely scaly. The dorsum is dark grey, lighter on the sides, and light grey on



the belly. The oral cavity and tongue are greyish. Has a black submandibular mark present. Commonly 40 to 60 cm, maximum females are up to 80 cm and males are up to 50 cm.¹⁰⁴

Fresh flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal region and the other two always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The fresh flesh can be confused with other species of the family Merlucciidae. There is however, no effective differential description. It can also be confused with a number of species of the family Gadidae. A clue may be the very fine flesh of *Merluccius capensis paradoxus* and its enormous susceptibility to gaping.

Deep-frozen flesh

¹⁰⁴ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2012.



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal region and the other two always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Significant segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and narrows symmetrically to a conical taper caudally. The deep-frozen flesh can be confused with other species of the family Merlucciidae. However there is no effective differential description. Also it can be confused with a number of species of the family Gadidae. Its enormous susceptibility to gaping may be a clue.

Fresh and deep-frozen flesh confusability

Gadidae; Merlucciidae.

Merluccius hubbsi (Marini, 1933)

Commercial designation

Argentine Hake

Commercial designation synonyms

Atlantic Hake, Southwest Atlantic Hake

Taxonomic classification

Order Gadiformes



Family	Merlucciidae
Genus	<i>Merluccius</i>
Species	<i>Merluccius hubbsi</i>

Distribution – FAO areas

Area 41 – Atlantic, Southwest

Species description



Has an elongated body, short head. The first dorsal fin has 1 spine and 9-12 rays, and the second dorsal fin has 34-40 rays. The caudal fin has 36-41 rays. The pectoral fins are relatively short. The caudal fin margin usually is truncated in adults, but sometimes convex in smaller fish. The scales are relatively large. Has a silvery colour with golden sheen on the back, and the belly is silvery white.¹⁰⁵ Reaches a maximum size of 95 cm, normal size - males 50 cm, females 60 cm.¹⁰⁶

¹⁰⁵ *Merluccius hubbsi* (Marini, 1933) [Aquatic Species Fact Sheets]. In: Fisheries and Aquaculture Division [online]. Rome: Food and Agriculture Organization of the United Nations, 2023. [cit. 2023-06-27]. Retrieved from: <https://www.fao.org/fishery/en/aqspecies/3027/en>

¹⁰⁶ *Merluccius hubbsi* (Marini, 1933). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-27]. Retrieved from: <https://www.fishbase.se/summary/Merluccius-hubbsi.html>



Fresh flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal part, and the other two always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The fresh flesh can be confused with other species of the family Merlucciidae. However, there is no effective differential description. It can also be confused with a number of species of the family Gadidae. A clue may be the very fine muscle of *Merluccius hubbsi* and its enormous susceptibility to gaping.

Deep-frozen flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal part, and the other two always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The deep-frozen flesh can be confused with other species of the family Merlucciidae. However, there is no effective differential description. It can also be confused with a number of species of the family Gadidae. Its enormous susceptibility to gaping may be a clue.

Fresh and deep-frozen flesh confusability

Gadidae; Merlucciidae.

Merluccius merluccius (Linnaeus, 1758)

Commercial designation

European Hake

Commercial designation synonyms

Hake, Cornish Salmon, Herring Hake

Taxonomic classification

Order Gadiformes



Family	Merlucciidae
Genus	<i>Merluccius</i>
Species	<i>Merluccius merluccius</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is long, slender. The head is massive, and the anterior mouth is large. The upper jaw reaches to the level of the middle of the eye, and the lower jaw is slightly exceeding the upper jaw. Has two separate dorsal fins, the first is triangular with a short base, and is higher than the second dorsal fin. The second dorsal fin has a long base and a typical notch. The caudal fin is very similar to the second dorsal fin. The pelvic and pectoral fins are long and slender, and the base of pelvic fins are below the operculum, in front of the pectoral fins. The caudal fin is smaller than the head, truncated when young, and becomes forked with age. The body and head are covered with scales, and the lateral line is more or less straight. The



colour dorsally is silver grey, flanks are lighter, and the belly is white. Has no submandibular spot. Grows to 140 cm, common size is 60 cm.¹⁰⁷

Fresh flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. Has one running through the entire spinal region and the other two are always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, and is without any dorsal arching and tapers symmetrically caudally until it is lost. The fresh flesh can be confused with other species of the family Merlucciidae, which tend to be smaller. However, there is no effective differential description. Also it can be confused with a number of species of the family Gadidae. A clue may be the very fine flesh of *Merluccius merluccius* and its enormous susceptibility to gaping.

Deep-frozen flesh

¹⁰⁷ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2011.



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal area and the other two always in the dorsal and ventral periphery. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The deep-frozen flesh is confusable with other species of the family Merlucciidae, which tend to be smaller. There is no effective differential description. Also it can be confused with a number of species of the family Gadidae. A clue may be its enormous susceptibility to gaping.

Fresh and deep-frozen flesh confusability

Gadidae, Merlucciidae.

Merluccius productus (Ayres, 1855)

Commercial designation	North Pacific Hake
Commercial designation synonyms	Pacific Hake, Pacific Whiting, Whiting
Taxonomic classification	Order Gadiformes



Family	Merlucciidae
Genus	<i>Merluccius</i>
Species	<i>Merluccius productus</i>

Distribution – FAO areas

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description



Has an elongated body. Has a large head with a protruding lower jaw. It has 3 dorsal fins, the first and second separated by a gap. The first dorsal fin has 10-13 rays. The second dorsal fin has 37-44 rays. The caudal fin has 39-44 rays. The pectoral fins have 14-17 rays. The dorsal coloration is silvery grey and whitish on the belly.¹⁰⁸ Grows to 105 cm, common size is 60 cm.¹⁰⁹

¹⁰⁸ Štikozubec tichooceánský: *Merluccius productus* (Ayres, 1855). In: Biological Library [online]. 1999-2023 [cit. 2023-06-27]. Retrieved from: <https://www.biolib.cz/cz/taxon/id316771/>

¹⁰⁹ *Merluccius productus* (Ayres, 1855). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-27]. Retrieved from: <https://www.fishbase.se/summary/Merluccius-productus.html>



Fresh flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal region and the other two are always in the dorsal and ventral peripheral parts. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The fresh flesh can be confused with other species of the family Merlucciidae. However, there is no effective differential description. Also it can be confused with a number of species of the family Gadidae. A clue may be the very fine flesh of *Merluccius productus* and its enormous susceptibility to gaping.

Deep-frozen flesh



Pure white to white-grey, with three yellowish to brownish-yellow broken lines. One running through the entire spinal area and the other two always in the dorsal and ventral periphery. The lining of the abdominal cavity is black to blackish grey. The ventral part extends up to 1/2 the height and 1/3 the length of the fillet. Pronounced segmentation with a tendency to gaping is throughout the fillet, which is elongated, without dorsal arching and tapering symmetrically caudally until it is lost. The deep-frozen flesh is confusable with other species of the family Merlucciidae. However, there is no effective differential description. Also it can be confused with a number of species of the family Gadidae. Its enormous susceptibility to gaping may be a clue.

Fresh and deep-frozen flesh confusability

Gadidae; Merlucciidae.

Mobulidae

Mobula spp.

Commercial designation

Devil ray

Commercial designation synonyms

None

Taxonomic classification

Order

Myliobatiformes



Family	Mobulidae
Genus	<i>Mobula</i>
Species	<i>Mobula spp.</i>

Distribution – FAO areas

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description

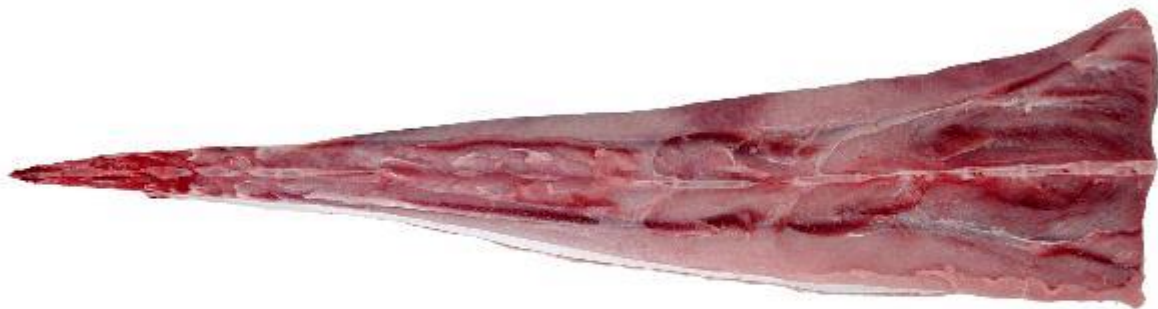


The head, body and pectoral fins form a strongly angular disc, almost twice as wide as long. The head is distinctly separated from the rest of the disc in front of the vent, with a pair of elongated, scaphoid cephalic fins that are separated by a concave or a straight anterior margin of the head. Five pairs of gill openings are on the underside of the disc. The inner gill openings are fitted with unique filter plates, allowing small organisms to be filtered out of the water. Has jaws with small pointed teeth, usually more than 100 rows in each jaw or only 1 jaw. Has a medium-sized dorsal fin at base of the tail; small, and the vestigial spine is



present or absent. The tail is slender, whip-like, and without a caudal fin. Is a medium to gigantic fish, maximum width is at least 6,7 m and weight is over 2 000 kg.¹¹⁰

Fresh flesh



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The muscle is very fat and is interspersed with numerous radial cartilaginous rays and ligaments. The entire wing is almost equilateral triangular in shape, with some of the cartilaginous skeleton retained in the form of unilateral reinforcement. From the stiffening, the thickness of the flesh decreases uniformly throughout the whole surface to thin fibres. Fresh flesh can easily be confused with many species not only of a given genus, but also of a given family and order.

Deep-frozen flesh

¹¹⁰ SMITH, J. L. B., SMITH M. M. Mobulidae. In: SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages. ISBN 978-3-642-82860-7. Page 134.



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The flesh is very fat and is interspersed with numerous radial cartilaginous rays and ligaments. The entire wing is almost equilateral triangular in shape, with some of the cartilaginous skeleton retained in the form of unilateral reinforcement. From the stiffening, the thickness of the flesh decreases uniformly throughout the whole surface to thin fibres. Deep-frozen flesh can easily be confused with many species not only of a given genus, but also of a given family and order.

Fresh and deep-frozen flesh confusability

Myliobatiformes.

Moronidae

Dicentrarchus labrax (Linnaeus, 1758)

Commercial designation	European Seabass
Commercial designation synonyms	Bass, Common Bass, Sea Perch, Capemouth
Taxonomic classification	Order Perciformes



Family	Moronidae
Genus	<i>Dicentrarchus</i>
Species	<i>Dicentrarchus labrax</i>

Distribution – FAO areas

Area 1 – Africa, Inland waters

Area 4 – Asia, Inland waters

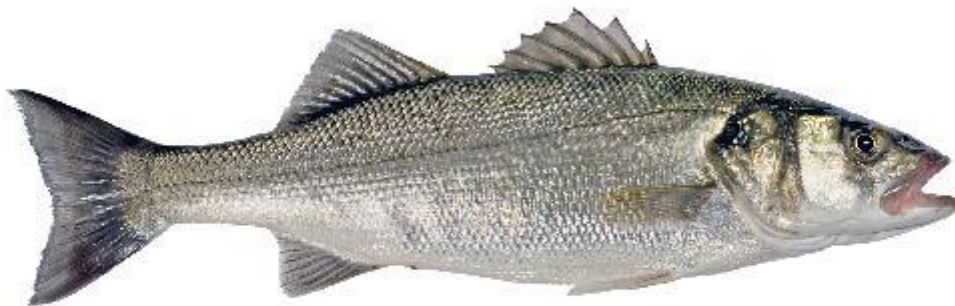
Area 5 – Europe, Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, fusiform. The head is long, conical, with a large slightly upper mouth. The lower jaw extends beyond the anterior margin of the eye. The operculum is serrated. Has two dorsal fins. The caudal fin is lobed, slightly forked. The lateral line is visible. The



colour is dorsally silver grey to bluish grey, flanks are silver, and the belly and fins are sometimes slightly yellowish. Maximum recorded length is 103 cm, normal size 50 cm.^{111 112}

Fresh fesh



White-yellow to olive-grey with a noticeable segmentation. The whole fillet is slender, and is symmetrically conical without any pronounced dorsal arches, which may appear in larger specimens. 3 longitudinal reddish-brown lines, dorsal and central clearly are visible, and may be interrupted in places. The ventral part is noticeable from the caudal part of the abdomen. A black vein pattern may appear throughout the dorsal part, but is not a deterministic sign. The abdominal lining is silvery white. The abdomen extends up to 2/3 of the height and 1/2 of the length of the fillet. The fresh flesh can easily be confused with other species of the family Moronidae and Sparidae. Compared to the *Morone chrysops* fillet, it is leaner and lower with browner stripes. Members of the Sparidae family have a clearly noticeable high dorsal arch, which is absent here.

¹¹¹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2353.

¹¹² *Dicentrarchus labrax* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-05-02]. Retrieved from: <https://fishbase.mnhn.fr/summary/Dicentrarchus-labrax.html>



Deep-frozen flesh



White-yellow to olive-grey with a noticeable segmentation. The whole fillet is slender, also it is symmetrically conical without any pronounced dorsal arches, which may appear in larger specimens. 3 longitudinal reddish-brown lines, dorsal and central are clearly visible, and may be interrupted in places. The ventral part is noticeable from the caudal part of the abdomen. A black vein pattern may appear throughout the dorsal part, but is not a deterministic sign. The abdominal lining is silvery white. The abdomen extends up to 2/3 of the height and 1/2 of the length of the fillet. The fresh flesh can easily be confused with other species of the family Moronidae and Sparidae. Compared to the *Morone chrysops* fillet, it is leaner and lower with browner stripes. Members of the Sparidae family have a clear noticeable high dorsal arch, which is absent here.

Fresh and deep-frozen flesh confusability

Moronidae; Sparidae.

Morone chrysops (Rafinesque, 1820)

Commercial designation

White Bass

Commercial designation synonyms

White Perch



Taxonomic classification

Order	Perciformes
Family	Moronidae
Genus	<i>Morone</i>
Species	<i>Morone chrysops</i>

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 4 – Asia, Inland waters

Species description



Has a relatively tall body, spindle-shaped. The spine on the operculum and preoperculum is finely serrated. The mouth is anterior. The dorsal fin is divided into 2 parts. The body and most of the head are covered with ctenoid scales. The caudal fin is slightly forked. The body dorsally is silvery grey to steel blue, and the flanks are white to light greenish. On the sides there are distinct horizontal black stripes, and in some individuals the stripes are formed by a series of dots. The eye has a yellowish tinge. It grows up to 45 cm, normal size 25 cm.^{113 114}

Fresh flesh

¹¹³ D. A. Etnier, W. C. Starnes, R. T. Bryant, The fishes of Tennessee. The University of Tennessee Press, Knoxville, printed in Korea 1993. 689 pages. ISBN 0-87049-711-1. Pages. 389, 391.

¹¹⁴ *Morone chrysops* (Rafinesque, 1820). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-27]. Retrieved from: <https://www.fishbase.se/summary/Morone-chrysops>



White-yellow to olive-grey with a noticeable segmentation and a clearly visible rectangular pattern. The whole fillet is relatively robust, slightly dorsally arched. From 1/2 it tapers caudally to the caudal portion of the caudal peduncle, which forms 1/3 of the cranial height. Has 3 longitudinal reddish-brown lines, the dorsal and central are clearly visible, and may be interrupted in places. The ventral is noticeable from the caudal to the ventral. The lining of the abdominal cavity is silvery white. The abdomen extends up to 2/3 of the height and 1/2 of the length of the fillet. The fresh flesh is very easily interchangeable with other species of the family Moronidae and Sparidae. Compared to the fillet of *Dicentrarchus labrax*, it is more robust and taller with redder stripes. Members of the Sparidae family have a clearly noticeable high dorsal arch, which is mostly absent here, but even so, confusion is very easy.

Deep-frozen flesh



White to white-grey with a noticeable segmentation, especially in the dorsal part of the fillet. The whole fillet is relatively robust, symmetrically conical without any pronounced dorsal arches, which may appear in larger specimens. Has 3 longitudinal reddish-brown stripes, the dorsal and central are clearly visible, which may be interrupted in places. The ventral one is noticeable from the caudal part of the abdomen. A black vein pattern may appear throughout the dorsal part, but is not a defining feature. The lining is silvery white. The abdomen extends up to 2/3 of the height and 1/2 of the length of the fillet. The deep-frozen flesh can very easily be confused with other species of the family Moronidae and Sparidae. Compared to the fillet of *Dicentrarchus labrax*, it is more robust and taller with redder stripes. Members of the Sparidae family have a clearly noticeable high dorsal arch, which is mostly absent here, but even so, confusion is very easy.

Fresh and deep-frozen flesh confusability

Moronidae; Sparidae.

Mugilidae

Chelon labrosus (Linnaeus, 1758)

Commercial designation

Thicklip Grey Mullet

Commercial designation synonyms

Grey Mullet, Lesser Grey Mullet, Thicklip Grey



Taxonomic classification

Mullet	
Order	Mugiliformes
Family	Mugilidae
Genus	<i>Chelon</i>
Species	<i>Chelon labrosus</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



A medium to large species with a medium-high body. Two dorsal fins: the first fin is with 4 spines, and the second dorsal fin is with 9 segmented rays. There are ctenoid scales on the sides. Has scales on the dorsum with longitudinal grooves. The dorsum is dark greenish grey



or blue. The sides are silvery grey with 6 to 8 darker, longitudinal grey stripes. The stripes on the dorsal part of the flanks are darker and more conspicuous than on the ventral part. The abdomen is dirty white, and the dorsal fins are dark.. The anal fin is greyish but less pigmented than the dorsal fins. Maximum length is 60 cm. ¹¹⁵

Fresh flesh



Light to dark pink with a white central line in the caudal part of the 2/2 fillet. Less visible segmentation and white pattern with a rectangular pattern throughout. The flesh is firm and tender. The fillet is elongated, robust, with a slight dorsal arch and tapering to the tail section, which reaches 1/3 of the cranial height. The belly extends to 3/4 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is black. The fresh flesh can easily be confused with that of *Liza aurata*, which is very similar but has an irregular pattern. Also can be confused with the species *Liza ramada*, which has an irregular pattern and clearer segmentation. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

Deep-frozen flesh

¹¹⁵ Carpenter, K.E. & De Angelis, N., eds. 2016. The living marine resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes). FAO Species Identification Guide for Fishery Purposes, Rome, FAO. pages 1511–2342. ISBN 978-92-5-109267-5. Page 2086.



Dark pink to almost orange with a darker central line in the caudal part of the 2/2 fillet. There is less visible segmentation and a white pattern with a rectangular pattern throughout. The fillet is elongated, robust, with a slight dorsal arch and tapering to the tail section, which reaches 1/3 of the cranial height. The ventral part extends to 3/4 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is black. Deep-frozen flesh are easily confusable with *Liza aurata* and *Liza ramada*, which are very similar but lighter in colour. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

Fresh and deep-frozen flesh confusability

Mugilidae.

Liza aurata (Risso, 1810)

Commercial designation

Golden Grey Mullet

Commercial designation synonyms

Golden Mullet, Long-finned Grey Mullet

Taxonomic classification

Order Mugiliformes

Family Mugilidae



Genus *Liza*
Species *Liza aurata*

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



Medium to large species, with a slender body. The mouth is wide, and the lower jaw is without teeth. Has 2 dorsal fins. The second dorsal and anal fins have small scales on the anterior and basal parts, otherwise they are bare. The pectoral fins do not reach the level of the origin of the first dorsal fin. Absence of any black spots at base of the pectoral fin. The scales are cycloid, usually with one longitudinal groove on the dorsum. The dorsal colour is blue-grey, flanks silvery grey with 6 or 7 dark longitudinal stripes, and is darker on the dorsum than on the ventral part. The abdomen is dirty white. Has a gold spot on the



operculum. The dorsal fin is dark, is finely spotted, and the anal and pelvic fins are pale. Maximum reported total body length is 55 cm, normally is 30 cm. ¹¹⁶

Fresh flesh



White to dark pink with a white central line in the caudal part of the 2nd half of the fillet. There is clearly visible segmentation and a white pattern throughout with a variable pattern. The flesh is firm and tender. The fillet is elongated, robust, without a pronounced dorsal arch and tapering to the portion of caudal peduncle, which reaches 1/3 of the cranial height. The belly extends to 3/4 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. The fresh flesh can easily be confused with that of *Chelon labrosus*, which is very similar but has a regular pattern. Also can be confused with the species *Liza ramada*, which is practically identical except for the poorly visible segmentation. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

Deep-frozen flesh

¹¹⁶ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages [Pages 1511-2342]. ISBN 9789251092668. Page 2088.



White to pink with hardly any noticeable segmentation. The fillet is elongate, robust, and without a pronounced dorsal arch and tapering conically to the part of the caudal peduncle which reaches 1/3 of the cranial height. The ventral part extends to 3/4 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. The deep-frozen flesh is easily interchangeable with *Chelon labrosus*, which is very similar but has a dark pink to orange colouration. Also with the species *Liza ramada*, which is virtually identical. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

Fresh and deep-frozen flesh confusability

Mugilidae.

Liza ramada (Risso, 1827)

Commercial designation

Thinlip Grey Mullet

Commercial designation synonyms

Grey Mullet, Mowell, Haarder

Taxonomic classification

Order Mugiliformes

Family Mugilidae



Genus *Liza*
Species *Liza ramada*

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



Has a fusiform body. The head is massive, flattened above the eyes. The rostrum is short, blunt, and the mouth is small. Two dorsal fins are well separated, the first is with 4 to 5 spines. The second dorsal fin is with 9 (rarely 8 or 10) segmented rays. The pectoral fins are placed high on the sides. Has large scales. Colour: the dorsum is blue-grey, flanks are silvery-grey with darker longitudinal stripes; the stripes on the dorsal part of flanks are darker and more prominent than on the ventral part; the abdomen is whitish. There are scattered golden spots on the operculum and another just behind the eye (not as prominent as in *Liza*



aurata). The fins are light grey or yellowish; has a dark spot at the beginning of the pectoral fin. Maximum recorded size is 70 cm, common size is 25 cm. ^{117 118}

Fresh flesh



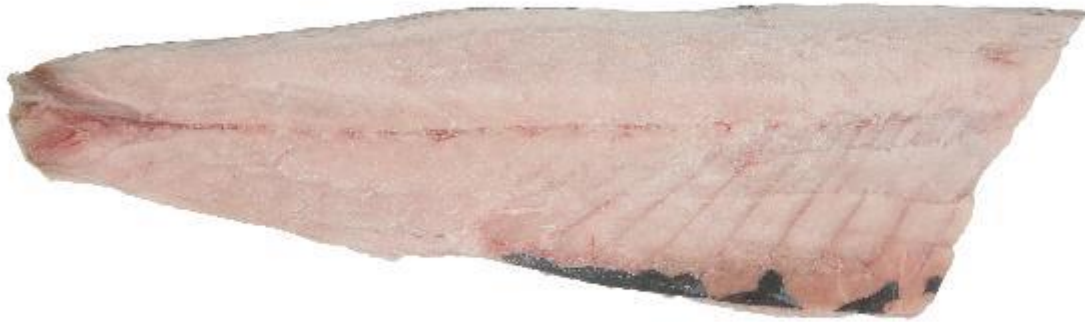
White to dark pink with a white central line in the caudal part of the 2/2 fillet. Less visible segmentation and a white pattern with a rectangular pattern throughout. The flesh is firm and tender. The fillet is elongated, robust, without dorsal arching and tapering to the caudal portion of the caudal peduncle, which reaches 2/5 of the cranial height. The ventral part extends to 3/4 of the height and 3/5 of the length of the fillet. The abdominal lining is blackish grey. The fresh flesh is easily confused with *Chelon labrosus*, which is very similar but has a more distinctive pattern. It is also identical to *Liza aurata*, which is basically identical except for its irregular pattern and clearer segmentation. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

¹¹⁷ Liza ramada (Risso, 1827). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-05-02]. Retrieved from: <https://fishbase.net.br/summary/Chelon-ramada.html>

¹¹⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages [Pages 1511-2342]. ISBN 9789251092668. Page 2097.



Deep-frozen flesh



White to dark pink with a white central line in the caudal part of the 2/2 fillet. Less visible segmentation and white pattern with rectangular pattern throughout. The flesh is firm and tender. The fillet is elongated, robust, and without dorsal arching and tapering to the caudal portion of the caudal peduncle, which reaches 2/5 of the cranial height. The ventral part extends to 3/4 of the height and 3/5 of the length of the fillet. The abdominal lining is blackish grey. The deep-frozen flesh can be easily confused with *Chelon labrosus*, which is very similar but has a more distinctive pattern. It is also identical to *Liza aurata*, which is basically identical except for its irregular pattern and clearer segmentation. All species can be very variable in colour, ranging from almost white to dark pink. Confusion with other species is unlikely.

Fresh and deep-frozen flesh confusability

Mugilidae.

Mugil cephallus (Linnaeus, 1758)

Commercial designation

Flathead Grey Mullet



Commercial designation synonyms

Black Mullet, Black trully Mullet, Bully, Callifaver

Mullet, Common Mullet

Taxonomic classification

Order Mugiliformes

Family Mugilidae

Genus *Mugil*

Species *Mugil cephalus*

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is robust, cylindrical in the cross-section, and slightly compressed. Body depth is greater at the beginning of the first dorsal fin than at the beginning of the anal fin. The beginning of the second dorsal fin is just behind the vertical level of the beginning of the anal fin. The second dorsal and anal fin are with small scales on the anterior basal parts, otherwise bare. Colour: specimens from the sea are dorsally greyish olive or grey-brown, sides are silvery, belly is whitish; about 7 to 10 longitudinal dark stripes on the sides. Brackish water fish may have a dorsal that is dull blue or dirty brown, flanks are duller. The dorsal and caudal fins are darker, and the pelvic and anal fins are lighter. The pectoral fins have a dark spot at the beginning. Maximum length is 120 cm, common length is up to 35 cm.^{119 120}

Fresh flesh

¹¹⁹ Carpenter, K.E.; Niem, V.H. (eds) FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 4. Bony fishes part 2 (Mugilidae to Carangidae). Rome, FAO. 1999. pages 2069-2790. ISBN 92-5-104301-9. Page 1079.

¹²⁰ Mugil cephalus (Linnaeus, 1758) In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-30]. Retrieved from: <https://fishbase.net.br/summary/Mugil-cephalus.html>



Light pink throughout the fillet, with a well visible segmentation and faint markings. The flesh is firm and fine, similar to other species of the family. The fillet is robust, elongated, with a very gradual dorsal arch in the middle, which then becomes a conical tapering to the level of the thick caudal peduncle, which forms 1/2 of the cranial height. The ventral partition reaches 2/3 of the height and 2/3 of the length of the fillet. The abdominal lining is blackish grey to greenish brown. There is no confusability of fresh flesh.

Deep-frozen flesh



Light pink throughout the fillet, with well visible segmentation and faint markings. The flesh is firm and fine, similar to other species of the family. The fillet is robust, elongated, with a very gradual dorsal arch in the middle, which then becomes conical tapering to the level of the thick caudal peduncle, which forms 1/2 of the cranial height. The ventral partition reaches 2/3 of the height and 2/3 of the length of the fillet. The abdominal lining is blackish grey to greenish brown. There is no confusability of deep-frozen flesh.

Fresh and deep-frozen flesh confusability

None

Mulidae

Mullus barbatus (Linnaeus, 1758)

Commercial designation	Red Mullet
Commercial designation synonyms	Blunt-Snouted Mullet, Striped Mullet, Striped Goatfish
Taxonomic classification	Order Perciformes



Family	Mullidae
Genus	<i>Mullus</i>
Species	<i>Mullus barbatus</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description

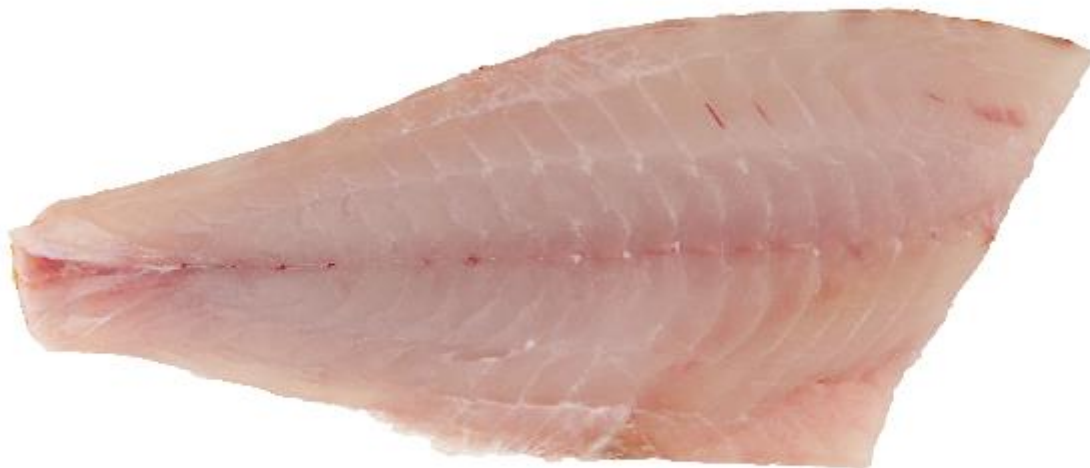


The body is medium long, slightly flattened at the sides. The head sharply truncates in profile, and the mouth is small, lower. Has two fleshy barbels on the lower jaw, reaching the length of the pectoral fins. Has an operculum without a spine. Has two dorsal fins, the first consisting of eight spines, and the first spine is distinctly shortened. The colour is pink to red,



fins are slightly pink to almost transparent, and is without markings. Maximum length is 30 cm, usual length is 22-25 cm.¹²¹

Fresh flesh



Light to dark pink with a strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The ventral part of the cavity is 1/2 the height and 1/3 the length of the fillet. In the caudal direction, the fillet tapers evenly to a conical shape, and in the caudal part it forms 1/3 of the cranial height. Confusability of fresh flesh is common with other species of the family Mullidae, which there is no defining character.

Deep-frozen flesh

¹²¹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages [Pages 2343-3124]. ISBN 9789251092675. Page 2658.



White to light pink with noticeable segmentation and gradual dorsal arching. There is a noticeable darker line in the dorsal and ventral part of the fillet, a similar line follows the arching of the caudal part of the abdomen. In the case of inferior quality, gaping is common throughout. The ventral part is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and is 1/3 of the cranial height. The confusion of deep-frozen muscle is common with other species of the family Mullidae, there is no defining character.

Fresh and deep-frozen flesh confusability

Mullidae.

Mullus surmuletus (Linnaeus, 1758)

Commercial designation	Surmullet
Commercial designation synonyms	Mul, Red Mullet, Red Striped Mullet
Taxonomic classification	Order Perciformes
	Family Mullidae
	Genus <i>Mullus</i>



Species

Mullus surmuletus

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description

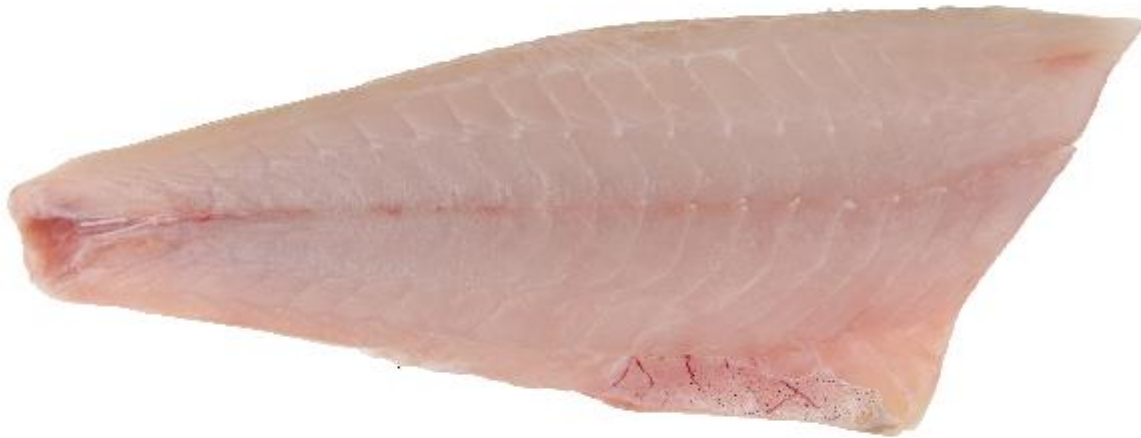


The body moderately elongates, slightly flattened at the sides. The rostrum is not too steep, and the mouth is small, lower. Two barbels on the chin are longer than the pectoral fins. Has no spines on the operculum. Has two separate dorsal fins. The caudal fin is bi-lobed. Has two typical colour variations. Coastal fish have a dorsal brown body, are ventrally brownish red, and with brown scale outlines. Non-coastal fish have a pale body with longitudinal red, brown and yellow stripes. Both variants have a first dorsal fin with yellow or dark spots. They can grow up to 40 cm, with a common size of 25 cm. ¹²² ¹²³

Fresh flesh

¹²² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages [Pages 2343-3124]. ISBN 9789251092675. Page 2659

¹²³ *Mullus surmuletus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-30]. Retrieved from: <https://www.fishbase.se/summary/Mullus-surmuletus.html>



Light to dark pink with strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is $\frac{1}{2}$ the height and $\frac{1}{3}$ the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms $\frac{1}{3}$ of the cranial height. Confusability of fresh flesh is common with other species of the family Mullidae, which there is no defining character.

Deep-frozen flesh



Light to dark pink with strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms 1/3 of the cranial height. Confusability of deep-frozen flesh is common with other species of the family Mullidae, which there is no defining character.

Fresh and deep-frozen flesh confusability

Mullidae.

Parupeneus heptacanthus (Lacepède, 1802)

Commercial designation

Cinnabar Goatfish

Commercial designation synonyms

Bighead Goatfish, Black Spot Goatfish, Red Spot
Goatfish

Taxonomic classification

Order Perciformes

Family Mullidae



Genus *Parupeneus*
Species *Parupeneus heptacanthus*

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Southeast

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The body is relatively high. The head is large, convex in profile, and the mouth is anterior. Two long barbels are under the lower jaw. Has two dorsal fins, the first dorsal fin is larger. Both are triangular in shape, with the first spine the longest. The caudal fin is double-lobed pointed. The body is brownish yellow to light red, scale margins are darker, ventrally is silvery white, and adults have a small reddish brown spot on upper side of body just below the



seventh and eighth lateral scales; faint narrow yellow stripes are often visible above the lateral line (more distinct in juveniles). Dorsal scales are often with pale blue or pearly patches. Grows to 36 cm in size, common size is 25 cm. ¹²⁴

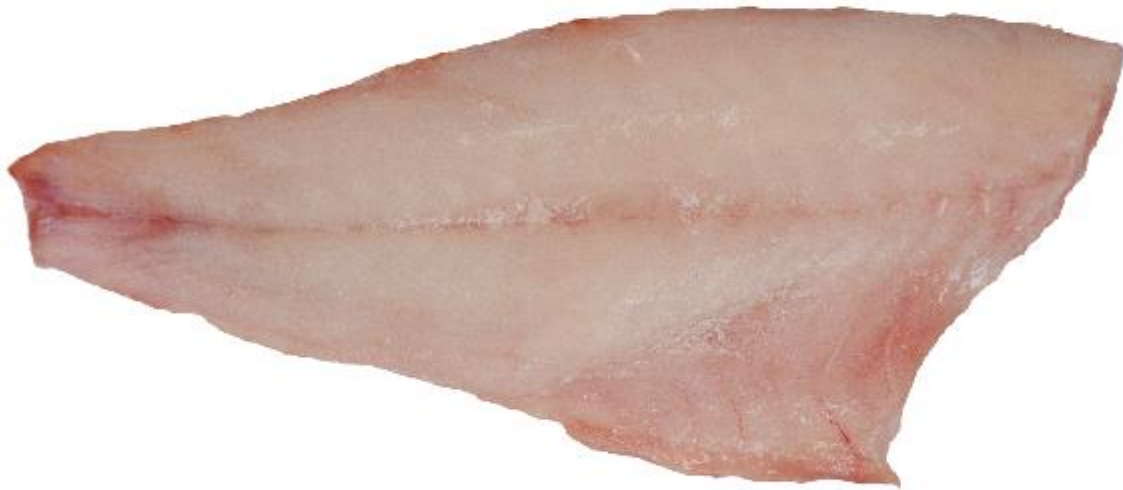
Fresh flesh



Light to dark pink with a strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms 1/3 of the cranial height. Confusability of fresh flesh is common with other species of the family Mullidae, which there is no defining character.

Deep-frozen flesh

¹²⁴ *Parupeneus heptacanthus* (Lacepède, 1802). In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-30]. Retrieved from: <https://www.fishbase.se/summary/Parupeneus-heptacanthus.html>



Light to dark pink with strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms 1/3 of the cranial height. Confusability of deep-frozen flesh is common with other species of the family Mullidae, which there is no defining character.

Fresh and deep-frozen flesh confusability

Mullidae.

Parupeneus indicus (Shaw, 1803)

Commercial designation	Indian Goatfish
Commercial designation synonyms	Yellow-spot Goatfish, Goatfish
Taxonomic classification	Order Perciformes
	Family Muliidae
	Genus <i>Parupeneus</i>



Species

Parupeneus indicus

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description



The body is rather elongated. Has 2 long slender whiskers reaching to the posterior part of preoperculum. Two dorsal fins are well separated, and the first dorsal fin is short. The dorsum is greenish brown to reddish brown, margins of the scales are narrowly dark. Has a round black spot larger than the eye on the side of the caudal peduncle. Has a large, horizontally elongated yellow spot (sometimes partly white) centred on the lateral lateral



line below the posterior part of the first dorsal fin. The caudal fin is with pale blue lines parallel to the fin rays. Maximum total length is 40 cm, normally up to 30 cm.¹²⁵

Fresh flesh



Light to dark pink with a strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms 1/3 of the cranial height. Confusability of fresh flesh is common with other species of the family Mullidae, which there is no defining character.

Deep-frozen flesh

¹²⁵ CARPENTER, K. E., NIEM, V. H. (eds.). *The Living Marine Resources of the Western Central Pacific. Volume 5: Bony Fishes Part 3 (Menidae to Pomacentridae)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2001. 589 pages [Pages 2791-3380]. ISBN 92-5-104587-9. Page 3190.



Light to dark pink with a strong segmentation and gradual dorsal arching. In the dorsal and ventral part of the fillet there is a distinct light line composed of separate or joined points, which is part of a lighter pattern dividing the fillet into irregular rhomboids. In the case of inferior quality, gaping is common throughout. The abdominal cavity is 1/2 the height and 1/3 the length of the fillet. The fillet tapers evenly in the caudal peduncle and forms 1/3 of the cranial height. Confusability of deep-frozen flesh is common with other species of the family Mullidae, which there is no defining character.

Fresh and deep-frozen flesh confusability

Mullidae.

Nemipteridae

Nemipterus japonicus (Bloch, 1791)

Commercial designation

Japanese Threadfin Bream

Synonymum obchodního označení

Japanese Golden Thread, Melon Coat, Pink

Perch



Taxonomic classification

Order	Perciformes
Family	Nemipteridae
Genus	<i>Nemipterus</i>
Species	<i>Nemipterus japonicus</i>

Distribution – FAO areas

Area 37 – Mediterranean and Black Sea

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description



The body is of medium height, the highest point at the beginning of the dorsal fin. The pectoral fins are very long. The caudal fin is forked, and the upper lobe is slightly longer than the lower lobe, forming a short to medium length filament. Colour: pinkish dorsally, silvery underneath. The top of the head is behind the eye with a golden sheen. Light golden yellow



stripes are along the body. Distinct red spots are below the beginning of the lateral line. The dorsal fin is whitish, margin of the fin yellow, and is edged with red. Has a light lemon stripe at the base of the dorsal fin. Pectoral fins are translucent, pinkish. The caudal fin is pink. Maximum length is 25 cm, normally up to 15 cm¹²⁶

Fresh flesh



Light to dark pink with strong segmentation and poorly visible pattern. Frequent gaping. 2 peripheral darker interrupted lines. Dorsal throughout the fillet, the cranial part is less visible. Ventral to second half of fillet caudally, also is less visible. Has a central dark pink line that is well defined. The fillet is small, slightly dorsally arched with a gradual conical transition to the caudal peduncle, which forms 1/4 of the cranial height. The belly ratio is approximately 1/2 the height and 1/2 the length of the fillet. The abdominal lining is uniquely golden orange. This makes the fresh muscle virtually unmistakable.

Deep-frozen flesh

¹²⁶ *Nemipterus japonicus* (Bloch, 1791). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-30]. Retrieved from: <https://fishbase.net.br/summary/Nemipterus-japonicus.html>



Light to dark pink with a strong segmentation and poorly visible pattern. Frequent gaping. 2 peripheral darker interrupted lines. Dorsal throughout the fillet, the cranial part is less visible. Ventral to second half of fillet caudally, also is less visible. Has a central dark pink line that is well defined. The fillet is small, slightly dorsally arched with a gradual conical transition to the caudal peduncle, which forms 1/4 of the cranial height. The belly ratio is approximately 1/2 the height and 1/2 the length of the fillet. The abdominal lining is uniquely golden orange. This makes the deep-frozen muscle virtually unmistakable.

Fresh and deep-frozen flesh confusability

None

Pangasiidae

Pangasianodon hypophthalmus (Sauvage, 1878)

Commercial designation

Striped Catfish

Commercial designation synonyms

Iridescent Shark-catfish, Sutchi Catfish, Swai,
Thailand Catfish



Taxonomic classification

Order	Siluriformes
Family	Pangasiidae
Genus	<i>Pangasianodon</i>
Species	<i>Pangasianodon hypophthalmus</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Species description



The body is without scales, is long, and laterally flattened. The head is relatively small, and the mouth is wide. Has a mouth with 2 pairs of barbels, the upper is shorter than lower. The cranially positioned dorsal fin has base shorter than the anal fin. The caudal fin is heterocercal. The lateral line is straight. Juveniles have a black stripe along the lateral line and below the lateral line. Adults are uniformly grey, sometimes with a greenish tinge and silvery sides. Has a dark stripe in the middle of the anal fin. The peripheral part of the caudal



fin is distinctly lighter and forms a clearly visible fringe. Maximum length is 130 cm and 44 kg.
127

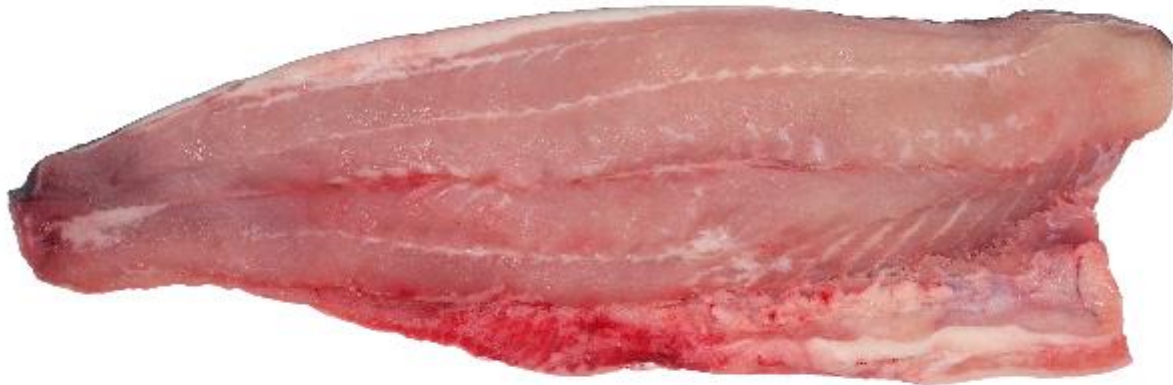
Fresh flesh



Light to dark pink with a well visible segmentation, especially in the dorsal part. The flesh is fine and relatively soft. Has 3 clearly visible white lines. Dorsal throughout the length of the fillet, central from 1/3 caudally onwards. The ventral line is from the end of abdominal cavity onwards. The fillet is elongated, relatively high in relation to the body shape, with a minimal dorsal arch that extends to the caudal peduncle, which forms 1/3 of the cranial height. There is a sharp ventral constriction at the 2/3rds. The ventral portion extends to 2/3 of the height and 1/2 of the length of the fillet, continuing to 3/4 in the form of a conical tube. The lining of the abdominal cavity is white. Confusability of fresh flesh is unlikely given the characteristics.

Deep-frozen flesh

¹²⁷ GRIFFITHS, D., KHANH, PAGES V., TRONG, T. Q. Pangasianodon hypophthalmus (Sauvage, 1878) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-04-04]. Retrieved from: <https://www.fao.org/3/bm085e/bm085e.pdf>



Light to dark pink with a well visible segmentation, especially in the dorsal part. The flesh is fine and relatively soft. Has 3 clearly visible white lines. The dorsal is throughout the length of the fillet, central from 1/3 caudally onwards. The ventral line is from the end of the abdominal cavity onwards. The fillet is elongated, relatively high in relation to the body shape, with a minimal dorsal arch that extends to the caudal peduncle, which forms 1/3 of the cranial height. There is a 2/3 sharp ventral constriction.. The ventral portion extends to 2/3 of the height and 1/2 of the length of the fillet, continuing to 3/4 in the form of a conical tube. The lining of the abdominal cavity is white. Confusability of fresh flesh is unlikely given the characteristics however, there is some similarity with *Hypophthalmichthys nobilis*, which is more robust and does not have a tubular extension of the abdominal cavity.

Fresh and deep-frozen flesh confusability

Xenocyprididae.

Percidae

Perca fluviatilis (Linnaeus, 1758)

Commercial designation

European Perch



Commercial designation synonyms

Eurasian Perch, English Perch, Perch, River Perch

Taxonomic classification

Order	Perciformes
Family	Percidae
Genus	<i>Perca</i>
Species	<i>Perca fluviatilis</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Area 27 – Atlantic, Northeast

Species description



The body is high, laterally compressed, covered with ctenoid scales. There are two fins on the dorsum, base of the first fin being longer than base of the second fin. The dorsal fins are displaced almost below the base of the pectoral fins. The body is predominantly yellowish green to grey. The dorsum is greenish black, while the flanks are yellowish to yellowish brown with a brassy sheen and the abdomen is yellowish to whitish. There are 5-9 brown to brownish black transverse stripes on the flanks. The anterior dorsal fin is grey to brownish grey, with a distinct black spot between the last 2-3 spines. The second dorsal fin is yellowish



green or yellowish brown and transparent. The pectoral fins are yellowish, while the pelvic, anal and caudal fins are red. The eye has an orange iris. They usually reach a size of 25 cm and a weight of 0,5 kg. The largest specimens are 50 cm and weigh up to 3 kg.¹²⁸

Fresh flesh



The flesh is whitish pink, pink to olive grey, the olive grey being the most common colour. Black vein patterns may occur throughout the dorsal part, similar to *Dicentrarchus labrax* and *Sander lucioperca*. The flesh is fine and very firm. The shape of the fillet varies from population to population, ranging from slender, evenly conical, to high, sharply tapered in the caudal part. The flesh always has dorsal arching and a very narrow part of the caudal peduncle, which forms 1/4 of the cranial height. The flesh is considerably finer than in representatives of the family Moronidae. It is without darker longitudinal lines. Segmentation is clearly visible. The abdominal cavity lining is silvery white. The abdominal part extends up to 2/3 of the height and 3/5 of the length of the fillet. The fresh flesh can be easily confused with the abovementioned species and other members of the families Moronidae, Sparidae and Percidae.

¹²⁸ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 355-356.



Deep-frozen flesh



The flesh is white to whitish grey. Black vein patterns may occur throughout the dorsal part, similar to *Dicentrarchus labrax* and *Sander lucioperca*. The shape of the fillet varies from population to population, ranging from slender, evenly conical, to high, sharply tapered in the caudal part. The flesh always has dorsal arching and a very narrow part of the caudal peduncle, which forms 1/4 of the cranial height. It is without darker longitudinal lines. Segmentation is clearly visible. The abdominal cavity lining is white. The abdominal part extends up to 2/3 of the height and 3/5 of the length of the fillet. The deep-frozen flesh can be easily confused with the abovementioned species and other members of the families Moronidae, Sparidae and Percidae.

Fresh and deep-frozen flesh confusability

Moronidae; Percidae; Sparidae.

Sander lucioperca (Linnaeus, 1758)

Commercial designation

Pike-perch

Commercial designation synonyms

Zander, European Pike-perch



Taxonomic classification

Order	Perciformes
Family	Percidae
Genus	<i>Sander</i>
Species	<i>Sander lucioperca</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 2 – America, North – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Species description



It has an elongated robust body of a torpedo shape, slightly laterally compressed. The head is wedge-shaped with relatively large eyes. Two sharp teeth predominate at the end of the lower jaw. There are two dorsal fins separated by a gap. The pelvic fins are displaced forward to the pectoral fins. The dorsum is greenish grey, possibly dark blue, paler towards the sides. The belly is yellowish white to white. There are 8-12 blackish-green stripes on the back and the sides, usually forming irregular patches towards the belly. The basic colouration of the fins is greyish to greenish brown, while the pectoral fins are slate grey and the pelvic and



anal fins have a faint orange tinge. There are dark spots on the dorsal and caudal fins, often arranged in rows. It grows to 130 cm in length and weighs up to 20 kg.¹²⁹

Fresh flesh



The flesh is whitish grey to olive grey. Black vein patterns may occur throughout the dorsal part, similar to *Dicentrarchus labrax* or *Perca fluviatilis*. The flesh is fine and very firm. The fillet is slender, evenly conical, tapering in the caudal part to 1/3 of the cranial height. The flesh always has smooth dorsal arching, which becomes more distinct with increasing weight. There are 3 darker, less noticeable longitudinal stripes, the central one being pinkish to red. Segmentation is clearly visible. The abdominal cavity lining is silvery white. The flesh is considerably finer than in representatives of the family Moronidae. The abdominal part extends up to 2/3 of the height and 1/2 of the length of the fillet. The fresh flesh can be easily confused with the abovementioned species and other members of the families Moronidae, Sparidae and Percidae.

Deep-frozen flesh

¹²⁹ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 350.



The flesh is white to whitish grey. Black vein patterns may occur throughout the dorsal part, similar to *Dicentrarchus labrax* and *Perca fluviatilis*. The fillet is slender, evenly conical, tapering in the caudal part to 1/3 of the cranial height. The flesh always has dorsal arching, which becomes more distinct with increasing weight. There are 3 darker, clearly noticeable longitudinal stripes, the central one being pinkish to red. Segmentation is clearly visible. The abdominal cavity lining is silvery white. The abdominal part extends up to 2/3 of the height and 1/2 of the length of the fillet. The deep-frozen flesh can be easily confused with the abovementioned species and other members of the families Moronidae, Sparidae and Percidae.

Fresh and deep-frozen flesh confusability

Moronidae; Percidae; Sparidae.

Pleuronectidae

Glyptocephalus cynoglossus (Linnaeus, 1758)

Commercial designation

Witch Flounder

Commercial designation synonyms

Craig Fluke, Grey Sole, Whitch, Witch, Witch



Taxonomic classification

	Flounder	
Order		Pleuronectiformes
Family		Pleuronectidae
Genus		<i>Glyptocephalus</i>
Species		<i>Glyptocephalus cynoglossus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Species description



The body is elongated, flattened. Has a small mouth, is symmetrical, and a lower jaw reaching beyond the eye level. Has a large mucus cavity on the blind side, less visible on side with the eyes. The anal and dorsal fin are elongated. The caudal fin is rounded. The scales are very small, and the lateral line is straight. The upper side of the body is brown or grey-brown, and the body and fins are densely covered with small black spots. The pectoral fins are blackish at the edge. The underside of the body is dirty white, covered with small black spots. Reaches a size of up to 78 cm, common size is up to 50 cm. There is a similarity to other flatfish species (*Limanda limanda*, *Liopsetta glacialis*, *Platichthys flesus*, *Pleuronectes*



platessa, *Microstomus kitt*). Distinguishing features are: smaller head, darker underside of the body, a lateral line without the arch above the pectoral fin, and small lips.¹³⁰

Fresh flesh



White, white-yellow to pink with well a visible segmentation and 3 darker lines. 2 in the peripheral areas of the dorsal and ventral part of fillet and 1 in the central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. The lining of the abdominal cavity of the dorsal fillet is grey-black, that of the ventral fillet is silvery-white. Due to its characteristics, the fresh flesh is easily confused with a number of species of the families listed below. Examples include *Limanda limanda* and *Lepidorhombus whiffiagonis*.

Deep-frozen flesh

¹³⁰ C.W. Mecklenburg, A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: ISBN 978-9935-431-69-1. Pages 424-425.



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in the peripheral areas of dorsal and ventral part of fillet and 1 in the central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. The lining of the abdominal cavity of the dorsal fillet is grey-black, that of the ventral fillet is silvery-white. Due to its characteristics, the deep-frozen flesh is easily confused with a number of species of the families listed below. Examples include *Limanda limanda* and *Lepidorhombus whiffiagonis*.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scopthalmidae; Soleidae.

Hippoglossus hippoglossus (Linnaeus, 1758)

Commercial designation	Atlantic Halibut	
Commercial designation synonyms	Halibut	
Taxonomic classification	Order	Pleuronectiformes
	Family	Pleuronectidae



Genus *Hippoglossus*
Species *Hippoglossus hippoglossus*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Species description



The body is flattened, and relatively elongate. The mouth is large, symmetrical, and the lower jaw is protruding, starting from the level of the middle of the eye or behind the eye. The dorsal fin is prominent, starting above the level of the upper eye. The anal fin is long, prominent. Has scales that are smooth, cycloid. The lateral line is distinct, markedly curved around the pectoral fin. Has a colour that is greenish-brown to dark brown on the upper surface, and is marbled or with light spots in juveniles. The blide side is white.¹³¹ Maximum recorded size is 365 cm, 266 kg.¹³²

¹³¹ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: ISBN 978-9935-431-69-1. Pages 430-431.

¹³² *Hippoglossus stenolepis* (Schmidt, 1904) [FAO Species Fact Sheets]. Food and Agriculture Organization of the United Nations [online]. Rome, Italy: FAO, 2023, [cit. 2023-05-03]. Retrieved from:



Fresh flesh



White, white-grey, white-yellow to olive-grey with 3 distinct pink to red longitudinal stripes throughout the fillet line. 1 dorsal, 1 central and 1 ventral. The flesh is very fine, soft but firm. The fillet is very robust with a clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and narrows very rapidly in the caudal part. A species with a fresh flesh that is difficult to replace. Distinguished from other species by its 3 longitudinal stripes and its robustness.

Deep-frozen flesh



White, white-grey to white-yellow with 3 distinct pink to red longitudinal stripes throughout the fillet line. 1 dorsal, 1 central and 1 ventral. The fillet is very robust with a clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and narrows very rapidly in the caudal part. Distinguished from other species by its 3 longitudinal stripes and its robustness.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Soleidae; Scotthalmidae.

Limanda aspera (Linnaeus, 1758)

Commercial designation	Yellowfin Sole	
Commercial designation synonyms	Northern Sole	
Taxonomic classification	Order	Pleuronectiformes
	Family	Pleuronectidae
	Genus	<i>Limanda</i>



Species

Limanda aspera

Distribution – FAO areas

Area 18 – Arctic Sea

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Species description



Has an oval taller body. Has an asymmetrical mouth. The ctenoid scales are on the upper side. Has an eye side that is brown, and a blind side that is snow white. The dorsal, anal, and caudal fin are yellowish. Has a black line along the base of the dorsal and anal fin. Average size is about 30 cm.¹³³

Fresh flesh

¹³³ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: 978-9935-431-69-1. Page 434



White, white-yellow to pink with well a visible segmentation and 3 darker lines. 2 in peripheral areas of the dorsal and ventral part of fillet and 1 in the central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. Due to its characteristics, the fresh flesh is easily confusable with a number of species of the families listed below. Apart from the completely identical species *Limanda limanda*, these include *Glyptocephalus cynoglossus* or *Lepidorhombus whiffiagonis*.

Deep-frozen flesh



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in the peripheral areas of the dorsal and ventral part of fillet and 1 in the central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. Due to its characteristics, the fresh flesh is easily confusable with a number of species of the families listed below. Apart from the completely identical species *Limanda limanda*, these include *Glyptocephalus cynoglossus* or *Lepidorhombus whiffiagonis*.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scopthalmidae; Soleidae.

Limanda limanda (Linnaeus, 1758)

Commercial designation	Common Dab
Commercial designation synonyms	Dab, Garve, Garve Fluke, Sand Dab
Taxonomic classification	Order Pleuronectiformes
	Family Pleuronectidae
	Genus <i>Limanda</i>



Species

Limanda limanda

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Species description



The body is relatively high, its height is 2 to 2.5 times the standard length. The mouth is relatively small, reaching just in front of the lower eye. Has ctenoid scales on the eye side, and cycloid scales on the blind side. The dorsal fin and anal fin elongate. Has a colour that is usually sandy brown, varying from light brown to grey-brown, with small darker spots on upper side. The blindside is white. Common size is 11-25 cm, but the maximum is 40 cm and the weight is 1 kg.^{134 135}

Fresh flesh

¹³⁴ *Limanda limanda* (Linnaeus, 1758). In: [FAO Species Fact Sheets]. Food and Agriculture Organization of the United Nations [online]. Rome, Italy: FAO, 2020 [cit. 2023-06-19]. Retrieved from: <https://www.fao.org/figis/pdf/fishery/species/3361/en?title=FAO%20Fisheries%20%26amp%3B%20Aquaculture%20-%20Aquatic%20species>

¹³⁵ *Limanda limanda* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-19]. Retrieved from: <https://www.fishbase.se/summary/695>



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in the peripheral areas of the dorsal and ventral part of the fillet and 1 in the central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. The lining of the abdominal cavity of the dorsal fillet is grey-black, and that of the ventral fillet is silvery-white. Due to its characteristics, the fresh flesh is easily interchangeable with a number of species of the families listed below. Apart from the completely identical species *Limanda aspera*, these include *Glyptocephalus cynoglossus* or *Lepidorhombus whiffiagonis*.

Deep-frozen flesh



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in the peripheral areas of the dorsal and ventral part of the fillet and 1 in the central part which is the most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched without a ventral part. The lining of the abdominal cavity of the dorsal fillet is grey-black, and that of the ventral fillet is silvery-white. Due to its characteristics, the fresh flesh is easily interchangeable with a number of species of the families listed below. Apart from the completely identical species *Limanda aspera*, these include *Glyptocephalus cynoglossus* or *Lepidorhombus whiffiagonis*.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scopthalmidae; Soleidae.

Microstomus kitt (Walbaum, 1792)

Commercial designation	Lemon Sole
Commercial designation synonyms	Mary Sole, Smear Dab
Taxonomic classification	Order Pleuronectiformes
	Family Pleuronectidae
	Genus <i>Microstomus</i>



Species *Microstomus kitt*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 27 – Atlantic, Northeast

Species description



Has a higher ovoid body shape. The mouth is very small, asymmetrical and with thick lips. There's an absence of the anal fin spine. The dorsal fin begins above eye level. The caudal peduncle is very short, and the caudal fin is rounded. The skin is thick, smooth, and slippery. The scales are cycloid, small, and is adherent. The lateral line is with a low curve above the pectoral fin. The ocular side is brown to grey, often mottled or speckled with pale and dark spots. The anus and dorsal fin are with dark spots. Often there is a yellow oval or orange spot behind the pectoral fin. The blind side is white. Maximum length 66 cm.¹³⁶

Fresh flesh

¹³⁶ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: 978-9935-431-69-1. Page 444.



White, white-grey, white-yellow to olive-grey with 3 faint pink to brown bands throughout the fillet line. 1 dorsal, 1 more prominent central and 1 ventral. The fillet is quite robust for its size with a clear segmentation. The muscle is fine and soft. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually narrowing in the caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. Compared to *Solea vulgaris*, it is only characterised by a rounder shape and a less pronounced central stripe.

Deep-frozen flesh



White, white-grey, white-yellow to olive-grey with 3 faint pink to brown bands throughout the fillet line. 1 dorsal, 1 more prominent central and 1 ventral. The fillet is quite robust for its size with clear segmentation. The muscle is fine and soft. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually narrowing in the caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. Compared to *Solea vulgaris*, it is only characterised by a rounder shape and a less pronounced central stripe.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scotthalmidae; Soleidae.

Platichthys flesus (Linnaeus, 1758)

Commercial designation

European Flounder

Commercial designation synonyms

Butt, Flounder, Fluke, Mud Flounder, River
Flounder

Taxonomic classification

Order Pleuronectiformes



Family	Pleuronectidae
Genus	<i>Platichthys</i>
Species	<i>Platichthys flesus</i>

Distribution – FAO areas

Area 5 – Europe – Inland waters

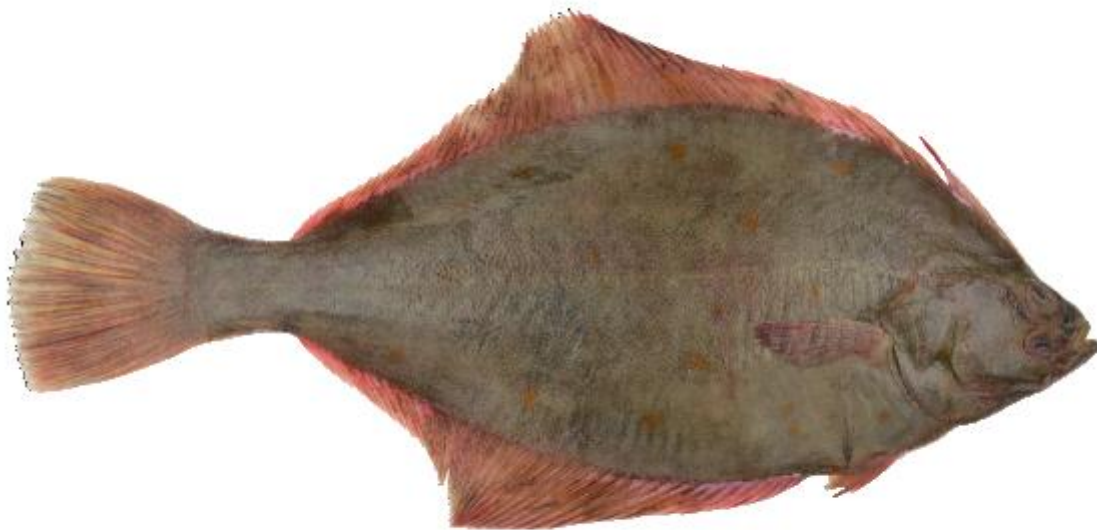
Area 18 – Arctic Sea

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is ovoid flattened, and relatively high. The mouth is small, asymmetrical. The postocular ridge is more or less rugose, terminating in a process above the operculum. The dorsal fin starts above the eye level, and the anal fin a little further. Both are reaching to the caudal peduncle. The caudal fin is rounded or truncate. The body is covered on the upper side with bony plates, mostly around the lateral line and along the base of the dorsal and anal fins. The underside is also partially covered. There are small scales between the plates.



The upper side of the fish is brownish to greyish or olive, monochrome or with darker spots and red dots. The underside is white. Grows up to 61 cm, common size is 40 cm.¹³⁷

Fresh flesh



Pale pink, practically translucent, which makes it very much a skin colour. Segmentation is less visible. 3 darker lines, 2 in the peripheral areas of the dorsal and ventral part of the fillet and 1 in the central part, which is most visible. The flesh is fine and soft. The shape of the fillet is elongated, slightly oval, bilaterally symmetrical and arched. The abdominal lining of the dorsal fillet is grey-black to black-green, that of the ventral fillet silvery-white with a possible greenish tinge. Given the characteristics, the fresh flesh is easily recognisable, although confusion is still possible, particularly with smaller species within the family.

Deep-frozen flesh

¹³⁷ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: ISBN 978-9935-431-69-1. Page 446.



White to pale pink, segmentation clearly visible. 3 darker lines, 2 in the peripheral areas of the dorsal and ventral part of the fillet and 1 in the central part, which is most visible. The flesh is fine and soft. The shape of the fillet is elongated, slightly oval, bilaterally symmetrical and arched. The abdominal lining of the dorsal fillet is grey-black to black-green, that of the ventral fillet silvery-white with a possible greenish tinge. Due to the characteristics, the deep-frozen flesh is easily recognisable, although confusion is still possible, particularly with smaller species within the family.

Fresh and deep-frozen flesh confusability

Pleuronectidae.

Pleuronectes platessa (Linnaeus, 1758)

Commercial designation

European Plaice

Commercial designation synonyms

Flatfish, Fluke, Hen Fish

Taxonomic classification

Order Pleuronectiformes

Family Pleuronectidae



Genus	<i>Pleuronectes</i>
Species	<i>Pleuronectes platessa</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Species description



Has a higher ovoid body shape. The mouth is very small, asymmetrical. The maxilla is extending to below the front of the eye. Has a prominent anal fin. The dorsal fin begins above or just in front of the middle of the upper eye. The caudal fin is rounded or double truncated. The lateral line is with a small arc above the pectoral fin. Has small cycloid scales. The eye side is brown or greenish brown with distinct red or orange spots. The blind side is white, sometimes with yellow or brown spots. Normally grows 45-50 cm, rarely 90-100 cm.¹³⁸

¹³⁸ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: ISBN 978-9935-431-69-1. Page 450.



Fresh flesh



White, whitish-grey, whitish-yellow to olive-grey with 3 faint longitudinal stripes throughout the fillet line. 1 dorsal, 1 more prominent central and 1 ventral. The flesh is very soft and firm. The fillet is small, with hardly noticeable segmentation. The abdominal lining is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, slightly arched on both sides and gradually narrowing in the caudal part. It is distinguished from other species by its poorly perceptible stripes and segmentation. The fresh muscle is easily interchanged between species due to its general form.

Deep-frozen flesh



White, whitish-grey, whitish-yellow to olive-grey with 3 faint longitudinal stripes throughout the fillet line. 1 dorsal, 1 more prominent central and 1 ventral. The flesh is very soft and firm. The fillet is small, with hardly noticeable segmentation. The abdominal lining is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, slightly arched on both sides and gradually narrowing in the caudal part. It is distinguished from other species by its poorly perceptible stripes and segmentation. The fresh muscle is easily interchanged between species due to its general form.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scopthalmidae; Soleidae.

Reinhardtius hippoglossoides (Walbaum, 1792)

Commercial designation

Greenland Halibut

Commercial designation synonyms

Black Halibut, Blue Halibut, Flatty, Greenland
Turbot, Lesser Halibut, Mock Halibut, Turbot

Taxonomic classification

Order Pleuronectiformes



Family	Pleuronectidae
Genus	<i>Reinhardtius</i>
Species	<i>Reinhardtius hippoglossoides</i>

Distribution – FAO areas

Area 18 – Arctic Sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 – Pacific, Eastern Central

Species description



The body is of an oval elongate shape, flattened from above. The dorsal side is purplish brown to black. The ventral side is dark. Has an upper eye visible from the ventral side. The mouth is large, symmetrical. The maxilla is extending below the posterior part of the eye or behind the eye. Has 4-5 pores on the margin of the operculum. There's an absence of the anal fin spine. Has a dorsal fin beginning from behind the upper eye. The caudal fin is shortened or slightly pointed. The lateral line almost straight, sloping slightly above the



pectoral fin. The scales are small, cycloid. Common size is 80-100 cm and the weight is 11-25 kg. Maximum size is 120 cm and the weight is 45 kg.^{139 140}

Fresh flesh



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in peripheral areas of dorsal and ventral part of fillet and 1 in central part which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, bilaterally arched, without the preserved ventral part. Due to its characteristics, the fresh flesh is easily confusable with a number of species of the families listed below. Examples include *Glyptocephalus cynoglossus* and *Limanda aspera*.

Deep-frozen flesh

¹³⁹ Mecklenburg, C.W., A. Lynghammar, E. Johannesen, I. Byrkjedal, J.S. Christiansen, A.V. Dolgov, O.V. Karamushko, T.A. Mecklenburg, P.R. Møller, D. Steinke, and R.M. Wienerroither. 2018. Marine Fishes of the Arctic Region. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. 464 pages. ISBN: ISBN 978-9935-431-69-1. Page 454

¹⁴⁰ Reinhardtius hippoglossoides (Walbaum, 1792) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2020 [cit. 2023-06-21]. Retrieved from: <https://www.fao.org/figis/pdf/fishery/species/2544/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Species%20Fact%20Sheets%20-%20Reinhardtius%20hippoglossoides%20%28Walbaum%2C%201792%29>



White, white-yellow to pink with a well visible segmentation and 3 darker lines. 2 in peripheral areas of dorsal and ventral part of fillet and 1 in central part which is most visible. The shape of the fillet is most often elongated, arched on both sides, without the preserved ventral part. Due to its characteristics, the deep-frozen flesh is easily confusable with a number of species of the families listed below. Examples include *Glyptocephalus cynoglossus* and *Limanda aspera*.

Fresh and deep-frozen flesh confusability

Pleuronectidae; Scopthalmidae; Soleidae.

Rachycentridae

Rachycentron canadum (Linnaeus, 1766)

Commercial designation	Cobia
Commercial designation synonyms	Black Kingfish, Black Salmon, Lemon Fish
Taxonomic classification	Order Perciformes
	Family Rachycentridae
	Genus <i>Rachycentron</i>



Species

Rachycentron canadum

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 48 – Atlantic, Antarctic

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

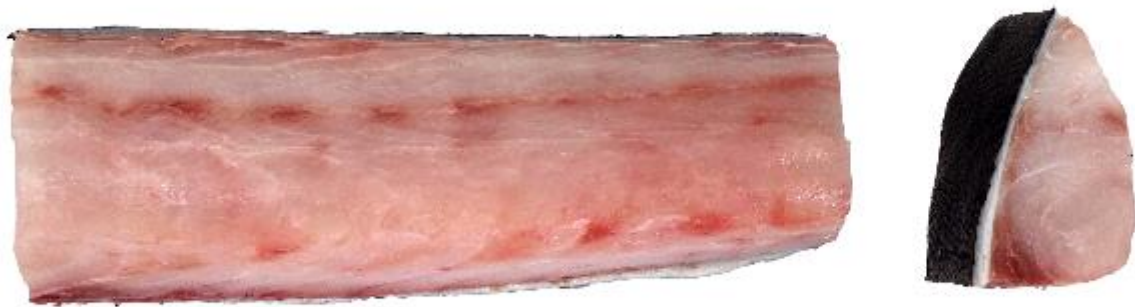
Species description





The body is elongated, and the head is broad and flattened. The mouth is large, terminal, and with a protruding lower jaw. The first dorsal fins have 7 to 9 (usually 8) short isolated spines not connected by a membrane; the second dorsal fin is long with elongated cranial rays. The caudal fin is similar to the 2nd dorsal fin, shorter; the caudal fin is crescent-shaped in adults, and the upper lobe is longer than the lower lobe (in juveniles the caudal fin is rounded). The lateral line is slightly wavy in front. Colour: the dorsum and flanks are dark brown, with 2 sharply defined narrow silvery stripes; and the belly is yellowish. Maximum size is 200 cm and 68 kg, but commonly grows to 110 cm. ^{141 142}

Fresh flesh



White to grey-pink colour with 2 dark lines throughout the fillet, 1 interrupted in the dorsal part and 1 solid in the central part. There is a fine pattern and a well-defined segmentation throughout the fillet. The flesh is fine and firm. The fillet is robust, slender, with minimal dorsal arching and a symmetrical conical tapering throughout the length to the caudal peduncle, which forms 1/4 of the cranial height. The ventral part of the abdominal cavity

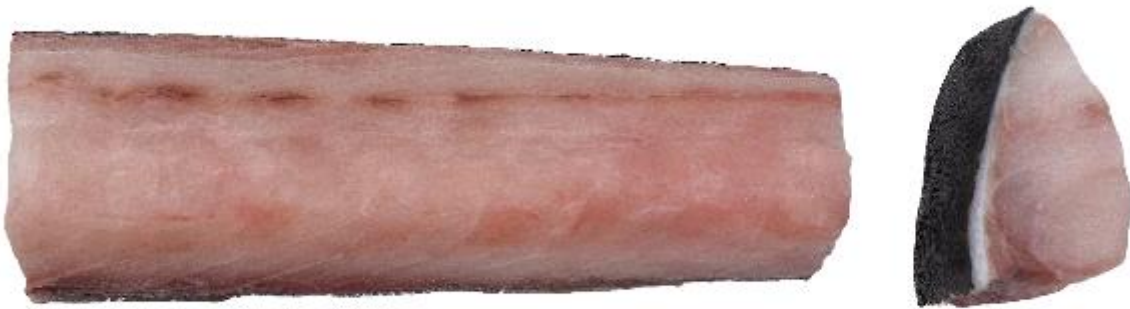
¹⁴¹ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages [Pages 1375-2127]. ISBN 978-9251048276. Page 1420.

¹⁴² *Rachycentron canadum* (Linnaeus, 1766). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-04]. Retrieved from: <https://www.fishbase.se/summary/rachycentron-canadum>



extends to $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. The lining of the abdominal cavity is silvery white. Confusion of the fresh flesh is possible with the species *Argyrosomus regius*, which is very similar, except that there is another interrupted line in the ventral part. In the form of its portions it is easily confused with species of the families Carangidae and Serranidae.

Deep-frozen flesh



White to grey-pink colour with 2 dark lines throughout the fillet, 1 interrupted in the dorsal part and 1 solid in the central part. There is a fine pattern and a well-defined segmentation throughout the fillet. The flesh is fine and firm. The fillet is robust, slender, with minimal dorsal arching and a symmetrical conical tapering throughout the length to the caudal peduncle, which forms $\frac{1}{4}$ of the cranial height. The ventral part of the abdominal cavity extends to $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. The lining of the abdominal cavity is silvery white. Confusion of the fresh flesh is possible with the species *Argyrosomus regius*, which is very similar, except that there is another interrupted line in the ventral part. In the form of portions it is easily confused with species of the families Carangidae and Serranidae.

Fresh and deep-frozen flesh confusability

Carangidae; Sciaenidae; Serranidae.



Rajidae

Raja montagui (Fowler, 1910)

Commercial designation	Spotted Ray	
Commercial designation synonyms	Homelyn Ray, Spotted Skate	
Taxonomic classification	Order	Rajiformes
	Family	Rajidae
	Genus	<i>Raja</i>
	Species	<i>Raja montagui</i>

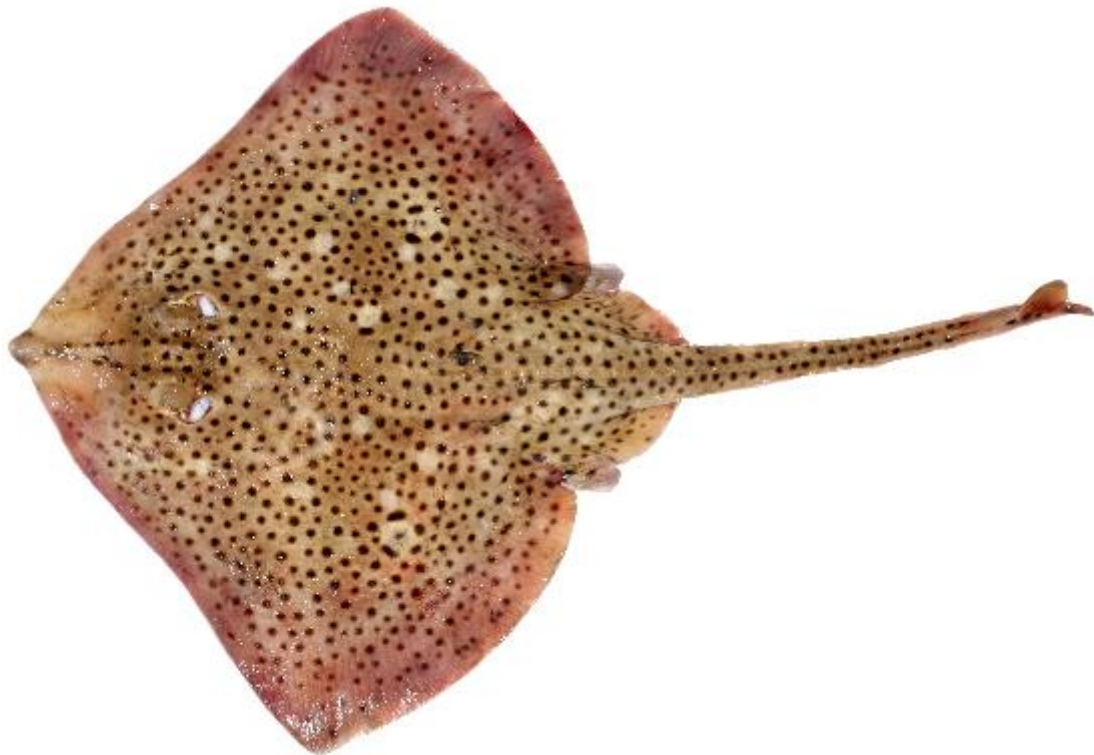
Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is partly rhomboid, flattened. The rostrum is short, paired fins are fused into wings, and is rounded at the end. Separate eye processes protrude from the top of the body. The apical side is smooth in young specimens, spiny in older specimens. On the dorsum, a band of 20-50 processes grows from the snout to the first dorsal fin. Has 1-2 processes between two equally sized dorsal fins at the tail end. The colour dorsally is brownish, with many small black spots. The margin of the body is without spots. Spots may form a dark circle around the light centre on the caudal side of the wings. The underside is white. Grows to 83,5 cm, usual size is 50 cm.¹⁴³

Fresh flesh

¹⁴³ Raja montagui (Fowler, 1910). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Retrieved from: <https://www.fishbase.se/summary/4329>



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The flesh is interspersed with numerous radial cartilaginous rays. The whole wing is triangular in shape, with the cartilaginous part of the skeleton retained in the form of a unilateral reinforcement, which is its imaginary longest side. From the stiffening, the thickness of the flesh decreases uniformly over the whole surface until the filaments are quite thin. Fresh flesh is virtually indistinguishable from that of *Raja naevus* and other species of the family.

Deep-frozen flesh



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The flesh is interspersed with numerous radial cartilaginous rays. The whole wing is triangular in shape, with the cartilaginous part of the skeleton retained in the form of a unilateral reinforcement, which is its imaginary longest side. From the stiffening, the thickness of the flesh decreases uniformly throughout the whole surface to thin fibres. The deep-frozen flesh is virtually indistinguishable from that of *Raja naevus* and other species of the family.

Fresh and deep-frozen flesh confusability

Rajiformes; Rajidae.

Raja naevus (Müller & Henle, 1841)

Commercial designation

Cuckoo Ray

Commercial designation synonyms

Sandy Ray, Butterfly Skate, Cuckoo Skate

Taxonomic classification

Order Rajiformes

Family Rajidae



Genus *Raja*
Species *Raja naevus*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



The body is flattened, diamond-shaped. Paired fins are fused into a fin fringe (wings). The rostrum is short. The upper surface is completely spinulose, but the middle of the pectoral fins are more or less bare in adults, and the underside is smooth except for spiny anterior margins. 9-13 spines are in a row around the inner margin of the eye and large triangular spines are on the nape. Two parallel rows of strong spines are on each side of midline along



the tail. The upper surface is ochre to light grey-brown with a large round black eye-spot in the middle of the lobes, and the underside is white. Common length is 40 cm, maximum 81 cm.¹⁴⁴

Fresh flesh



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The flesh is interspersed with numerous radial cartilaginous rays. The whole wing is triangular in shape, with the cartilaginous part of the skeleton retained in the form of a unilateral reinforcement, which is its imaginary longest side. From the stiffening, the thickness of the flesh decreases uniformly throughout the whole surface to the thin fibres. Fresh flesh is virtually indistinguishable from that of *Raja montagui* and other species of the family.

Deep-frozen flesh

¹⁴⁴ *Leucoraja naevus* (Müller & Henle, 1841). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Retrieved from: <https://www.fishbase.se/summary/Leucoraja-naevus.html>



Light to dark pink in the form of typical "wings", which are formed by detaching the body and removing the skin. The flesh is interspersed with numerous radial cartilaginous rays. The whole wing is triangular in shape, with the cartilaginous part of the skeleton retained in the form of a unilateral reinforcement, which is its imaginary longest side. From the stiffening, the thickness of the flesh decreases uniformly over the whole surface until the filaments are quite thin. The deep-frozen flesh is virtually indistinguishable from that of *Raja montagui* and other species of the family.

Fresh and deep-frozen flesh confusability

Rajiformes; Rajidae.

Salmonidae

Coregonus lavaretus (Linnaeus 1758)

Commercial designation	European Whitefish
Commercial designation synonyms	Baltic Whitefish, Common Whitefish, Houting
Taxonomic classification	Order Salmoniformes



Family	Salmonidae
Genus	<i>Coregonus</i>
Species	<i>Coregonus lavaretus</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Area 61 – Pacific, Northwest

Species description



The body is slender, elongated, and has moderately large, easily fallen scales. The head is relatively small, and has a blunt end. Has a lower mouth. The body is silvery. The dorsum is darker, tinged with blue, black or green, and the abdomen sometimes has a faint yellowish sheen. The dorsal and caudal fin are darker, greyish to blackish. The paired fins and anal fin are always pale. Common size is around 50-60 cm and the weight is 2-3 kg, maximum size is 130 cm and the weight is 10 kg. Easily confusable with other whitefish species.^{145 146}

¹⁴⁵ Baruš V., Oliva O. a kol. *Mihulovci - Petromyzontes a ryby - Osteichthyes*. Praha: Academia, 1995. Fauna ČR a SR. ISBN 80-200-0500-5. Pages 523, 524.



Fresh flesh



Light to dark pink, always depending on the food supply. There is a clear segmentation throughout the fillet and a less visible white pattern. 1 dark central line, 1 light dorsal line throughout the length of the fillet and 1 light ventral line from the end of the abdominal cavity. The muscle is very fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle which forms up to 1/3-1/4 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with other species of the genus *Coregonus* and their hybrids, without an effective differential description. Further confusion is theoretically possible with the species *Thymallus thymallus*, but is practically impossible in view of its occurrence. Confusion with species of other families is unlikely.

Deep-frozen flesh

¹⁴⁶ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 322.



Light to dark pink. There is a distinct segmentation and no discernible pattern throughout the fillet. Has 1 darker central line, 1 darker dorsal line throughout the length of the fillet and 1 darker ventral line from the end of the abdominal cavity. Gaping is especially common in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3-1/4 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with other species of the genus *Coregonus* and their hybrids, without an effective differential description. Further confusion is theoretically possible with the species *Thymallus thymallus*, but is practically impossible in view of its occurrence. Confusion with species of other families is unlikely.

Fresh and deep-frozen flesh confusability

Salmonidae.

Coregonus peled (Gmelin, 1788)

Commercial designation

Peled

Commercial designation synonyms

Northern Whitefish



Taxonomic classification

Order	Salmoniformes
Family	Salmonidae
Genus	<i>Coregonus</i>
Species	<i>Coregonus peled</i>

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 18 – Arctic Sea

Species description



Has a tall body with a terminal mouth, and the lower jaw is somewhat folded over the upper. The scales are easily deciduous. Especially in older specimens, the dorsal part of the body arches upwards behind the nape. The dorsum, head and fins are dark. The abdomen and flanks are light and silvery. On the dorsal fin there are numerous black spots arranged in



several rows. These spots are absent in *Coregonus lavaretus*. It reaches a length of 55 cm and a weight of 2-2,5 kg, rarely up to 6 kg.¹⁴⁷

Fresh flesh



Light to dark pink, always depending on the food supply. There is a clear segmentation and a well-defined white pattern throughout the fillet. 1 light central line, 1 light dorsal line throughout the length of the fillet and 1 light ventral line from the end of the abdominal cavity. The flesh is very fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the part of the caudal peduncle which forms 1/3-1/4 of the cranial height. The ventral part extends to 2/3 of the height and 3/4 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with other species of the genus *Coregonus* and their hybrids, without an effective differential description. A clue may be the overall height of the fillet, which is higher in *Coregonus peled* than in *Coregonus lavaretus*. Confusion with species of other families is unlikely.

Deep-frozen flesh

¹⁴⁷ HANEL, L. a LUSK, S. Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Page 320.



Uniformly light pinkish to white. There is a distinct segmentation and no discernible pattern throughout the fillet. 1 darker central line, 1 darker dorsal line throughout the length of the fillet and 1 darker ventral line from the end of the abdominal cavity. Gaping is especially common in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms 1/3-1/4 of the cranial height. The ventral part extends to 2/3 of the height and 3/4 of the length of the fillet. The lining of the abdominal cavity is pinkish. The deep frozen flesh can easily be confused with other species of the genus *Coregonus* and their hybrids, and is without an effective differential description. A clue may be the overall height of the fillet, which is higher in *Coregonus peled* than in *Coregonus lavaretus*. Confusion with species of other families is unlikely.

Fresh and deep-frozen flesh confusability

Salmonidae.

Hucho hucho (Linnaeus, 1758)

Commercial designation	Huchen
Commercial designation synonyms	Danube Salmon, Hunchen, Danube
Taxonomic classification	Order Salmoniformes



Family	Salmonidae
Genus	<i>Hucho</i>
Species	<i>Hucho hucho</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 5 – Europe – Inland waters

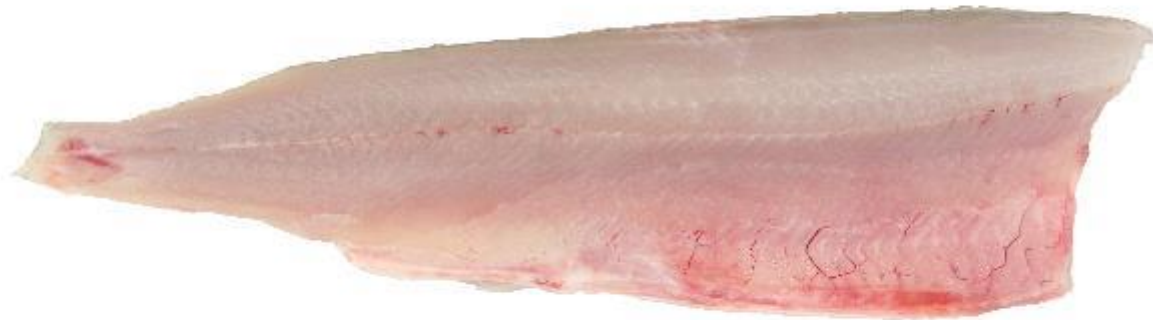
Species description



Has an elongated torpedo-shaped body, almost round in the cross-section. The wedge-shaped head is flattened from above. Has a terminal mouth with toothed, deeply forked jaws. The fins are relatively small in relation to the body, and the caudal fin is shallowly excised. The dorsum and upper part of the head are grey-green to dark brown, and the flanks are coloured similarly to the dorsum but lighter and often with a purple tinge. The abdomen is yellow-white or silver-white. The fins are ashy yellow, with a brownish to reddish tinge at the ends. The adipose fin is golden brown to reddish. Has black or brownish spots on the head, back and sides. Maximum length is 180 cm and weight is 60 kg.¹⁴⁸

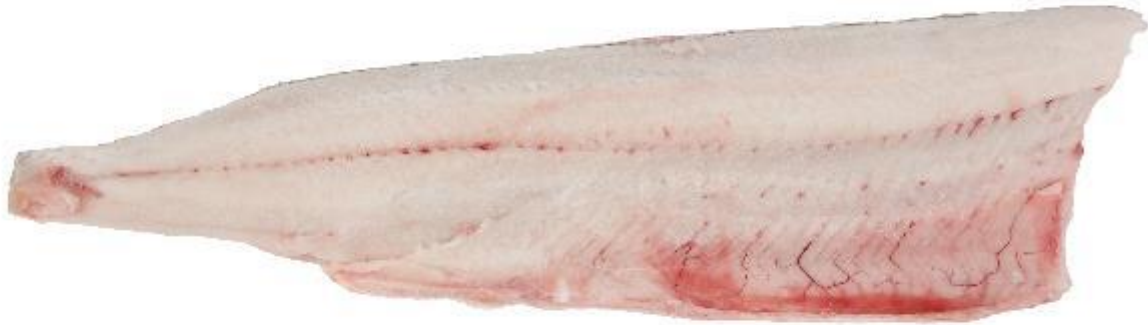
Fresh flesh

¹⁴⁸ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 316-319.



White-pink to olive-grey with hardly any noticeable segmentation. The fillet is robust, slender, with minimal dorsal arching and is shaped like a laid-back wine bottle with a sharp transition to a short and very narrow tail section. The height of the fillet in this part is only 1/5 of the cranial height. There is a noticeable lighter longitudinal line in the middle part. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is white to white-pink. The fresh flesh can easily be confused with other species of the family Salmonidae of similar size. The narrowing of the fillet in the tail section and the overall robustness are very good characteristics.

Deep-frozen flesh



White to pinkish-white with a well-defined segmentation. The fillet is robust, slender, with minimal dorsal arching and is shaped like a laid-back wine bottle with a sharp transition to a short and very narrow tail section. The height of the fillet in this part is only 1/5 of the cranial height. There is a noticeable lighter longitudinal line in the middle part. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is white to white-pink. The deep frozen flesh can easily be confused with other species of the family Salmonidae of similar size. The narrowing of the fillet in the tail section and the overall robustness are very good characteristics.

Fresh and deep-frozen flesh confusability

Salmonidae.

Oncorhynchus gorbuscha (Walbaum, 1792)

Commercial designation	Humpback
Commercial designation synonyms	Humpback Salmon, Humpy, Humpie, Pink Salmon
Taxonomic classification	Order Salmoniformes



Family	Salmonidae
Genus	<i>Oncorhynchus</i>
Species	<i>Oncorhynchus gorbuscha</i>

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 18 – Arctic Sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description



The body is spindle-shaped, streamlined, and slightly laterally compressed. The dorsal fin has 10-15 rays, anal fin with 11-19 rays, a large adipose fin, and the pelvic fins have an axillary process. The caudal fin is lobed. Fish in the sea dorsally are steel blue to blue-green, silver on the sides, and are ventrally white. Has large oval spots on the dorsum, adipose fin, and both



lobes of the caudal fin. Unlike *Oncorhynchus mykiss*, males have a massive hump. They can grow up to 76 cm in length and 6,8 kg in weight, the usual size being 50,5 cm.¹⁴⁹

Fresh flesh



Pink to dark orange-red, strongly dependent on the food supply and time of the year. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The muscle is very fine and fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae and the genus *Oncorhynchus*, especially *Oncorhynchus mykiss*.

Deep-frozen flesh

¹⁴⁹ *Oncorhynchus gorbusha* (Walbaum, 1792). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-22]. Retrieved from: <https://www.fishbase.se/summary/Oncorhynchus-gorbusha.html>



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae and the genus *Oncorhynchus*, especially *Oncorhynchus mikiss*.

Fresh and deep-frozen flesh confusability

Salmonidae.

Oncorhynchus keta (Walbaum, 1792)

Commercial designation

Chum Salmon

Commercial designation synonyms

Keta Salmon, Dog Salmon, Ball Salmon

Taxonomic classification

Order Salmoniformes

Family Salmonidae

Genus *Oncorhynchus*



Species

Oncorhynchus keta

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 18 – Arctic Sea

Area 27 – Atlantic, Northeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description



The body is spindle-shaped, streamlined, and slightly laterally compressed. The mouth is anterior, and normally is slightly oblique, but in adult males is very deformed. Has an enlarged lower jaw that is turned up at the tip. The dorsal fin has 10-14 rays, and caudally on the dorsum an adipose fin. The caudal fin has 13-17 rays, and the caudal fin are truncated to slightly excised. Large specimens dorsally are steel blue with black spots, flanks are silver, and ventrally silvery to white. In males, there are shades of black at the tips of the caudal, anal and pectoral fins. Reaches up to 100 cm in length and 15.9 kg in weight, with a common size of 58 cm.¹⁵⁰

Fresh flesh

¹⁵⁰ *Oncorhynchus keta* (Walbaum, 1792). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-27]. Retrieved from: <https://www.fishbase.se/summary/Oncorhynchus-keta.html>



Orange to red, strongly dependent on the food supply and season. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus tshawytscha*. The species *Oncorhynchus kisutch*, *Oncorhynchus nerka* and *Salmo salar* have a noticeably lower fillet size.

Deep-frozen flesh



Red to scarlet. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible patterning. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the tail section, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, particularly *Oncorhynchus tshawytscha*. The species *Oncorhynchus kisutch*, *Oncorhynchus nerka* and *Salmo salar* have noticeably lower fillets.

Fresh and deep-frozen flesh confusability

Salmonidae.

Oncorhynchus mykiss (Walbaum, 1792)

Commercial designation

Rainbow Trout

Commercial designation synonyms

Brown Trout, Steelhead Trout, Redband, Lord-Fish, Silver Trout

Taxonomic classification

Order Salmoniformes

Family Salmonidae



Genus *Oncorhynchus*

Species *Oncorhynchus mykiss*

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 6 – Oceania - Inland waters

Area 8 – Antarctica - Inland waters

Area 18 – Arctic Sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The body shape is similar to that of the brown trout, but the body is narrower and taller. The mouth is smaller and the upper jaw reaches or slightly exceeds the posterior margin of the eye. The caudal fin is curved, truncated or slightly convex in older specimens. The dorsum is dark green, sometimes with a brownish tinge. The flanks are lighter, and the abdomen is greenish-grey to blue-grey with a purple tinge, sometimes silvery. On the body, especially on the dorsal side, are irregular black spots. An iridescent band extends around the lateral line. In males, a hooked end of the lower jaw appears. Maximum length is 120 cm and weight is 25,4 kg.¹⁵¹

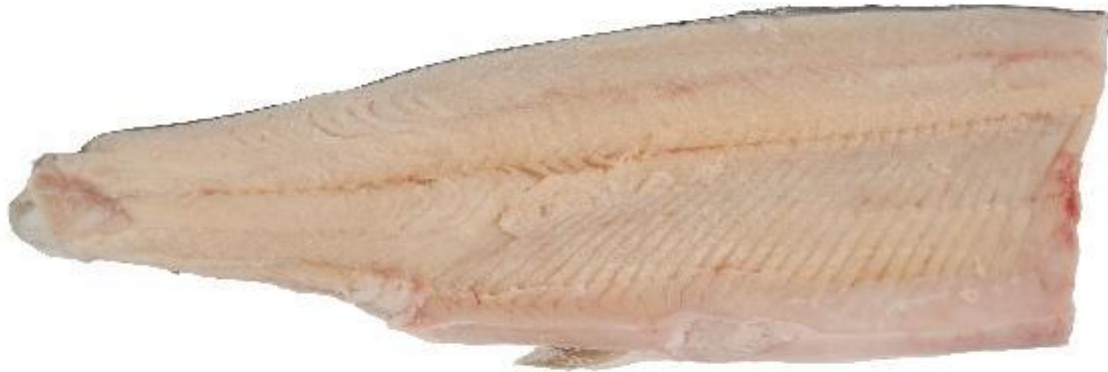
Fresh flesh

¹⁵¹ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 310-312.



Pink to dark orange-red, strongly dependent on the food supply, up to deep orange in artificial breeding. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fine and fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Salmo trutta m. fario*, *Salvelinus fontinalis* or *Salvelinus alpinus alpinus*.

Deep-frozen flesh



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, especially *Salmo trutta m. fario*, *Salvelinus fontinalis* or *Salvelinus alpinus alpinus*.

Fresh and deep-frozen flesh confusability

Salmonidae.

Oncorhynchus nerka (Walbaum, 1792)

Commercial designation

Sockeye Salmon

Commercial designation synonyms

Red Salmon, Kokanee, Blueback Salmon

Taxonomic classification

Order Salmoniformes

Family Salmonidae

Genus *Oncorhynchus*



Species

Oncorhynchus nerka

Distribution – FAO areas

Area 2 – America, North - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 6 – Oceania - Inland waters

Area 18 – Arctic Sea

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description





Has a spindle-shaped body that is streamlined, and is laterally compressed. The head is bluntly pointed and conical, has a rather small eye, and the snout is rather pointed. Has 1 dorsal fin with 11-16 rays, an adipose fin, an anal fin with 13-18 rays, and the caudal fin incised. The lateral line is straight. Has colouration dorsally and cranially is dark steel blue to greenish blue, silvery on the flanks and white to silvery on the belly. No dark spots on the dorsum, but some individuals may have dark spots and irregular markings on the dorsal fin. It grows to a maximum size of 84 cm and a weight of 7,7 kg, with a common size of 58 cm.¹⁵²

Fresh flesh



Red to scarlet, strongly dependent on the food supply and season. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is considerably less fatty than in other species. Gaping is very common, especially in the dorsal part. From 1/3 caudally it tapers gradually and evenly to the the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with other species of the Salmonidae family, especially *Oncorhynchus kisutch* and *Salmo salar*, but the lower fat content and the distinctive red colouring may be a clue. The species *Oncorhynchus keta* and *Oncorhynchus tshawytscha* have noticeably higher fillets.

¹⁵² *Oncorhynchus nerka* (Walbaum, 1792). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-30]. Retrieved from: <https://fishbase.mnhn.fr/summary/Oncorhynchus-nerka.html>



Deep-frozen flesh



Red to scarlet. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible patterning. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus kisutch* and *Salmo salar*, and colour and size may be a clue. The species *Oncorhynchus keta* and *Oncorhynchus tshawytscha* have noticeably larger fillets.

Fresh and deep-frozen flesh confusability

Salmonidae

Oncorhynchus kisutch (Walbaum, 1792)

Commercial designation	Coho Salmon
Commercial designation synonyms	Silver Salmon, Hoopid Salmon, Grilse
Taxonomic classification	Order Salmoniformes



Family	Salmonidae
Genus	<i>Oncorhynchus</i>
Species	<i>Oncorhynchus kisutch</i>

Distribution – FAO areas

Area 2 – America, North - Inland waters

Area 3 – America, South - Inland waters

Area 4 – Asia - Inland waters

Area 5 – Europe - Inland waters

Area 18 – Arctic Sea

Area 27 – Atlantic, Northeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Species description



The body is spindle-shaped, streamlined, and increasing in height with age. One dorsal fin has 9-13 rays, plus a thin adipose fin. The caudal fin has 12-17 rays, and the lateral line is



almost straight. The colouration caudally and dorsally are dark metallic blue or greenish, bright silver on the flanks, and the belly is white. Caudally and dorsally on the upper lobe of the caudal fin are small black spots. It reaches a length of 108 cm and a weight of 15 kg, common size is 71 cm.¹⁵³

Fresh flesh



Red to scarlet, strongly dependent on the food supply and season. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is significantly less fatty than in other species. Gaping is very common, especially in the dorsal part. From 1/3 caudally it tapers gradually and evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus nerka* and *Salmo salar*. The species *Oncorhynchus keta* and *Oncorhynchus tshawytscha* have noticeably higher fillets.

Deep-frozen flesh

¹⁵³ *Oncorhynchus kisutch* (Walbaum, 1792). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-30]. Retrieved from: <https://fishbase.mnhn.fr/summary/Oncorhynchus-kisutch.html>



Red to scarlet. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible patterning. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the tail section, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can be easily confused with species of the family Salmonidae, especially *Oncorhynchus nerka* and *Salmo salar*, and the colour and size may be a clue. The species *Oncorhynchus keta* and *Oncorhynchus tshawytscha* have noticeably higher fillets.

Fresh and deep-frozen flesh confusability

Salmonidae.

Oncorhynchus tshawytscha (Walbaum, 1792)

Commercial designation	Chinook Salmon
Commercial designation synonyms	King Salmon, Quinnot Salmon, Spring Salmon
Taxonomic classification	Order Salmoniformes
	Family Salmonidae
	Genus <i>Oncorhynchus</i>



Species

Oncorhynchus tshawytscha

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania - Inland waters

Area 8 – Antarctica – Inland waters

Area 18 – Arctic Sea

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The body is spindle shaped and streamlined, and is noticeably laterally compressed in large specimens, and somewhat taller than in other Salmonidae. Has a dorsal fin with 10-14 rays,



and an anal fin with 13-19 rays. The colour dorsally is dark greenish to blue-black, and ventrally is silvery to white. Numerous small, dark spots are along the dorsum and on both the caudal lobes. The gingival line of the mandible is black. Reaches up to 150 cm in length. The highest published weight is 61,4 kg. The common length is 70 cm.¹⁵⁴

Fresh flesh



Orange to red, strongly dependent on the food supply and season. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fragile. Gaping is very common especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus keta*. The species *Oncorhynchus kisutch*, *Oncorhynchus nerka* and *Salmo salar* have a noticeably lower fillet.

Deep-frozen flesh

¹⁵⁴ *Oncorhynchus tshawytscha* (Walbaum, 1792). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-22]. Retrieved from: <https://www.fishbase.se/summary/Oncorhynchus-tshawytscha.html>



Red to scarlet. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible patterning. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, particularly *Oncorhynchus keta*. The species *Oncorhynchus kisutch*, *Oncorhynchus nerka* and *Salmo salar* have a noticeably smaller fillet.

Fresh and deep-frozen flesh confusability

Salmonidae.

Salmo salar (Linnaeus, 1758)

Commercial designation

Atlantic salmon

Commercial designation synonyms

Bay salmon, Black salmon, Kelt, Grilse, Parr, Smolt

Taxonomic classification

Order Salmoniformes

Family Salmonidae



Genus *Salmo*
Species *Salmo salar*

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Area 18 – Arctic Sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 67 – Pacific, Northeast

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is torpedo-shaped, but flattened at the sides and relatively high. The head is conical-pointed and the scales are small. The dorsum is grey-silvery, and the sides are light grey to silver with black dots in the form of an 'x' or star. The abdomen is light silvery, yellow-white to white. In males, the front teeth enlarge and the lower jaw lengthens at spawning time, which also hooks. Maximum weight is up to 46.8 kg and length is 150 cm.¹⁵⁵

Fresh flesh

¹⁵⁵ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 299-300.



Pink to dark orange-red, strongly dependent on the food supply, up to deep orange in artificial breeding. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fragile and fatty. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus kisutch* and *Oncorhynchus nerka*, and the colouration and size may be a clue. The species *Oncorhynchus keta* and *Oncorhynchus tshawytscha* have noticeably higher fillets.

Deep-frozen flesh



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, particularly *Oncorhynchus kisutch* and *Oncorhynchus nerka*, and the colouration and size may be a clue.

Fresh and deep-frozen flesh confusability

Salmonidae.

Salmo trutta fario (Linnaeus, 1758)

Commercial designation	Brown Trout
Commercial designation synonyms	Black Tail, Brook Trout, Brownie
Taxonomic classification	Order Salmoniformes
	Family Salmonidae



Genus	<i>Salmo</i>
Species	<i>Salmo trutta fario</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Area 8 – Antarctica – Inland waters

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Area 67 – Pacific, Northeast

Species description



Has a spindle-shaped body. The pectoral and pelvic fins are relatively short, the caudal fin in younger specimens are slightly curved, and in older specimens ending straight or slightly



arched. Has basic colouration on the flanks and the dorsum is grey-brown, golden-brown or blue-green-brown. The dorsum is dark and the flanks are gradually lighter towards the belly. The abdomen is white, yellowish to greyish. Has dark to black spots on the back above the lateral line. Has red to crimson or rusty-brown spots on flanks along the lateral line, and is partly edged white to yellowish. Adult males have a hook-shaped lower jaw. Maximum length is 100 cm and weight is 20 kg.¹⁵⁶

Fresh flesh



Pink to dark orange-red, strongly dependent on the food supply, up to deep orange in artificial breeding. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fine and fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salvelinus fontinalis* or *Salvelinus alpinus alpinus*.

¹⁵⁶ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 305-309.



Deep-frozen flesh



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salvelinus fontinalis* or *Salvelinus alpinus alpinus*.

Fresh and deep-frozen flesh confusability

Salmonidae.

Salvelinus alpinus subsp. alpinus (Linnaeus, 1758)

Commercial designation

Arctic Ahar

Commercial designation synonyms

Alpine Char, Breeder, Lake Char, Charr



Taxonomic classification

Order	Salmoniformes
Family	Salmonidae
Genus	<i>Salvelinus</i>
Species	<i>Salvelinus alpinus alpinus</i>

Distribution – FAO areas

Area 2 – America, North – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 8 – Antarctica – Inland waters

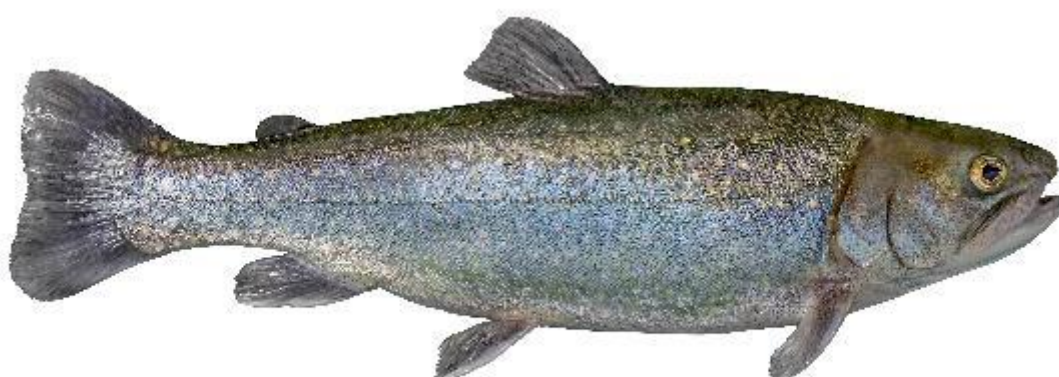
Area 18 – Arctic Sea

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 67 – Pacific, Northeast

Species description



Has a spindle-shaped body. Has a terminal, strongly forked mouth with toothed jaws. The scales are very small and deeply embedded in the skin. Has 4-5 hard rays and 8-16 soft rays in the dorsal fin, 3-4 hard rays and 7-15 soft rays in the anal fin. The dorsum is dark, rather brown, and sometimes with a green tinge. The sides are lighter, and the belly is pale. The flanks and dorsum are heavily speckled with pink to red spots. Has anterior margins of pectoral, pelvic and anal fins, sometimes also caudal, with a narrow white margin. It reaches a length of 107 cm and a weight of 15 kg, the common length is 40 cm^{157 158}

Fresh flesh

¹⁵⁷ *Salvelinus alpinus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-27]. Retrieved from: <https://www.fishbase.se/summary/247>

¹⁵⁸ *Salvelinus alpinus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-27]. Retrieved from: <https://www.fishbase.se/summary/Salvelinus-alpinus.html>



Pink to dark orange-red, strongly dependent on the food supply, up to deep orange in artificial breeding. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fine and fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salmo trutta m. fario* or *Salvelinus fontinalis*.

Deep-frozen flesh



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the tail section, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. Deep frozen flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salmo trutta m. fario* or *Salvelinus fontinalis*.

Fresh and deep-frozen flesh confusability

Salmonidae.

Salvelinus fontinalis (Mitchill, 1814)

Commercial designation

Brook Trout

Commercial designation synonyms

American Brook Trout, Aurora Brook Trout, Brook Char, Speckled Trout, Speckled Char

Taxonomic classification

Order Salmoniformes



Family	Salmonidae
Genus	<i>Salvelinus</i>
Species	<i>Salvelinus fontinalis</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Area 8 – Antarctica – Inland waters

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Species description



The body is typically salmon-shaped and taller than that of the trout. Has a terminal, strongly forked mouth and has toothed jaws. Scales are small and deeply embedded in the skin. Has a colouration that is grey-green, and a darker back. Has numerous vermilion-red spots, and numerous light circular spots on the flanks. Has a distinct meandering pattern on the spine. The abdominal, anal and pectoral lobes with the first rays are creamy white. The abdomen is yellow-white. The caudal fin is darkly spotted at the margin, and the adipose fin



is greyish. Common size is 0,5-1 kg at 30-40 cm in lengthHas an exceptional length of one metre and weight over 9 kg¹⁵⁹

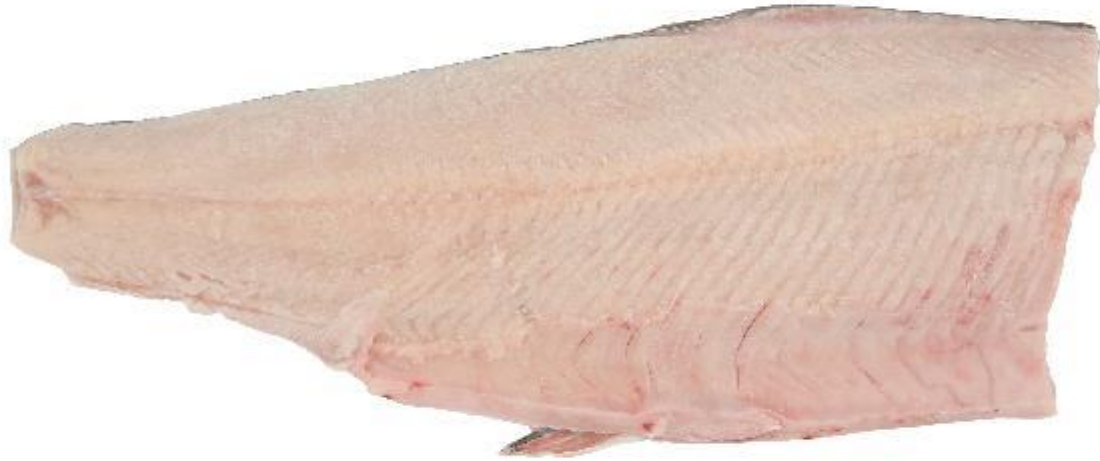
Fresh flesh



Pink to dark orange-red, strongly dependent on the food supply, up to deep orange in artificial breeding. The fillet is robust with a distinct dorsal arch, clear segmentation and a distinct light segmental pattern over virtually the entire surface area. 1 white central line, 1 dorsal throughout the length of the fillet and 1 ventral to the end of the abdominal cavity. The flesh is very fine and fragile. Gaping is very common, especially in the dorsal part. From 1/3 caudally it gradually tapers evenly to the caudal peduncle, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The fresh flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salmo trutta m. fario* or *Salvelinus alpinus alpinus*.

Deep-frozen flesh

¹⁵⁹ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 313-315.



Pink to dark orange-red. The fillet is robust with a distinct dorsal arch, clear segmentation and imperceptible pattern. There are 3 noticeable lines in the central, dorsal and ventral part of the fillet, which gradually tapers evenly from 1/3 caudally to the tail section, which forms up to 1/3 of the cranial height. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is white. The deep frozen flesh can easily be confused with species of the family Salmonidae, especially *Oncorhynchus mykiss*, *Salmo trutta m. fario* or *Salvelinus alpinus alpinus*.

Fresh and deep-frozen flesh confusability

Salmonidae.

Thymallus thymallus (Linnaeus, 1758)

Commercial designation	Grayling	
Commercial designation synonyms	European grayling	
Taxonomic classification	Order	Salmoniformes
	Family	Salmonidae



Genus	<i>Thymallus</i>
Species	<i>Thymallus thymallus</i>

Distribution – FAO areas

Area 5 – Europe – Inland waters

Area 18 – Arctic Sea

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



Has a slender, elongated body with a torpedo-like shape resembling a whitefish. The head is relatively small. The eyes are large, and the mouth is small with a lower position below the overhanging snout, not reaching even vertically from the anterior margin of the eye. The entire body is covered with medium-sized scales. Has a large, brightly coloured dorsal fin that is conspicuous, especially in males. There is an adipose fin between the dorsal and caudal fins, and the caudal fin is deeply excised. It has a dark grey-green to blue coloured dorsum, the



flanks are grey-blue, grey-green, and yellow-green. The common length is 35-50 cm and the weight is up to 1 kg.¹⁶⁰

Fresh flesh



White-pink to olive-grey, depending on the food supply, to orange-reddish with a well-defined segmentation. The fillet is small, slender, with a gradual dorsal arch, and is shaped like a laid-back wine bottle with a sharp transition to a short and very narrow part of the caudal peduncle. A darker longitudinal line is noticeable in the middle part. The height of the fillet in this part is only 1/5 of the height in the cranial part. The ventral part of the abdominal cavity extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is white. The fresh flesh can easily be confused with other species of the family Salmonidae of similar size. A very good characteristic is the narrowing of the fillet at the caudal peduncle.

Deep-frozen flesh

¹⁶⁰ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 327-330.



White to white-pink with well-defined segmentation and a clearly visible pink to red line throughout the central part of the fillet. The fillet is small, slender, with a gradual dorsal arch, and is shaped like a laid-back wine bottle with a sharp transition to a short and very narrow part of the caudal peduncle. The height of the fillet in this part is only 1/5 of the height in the cranial part. The ventral part of the abdominal cavity extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is white. The fresh flesh can easily be confused with other species of the family Salmonidae of similar size. A very good characteristic is the narrowing of the fillet at the caudal peduncle.

Fresh and deep-frozen flesh confusability

Salmonidae.

Scaridae

Chlorurus gibbus (Rüppell, 1829)

Commercial designation

Heavybeak parrotfish

Commercial designation synonyms

Steephead parrotfish, Gibbus parrotfish



Taxonomic classification

Order	Perciformes
Family	Scaridae
Genus	<i>Chlorurus</i>
Species	<i>Chlorurus gibbus</i>

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

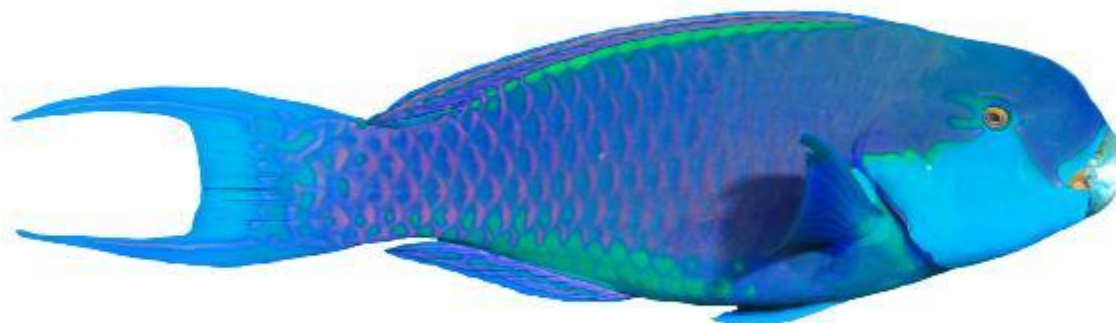
Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



Spindle-shaped, with a medium-high body. Has a terminal mouth. The dorsal profile between the mouth and eyes are always strongly convex, becoming rugose in the terminal phase. Teeth are fused into dental plates in the upper and lower jaw. The lobes of the caudal fin are very long at the end. Behind the eye is an irregular dull whitish patch, fringed with dark green, usually longer than higher, and reaching to the opercular margin. The dorsal and anal fin are light orange to salmon pink with a blue margin and a central blue-green stripe. The caudal fin is salmon pink to orange with bluish margins, and the mid-fin has a green stripe.



The pectoral fins are violet-green, and the pelvic fins are pinkish. Reaches a size of up to 70 cm and a weight of 4 kg.^{161 162}

Fresh flesh



Pink to olive grey with a distinct segmentation and a rectangular pattern throughout, which is larger cranially and becomes smaller caudally. The flesh is stiff and firm. The fillet is robust, smoothly arched dorsally, tapering noticeably from 1/2 to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part of the abdominal cavity reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white with black spots. The fresh flesh can certainly be confused with that of *Scarus gibbus*, which is identical. It is also identical to a number of species in different families, such as *Sparus pagrus*, *Lethinus microdon* and *Labrus bergylta*. The only effective characteristic is the black spots of the abdominal lining and, in the case of the families Sparidae and Lethrinidae, the narrowness of the caudal peduncle and the overall finer constitution of the fillet.

³ Family: Scaridae [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-07-27]. Retrieved from:

<https://www.fao.org/3/ad468e/AD468eJU.pdf#%5B0,%7B%22name%22:%22FitH%22%7D,846>

¹⁶² *Chlorurus gibbus* (Rüppell, 1829). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-27]. Retrieved from: <https://www.fishbase.se/summary/Chlorurus-gibbus.html>



Deep-frozen flesh



Pink to olive grey with a distinct segmentation and a rectangular pattern throughout, which is larger cranially and becomes smaller caudally. The fillet is robust, smoothly arched dorsally, narrowing noticeably from $\frac{1}{2}$ to the tail portion of the tail, which forms $\frac{1}{3}$ of the cranial height. The ventral part reaches $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. The abdominal lining is silvery white with black spots. Confusion with the deep-frozen flesh is certain with *Scarus ghobban*, which is completely identical. It is also identical to a number of species within different families, such as *Sparus pagrus*, *Lethrinus microdon* and *Labrus bergylta*. The only effective characteristic is the black spots of the abdominal lining and, in the case of the families Sparidae and Lethrinidae, the narrowness of the caudal peduncle and the overall finer constitution of the fillet.

Fresh and deep-frozen flesh confusability

Labridae; Lethrinidae; Scaridae; Sparidae.

Scarus ghobban (Forsskål, 1775)

Commercial designation

Blue-barred Parrotfish



Commercial designation synonyms

Blue-barred Orange Parrotfish, Parrotfish, Yellow
Parrotfish

Taxonomic classification

Order	Perciformes
Family	Scaridae
Genus	<i>Scarus</i>
Species	<i>Scarus ghobban</i>

Distribution – FAO areas

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is spindle-shaped and is medium tall. The mouth is anterior, and is equipped with dental plates half covered by the lips. Has a dorsal fin with 9 spines and 10 rays, and an anal fin with 3 spines and 9 rays. The caudal fin in young specimens is rounded, in older specimens there are elongated lobes. The body is covered with large, thick scales. The colour of the scales is initially bluish, becoming whitish to light red ventrally. Margins of the scales are yellow to orange-yellow. Has 5 vertical, distinctly blue stripes on the body. The head is yellowish, with blue stripes. Older males are slightly greenish dorsally on the body and head, and the scales are with a thin salmon pink margin. The sides of the body are gradually less green and more salmon pink. The caudal fin is green and margins of lobes salmon red. Grows up to 75 cm in length, common size is 30 cm. ¹⁶³ ¹⁶⁴

Fresh flesh

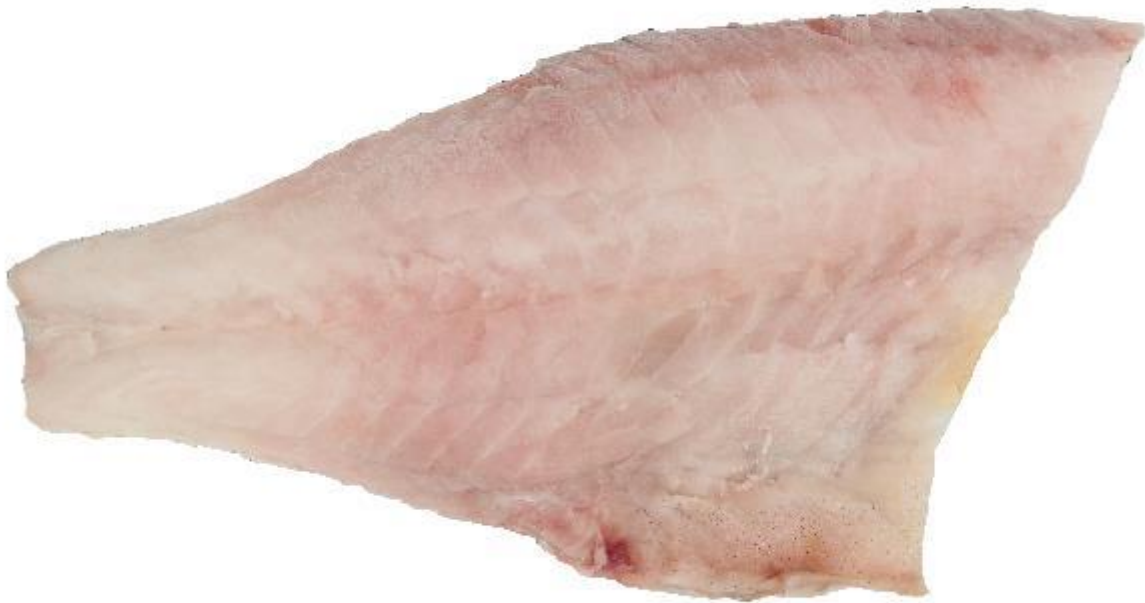
¹⁶³ Sparidae. In: SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages ISBN 978-3-642-82860-7. Pages 712-713.

¹⁶⁴ *Scarus ghobban* (Fabricius, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-28]. Retrieved from: <https://www.fishbase.se/summary/Scarus-ghobban.html>



Pink to olive grey with a distinct segmentation and a rectangular pattern throughout, which is larger cranially and becomes smaller caudally. The flesh is stiff and firm. The fillet is robust, smoothly arched dorsally, tapering noticeably from 1/2 to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part of the abdominal cavity reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white with black spots. The fresh flesh can certainly be confused with that of *Scarus gibbus*, which is identical. It is also identical to a number of species in different families, such as *Sparus pagrus*, *Lethinus microdon* and *Labrus bergylta*. The only effective characteristic is the black spots of the abdominal lining and, in the case of the families Sparidae and Lethrinidae, the narrowness of the caudal peduncle and the overall finer constitution of the fillet.

Deep-frozen flesh



Pink to olive grey with a distinct segmentation and a rectangular pattern throughout, which is larger cranially and becomes smaller caudally. The fillet is robust, smoothly arched dorsally, tapering noticeably from 1/2 to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part reaches 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white with black spots. Confusion with the deep-frozen muscle is certain with the species *Scarus gibbus*, which is completely identical. It is also identical to a number of species within different families, such as *Sparus pagrus*, *Lethinus microdon* and *Labrus bergylta*. The only effective characteristic is the black spots of the abdominal lining and, in the case of the families Sparidae and Lethrinidae, the narrowness of the caudal peduncle and the overall finer constitution of the fillet.

Fresh and deep-frozen flesh confusability

Labridae; Lethrinidae; Scaridae; Sparidae.

Sciaenidae

Argyrosomus regius (Asso, 1801)

Commercial designation

Meagre



Commercial designation synonyms

Croaker, Salmon Bass, Shadefish

Taxonomic classification

Order Perciformes
Family Sciaenidae
Genus *Argyrosomus*
Species *Argyrosomus regius*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 51 – Indian Ocean, Western

Species description



Has a large elongated and moderately flattened body. Has a terminal oblique mouth, and the barbels are absent. The anterior margin of the operculum is slightly serrated. The dorsal fin is divided into 2 parts. The pectoral fins are short. The caudal fin is diamond-shaped to S-shaped. Has a silvery grey colour with a golden sheen on the dorsum. Inside of the snout it's



yellowish to orange. The pectoral fins are variably pigmented. The operculum is dark inside, and externally it appears as a dark spot. Normal size is 50 cm, but can grow up to 200 cm.¹⁶⁵

Fresh flesh



White to grey-pink colour with darker spots (points) in the dorsal, central and ventral-caudal part of the fillet. In some cases, the spots may merge into the entire line, especially in the central part. The whole surface of the fillet is marked with a pattern and a well-defined segmentation. The fillet is robust, slender, with minimal dorsal arching and a symmetrical conical taper throughout its length, up to the part of the caudal peduncle that forms 1/3 of the cranial height. The ventral part of the abdominal cavity extends to 3/4 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The elongated shape of the fillet and its colouring make it difficult to confuse the fresh flesh with that of *Arripis trutta*, which is darker overall with much more pronounced longitudinal lines. If only part of the fillet is evaluated, it is easy to confuse it with species of the families Carangidae, Serranidae or Rachycentridae, in particular *Rachycentron canadum*, which is very similar, with only one more interrupted line in the ventral part.

¹⁶⁵ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and Sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 781 pages [Pages. 2343–3124], ISBN 978-92-5-109267-5. Page 2639.



Deep-frozen flesh



White to grey-pink colour with darker spots (points) in the dorsal, central and ventral-caudal part of the fillet. In some cases, the spots may merge into the entire line, especially in the central part. The whole surface of the fillet is marked with a pattern and a well-defined segmentation. The fillet is robust, slender, with minimal dorsal arching and a symmetrical conical taper throughout its length, up to the part of the caudal peduncle that forms 1/3 of the cranial height. The ventral part of the abdominal cavity extends to 3/4 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The elongated shape of the fillet and its colouring make it difficult to confuse the fresh flesh with that of *Arripis trutta*, which is darker overall and has much more pronounced longitudinal lines. If only part of the fillet is evaluated, it is easy to confuse it with species of the families Carangidae, Serranidae or Rachycentridae, in particular *Rachycentron canadum*, which is very similar, with only one more interrupted line in the ventral part.

Fresh and deep-frozen flesh confusability

Arripidae; Carangidae; Serranidae.



Atrobuca nibe (Jordan & Thompson, 1911)

Commercial designation

Blackmouth Croaker

Commercial designation synonyms

Longfin Kob, Black Croaker, Longmouth Jewfish

Taxonomic classification

Order Perciformes

Family Sciaenidae

Genus *Atrobuca*

Species *Atrobuca nibe*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description





Medium-sized species. Has a large mouth, oblique. The upper jaw projects backwards below the posterior margin of the eye. Has large and small teeth in both jaws. The dorsal fin is divided into two parts. The caudal fin has 2 spines and 7 soft rays, and the second spine is short. The scales are cycloid on the operculum and throat, and is ctenoid on other parts of the head and body. The lateral line reaches to the base of the caudal fin. The colour of the body is silvery and the abdomen is whitish. The lining of the mouth, gill chamber and body cavity are black. Maximum standard length is 45 cm, normally up to 25 cm.¹⁶⁶

Fresh flesh



Light to dark pink with a well visible segmentation and 2 darker longitudinal lines. It is dorsal throughout the length of the fillet, 1/3 solid, then interrupted. The centre may be solid or interrupted, starting after the last rib vertebra. The fillet is small, slightly dorsally arched, tapering caudally from 1/2 to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part reaches 1/2 of the height and 3/5 of the length of the fillet. Abdominal lining

¹⁶⁶ Carpenter, K.E., Niem, V.H. (eds). *The living marine resources of the Western Central Pacific. Volume 5. Bony fishes part 3 (Menidae to Pomacentridae)*. [FAO species identification guide for fishery purposes] Rome: Food and Agriculture Organisation, 2001. 589 pages [Pages 2791-3380]. ISBN 92-5-104587-9. Page 3133



blackish grey to black. Confusion of the fresh flesh with other species is unlikely, but possible with a number of species of the families Moranidae or Sparidae.

Deep-frozen flesh



Light to dark pink with a well visible segmentation and 2 darker longitudinal lines. It is dorsal throughout the length of the fillet, 1/3 solid, then interrupted. The centre may be solid or interrupted, starting after last rib vertebra. The fillet is small, slightly dorsally arched, tapering caudally from 1/2 to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part reaches 1/2 of the height and 3/5 of the length of the fillet. The abdominal lining is blackish grey to black. Confusion of the deep-frozen flesh with other species is unlikely, but possible with a number of species of the families Moranidae or Sparidae.

Fresh and deep-frozen flesh confusability

Moranidae, Sparidae.

Sciaena umbra (Linnaeus, 1758)



Commercial designation

Brown Meagre

Commercial designation synonyms

Corb

Taxonomic classification

Order	Perciformes
Family	Sciaenidae
Genus	<i>Sciaena</i>
Species	<i>Sciaena umbra</i>

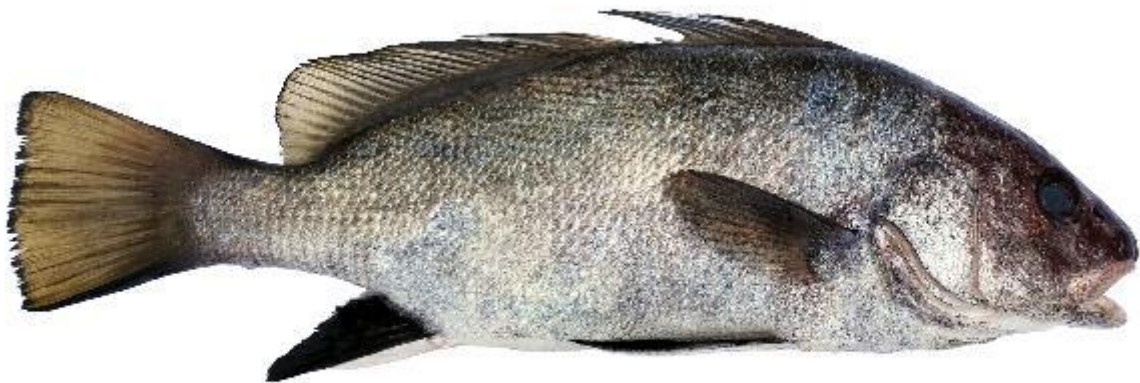
Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, sides are slightly flattened, and the dorsum is strongly arched. The rostrum is conical, mouth is lower, margin of the preoperculum is serrated, and is often with several spines. The dorsal fin is divided into two parts, the first triangular, followed by a low ray fin. The caudal fin is composed of 2 spines and 7-8 rays, the second spine is conspicuously thick, not reaching the length of the first. The caudal fin is truncated. Has a greyish silver



colour, with a golden or metallic tinge. The margin of the operculum is smoky dark. The dorsal and anal fin are jet black, and the margin of the soft part of the dorsal fin is dark. Grows to 50 cm, normal size is 30 cm.¹⁶⁷

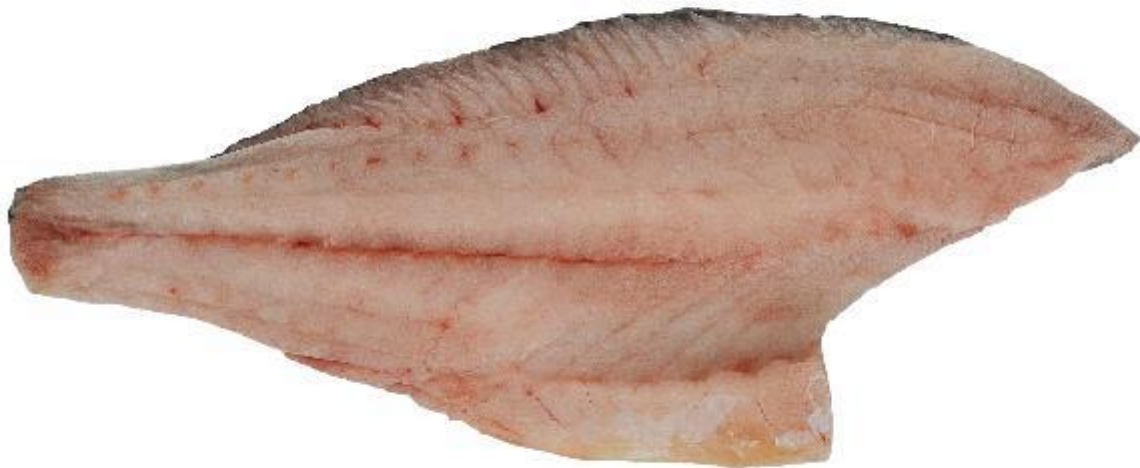
Fresh flesh



Light to dark pink a with well visible segmentation and 2 darker longitudinal lines. It is dorsal throughout the length of the fillet, 1/3 solid, then interrupted. The centre is full, beginning after the last rib vertebrae. The flesh is fine and firm. The fillet is massive for its size, strongly dorsally arched, with the arch almost half-lobed. From 1/2 it tapers caudally to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part reaches 1/2 the height and 3/5 the length of the fillet. The lining of the abdominal cavity is silvery white. Confusion of the fresh flesh with other species is relatively easy, especially with many species of the families Sparidae and Moronidae, which have very similar characteristics. A clue may be the half-lobed arch, which is absent in similar species.

Deep-frozen flesh

¹⁶⁷ Carpenter, K.E., De Angelis, N. (eds.). *The living marine resources of the Eastern Central Atlantic. Volume 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and Sea turtles*. [FAO Species Identification Guide for Fishery Purposes], Rome: Food and Agriculture Organisation, 2016. 781 pages [Pages 2343-3124]. Page. 2650



Light to dark pink with a well visible segmentation and 2 darker longitudinal lines. It is dorsal throughout the length of the fillet, 1/3 solid, then interrupted. The centre is full, beginning after the last rib vertebrae. The flesh is fine and firm. The fillet is massive for its size, strongly dorsally arched, with the arch almost half-lobed. From 1/2 it tapers caudally to the caudal peduncle, which forms 1/3 of the cranial height. The ventral part reaches 1/2 the height and 3/5 the length of the fillet. The lining of the the abdominal cavity is silvery white. Confusion of the deep frozen flesh with other species is relatively easy, especially with many species of the families Sparidae and Moronidae, which have very similar characteristics. A clue may be the half-lobed arch, which is absent in similar species.

Fresh and deep-frozen flesh confusability

Sparidae; Moronidae.

Scombridae

Acanthocybium solandri (Cuvier, 1832)

Commercial designation

Wahoo

Commercial designation synonyms

Barracuda, Bastard Mackerel, Jack Mackerel

Taxonomic classification

Order

Scombriformes



Family	Scombridae
Genus	<i>Acanthocybium</i>
Species	<i>Acanthocybium solandri</i>

Distribution – FAO areas

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 - Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is very elongated, fusiform and only slightly laterally compressed. The posterior part of the maxilla is completely hidden under the preorbital bone. The first dorsal fin has 23 to 27 spines, and 9 dorsal and anal fins. Two small interpelvic processes are between the pelvic fins. The dorsum is an iridescent bluish green. Numerous dark vertical stripes extend along the sides of the lateral line. Maximum length is up to 210 cm.¹⁶⁸

Fresh flesh

¹⁶⁸ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Pages 1842



Pink to pinkish orange with a clear segmentation and 2 distinct red lines. 1 in the dorsal and 1 in the central part. In the dorsal part there are 2 thin white lines along the whole length. The flesh is fine and firm with a tendency to have gaping in the cranial part. The fillet is robust, elongated, and without any dorsal arches. It is divided into 2 equal parts by a longitudinal line. The fresh flesh can be confused especially with *Sarda sarda* and *Sarda orientalis*, which, however, have significantly darker flesh. In the cross-section, both the dorsal and ventral parts form concentric circular segments, thus differing significantly from *Rachycentron canadum*.

Deep-frozen flesh



Pink to pinkish orange with a clear segmentation and 2 distinct red lines. 1 in the dorsal and 1 in central part. In the dorsal part there are 2 thin white lines along the whole length. The flesh is fine and firm with a tendency to have gaping in the cranial part. The fillet is robust, elongated, and without any dorsal arches. It is divided into 2 equal parts by a longitudinal line. The deep-frozen flesh can be confused especially with *Sarda sarda* and *Sarda orientalis*, which, however, have significantly darker flesh. In the cross-section, both the dorsal and ventral parts form concentric circular segments, thus differing significantly from *Rachycentron canadum*.

Fresh and deep-frozen flesh confusability

Rachycentridae; Scombridae.

Auxis rochei (Risso, 1810)

Commercial designation

Bullet Tuna

Commercial designation synonyms

Bullet Mackerel, Corseletted Frigate Mackerel,
Frigate Mackerel

Taxonomic classification

Order Scombriformes



Family Scombridae

Genus *Auxis*

Species *Auxis rochei*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 - Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 81 – Pacific, Southwest

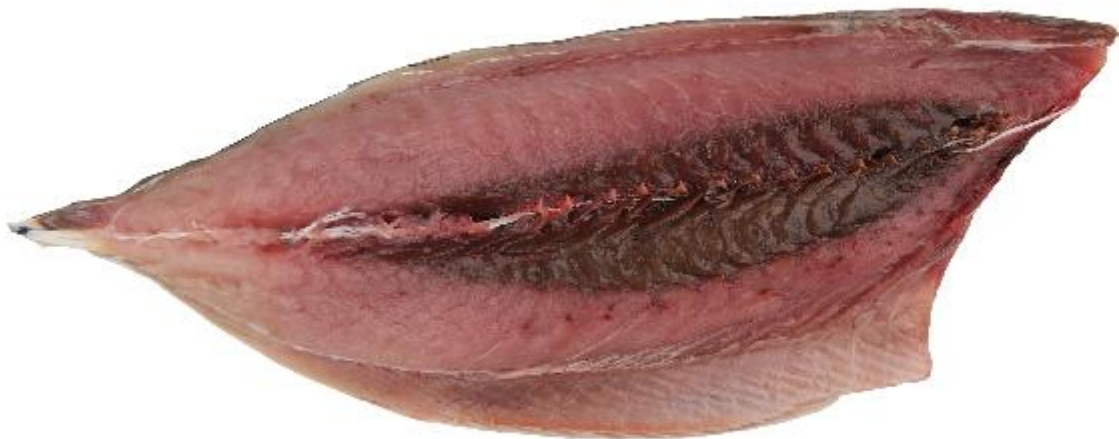
Species description





The body is robust, elongated and rounded. Has two short dorsal fins, the gap between them is the length of the base of the first fin. Eight finlets are behind the second dorsal fin and seven are behind the anal fin. The pectoral fins are short. The body is without scales, except for a sheath of large scales located dorsally and cranially. The thickest sheathing is below the base of the 2nd dorsal fin. At the base of the caudal fin is 4 keels - 2 massive, and 2 smaller. Has a blackish bluish colour, changing to dark purple to black on the head. 15 or more relatively broad and almost vertical stripes are on the scaleless part of the dorsum. The abdomen is white, and the pectoral and pelvic fins are purple with dark inner side.¹⁶⁹

Fresh flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in a transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the tail end and to the caudal peduncle. It is very easy to confuse the fresh flesh, especially with other species of the

¹⁶⁹ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Pages 1843.



Scombridae family, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the caudal peduncle to the tail end. Very easy confusion of the deep-frozen flesh is possible, especially with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Fresh and deep-frozen flesh confusability

Scombridae.



Auxis thazard (Lacepède, 1800)

Commercial designation	Frigate tuna
Commercial designation synonyms	Bonito, Bullet Mackerel, Frigate Mackerel, Leadenall
Taxonomic classification	Order Scombriformes Family Scombridae Genus <i>Auxis</i> Species <i>Auxis thazard</i>

Distribution – FAO areas

- Area 21 – Atlantic, Northwest
- Area 31 – Atlantic, Western Central
- Area 34 – Atlantic, Eastern Central
- Area 37 – Mediterranean and Black Sea
- Area 41 – Atlantic, Southwest
- Area 47 – Atlantic, Southeast
- Area 51 – Indian Ocean, Western
- Area 57 - Indian Ocean, Eastern
- Area 61 – Pacific, Northwest
- Area 71 – Pacific, Western Central
- Area 81 – Pacific, Southwest

Species description



The body is robust, elongated, and rounded in the cross-section. The anterior mouth is large. Has two dorsal fins, 8 finlets are behind the second dorsal fin. The caudal fin is followed by 7 finlets. 2 strong keels are on each side of the base of the caudal fin between the 2 smaller keels. The caudal fin is broadly forked. Has a corselet region that is well developed and narrow posteriorly. Other parts of body are without scales. Has a blackish bluish colour, changing to dark pink and black on the head. Has a pattern of narrow, oblique to almost horizontal, dark wavy lines in the scaleless area above the lateral line. Grows to 65 cm, normal is size 60 cm. ¹⁷⁰

Fresh flesh

¹⁷⁰Auxis thazard (Lacepède, 1800), In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrived from: <https://www.fishbase.se/summary/Auxis-thazard.html>



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle . Very easy confusion of fresh flesh is possible, especially with other species of the family Scombridae, such as *Auxis rochei*, *Euthynnus Elletteratus* or *Euthynnus affinis*. Size may be the only clue, but even so, confusion is very easy, almost certain in the case of portions

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle . It is very easy to confuse the deep-frozen flesh, especially with other species of the Scombridae family, such as *Auxis rochei*, *Euthynnus Elletteratus* or *Euthynnus affinis*. Size may be the only clue, but even so, confusion is very easy, almost certain in the case of portions.

Fresh and deep-frozen flesh confusability

Scombridae.

Euthynnus affinis (Cantor, 1849)

Commercial designation

Kawakawa

Commercial designation synonyms

Black Skip Jack, Bonito, Diverg-bonito, False



Albacore, Eastern Little Tuna, Dwarf Bonito

Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Euthynnus</i>
Species	<i>Euthynnus affinis</i>

Výskyt dle FAO

Area 47 – Atlantic, Southeast

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description





A medium-sized fish with a robust, elongated, spindle-shaped body. Has 2 large dorsal fins. The second is much lower than the first, followed by 8-10 finlets. The caudal fin is followed by 6-8 finlets. Has a very slender caudal peduncle with a prominent lateral keel between 2 small keels at the base of the caudal fin. The body is without scales except the corslet and lateral line. Has a dark blue dorsal colour with an elaborate striped pattern that does not extend forward beyond the centre of the first dorsal fin. The undersides and belly are silvery white. Has a few characteristic dark spots between the pelvic and pectoral fins (but not necessarily present). Grows to 100 cm, normal size is 60 cm. Maximum published weight is 14 kg.¹⁷¹

Fresh flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in a transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The muscle is very firm and tender, prone to gaping and is opalescent in colour on the transverse section. The abdominal color is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal

¹⁷¹ *Euthynnus affinis* (Cantor, 1849). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/96>.



peduncle . It is very easy to confuse the fresh flesh, especially with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Auxis rochei* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be its size, but even so, confusion is very easy, almost certain in the case of portions.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in a transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle . It is very easy to confuse the deep-frozen flesh with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Auxis rochei* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be its size, but even so, confusion is very easy, almost certain in the case of portions.

Fresh and deep-frozen flesh confusability

Scombridae.



Euthynnus alletteratus (Rafinesque, 1810)

Commercial designation

Little Tunny

Commercial designation synonyms

Little Tuna, Atlantic black skipjack, Bonito,

False albacore

Taxonomic classification

Order Scombriformes

Family Scombridae

Genus *Euthynnus*

Species *Euthynnus alletteratus*

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Species description



Has a robust and fusiform body. Has two closely separated dorsal fins. The first has a strongly concave outline. The second is much lower than the first, followed by 8 finlets. An anal fin is followed by 7 finlets. The body is smooth, only the corselet and lateral line are scaly. The caudal peduncle has a distinct median keel between 2 small keels on each side. The dorsal colouration is dark blue with an elaborate striped pattern extending from the caudal to cranial part, not extending beyond the centre of the first dorsal fin. The sides and belly are silvery white. A few characteristic dark spots are between the pelvic and pectoral fins. Maximum size is up to 100 cm, normally up to 75 cm and weight about 6 kg.¹⁷²

Fresh flesh

¹⁷² CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1845.



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle . It is very easy to confuse the fresh flesh, especially with other species of the Scombridae family, such as *Auxis rochei*, *Euthynnus affinis* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle. It is very easy to confuse the deep-frozen flesh with other species of the Scombridae family, such as *Auxis rochei*, *Euthynnus affinis* or *Thunnus tonggol*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Fresh and deep-frozen flesh confusability

Scombridae.

Katsuwonus pelamis (Linnaeus, 1758)

Commercial designation

Skipjack Tuna

Commercial designation synonyms

Aku, Atu, Banjo, Barriolet, Bonito, Arctic Bonito,



Atlantic Bonito, Ocean Bonito, White Bonito

Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Katsuwonus</i>
Species	<i>Katsuwonus pelamis</i>

Distribution – FAO areas

- Area 21 – Atlantic, Northwest
- Area 27 – Atlantic, Northeast
- Area 31 – Atlantic, Western Central
- Area 34 – Atlantic, Eastern Central
- Area 37 – Mediterranean and Black Sea
- Area 41 – Atlantic, Southwest
- Area 47 – Atlantic, Southeast
- Area 51 – Pacific, Southwest
- Area 57 – Pacific, Southeast
- Area 61 – Pacific, Northwest
- Area 67 – Pacific, Northeast
- Area 71 – Pacific, Western Central
- Area 77 – Pacific, Eastern Central
- Area 81 – Pacific, Southwest
- Area 87 – Pacific, Southeast

Species description



The body is fusiform, and elongated and round in the cross-section. Two dorsal fins are separated by a gap smaller than the eye, followed by 7-9 finlets. The caudal fin is followed by 7-8 finlets. The caudal fin is broadly forked. At the base of the caudal fin on each side is a strong keel, it is between two smaller keels. There are scales on the corselet and lateral line, otherwise it is without scales. The colour dorsally is a dark purplish-blue, ventrally silvery, and has 4 to 6 very prominent longitudinal dark stripes, which in live specimens may appear as discontinuous lines of dark spots. It grows to 108 cm and weighs 32.5-34.5 kg, with a normal size of 80 cm and 8-10 kg.¹⁷³

Fresh flesh

¹⁷³ Collette, B.B., Nauen C.E., *FAO species 1983, catalogue. Vol. 2. Scombrids of the world. An annotated and illustrated catalogue of tunas, mackerels, bonitos and related species known to date.* Rome 1983. 137 pages, ISBN 95-5-101381-0. Page 42.



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle. Very easy confusion of fresh flesh is possible, especially with other species of the family Scombridae, such as *Auxis rochei*, *Auxis thazard* or *Euthynnus affinis*. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet and tapers to the caudal peduncle. Very easy confusion of the deep-frozen flesh is possible, especially with other species of the family Scombridae, such as *Auxis rochei*, *Auxis thazard* or *Euthynnus affinis*. The only clue may be size, but even so, confusion is very easy, almost certain in the case of portions.

Fresh and deep-frozen flesh confusability

Scombridae.

Sarda orientalis (Temminck & Schlegel, 1844)

Commercial designation

Striped Bonito

Commercial designation synonyms

Bonito, Indo-Pacific Bonito, Mexican Bonito,

Taxonomic classification

Order

Scombriformes



Family	Scombridae
Genus	<i>Sarda</i>
Species	<i>Sarda orientalis</i>

Distribution – FAO areas

Area 47 – Atlantic, Southeast

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 87 – Pacific, Southeast

Species description

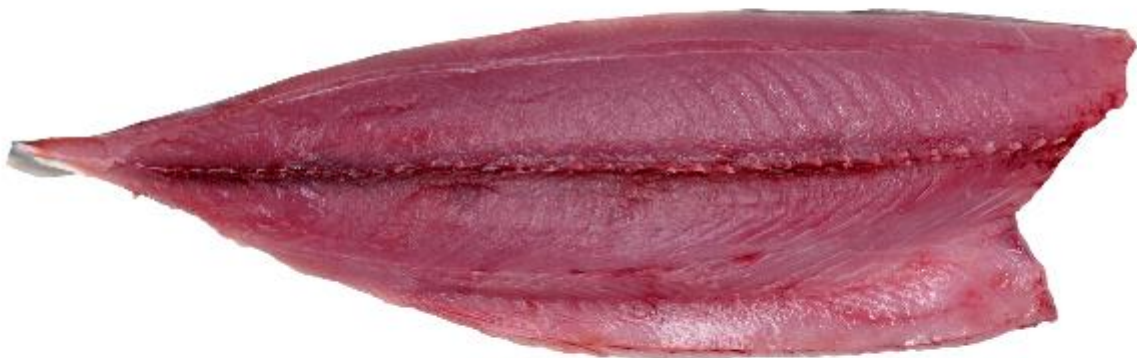


The body is fusiform, cranially covered with large bony scales, and has small cycloid scales on the rest of the body. Has two dorsal fins, plus 7-9 finlets. The first dorsal fin has a distinctly longer base. The caudal fin has 6-7 finlets. The caudal fin is heterocercal with lobes that are rather widely spread. Has a large median keel with 2 smaller keels on each side of caudal



peduncle. The colour above is steel blue ventrally with 5-11 narrow dark stripes, dorsally silvery, and the first dorsal fin is dark. Grows to 102 cm, normal size is 55 cm, highest recorded weight is 10,7 kg.^{174 175 176}

Fresh flesh



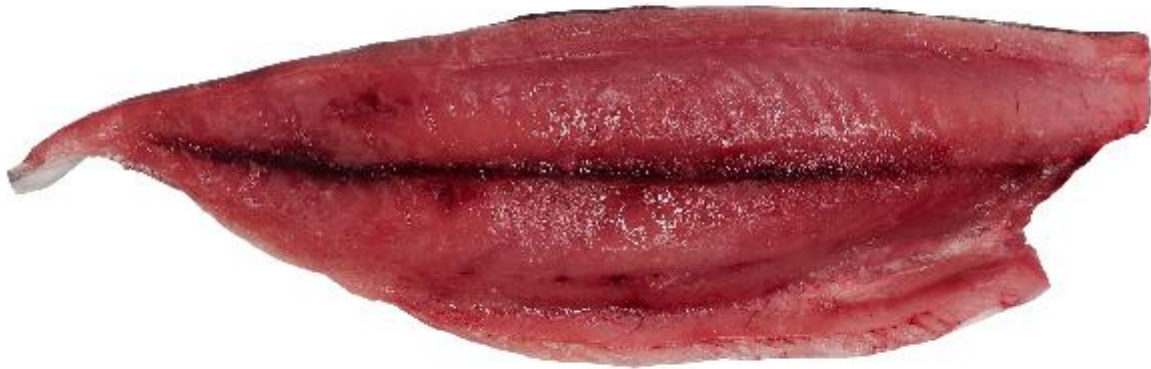
Dark pink with a distinct brownish red stripe in the central part and a lighter double white line in the dorsal part and a small white pattern in the ventral part. All stripes are clearly visible throughout the length of the fillet. Segmentation is noticeable but not pronounced. The whole fillet is very robust, arched dorsally throughout, and tapers very rapidly caudally in the last third to a narrow strip of the caudal peduncle. The fresh flesh is easily confusable with that of the *Sarda sarda*, which is virtually identical. Confusion with other species is unlikely due to common sizes.

Deep-frozen flesh

¹⁷⁴SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages. ISBN 978-3-642-82860-7. Page 835.

¹⁷⁵ *Sarda orientalis* (Temminck & Schlegel, 1844), fishider.org. [cit. 2023-04-04]. Retrieved from: <https://fishider.org/en/guide/osteichthyes/scombridae/sarda-orientalis>

¹⁷⁶ *Sarda orientalis* (Temminck & Schlegel, 1844), In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-27]. Retrieved from: <https://www.fishbase.se/summary/Sarda-orientalis.html>



Dark pink to dark brown with a distinct brownish red stripe in the central part and a less noticeable darker stripe in the dorsal and ventral part. All stripes are visible throughout the length of the fillet. Segmentation is very visible. The drawing is imperceptible. The whole fillet is very robust, arched dorsally throughout, and tapers very rapidly caudally in the last third to a narrow strip of the caudal portion of the caudal peduncle. The deep-frozen flesh can easily be confused with that of the *Sarda sarda*, which is virtually identical. Confusion with other species is unlikely due to common sizes.

Fresh and deep-frozen flesh confusability

Scombridae.

Sarda sarda (Bloch, 1793)

Commercial designation

Atlantic Bonito

Commercial designation synonyms

Belted Bonito, Bone Jack, Bloater, Common

Boston Mackerel, Horse Mackerel, Short Finned

Tunny



Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Sarda</i>
Species	<i>Sarda sarda</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Species description

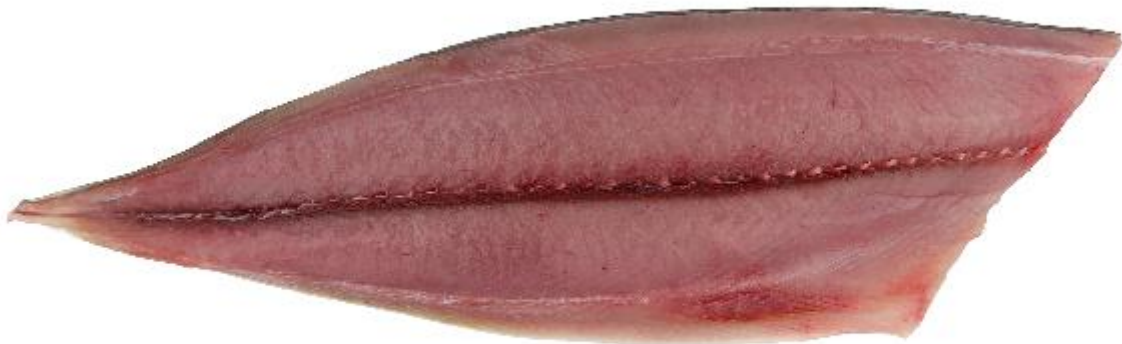


A small fish with a relatively slender, tuna-shaped body. Two dorsal fins are close together. Behind the second dorsal fin are 7-9 finlets, and behind the anal fin there are 6-8. The lateral line is conspicuously wavy. Scales are small (except corselet), and the caudal peduncle is slender with a well-developed lateral keel, and is between 2 lateral keels. The colour dorsally



is steel blue, with 5-11 dark oblique stripes running dorsally, anteriorly, and laterally silver. Grows to 85 cm and 5 kg in weight, normal size is 50 cm, 2 kg.¹⁷⁷

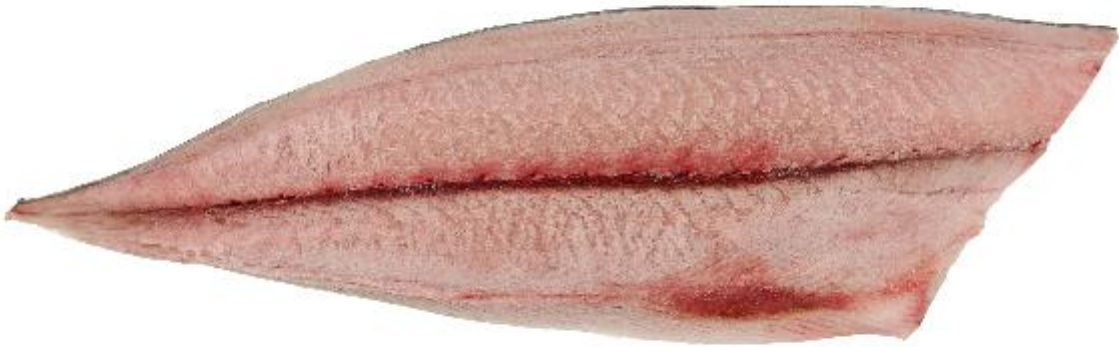
Fresh flesh



Dark pink with a distinct brownish red stripe in the central part and a lighter double white line in the dorsal part and a small white pattern in the ventral part. All stripes are clearly visible throughout the length of the fillet. Segmentation is noticeable but not pronounced. The whole fillet is very robust, arched dorsally throughout, tapering very rapidly caudally in the last third to a narrow strip of the caudal portion of the caudal peduncle. The fresh flesh can easily be confused with *Sarda orientalis*, which is virtually identical. Confusion with other species is unlikely due to common sizes.

Deep-frozen flesh

¹⁷⁷ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1847.



Light pink to dark brown with a distinct brownish red stripe in the central part and a less noticeable darker stripe in the dorsal and ventral part. All stripes are visible throughout the length of the fillet. Segmentation is very visible. The pattern is imperceptible. The whole fillet is very robust, arched dorsally throughout, and tapers very rapidly caudally in the last third to a narrow strip of the caudal portion of the caudal peduncle. The deep-frozen flesh can easily be confused with *Sarda orientalis*, which is virtually identical. Confusion with other species is unlikely due to common sizes.

Fresh and deep-frozen flesh confusability

Scombridae.

Scomber australasicus (Cuvier, 1832)

Commercial designation

Blue Mackerel

Commercial designation synonyms

Common Mackerel, English Mackerel, Japanese Mackerel, Southern Mackerel, Spotted Chub Mackerel, Slimy Mackerel



Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Scomber</i>
Species	<i>Scomber australasicus</i>

Distribution – FAO areas

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The body is fusiform. The head is elongated, with relatively large eyes and anterior mouth. The body is covered with relatively small scales. Has two dorsal fins, plus finlets. The anal fin is without spines, plus additional fins. Has a double-lobed caudal fin. The body dorsally is with dark oblique lines which zigzag and undulate; the abdomen is pearly white with thin,



wavy, interrupted lines, and sometimes they appear as spots. Maximum size is 40 cm, normal size is 30 cm.^{178 179}

Fresh flesh



White-pink to red, with a distinct red stripe in the central part of the fillet and a faint darker interrupted stripe in the dorsal part. Has a small white pattern in the periphery of the dorsal and ventral part of the fillet. Has a well-defined segmentation with a marked tendency to have gaping throughout the fillet, together with a distinctive smell, is a hallmark of the species. The flesh is tender and delicate. The fillet is robust for its size, with a smooth, dorsally and ventrally symmetrical arch throughout its length. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to 2/3 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. Easily confusable with fresh flesh of *Scomber scombrus* and *Scomber japonicus*, which are virtually identical

Deep-frozen flesh

¹⁷⁸ *Scomber australasicus* (Cuvier, 1832). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-09-26]. Dostupné z: <https://www.fishbase.se/summary/Scomber-australasicus>

¹⁷⁹ Collette, B.B., Nauen C.E., *FAO species 1983, catalogue. Vol. 2. Scombrids of the world. An annotated and illustrated catalogue of tunas, mackerels, bonitos and related species known to date*. Rome 1983. 137 pages. ISBN 95-5-101381-0. Page 56.



White-pink to pink, with a distinct dark stripe in the central part of the fillet and a barely perceptible darker stripe in the dorsal part. The pattern is imperceptible. Has a well visible segmentation with a marked tendency to have gaping throughout the fillet. The lining of the ventral part is blackish grey. The fillet is robust for its size, with smooth, dorsally and ventrally symmetrical arches throughout. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to 2/3 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. The deep-frozen flesh can easily be confused with *Scomber scombrus* and *Scomber japonicus*, which are virtually identical.

Fresh and deep-frozen flesh confusability

Scombridae.

Scomber japonicus (Houttuyn, 1782)

Commercial designation

Chub Mackerel

Commercial designation synonyms

American Mackerel, Blue Mackerel, Big-eyed Mackerel, Common Mackerel, Japan Mackerel

Taxonomic classification

Order Scombriformes



Family	Scombridae
Genus	<i>Scomber</i>
Species	<i>Scomber japonicus</i>

Distribution – FAO areas

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

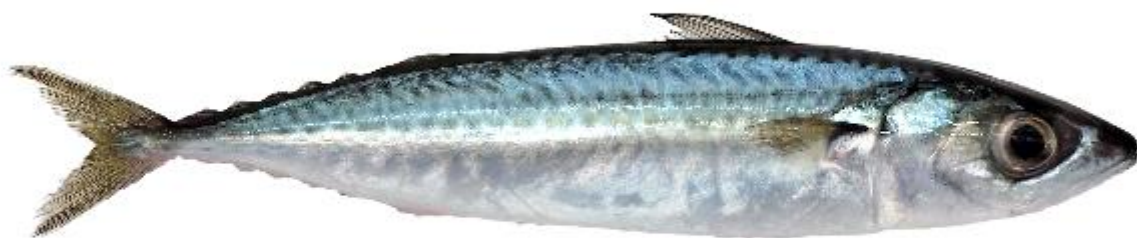
Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



The body is fusiform with a large head and large anterior mouth. Has two dorsal fins plus 5 additional fins. The anal fin has an additional 5 fins. The anal fin spine is separated from the



rays. The caudal fin is lobed. The dorsal fin is darker, grey-blue, and has oblique lines that zigzag and undulate. The abdomen is lighter. The abdomen is clear (Pacific stock) or marked with spots or wavy dashed lines (Atlantic stock). Grows up to 50 cm, normal size is 30 cm.¹⁸⁰
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Fresh flesh



White-pink to red, with a distinct red stripe in the central part of the fillet and a faint darker interrupted stripe in the dorsal part. Has a small white pattern in the periphery of the dorsal and ventral part of the fillet. The well-defined segmentation has a pronounced tendency to have gaping throughout the fillet, and together with the distinctive smell, is a hallmark of the species. The flesh is tender and delicate. The fillet is robust for its size, with a smooth, dorsally and ventrally symmetrical arch throughout its length. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to 2/3 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. The fresh flesh can easily be confused with *Scomber scombrus* and *Scomber australasicus*, which are virtually identical.

¹⁸⁰ *Scomber japonicus* (Houttuyn, 1782). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-08]. Retrieved from: <https://fishbase.mnhn.fr/summary/Scomber-japonicus.html>

¹⁸¹ Collette, B.B., Nauen C.E., FAO species 1983, catalogue. Vol. 2. Scombrids of the world. An annotated and illustrated catalogue of tunas, mackerels, bonitos and related species known to date. Rome 1983. 137 pages. ISBN 95-5-101381-0. Page. 57.



Deep-frozen flesh



White-pink to pink, with a distinct dark stripe in the central part of the fillet and a barely perceptible darker stripe in the dorsal part. Patterning is not discernible. There is a well visible segmentation with a marked tendency to have gaping throughout the fillet. The lining of the ventral part is blackish grey. The fillet is robust for its size, with smooth, dorsally and ventrally symmetrical arches throughout. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to 2/3 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. It is easily interchangeable between deep-frozen flesh and *Scomber scombrus* and *Scomber australasicus*, which are virtually identical.

Fresh and deep-frozen flesh confusability

Scombridae.

Scomber scombrus (Linnaeus, 1758)

Commercial designation	Atlantic Mackerel
Commercial designation synonyms	Joey, Mackerel, Split
Taxonomic classification	Order Scombriformes



Family	Scombridae
Genus	<i>Scomber</i>
Species	<i>Scomber scombrus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, round in the cross-section. Has two distinctly separate dorsal fins. Has 5 dorsal and 5 anal finlets. There is a small flap between the pelvic fins, and two small keels on each side of thin caudal peduncle. The caudal fin is broadly forked. The scales on the body are small, larger and dorsally behind the head and around the pectoral fins. The dorsum and tail are blue-green with dark, curved vertical stripes. The sides are metallic and silver to white on the ventral part of the body. The caudal fin is strongly forked. Normal size is 30-40 cm, maximum size is 60 cm and weight 3,4 kg.¹⁸²

Fresh flesh

¹⁸² MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page 422.



White-pink to red, with a distinct red stripe in the central part of the fillet and a faint darker interrupted stripe in the dorsal part. Has a small white pattern in the periphery of the dorsal and ventral part of the fillet. There is a well-defined segmentation, with a marked tendency to have gaping throughout the fillet, and together with its distinctive smell, is a hallmark of the species. The flesh is tender and delicate. The fillet is robust for its size, with a smooth, dorsally and ventrally symmetrical arch throughout its length. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to $\frac{2}{3}$ of the height and $\frac{3}{5}$ of the length of the fillet. The lining of the abdominal cavity is blackish grey. The fresh flesh can easily be confused with *Scomber japonicus* and *Scomber australasicus*, which are virtually identical.

Deep-frozen flesh



White-pink to pink, with a distinct dark stripe in the central part of the fillet and a barely perceptible darker stripe in the dorsal part. The pattern is imperceptible. There is a well visible segmentation with a marked grey tendency to have gaping throughout the fillet. The lining of the ventral part is blackish grey. The fillet is robust for its size, with smooth, dorsally and ventrally symmetrical arches throughout. From the middle of the fillet it tapers caudally to a thin tip. The ventral part extends to 2/3 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is blackish grey. The deep-frozen flesh can easily be confused with *Scomber japonicus* and *Scomber australasicus*, which are virtually identical.

Fresh and deep-frozen flesh confusability

Scombridae.

Scomberomorus cavalla (Cuvier, 1829)

Commercial designation	King Mackerel	
Commercial designation synonyms	Kingfish	
Taxonomic classification	Order	Scombriformes
	Family	Scombridae



Genus *Scomberomorus*
Species *Scomberomorus cavalla*

Výskyt dle FAO

Area 21 – Atlantic, Northwest

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 41 – Atlantic, Southwest

Species description



The body is elongated, strongly compressed. The posterior part of the maxilla is exposed, reaching vertically with the posterior margin of the eye. Has two barely separated dorsal fins, the first with 14 to 16 (usually 15) spines. Then there are 8-9 separate small appendages, and the anal fins have 9-10. There are two projections between the pelvic fins. The lateral line curves sharply downwards below the second dorsal fin. The body is entirely covered with scales. The pectoral fins are without scales except at the base. The dorsum is iridescent blue-



green, and the flanks are silvery. The anterior third of the first dorsal fin is pigmented. Normal size is up to 70 cm. Maximum length is 150 cm and 36 to 45 kg. ¹⁸³

Fresh flesh



White-grey to olive-grey with a distinctive dark red central line throughout the length of the fillet. Then 2 red dashed lines, one each in the dorsal and ventral peripheral part. In both cases, the line is also edged in white. Segmentation is very clearly visible. The flesh is fine and firm, with a high susceptibility to have gaping at the segmental sites. The fillet is elongated, minimally dorsally arched with a gradual conical transition to the caudal peduncle. The abdominal partition extends to 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white. The fresh flesh can be easily confused with *Scomberomorus maculatus*, which is virtually identical.

Deep-frozen flesh

¹⁸³CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1850.



White-grey to olive-grey with a distinctive dark red central line throughout the length of the fillet. Then 2 red dashed lines, one each in the dorsal and ventral peripheral part. Segmentation is very clearly visible. The flesh has a high susceptibility to have gaping at the segmental sites. The fillet is elongated, minimally dorsally arched with a gradual conical transition to the caudal peduncle. The abdominal partition extends to 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white. The deep-frozen flesh can be easily confused with *Scomberomorus maculatus*, which is virtually identical.

Fresh and deep-frozen flesh confusability

Scombridae.

Scomberomorus maculatus (Mitchill 1815)

Commercial designation	Atlantic Spanish Mackerel
Commercial designation synonyms	Spanish Mackerel
Taxonomic classification	Order Scombriformes
	Family Scombridae



Genus	<i>Scomberomorus</i>
Species	<i>Scomberomorus maculatus</i>

Výskyt dle FAO

Area 21 – Atlantic, Northwest

Area 31 – Atlantic, Western Central

Species description

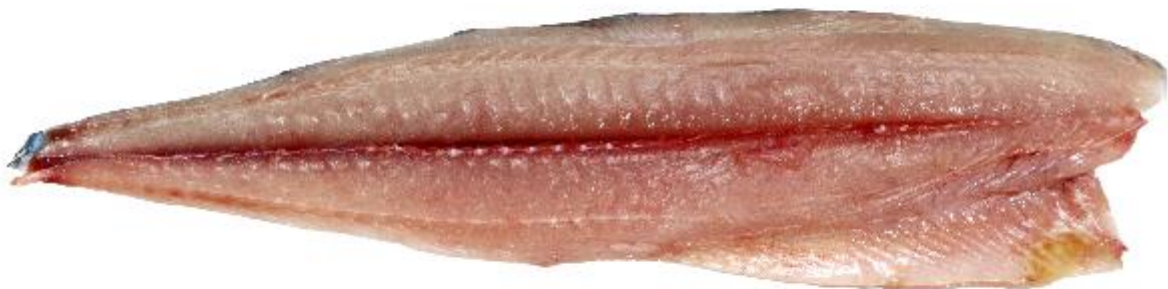


The body is elongated, strongly compressed. The posterior part of the maxilla is exposed, extending to level of posterior margin of the eye. Has two barely separated dorsal fins, the first has 17 to 19 (usually 19) spines. Has an additional 8 to 9 dorsal and anal fins. Has 2 projections between the pelvic fins. The lateral line gradually curves down to the caudal peduncle. The body is entirely covered with small scales, and the pectoral fins are without scales except at the base. The dorsum is an iridescent blue-green, and the flanks are silvery with numerous yellow to bronze spots and has no stripes. The anterior third of the first dorsal fin is black. Common size is up to 50 cm, maximum length is 70 cm.¹⁸⁴

¹⁸⁴CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1851



Fresh flesh



White-grey to olive-grey with a distinctive dark red central line throughout the length of the fillet. Then there are 2 red dashed lines, one each in the dorsal and ventral peripheral part. In both cases, the line is also edged in white. Segmentation is very clearly visible. The flesh is fine and firm, with a high susceptibility to have gaping at the segmental sites. The fillet is elongated, minimally dorsally arched with a gradual conical transition to the caudal peduncle. The abdominal partition extends to $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. The abdominal lining is silvery white. The fresh flesh can be easily confused with *Scomberomorus cavalla*, which is virtually identical.

Deep-frozen flesh



White-grey to olive-grey with a distinctive dark red central line throughout the length of the fillet. Then there are 2 red dashed lines, one each in the dorsal and ventral peripheral part. Segmentation is very clearly visible. The flesh has a high susceptibility to have gaping at the segmental sites. The fillet is elongated, minimally dorsally arched with a gradual conical transition to the caudal peduncle. The abdominal partition extends to 2/3 of the height and 1/2 of the length of the fillet. The abdominal lining is silvery white. The deep-frozen flesh can be easily confused with that of *Scomberomorus cavalla*, which is virtually identical.

Fresh and deep-frozen flesh confusability

Scomberidae.

Thunnus alalunga (Bonnaterre, 1788)

Commercial designation	Albacore
Commercial designation synonyms	Longfin Tuna, Albacore Tuna, Long-Finned Albacore
Taxonomic classification	Order Scombriformes
	Family Scomberidae



Genus *Thunnus*
Species *Thunnus alalunga*

Distribution – FAO areas

Area 21 – Atlantic, Northwest
Area 27 – Atlantic, Northeast
Area 31 – Atlantic, Western Central
Area 34 – Atlantic, Eastern Central
Area 37 – Mediterranean and Black Sea
Area 41 – Atlantic, Southwest
Area 47 – Atlantic, Southeast
Area 51 – Pacific, Southwest
Area 57 – Pacific, Southeast
Area 61 – Pacific, Northwest
Area 67 – Pacific, Northeast
Area 71 – Pacific, Western Central
Area 77 – Pacific, Eastern Central
Area 81 – Pacific, Southwest
Area 87 – Pacific, Southeast

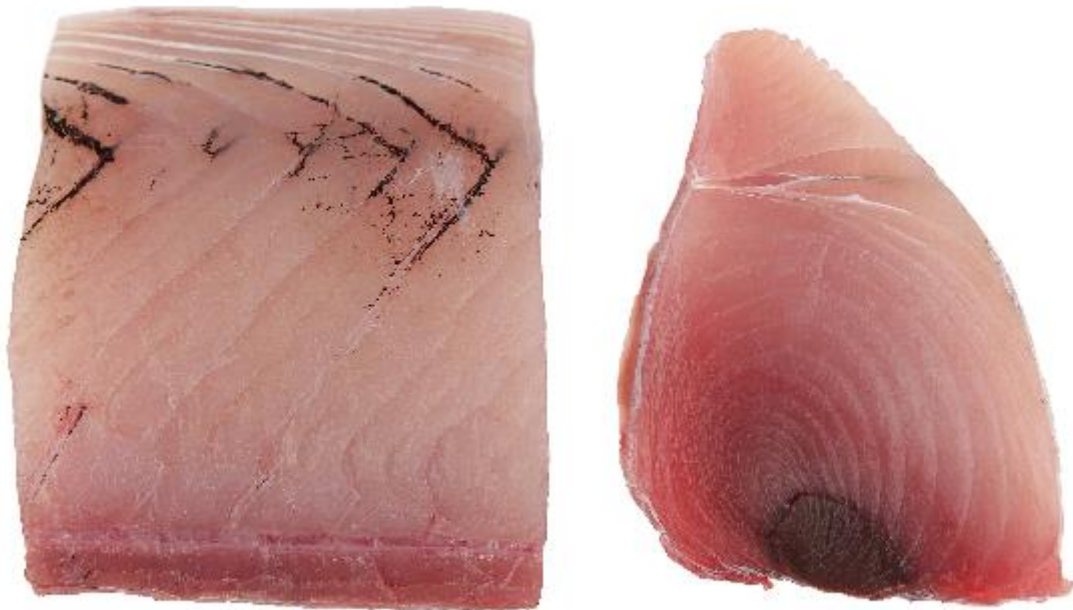
Species description



A large species with an elongated spindle-shaped body that is highest at the rear in front of the second dorsal fin. The eyes are medium sized. Two dorsal fins are separated only by a narrow interspace, and the second is distinctly lower than the first and has 7-9 additional fins behind it. The pectoral fins are remarkably long, extending well beyond the origin of the second dorsal fin. The caudal fin is followed by 7 or 8 additional fins. The body is covered with small scales. The caudal peduncle is bearing thick lateral keels on each side between the 2 smaller keels. The dorsum is metallic dark blue, and the flanks and abdomen are whitish. A faint lateral iridescent blue band extends along the sides. The first dorsal fin is deep yellow, second dorsal and anal fin light are yellow, and the anal fins are dark. The dorsal margin of the caudal fin is white. Commonly grows to 100 cm, maximum weight is 44 kg.¹⁸⁵

Fresh flesh

¹⁸⁵ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1853.



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the fresh flesh, especially with other species of the family Scombridae, such as *Euthynnus alletteratus* or *Euthynnus affinis*, and in the case of larger specimens also with *Thunnus albacares*. The only clues may be the size and colour, which is lighter in *Thunnus alallunga*, but even so, confusion is very easy and, in the case of portions, almost certain.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the deep-frozen flesh, especially with other species of the family Scombridae, such as *Euthynnus alletteratus* or *Euthynnus affinis*, and in the case of larger specimens also with *Thunnus albacares*. The only clues may be the size and colour, which is lighter in *Thunnus alallunga*, but even so, confusion is very easy and, in the case of portions, almost certain.

Fresh and deep-frozen flesh confusability

Scombridae.

Thunnus albacares (Bonnaterre, 1788)

Commercial designation

Yellowfin Tuna



Commercial designation synonyms

Allison's Tuna, Autumn albacore, Pacific Long-tailed Tuna

Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Thunnus</i>
Species	<i>Thunnus albacares</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



Large species with an elongated body that is spindle-shaped, and slightly flattened at the sides. Two dorsal fins are separated by only a minimal space, followed by 8-10 additional fins. Behind the anal fin is 7-10 additional fins. In large specimens, the second dorsal and anal fins are greatly elongated, exceeding 20 % of the length of the whole fish. The body is covered with small scales, and the sheathing of the large scales is developed but not distinct. The caudal peduncle is very slender, with 2 distinct lateral hernias and 2 smaller hernias between them. The colour dorsally is steely dark blue, and passing through is yellow to silver on the belly. 20 or more interrupted vertical stripes are on the abdomen. The dorsal and anal fins are bright yellow, and margins of additional fins are dark. Grows to 195 cm, common size is 150 cm.¹⁸⁶

Fresh flesh

¹⁸⁶ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1854.



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the fresh flesh, especially with other species of the family Scombridae, such as *Thunnus thynnus* or *Thynnus obbesus*, which, however, does not have a darker central ellipsoid. Size and colour may be another clue, as *Thunnus albacares* tends to be much smaller and lighter in colour than *Thunnus thynnus*.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the deep-frozen flesh, especially with other species of the family Scombridae, such as *Thunnus thynnus* or *Thynnus obesus*, which, however, does not have a darker central ellipsoid. Size and colour may be another clue, as *Thunnus albacares* tends to be much smaller and lighter in colour than *Thunnus thynnus*.

Fresh and deep-frozen flesh confusability

Scombridae.

Thunnus obesus (Lowe, 1839)

Commercial designation

Bigeye tuna

Commercial designation synonyms

Bigeye, Japanese tuna, Coffrey



Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Thunnus</i>
Species	<i>Thunnus obesus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



Has a very robust, spindle-shaped body, and is slightly flattened from the sides. Two dorsal fins are separated only by a small gap, followed by 8-10 additional fins. The anal fin is followed by 7-10 additional fins. The pectoral fins are moderately long in large individuals (over 110 cm), and very long in smaller ones. The body is covered with very small scales, except on the corselet where the scales are larger and thicker. The caudal peduncle is slender, with 1 massive keel on each side, between 2 smaller ones. The caudal fin is bi-lobed. The dorsum is metallic dark blue, and the undersides and belly are whitish. In live specimens, there is a lateral iridescent blue band. The first dorsal fin is deep yellow, the second dorsal and anal fin are light yellow, and the other fins are bright yellow with a black margin. Maximum length is 250 cm, common length is 180 cm. Highest published weight is 210 kg.¹⁸⁷

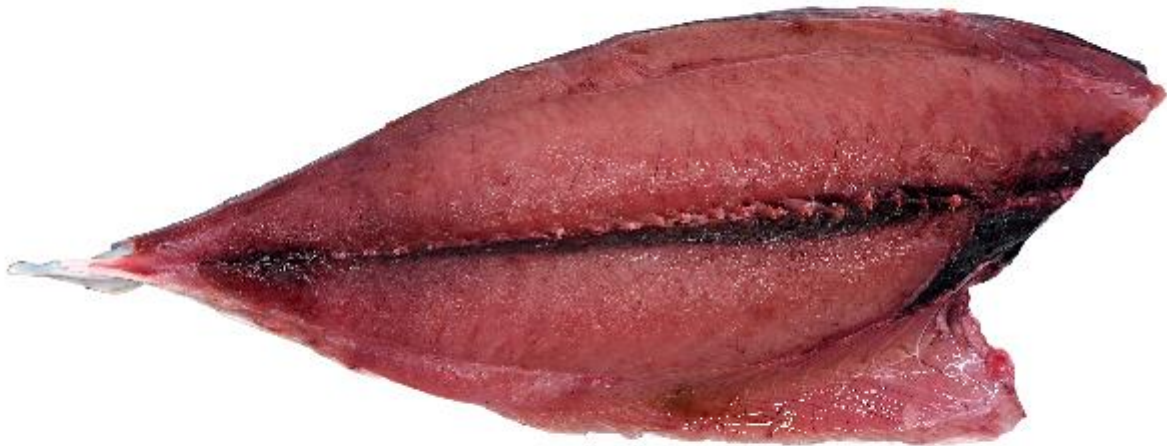
Fresh flesh

¹⁸⁷Thunnus obesus (Lowe, 1839). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/Thunnus-obesus.html>.



Dark pink to brownish red with clear segmentation, has 1 white line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust without a distinct brownish red elliptical colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. In the cranial part of the ventral part there is a small portion of dark red to black flesh. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the fresh flesh, especially with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Thunnus tonggol*. The size and especially the absence of the medium soft, dark part of the muscle, may be a clue. Even so, confusion is very easy and, in the case of the portions, almost certain.

Deep-frozen flesh



Dark pink to brownish red with a clear segmentation, has 1 white line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust without a distinct brownish red elliptical colouration in the central part. The flesh is very susceptible to gaping. The abdominal lining is white to whitish-yellow. In the cranial part of the ventral part there is a small part of dark red to black flesh. The fillet is bilaterally arched with a pronounced taper from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the deep-frozen flesh, especially with other species of the family Scombridae, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Thunnus tonggol*. The size and especially the absence of the medium soft, dark part of the muscle, may be a clue. Even so, confusion is very easy and, in the case of the portions, almost certain.

Fresh and deep-frozen flesh confusability

Scombridae.

Thunnus thynnus (Linnaeus, 1758)

Commercial designation

Atlantic Bluefin Tuna

Commercial designation synonyms

Bluefin Tuna



Taxonomic classification

Order	Scombriformes
Family	Scombridae
Genus	<i>Thunnus</i>
Species	<i>Thunnus thynnus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Species description



A large species with a spindle-shaped and rounded body (almost circular in cross-section), very robust in the front. Two dorsal fins are separated only by a narrow interspace, the second higher than the first. Has 8-10 additional fins behind the second dorsal fin and 7-9



behind the anal fin. The pectoral fins are very short, never reaching the interspace between the dorsal fins. Has 2 separate interpelvic processes between the pelvic fins. The caudal peduncle is slender, with a strong lateral keel between 2 small keels located at bases of the caudal fin lobes. The dorsum is dark blue or black, and the flanks and belly are silvery white with colourless transverse lines alternating with rows of colourless dots. The first dorsal fin is yellow or bluish, and the second is reddish brown. The anal fin and fins are dark yellow edged with black.¹⁸⁸ Maximum length is 458 cm, normal length is 200 cm, highest published weight is 684 kg.¹⁸⁹

Fresh flesh



Dark pink to brownish red and black with a clear segmentation into typical broad petals arranged in a system of concentric circles in the cross-section. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. Fresh flesh can be very easily confused with other species of the Scombridae family, such as *Thunnus*

¹⁸⁸ CARPENTER, K. E. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and Sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 781 pages. [Pages 2343–3124], ISBN 978-92-5-109267-5. Page 2914.

¹⁸⁹ *Thunnus thynnus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-08]. Retrieved from: <https://www.fishbase.se/summary/thunnus-thynnus.html>



albacares or *Thunnus obbesus*, which, however, does not have a darker central ellipsoid. Size and colour may be another clue, as *Thunnus thynnus* tends to be much larger and darker than *Thunnus albacares*.

Deep-frozen flesh



Dark pink to brownish red and black with a clear segmentation into typical broad petals arranged in a system of concentric circles in the cross-section. The flesh is prone to gaping. It is very easy to confuse the deep-frozen flesh, especially with other species of the family Scombridae, such as *Thunnus albacares* or *Thunnus obbesus*, which, however, does not have a darker central ellipsoid. Size and colour may be another clue, as *Thunnus thynnus* tends to be much larger and darker than *Thunnus albacares*.

Fresh and deep-frozen flesh confusability

Scombridae.



Thunnus tonggol (Bleeker, 1851)

Commercial designation	Longtail Tuna
Commercial designation synonyms	Bonito, Bluefin Tuna, Oriental Bonito
Taxonomic classification	Order Scombriformes
	Family Scombridae
	Genus <i>Thunnus</i>
	Species <i>Thunnus tonggol</i>

Distribution – FAO areas

Area 51 – Pacific, Southwest

Area 57 – Pacific, Southeast

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 81 – Pacific, Southwest

Species description



A small species with a spindle-shaped and rounded body. Has two dorsal fins, separated only by a narrow interspace, the second higher than the first and followed by 9 fins. The anal fin is followed by 8 fins. The pectoral fin has 30 to 35 short to medium length rays. Has 2 valves between the pelvic fins. Very small scales are on the body. The caudal peduncle has a strong lateral keel between 2 smaller keels. The dorsum is dark blue or black, and the ventral side and abdomen are silvery white with colourless elongate oval spots arranged in horizontal rows. The dorsal, pectoral and pelvic fins are blackish. The dorsal and anal fins are yellow with greyish edges. The caudal fin is blackish, with yellowish green stripes.¹⁹⁰ Common size is 70 cm, maximum is 145 cm. Maximum recorded weight is 35,9 kg.¹⁹¹

Fresh flesh

¹⁹⁰ Fischer, W., G. Bianchi (ed.), *identification sheets for fishery purposes. Western Indian Ocean; (Fishing Area 51).*) [FAO Species Identification sheets for Fishery Purposes]. Prepared and printed with the support of the Danish International Development Agency (DANIDA). Rome, Food and Agricultural Organization of the United Nations 1984, serial number 1014-3181|1020-6868. Vols 1 -6. Page 1983.6

¹⁹¹ Thunnus tonggol (Bleeker, 1851). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/148>



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The flesh is very firm and tender, prone to gaping and opalescent in colour on the transverse section. The abdominal lining is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the fresh flesh, especially with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Auxis rochei*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of the portions.

Deep-frozen flesh



Pink to brownish-red with a clear segmentation into typical broad flakes which are arranged in a system of concentric circles in the transverse section. Has 1 darker line in the peripheral area of the dorsal part and 1 white line in the peripheral area of the ventral part of the fillet, which is very robust with a distinct elliptical brownish-red colouration in the central part. The lining of the abdominal cavity is white to whitish-yellow. The fillet is arched on both sides with a pronounced narrowing from the last fifth of the fillet to the part of the caudal peduncle until it is lost. It is very easy to confuse the deep-frozen flesh with other species of the Scombridae family, such as *Euthynnus alletteratus*, *Euthynnus affinis* or *Auxis rochei*, all of which are virtually indistinguishable. The only clue may be size, but even so, confusion is very easy, almost certain in the case of the portions.

Fresh and deep-frozen flesh confusability

Scombridae.

Scophthalmidae

Lepidorhombus whiffiagonis (Walbaum, 1792)

Commercial designation

Megrim



Commercial designation synonyms

None

Taxonomic classification

Order Pleuronectiformes

Family Scophthalmidae

Genus *Lepidorhombus*

Species *Lepidorhombus whiffiagonis*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated. There are large eyes on the left side of the head. The interorbital space is narrow with a bony crest. It has a large mouth, with the lower jaw projecting in front of the upper jaw. The dorsal and anal fins end slightly on the blind side of the caudal peduncle. There are no scales on the pectoral fins. The posterior margins of the dorsal and anal fins do not form rounded projections on the blind side of the body. The bases of both pelvic fins elongate and are of equal length. The caudal fin is rounded or truncate. The lateral line is distinctly curved around the pectoral fin. The colouration on the dorsal side is uniformly yellowish, sandy or greyish brown with very small darker spots. The dorsal and



anal fins have indeterminate darker spots. The ventral side is whitish. The maximum size is up to 60 cm, with the common size being 35 cm.¹⁹²

Fresh flesh



The flesh is white, whitish yellow to pink with well visible segmentation and 3 darker lines - 2 in peripheral areas of the dorsal and ventral parts of the fillet and 1 in the central part, which is most visible. The flesh is fine and firm. The shape of the fillet is most often elongated, arched on both sides. The lining of the abdominal cavity of the dorsal fillet is greyish black and of the ventral fillet is silvery white. Due to its characteristics, the fresh flesh can be easily confused with a number of species of the families mentioned below. Apart from the completely identical species *Limanda limanda*, these include for instance *Glyptocephalus cynoglossus*.

Deep-frozen flesh

¹⁹² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 Pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2966.



The flesh is white, whitish yellow to pink with well visible segmentation and 3 darker lines - 2 in peripheral areas of the dorsal and ventral parts of the fillet and 1 in the central part, which is most visible. The shape of the fillet is most often elongated, arched on both sides, and without the abdominal part. The lining of the abdominal cavity of the dorsal fillet is greyish black and of the ventral fillet is silvery white. Due to its characteristics, the deep-frozen flesh can be easily confused with a number of species of the families mentioned below. Apart from the completely identical species *Limanda limanda*, these include for instance *Glyptocephalus cynoglossus*.

Fresh and deep-frozen flesh confusability

Scophthalmidae; Pleuronectidae.

Psetta maxima (Linnaeus, 1758)

Commercial designation	Turbot	
Commercial designation synonyms	Breet, Britt, Butt	
Taxonomic classification	Order	Pleuronectiformes
	Family	Scophthalmidae



Genus *Psetta (Scophthalmus)*

Species *Psetta maxima*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 37 – Mediterranean and Black Sea

Species description



The body is rhomboid and flattened. The head is dorsally concave, with eyes on the left side, far apart. It has a long dorsal fin beginning in front of the eye border. The dorsal and anal fins have the longest rays in the middle, which end at the beginning of the caudal peduncle. The



caudal fin is broadly rounded. The pectoral fin is larger on the ocular side than on the blind side. Both pelvic fins are elongate, positioned asymmetrically. There are bony processes (outgrowths) scattered on the upper side. The lateral line is twice curved - according to the pectoral fin and the head. The colour is very variable, depending on the substrate, being mostly light to dark grey, with many light and dark round spots. The blind side is whitish, sometimes with black spots. The fins mottled, dark brown, with light spots. The maximum size is 100 cm, with the common size being 40-50 cm.¹⁹³

Fresh flesh



The flesh is white, whitish grey to olive grey with 2 distinct pink to brown broken stripes throughout the fillet line - 1 in the dorsal part and 1 in the ventral part. The fillet is short, high, resembling the shape of a circular section, and relatively robust with clear segmentation. The lining of the abdominal cavity is silvery light grey in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, highly arched on both sides and rapidly tapering in the caudal part. The flesh is very firm. The fresh flesh is unlikely to be confused, but it is possible with species of the family Pleuronectidae and Scophthalmidae. Compared to *Scophthalmus rhombus*, it is characterised by a more distinct robustness, firmness of the flesh and a sharper arch.

¹⁹³ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Pages 2967.



Deep-frozen flesh



The flesh is white to whitish grey with 2 distinct pink to brown broken stripes throughout the fillet line - 1 in the dorsal part and 1 in the ventral part. The fillet is short, high, resembling the shape of a circular section, and relatively robust with clear segmentation. The lining of the abdominal cavity is silvery light grey in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, highly arched on both sides and rapidly tapering in the caudal part. The flesh is very firm. The deep-frozen flesh may be confused with species of the family Pleuronectidae and Scophthalmidae. Compared to *Scophthalmus rhombus*, it is characterised particularly by a more distinct robustness and a sharper arch.

Fresh and deep-frozen flesh confusability

Scophthalmidae; Pleuronectidae.

Scophthalmus rhombus (Linnaeus, 1758)

Commercial designation	Brill
Commercial designation synonyms	None



Taxonomic classification

Order	Pleuronectiformes
Family	Scophthalmidae
Genus	<i>Scophthalmus</i>
Species	<i>Scophthalmus rhombus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is oval to rounded, flattened, covered with small scales. The eyes are far apart. The first rays of the dorsal fin are forked, with the fin beginning before the level of the upper eye. The eyes are almost exclusively on the right side. The pectoral fin rays are covered with scales on both sides. The urinal papilla is on the right side. The caudal peduncle is short and the caudal fin is rounded. The lateral line forms an arc over the pectoral fin. It can change



colour of the upper side according to the substrate. The colour is often olive green, with dark and light spots. It grows to 75 cm, with the usual size being 30 cm.^{194 195}

Fresh flesh



The flesh is white to whitish grey with 2 distinct pink to brown broken stripes throughout the fillet line - 1 in the dorsal part and 1 in the ventral part. A darker line also runs through the entire central part. The flesh is fine and firm. The fillet is short, high, resembling the shape of a circular section, and relatively robust with clear segmentation. The lining of the abdominal cavity is silvery light grey in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, highly arched on both sides and rapidly tapering in the

¹⁹⁴ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2969.

¹⁹⁵ *Scophthalmus rhombus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-04-03]. Retrieved from: <https://fishbase.mnhn.fr/summary/529>



caudal part. The fresh flesh is unlikely to be confused, but it is possible with species of the family Pleuronectidae and Scophthalmidae. Compared to *Psetta maxima*, it is characterised by a coarser constitution and a sharper arch.

Deep-frozen flesh



The flesh is white to whitish grey with 2 distinct pink to brown broken stripes throughout the fillet line - 1 in the dorsal part and 1 in the ventral part. A darker line also runs through the entire central part. The flesh is fine and firm. The fillet is short, high, resembling the shape of a circular section, and relatively robust with clear segmentation. The abdominal cavity lining is silvery light grey in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, highly arched on both sides and rapidly tapering in the caudal part. The deep-frozen flesh is unlikely to be confused, but it is possible with species of the family Pleuronectidae and Scophthalmidae. Compared to *Psetta maxima*, it is characterised by a coarser constitution and a sharper arch.

Fresh and deep-frozen flesh confusability



Scophthalmidae; Pleuronectidae.

Scorpaenidae

Scorpaena cardinalis (Solander & Richardson, 1842)

Commercial designation	Eastern red scorpionfish
Commercial designation synonyms	Billy bougain, Cook's rockcod, Cardinal Scorpionfish, Fire cod, Sandy-bay cod
Taxonomic classification	Order Scorpaeniformes Family Scorpaenidae Genus <i>Scorpaena</i> Species <i>Scorpaena cardinalis</i>

Distribution – FAO areas

Area 81 – Pacific, Southwest

Species description



The body is oval and the sides flattened, and the head is large. The mouth is large, slightly oblique. Has 8 dorsal fin rays. Almost always the fourth ray is the longest. Exposed cycloid scales are covering the base of the pectoral fins, which have 16-18 rays. They also cover the anteroventral surface of the body. Some scales may be covered with a thin skin, especially in large adults. Has no spine; the occipital pit is present. There are no large black spots on the spinous part of the dorsal fin in either sex. Two large white spots are at the base of the caudal fin. Colouration is pinkish-red to orange-red marbled. Maximum recorded length is 40,5 cm. ¹⁹⁶

Fresh flesh

¹⁹⁶ *Scorpaena cardinalis* (Solander & Richardson, 1842). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/scorpaena-cardinalis>



Pink throughout the fillet with no darker lines or streaks. Has a very visible segmentation with a faintly visible drawing around the individual segments. The flesh is very firm and consistent. The fillet is triangular in shape with the shortest side at the cranial end. Is without dorsal arching, with a uniform dorsal slope at an angle of approximately 40° to the caudal peduncle, which forms 1/4-1/3 of the cranial height of the fillet. The ventral part reaches 1/3 of the height and 1/4 of the length of the fillet. The lining of the abdominal cavity is pink. The fresh flesh can easily be confused with that of *Scorpaena scrofa*, which is virtually identical. Some clues may be the weaker or absent white pattern, the lighter to white abdominal lining and the greater ratio of abdominal cavity to cranial height.

Deep-frozen flesh



White to white-pink throughout the fillet with no standard darker lines or streaks. Has a very visible segmentation. The fillet is triangular in shape with the shortest side at the cranial end. No dorsal arching with a uniform dorsal slope at an angle of approximately 40° to the caudal peduncle, which forms 1/4-1/3 of the cranial height of the fillet. The ventral part reaches 1/3 of the height and 1/4 of the length of the fillet. The lining of the abdominal cavity is pinkish-white. The deep frozen flesh can easily be confused with that of *Scorpaena scrofa*, which is virtually identical. The larger ratio of abdominal cavity to cranial height may be a clue.

Fresh and deep-frozen flesh confusability

Scorpaenidae.

Scorpaena scrofa (Linnaeus, 1758)

Commercial designation

Red Scorpionfish

Commercial designation synonyms

Bigscale Scorpionfish, Largescaled Scorpion-fish,
Whiskery Scorpionfish

Taxonomic classification

Order Scorpaeniformes



Family	Scorpaenidae
Genus	<i>Scorpaena</i>
Species	<i>Scorpaena scrofa</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 31 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Species description



The body is oval, compressed on the sides. Has a large armored head, 3 processes (2 in juveniles) above upper the jaw, extending over the upper jaw. The thorax and base of the pectoral fins are without scales, and the rest of the body is covered with ctenoid scales. The body is covered with a large number of processes. Has a red colour, with scattered, irregular red, brown or almost black spots, especially on the operculum, body and fins. The spots form 3 darker saddles on the body. Has a large dark spot usually between the dorsal spines 6 to 9,



and has white spots on various parts of the body, especially on the pectoral fins. Reaches a length of 50 cm and a weight of 3 kg, the common length is 30 cm.^{197 198}

Fresh flesh



Pink throughout the fillet with no darker lines or streaks. Has a very visible segmentation with white markings around the segments. The flesh is very firm and consistent. The fillet is triangular in shape with the shortest side at the cranial end. Without dorsal arching with a uniform dorsal slope at an angle of approximately 40° to the caudal peduncle, which forms 1/4-1/3 of the cranial height of the fillet. The ventral part reaches 1/2 the height and 1/4 the length of the fillet. The lining of the abdominal cavity is pink. The fresh flesh can easily be confused with that of *Scorpaena cardinalis*, which is virtually identical. Some clues may be the weaker or absent white pattern, the lighter to white abdominal lining and the smaller ratio of abdominal cavity to cranial height.

¹⁹⁷ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2267.

¹⁹⁸ *Scorpaena scrofa* (Linnaeus, 1758. In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/Scorpaena-scrofa.html>



Deep-frozen flesh



White to white-pink throughout the fillet with no standard darker lines or streaks. Has a very visible segmentation. The fillet is triangular in shape with the shortest side at the cranial end. Is without dorsal arching, with a uniform dorsal slope at an angle of approximately 40° to the caudal peduncle, which forms 1/4-1/3 of the cranial height of the fillet. The ventral part reaches 1/2 the height and 1/4 the length of the fillet. The lining of the abdominal cavity is pinkish-white. The deep-frozen flesh can be easily confused with the species *Scorpaena cardinalis*, which is virtually identical; the smaller ratio of abdominal cavity to cranial height may be a clue.

Fresh and deep-frozen flesh confusability

Scorpaenidae.

Scyliorhinidae

Scyliorhinus canicula (Linnaeus, 1758)

Commercial designation

Lesser Spotted Dogfish



Commercial designation synonyms

Dogfish, Small-spotted Dogfish, Small-spotted
Catshark, Fay dog

Taxonomic classification

Order	Carcharhiniformes
Family	Scyliorhinidae
Genus	<i>Scyliorhinus</i>
Species	<i>Scyliorhinus canicula</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



It is a smaller shark with a blunt head and a slender, elongated body. The two dorsal fins are caudally positioned. Has shallow nasal grooves and laterally located posterior nasal valves. The nasal grooves are connected to the mouth. The lower labial furrows are 2.1-2.2 times smaller than the width of the snout. Body colouration: upper side is greyish to light brown with small dark brown spots, and an underside that is creamy white. The skin is rough,



similar in texture to sandpaper. Normal size is around 60 cm, maximum 100 cm and weight 1,3 kg^{199 200}

Fresh flesh



White to light pink with a well visible segmentation and white markings around the segments throughout the fillet, which is low and elongated. 4 thin white lines in the longitudinal profile form parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines run the full length of the fillet up to the caudal peduncle, which ends in a lost line. The flesh is very fine and fragile. The abdominal cavity reaches 3/4 of the height and 2/5 of the length of the fillet. The abdominal lining is pure silvery white. It is very easy to confuse the fresh flesh with the species *Scyliorhinus stellaris*, which has the same characteristics, but with a slightly darker flesh and a silvery white belly lining. Also it can be confused with the species *Galeorhinus galeus*, which, in contrast to the other species mentioned, has a much pinker colouration of the flesh.

¹⁹⁹ Scyliorhinus canicula (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/845>
<https://www.fishbase.se/summary/845>

²⁰⁰ Picton, B.E., Morrow, C.C. (2016). *Scyliorhinus canicula* (Linnaeus, 1758). [In] Encyclopedia of Marine Life of Britain and Ireland [World Wide Web electronic publication] [online]. [cit. 2023-11-06]. Retrieved from: <https://www.habitas.org.uk/marinelifelife/species.asp?item=ZF400>



Deep-frozen flesh



White to light pink with a well visible segmentation and white markings around the segments throughout the fillet, which is low and elongated. 4 thin white lines in the longitudinal profile form parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines run the full length of the fillet up to the caudal peduncle, which ends in a lost line. The flesh is very fine and fragile. The abdominal cavity reaches 3/4 of the height and 2/5 of the length of the fillet. The abdominal lining is pure silvery white. It is very easy to confuse the deep-frozen flesh with the species *Scyliorhinus stellaris*, which has the same characteristics, but with a slightly darker flesh and a silvery white belly lining. Also it can be confused with the species *Galeorhinus galeus*, which, in contrast to the other species mentioned, has a much pinker colouration of the flesh.

Fresh and deep-frozen flesh confusability

Scyliorhinidae; Triakidae.

Scyliorhinus stellaris (Linnaeus, 1758)

Commercial designation

Nursehound



Commercial designation synonyms

Bull Huss, Dogfish, Flake Catfish, greater-spotted

Dogfish, Large-spotted Dogfish

Taxonomic classification

Order Carcharhiniformes

Family Scyliorhinidae

Genus *Scyliorhinus*

Species *Scyliorhinus stellaris*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



A big, fairly robust shark. Has a large head, eyes are elongated, and is set dorso-laterally. The anterior nasal flaps are relatively small and set far apart. Has two dorsal fins, offset caudally. The second dorsal fin is smaller, and the anterior margin of its base does not reach the level of the posterior end of the base of the anal fin. The caudal fin is heterocercal. The colour



dorsally is yellow-brown with dark spots, and the abdomen is pale. Grows to 170 cm, normal size is 125 cm.^{201 202}

Fresh flesh



Greyish-white to light pink with a well-defined segmentation and a white pattern around the segments throughout the fillet, which is low and elongated. 4 thin white lines in the longitudinal profile forming parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines run the full length of the fillet up to the caudal peduncle, which ends in a lost line. The muscle is very fine and fragile. The abdominal cavity reaches $3/4$ of the height and $2/5$ of the length of the fillet. The abdominal lining is silvery white. It is very easy to confuse the fresh muscle with *Scyliorhinus canicula*, which has the same characteristics but with a noticeably lighter muscle and a pure white abdominal lining. Also it can be confused with the species *Galeorhinus galeus*, which, on the other hand, has a significantly pinker colouration of the muscle than the other species mentioned.

²⁰¹ Scyliorhinus stellaris (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-14]. Retrived from: <https://www.fishbase.se/summary/Scyliorhinus-stellaris.html>

²⁰² Serena, F. Field identification guide to the sharks and rays of the Mediterranean and Black Sea. FAO Species Identification Guide for Fishery Purposes. Rome, FAO. 2005. 97p.
(1) (PDF) *Field Identification Guide to the Sharks and Rays of the Mediterranean and Black Sea*. Retrived from: https://www.researchgate.net/publication/261990535_Field_Identification_Guide_to_the_Sharks_and_Rays_of_the_Mediterranean_and_Black_Sea.



Deep-frozen flesh



Greyish-white to light pink with a well-defined segmentation and a white pattern around the segments throughout the fillet, which is low and elongated. 4 thin white lines in the longitudinal profile forming parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines run the full length of the fillet up to the caudal peduncle, which ends in a lost line. The flesh is very fine and fragile. The abdominal cavity reaches $\frac{3}{4}$ of the height and $\frac{2}{5}$ of the length of the fillet. The abdominal lining is silvery white. It is very easy to confuse the deep-frozen flesh with *Scyliorhinus canicula*, which has the same characteristics but with noticeably lighter flesh and a pure white abdominal lining. Also it can be confused with the species *Galeorhinus galeus*, which, on the other hand, has a significantly pinker colouration of the muscle than the other species mentioned.

Fresh and deep-frozen flesh confusability

Scyliorhinidae; Triakidae.



Sebastidae

Sebastes marinus (Linnaeus, 1758)

Commercial designation	Golden Redfish
Commercial designation synonyms	Bream, Brim, Brin, Norway Haddock, Rose Fish, Ocean Perch
Taxonomic classification	Order Scorpaeniformes Family Sebastidae Genus <i>Sebastes</i> Species <i>Sebastes marinus</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Species description





The body is fusiform. The head is massive with a large mouth and prominent eyes. The preoperculum ends in flat spines, and the ventral spines point downwards. The operculum is terminating in a single spine. The dorsal fin has 14-16 spines and 13-16 rays, an anal fin with 3 spines and 7-10 rays. In both fins the rays are longer than the spines. The lateral line is straight. The colour is bright red, and the belly has a pink tinge. In the caudal part of the operculum there is a dark spot. It can grow up to 100 cm and 15 kg, the normal size is 35-55 cm.²⁰³

Fresh flesh



White-grey, grey to pink with a well-defined segmentation. Has 3 faint pink interrupted bands throughout the fillet line. 1 dorsal, 1 central and 1 ventral. The dorsal line forms a sharp step in the middle of the fillet. The fillet is massive, stocky, firm, and slightly arched dorsally. It tapers gradually from the cranial part to the tail, which forms 1/4 of the cranial height of the fillet. The ventral part reaches 1/2 of the height and 1/3 of the length of the fillet. The abdominal lining is silver-grey to silver-black, in contrast to species of the family Serranidae, which have a silvery-white lining. Compared to species of the family Serranidae, it is distinctly paler, with a lower dorsal arch, a noticeably smaller step in the dorsal broken

²⁰³ *Sebastes marinus* (Linnaeus, 1758) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023, [cit. 2023-03-27]. Retrieved from: [https://www.fao.org/figis/pdf/fishery/species/3324/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Species%20Fact%20Sheets%20-%20Sebastes%20marinus%20\(Linnaeus%2C%201758\)](https://www.fao.org/figis/pdf/fishery/species/3324/en?title=FAO%20Fisheries%20%26%20Aquaculture%20-%20Species%20Fact%20Sheets%20-%20Sebastes%20marinus%20(Linnaeus%2C%201758))



line and a narrower caudal peduncle . Furthermore, the fresh flesh is easily confused with species of the family Sparidae, which, however, have a white to white-grey abdominal lining.

Deep-frozen flesh



White-grey, grey to pink with a well-defined segmentation. 3 faint pink interrupted bands throughout the fillet line. 1 dorsal, 1 central and 1 ventral. The dorsal line forms a sharp step in the middle of the fillet. The fillet is massive, stocky, firm, and slightly arched dorsally. It tapers gradually from the cranial part to the tail, which forms 1/4 of the cranial height of the fillet. The ventral part reaches 1/2 of the height and 1/3 of the length of the fillet. The abdominal lining is silver-grey to silver-black, in contrast to species of the family Serranidae, which have a silvery-white lining. Compared to species of the family Serranidae, it is distinctly paler, with a lower dorsal arch, a noticeably smaller step in the dorsal broken line and a narrower caudal peduncle . Furthermore, the deep-frozen flesh can easily be confused with species of the family Sparidae, which, however, have a white to white-grey abdominal lining.

Fresh and deep-frozen flesh confusability

Serranidae; Sparidae.



Serranidae

Cephalopholis argus (Schneider, 1801)

Commercial designation

Peacock Hind

Commercial designation synonyms

Argus Grouper, Black-rock Cod, Blue spotted

Grouper, Peacock Rock-cod

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Cephalopholis*

Species *Cephalopholis argus*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



The height of the body is evidently shorter than the head length. The eye is large. The preoperculum is rounded with a fleshy lower margin. The maxilla is scaly, reaching well beyond the eye. It has 1 dorsal fin. The pectoral fins are distinctly longer than the pelvic fins. The caudal fin is rounded. The fish is dark brown, covered with small blue spots outlined in black. There are 5 or 6 light stripes on the posterior part of the body and a large pale spot across the pectoral part. The base of the pectoral fins usually had a narrow white margin. The distal part of the pectoral fins is sometimes chestnut-brown. The triangular membranes at the tips of the dorsal spines are orange-gold. The maximum length is 55 cm.²⁰⁴

Fresh flesh

²⁰⁴ Cephalopholis aitha (Randall and Heemstra, 1991) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023 [cit. 2023-03-21]. Retrieved from: <https://www.fao.org/3/t0540e/T0540E06.pdf#%5B1,%7B%22name%22:%22FitH%22%7D,828>



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is virtually identical, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly 1/3.

Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is virtually identical, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Cephalopholis miniata (Forsskål, 1775)

Commercial designation

Coral Hind

Commercial designation synonyms

Coral Cod, Coral Grouper, Coral Trout, Vermillion

Seabass

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Cephalopholis*

Species *Cephalopholis miniata*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

Species description



It has a spindle-shaped, relatively high body with a large, partly scaly head, and a large terminal mouth. The preoperculum has a smooth ventral margin. The caudal fin is rounded. The ventral fins do not reach the anus. The head, body and fins are orange-red, covered with small blue spots; there are also spots on the upper jaw and lips, but not on the underside of the lower jaw. The distal margin of the caudal fin and soft parts of the dorsal and anal fins usually have a narrow blue margin and blackish submarginal line. The pectoral fins are orange-yellow and the pelvic fins are orange-red. There may be a colour pattern of irregular oblique olive stripes. Juveniles are golden, with a few blue spots. It grows to 50 cm.²⁰⁵

Fresh flesh

²⁰⁵ Cephalopholis miniata (Forsskål, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-15]. Retrieved from: <https://www.fishbase.se/summary/Cephalopholis-miniata.html>



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is virtually identical, with a ratio of the caudal peduncle to the cranial height of 1/3, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only clue is the size and the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly 1/3.

Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is virtually identical, with a ratio of the caudal peduncle to the cranial height of 1/3, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only clue is the size and the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Cephalopholis sonnerati (Valenciennes, 1828)

Commercial designation

Tomato Hind

Commercial designation synonyms

Red Coral Rod, Tomato Grouper, Tomato Cod,
Tomato Seabass, Orange-spotted Cod

Taxonomic classification

Order	Perciformes
Family	Serranidae
Genus	<i>Cephalopholis</i>
Species	<i>Cephalopholis sonnerati</i>

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description



The body is up to 37 cm long, with a height equal to or greater than the length of the head. The adult head is straight to concave in the dorsal profile, the nape is characteristically convex. The pectoral fins are longer than pelvic fins (the opposite in individuals over 40 cm), with the pelvic fins reaching to or beyond the anus. The caudal fin is rounded. The colour very variable, ranging from light reddish to yellowish brown with brownish red to dark brown spots in adults. Juveniles up to 30 cm are usually paler, especially caudally (but some dark brown). The maximum size is 57 cm, with the usual size being 30 cm.^{206 207}

Fresh flesh

²⁰⁶ Cephalopholis sonnerati (Valenciennes, 1828). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Retrieved from: <https://fishbase.mnhn.fr/summary/Cephalopholis-sonnerati.html>

²⁰⁷ SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 pages ISBN 978-3-642-82860-7. Pages 519.



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in $1/2$. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in $2/3$ into a conical tapering to a massive caudal peduncle which forms $1/4$ of the cranial height. The abdominal part reaches $1/2$ of the height and $1/2$ of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Variola louti*, which is virtually identical, with a ratio of the caudal peduncle to the cranial height of $1/3$, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly $1/3$.

Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Variola louti*, which is virtually identical, with a ratio of the caudal peduncle to the cranial height of 1/3, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Epinephelus flavocaeruleus (Lacepède, 1802)

Commercial designation

Blue-and-yellow Grouper

Commercial designation synonyms

Yellowfin Grouper, Yellowtail Rockcod, Yellowtail

Reefcod

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Epinephelus*

Species *Epinephelus flavocaeruleus*

Distribution – FAO areas

Area 41 – Atlantic, Southwest

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Species description





The body is spindle-shaped and moderately deep. The head is large with a superior mouth. The posterior nostrils of large adults are much larger than the anterior ones. The operculum has a straight to slightly convex upper edge. The dorsal fin has 11 spines and 15-17 rays; the anal fin has 3 spines and 8 rays. The caudal fin is slightly emarginate or truncate. The head and the body are sky blue, up to dark blue-violet in juveniles, and sometimes dark greyish blue in adults. Adults have yellow fins, while juveniles have half blue, half yellow fins. The upper lip is yellow. The maximum length is 90 cm, with the common size being 45 cm.²⁰⁸

Fresh flesh



The flesh is whitish pink to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity. A rectangular white pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 to 2/3 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily

²⁰⁸ Epinephelus flavocaeruleus (Lacepède, 1802). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-19]. Retrieved from: <https://www.fishbase.se/summary/Epinephelus-flavocaeruleus.html>



confused with other species of the family Serranidae, including, for example, *Epinephelus chlorostigma*, which is virtually identical, just paler, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus sabae*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Deep-frozen flesh



The flesh is white to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity and tends to be less visible. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 to 2/3 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus chlorostigma*, which is virtually identical, just paler, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is



more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus sabae*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.

Epinephelus chlorostigma (Valenciennes, 1828)

Commercial designation

Brownspeckled Grouper

Commercial designation synonyms

Brown-spotted Reef-cod, Brown-spotted Rock-cod

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Epinephelus*

Species *Epinephelus chlorostigma*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

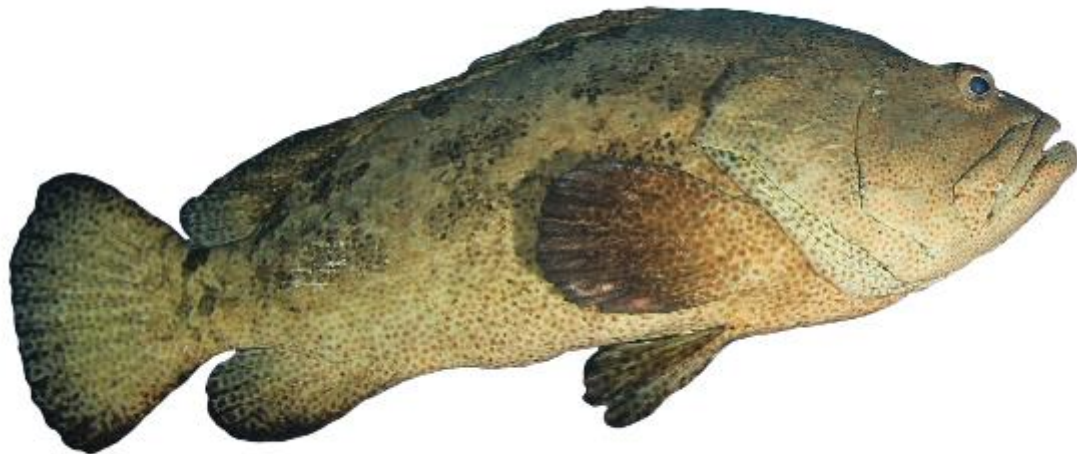
Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description



The body is laterally compressed, with a large, anterior mouth and the lower jaw exceeding the upper. The lower jaw has two rows of teeth on sides, reaching the level of the rear edge of the eye. The dorsal fin is composed of 11 spines and 16-18 soft rays while the anal fin of 3 spines and 8 rays. The caudal fin is truncate to slightly cmarginate, with a thin white margin. The main colour is whitish, with small dark brown spots on the dorsal side of body, head and fins. Sometimes it may temporarily have 3-4 rows of large rounded dark spots along with small spots. It grows to a size of 80 cm, with the common size being 50 cm.²⁰⁹

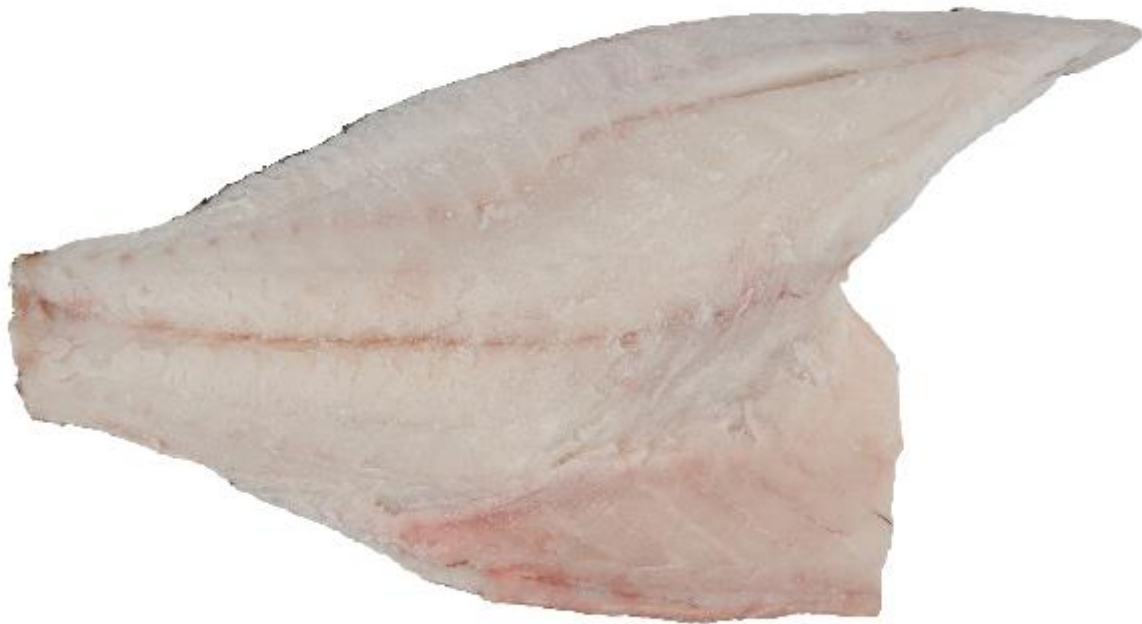
Fresh flesh

²⁰⁹ Epinephelus chlorostigma (Valenciennes, 1828). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Retrieved from: <https://www.fishbase.se/summary/5524>



The flesh is white to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity and tends to be less visible. A rectangular white pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus flavocaeruleus*, which is virtually identical, just darker pink, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus sabae*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Deep-frozen flesh



The flesh is white to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity and tends to be less visible. A rectangular pattern is also visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus flavocaeruleus*, which is virtually identical, just darker pink, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus sabae*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Epinephelus malabaricus (Bloch & Schneider, 1801)

Commercial designation

Malabar Grouper

Commercial designation synonyms

Blackspot Cod, Estudy Cod, Giant Rock Cod,
Greasy Cod, Malabar Cod

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Epinephelus*

Species *Epinephelus malabaricus*

Distribution – FAO areas

Area 4 – Asia – Inland waters

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Species description



It has a robust fusiform body with a large head. The lower jaw with two rows of teeth reaches beyond the eye level; nostrils are of different sizes. The dorsal fin composed of spines and rays, with the rays being longer. The caudal fin is rounded. The body and head are light grey to yellowish brown with clearly defined and separated blackish brown spots and scattered larger, indistinct and lighter spots. In juveniles there are 5 dark, slightly rounded, ventrally bifurcated vertical bars with paler spots. With age, the stripes and pale spots disappear and the dark spots increase significantly. Adults between 50-150 cm have bright golden eyes. It reaches a size of up to 234 cm, with the common size being 100 cm.^{210 211}

Fresh flesh

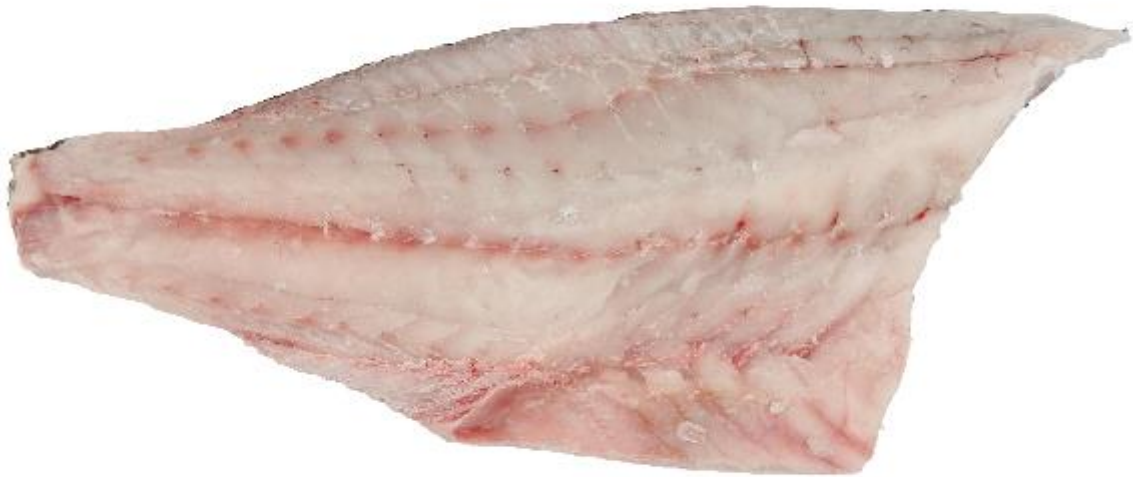
²¹⁰ SMITH, M. M., HEEMSTRA, P. C. (eds.). *Smith's Sea Fishes*. Berlin: Springer-Verlag, 1986. 1047 Pages. ISBN 978-3-642-82860-7. Pages. 527.

²¹¹ *Epinephelus malabaricus* (Bloch & Schneider, 1801). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-03-21]. Retrieved from: <https://www.fishbase.se/summary/Epinephelus-malabaricus.html>



The flesh is white, whitish grey to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity and tends to be less visible. A rectangular white pattern is also visible throughout the fillet. Gradual dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus marginatus*, which is virtually identical, just more arched, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3. Furthermore, it may be confused with the species *Sebastes marinus*, which, however, has a silvery grey to silvery black abdominal cavity lining.

Deep-frozen flesh



The flesh is white, whitish grey to pink with 2 more or less visible broken lines of dark spots, a central line where white and dark spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in 1/2. The ventral line starts in the area of the end of the abdominal cavity and tends to be less visible. A rectangular pattern is also visible throughout the fillet. Gradual dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal part reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus marginatus*, which is virtually identical, just more arched, but also with many others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3. Furthermore, it may be confused with the species *Sebastes marinus*, which, however, has a silvery grey to silvery black abdominal cavity lining.

Fresh and deep-frozen flesh confusability

Lutjanidae; Sebastidae; Serranidae.



Epinephelus marginatus (Lowe, 1834)

Commercial designation

Dusky Grouper

Commercial designation synonyms

Dusky Sea Perch, Yellowbelly Grouper,
Yellowbelly Rockcod

Taxonomic classification

Order	Perciformes
Family	Serranidae
Genus	<i>Epinephelus</i>
Species	<i>Epinephelus marginatus</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Species description



The body is robust, with a large head. The body height is lower than the length of the head. The preoperculum is rounded and finely serrate. The dorsal fin is composed of spines and rays, with the 3rd and 4th spines being longest. The caudal fin is rounded and the pelvic fins begin below the base of the pectoral fins. The body and head are dorsally reddish brown or greyish brown and ventrally yellowish gold. The entire body and head are irregularly speckled with whitish, light greenish yellow or greyish silver spots, mostly arranged in stripes. The pectoral fins are reddish brown to reddish grey, while the pelvic fins are blackish. The thin margin of the caudal, anal and often pectoral fins is white. It can reach 120 cm in size and 35 kg in weight.²¹²

Fresh flesh

²¹² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Page 2343-3124]. ISBN 9789251092675. Page. 2393.



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus morio*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus morio*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Epinephelus morio (Valenciennes, 1828)

Commercial designation	Red Grouper
Commercial designation synonyms	Brown Grouper, Deer Grouper, Cherna de Vivero, Hamlet
Taxonomic classification	Order Perciformes
	Family Serranidae
	Genus <i>Epinephelus</i>
	Species <i>Epinephelus morio</i>

Distribution – FAO areas

Area 41 – Atlantic, Southwest

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Species description



The body height is lower than the length of the head. The dorsal fin has 11 spines and 16 or 17 soft rays; the membranes between the spines are unruptured. The caudal fin is convex in fish smaller than 15 cm, while slightly concave or truncate in larger fish. The upper margin of the operculum is straight. The nostrils uneven. The colour of the head and body is dark reddish brown, shading to pink or reddish ventrally. The caudal and anal fins are distally dark, with a narrow white margin. There are a few dark spots on the tip of the head and



operculum. The body often has irregular white spots or large pale spots. The inside of the oral cavity is bright reddish orange. The common size is up to 90 cm and weight 20 kg.²¹³

Fresh flesh

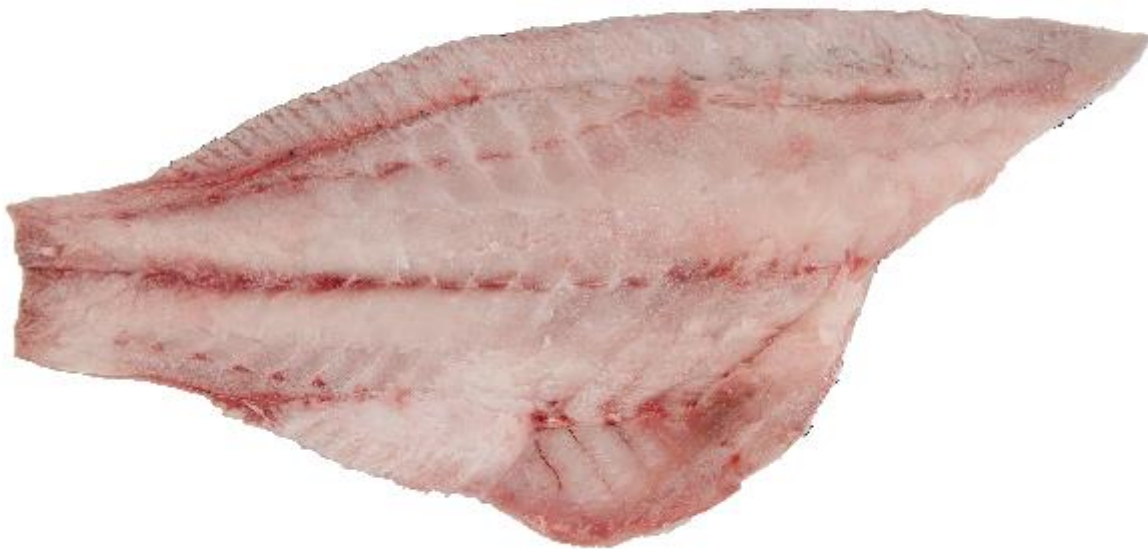


The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus marginatus*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

²¹³ CARPENTER, K. E. (ed.). The living marine resources of the Western Central Atlantic. Volume 2. Bony fishes part 1 (Acipenseridae to Grammatidae) [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 781 pages. [Pages 601-1374]. ISBN 9251048266. Page 1344.



Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line where white and red spots may merge, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A white rectangular pattern is also clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/3 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Epinephelus marginatus*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus campechanus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is rather close to 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Variola louti (Forsskål, 1775)

Commercial designation

Yellow-edged Lyretail

Commercial designation synonyms

Coronation Cod, Lunar Tail Cod, Moontail

Seabass

Taxonomic classification

Order Perciformes

Family Serranidae

Genus *Variola*

Species *Variola louti*

Distribution – FAO areas

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 77 – Pacific, Eastern Central

Area 81 – Pacific, Southwest

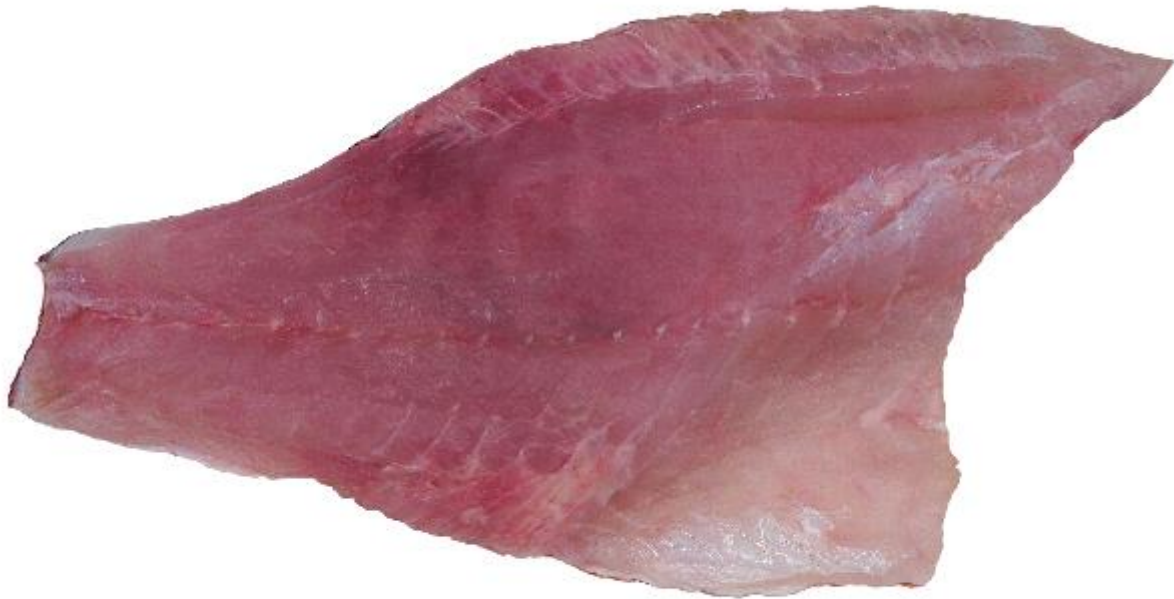
Species description



The body is elongated. The height of the body is lower than the length of the head. The preoperculum is rounded, finely serrated, with a fleshy lower margin. The operculum has 3 flat spines. 1-3 large canines are in the middle of the lower jaw. The caudal fin is crescent-shaped, with the upper and lower lobes being about twice as long as the central rays. The head, body, and fins are yellowish brown to orange-red (fish from great depths are more red) with numerous small round or elongate patches of blue, lavender, or pink. The dorsal, anal and caudal fins have a broad yellow stripe along the edges. The pectoral fin rays are red to brown. The common size is up to 75 cm, with the maximum recorded size being 83 cm and weight 12 kg.²¹⁴

Fresh flesh

²¹⁴ Variola louti (Fabricius, 1775). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-15]. Retrieved from: <https://www.fishbase.se/summary/Variola-louti.html>



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is clearly visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is silvery white. The fresh flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Lutjanidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly 1/3.

Deep-frozen flesh



The flesh is light to dark pink with 2 clearly visible broken lines of red spots, a central line, and clear segmentation. The dorsal line runs the entire length of the fillet with a visible convex curve in the central part. It may be solid in its half. The ventral line starts in the area of the end of the abdominal cavity. A rectangular pattern is visible throughout the fillet. High dorsal arching passes caudally in 2/3 into a conical tapering to a massive caudal peduncle which forms 1/4 of the cranial height. The abdominal area reaches 1/2 of the height and 1/2 of the length of the fillet. The abdominal cavity lining is white to pink. The deep-frozen flesh can be very easily confused with other species of the family Serranidae, including, for example, *Cephalopholis sonnerati*, which is practically identical, but also with a number of others. The range of the flesh shades is so individual that colour cannot be considered as a defining feature. The height of the arch may provide some guidance, but even this characteristic is more of an option to narrow down the selection of similar species. The flesh may also be confused with the whole family Serranidae, especially with the species *Lutjanus argentimaculatus*, which is again virtually identical. The only possible clue is the ratio of the height of the abdominal region to the cranial height of the fillet, which in the family Lutjanidae is mostly 1/3.

Fresh and deep-frozen flesh confusability

Lutjanidae; Serranidae.



Siluridae

Silurus glanis (Linnaeus, 1758)

Commercial designation	Wels Catfish	
Commercial designation synonyms	Danube Catfish, European Catfish, Wels	
Taxonomic classification	Order	Siluriformes
	Family	Siluridae
	Genus	<i>Silurus</i>
	Species	<i>Silurus glanis</i>

Distribution – FAO areas

- Area 1 – Africa – Inland waters
- Area 4 – Asia – Inland waters
- Area 5 – Europe – Inland waters
- Area 27 – Atlantic, Northeast

Species description



Has a broad, low head with small eyes. The mouth is wide, with fleshy lips. The upper jaw is toothless, and has one long barbel at each side of the mouth. Has two pairs of shorter



barbels on the lower jaw. Has a thick slimy skin without scales. The dorsal fin is noticeably small, and the anal fin is very long. The caudal fin is small, rounded. The dorsum is blue-black, uniformly dark, and may be brownish. The sides are lighter, dirty yellowish with more or less a distinct marbling. Grows to 250-300 cm and weighs 100 kg or more.²¹⁵

Fresh flesh



White-pink, white-grey to white-yellow with a distinct light line in the spine. There is also one less prominent line on each side, which may be double in the dorsal part. The segmentation is clearly visible, and the segmentation is also irregular. The whole fillet is very robust, long and evenly reduced caudally. The abdominal cavity reaches 2/3 of the height and 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh contains a high fat content. In the case of specimens from southern Europe, the flesh may contain significantly less fat and this must be taken into account when assessing similarity. The fresh flesh can be easily confused with species of the family Trichiuridae, which are much smaller with a typical ladder-like pattern. The more distinctive segmentation prone to gaping may be a distinguishing feature with *Gadus Morhua*. Representatives of the two interchangeable families have a black or blackish grey abdominal lining. Furthermore, confusion is possible with the species *Molva molva*, which also has a dark midline.

²¹⁵ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages ISBN 80-86327-49-3. Page 295.



Deep-frozen flesh



White-pink, white-grey to white-yellow with a distinct light line in the spine. There is also one less prominent line on each side, which may be double in the dorsal part. The segmentation is clearly visible, and the segmentation is also irregular. The whole fillet is very robust, long and evenly reduced caudally. The abdominal cavity reaches $\frac{2}{3}$ of the height and $\frac{1}{3}$ of the length of the fillet. The lining of the abdominal cavity is silvery white. The flesh contains a high fat content. In the case of specimens from southern Europe, the flesh may contain significantly less fat and this must be taken into account when assessing similarity. Deep-frozen flesh can be easily confused with species of the family Trichiuridae, which are much smaller with a typical ladder-like pattern. The more distinctive segmentation is prone to gaping and may be a distinguishing feature with *Gadus Morhua*. Representatives of the two interchangeable families have a black or blackish grey abdominal lining. Furthermore, confusion is possible with the species *Molva molva*, which also has a dark midline.

Fresh and deep-frozen flesh confusability

Gadidae; Trichiuridae; Lotidae.



Soleidae

Dicologlossa cuneata (Moreau, 1881)

Commercial designation	Wedge Sole	
Commercial designation synonyms	Sole	
Taxonomic classification	Order	Pleuronectiformes
	Family	Soleidae
	Genus	<i>Dicologlossa</i>
	Species	<i>Dicologlossa cuneata</i>

Distribution – FAO areas

Area 1 – Africa – Inland waters

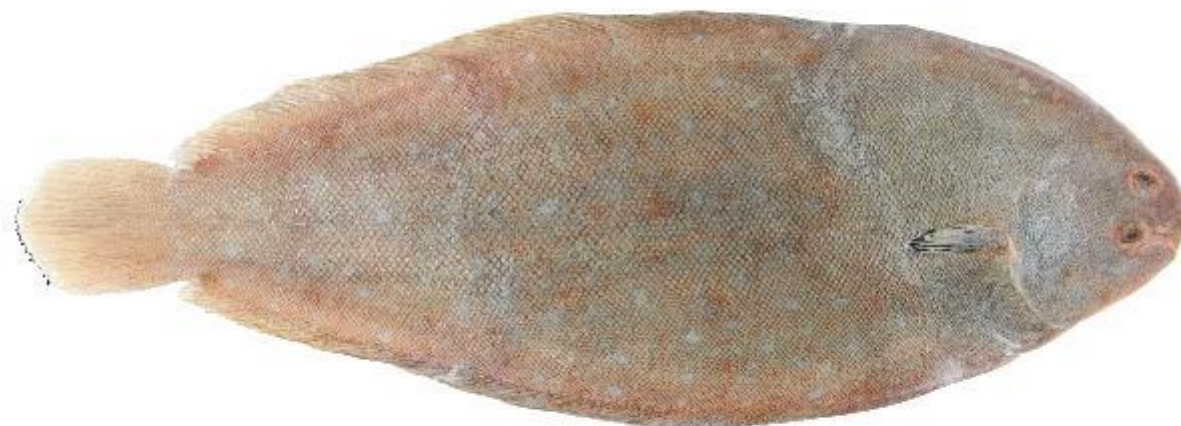
Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 - Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is oval, strongly flattened, widening cranially and narrowing caudally. The head is small, with a convex snout and a curved mouth. The anterior nostril is projected on the upper side, extended by a backward-pointing tube. The body covered with ctenoid scales on the upper side and cycloid scales on the underside. The lateral line on the body is straight, curved into an S-shape just behind the head. The dorsal and anal fins are connected to the caudal fin. The pectoral fins are symmetrical in size; the pelvic fins are short, asymmetrically placed. The colour is grey to brown on the upper side and whitish on the underside. There is a black spot on the upper side of the pectoral fin. It reaches a size of up to 30 cm, with the common size being 20 cm.^{216 217}

Fresh flesh

²¹⁶ Ali M., Saad A., Reynaud C., Capapé C. 2015. First record of wedge sole, *Dicologlossa cuneata* (Actinopterygii: Pleuronectiformes: Soleidae), from the Levant Basin (eastern Mediterranean). *Acta Ichthyol. Piscat.* (1) (PDF) *First record of wedge sole, Dicologlossa cuneata (Actinopterygii: Pleuronectiformes: Soleidae), from the Levant Basin (eastern Mediterranean)* [P.417–421] p. 418. [cit. 2023-10-31]. Retrieved from: https://www.researchgate.net/publication/311585237_First_record_of_wedge_sole_Dicologlossa_cuneata_Actinopterygii_Pleuronectiformes_Soleidae_from_the_Levant_Basin_eastern_Mediterranean.

²¹⁷ *Dicologlossa cuneata* (Moreau, 1881). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-01]. Retrieved from: <https://fishbase.mnhn.fr/summary/526>



The flesh is white, whitish grey, whitish yellow to olive grey with 3 faint pink to brown bands throughout the fillet line - 1 in the dorsal part, 1 more distinct in the central part and 1 in the ventral part. The flesh is fine and firm. The fillet is elongated and relatively robust for its size, with clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually tapering in its caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. It is practically identical with *Solea vulgaris*.

Deep-frozen flesh



The flesh is white, whitish grey, whitish yellow to olive grey with 3 indistinct pink to brown bands throughout the fillet line - 1 in the dorsal part, 1 more distinct in the central part and 1 in the ventral part. The flesh is fine and firm. The fillet is elongated and relatively robust for its size, with clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually tapering in its caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. It is practically identical with *Solea vulgaris*.

Fresh and deep-frozen flesh confusability

Soleidae; Pleuronectidae.

Solea vulgaris (Risso, 1827)

Commercial designation

Common Sole

Commercial designation synonyms

Black Sole, Dover Sole, Park Gate Sole, Tong,
River Sole, Sea Partridge, Slip

Taxonomic classification

Order Pleuronectiformes

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Family	Soleidae
Genus	<i>Solea</i>
Species	<i>Solea vulgaris</i>

Distribution – FAO areas

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, oval and laterally compressed. The head relatively small, bluntly pointed in the front. The eyes separated by a narrow, scaly, interorbital space. The symphysis of the mouth reaches vertically over the posterior third of the lower eye; the lips lack papillae. The blind side of the head is covered with numerous modified scales with fringes as sensory system. The anterior nostril on the ocular side is tubular, not reaching the anterior margin of the lower eye. The pectoral fin on the ocular side is asymmetrical in shape. The ocular side is greyish brown; the ocular pectoral fin has a black spot limited by the distal end of the fin. The dorsal part of the caudal fin is darker than the rest of the fin. The blind side is whitish. The maximum size is up to 70 cm, commonly up to 45 cm.²¹⁸

²¹⁸ *Solea vulgaris* (Risso, 1827). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-09-21]. Retrieved from: <https://www.fishbase.se/summary/525>

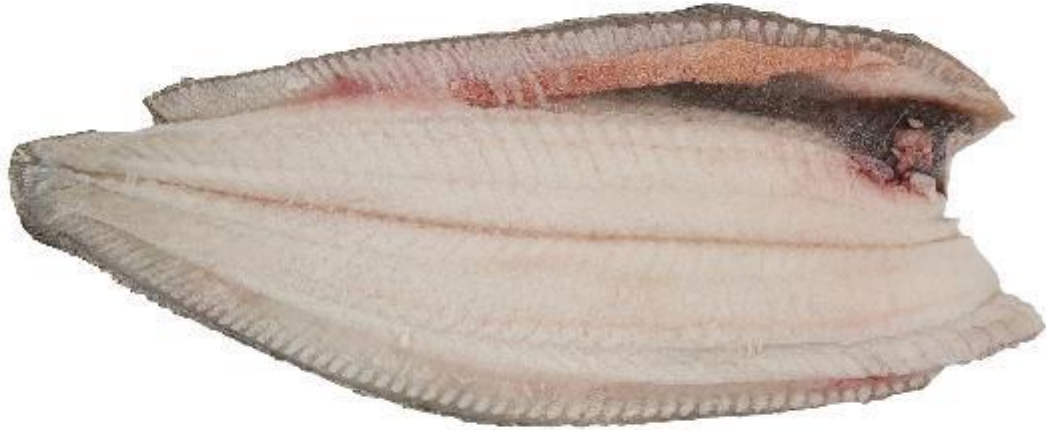


Fresh flesh



The flesh is white, whitish grey, whitish yellow to olive grey with 3 faint pink to brown bands throughout the fillet line - 1 in the dorsal part, 1 more distinct in the central part and 1 in the ventral part. The flesh is fine and firm. The fillet is elongated and relatively robust for its size, with clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually tapering in its caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. It is practically identical with *Dicologlossa cuneata*.

Deep-frozen flesh



The flesh is white, whitish grey, whitish yellow with 3 pink to brown bands throughout the fillet line - 1 in the dorsal part, 1 more distinct in the central part and 1 in the ventral part. The flesh is fine and firm. The fillet is relatively robust for its size, with clear segmentation. The lining of the abdominal cavity is silvery black in the dorsal fillet and silvery white in the ventral fillet. The fillet is symmetrical in the longitudinal axis, arched on both sides and gradually tapering in its caudal part. It is distinguished from the other species by 3 faint longitudinal stripes and, if the marginal fringes are retained, by its ellipsoidal shape. It is practically identical with *Dicologlossa cuneata*.

Fresh and deep-frozen flesh confusability

Soleidae; Pleuronectidae.

Sparidae

Boops boops (Linnaeus, 1758)

Commercial designation	Bogue
Commercial designation synonyms	None



Taxonomic classification

Order	Perciformes
Family	Sparidae
Genus	<i>Boops</i>
Species	<i>Boops boops</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description

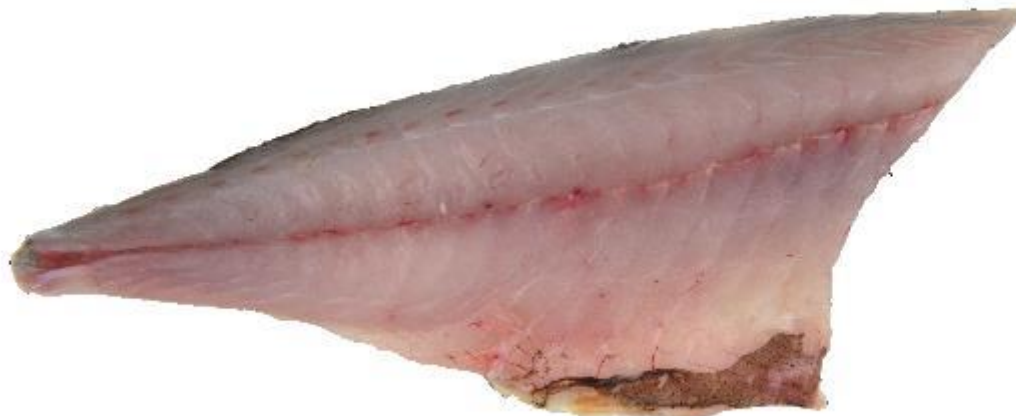


The body is fusiform, moderately low and is very slightly compressed. The eye is large. The mouth is small, oblique. Has a dorsal fin with 13-15 spines and 12-16 soft rays. Has an anal fin with 3 spines and 14-16 soft rays. The pelvic fins are short, not reaching the anus. The caudal fin is forked. The dorsum is bluish or greenish, and the flanks are silvery or golden



with 3-5 golden yellow longitudinal lines. A small brown spot is on the axis of the pectoral fin. The lateral line is dark. The fins are pale. Maximum size is 36 cm, normally up to 20 cm²¹⁹

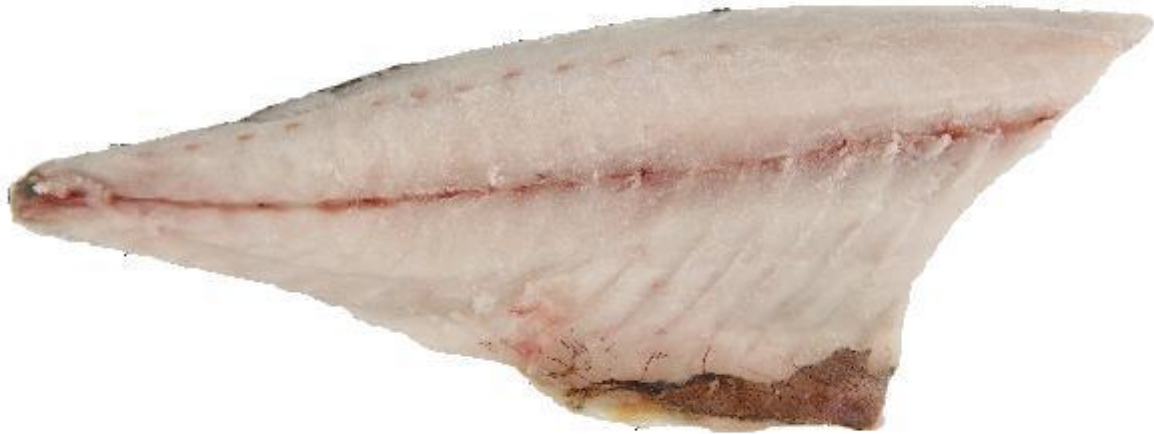
Fresh flesh



Light pink to greyish with a clear segmentation and white markings, especially in the dorsal part of the fillet. Has a distinct red line in the central part and a broken brownish-red line in the dorsal part. The flesh is very fine and fragile. The shape of the fillet is that of a flat, isosceles triangle, without a pronounced dorsal arch, tapering evenly from the cranial part to the part of the caudal peduncle which forms about 1/5 of the cranial height. The ventral part of the abdominal cavity reaches 3/4 of the height and 1/2 of the length of the fillet. The abdomen lining is grey-black with small black spots. Given its size and characteristics, which are outside the range of typical representatives, confusion of fresh flesh with other species of the family Sparidae is unlikely, but cannot be ruled out.

Deep-frozen flesh

²¹⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages [Pages 2343-3124]. ISBN 9789251092675. Page 2581.



Light pink to greyish with a clear segmentation and white markings, especially in the dorsal part of the fillet. A distinct red line in the central part and a broken brownish-red line in the dorsal part. The flesh is very fine and fragile. The shape of the fillet is that of a flat, isosceles triangle, without a pronounced dorsal arch, tapering evenly from the cranial part to the part of the caudal peduncle which forms about 1/5 of the cranial height. The ventral part of the abdominal cavity reaches 3/4 of the height and 1/2 of the length of the fillet. The abdomen lining is grey-black with small black spots. Given its size and characteristics, which are outside the range of typical representatives, confusion of deep-frozen flesh with other species of the family Sparidae is unlikely, but cannot be ruled out.

Fresh and deep-frozen flesh confusability

Sparidae.

Dentex dentex (Linnaeus, 1758)

Commercial designation	Common Dentex
Commercial designation synonyms	Dentex
Taxonomic classification	Order Perciformes



Family	Sparidae
Genus	<i>Dentex</i>
Species	<i>Dentex dentex</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is oval, moderately tall and flattened. The head is rounded in profile, almost straight in juveniles. In large specimens, it has a bump in front. The eye is small, and the mouth anterior and has several rows of canine-like teeth. Has 1 dorsal fin. The caudal fin is bi-lobed. The lateral line is prominent, forming a slight arc over the pelvic fin. Juveniles are greyish, dorsally with black spots, and turn pink after reaching sexual maturity. Older individuals are bluish grey and the black spots are partially scattered. Sometimes a yellowish tinge is behind the mouth and on the operculum. Grows to 100 cm, normal size is 50 cm.²²⁰

²²⁰ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for



Fresh flesh



Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to $\frac{1}{5}$ of the cranial height in the last caudal third. The belly reaches $\frac{2}{3}$ of the height and $\frac{1}{2}$ of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh muscle. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.

Dentex gibbosus (Rafinesque, 1810)

Commercial designation Pink Dentex

Commercial designation synonyms None



Taxonomic classification

Order	Perciformes
Family	Sparidae
Genus	<i>Dentex</i>
Species	<i>Dentex gibbosus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is oval, elongated and slightly flattened on the sides. The profile of the head is convex in young specimens, in older specimens a conspicuous bump is developed in front. The anterior mouth is low on the head. The dorsal fin with the first 2 spines are extremely short. The lateral line is slightly arched. Has a reddish colour with silvery-blue highlights, a lighter belly, and a darker head. Has a small black spot below the caudal edge of the dorsal fin. Has a brown spot in the pectoral fin groove. 1-2 dark stripes on are the soft part of the dorsal fin. The caudal fins is reddish, with a dark margin. Large individuals are often burgundy



red with black (males) or grey (females) patches on the head. It can grow up to 100 cm, the normal size is 60 cm.²²¹

Fresh flesh

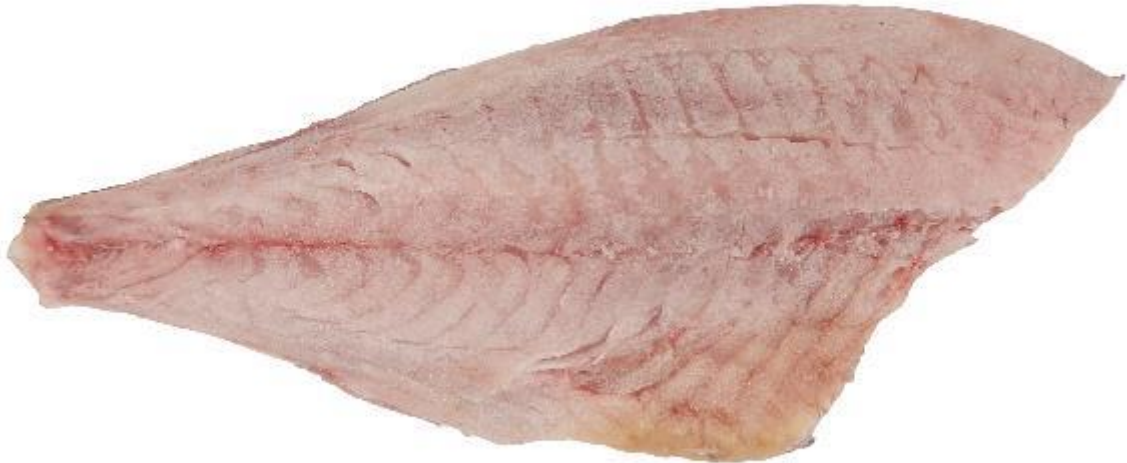


Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Dentex dentex*, but also with many other species. In addition, there are representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

²²¹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2588.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Dentex dentex*, but also with many other species. In addition, there are representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Scianidae; Sebastidae; Sparidae; Labridae; Lethrinidae; Moronidae.

Diplodus vulgaris (Geoffroy Saint-Hilaire, 1817)

Commercial designation

Common Two-banded Seabream



Commercial designation synonyms

Blacktail Bream, Twoband Bream

Taxonomic classification

Order Perciformes

Family Sparidae

Genus *Diplodus*

Species *Diplodus vulgaris*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The caudal fin is heterocerculate, bi-lobed, and pointed at the base. The lateral line forms an arc over the pectoral fin. The base colour is grey, brownish or greenish, and the belly is lighter. Has 2 lateral dark stripes on the sides, one from the cranial base of the dorsal fin, and one on the outer edge of the operculum and the base of the pectoral fin, and the last on the



caudal peduncle. Has black spots under the pectoral fins. The fins are dark with a black margin. Grows up to 42 cm, normal size is 25 cm²²²

Fresh flesh



Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly arched on both sides and much taller than in other species, with a plate-like shape. In the last caudal third it tapers to 1/7 of its cranial height. The ventral part reaches 1/2 the height and 3/5 the length of the fillet. The lining of the abdominal cavity is silvery white with small black dots. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae. The shape of the fillet and the colouration of the abdominal lining may be a clue.

²²² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2600.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched on both sides and much taller than in other species, with a plate-like shape. In the last caudal third it tapers significantly to $1/7$ of its cranial height. The ventral part reaches $1/2$ of the height and $3/5$ of the length of the fillet. The lining of the abdominal cavity is silvery white with small black dots. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae. The shape and colouration of the abdominal lining may be a clue.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.



Oblada melanura (Linnaeus, 1758)

Commercial designation

Saddled Seabream

Commercial designation synonyms

Saddle Bream

Taxonomic classification

Order Perciformes

Family Sparidae

Genus *Oblada*

Species *Oblada melanura*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description





The body is oval, and slightly flattened. The head is scaly with a large eye, mouth is oblique, and has a medium position. Each of the jaws have 8-10 outer teeth and are in the shape of canines. The dorsal fin has the first and second spines distinctly the shortest. The anal fin has 3 spines and 12-14 rays. The lateral line is distinct, in the shape of a slight arc. The colour is silvery grey, and the dorsum is dark, with blue highlights. The longitudinal dark lines are more or less visible on the sides. Has a large dark saddle-shaped spot on the caudal peduncle, bordered with white. Fins are pale. Reaches a maximum size of 30 cm, normal size is 20 cm.²²³

Fresh flesh



ink to olive-grey with a distinct reddish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light pattern of rectangles which are larger cranially and become smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet with a conical tube in the ventral part, extending up to 3/4 of the length of the fillet. The lining of the abdominal cavity is blackish grey marbled. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*,

²²³ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 s. [Str. 2343-3124]. ISBN 9789251092675. Str. 2602.



but also with other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet with a conical tube in the ventral part extending up to 3/4 of the length of the fillet. The lining of the abdominal cavity is blackish grey marbled. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*, but also with other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae

Fresh and deep-frozen flesh confusability

Carangidae; Scianidae; Sebastidae; Sparidae; Labridae; Lethrinidae; Moronidae.



Pagellus erythrinus (Linnaeus, 1758)

Commercial designation

Common Pandora

Commercial designation synonyms

King of Breems, Pandora, Spanish Sea Bream

Taxonomic classification

Order Perciformes

Family Sparidae

Genus *Pagellus*

Species *Pagellus erythrinus*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description

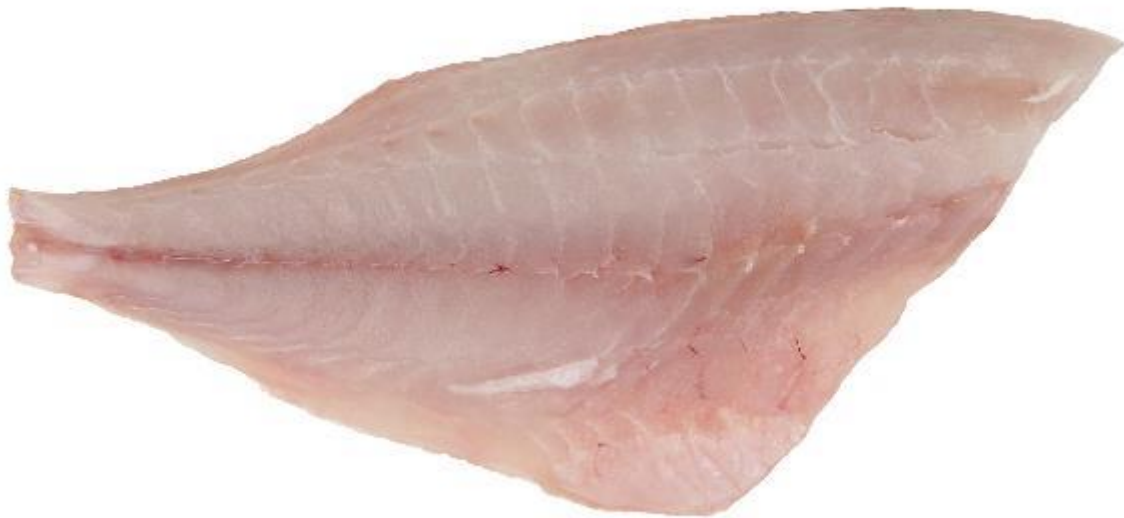


The body is oval, flattened at the sides. The head profile is straight, and the scales are on the head pointing forwards, to or beyond the anterior edge of the eye. The mouth is lower, slightly rounded with fleshy lips. The anal fin is faintly elongated. The lateral line is slightly convex. Has light bright pink colours, with small blue spots on the sides, and a darker head, especially between the eyes in profile. The posterior dorsal margin of the operculum is



crimson red, and the pectoral fins have a small reddish spot at the base, and the same spot is sometimes at the base of last dorsal rays. Maximum size is 60 cm, normal size is 25 cm.²²⁴

Fresh flesh

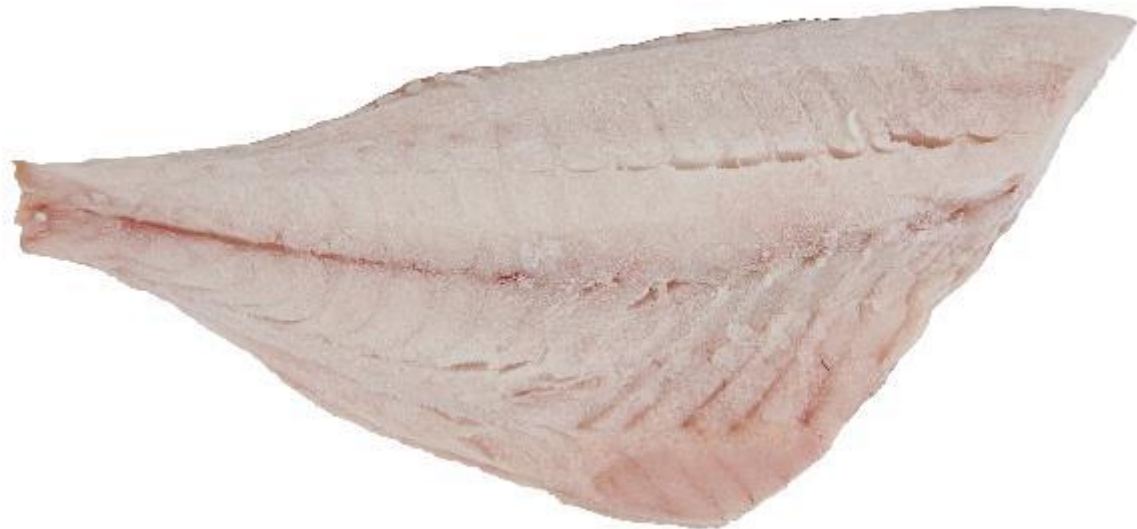


Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Dentex dentex* or *Sparus pagrus*, but also with many other species. It is also found in a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae and Moronidae.

²²⁴ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2607.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh is easily interchangeable with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Dentex dentex* or *Sparus pagrus*, but also with many other species. It is also found in a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae and Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.

Pagrus caeruleostictus (Valenciennes, 1830)

Commercial designation

Bluespotted Seabream



Commercial designation synonyms

Golden Head porgy, Bluepointed Porgy, Gild-Head

Taxonomic classification

Order	Perciformes
Family	Sparidae
Genus	<i>Pagrus</i>
Species	<i>Pagrus caeruleostictus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is oval, medium-high, and slightly flattened. The profile of the head goes steeply upwards from the lower edge of the eye. Jaws are very strong, lips fleshy. The first two spines on the dorsal fin are extremely small, the third to fifth are the longest, is filamentous in juveniles, and the filamentous ray is also on the pelvic fins. Has a pink colour with silver highlights, and the dorsum and flanks are covered with blue spots. The head is darker. Has a large dark spot at the base of the last dorsal rays, which fades with age. The tail fin is pink, with a black edge. Other fins are bluish or pinkish. Old fish are often covered with dark spots.



In males in the breeding season, the head is yellowish in colour. Grows to 72 cm, usual size 50 cm.²²⁵

Fresh flesh



Pink to olive-grey with a faint pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the mid-fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh is easily interchangeable with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*, but also with other species. Then with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

²²⁵ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Pages 2610.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh is easily interchangeable with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*, but also with other species. Then with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Scianidae; Sebastidae; Sparidae; Labridae; Lethrinidae; Moronidae.

Sarpa salpa (Linnaeus, 1758)

Commercial designation

Salema



Commercial designation synonyms

Goldline, Salema, Salpa

Taxonomic classification

Order Perciformes

Family Sparidae

Genus *Sarpa*

Species *Sarpa salpa*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Species description



The body is elongated and moderately flattened laterally. The head is small. The preoperculum is without scales. The mouth is small, lips are thick. The dorsal fin has 11 or 12 spines and 14-17 soft rays. The anal fin has 3 spines and 13-15 soft rays. The pectoral fins are short. Has a bluish grey colour with 10 or 11 orange-gold longitudinal stripes. The head is



darker, abdomen is lighter. Eyes are yellow, and the interorbital space is dark. The lateral line is dark and very distinct. Has a small black spot on the upper part of the base of the pectoral fin. The caudal fin is dark grey, other fins are lighter. Length is up to 45 cm, normally up to 35 cm.²²⁶

Fresh flesh



Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is elongated, slightly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is black. The fresh flesh is easily interchangeable with a number of species of the family Sparidae, the flesh being practically identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with other species. Then with representatives of a number of families such as Carangidae,

²²⁶ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2613.



Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae. The distinctly lower dorsal arch and the pure black lining of the abdominal cavity may be a clue.

Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is elongated, slightly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is black. The deep-frozen flesh can easily be confused with a number of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae. The distinctly lower dorsal arch and the pure black lining of the abdominal cavity may be a clue.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.



Sparus aurata (Linnaeus 1758)

Commercial designation

Gilthead Seabream

Commercial designation synonyms

Gilt Head Bream, Silver Bream

Taxonomic classification

Order Perciformes

Family Sparidae

Genus *Sparus*

Species *Sparus aurata*

Distribution – FAO areas

Area 5 – Europe – Inland waters

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



Oval, moderately tall, and has a slightly compressed body. The head profile is regularly curved. Has a small eye. 4 to 6 pointed teeth are in front of each jaw. The dorsal fin has 11 hard and 13-14 soft rays, and the anal fin has 3 hard spines and 11 or 12 soft rays. Has a silvery grey colour, a large black spot on the cranial part of the origin of the lateral line, extending across the upper margin of the operculum, where it is bordered below by a reddish spot. Between the eyes are a golden band bordered by 2 dark spots (not clearly



visible in young specimens). Often dark longitudinal lines are on the sides of the body. Has a dark band on the dorsal fin. Tips of the caudal fin are fringed black. Maximum size up to 70 cm, normally up to 35 cm.²²⁷

Fresh flesh



Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white with a blackish grey marbling. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

²²⁷ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2614.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh muscle. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white with a blackish grey marbling. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Scianidae; Sebastidae; Sparidae; Labridae; Lethrinidae; Moronidae.

Sparus pagrus (Linnaeus, 1758)

Commercial designation

Red Porgy



Commercial designation synonyms

Common Seabream, Couch's Sea Bream

Taxonomic classification

Order	Perciformes
Family	Sparidae
Genus	<i>Sparus (Pagrus)</i>
Species	<i>Sparus pagrus (Pagrus pagrus)</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Species description





The body is oval, medium tall. The head profile is convex, slightly steeper in front of the eye. Both jaws are anteriorly with large pointed teeth. The dorsal fin has 12 hard spines and 9-12 soft rays. The anal fin has 3 spines and 8 or 9 soft rays. Has a pink colour with silvery highlights, lighter on the belly. The head is dark, sometimes with fine blue spots on the upper sides. Often has a somewhat darker spot near the pectoral fins. The caudal fin is dark pink with white tips of lobes. Other fins are pinkish. Maximum size is up to 75 cm, normally up to 35 cm.²²⁸

Fresh flesh



Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being

²²⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2611.



virtually identical with, for example, *Dentex gibbosus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh flesh. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Dentex gibbosus* or *Pagellus erythrinus*, but also with many other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.



Spondyliosoma cantharus (Linnaeus, 1758)

Commercial designation	Black Seabream
Commercial designation synonyms	Black Bream
Taxonomic classification	Order Perciformes
	Family Sparidae
	Genus <i>Spondyliosoma</i>
	Species <i>Spondyliosoma cantharus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is oval, compressed. The dorsal profile of the head is compressed above the eyes. The suborbital space is narrow. The mouth is oblique. 4-6 rows of pointed teeth are in each



jaw. The dorsal fin has 11 spines and 11-13 soft rays. The anal fin has 3 spines and 9-11 soft rays. Has a silvery grey colour with bluish, greenish or pinkish highlights. The head is darker, especially between the eyes. Yellow-gold longitudinal lines are on the sides. The caudal fin forks are usually fringed with black. Sometimes has 5 or 6 grey stripes. Common size is up to 30 cm, maximum up to 60 cm.²²⁹

Fresh flesh

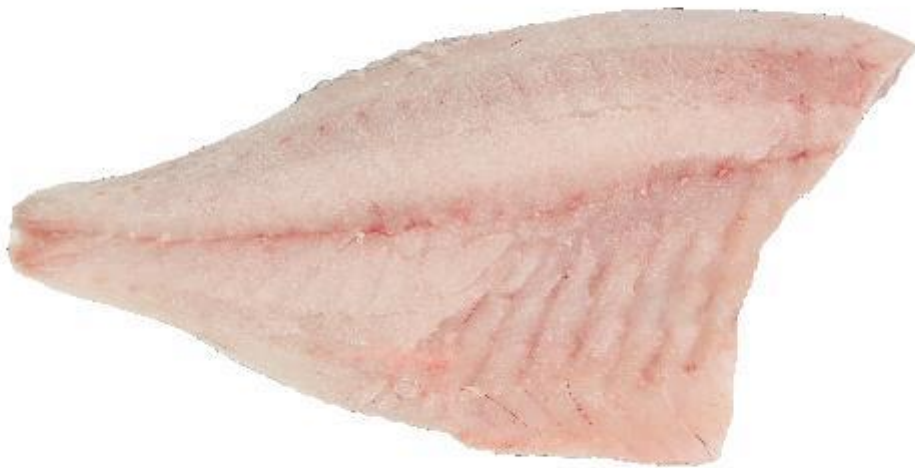


Pink to olive-grey with a distinct pinkish-white line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. The entire dorsal part has a distinctive light rectangular pattern, which is larger cranially and becomes smaller and flatter caudally. A similar pattern lines the ventral part to a lesser extent. Segmentation is clearly visible, and very extensive gaping is common in the case of not completely fresh flesh. The flesh is tender and fragile. The fillet is strongly dorsally arched, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The fresh flesh can easily be confused with a wide range of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*, but also with other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

²²⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 s. [Str. 2343-3124]. ISBN 9789251092675. Str. 2619.



Deep-frozen flesh



White, pinkish and grey with a distinct pink line in the central part and a broken pinkish-brown line in the dorsal part, mainly caudal to the middle of the fillet. Segmentation is clearly visible, with very extensive gaping common in the case of not completely fresh muscle. The fillet is strongly arched dorsally, noticeably narrowing to 1/5 of the cranial height in the last caudal third. The belly reaches 2/3 of the height and 1/2 of the length of the fillet. The lining of the abdominal cavity is silvery white. The deep-frozen flesh can easily be confused with a number of species of the family Sparidae, the flesh being virtually identical with, for example, *Sparus pagrus* and *Pagellus erythrinus*, but also with other species. Also it can be confused with representatives of a number of families such as Carangidae, Sebastidae, Lethrinidae, Labridae, Scianidae or Moronidae.

Fresh and deep-frozen flesh confusability

Carangidae; Labridae; Lethrinidae; Moronidae; Scianidae; Sebastidae; Sparidae.



Sphyraenidae

Sphyraena sphyraena (Linnaeus, 1758)

Commercial designation	European Barracuda
Commercial designation synonyms	Barracuda, Striped Barracuda, Mediterranean Barracuda
Taxonomic classification	Order Carangiformes
	Family Sphyraenidae
	Genus <i>Sphyraena</i>
	Species <i>Sphyraena sphyraena</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Species description



The body is elongated and cylindrical, its height is about 10% of the standard length. The head is large, with a long, pointed rostrum; the end of the lower jaw is fleshy. It has strong conical erect teeth. Has a bony edge of operculum that is terminating in a single spike. Has 2 dorsal fins. The caudal fin is deeply forked. Scales of the lateral line towards the caudal part form a relatively well developed keel. The dorsum is blue-grey to lead-greenish, becoming silvery white towards the bottom, with oblique dark stripes along the dorsal part of the flanks. The upper part of the head and maxilla are blackish. The fins are blackish, and the ventral fins have white margins. In fresh specimens it is whitish inside the mouth. Maximum size is 165 cm, normally up to 60 cm.²³⁰

Fresh flesh

²³⁰ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2871.



Pink in the abdominal region, the rest is olive grey with a distinct segmentation. Apart from the normal extensive gaping, it is without other determinate characters. The fillet is low and robust, with minimal dorsal arching and a very gradual tapering towards the caudal portion of the caudal peduncle, which forms up to $\frac{2}{3}$ of the cranial height. The overall appearance is uniform, without spots, lines or patterns. The ventral part reaches $\frac{1}{2}$ of the height and $\frac{2}{3}$ of the length of the fillet. The lining of the belly is silvery white. The fresh flesh of the whole fillet is paradoxically very difficult to replace due to the lack of expression of the flesh. In the form of portions, on the other hand, it is interchangeable with any species of similar colour. Typically, e.g. *Coryphæna hippurus*.

Deep-frozen flesh



White-pink in the abdominal region, the rest is white to white-grey with a marked segmentation. Apart from the normal extensive gaping, it is without other determinate characters. The fillet is low and robust, with minimal dorsal arching and very gradual tapering towards the caudal portion of the caudal peduncle, which forms up to 2/3 of the cranial height. The overall appearance is uniform, without spots, lines or patterns. The ventral part reaches 1/2 of the height and 2/3 of the length of the fillet. The lining of the belly is white and pink. It is very difficult to confuse the deep-frozen flesh of the whole fillet due to the lack of any distinctive flesh. In the form of portions, on the other hand, it is interchangeable with any species of similar colour. Typically, e.g. *Coryphanea hyppurus*.

Fresh and deep-frozen flesh confusability

Coryphaenidae.

Sphyrnidae

Sphyrna lewini (Griffith & Smith, 1834)

Commercial designation

Scalloped Hammerhead

Commercial designation synonyms

Scalloped Hammerhead Shark



Taxonomic classification

Order	Carcharhiniformes
Family	Sphyrnidae
Genus	<i>Sphyrna</i>
Species	<i>Sphyrna lewini</i>

Distribution – FAO areas

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description



A large shark with an elongated, moderately slender body. Characteristically it has a laterally expanded, narrow, blade-shaped head, with several depressions on the arched edge. The eyes on the side of the head reach behind or level with the posterior edge of the mouth. The anterior teeth are triangular, and the posterior ones are deeply serrated. Has 2 dorsal fins. The first is medium high and pointed, and the second is much smaller. The transverse pit above the base of the tail is crescent-shaped. The caudal fin is strongly asymmetrical. The colour dorsally is light grey or grey-brown,



ventrally whitish, and the tips of the pectoral fins are dark and it has a dark spot on the lower lobe of the caudal fin. Grows to 430 cm, common size is 360 cm. Maximum published weight is 152,4 kg.²³¹

Fresh flesh



Pink to dark red (only in the subcutaneous part) with a well visible segmentation, a thin white pattern lining the segments and a tendency to have extensive gaping in the dorsal part. The flesh is tender and fragile. In the transverse section, 5 segmental units are clearly visible, each of them being further subdivided in the form of concentric ellipses. This segmentation is most often seen on the longitudinal section in the form of 4 longitudinal white lines. The fresh flesh can easily be confused with other *Sphyrna* spp., but also with species such as *Rachycentron canadum* or *Istiophorus platypterus*, especially in the form of the portions.

Deep-frozen flesh

²³¹ *Sphyrna lewini* (Griffith & Smith, 1834) In: FROESE, R., PAULY, D. (eds.). Fishbase [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-10-23]. Retrieved from <https://www.fishbase.se/summary/912>



Pink to dark red (only in the subcutaneous part) with a well visible segmentation, a thin white pattern lining the segments and a tendency to have extensive gaping in the dorsal part. Five segmental units are clearly visible in the transverse section, each of which is further subdivided in the form of concentric ellipses. This segmentation is most often seen in the longitudinal section in the form of 4 longitudinal white lines. Confusion of the deep-frozen flesh is easy with other species of *Sphyrna* spp. but also with species such as *Rachycentron canadum* or *Istiophorus platypterus*, especially in the form of the portions.

Fresh and deep-frozen flesh confusability

Istiophoridae; Rachycentronidae; Sphyrnidae.

Squalidae

Squalus acanthias (Linnaeus, 1758)

Commercial designation

Picked dogfish

Commercial designation synonyms

Spiny Dogfish, Spotted Spiny Dogfish, Spurdog

Taxonomic classification

Order

Squaliformes



Family	Squalidae
Genus	<i>Squalus</i>
Species	<i>Squalus acanthias</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 21 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 67 – Pacific, Northeast

Area 87 – Pacific, Southeast

Species description





The body and head are very slender, and the mouth is lower. The rostrum is medium long, and the anterior nasal valve are single-lobed. Teeth in the upper and lower jaws are blade-like, interconnected, and have one oblique tip and distal blade on the low crown and root. Two small dorsal fins are set far apart. At the beginning of each of them is 1 spine - short in the first dorsal fin, longer in the second. The caudal fin is absent. The colour dorsally is grey to grey-blue, and ventrally is light grey to white. Small white spots are on the flanks. Grows to 160 cm, common size is 100 cm.^{232 233 234}

Fresh flesh



Pure white to pinkish with a clearly visible segmentation throughout the fillet. The fillet is elongated, low, without dorsal arches or distinct longitudinal lines or stripes. The belly reaches up to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is white to slightly pinkish. Due to its colouring, confusion of fresh flesh with species of other families is virtually impossible.

²³² Squalus acanthias (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-14]. Retrieved from: <https://www.fishbase.se/summary/Squalus-acanthias.html>

²³³ MECKLENBURG, C. W. et al. *Marine Fishes of the Arctic Region*. Akureyri, Iceland: Conservation of Arctic Flora and Fauna, 2018. 464 pages. ISBN 978-9935-431-69-1. Page 34.

²³⁴ Squalus acanthias (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-14]. Retrieved from: <https://www.fishbase.se/summary/Squalus-acanthias.html>



Deep-frozen flesh



Pure white to pinkish with a clearly visible segmentation throughout the fillet. The fillet is elongated, low, without dorsal arches or distinct longitudinal lines or stripes. The belly reaches up to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is white to slightly pinkish. Due to its colouring, confusion of deep-frozen flesh with species of other families is virtually impossible.

Fresh and deep-frozen flesh confusability

None.

Stromateidae

Pampus argenteus (Euphrasen, 1788)

Commercial designation	Silver Pomfret
Commercial designation synonyms	White Pomfret
Taxonomic classification	Order Perciformes



Family	Stromateidae
Genus	<i>Pampus</i>
Species	<i>Pampus argenteus</i>

Distribution – FAO areas

Area 37 – Mediterranean and Black Sea

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Species description



The body is oval, very tall, and strongly flattened. The operculum is absent, and the gill aperture is reduced to a vertical isthmus on the side of the body. The dorsal and anal fins are without spines, but the first 5-10 rays are blade-like and distinctly longer. The dorsal fins are absent. The caudal fin is broadly forked, and the lower lobe is longer than the upper lobe. The dorsal colour is grey passing ventrally to silvery white, with small black spots all over. The



fins are faintly yellow, and the vertical fins have dark margins. Can grow up to 60 cm, normal size is 30 cm.²³⁵

Fresh flesh



Light pink to pink with a darker central line and 4 white lines. Always 1 in peripheral and 1 in central part of both dorsal and ventral half of fillet. Segmentation is less noticeable, as is the white pattern around the segments. The flesh is fine and firm. The fillet is strongly arched dorsally and ventrally to plate-shaped. It tapers sharply from 2/3 to the caudal peduncle, which is 1/4 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery with numerous small blackish grey spots, strongly accumulated in the cranial-dorsal area of the abdominal cavity. Confusion of the fresh flesh is virtually impossible in view of the very specific characteristics.

Deep-frozen flesh

²³⁵ Pampus argenteus (Euphrasen, 1788). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-16]. Retrieved from: <https://www.fishbase.se/summary/Pampus-argenteus.html>



Light pink to pink with a darker central line and 4 white lines. Always 1 in peripheral and 1 in central part of both dorsal and ventral half of fillet. Segmentation is less noticeable, as is the white pattern around the segments. The flesh is fine and firm. The fillet is strongly arched dorsally and ventrally to plate-shaped. It tapers sharply from 2/3 to the caudal peduncle, which is 1/4 of the cranial height. The ventral part extends to 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is silvery with numerous small blackish grey spots, strongly accumulated in the cranial-dorsal area of the abdominal cavity. Confusion of the fresh flesh is virtually impossible in view of the very specific characteristics.

Fresh and deep-frozen flesh confusability

None

Triakidae

Galeorhinus galeus (Linnaeus, 1758)

Commercial designation

Tope Shark

Commercial designation synonyms

School Shark, Soupfin Shark, Tope

Taxonomic classification

Order

Carcharhiniformes

550



Family	Triakidae
Genus	<i>Galeorhinus</i>
Species	<i>Galeorhinus galeus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description



It is a shark with a long pointed rostrum, large snout and small blade-like teeth. The colour dorsally is dark grey, ventrally lighter. Fins are smooth, sometimes with pale edges. The rostrum is milky when viewed from below. Has two dorsal fins, the first distinctly larger, the second about the same size as the anal fin. The upper lobe of the caudal fin has a distinct terminal lobe that is as long as the rest of the fin. Grows up to 160 cm in length, largest documented weight is 44,7 kg.²³⁶

Fresh flesh

²³⁶ Galeorhinus galeus (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase* [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-28]. Retrieved from: <https://www.fishbase.se/summary/Galeorhinus-galeus.html>



Light to dark pink with a well-defined segmentation and a white pattern around the segments throughout the fillet, which is low and elongated. 4 thin white lines in the longitudinal profile forming parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines run the full length of the fillet up to the caudal peduncle, which ends in a lost line. In the case of imperfect processing, the ventral part may only be in the form of segments with a white pattern. The flesh is very fine and fragile. The ventral part reaches $\frac{3}{4}$ of the height and $\frac{3}{5}$ of the length of the fillet. The lining of the abdominal cavity is pinkish-white. It is very easy to confuse the fresh flesh with species of the family Scyliorhinidae, which generally have flesh that is more white-pink to white-grey and a belly ratio of $\frac{2}{5}$ of the length of the fillet.

Deep-frozen flesh



Light to dark pink with a well visible segmentation and white markings around the segments throughout the fillet, which is low and elongated. 3 faint darker stripes in the longitudinal profile forming parallel lines, with the peripheral ventral line starting from the end of the abdominal cavity. All the other lines are throughout the length of the fillet up to the caudal peduncle, which ends and becomes lost. The ventral portion reaches 3/4 of the height and 3/5 of the length of the fillet. The lining of the abdominal cavity is pink. It is very easy to confuse deep-frozen flesh with species of the family Scyliorhinidae, which generally have flesh that is more white-pink to white-grey and a belly proportion of 2/5 of the length of the fillet.

Fresh and deep-frozen flesh confusability

Scyliorhinidae.

Trichiuridae

Aphanopus carbo (Lowe, 1839)

Commercial designation	Black scabbardfish
Commercial designation synonyms	None



Taxonomic classification

Order	Perciformes
Family	Trichiuridae
Genus	<i>Aphanopus</i>
Species	<i>Aphanopus carbo</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 21 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Species description





The body is very elongated, distinctly flattened at the sides. The head is long with a large mouth and numerous sharp, narrow teeth. The oral cavity is black. The eye is placed close to the dorsal outline. The dorsal fin has 38-40 spines and 52-56 rays. Spines and rays are partially divided by a deep notch. The caudal fin has two free spines separated from the rest of the fin and 44-48 soft rays, the second spine is very thick, dagger-shaped. The caudal fin is forked. The body is coppery black with iridescence. Maximum length is 150 cm.²³⁷

Fresh flesh



White to pinkish with a poorly visible segmentation and a distinct central line. In the dorsal part there is a poorly visible rectangular pattern. The flesh is very fine and fragile. The fillet is very elongated with a very low layer of muscle. The dorsal arch is absent. Gradually tapers caudally to a conical point throughout its length. The abdominal cavity reaches 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is pure black. It's very easy to confuse the fresh flesh with *Lepidopus caudatus*, which, however, has a much pinker colouration and a clearly visible rectangular pattern in the dorsal part. There is also some possibility of confusion with *Silurus glanis* or *Prionace glauca*, which are much more robust with a white abdominal lining.

²³⁷ CARPENTER, K. E. (ed.). *The Living Marine Resources of the Western Central Atlantic. Volume 3: Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2002. 752 pages. [Pages 1375-2127]. ISBN 978-9251048276. Page 1828.



Deep-frozen flesh



White to pinkish with a poorly visible segmentation and a distinct central line. In the dorsal part there is a poorly visible rectangular pattern. The fillet is very elongated with a very low layer of flesh. The dorsal arch is absent. It gradually tapers caudally to a conical taper throughout its length. The abdominal cavity reaches 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is pure black. It's very easy to confuse the deep-frozen flesh with that of *Lepidopus caudatus*, which, however, has a much pinker colouration and a clearly visible rectangular pattern in the dorsal part. There is also some possibility of confusion with *Silurus glanis* or *Prionace glauca*, which are much more robust with a white abdominal lining.

Fresh and deep-frozen flesh confusability

Carcharhinidae; Siluridae; Trichiuridae.

Lepidopus caudatus (Euphrasen, 1788)

Commercial designation

Silver Scabbardfish

Commercial designation synonyms

Frostfish, Ribbonfish, Buttersnoek

Taxonomic classification

Order Perciformes



Family	Trichiuridae
Genus	<i>Lepidopus</i>
Species	<i>Lepidopus caudatus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description





The body is very elongated, distinctly flattened at the sides. The mouth is anterior, eyes are large, and the space between the eyes are straight or slightly concave. The dorsal fin is composed of 98-110 rays. The caudal fin has two free spines separated from the rest of the fin. The second spine is transformed into a plate or a triangle. The rest of the anal fin consists of 59-66 rays. The caudal fin is bipartite, relatively small. The dorsal fins are reduced. The lateral line is straight, visible. Has a colour that is uniformly silver. Grows to 205 cm in size, common size is 100-135 cm.²³⁸

Fresh flesh



Light to dark pink with a poorly visible segmentation and a distinct central line. In the dorsal part there is a clear rectangular to ladder-shaped pattern. The flesh is very fine and fragile. The fillet is very elongated with a very low layer of flesh. The dorsal arch is absent. Gradually tapers caudally to a conical point throughout its length. The abdominal cavity reaches $\frac{1}{2}$ the height and $\frac{1}{2}$ the length of the fillet. The lining of the abdominal cavity is grey-black to black. It's very easy to confuse the fresh flesh with the species *Aphanopus carbo*, which, however, has a much lighter to white colouration, a less visible rectangular pattern in the dorsal part and a pure black abdominal lining.

²³⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetradontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages 2343-3124]. ISBN 9789251092675. Page 2893.



Deep-frozen flesh



Light to dark pink with a poorly visible segmentation and a distinct central line. In the dorsal part there is a clear rectangular to ladder-shaped pattern. The fillet is very elongated with a very low layer of flesh. The dorsal arch is absent. Gradually tapers caudally to a conical taper throughout its length. The abdominal cavity reaches 1/2 the height and 1/2 the length of the fillet. The lining of the abdominal cavity is grey-black to black. It's very easy to confuse the deep-frozen flesh with the species *Aphanopus carbo*, which, however, has a much lighter to white colouration, a less visible rectangular pattern in the dorsal part and a pure black abdominal lining.

Fresh and deep-frozen flesh confusability

Trichiuridae.

Triglidae

Aspitrigla cuculus (Linnaeus, 1758)

Commercial designation

Red Gurnard



Commercial designation synonyms

East Atlantic Red Gurnard

Taxonomic classification

Order	Scorpaeniformes
Family	Triglidae
Genus	<i>Chelinodichthys</i>
Species	<i>Aspitrigla cuculus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description

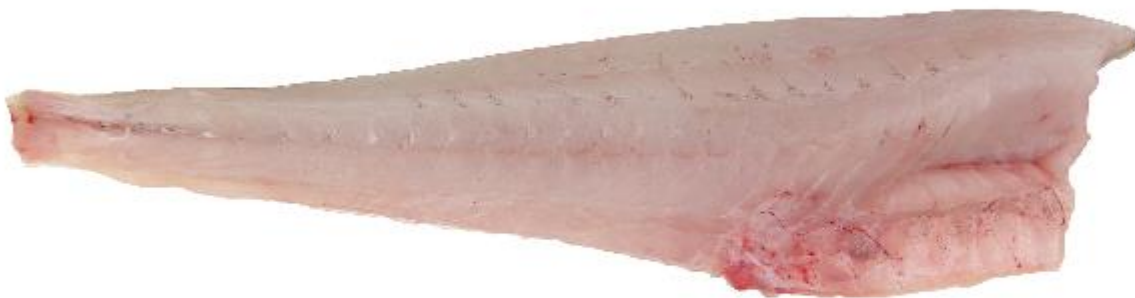


Has a long body tapering to the caudal part. The snout is steep, extended forward by a serrated flattened rostrum. Has a narrow caudal peduncle with a homocercal fin with almost a straight margin. Has two separate dorsal fins, the first is serrated. Has long pectoral fins with



3 free rays. The head and dorsum are reddish, and the lower part of the body are whitish. Can grow up to 70 cm, normal size is 27,6 cm. ^{239 240}

Fresh flesh

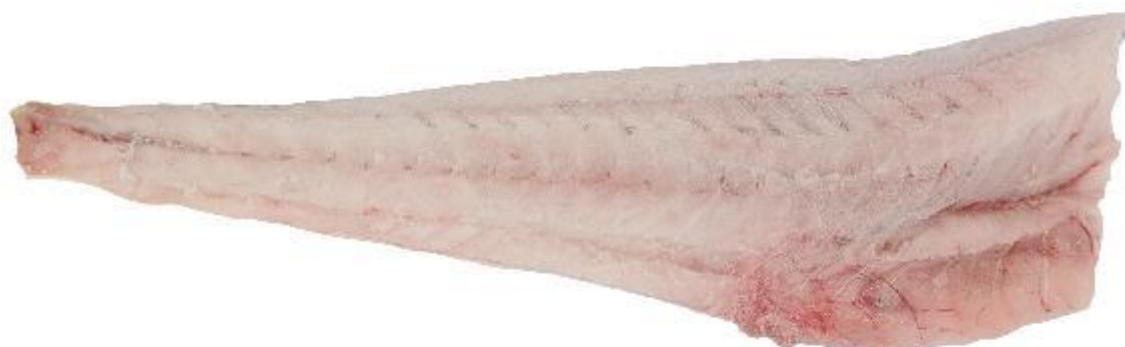


White-pink to pink with 2 hardly distinguishable darker lines. 1 in central and 1 in dorsal part. Segmentation is very well visible with occasional grey-black filaments between each part. The fillet is elongate, low, without dorsal arching, tapering evenly throughout its length to a portion of the caudal peduncle which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery-white with small black filaments, which, together with the filaments between the segments, are a defining characteristic of fresh flesh from *Trigla lucerna* and *Eutrigla gurnardus*.

Deep-frozen flesh

²³⁹ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 839 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 873.

²⁴⁰ *Aspitrigla cuculus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). Fishbase. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-11-07]. Retrieved from: <https://www.fishbase.se/summary/44>



White-pink to pink with 2 hardly distinguishable darker lines. 1 in central and 1 in dorsal part. Segmentation is very well visible with occasional grey-black filaments between each part. The fillet is elongate, low, without dorsal arching, tapering evenly throughout its length to a portion of the caudal peduncle which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery-white with small black filaments, which, together with the filaments between the segments, are a defining characteristic of deep-frozen flesh from *Trigla lucerna* and *Eutrigla gurnardus*.

Fresh and deep-frozen flesh confusability

Triglidae.

Eutrigla gurnardus (Linnaeus, 1758)

Commercial designation	Grey Gurnard	
Commercial designation synonyms	None	
Taxonomic classification	Order	Scorpaeniformes
	Family	Triglidae



Genus	<i>Eutrigla</i>
Species	<i>Eutrigla gurnardus</i>

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description



The body is elongated, tapering from the head. The head is large, without a deep occipital groove, and the mouth is inferior. Has two separate dorsal fins. The caudal fin slightly is incised. The pectoral fins are short, not reaching the base of anal fin. The lateral line is clearly visible, scales on it form a median keel. Has a ventral side of the body that is only partially scaled. Has a grey or reddish brown colour, with white spots on the sides, below and above the lateral line. Grows to 60 cm, normal size is 35-40 cm. ^{241 242}

²⁴¹ *Eutrigla gurnardus* (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-06-13]. Retrived from: <https://www.fishbase.se/summary/Eutrigla-gurnardus.html>



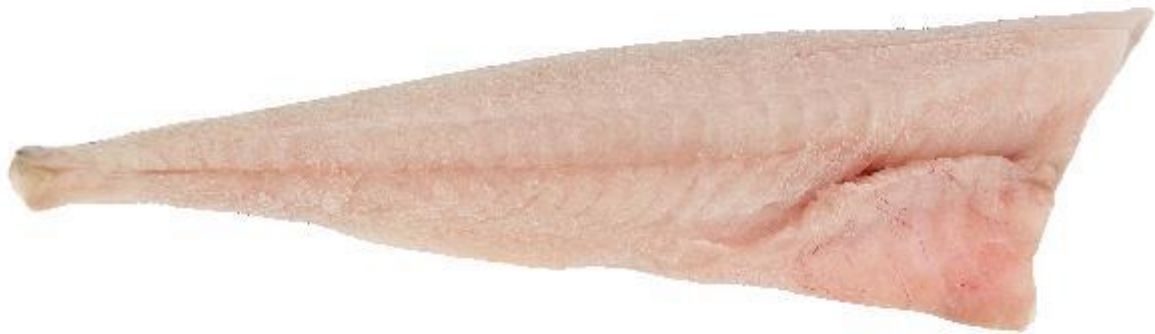
Fresh flesh



White-pink to pink with 2 very faint darker lines, 1 central and 1 dorsal. Segmentation is very well visible with occasional white filaments between segments in the central part of the fillet. The fillet is elongated, low, without dorsal arching, tapering evenly throughout its length to the caudal peduncle, which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery-white in fresh flesh, in contrast to *Aspitrigla cuculus*, where small black filaments can be seen, as well as grey-black filaments between the dorsal segments. The species *Trigla lucerna* is virtually identical.

Deep-frozen flesh

²⁴² CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 831 pages. [Pages 1511-2342]. ISBN 9789251092668. Page 2309.



White-pink to pink with 3 hardly distinguishable darker lines. 1 in dorsal, 1 in central and 1 in ventral part. Segmentation is very clear. The fillet is elongated, low, without dorsal arching, tapering evenly throughout its length to the part of the caudal peduncle which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The abdominal lining of the deep-frozen flesh is silvery-white, unlike in *Aspitrigla cuculus*, where small black filaments are visible, which, together with the grey-black filaments between the segments, are a defining characteristic of this species. The species *Trigla lucerna* is virtually identical.

Fresh and deep-frozen flesh confusability

Triglidae.

Trigla lucerna (Chelidonichthys lucerna) (Linnaeus, 1758)

Commercial designation

Tub Gurnard

Commercial designation synonyms

Tubfish, Tube Fish, Sapphirine Gurnard

Taxonomic classification

Order Scorpaeniformes

Family Triglidae



Genus *Chelidonichthys*

Species *Chelidonichthys lucerna*

Distribution – FAO areas

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Species description

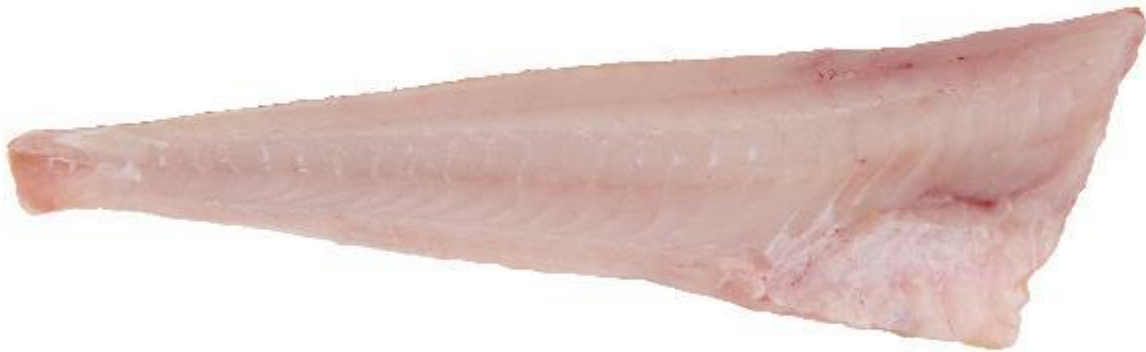


The body is elongated. The head is large, bony, with many ridges and spines, and there is an inferior mouth. Has two separate dorsal fins, the first with 8 to 10 spines. The pectoral fin is long, with 3 separate rays. The pectoral and interdorsal area are without scales, and the abdomen is partly scaled. The dorsum and upper flanks are red or reddish brown, and the belly and lower flanks are white. The pectoral fin is purplish red on the outer lateral side, and the surface and inner surface are bluish with a large black circular spot at the base of the fin. Normal size is 30 cm, maximum 65 cm and 6 kg.²⁴³

²⁴³ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes)* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 839 pages. [Pages 1511-2342]. ISBN 9789251092668. Pages 2298, 2306.

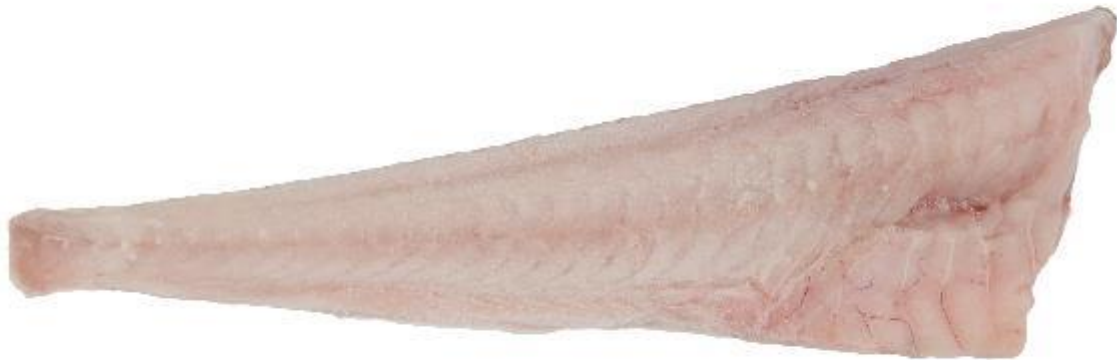


Fresh flesh



White-pink to pink with 2 very faint darker lines, 1 central and 1 dorsal. Segmentation is very well visible with occasional white filaments between segments in the central part of the fillet. The fillet is elongated, low, without dorsal arching, tapering evenly throughout its length to the caudal peduncle, which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The lining of the abdominal cavity is silvery-white in fresh flesh, in contrast to *Aspitrigla cuculus*, where small black filaments can be seen, as well as grey-black filaments between the dorsal segments. The species *Eutrigla gurnardus* is virtually identical.

Deep-frozen flesh



White-pink to pink with 3 hardly distinguishable darker lines. 1 in dorsal, 1 in central and 1 in ventral part. Segmentation is very clear. The fillet is elongated, low, without dorsal arching, tapering evenly throughout its length to the part of the caudal peduncle which forms 1/4 of the cranial height of the fillet. The ventral part extends up to 1/2 the height and up to a maximum of 1/3 of the length of the fillet. The abdominal lining of the deep-frozen flesh is silvery-white, unlike in *Aspitrigla cuculus*, where small black filaments are visible, which, together with the grey-black filaments between the segments, are a defining characteristic of this species. The species *Eutrigla gurnardus* is virtually identical.

Fresh and deep-frozen flesh confusability

Triglidae.

Xenocyprididae

Ctenopharyngodon idella (Valenciennes, 1844)

Commercial designation

Grass carp

Commercial designation synonyms

White amur



Taxonomic classification

Order	Cypriniformes
Family	Xenocyprididae
Genus	<i>Ctenopharyngodon</i>
Species	<i>Ctenopharyngodon idella</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Species description



Has an oblong body of a cylindrical shape. The head is short, flattened at the top. The eyes are set very low. The mouth is terminal without whiskers. The caudal fin is homocercal. The body is brassy green to olive on the upper dorsal part, and ventrally the colour changes to silver with shades of gold as in *Cyprinus carpio*. The fins are yellow-green or yellow-grey. The body is entirely covered with cycloid scales. The lateral line is distinct from the head to the



caudal peduncle. Largest recorded length to date is 150 cm and published maximum weight is 45 kg.²⁴⁴

Fresh flesh



Pinkish to olive grey, with a clear segmentation and a less visible pattern of 4-5 longitudinal light to white lines, typical of the flesh of species of the families Xenocyprididae and Cyprinidae. The fillet is elongated, robust and significantly lower than those of the other species. It tapers evenly to the caudal peduncle, which is up to 1/2 the cranial height of the fillet. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is blackish grey. In the case of whole fillets or parts of fillets, the fresh flesh can be confused with other species of the families Cyprinidae and Xenocyprididae, in smaller sizes mainly with *Cyprinus carpio* or *Barbus barbus*.

Deep-frozen flesh

²⁴⁴ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 206-208.



Pinkish to olive grey, with a clear segmentation and a less visible pattern of 4-5 longitudinal light to white lines, typical of the flesh of species of the families Xenocyprididae and Cyprinidae. The fillet is elongated, robust and significantly smaller than those of the other species. It tapers evenly to the caudal peduncle, which is up to 1/2 the cranial height of the fillet. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the abdominal cavity is blackish grey. In the case of whole fillets or parts thereof, confusion with the other species of the families Cyprinidae and Xenocyprididae is possible in the case of deep-frozen flesh, particularly with *Cyprinus carpio* or *Barbus barbus* in smaller sizes.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Hypophthalmichthys molitrix (Valenciennes, 1844)

Commercial designation	Silver carp
Commercial designation synonyms	None
Taxonomic classification	Order Cypriniformes



Family	Xenocypridae
Genus	<i>Hypophthalmichthys</i>
Species	<i>Hypophthalmichthys molitrix</i>

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Area 6 – Oceania – Inland waters

Species description



The body is robust and relatively high, compressed at the sides, and is olive to silvery. The colour of the body is grey-green to green on the back. The sides are silver-white, as is the peritoneum. The large head makes up approximately 24-29 % of the total body length of the fish. The lateral line is considerably deformed. It extends from the nape of the neck to the middle of the caudal peduncle. The margin of the last dorsal ray is not serrated. It differs



from *Hypophthalmichthys nobilis* in the absence of scales in the area between the pectoral fins up to the anal fin. It grows to a length of 105 cm and a weight of 50 kg.^{245 246}

Fresh flesh



Pink to olive grey with a well-defined segmentation and 4-5 longitudinal light to white lines, typical of the flesh of Xenocyprididae and Cyprinidae. The fillet is high and robust, noticeably dorsally arched. It tapers evenly from 1/3 caudally to the caudal peduncle, which forms 1/3 of the cranial height of the fillet. The ventral part of the abdominal cavity extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is black. In the case of the whole fillet or parts thereof, the fresh flesh is confusable with other species of the families Cyprinidae and Xenocyprididae.

Deep-frozen flesh

²⁴⁵ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes) 2*. Vyd. 1. Praha: Academia, 1995. 698 s., [12], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-9. Pages 269-273.

²⁴⁶ HANEL, L. a LUSK, S. *Ryby a mihule České republiky: rozšíření a ochrana = Fishes and lampreys of the Czech Republic: distribution and conservation*. Vyd. 1. Vlašim: Český svaz ochránců přírody Vlašim, 2005. 447 pages. ISBN 80-86327-49-3. Pages 276-278.



Pink to olive-grey with a well-defined segmentation and 4-5 longitudinal lines, typical of the muscles of Xenocyprididae and Cyprinidae. The fillet is high and robust, strongly dorsally arched. It tapers evenly from 1/3 caudally to the caudal peduncle, which forms 1/3 of the cranial height of the fillet. The ventral part extends to 2/3 of the height and 2/3 of the length of the fillet. The lining of the ventral part is black. In the case of whole fillets or parts of fillets, confusion with the other species of the families Cyprinidae and Xenocyprididae is possible for deep-frozen flesh.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Hypophthalmichthys nobilis (Richardson, 1845)

Commercial designation	Bighead carp	
Commercial designation synonyms	None	
Taxonomic classification	Order	Cypriniformes
	Family	Xenocyprididae



Genus *Hypophthalmichthys*
Species *Hypophthalmichthys nobilis*

Distribution – FAO areas

Area 1 – Afrika – Inland waters

Area 2 – America, North – Inland waters

Area 3 – America, South – Inland waters

Area 4 – Asia – Inland waters

Area 5 – Europe – Inland waters

Species description



The body is massive, relatively high, and laterally compressed. The mouth is in an upper position. The large head makes up approximately 27-35 % of the total body length of the fish. The eye is large, and is set below the level of the mouth. Scales are small, cycloid. The posterior margin of the last dorsal ray is not serrated. The colouration of the flanks is dark marbled. Physiologically is very similar to *Hypophthalmichthys molitrix*. However, unlike it, it also has scales in the area between the pectoral fins up to the anal fin. It can grow up to 130 cm in length and weigh up to 40 kg.²⁴⁷

²⁴⁷ BARUŠ, V. a kol. *Mihulovci (Petromyzontes) a ryby (Osteichthyes)* 2. Vyd. 1. Praha: Academia, 1995. 698 pages.,[12], s. obr. příl. Fauna ČR a SR, sv. 28. ISBN 80-200-0501-9. Pages 263-268.



Fresh flesh



Pale pink to olive grey with well-defined segmentation and 4-5 longitudinal light to white lines, typical of Xenocypridae and Cyprinidae. The fillet is robust, with minimal dorsal arching, from 1/3 caudally tapering evenly to the caudal peduncle, forming 1/3 of the cranial height of the fillet. The ventral part of the abdominal cavity extends to 2/3 of the height and 1/2 of the length of the fillet. The lining of the ventral part is black. In the case of the whole fillet or parts thereof, confusion with the deep-frozen flesh with other species of the families Cyprinidae and Xenocypridae is possible.

Deep-frozen flesh



Pale pink to olive grey with a well-defined segmentation and 4-5 longitudinal light to white lines, typical of Xenocyprididae and Cyprinidae. The fillet is robust, without dorsal arching, from 1/3 caudally tapering evenly to the caudal peduncle, forming 1/3 of the cranial height of the fillet. The ventral part of the abdominal cavity extends to 2/3 of the height and 1/2 of the length of the fillet. The lining of the ventral part is black. In the case of the whole fillet or parts thereof, confusion with the deep-frozen flesh with other species of the families Cyprinidae and Xenocyprididae is possible.

Fresh and deep-frozen flesh confusability

Cyprinidae; Xenocyprididae.

Xiphiidae

Xiphias gladius (Linnaeus, 1758)

Commercial designation	Swordfish
Commercial designation synonyms	Broadbill, Broadbill Swordfish
Taxonomic classification	Order Perciformes



Family	Xiphiidae
Genus	<i>Xiphias</i>
Species	<i>Xiphias gladius</i>

Distribution – FAO areas

Area 21 – Atlantic, Northwest

Area 27 – Atlantic, Northeast

Area 21 – Atlantic, Western Central

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 41 – Atlantic, Southwest

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 67 – Pacific, Northeast

Area 71 – Pacific, Western Central

Area 77 - Pacific, Eastern Central

Area 81 – Pacific, Southwest

Area 87 – Pacific, Southeast

Species description





Has an oblong cylindrical body and the eye is large. In adults, the upper jaw is elongated and is long, flat, pointed, and oval in the cross-section. Has two widely separated dorsal fins. The caudal fin is large, forked, and moon-shaped. Has a large median keel on each side of the caudal peduncle. Has a large and deep notch on the upper and lower profile of the caudal peduncle. The pectoral fins have 17-19 rays, located low on the body. The dorsal fins are absent. Scales with small spines are present in individuals up to about 1.3 m in the total length, then disappearing with growth. The lateral line is faint but recognisable. The dorsum and flanks are blackish brown, gradually fading to light brown on the ventral side. The first dorsal fin is dark brown. Other fins are brown or dark brown. Grows up to 4,5 m, normal size is 2,2 m. ²⁴⁸

Fresh flesh



Light to dark pink, with a less visible segmentation when viewed longitudinally on the fillet, a distinct central darker furrow, one dorsal white line and one dorsal darker stripe. The flesh is very firm and tough. In the longitudinal section, two main parts composed of many segments

²⁴⁸ CARPENTER, K. E., DE ANGELIS, N. (eds.). *The Living Marine Resources of the Eastern Central Atlantic. Vol. 4: Bony fishes part 2 (Perciformes to Tetraodontiformes) and sea turtles* [FAO Species Identification Guide for Fishery Purposes]. Rome: Food and Agriculture Organisation, 2016. 782 pages. [Pages. 2343-3124]. ISBN 9789251092675. Page 2936.



of flesh in the shape of concentric circles are clearly visible. Between the segments there is a distinct red colouration in the shape of a V or Y. The dorsally and ventrally projecting arms of this colouration may extend to the typical red dotted line that lines the outer edge of the section. Confusion of fresh muscle with other species is unlikely. There may be some similarity with *Rachycentron canadum*, but it is much smaller, the flesh is noticeably finer and the dark colouration in the flesh is not as pronounced.

Deep-frozen flesh



White to light pink, with a less visible segmentation when viewed on the longitudinal surface of the fillet, a distinct central darker stripe, one dorsal white line and one dorsal darker stripe. In the longitudinal section, two main parts are composed of many segments of flesh in the shape of concentric circles that are clearly visible. Between the segments there is a distinct red colouration in the shape of a V or Y. The dorsally and ventrally projecting arms of this colouration may extend to the typical red dotted line that lines the outer edge of the section. Confusion of deep-frozen flesh with other species is unlikely. Some resemblance may occur with *Rachycentron canadum*, but this species is much smaller and does not have such a pronounced darker colouration in the flesh.



Fresh and deep-frozen flesh confusability

Rachycentridae.

Zeidae

Zeus faber (Linnaeus, 1758)

Commercial designation	John Dory	
Commercial designation synonyms	Keparu, St. Peter's Fish	
Taxonomic classification	Order	Zeiformes
	Family	Zeidae
	Genus	<i>Zeus</i>
	Species	<i>Zeus faber</i>

Distribution – FAO areas

Oblast 18 – Arctic Sea

Area 27 – Atlantic, Northeast

Area 34 – Atlantic, Eastern Central

Area 37 – Mediterranean and Black Sea

Area 47 – Atlantic, Southeast

Area 51 – Indian Ocean, Western

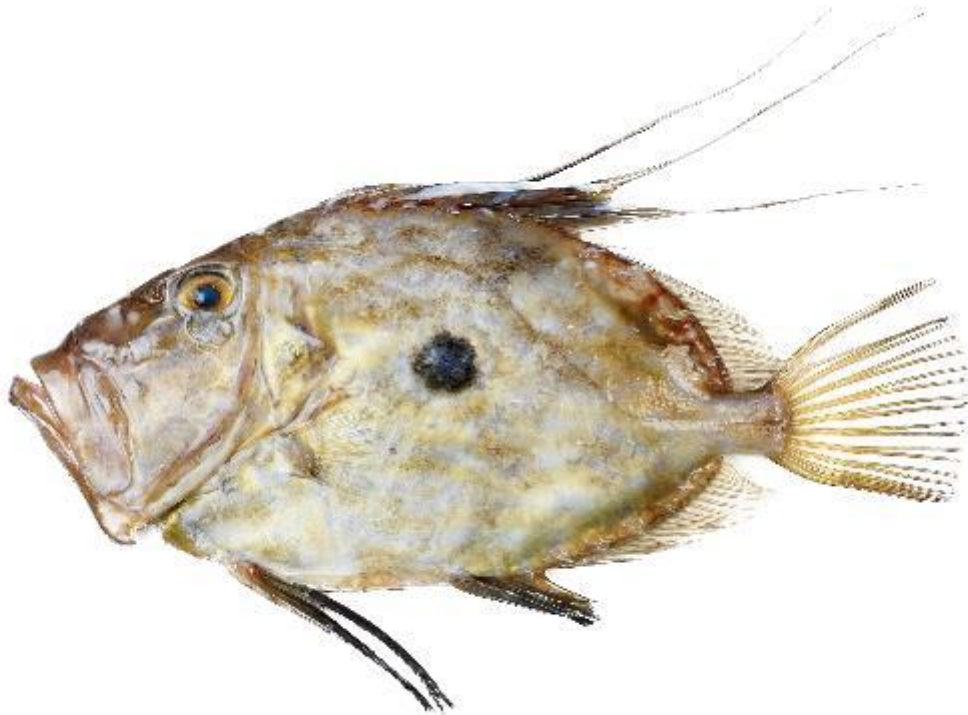
Area 57 – Indian Ocean, Eastern

Area 61 – Pacific, Northwest

Area 71 – Pacific, Western Central

Area 81 – Pacific, Southwest

Species description



The body is oval, strongly compressed at the sides. The scales are visible when enlarged. Has two rows of bony processes along the mid ventral part the of body and abdomen. Has 5-10 bony plates, each with 1 or 2 spines along each side of the soft dorsal and anal fin. The dorsal fin has 10 spines and 22-24 soft rays. Mud spines of the dorsal fin are extended into filaments. The caudal fin has 4 spines and 21-23 soft rays. The dorsal fin has 1 spine and 6-7 soft rays. Has a silvery bronze colour with golden or brownish wavy horizontal stripes. Has a yellow or white-edged black spot on the sides below the lateral line and above the base of the pectoral fin, ventral and pelvic anal fin black. Grows to 90 cm, common size is 40 cm.²⁴⁹
²⁵⁰

Fresh flesh

²⁴⁹ Zeus faber (Linnaeus, 1758). In: FROESE, R., PAULY, D. (eds.). *Fishbase*. [World Wide Web electronic publication] [online]. 02-2023 [cit. 2023-07-28]. Retrieved from: <https://www.fishbase.se/summary/Zeus-faber.html>

²⁵⁰ Zeus faber (Linnaeus, 1758) [FAO Species Fact Sheets]. *Food and Agriculture Organization of the United Nations* [online]. Rome, Italy: FAO, 2023, [cit. 2023-05-05]. Retrieved from: <https://www.fao.org/3/ad468e/AD468eOJ.pdf#0,{%22name%22:%22FitH%22},846>



Light pink to olive grey with a completely atypical segmentation dividing the fillet into several parts, the individual parts being very easy to separate from each other. Most striking is the segmentation of the dorsal part of the fillet, which is high, with a length/height ratio of 1,5:1. It quickly tapers from 1/2 to a narrow caudal peduncle, which is 1/6 of the cranial height. The ventral portion extends to 1/2 the length and 1/2 the height of the fillet. The abdominal lining is silvery white. Confusion of fresh flesh is unlikely, but possible, in view of the characteristics, with the species *Mene maculata*, which is very similar in shape but lacks a distinct segmentation and has a white central Y-shaped line.

Deep-frozen flesh



Light pink to olive grey. Has a indistinct segmentation and mantle colouration. The fillet is tall, with a length/height ratio of 1,5:1. It tapers rapidly from 1/2 caudally to the caudal peduncle, which is 1/6 of the cranial height. The abdominal partition extends to 1/2 the length and 1/2 the height of the fillet. The lining of the abdominal cavity is grey-brown. Confusion of the deep-frozen flesh is unlikely, given the characteristics, but possible, with the species *Mene maculata*, which is very similar in shape but lacks a distinct segmentation and has a white central Y-shaped line.

Fresh and deep-frozen flesh confusability

Menidae.