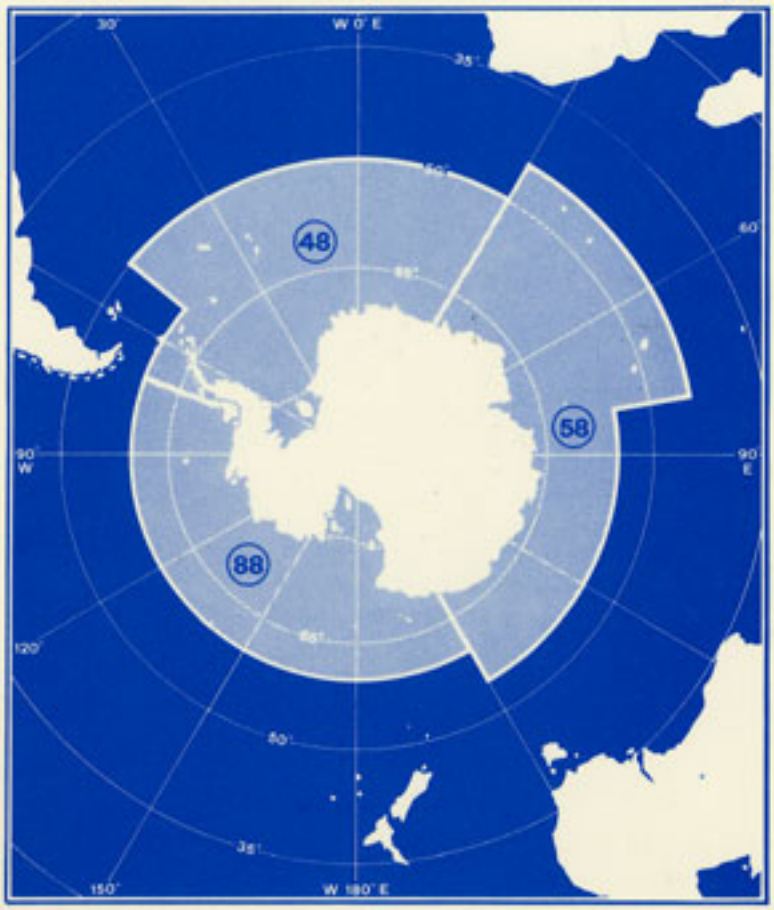
FAO SPECIES IDENTIFICATION SHEETS
FOR FISHERY PURPOSES

SOUTHERN OCEAN

CCAMLR CONVENTION AREA
FISHING AREAS 48, 58 and 88



VOLUME
II

COMMISSION FOR THE CONSERVATION OF ANTARCTIC
MARINE LIVING RESOURCES

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

FAO SPECIES IDENTIFICATION SHEETS

FOR FISHERY PURPOSES

SOUTHERN OCEAN

(Fishing Areas 48, 58 and 88)
(CCAMLR Convention Area)

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VOLUME II

CONTENTS:

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome 1985

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ABSTRACT

This publication presents the marine living resources of the Southern Ocean considered to be of interest to fisheries or of major importance for the conservation of the Antarctic environment, in the form of a practical, illustrated field guide following the format of the by now well-established series of FAO Species Identification Sheets for Fishery Purposes. The major groups included are seaweeds, euphausiids, king crabs/stone crabs, bivalves, gastropods, cephalopods, hagfishes/lampreys, sharks, batoid fishes, bony fishes and marine mammals. Every group section includes an explanation of relevant technical terminology, general remarks, guides or keys to suborders, families or genera, and identification sheets for selected families and species. Identification sheets include an alpha-numerical family or species code, valid scientific names and synonyms still in use, proposed CCAMLR/FAO common names in English, French, Russian and Spanish, an illustration of the family or species in question, a diagnosis, illustrated differential diagnoses of similar families or species, and information on size, geographical distribution and behaviour (with a map), and fisheries. The publication ends with a comprehensive alphabetical index of scientific and common names.

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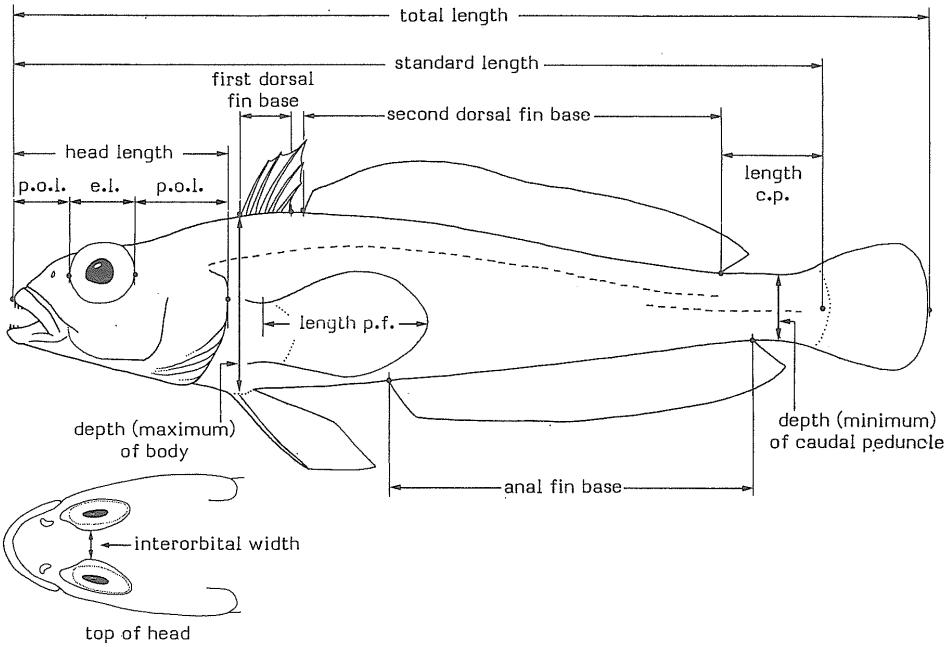
1985

Identification sheets. Taxonomy. Geographic distribution. Fisheries. Vernacular names. Marine mammals. Hagfishes and lampreys. Sharks. Batoid fishes. Bony fishes. Shrimps. Crabs. Euphausids. Bivalves. Gastropods. Cephalopods. Seaweeds. S.O.

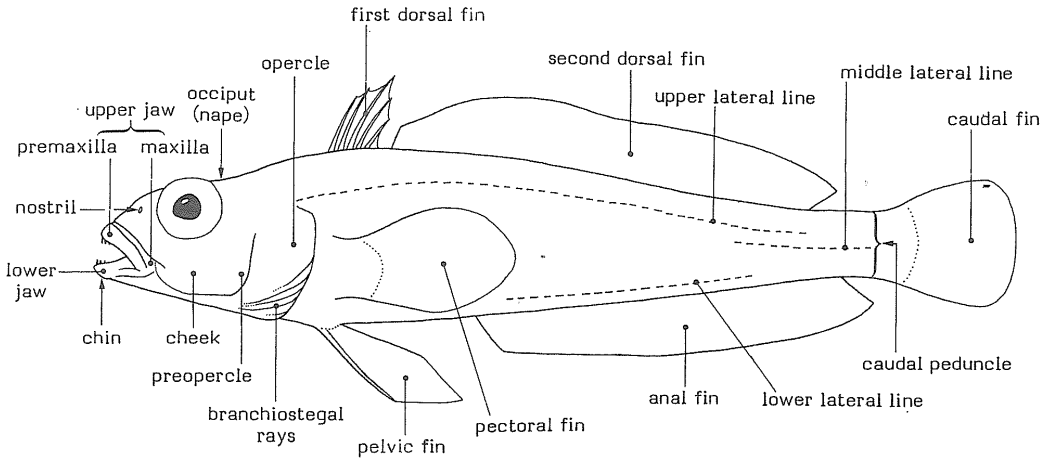
TECHNICAL TERMS

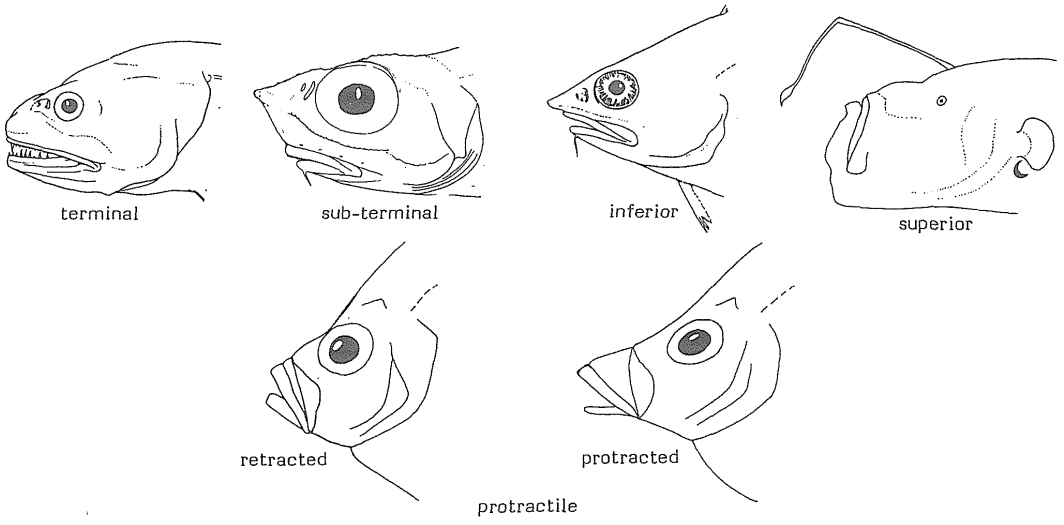
Principal Measurements Used

(shortest distance between the points marked)

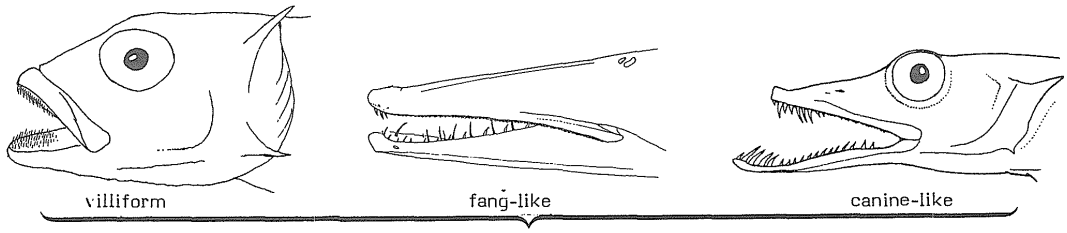


General Nomenclature of the External Morphology

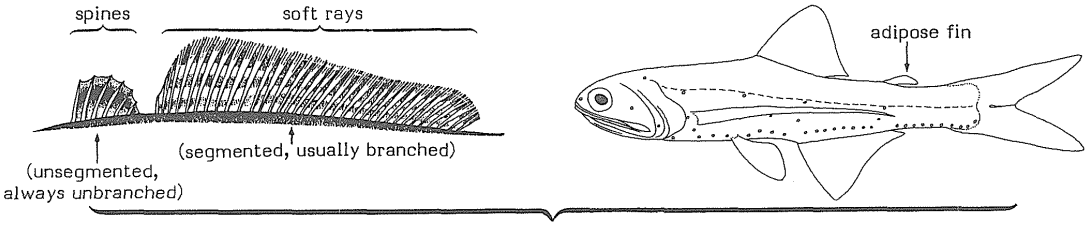




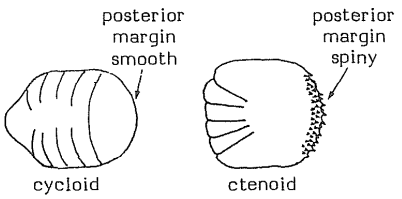
most common type of mouth



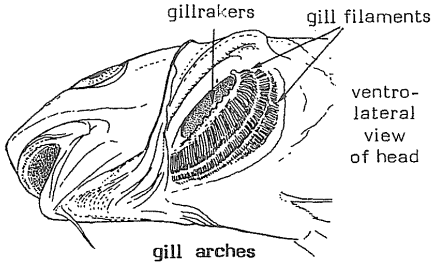
most common types of teeth



types of fins



schematic examples of "normal" scales



gill arches

most common types of caudal fin

General Remarks

This is the largest class of living fishes. Although it encompasses a very wide range of shapes and other morphological features, all of its representatives are easily distinguished from sharks and batoid fishes by the presence of a single gill opening on each side, often overlain by a complex of bones forming a gill cover. In addition, bony fishes usually have the skin covered by overlapping scales, but these may be reduced or even absent in some families, or modified by calcification into ossified plates in others. Unlike most sharks, the caudal fin of bony fishes is most often externally symmetrical (although strongly asymmetrical in its bony structure).

Our knowledge of the fish fauna from the Southern Ocean dates almost entirely from the present century and there are still considerable gaps in the information available, particularly on aspects such as species distribution, abundance and biology, which will hopefully be filled in the near future through scientific research correlated with the increasing fisheries and oceanographic activities in that area.

The fish fauna occurring to the south of the Antarctic Convergence is characterized by its rather limited diversification. In fact, of the world's ca. 20 000 living marine fish species, only about 200 occur in the waters south of the Antarctic Convergence. Another characteristic feature is the high degree of endemism of species inhabiting the shelf areas along the continent and around islands, which is doubtless a result of the geographical isolation of the Antarctic Continent. Endemism is much less widespread among species from deeper waters.

As regards their habitats, the Antarctic fishes can be generally grouped as follows:

1. **Benthic species inhabiting coastal and shelf areas** (to about 500 m depth). These include 90 species belonging to 11 families, of which 6 are notothenioids (Nototheniidae in part, Channichthyidae in part, Bathydraconidae in part, Artedidraconidae in part, Harpagiferidae and Bovichthyidae); 2 belong to other percomorph groups (Zoarcidae and Tripterygiidae), one is a gadiform (Muraenolepididae), one a scorpaeniform (Congiopodidae) and one a pleuronectiform (Bothidae). The large majority of the species (54) in this group belong to the suborder Notothenioidei and nearly half of them are members of the family Nototheniidae.

2. **Benthic species from deep waters.** This group comprises 43 species belonging to 6 families. Four of these families are notothenioid (Nototheniidae in part, Channichthyidae in part, Artedidraconidae in part and Bathydraconidae in part), one (Zoarcidae) belongs to another percomorph suborder, and the sixth (Halosauridae) is a notacanthiform represented by a single species. Within this group, the largest numbers of species are found in the families Zoarcidae (10), Artedidraconidae (12), and Bathydraconidae (8). Of the species included in this group, 20 are also represented in group 1.

3. **Benthopelagic species ranging from shelf areas to the continental slope, some of them to great depths.** This group includes about 25 species belonging to 6 families, i.e. 3 gadiforms (Moridae, Gadidae, Macrouridae), one ophidiiform (Ophidiidae in part), one scorpaeniform (Cyclopteridae or Liparididae, in part) and one notothenioid (Channichthyidae in part). The largest numbers of species are found in the families Macrouridae (8), Liparididae (7), and Channichthyidae (4).

4. **Epipelagic species (surface waters to about 200 m depth).** A small group of only 13 species belonging to 6 families, all of different orders or suborders: Myctophiformes: one family (Alepisauridae), with a single species also represented in group 5; Aulopiformes: one family (Paralepididae), with 4 species, also represented in group 5; Lampridiformes: one family (Lampididae), with a single species; Perciformes Scombroidei: one family (Trichiuridae), with a single species also represented in group 5; Perciformes Stromateoidei: one family (Stromateidae), with a single species also represented in group 5; and Perciformes Notothenioidei: one family (Nototheniidae) with 5 species, 2 of which are also represented in group 5.

5. **Mesopelagic and/or bathy-pelagic species, from about 300 m depth to often very deep waters.** This is a very large and diversified group which comprises about 70 species belonging to 20 families distributed in the following orders or suborders: Anguilliformes: one family (Synaphobranchidae); Salmoniformes: 6 families (Bathylagidae, Gonostomatidae, Sternoptychidae, Stomiidae, Astronesthidae and Idiacanthidae); Myctophiformes: 6 families (Myctophidae, Paralepididae, Scopelarchidae, Notosudidae, Alepisauridae (in part) and Anotopteridae); Aulopiformes: one family (Paralepididae); Lophiiformes: one family (Ceratiidae); Beryciformes: one family (Melamphaidae); Zeiformes: one family (Oreosomatidae); Perciformes Percoidei: Nototheniidae in part and Channichthyidae in part); Perciformes Scombroidei: one family (Trichiuridae in part) and Perciformes Stromateoidei: one family (Stromateidae). In this group, the family with the largest number of species is the Myctophidae. Five of the species in the meso-bathypelagic group are also represented in groups 1, 3 and 4.

Size and growth

The Antarctic ichthyofauna is dominated by small species. Fewer than half of the species grow to 25 cm in length and only about 30 attain sizes over 50 cm, but two of these may grow to beyond 200 cm in total length! Plotting the size ratio ($= \log_e \frac{\text{length at time } (t+1)}{\text{length at time } (t)}$) against the size at the start of the year, it was shown that Antarctic fish tend to have a slower growth rate than other cold-water species. The only species that grew as fast as the Arctic cod (Gadus morhua) were Notothenia rossii and Champsocephalus gunnari when feeding on krill. Thus, although the amount of data available is still limited, they lead to the conclusion that Antarctic fishes grow much more slowly than species from temperate waters and most of them grow also slower than fishes living in the Arctic region.

Reproduction

A direct consequence of the slow growth rate and long lifespan of most Antarctic fishes is the fact that many do not reach sexual maturity until they are over five years old. In the species studied so far, spawning typically takes place in the austral summer or early winter. The results tend to indicate that there is probably a relationship between the annual temperature regime or light intensity and the spawning season. Descriptions of the development and final maturation of the gonads have been given for several species, but the relative fecundity does vary greatly between species and within the same species from different localities. Spawning periods are fairly well known for quite a number of species, although development rates have only been studied in a few cases.

Food and annual cycles

Although most species are demersal in habit, they do feed rather often on pelagic prey, specially on krill, salps and pelagic amphipods. Three feeding groups are recognizable among Antarctic fishes: fish and krill feeders (e.g. Dissostichus species, channichthyids); mainly plankton feeders (e.g. Notothenia larseni, N. rossii, N. squamifrons, Pleuragramma antarcticum, Champsocephalus gunnari); and benthic crustacea feeders (e.g. rajids, Chaenocephalus aceratus, Notothenia gibberifrons, N. cyanobrancha, and juveniles of N. rossii). Annual cycles in gonad maturation, liver weight and growth are closely linked to the availability of food. For some species, the condition factor $\frac{(\text{weight} \times 100)}{(\text{length})^3}$ has been studied and a strong correlation was found between this factor and the various physiological cycles.

Adaptations

Two of the most important features of the Antarctic marine environment are: **(1)** the very low water temperature (-2 to +2°C near the Antarctic Continent; +3 to +6°C around the sub-Antarctic islands) and **(2)** the narrow range of seasonal temperature variation. This relative stability of the thermal environment has permitted the Antarctic fishes to evolve in such a way that their metabolism as a whole is most efficient at low temperature; on the other hand, they were bound to develop special systems to prevent freezing of their bodies. Sea water has a freezing point of about -1.8°C while the body fluids (blood) of fish have a salt concentration that can lower their freezing point only about -0.7°C. It has been shown by various workers that Antarctic fish can develop an "antifreeze" in their blood which is composed of a series of specific glycoproteins.

Antarctic fishes have developed other adaptations for reducing the effects of the slow rates of biochemical reactions in cold environments. As a result of this, Antarctic fishes are sufficiently active to live, grow, reproduce and prey entirely within the boundaries of the Southern Ocean.

There has also been a great deal of interest in the respiratory physiology of Antarctic fishes ever since it was discovered in 1954 that the icefishes (Channichthyidae) have no haemoglobin or any other respiratory pigments in their blood. Since icefishes and red-blooded fish have been shown to extract oxygen from the water at similar rates, the former require a faster blood circulation in order to maintain a normal metabolic level. This can be achieved by increasing either the heart beats per minute, the stroke volume or both together.

Production and Exploitation

At Signy Island, the biomass of Notothenia neglecta in shallow waters has been etimated at 194 kg/ha^{-1}. On the shelf area around the Kerguelen Islands, the standing stock of fish has been estimated at about 130 000 tons (24 kg/ha^{-1}). Estimates of fish production have also been based on total food consumption by major predators (whales, seals and birds). The greater part of the present fish catches in the Southern Ocean is taken from the South Georgia, South Orkneys and South Shetland islands (Fishing Area 48) and from the Kerguelen Islands (Fishing Area 58). Fishing effort is known only from the latter area.

Attention of commercial fisheries has focused on the Southern Ocean initially because of krill, which is potentially the largest resource of the area. However, as krill processing technology took a long time to develop, the major effort has so far been aimed at fish. Thus, although finfish were probably not the most important long-term target for most fishing boats or fleets, they have become very heavily exploited. Catches varied considerably from year to year, with a major peak during the 1970/71 season: two species dominated the catches, Notothenia rossii and Champsocephalus gunnari, with up to 400 000 and 125 000 tons, respectively. But during the last fishing seasons, catches have been regularly decreasing (only 195 000 tons of finfish were taken in both fishing areas during the 1982-83 season).

AID TO THE IDENTIFICATION OF FAMILIES OCCURRING IN THE SOUTHERN OCEAN

This guide includes all marine families present in the Southern Ocean waters, even those more frequently occurring at greater depths.

Code numbers are given for families described on Identification Sheets.

Note

(a) Outline drawings are intended to represent major morphological types in each family; therefore, not every genus is illustrated.

(b) Information applies to the Southern Ocean representatives only.

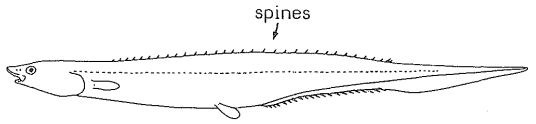
(c) Characterization of families and genera applies only to representatives from the Southern Ocean

SPINY EELS - Notacanthiformes

Body very elongate; snout projecting; a single short-based dorsal fin; anal fin long.

NOTACANTHIDAE Spiny eels

To 45 cm; marine, at depths around 2 600 m; benthic a single species known from the area: Polyacanthonotus challengeri.



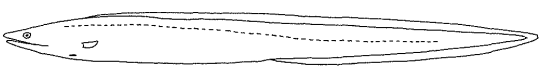
Polyacanthonotus

EELS - Anguilliformes

Body very elongate; fin-spines absent; pelvic fins absent; usually scaleless.

SYNAPHOBRANCHIDAE Cutthroat eels

To about 60 cm; marine, from about 1 500 to 4 000 m depth; benthic. A single species known from the area: Histiobranchus bathybius.



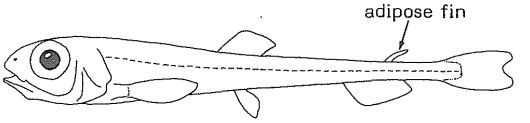
Histiobranchus

ARGENTINES AND ALLIES - Salmoniformes

A diverse assemblage of families characterized by the inclusion of the maxilla in the gape of mouth; fin-spines absent; adipose fin often present.

BATHYLAGIDAE Deep-sea smelts

To about 20 cm; marine, from the surface to below 2 000 m depth; epipelagic to mesopelagic and bathypelagic.



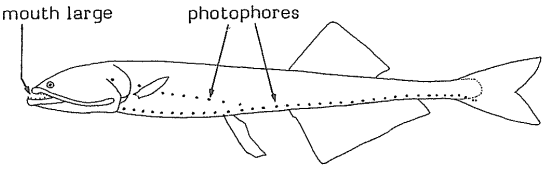
Bathylagus

BRISTLEMOUTHS AND ALLIES - Stomiiformes

Luminescent organs present; mouth large, extending past eye in most species; mental barbel present in some.

GONOSTOMATIDAE Bristlemouths

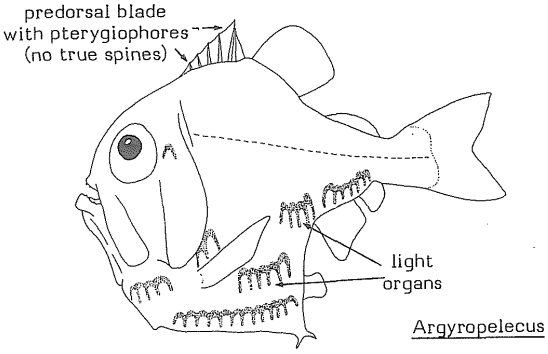
To about 25 cm; mostly in deep water (usually below 200 m), but some species coming up to about 50 m at night; mesopelagic to bathypelagic.



Cyclothone

STERNOPTYCHIDAE Marine hatchet fishes

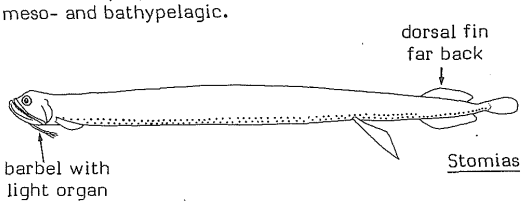
To 20 cm; marine, from the surface to below 3 500 m depth; meso- and bathypelagic.



Argyropelecus

STOMIIDAE Scaly dragonfishes

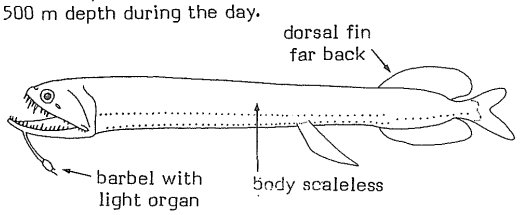
To 40 cm; marine, from the surface (rarely) to 2 000 m depth, but mainly between 300 and 500 m; meso- and bathypelagic.



Stomias

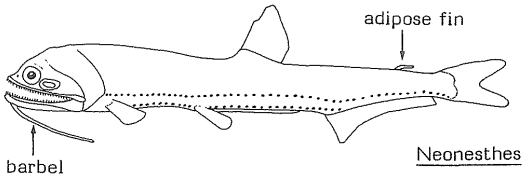
MELANOSTOMIIDAE Scaleless dragonfishes

To 35 cm; marine, meso- to bathypelagic deeper than 500 m depth during the day.



ASTRONESTHIDAE Snaggletooths

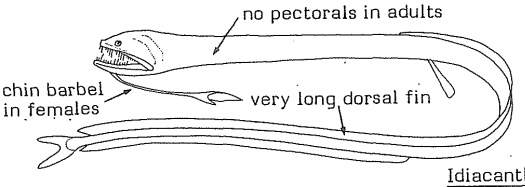
To about 20 cm; marine, from about 150 to below 2 000 m depth; mesopelagic.



Neonesthes

IDIACANTHIDAE Black dragonfishes

To about 45 cm; marine, from the surface (rarely) to over 2 000 m depth; meso- and bathypelagic.



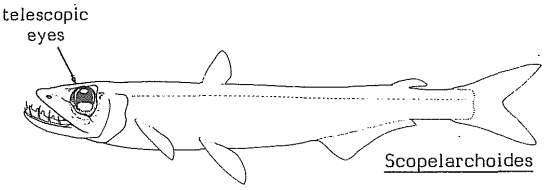
Idiacanthus

BARRACUDINAS AND ALLIES - Aulopiformes

Light organs absent. Characterized by specialization of gill arches.

SCOPELARCHIDAE Pearleyes

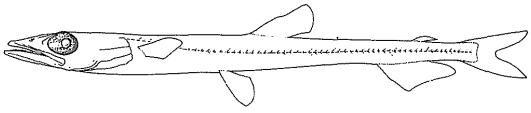
To 23 cm; marine, from the surface to below 3 000 m depth, mostly below 500 m; meso- and bathypelagic.



Scopelarchoides

NOTOSUDIDAE Waryfishes

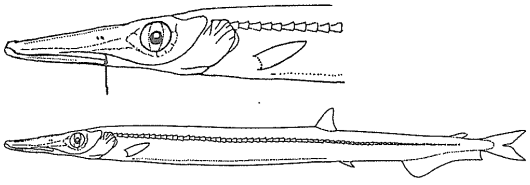
To 50 cm; marine, mostly above 1 000 m depth; mesopelagic.



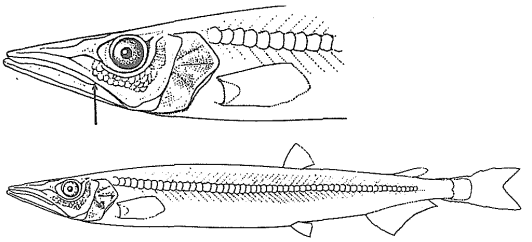
Scopelosaurus

PARALEPIDIDAE Barracudinas PARALEP

To 55 cm; marine, from the surface to below 2 000 m depth; meso- and bathypelagic.



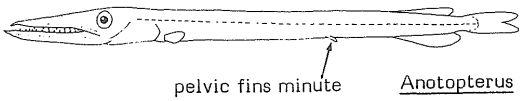
Notolepis



Magnisudis

ANOTOPTERIDAE Daggertooths

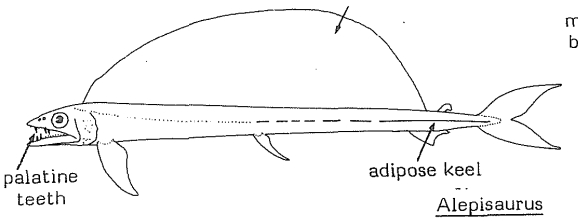
To at least 90 cm; marine, from about 500 to 2 000 m depth; meso- and bathypelagic. A single species known from the area: Anotopterus pharao.



Anotopterus

ALEPISAURIDAE Lancetfishes

To over 200 cm; marine, from the surface (mainly at night) to great depths; meso- and bathypelagic. A single species known from the area: Alepisaurus brevirostris.



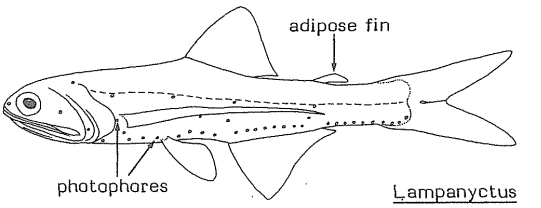
Alepisaurus

LANTERNFISHES AND ALLIES - Myctophiformes

Fin-spines absent; adipose fin present; light organs (photophores) sometimes present.

MYCTOPHIDAE Lanternfishes MYCT

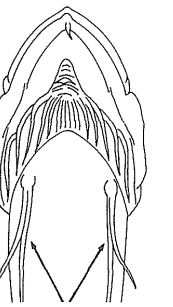
To 30 cm, but most species less than 10 cm; from the surface (at night) to below 2 000 m depth; meso- to bathypelagic.



Lampanyctus

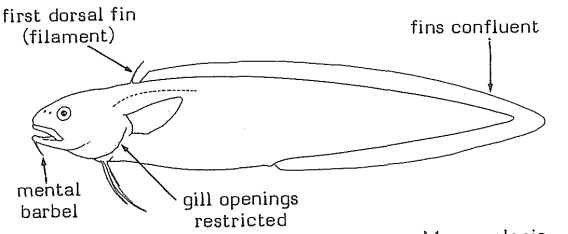
CODS, HAKES AND ALLIES - Gadiformes

No sharp spines in fins (except in dorsal fin of some macrourids); pelvic fins below or anterior to pectoral fins and widely separated from each other, usually entire, but reduced to filaments in some species; barbels often present on chin.



MURAENOLEPIDIDAE Moray cods MURAENOL

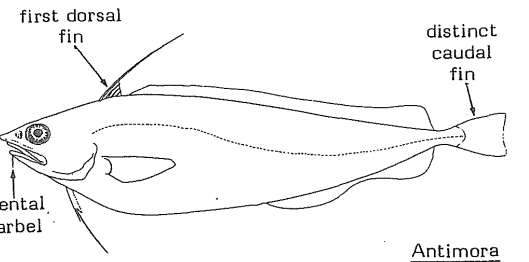
To 40 cm; marine, from shallow waters to about 600 m depth; benthic.



Muraenolepis

MORIDAE Moras MOR

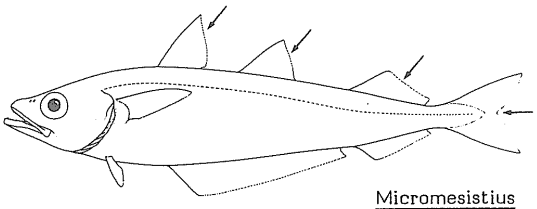
To 70 cm, but most species less than 50 cm; marine, from about 400 to below 3 000 m depth; benthopelagic.



Antimora

GADIDAE Cods GADI

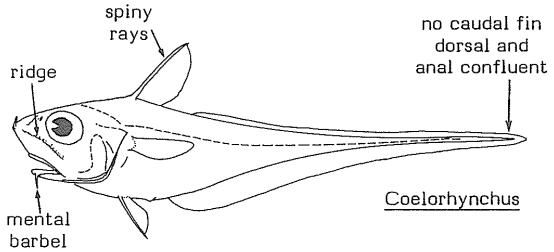
To about 90 cm; marine, from about 70 to 800 m depth; benthopelagic to pelagic. A single species known from the area: Micromesistius australis.



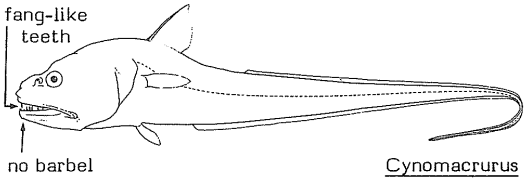
Micromesistius

MACROURIDAE Grenadiers MACROUR

To about 80 cm; marine, from about 150 to below 2 000 m depth; benthopelagic and bathypelagic.



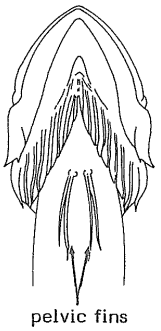
Coelorhynchus



Cynomacrurus

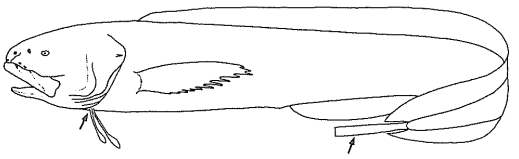
CUSKEELS, BROTULAS AND ALLIES - Ophidiiformes

No sharp spines in fins; pelvic fins absent in some species; when present, these fins are placed anterior to pectoral fins, sometimes far forward on under-surface of head; they are always close together and filamentous, each with no more than 2 rays; caudal fin separate or joined to dorsal and anal fins.



OPHIDIIDAE Cuskeels

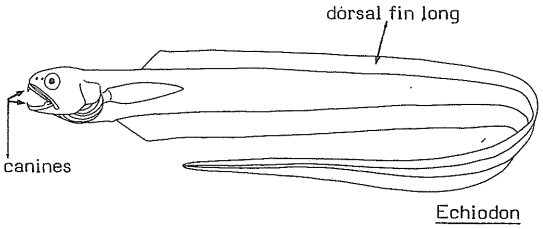
To at least 35 cm; marine, abyssal, benthopelagic. A single species from the area known from 1 specimen caught at 4 570 m depth: Holcomycteronus brucei.



Holcomycteronus

CARAPIDAE Pearlfishes

To about 20 cm; marine from coastal waters to the continental slope, mostly benthic, living in clams, tunicates and starfish. Rare in the Southern Ocean, recorded in South Georgia.



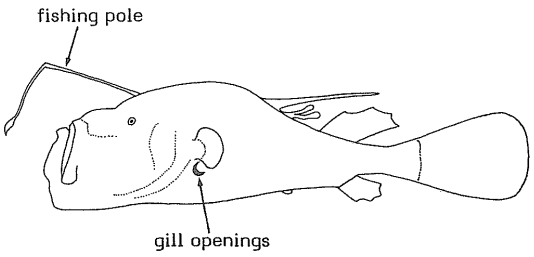
Echiodon

ANGLERFISHES AND ALLIES - Lophiiformes

Body globose or depressed; first spine of dorsal fin modified to form a "fishing pole", gill openings small and circular, usually located below or behind pectoral fins.

CERATIIDAE Seadevils

To at least 11 cm; marine, from around 700 m depth; meso- to bathypelagic. Males parasitic.



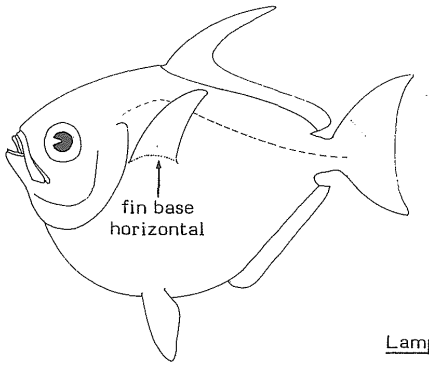
Cryptopsarus

OPAHS AND ALLIES - Lampridiformes

Body oval, fins spineless; bases of pectoral fins horizontal; jaws protrusible.

LAMPRIDIDAE Opahs

To 100 cm; marine, rare, from 300 (possibly from near the surface) to about 500 m depth; pelagic. A single species known from the area: Lampris immaculatus.



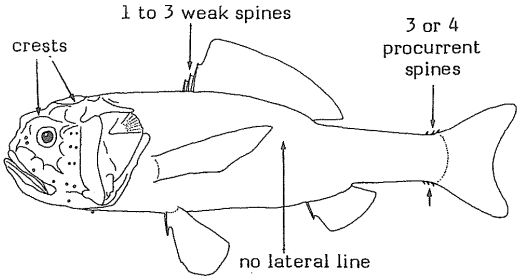
Lampris

SQUIRRELFISHES AND ALLIES - Beryciformes

Head spines and/or crests well developed; fin-spines well developed; scales heavy and large.

MELAMPHAIDAE Ridgeheads, Bigscale fishes

To about 20 cm; marine, from about 200 to below 2 000 m depth; meso- and bathypelagic.



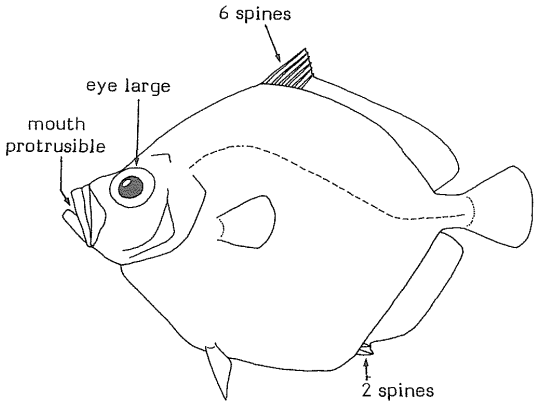
Melamphaes

DORIES AND ALLIES - Zeiformes

Body usually compressed and deep; jaws greatly extensible; prominent spines in anterior part of dorsal fin.

OREOSOMATIDAE Oreos

To 20 cm; marine, from 30 to about 700 m depth; mesopelagic; a single species known from the area: Xenocyttus nemotoi.



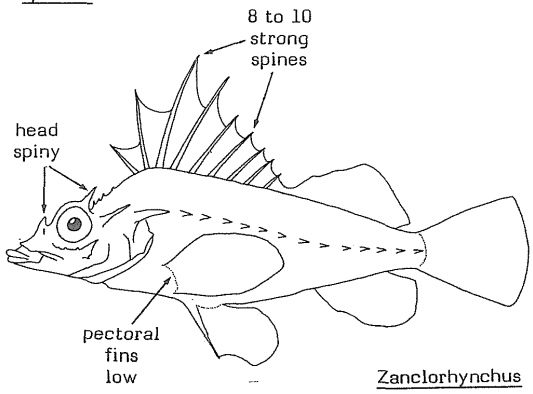
Xenocyttus

SCORPIONFISHES AND ALLIES - Scorpaeniformes

Cheeks with a bony strut (posterior extension of suborbital bone to preopercle); usually well developed spines on head and prominent spines in dorsal fin; pectoral fins usually rounded; membranes between lower rays often incised.

CONGIOPODIDAE Horsefishes CONGIO

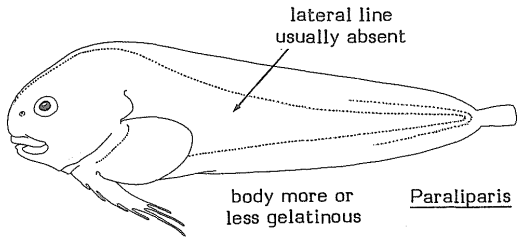
To 40 cm; marine, from shallow coastal waters (15 m) to about 150 m depth; benthic. A single species known from the area: Zanclorhynchus spinifer.



Zanclorhynchus

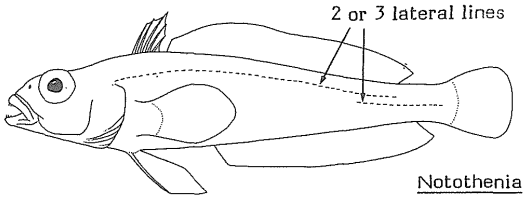
LIPARIDIDAE Lumpfishes and Snailfishes LIPA

To about 20 cm, but usually smaller; marine, from 400 to below 1 400 m depth; benthic to benthopelagic.



NOTOTHENIIDAE Rockcods, Noties, Ice devils NOT

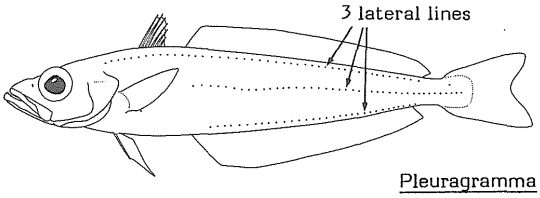
To 240 cm, but usually under 70 cm; marine, from the coastline to below 500 m depth; benthic or pelagic.

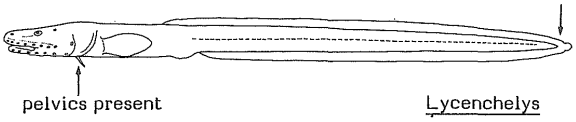


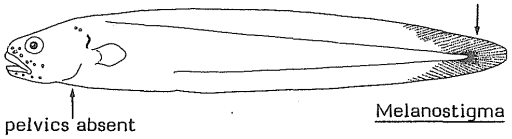
ROCKCODS AND ALLIES - Perciformes - Zoarcoidei

ZOARCIDAE Eelpouts ZOAR

To 30 cm; marine, from 500 to below 1 200 m; benthic.





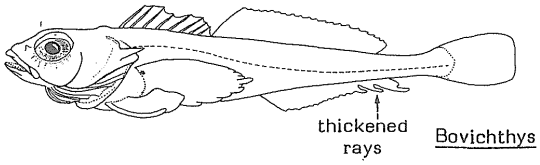


COD ICEFISHES AND ALLIES - Perciformes - Notothenioidei

A single nostril on each side; fins without pungent spines; first (spinous) dorsal, when developed, much shorter than the long second dorsal and anal fins; pectoral fins typically broad-based.

BOVICHTHYIDAE Bull blennies

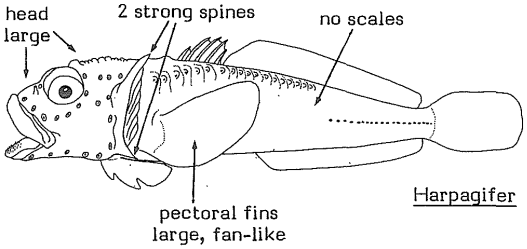
To 30 cm; marine, from shallow coastal waters (in summer) to about 100 m depth (in winter); benthic. A single species known from the area: Bovichthys elongatus.



HARPAGIFERIDAE HARPAG

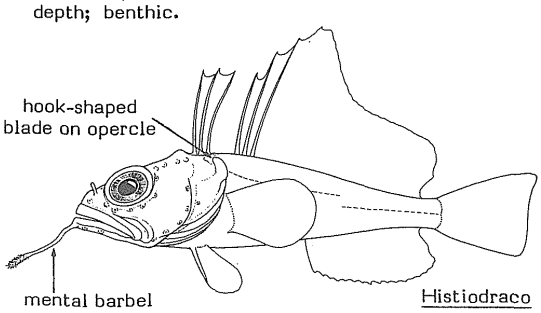
Spiny plunderfishes

To 11 cm; marine, from the coastline to about 180 m depth; benthic.



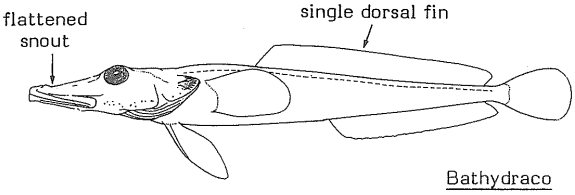
ARTEDIDRACONIDAE Plunderfishes ART

To 30 cm; marine, from about 100 to below 2 500 m depth; benthic.



BATHYDRACONIDAE Dragonfishes BATHY

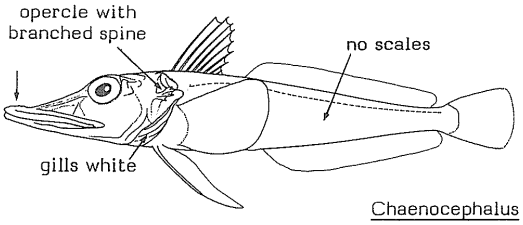
To 40 cm; marine, from the coastline to below 700 m depth; benthic.



Bathydraco

CHANNICHTHYIDAE Icefishes CHANN

To 75 cm; blood pigment absent; marine, from the coastline to below 700 m depth; benthic.



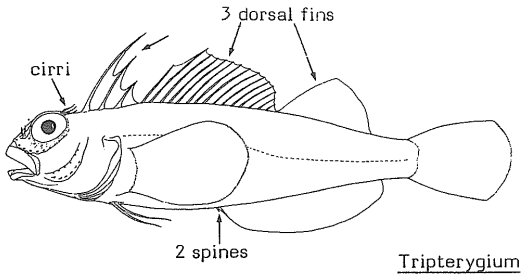
Chaenocephalus

BLENNIES AND ALLIES - Perciformes - Blennioidei

Dorsal fin long or multiple; pelvic fins reduced, with 1 hidden spine and 2 to 4 soft rays, located ahead of pectoral fins; tentacles often present on head; two anal-fin spines (one of them sometimes difficult to see).

TRIPTERYGIIDAE Threefin blennies

To 6 cm; marine in the intertidal zone; benthic. A single species known from the area: Tripterygium antarcticum.



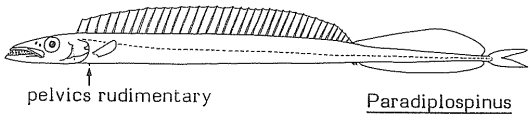
Tripterygium

SNAKE MACKERELS AND ALLIES - Perciformes - Scombroidei

Body extremely elongate; strong fang-like teeth; pelvic fins reduced to a minute spine in adults.

GEMPYLIDAE Snake mackerels, escolars and oilfishes

To about 50 cm; marine, from about 100 to below 2 800 m depth; mesopelagic and bathypelagic. A single species known from the area: Paradiplospinus antarcticus.



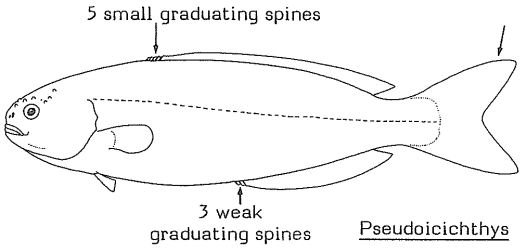
Paradiplospinus

HARVESTFISHES AND ALLIES - Perciformes - Stromateoidei

Shape variable; snout blunt and thick; toothed saccular outgrowths (pharyngeal sacs) present in the gullet immediately behind the last gill arch; teeth small, approximately uniserial.

CENTROLOPHIDAE Ruffs

To about 50 cm; marine, from near the surface to 1 200 m depth (possibly even deeper); epi- to bathypelagic. A single species known from the area: Pseudoicichthys australis.



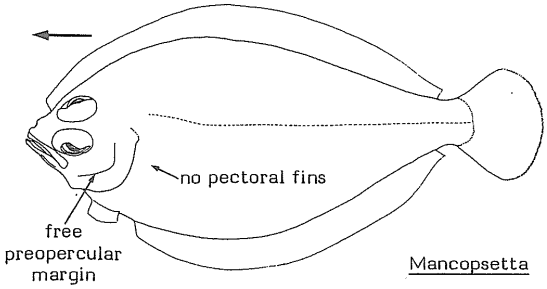
Pseudoicichthys

FLATFISHES - Pleuronectiformes

Flattened body shape; eyes present on one side of body only.

BOTHIDAE Lefteye flounders, armless flounders BOTH

To about 50 cm; marine, from 20 to below 600 m depth; benthic.



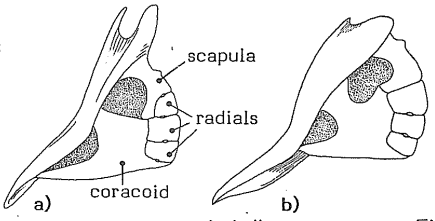
Mancopsetta

The suborder Notothenioidei of the order Perciformes, being the most important group, particularly in terms of number of species and value to fisheries, it appears necessary to include here a key to the families of that suborder.

KEY TO FAMILIES OF THE SUBORDER NOTOTHENIOIDEI:

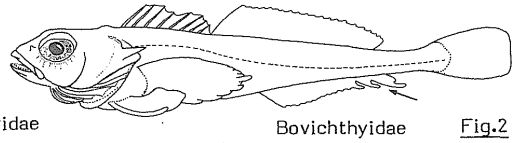
1a. Last rays of anal fin elongate and thickened; one radial on scapula bone, 2 on coracoid bone of the pectoral girdle (Figs 1a,2) ..... Bovichthyidae

1b. Last rays of anal fin shorter and thinner than the others; all 3 radials on the coracoid bone (Fig.1b)

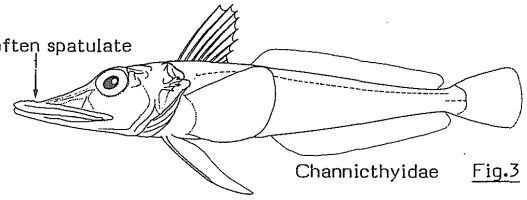


pectoral girdle Fig.1

2a. Palatine mostly ligamentous; mouth not protractile; snout produced, depressed and often spatulate; blood without red pigment (Fig.3) ..... Channichthyidae


Bovichthyidae Fig.2

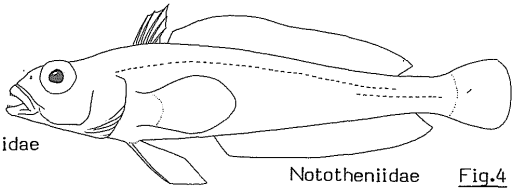
2b. Palatine normally developed; mouth protractile or not; snout never spatulate, often pointed or depressed; blood with normal red pigment



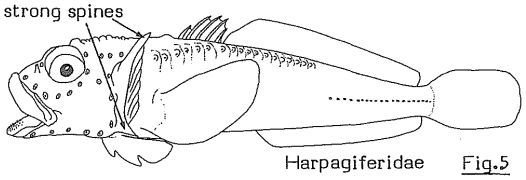
Channicthyidae Fig.3

3a. Two dorsal fins; mouth protractile

4a. Opercle normal, not hooked upward posteriorly; body scaled; gill membranes forming a fold across the isthmus (Fig.4) ..... Nototheniidae


Nototheniidae Fig.4

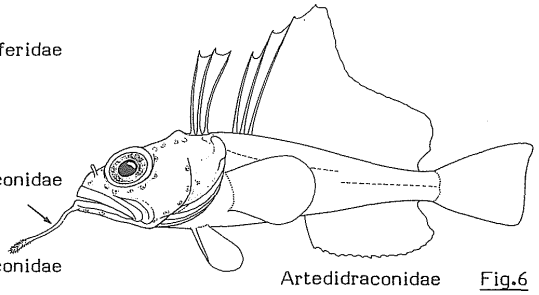
4b. Opercle hooked upward posteriorly, its upper edge deeply concave; body scaleless; gill membranes broadly united to isthmus



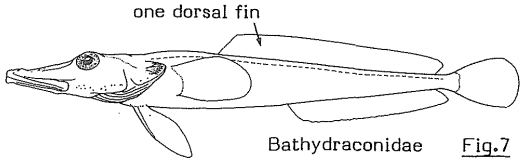
Harpagiferidae Fig.5

5a. Opercle and subopercle each bearing a strong spine; no barbel on chin (Fig.5)..... Harpagiferidae

5b. Opercle and subopercle without a strong spine; barbel always present on chin (Fig.6)..... Artedidraconidae


Artedidraconidae Fig.6

3b. Only one dorsal fin; mouth non-protractile (Fig.7) ..... Bathydraconidae



Bathydraconidae Fig.7

ART

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

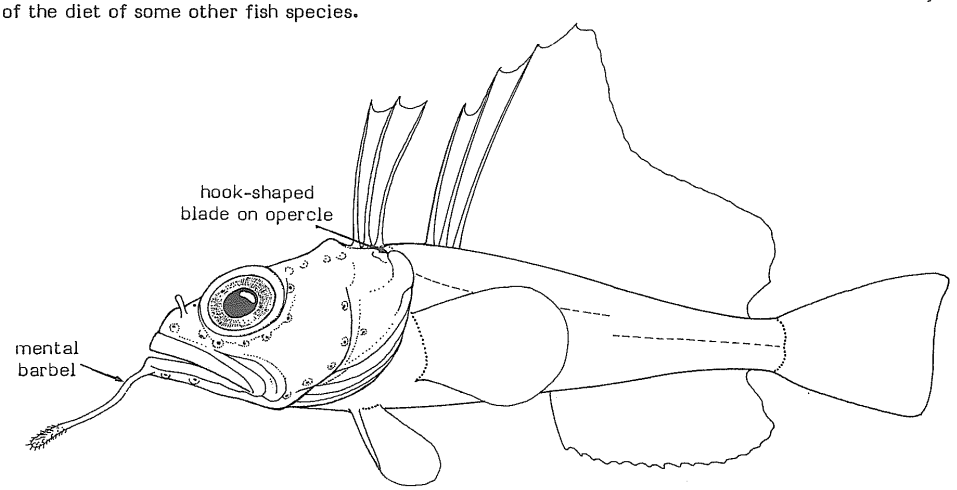
ARTEDIDRACONIDAE

Plunderfishes

Small to moderate-sized fishes (up to 30 cm). Body always elongate. Head large and high, sometimes depressed; snout short, rounded, shorter than eye diameter; lower jaw produced in most species, with the maxilla reaching posteriorly to below posterior part of eye in some species, but generally not extending beyond the anterior margin of pupil; mouth protractile; a mental barbel present, single and stalked, its tip variable in shape but specifically characteristic; teeth in villiform bands, without distinct canines; opercle without a strong spine, but with a characteristic hook-shaped blade; gill membranes broadly united to isthmus; gillrakers normally developed. Two dorsal fins, the first one with very few, flexible rays, short or very long, the second with a long base, rather elevated in some species; anal fin long and often elevated, without spines; pectoral fins broad and fan-like; pelvic fins jugular in position; caudal fin truncate, rounded or emarginate. Body completely scaleless, except the two lateral lines covered with tubular scales.

Colour: general pattern dark or clear with or without marbled bars or spots on body and head; fins often spotted with black dots.

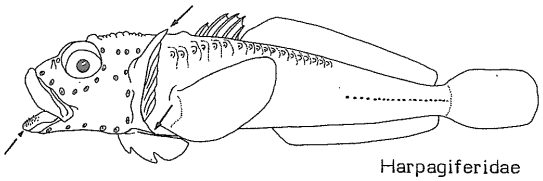
Plunderfishes are widely distributed on the shelves and slopes of the Antarctic Continent and sub-Antarctic islands. Some species have been found at considerable depths (more than 2 500 m). They mostly feed on benthic crustaceans and other small invertebrates. The Fishing Areas 48,58 and 88 comprise 4 genera and 19 species , none of which has any commercial value. They were included here because of their particular interest as members of the most common suborder (Notothenioidei) of Antarctic fishes and as major components of the diet of some other fish species.



SIMILAR FAMILIES OCCURRING IN THE AREA :

All other notothenioid fishes occurring in the Southern Ocean are easily distinguished from the Artedidraconidae, mainly by the following characters:

Harpagiferidae: no mental barbel; presence of strong and sharp spines on the opercle.



Harpagiferidae

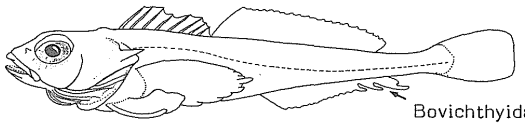
*Another species is being described by Miller & Rheuben and hence, cannot be included here

Nototheniidae: body scaled; opercle normal, not hooked upward posteriorly.

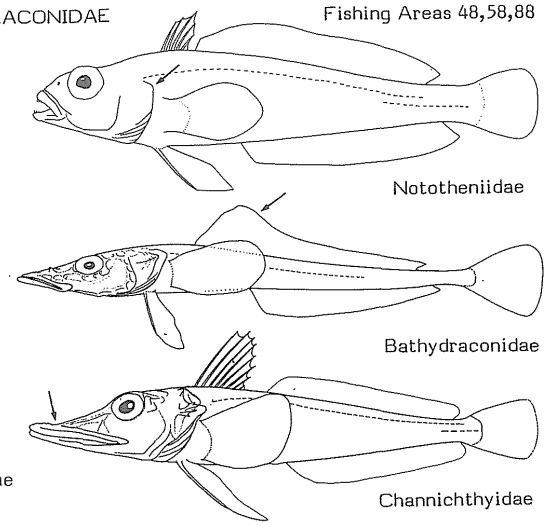
Bathydraconidae: only one dorsal fin; mouth non-protractile.

Channichthyidae: head spiny, with a produced and flattened snout. They also lack oxygen-carrying pigment in their blood which appears whitish or translucent, rather than red.

Bovichthyidae*: last rays of anal fin elongate and thickened distally.



Bovichthyidae



Nototheniidae

Bathydraconidae

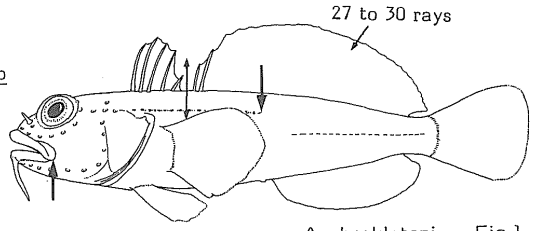
Channichthyidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA**

1a. *Post-temporal bone not prominent; head* not or scarcely broader than deep; inter-orbital region narrow

2a. First dorsal fin at least partly above base of pectoral fin (Figs 1-5)..genus Artedidraco

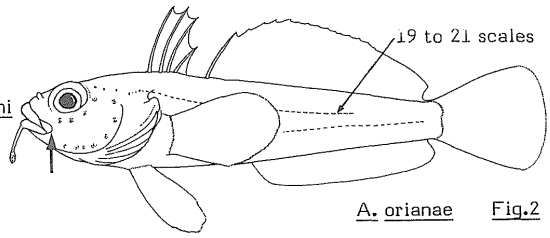
3a. Upper lateral line with 9 or more tubular scales, the row of tubular scales extending to below second dorsal fin, below the first 3 or more dorsal fin rays (Fig.1)



A. shackletoni Fig.1

4a. Second dorsal fin with 27 to 30 rays; length of upper jaw 12.6 to 14.5% of standard length (Fig.1) ... Artedidraco shackletoni

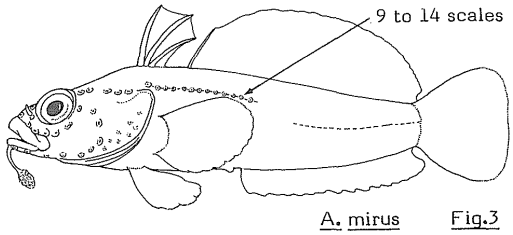
4b. Second dorsal fin with 23 to 25 rays; length of upper jaw 10.6 to 11.5% of standard length (Figs 2,3)



A. orianae Fig.2

5a. Upper lateral line with 19 to 21 tubular scales (Fig.2) ..... Artedidraco orianae

5b. Upper lateral line with 9 to 14 tubular scales (Fig.3) ..... Artedidraco mirus



A. mirus Fig.3

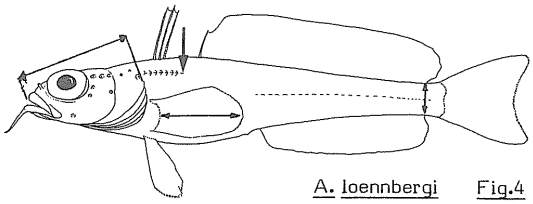
* Only one species has been described from area 48 (Antarctic Peninsula), Bovichthys elongatus Hureau & Tomo, 1977; the other species of the family are known from the southern coasts of South America, New Zealand and Australia

** The key to Pogonophryne species has been adapted from Eakin and Kock (1984)

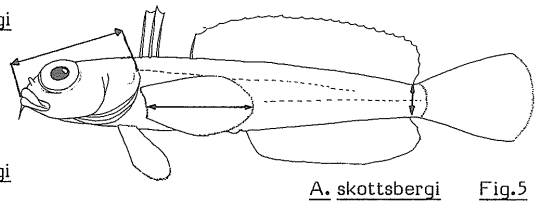
3b. Upper lateral line with 8 or fewer tubular scales, the row of tubular scales not extending to below dorsal fin, or at most, to below first dorsal ray (Fig.4)

6a. Depth of caudal peduncle 19.4 to 21.4% of head length; length of pectoral fins 60.7 to 71.8% of head length (Fig.4) .... Artedidraco loennbergi

6b. Depth of caudal peduncle 25.3 to 29.7% of head length; length of pectoral fin 77.4 to 85.2% of head length (Fig.5) ... Artedidraco skottsbergi

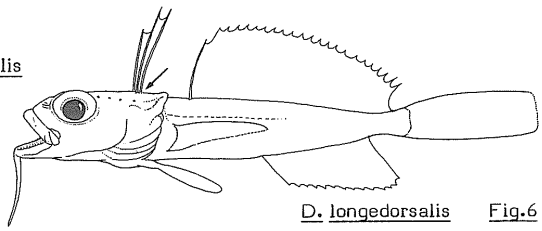


A. loennbergi Fig.4



A. skottsbergi Fig.5

2b. First dorsal fin entirely above or slightly behind opercle (Fig. 6) ..... Dolloidraco longedorsalis

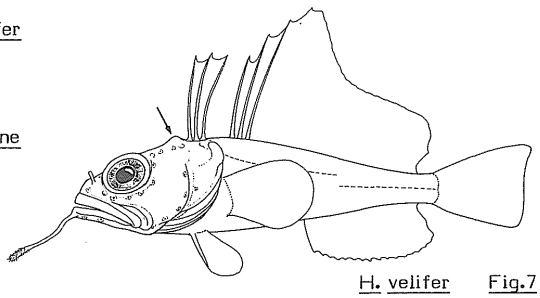


D. longedorsalis Fig.6

1b. Upper limb of post-temporal bone projecting as a prominent, curved ridge; first dorsal fin above opercle (Figs 7 to 19)

7a. Head longer than broad, scarcely broader than deep; interorbital region narrow (Fig.7) ..... Histiodraco velifer

7b. Head nearly as broad as long, much broader than deep; interorbital region wide or rather wide ..... genus Pogonophryne

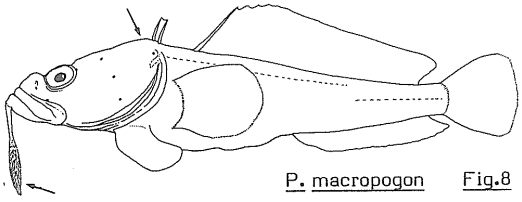


H. velifer Fig.7

8a. Body and at least part of head with dark spots

9a. Top of head with dark spots (Figs 11 to 15); second dorsal fin with 25 to 29 rays; vertebrae 36 to 39

10a. Mental barbel very long (about 23% of standard length), its expanded tip comprising over 63% of barbel length (Fig.9a); vertebrae 29 (Fig.8)... Pogonophryne macropogon



P. macropogon Fig.8

10b. Mental barbel of varying sizes and shapes, its tip, if expanded, comprising less than 63% of barbel length (Fig.9b to g); vertebrae 36 to 38

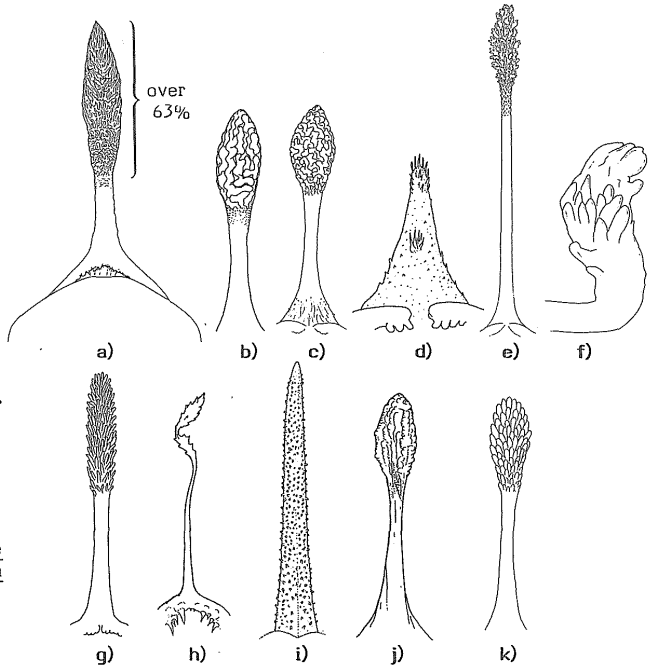
11a. Eye not filling entire orbit anteriorly; mental barbel with convoluted terminal expansion (Fig.9b,c)

12a. Caudal fin with vertical stripes; tip of tongue falling far short of oral valve ..... Pogonophryne sp.

12b. Caudal fin without vertical stripes, dark with light dorsal and ventral borders; tip of tongue reaching oral valve (Fig.10) ..... Pogonophryne marmorata

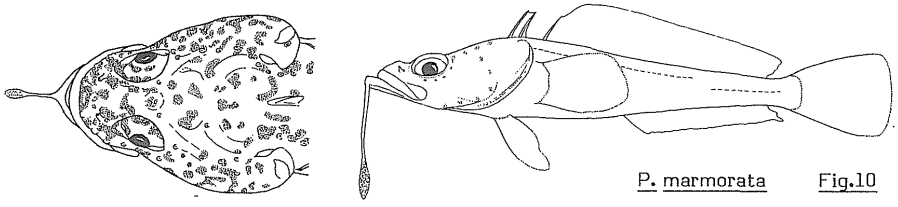
11b. Eye filling entire orbit; mental barbel without convoluted terminal expansion (Fig.9d to g)

13a. Colour, especially of fins, dark chocolate brown; mental barbel 8.2 to 14.3% of head length, without terminal expansion (Figs 9d,11).. Pogonophryne barsukovi*

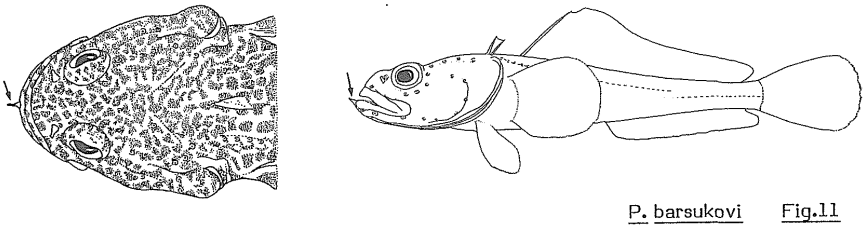


a) P. macropogon
b) Pogonophryne sp.
c) P. marmorata
d) P. barsukovi
e) P. mentella
f) P. velifera
g) P. permitini
h) P. phyllopogon
i) P. scotti
j) P. dolichobranchiata
k) P. albipinna

shapes of mental barbels (not in correct size relation) Fig.9



P. marmorata Fig.10

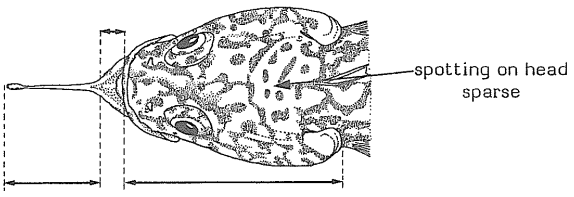


P. barsukovi Fig.11

* A closely related species, P. orcadensis, has been described by Tomo (1981) but, according to Eakin and Kock (1984), it must be considered as a junior synonym of P. barsukovi

13b. Colour of fins and body light brown; mental barbel 17.8 to 70.4% of head length, with a terminal expansion (Fig.9e to g)

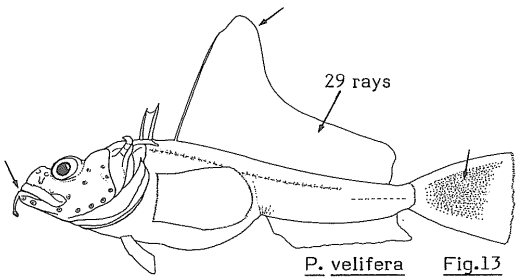
14a. Lower jaw projecting greatly beyond upper jaw (projection equals 6.8 to 10.5% of head length); spotting on head sparse, following cephalic pores; mental barbel 40.7 to 70.4% of head length; first gill arch with 17 to 19 gillrakers (Figs 9e,12) ..... Pogonophryne mentella *



P. mentella Fig.12

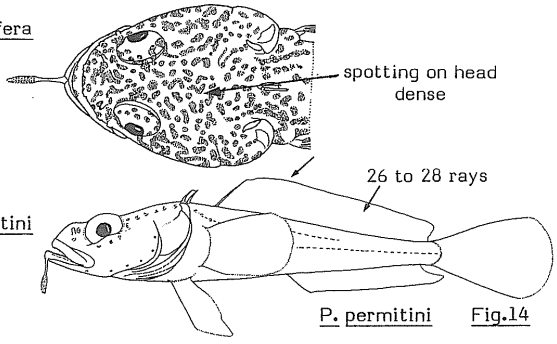
14b. Lower jaw not projecting greatly beyond upper jaw (projection equals 0 to 7.4% of head length); spotting on head dense, not following cephalic pores (Figs 13, 14); mental barbel 17.8 to 36.8% of head length; first gill arch with 13 to 17 gillrakers

15a. Second dorsal fin with 29 rays; anterior third of fin with a high lobe, length of longest ray 35.4% of standard length; mental barbel with short, thick, unbranched processes (Fig.9f); caudal fin with a dark median patch (Fig.13) ..... Pogonophryne velifera



P. velifera Fig.13

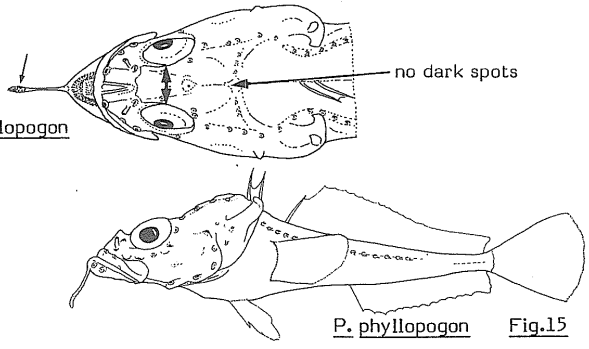
15b. Second dorsal fin with 26 to 28 rays and no anterior lobe; mental barbel with thin, finger-like processes, some branched (Fig.9g); caudal fin without a dark median patch (Fig.14) ..... Pogonophryne permitini



P. permitini Fig.14

9b. Top of head without dark spots (Fig.15 to 19); second dorsal fin with 24 to 26 rays; vertebrae 35 to 37

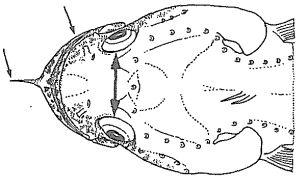
16a. Mental barbel with a flattened terminal expansion covered with tapering processes (Fig.9h); interorbital region narrow, 5.2 to 6.8% of standard length (Fig.15) ..... Pogonophryne phyllopogon



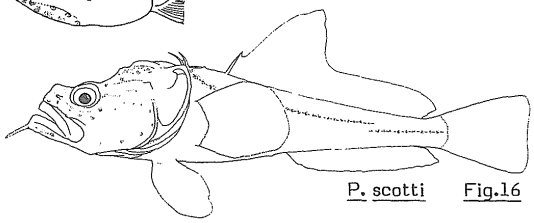
P. phyllopogon Fig.15

*A new species which is being described by Miller & Rheuben closely resembles P. mentella. It differs only by the colour of the pectoral fins and the shape of the cutaneous processes of the mental barbel

16b. Mental barbel either without flattened terminal expansion or terminal expansion not flattened and not covered with tapering processes (Fig.9i,j); interorbital region wide, 6.4 to 7.8% of standard length (Figs 16,17)

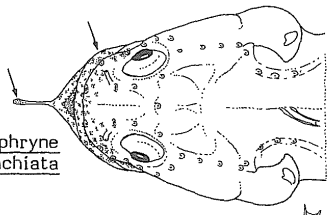


17a. Mental barbel without terminal expansion and entirely covered with papillae (Fig. 9i); upper jaw in dorsal view forming a smoothly rounded arc (Fig.16) ..... Pogonophryne scotti



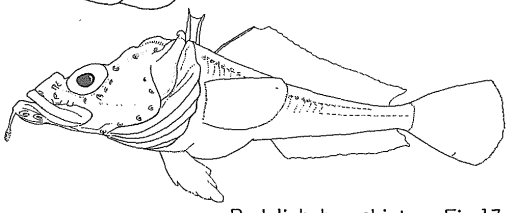
P. scotti Fig.16

17b. Mental barbel with a terminal expansion and not covered with papillae (Fig.9j); upper jaw in dorsal view somewhat angular, the maxillae directed posteriorly at an angle to the premaxillae (Fig.17) ..... Pogonophryne dolichobranchiata



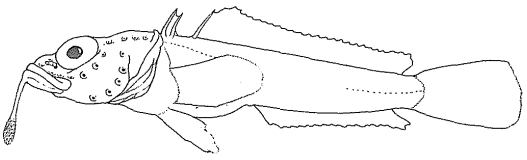
8b. Body and head entirely without dark spots

18a. Fins largely white; first gill arch with 21 gillrakers (Fig.18) .... Pogonophryne albipinna

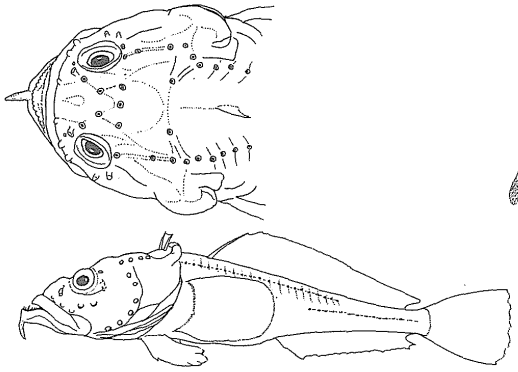


P. dolichobranchiata Fig.17

18b. Fins dark with light borders; first gill arch with 12 gillrakers (Fig.19) ..... Pogonophryne immaculata



P. albipinna Fig.18



P. immaculata Fig.19

LIST OF SPECIES OCCURRING IN THE AREA :

Artedidraco loennbergi (Roule, 1913)
Artedidraco mirus Lönnberg, 1905
Artedidraco orianae Regan, 1914
Artedidraco shackletoni Waite, 1911
Artedidraco skottsbergi Lönnberg, 1905

Dolloidraco longedorsalis Roule, 1913

Histiodraco velifer Regan, 1914

Pogonophryne albipinna Eakin, 1981
Pogonophryne barsukovi Andriashev, 1967 (= P. orcadensis Tomo, 1981)
Pogonophryne dolichobranchiata Andriashev, 1967
Pogonophryne immaculata Eakin, 1981
Pogonophryne macropogon Eakin, 1981
Pogonophryne marmorata Norman, 1938
Pogonophryne mentella Andriashev, 1967
Pogonophryne permitini Andriashev, 1967
Pogonophryne phyllopogon Andriashev, 1967
Pogonophryne scotti Regan, 1914
Pogonophryne velifera Eakin, 1981
Pogonophryne sp. Eakin & Kock, 1984

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

BATHY

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

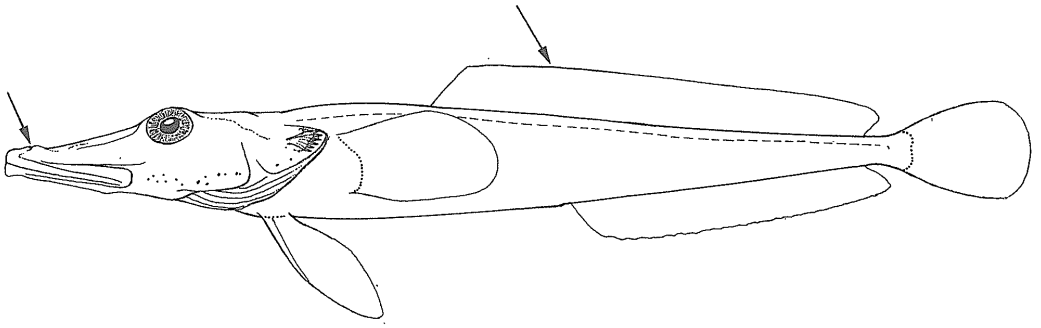
BATHYDRACONIDAE

Dragonfishes

Small to moderate-sized fishes. Body always elongate, fusiform. Head long, strongly depressed; snout spatulate or pointed; lower jaw produced in some species, the maxilla rarely reaching posteriorly to below anterior part of eye, more generally not reaching the anterior margin of eye; mouth non-protractile; teeth in villiform bands sometimes enlarged in canine-like teeth; palatine normally developed and elongate; opercle with or without spines; gill membranes attached to the isthmus or forming a fold across it; gillrakers normally developed. Only one, non-spinous, dorsal fin with a long base and often elevated; anal fin long and often elevated, without spines; pectoral fins broad and fan-like, pelvic fins jugular in position; caudal fin truncate, rounded or emarginate. Body scaled or scaleless. Lateral lines 1 to 3, covered with tubular scales, perforated scales or bony plates. No air bladder. Caudal skeleton with hypural bones 1 and 2, 3 and 4 always fused into 2 wide plates.

Colour: usually greyish or blackish with numerous black blotches and bands.

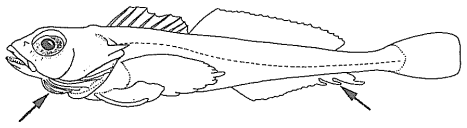
The dragonfishes are a small but diverse family of strictly Antarctic fishes, living at rather great depths close to the Antarctic Continent. Some species are coastal fishes adapted to life under the ice. The Fishing Areas 48, 58 and 88 comprise 16 species that are rather uncommon and seem to have no commercial value for fishing. They were included here because of their particular interest as members of the most common suborder (Notothenioidei) of Antarctic fishes.



SIMILAR FAMILIES OCCURRING IN THE AREA :

All other Notothenioid fishes occurring in the Southern Ocean are easily distinguished from the Bathydraconidae by having 2 dorsal fins. Other distinguishing characters are the following:

Bovichthyidae: gill membranes extending far forward, not attached to isthmus; body scaleless; posterior rays of anal fin elongate and thickened.



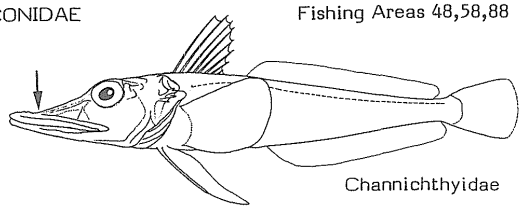
Bovichthyidae

FAO Species BATHYDRACONIDAE Fishing Areas 48,58,88

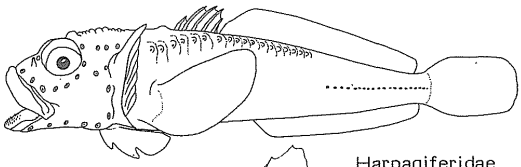
Channichthyidae: head very large, often spiny, with a produced and flattened snout. They also lack oxygen-carrying pigment in their blood which appears whitish or translucent, rather than red.

Harpagiferidae and Artedidraconidae: body scaleless and opercle hooked upward posteriorly, with a deeply concave upper edge; head large. Furthermore, the mental barbel present in Artedidraconidae.

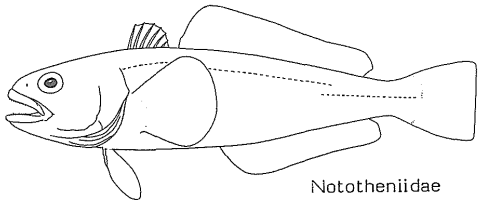
Nototheniidae: body always scaled; mouth protractile; opercle normal without spines.



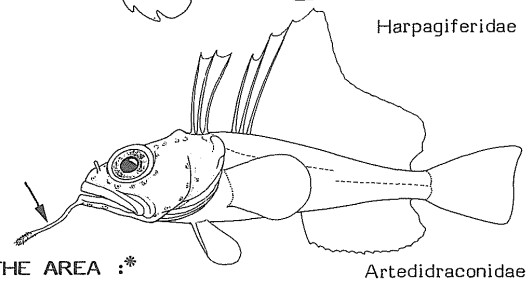
Channichthyidae



Harpagiferidae



Nototheniidae



Artedidraconidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA :*

1a. Body scaled or with serrated bony plates

2a. Body scaled without serrated bony plates; upper lateral line, usually complete, rarely with row of tubular scales ending anterior to origin of dorsal fin

3a. A single lateral line present, usually running to middle of caudal fin base

4a. Twenty to 24 gillrakers on lower limb of first gill arch; lateral line with 37 to 45 tubular scales, ending below 5th to 12th posterior dorsal fin rays (Fig.1) ..... Bathydraco scotiae

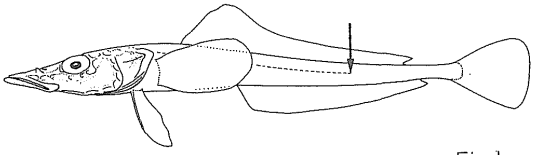


Fig.1

4b. Eleven to 19 gillrakers on lower limb of first gill arch; lateral line with 51 to 70 tubular scales ending posterior to dorsal base

5a. Head length 33% or more of standard length; distance between snout and anal fin origin more than half of standard length

6a. Dorsal fin with 36 to 38 rays; 10 or 11 rows of scales between origin of dorsal fin and lateral line; 103 to 116 scales in a longitudinal row (Fig.2).. Bathydraco antarcticus

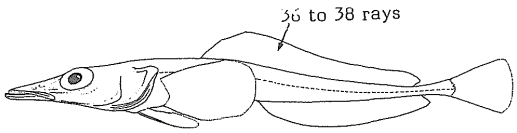
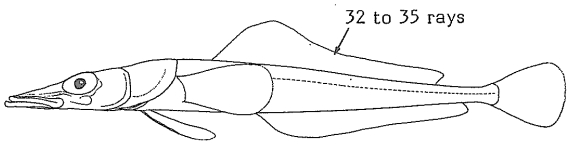


Fig.2

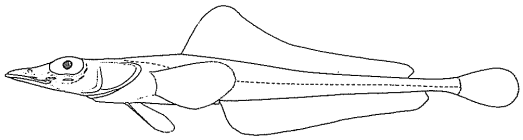
*Extended from the key to genera by DeWitt and Hureau (1979)

6b. Dorsal fin with 32 to 35 rays; 5 to 8 rows of scales between origin of dorsal fin and lateral line; 83 to 95 scales in a longitudinal row (Fig.3) .. Bathydraco macrolepis



Bathydraco macrolepis Fig.3

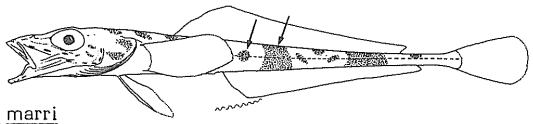
5b. Head length 32% or less of standard length; distance between snout and anal fin origin less than half of standard length



Bathydraco joannae Fig.4

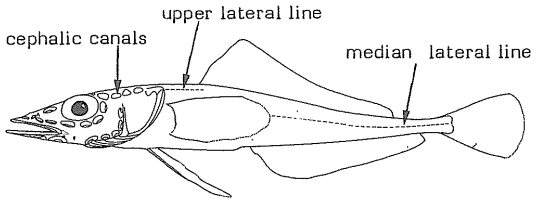
7a. Fouteeen to 17 gillrakers on lower limb of first gill arch; 55 to 67 tubular scales on lateral line; colour rather uniform brown (Fig.4) ..... Bathydraco joannae

7b. Eleven to 15 gillrakers on lower limb of first gill arch; 51 to 61 tubular scales on lateral line; ground colour pale, with a series of blotches and bars on sides and across back (Fig.5).. Bathydraco marri



Bathydraco marri Fig.5

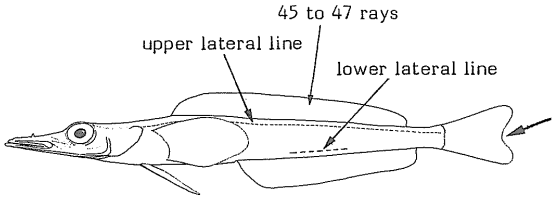
3b. Two or 3 lateral lines, the upper originating at upper angle of opercle and ending posteriorly in dorsal half of body; lateral lines covered with tubular or simple perforated scales



Akarotaxis nudiceps Fig.6

8a. Upper lateral line with less than 10 tubular scales; median lateral line with only perforated scales, extending from base of caudal fin to tip of pectoral fin; cephalic canals enlarged on top of head; no coronal pore (Fig.6) ..... Akarotaxis nudiceps

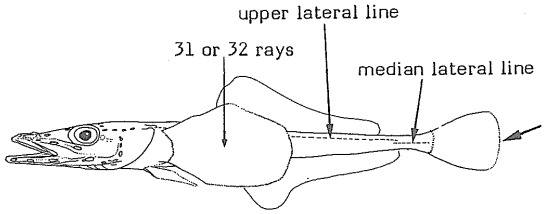
8b. Upper lateral line with more than 20 tubular scales; median lateral line present or absent; when present, with tubular scales; cephalic canals not greatly enlarged on top of head; coronal pore present



Gerlachea australis Fig.7

9a. Dorsal fin with 45 to 47 rays, the anterior part not elevated; caudal fin emarginate; upper and lower lateral lines present; median lateral line absent (Fig.7) ..... Gerlachea australis

9b. Dorsal fin with 30 to 37 rays, the anterior part forming a fairly distinct elevated lobe; caudal fin rounded or truncate; lower lateral line present or absent; median lateral line on caudal peduncle always present

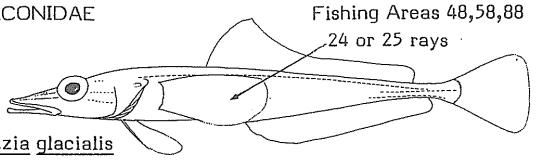


Vomeridens infuscipinnis Fig.8

10a. Pectoral fins with 31 or 32 rays; lower lateral line absent; teeth present on vomer bone (specimens longer than 100 mm standard length (Fig.8) ..... Vomeridens infuscipinnis

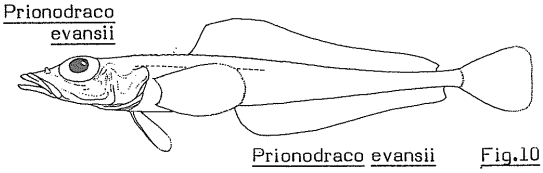
FAO Sheets BATHYDRACONIDAE Fishing Areas 48,58,88

10b. Pectoral fins with 24 or 25 rays; lower lateral line present on specimens longer than 130 mm standard length; no teeth on vomer bone (Fig.9) ..... Racovitzia glacialis



Racovitzia glacialis Fig.9

2b. Body quadrangular with a series of V-shaped serrated bony plates at each angle, each plate with a backwardly directed spine; a single short lateral line, ending below anterior part of dorsal fin (Fig.10) ..... Prionodraco evansii

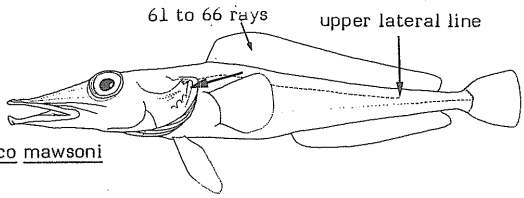


Prionodraco evansii Fig.10

1b. Body naked except for lateral line scales

11a. Teeth in jaws in villiform bands, without canine-like teeth; snout produced and spatulate; opercle with divergent ridges ending in spinous points

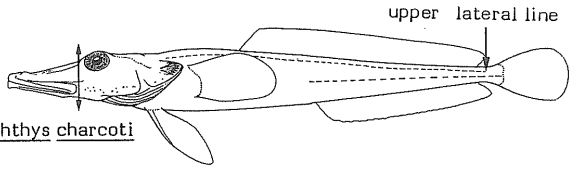
12a. Dorsal fin with 61 to 66 rays; upper lateral line ending below posterior part of dorsal fin (Fig.11) ..... Cygnodraco mawsoni



Cygnodraco mawsoni Fig.11

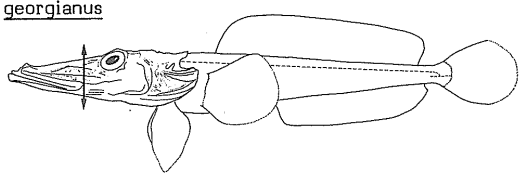
12b. Dorsal fin with 42 to 46 rays; upper lateral line extending beyond posterior end of dorsal fin

13a. Maxilla extending posteriorly to or nearly to below anterior margin of eye (Fig.12) ..... Parachaenichthys charcoti



Parachaenichthys charcoti Fig.12

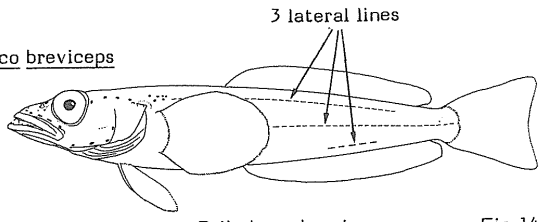
13b. Maxilla extending posteriorly to below a point at about one eye diameter in front of eye (Fig.13).. Parachaenichthys georgianus



Parachaenichthys georgianus Fig.13

11b. Canine-like teeth present in one or both jaws; snout pointed, not spatulate; opercle with a strong spine ending in a hooked process

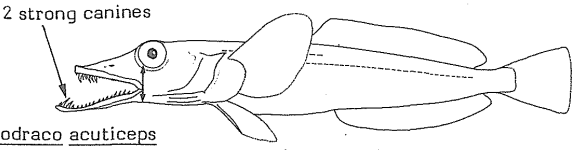
14a. Canine-like teeth present only on anterior parts of premaxilla; 3 lateral lines, none with a canal or tubular scales but with small pored scales; subopercular bone with 3 spines at anteroventral edge; preopercle with serrations near angle (Fig.14) ..... Psilodraco breviceps



Psilodraco breviceps Fig.14

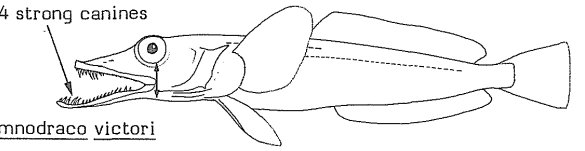
14b. Canine-like teeth present on anterior parts of both jaws; 2 lateral lines (upper and median), upper with a canal or tubular scales; subopercular bone with one spine at anteroventral corner; preopercle without spine or serrations

15a. Maxilla extending posteriorly to below anterior margin of eye; lower jaw strongly protruding bearing 2 strong curved canine teeth, the outer largest (Fig.15)..... Gymnodraco acuticeps



Gymnodraco acuticeps Fig.15

15b. Maxilla extending posteriorly beyond vertical of anterior margin of eye; lower jaw bearing 4 upward directed canine-like teeth, the inner largest (Fig.16) ..... Gymnodraco victori



Gymnodraco victori Fig.16

LIST OF SPECIES OCCURRING IN THE AREA :

Code numbers are given for those species for which Identification Sheets are included

Akarotaxis nudiceps (Waite, 1916) (= Bathydraco wohlschagi DeWitt & Tyler, 1960)

Bathydraco antarcticus Günther, 1887
Bathydraco joannae DeWitt, 1985
Bathydraco macrolepis Boulenger, 1907
Bathydraco marri Norman, 1938
Bathydraco scotiae Dollo, 1912

Cygnodraco mawsoni Waite, 1916

Gerlachea australis Dollo, 1900

Gymnodraco acuticeps Boulenger, 1902
Gymnodraco victori Hureau, 1963

Parachaenichthys charcoti (Vaillant, 1906)
Parachaenichthys georgianus (Fischer, 1885)

Prionodraco evansii Regan, 1914

Psilodraco breviceps Norman, 1938

Racovitzia glacialis Dollo, 1900 (= Aconichthys harrissoni Waite, 1916)

Vomeridens infuscipinnis (DeWitt, 1964)

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

BOTH

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

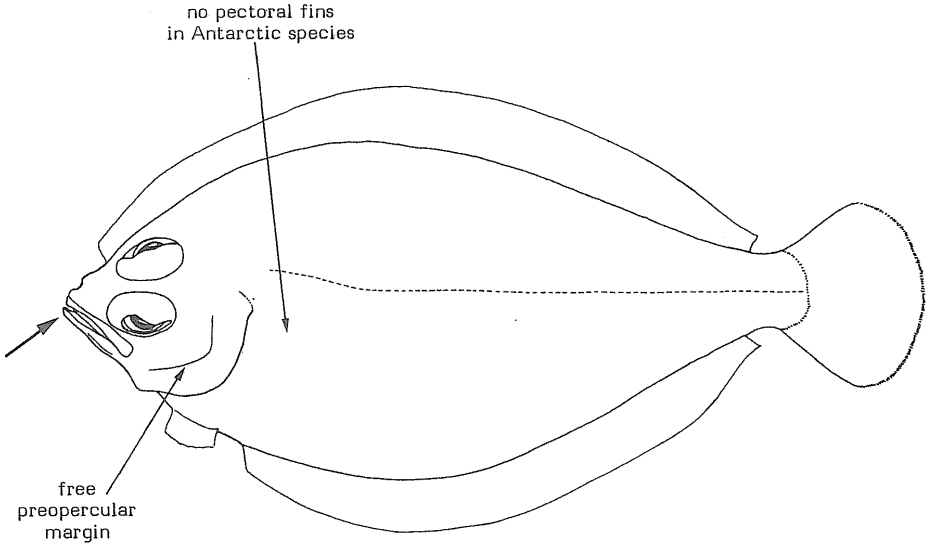
BOTHIDAE

Lefteye flounders, Armless flounders

Small to middle-sized flatfishes. Body asymmetrical, strongly flattened laterally. Both eyes on left side; preopercle with a free margin, clearly visible; lower jaw generally prominent; nasal organ of blind side generally near edge of head; mouth small or moderate-sized and a little protractile; dentition more or less developed on both sides of jaws; maxilla 30% or less of head length. Pelvic fins without spines, their bases unequal, the one on blind side much shorter; dorsal fin origin over the eyes or farther forward, without spinous rays; pectoral fins absent in the Antarctic genera.

Colour: highly variable, usually yellow-brown to dark brown, with or without black spots on the ocular side.

Armless flounders are rather rare in the Southern Ocean, where they are found on sandy or muddy bottoms at varying depths between 20 and 600 m. The Fishing Areas 48, 58 and 88 comprise only two genera, each with a single species; two other species and subspecies are found just outside the area around the Falkland/Malvinas Islands and are therefore included in this present account. The catches of these fishes are not yet reported, but one species is known to be taken as bycatch in the Kerguelen fisheries. The flesh is of excellent quality.



SIMILAR FAMILIES OCCURRING IN THE AREA:

No other flatfish family occurs in the Southern Ocean.

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA :

1a. Gillrakers along the full length of upper limb of first gill arch (Fig. 1a,b); scales small, ctenoid, the spinules directed horizontally; vertebrae 52 to 56 ..... Mancopsetta

2a. More than 128 scales in the lateral line; gillrakers thin, short, without expansion at the apical part; teeth biserial (Figs 1a,2) ..... Mancopsetta maculata antarctica

2b. Less than 126 scales in the lateral line; gillrakers thick, short, with an expansion at the apical part (Fig.1b); teeth uniserial ..... Mancopsetta maculata maculata*

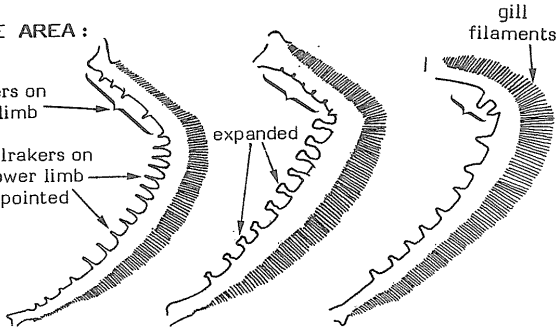
1b. Gillrakers on upper part of first gill arch located on the bend of arch (Fig.1c); vertebrae 63 to 66

3a. Scales ctenoid, with small spinules directed vertically, giving the skin a pilose appearance; snout rounded; no interorbital crest (Fig.3)

4a. Dorsal finrays 132; anal finrays 114 ..... Achiropsetta tricholepis

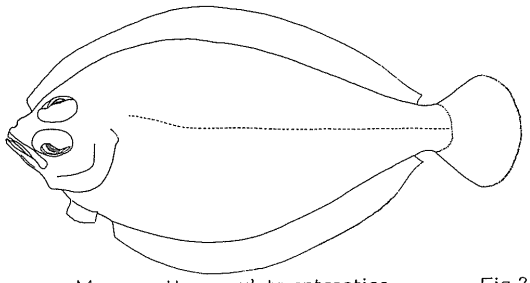
4b. Dorsal finrays 114 to 117; anal finrays 93 to 96 ..... Achiropsetta slavae

3b. Scales ctenoid, without small vertically directed spinules; snout with a pronounced hump; interorbital crest accentuated ... Neoachiropsetta milfordi*

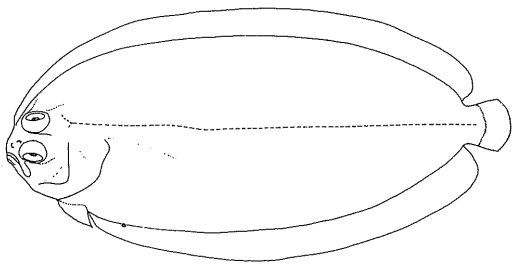


a) M. m. antarctica b) M. m. maculata c) A. tricholepis

first gill arch Fig.1



Mancopsetta maculata antarctica Fig.2



Achiropsetta tricholepis Fig.3

LIST OF SPECIES OCCURRING IN THE AREA :

Code numbers are given for those species for which Identification Sheets are included

Achiropsetta slavae Andriashev, 1960
Achiropsetta tricholepis Norman, 1930

Mancopsetta maculata antarctica Kotlyar, 1978 BOTH Manc 1
Mancopsetta maculata maculata (Günther, 1880)

Neoachiropsetta milfordi (Penrith, 1965)

** Pseudomancopsetta andriashevi Evseenko, 1984

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

* Not yet recorded from the area but known to occur just outside (Falkland/Malvinas Islands)

** This recently described species, which occurs in the Indian Sector (northeast of Kerguelen Islands), could not be included in the key because the publication was not available to the author in good time

BOTH Manc 1

1985

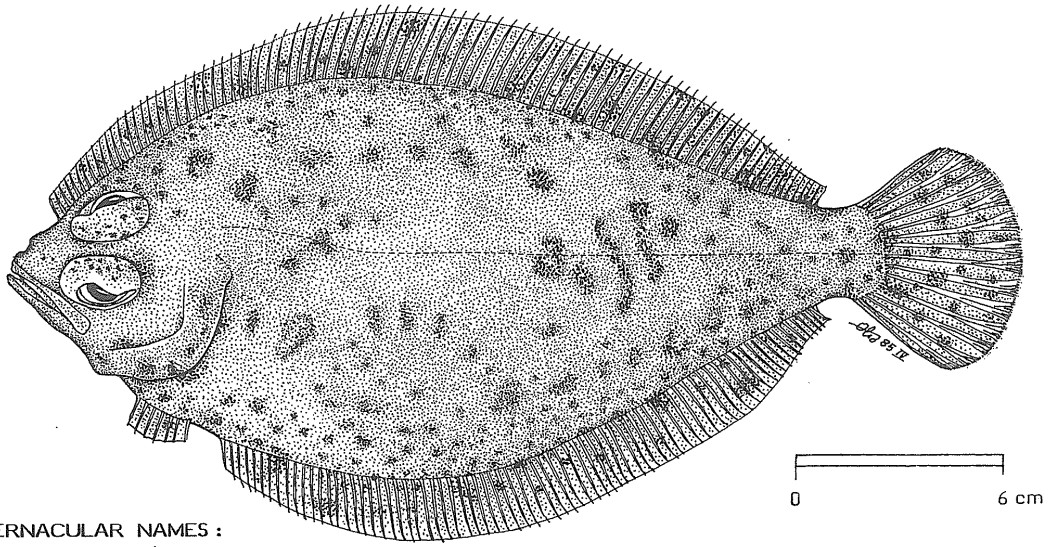
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : BOTHIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Mancopsetta maculata antarctica Kotlyar, 1978

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic armless flounder
Fr - Mancoglosse antarctique
Ru - Antarkticheskaya mancopsetta
Sp - Mancolenguado antártico

NATIONAL :

DISTINCTIVE CHARACTERS :

Body rather elongate, compressed, its depth 29 to 38% of total length. Head rather small, 18 to 27% of total length; eyes large, placed both on the left side, separated by a bony ridge, the lower a little in advance of upper; horizontal eye diameter 29 to 37% of head length; interorbital width narrow, 3 to 7% of head length; eyeballs densely scaled; gillrakers rather thin and pointed, 5 to 7 on upper, and 10 to 16 on lower limb of first gill arch; mouth of moderate size, maxillary narrow, its length about 30% of head length; lower jaw slightly prominent; jaws equally developed on both sides, but dentition stronger on blind side; teeth biserial in both jaws. Dorsal fin origin on the vertical from anterior margin of lower eye; pectoral fins absent; pelvic fin of ocular side with 7 rays, elongate, located on median line of body; that of blind side with 5 rays, short-based, lateral in position, its first ray opposite to the fourth of left pelvic fin; both pelvic fins free from anal fin; caudal fin rounded. Lateral line nearly straight, equally developed on both sides of body. Scales small, ctenoid on both sides of body, the spinules directed horizontally.

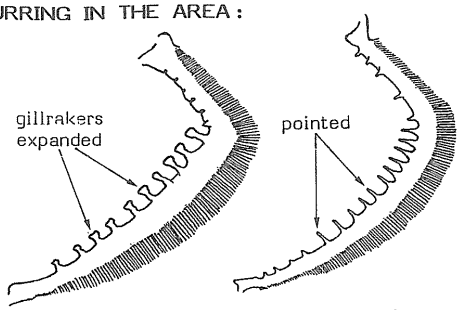
Colour: ocular side varying from brown, cinnamon brown, yellow-green to dark grey, sometimes almost black, with large and small brown spots of irregular shape over entire body; blind side white to light-grey.

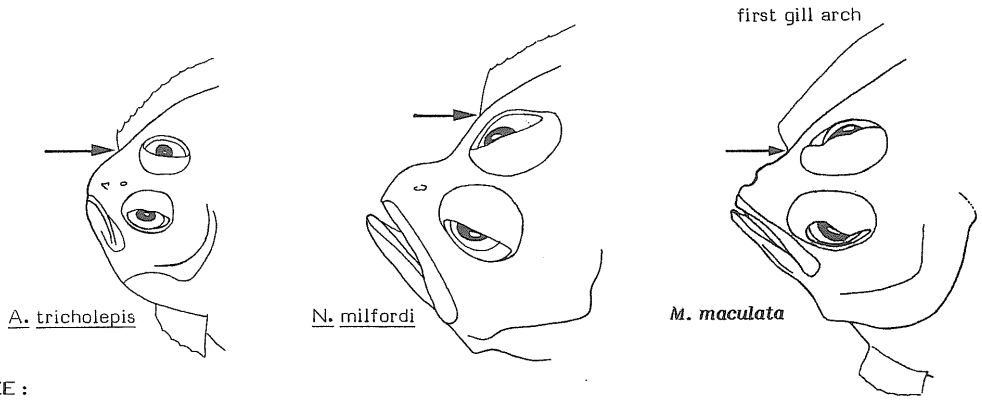
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Manocpsetta maculata maculata: gillrakers thick, short, expanded distally.

Achiropsetta tricholepis* : scales ctenoid with small spinules directed vertically, giving the skin a pilose appearance; snout rounded; dorsal fin origin well before vertical from anterior margin of eyes.

Neoachiropsetta milfordi: snout with a pronounced hump; dorsal fin origin behind vertical from anterior margin of upper eye.





SIZE :

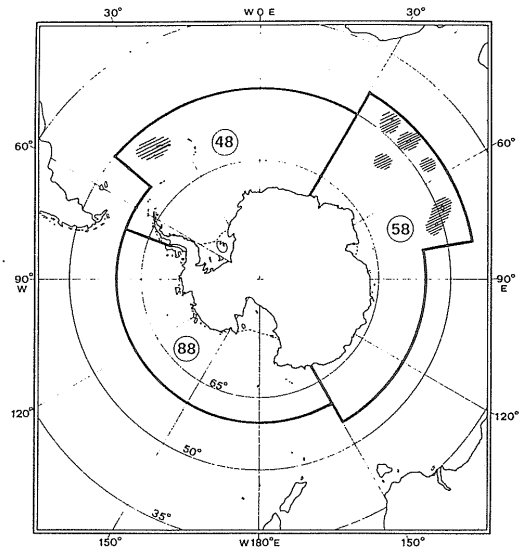
Maximum: over 50 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Known from Shag Rocks, South Georgia Island, Marion and Prince Edward Islands, Crozet Islands, Kara Dag Bank, Ob and Lena Seamounts, Kerguelen Islands, Heard and Mc Donald Islands.

Bottom-living on sand or mud from 20 to 600 m depth.

Feeds on benthic crustaceans and small molluscs.



POTENTIAL FISHING GROUNDS :

Shelf and slope areas throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species, but taken as bycatch in the Kerguelen fisheries. Flesh of excellent quality.

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*Achiropsetta tricholepis has been recorded from the Falkland/Malvinas Islands, the coasts of the Antarctic Continent (Wilkes Land) and from the Kerguelen Islands

CHANN

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

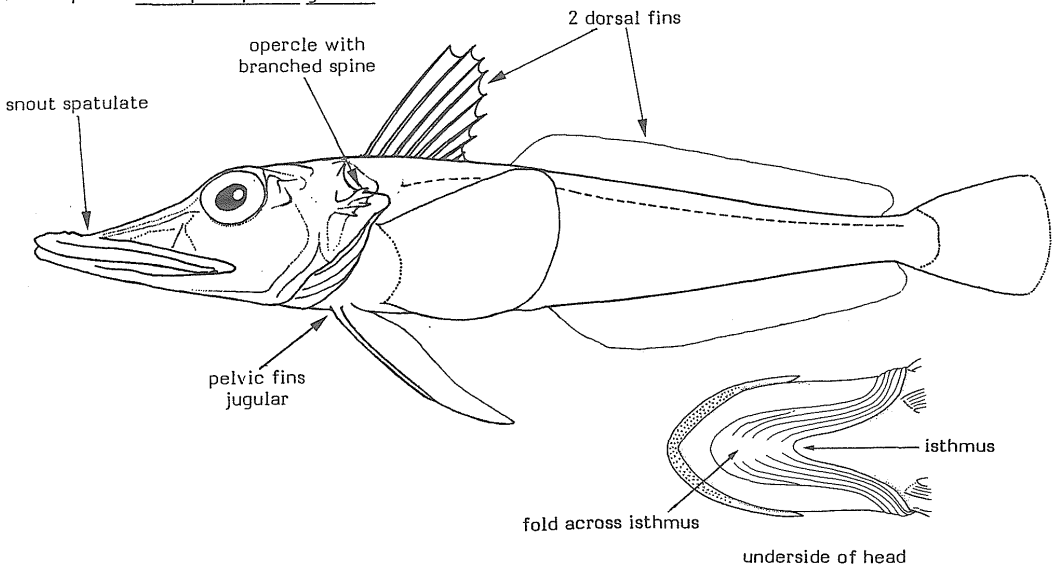
CHANNICHTHYIDAE

Icefishes

Small to moderately large fishes. Body always elongate, fusiform. Head very large and broad, strongly depressed; snout spatulate and produced; bony structures often easily visible through the head skin; eyes large; mouth large terminal, not protractile; lower jaw rarely protruding, with the maxilla reaching posteriorly to below anterior half of eye; teeth in both jaws cardiform, sometimes enlarged; palatine, to a large extent, ligamentous; opercle usually with radiating ridges ending in simple or branched spines; gill membranes very narrowly united to isthmus or forming a fold across it; branchiostegal rays 6, rarely 5 or 7; gillrakers vestigial, short or developed as dentigerous knobs or patches. Two dorsal fins, the first with a short or long base and with flexible and often long spines, well separated from the second dorsal fin which has a very long base and no spines; anal fin very long, without spines; pectoral fins broad and fan-like; pelvic fins strong, jugular in position, with some rays very long in some species, with or without spines; caudal fin rounded, truncate or emarginate. Body entirely scaleless. Lateral lines 2 or 3, sometimes covered with bony plates or tubular scales. No air bladder. Caudal skeleton always with the hypural bones 1 and 2 fused into a wide plate, hypural bones 3, 4 and 5 fused together and with the ural vertebral centrum; epural bones 2 and 3 always fused. The Channichthyidae are unique among fishes and, in fact, among all vertebrates because of the complete or nearly complete lack of hemoglobin in their blood cells; this resulting in a whitish or translucent rather than red blood.

Colour: usually whitish with numerous black blotches or bands; some species may have a brilliant red colour.

All icefishes are strictly marine and confined (except one sub-Antarctic species) to the cold waters of the Southern Ocean. This is the most interesting of all fish families from a physiological point of view. Hemoglobin is used by all vertebrate animals to carry oxygen from the respiratory organs (the gills of the fish) to the body cells. In the absence of this blood pigment, the Channichthyidae are bound to possess some alternative oxygen, carrying mechanism to meet the requirements of respiration, but no conclusive studies have been made so far to explain the ecological success of this family, which includes some pelagic species that are active enough to hunt for pelagic prey, such as other fish or krill. It has been suggested that this is rendered possible by the high oxygen saturation of Antarctic waters combined with the scaleless and highly vascularized skin, a larger gill surface, a more powerful heart muscle and a larger blood volume. Most of the species are alternately demersal by the day and pelagic at night. Some are adapted to live close to the ice or under the ice-cover, but most also show a rather wide vertical distribution. The Fishing Areas 48, 58 and 88 comprise 15 species (an additional species, Champsocephalus esox, occurs more northward in the Patagonian region and around the Falkland/Malvinas Islands). Up to now, six species are commercially caught and represent the most important quantity of fish reported from these fishing areas. Icefish catches totalled 162 673 t in 1982/83, but the maximum annual catch reported was that of the 1977/78 season, with a total of 213 000 t. The flesh of these fishes is excellent and the species Champsocephalus gunnari is the most attractive to fishermen.



SIMILAR FAMILIES OCCURRING IN THE AREA :

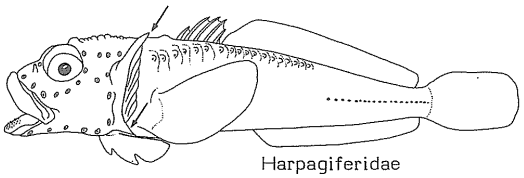
All other Notothenioid fishes occurring in the Southern Ocean are easily distinguished from the Channichthyidae by having normal red blood. Other distinguishing characters are the following:

Harpagiferidae and Artedidraconidae: body scaleless. Furthermore, 2 strong spines on opercle in Harpagiferidae; opercle hooked upward posteriorly, with a deeply concave upper edge, and a mental barbel present in Artedidraconidae.

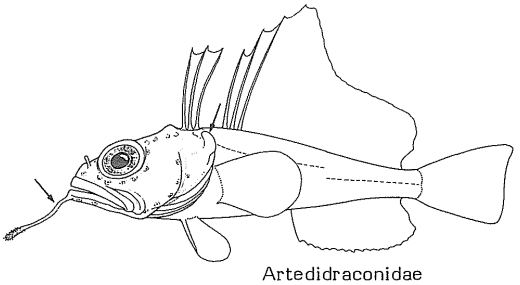
Bathydraconidae: body conspicuously elongate; spinous anterior dorsal fin absent. Some species with only a few scales, and others with pointed snouts and large canine teeth.

Bovichthyidae: gill membranes extending far forward, not attached to isthmus; body scaleless; posterior rays of anal fin elongate and thickened.

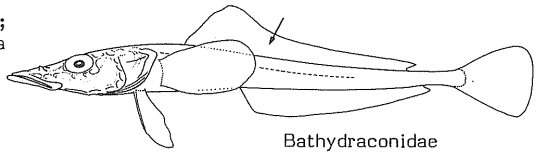
Nototheniidae: body scaled; mouth protractile; opercle normal without spine; gill membranes forming a fold across isthmus.



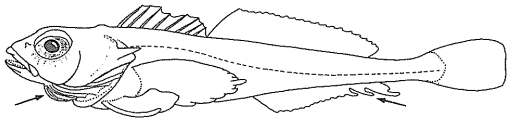
Harpagiferidae



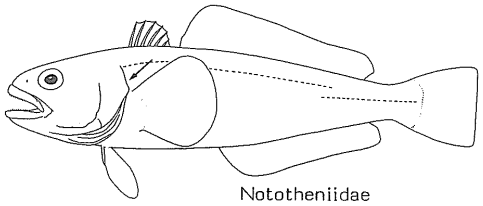
Artedidraconidae



Bathydraconidae



Bovichthyidae



Nototheniidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA :*

1a. Middle rays of pelvic fins the longest

2a. Lateral lines without bony plates

3a. First dorsal fin with 8 to 15 spines; opercle with at least 3 spines

4a. Two lateral lines (upper and median); dorsal fins more or less contiguous

5a. First dorsal fin with 9 or 10 spines; second dorsal fin with 32 to 41 rays; anal fin with 31 to 39 rays; no rostral spine

6a. Second dorsal fin with 37 to 41 rays; anal fin with 35 to 39 rays; eye diameter 19 to 24% of head length (Figs 1,2a) ... Champsocephalus gunnari

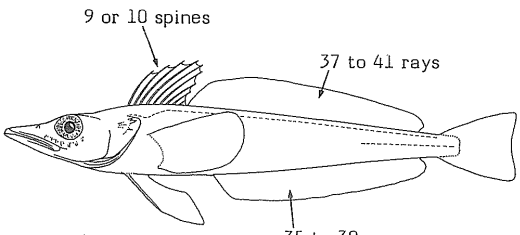
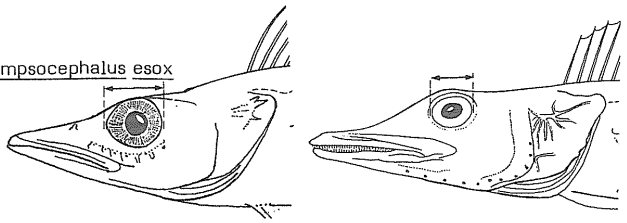


Fig. 1

* The classification here adopted follows recent revisions of some genera or species published by V.V. Barsukov & V.E. Permitin (1958), E.E. Meisner (1974), A.P. Andriashev & A.V. Neyelov (1978) and H.H. DeWitt & J.C. Hureau (1979). The key to genera and species has been adapted from Regan (1913) and from unpublished and incomplete keys prepared by H.H. DeWitt and by R. Miller

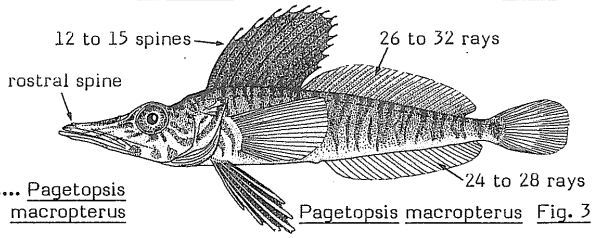
6b. Second dorsal fin with 32 to 37 rays; anal fin with 31 to 35 rays; eye diameter 13 to 19% of head length (Fig.2b) .. Champsocephalus esox

5b. First dorsal fin with 12 to 15 spines; second dorsal fin with 26 to 31 rays; anal fin with 24 to 27 rays; a rostral spine present



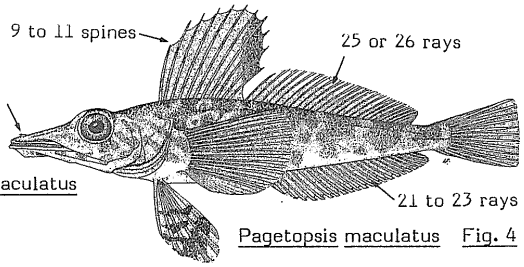
a) C. gunnari head **b)** C. esox Fig. 2

7a. First dorsal fin with 12 to 15 spines; second dorsal fin with 26 to 32 rays; anal fin with 24 to 28 rays; pelvic and first dorsal fin black; sides of the body with narrow dark bars (Fig.3) ..... Pagetopsis macropterus



Pagetopsis macropterus Fig. 3

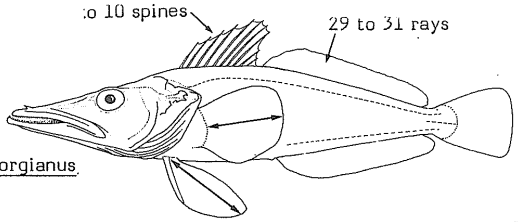
7b. First dorsal fin with 9 to 11 spines; second dorsal fin with 25 or 26 rays; anal fin with 21 to 23 rays; pelvic fin striped with dark bars; first dorsal fin light; body spotted (Fig.4).... Pagetopsis maculatus



Pagetopsis maculatus Fig. 4

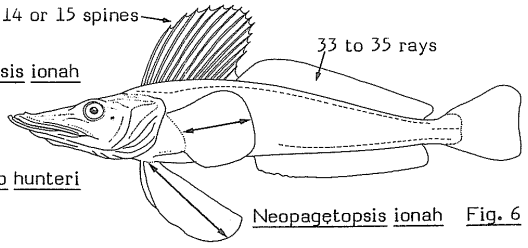
4b. Three lateral lines; dorsal fins contiguous

8a. First dorsal fin with 8 to 10 spines; second dorsal fin with 29 to 31 rays; pelvic fins moderate as long as or a little longer than pectorals (Fig.5) ..... Pseudochaenichthys georgianus



Pseudochaenichthys georgianus Fig. 5

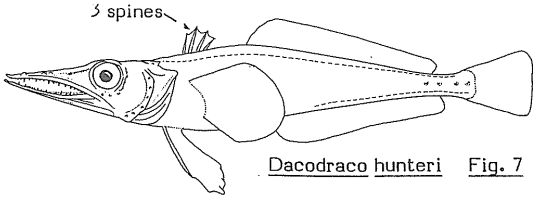
8b. First dorsal fin with 14 or 15 spines; second dorsal fin with 33 to 35 rays; pelvic fins very long, longer than pectoral fin (Fig.6) ..... Neopagetopsis ionah



Neopagetopsis ionah Fig. 6

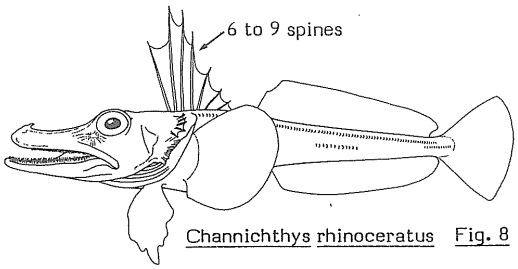
3b. First dorsal fin with 3 spines; opercle with a single broad, flat spine; two lateral lines (upper and lower) (Fig.7) ... Dacodraco hunteri

2b. Two lateral lines (upper and median) with bony plates; a rostral spine; dorsal fins usually well separated



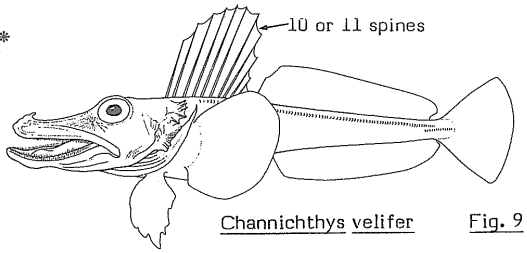
Dacodraco hunteri Fig. 7

9a. First dorsal fin with 6 to 9 spines, the second or third longest; median lateral line covered with 2 separate series of bony plates, one anterior one posterior (Fig.8)..... Channichthys rhinoceratus



Channichthys rhinoceratus Fig. 8

9b. First dorsal fin with 10 or 11 spines, the fourth or fifth longest; bony plates present only in posterior portion of median lateral line (Fig.9)..... Channichthys velifer*

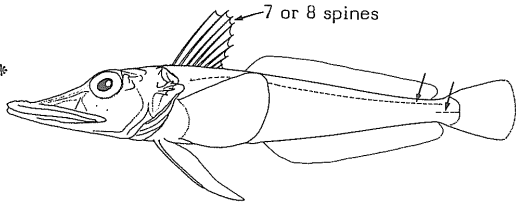


Channichthys velifer Fig. 9

1b. The 2 outer soft rays of pelvic fins the longest

10a. No spine on interopercular bone; rostral spine reduced or absent; 2 or 3 lateral lines

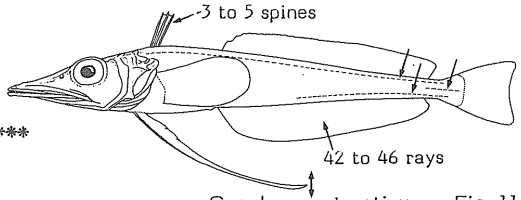
11a. Two lateral lines; first dorsal fin with 7 or 8 spines (Fig.10)..... Chaenocephalus aceratus**



Chaenocephalus aceratus Fig. 10

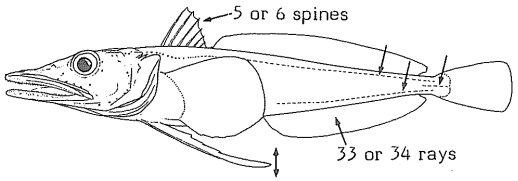
11b. Three lateral lines; first dorsal fin with 3 to 6 spines

12a. Pelvic fins long, extending in adults to below middle of dorsal fin; first dorsal fin with 3 to 5 spines; anal fin with 42 to 46 rays (Fig.11)..... Cryodraco antarcticus***



Cryodraco antarcticus Fig. 11

12b. Pelvic fins shorter, extending to base of 2nd or 7th anal fin ray; first dorsal fin with 5 or 6 spines; anal fin with 33 or 34 rays (Fig.12)... Chionobathyscus dewitti



Chionobathyscus dewitti Fig. 12

10b. A pair of spines on posteroventral angle of interopercular bone; rostral spine well developed or reduced; 3 lateral lines

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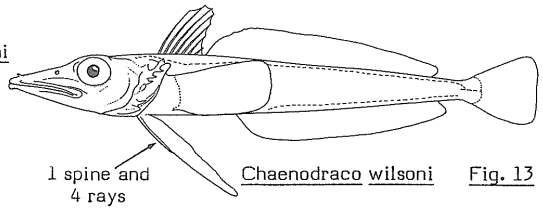
* That species described by Meisner in 1975 from 6 specimens from the continental slope of Kerguelen Islands is close to C. rhinoceratus and a complete revision of the genus Channichthys is needed. Ch. velifer is often considered as a junior synonym of Ch. rhinoceratus

** The closely related species Chaenocephalus bouvetensis Nybelin, 1947 is here considered as a junior synonym of C. aceratus

*** The closely related species, Cryodraco pappenheimi Regan, 1913 was described from 3 specimens; one of them has now moved to be another species, the second is lost, and the third mutilated; for this reason C. pappenheimi is here provisionally considered as a junior synonym of C. antarcticus

13a. Pelvic fins with 1 spine and 4 rays; gillrakers developed as blackish knobs, with tooth-like protuberances (Figs 13,14a)..... Chaenodraco wilsoni

13b. Pelvic fins with one spine and 5 rays; gillrakers reduced to low or small knobs, toothed or smooth (Fig.14b,c)

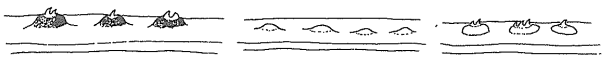


Chaenodraco wilsoni Fig. 13

14a. Rostral spine well developed; supraorbital region with radiating ridges and with crenulate margins; pectoral fins with 22 to 24 rays; preoperculo-mandibular lateral line canal not joined to temporal canal

15a. 2 to 7 gillrakers on lower limb of first arch reduced to tiny knobs, non-dentigerous (Figs 14b,15) .... Chionodraco hamatus

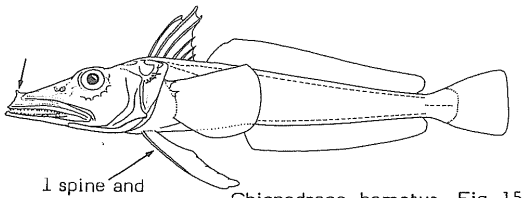
15b. 8 to 14 gillrakers reduced to low knobs, each bearing one to several teeth (Fig.14c) ... Chionodraco rastrospinosus



a) C. wilsoni b) C. hamatus c) C. rastrospinosus

gillrakers Fig. 14

14b. Rostral spine reduced to a small knob; supraorbital regions smooth and without crenulate margins; pectoral fins with 21 or 22 rays; preoperculomandibular canal joined to temporal canal ..... Chionodraco myersi



Chionodraco hamatus Fig. 15

LIST OF SPECIES OCCURRING IN MARINE WATERS OF THE AREAS:

Code numbers are given for those species for which Identification Sheets are included

Chaenocephalus aceratus Lönnberg, 1906	CHANN Chaenoc 1
Chaenodraco wilsoni Regan, 1914	CHANN Chaenod 1
*Champsocephalus esox (Günther, 1861) Champsocephalus gunnari Lönnberg, 1905	CHANN Cham 1
Channichthys rhinoceratus Richardson, 1844 Channichthys velifer Meisner, 1975	CHANN Chann 1
Chionobathyscus dewitti Andriashev & Neyelov, 1978	
**Chionodraco hamatus (Lönnberg, 1905) ***Chionodraco myersi DeWitt & Tyler, 1960 Chionodraco rastrospinosus DeWitt & Hureau, 1979	CHANN Chio 1
Cryodraco antarcticus Dollo, 1900 (= Cryodraco atkinsoni Regan, 1914)	
Dacodraco hunteri Waite, 1916	
Neopagetopsis ionah Nybelin, 1947	
Pagetopsis macropterus (Boulenger, 1907) Pagetopsis maculatus Barsukov & Permitin, 1958	
Pseudochaenichthys georgianus Norman, 1937	CHANN Pseudo 1

Prepared by J. C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

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*The only species of Channichthyidae not occurring in the areas here covered but reported from the Patagonian region and the Falkland/Malvinas Islands

** = Chionodraco kathleenae Regan, 1914

*** = Chionodraco markhami Miller & Reseck, 1961

CHANN Chaenoc 1

1985

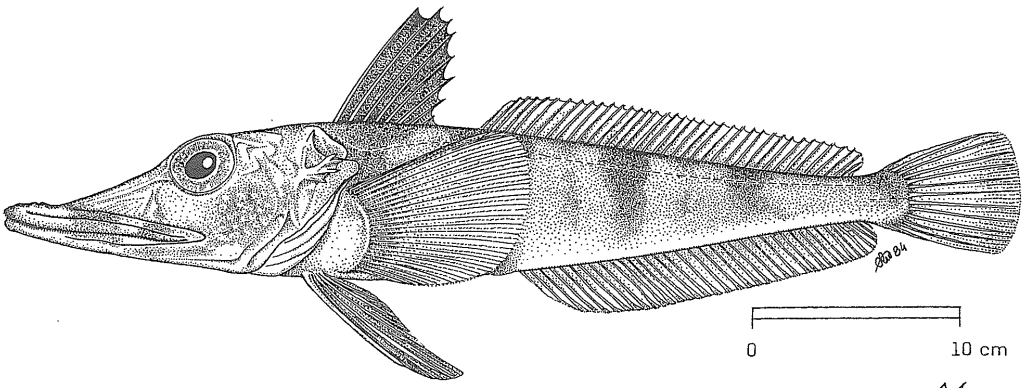
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Chaenocephalus aceratus Lönnberg, 1906

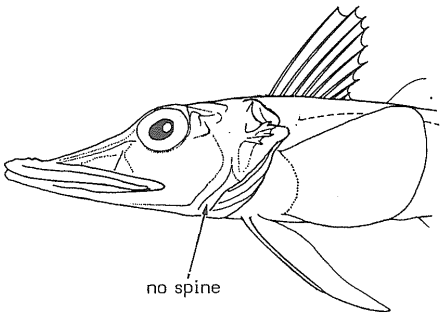
OTHER SCIENTIFIC NAMES STILL IN USE : Chaenocephalus bouvetensis Nybelin, 1947



VERNACULAR NAMES :

FAO/CCAMLR : En - Blackfin icefish, Scotia Sea icefish
Fr - Grande-gueule antarctique
Ru - Krokodilovaya belokrovka
Sp - Draco antártico

NATIONAL :



DISTINCTIVE CHARACTERS :

Body elongate, its depth 14.3 to 20% of standard length. Head depressed, its dorsal profile flat or slightly concave; length of head 35.7 to 40% of standard length; snout depressed, spatulate, a little longer than half of head; no rostral spine on tip of snout, but a small prominence at anterior end of ethmoid bone; opercle with 3 or 4 radiating ridges ending in spines; no spine on the interopercle; eye about equal to interorbital width, 16.6 to 20% of head length; gillrakers absent except 3 or 4 short ones at the angle of anterior arch; mouth almost horizontal, maxilla extending posteriorly to below middle of eye or beyond; jaws equal anteriorly; small and sharp teeth in both jaws in two broad bands. Two dorsal fins, their bases well separated, the first with 7 or 8 long and flexible spines, the second with 38 to 40 soft rays; 37 to 39 anal fin rays; pectoral fins long and fan-like, with 23 to 26 rays, extending to above anterior rays of anal fin; pelvic fins in young longer than head, reaching to middle of anal fin, much shorter in adults, not reaching vent; two outer soft rays of pelvic fins the longest; caudal fin slightly rounded. Two lateral lines without bony plates or scales; body entirely scaleless.

Colour: body greyish or pale brownish, whitish ventrally; a series of darker crossbars on sides; first dorsal fin usually blackish; other fins more or less pale; gills creamy-whitish due to absence of hemoglobin.

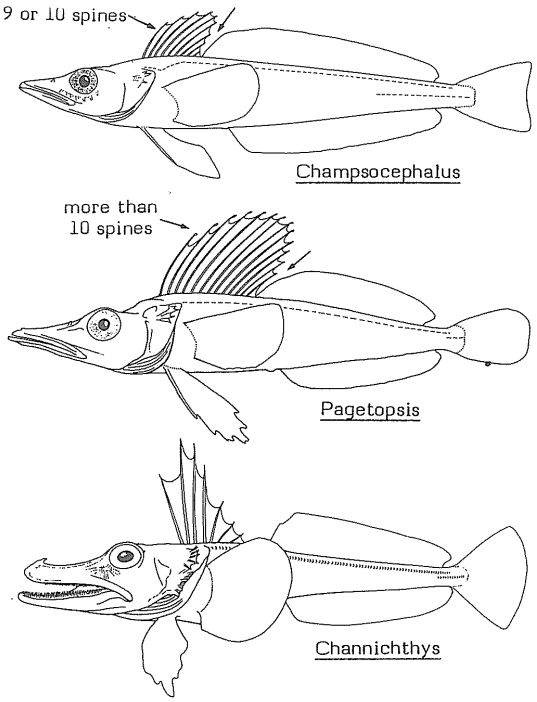
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Champsocephalus species: dorsal fins more or less contiguous; 9 or 10 spines in the first dorsal fin (7 or 8 in C. aceratus).

Pagetopsis species: dorsal fins more or less contiguous; first dorsal fin with more than 10 spines.

Channichthys species: lateral lines with bony plates.

Other species of Channichthyidae: either 3 lateral lines or less than 5 spines in first dorsal fin.



SIZE :

Maximum: 75 cm at South Georgia; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

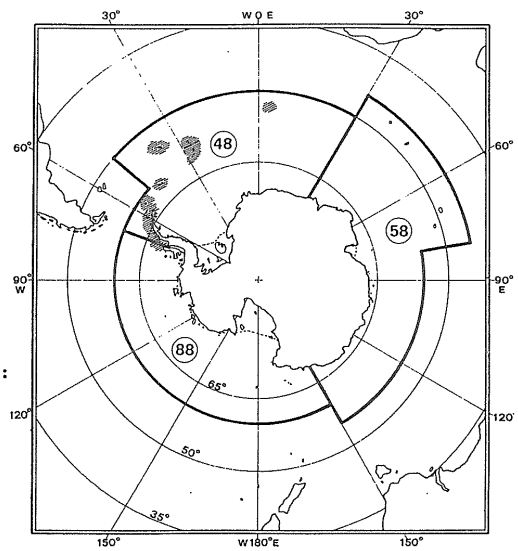
Reported from Bouvet Island and from the islands of the Scotia Arc (South Georgia, South Sandwich, South Orkney, South Shetland Islands), and the Antarctic Peninsula.

Found from about 5 to more than 770 m depth, Chaenocephalus aceratus spawns in the nearshore waters and fjords from February or March onward. Pelagic postlarvae and juveniles inhabit nearshore surface waters, while older juveniles and adults are bottom dwelling. This species has a relatively slow growth rate and matures at a length of about 50 cm (between 6 and 7 years).

Juveniles feed on krill, but specimens over 30 cm feed mostly on fishes.

PRESENT FISHING GROUNDS :

Mainly South Georgia and the South Shetland Islands.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

This species is commercially caught only since the 1976/77 season; few hundreds to 4 000 t have been reported annually from fishing area 48.

Caught only with bottom trawls.

Marketed as frozen fish (entire or fillets); the flesh is excellent.

CHANN Chaenod 1

1985

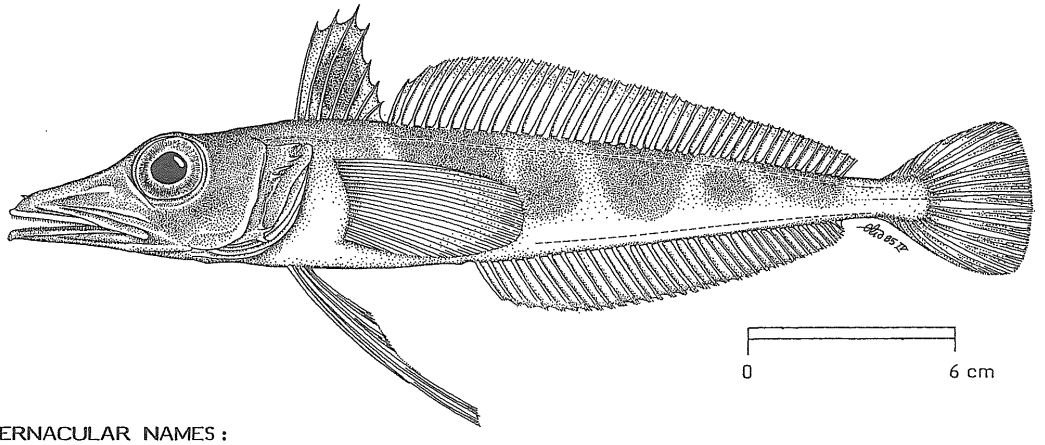
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Chaenodraco wilsoni Regan, 1914

OTHER SCIENTIFIC NAMES STILL IN USE : Chaenodraco fasciatus Regan, 1914



VERNACULAR NAMES :

FAO/CCAMLR : En - Spiny icefish
Fr - Grande-gueule épineuse
Ru - Chetyrekhpalaya belokrovka
Sp - Draco espinudo

NATIONAL :

DISTINCTIVE CHARACTERS :

Body elongate, its depth 14.3 to 16.6% of standard length. Head depressed, its dorsal profile flat or slightly concave; length of head 31.2 to 38.5% of standard length; snout depressed, slightly spatulate, less than half the length of head; an anterior pointing rostral spine well developed on tip of snout; opercle with 4 or 5 spines, a pair of spines on the posteroventral angle of the interopercular bone; eye 23.3 to 25% of head length; interorbital width 23.8 to 27% of head length; 12 to 14 gillrakers on lower part of anterior arch developed as blackish knobs with tooth-like protuberances; mouth almost horizontal, maxilla extending posteriorly to below anterior third of eye; jaws equal anteriorly; teeth in both jaws small and sharp. Two dorsal fins, their base more or less contiguous, the first with 6 to 8 long and flexible spines, the second with 38 to 42 soft rays; 32 to 35 anal fin rays; pectoral fins long and fan-like, with 22 to 24 rays, extending to above anterior rays of anal fin; pelvic fins with one spine and only 4 rays, as long as head length; 2 outer soft rays of pelvic fins the longest; caudal fin subtruncate or rounded. Three lateral lines without bony plates or scales; body entirely scaleless.

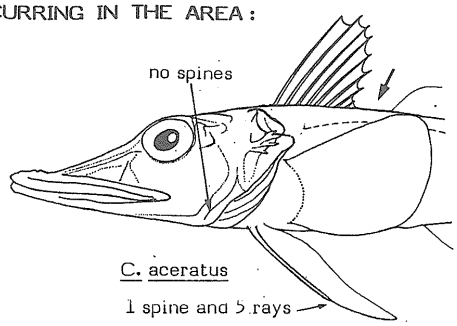
Colour: pale brownish, whitish ventrally; a series of 5 dark crossbars on sides; dark spots on head; a large black spot on the first dorsal fin; other fins more or less dusky; gills creamy-whitish due to absence of hemoglobin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Chionodraco species: pelvic fins with one spine and 5 rays (1 spine and 4 rays in C. wilsoni). Gill arches appear white. Gillrakers insignificant in Chionodraco hamatus.

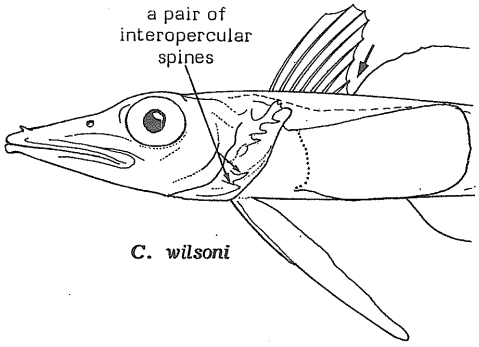
Chaenocephalus aceratus, Cryodraco antarcticus, Chionobathyscus dewitti: no spine on the posteroventral angle of the interopercular bone.

Other species of Channichthyidae: middle rays of pelvic fins the longest.



SIZE :

Maximum: 35 cm; common to 30 cm.

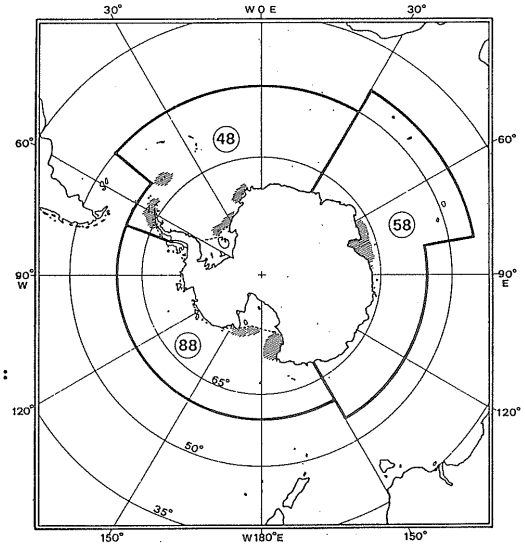


GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circum-Antarctic distribution south of 60°S; MacRobertson and Princess Martha coasts, Prydz Bay, Ross Sea, Weddell Sea, South Orkney and South Shetland Islands, northern part of Antarctic Peninsula.

Found from about 100 to about 650 m depth. Chaenodraco wilsoni spawns in winter; pelagic postlarvae and juveniles inhabit nearshore surface waters in December off South Orkney Islands; large numbers of juveniles have been encountered in or close to krill swarms in the South Shetland area; adult specimens seem to be pelagic.

Feeds exclusively on krill.



PRESENT FISHING GROUNDS :

Mainly around the South Shetland Islands and off Joinville Island (Antarctic Peninsula).

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Reported catches for the two fishing seasons 1978/79 and 1979/80 from fishing area 48 have been 10,130 and 956 t, respectively.

Caught only with bottom trawls.

Marketed as frozen fish.

CHANN Cham 1

1985

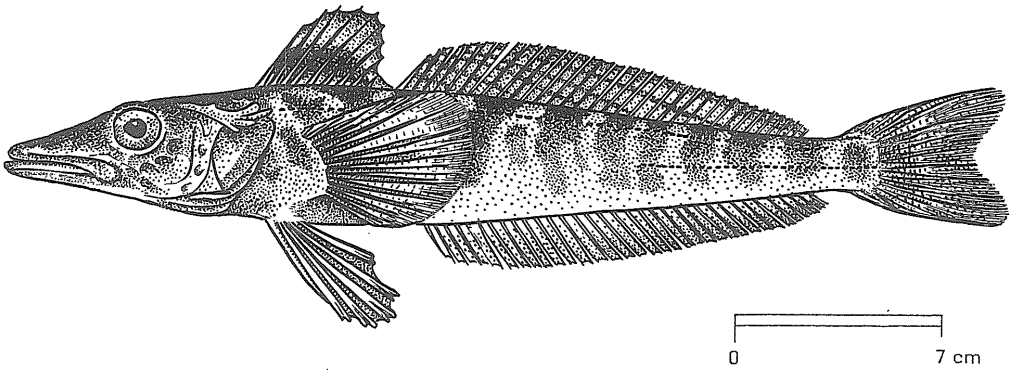
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Champsocephalus gunnari Lönnberg, 1905

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Mackerel icefish
Fr - Poisson des glaces
Ru - Ledyanaya ryba
Sp - Draco rayado

NATIONAL :

DISTINCTIVE CHARACTERS :

Body elongate, its depth 13.8 to 16.6% of standard length. Head depressed, its dorsal profile flat or slightly concave; length of head 28.5 to 31% of standard length; snout depressed slightly spatulate, about as long as postorbital part of head; no rostral spine on tip of snout; opercle with 2 spines, the upper bifid or trifid; eye 19 to 24% of head length; interorbital width 22.2 to 28.6% of head length; short dentigerous gillrakers on lower part of anterior arch; mouth slightly oblique, maxilla extending posteriorly to below posterior margin of eye; jaws almost equal anteriorly; teeth in both jaws in two narrow bands, small and sharp. Two dorsal fins, their base more or less contiguous, the first with 9 or 10 long and flexible spines, the second with 37 to 41 soft rays; 35 to 39 anal fin rays; pectoral fins long and fan-like, with 25 to 28 rays, extending to above anterior rays of anal fin; pelvic fins about 60% of head length; median rays of pelvic fins the longest; caudal fin emarginate. Two lateral lines without bony plates or scales; body entirely scaleless.

Colour: body light grey-silvery, whitish ventrally; a series of darker crossbars on sides; dorsal and anal fins usually more or less blackish; other fins pale or dusky; gills creamy-whitish due to absence of hemoglobin.

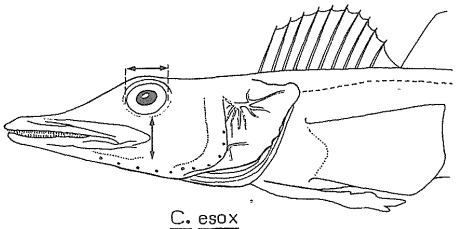
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Champsocephalus esox: second dorsal fin with 32 to 37 rays (37 to 41 in C. gunnari); anal fin with 31 to 35 rays (25 to 28 in C. gunnari); eye diameter 13 to 19% of head length; snout and upper jaw longer.

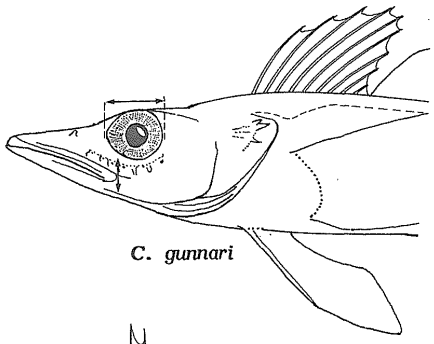
Pagetopsis species: first dorsal fin with more than 10 spines (9 or 10 in C. gunnari).

Channichthys species: lateral lines with bony plates.

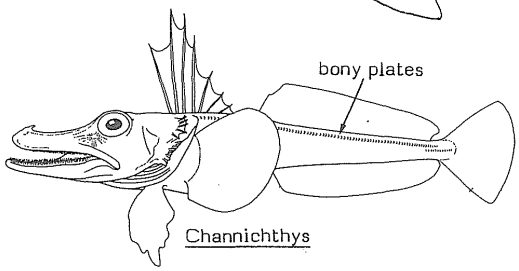
Other species of Channichthyidae: either 3 lateral lines or less than 9 spines in first dorsal fin.



C. esox



C. gunnari



Channichthys

SIZE :

Maximum: 64 cm at South Georgia, 45 cm at Kerguelen; common to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

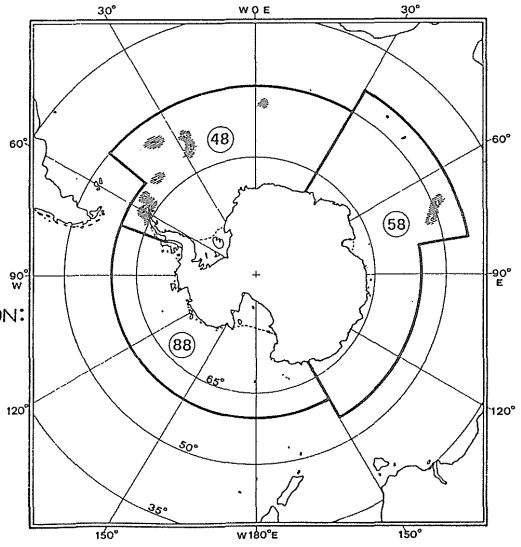
Reported from shelves of Kerguelen and Heard Islands, from Bouvet Island and from all the islands of the Scotia Arc (South Georgia, South Sandwich, South Orkney, South Shetland Islands), and the northern part of the Antarctic Peninsula.

Found from about 100 to more than 700 m depth, Champsocephalus gunnari spawns in the fjords from April to June, or later. Pelagic postlarvae and juveniles inhabit nearshore surface waters, while older juveniles and adults form large concentrations in the vicinity of krill or other forage concentrations. This species has a relatively fast growth rate and matures at a length of 22 to 26 cm (between 3 and 4 years).

Feeds on krill and other euphausiids, hyperiids and small myctophid fishes.

PRESENT FISHING GROUNDS :

Mainly around the Kerguelen Islands, South Georgia, South Orkneys and the South Shetland Islands.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

This is the most abundant species reported in the catches of the last 10 years from Fishing Areas 48,58 and 88; 162 673 t were reported from the 1982/83 season.

Caught with bottom trawls and recently with semipelagic trawls.

Marketed as frozen fish (entire or fillets); the flesh is excellent.

CHANN Chann 1

1985

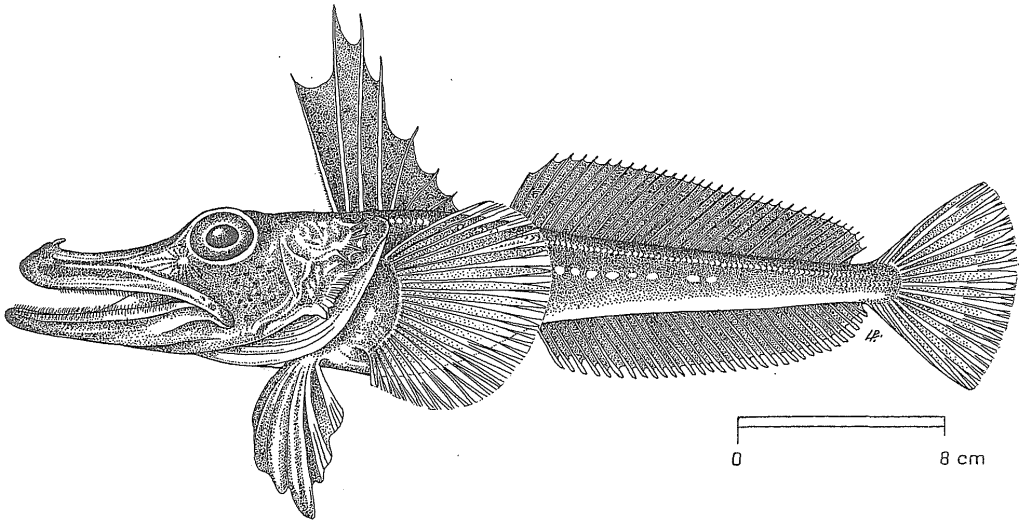
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Channichthys rhinoceratus Richardson, 1844

OTHER SCIENTIFIC NAMES STILL IN USE : Channichthys rugosus Regan, 1913
Chaenichthys rhinoceratus



VERNACULAR NAMES :

FAO/CCAMLR : En - Unicorn icefish
Fr - Grande-gueule
Ru - Nosorogaya Belokovka
Sp - Draco rinoceronte

NATIONAL :

DISTINCTIVE CHARACTERS :

Body elongate, its depth 14.3 to 18% of standard length. Head strongly rugose, depressed, its dorsal profile flat or concave; length of head 35.7 to 41.6% of standard length; snout depressed, strongly spatulate, a little shorter than half of head; a rostral spine present on tip of snout; opercle with 4 or 5 strong spines, the upper bifid or trifid; eye 13.8 to 20% of head length; interorbital width 15.4 to 20% of head length; short dentigerous gillrakers on lower part of anterior arch; mouth horizontal, maxilla extending posteriorly to below middle of eye or beyond; jaws almost equal anteriorly; teeth in both jaws in broad bands, small and sharp. Two dorsal fins, their base well separated, the first with 6 to 9 long and flexible spines, the second or third longest, the second dorsal fin with 30 to 34 soft rays; 27 to 33 anal fin rays; pectoral fins long and fan-like, with 18 to 22 rays, extending to above vent or origin of anal fin; pelvic fins a little longer than pectoral fins; median rays of pelvic fins the longest; caudal fin rounded. Two lateral lines with bony plates, 62 to 84 in upper line and 2 separate series of few plates on median line, one anterior and one posterior; body entirely scaleless.

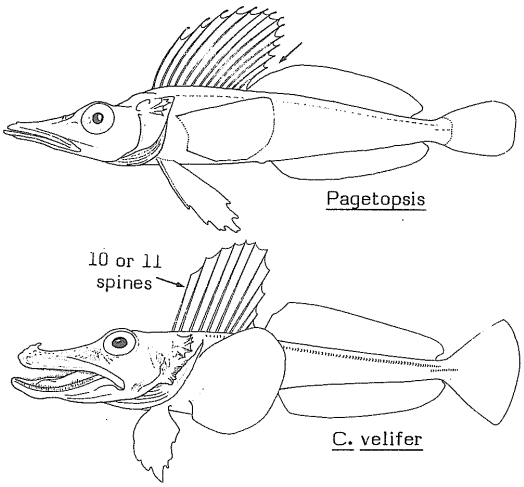
Colour: body colour pattern very variable, generally whitish with black markings or dots, often red or orange patches; ventral parts white or brightly red-coloured; anal fin orange-red or black and white; first dorsal fin blackish; other fins pale or dusky; gills creamy-whitish due to absence of hemoglobin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pagetopsis and Champsocephalus species: dorsal fins more or less contiguous; lateral lines without bony plates.

Channichthys velifer : first dorsal fin with 10 or 11 spines (9 or 10 in C. rhinoceratus), the fourth and fifth longest; median lateral line with only one posterior series of bony plates.

Other species of Channichthyidae: no bony plates on lateral lines.



SIZE:

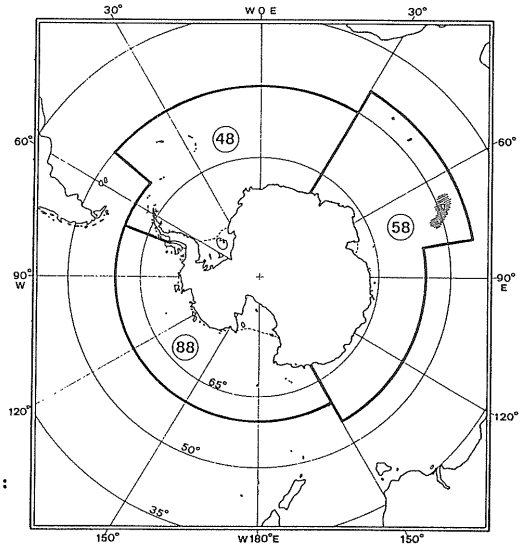
Maximum: 60 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Reported only from shelves of Kerguelen and Heard Islands, and from the connecting seamounts.

Found from nearshore waters to more than 750 m depth, Channichthys rhinoceratus spawns in the inshore waters in February. Pelagic postlarvae and juveniles inhabit nearshore surface waters, while older juveniles and adults are bottom living animals. This species matures at a length of 36 to 38 cm (5 years).

Feeds mainly on young fish (90% of the diet) and small euphausiids.



PRESENT FISHING GROUNDS:

Mainly around the Kerguelen Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Few tens (10 to 80) of tons are reported annually since the 1977/78 season from Fishing Area 58.

Caught only with bottom trawls as a bycatch in the Champsocephalus gunnari oriented fishery.

Marketed as frozen fish; the flesh is good.

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*This species is often considered as a junior synonym of Channichthys rhinoceratus

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1985

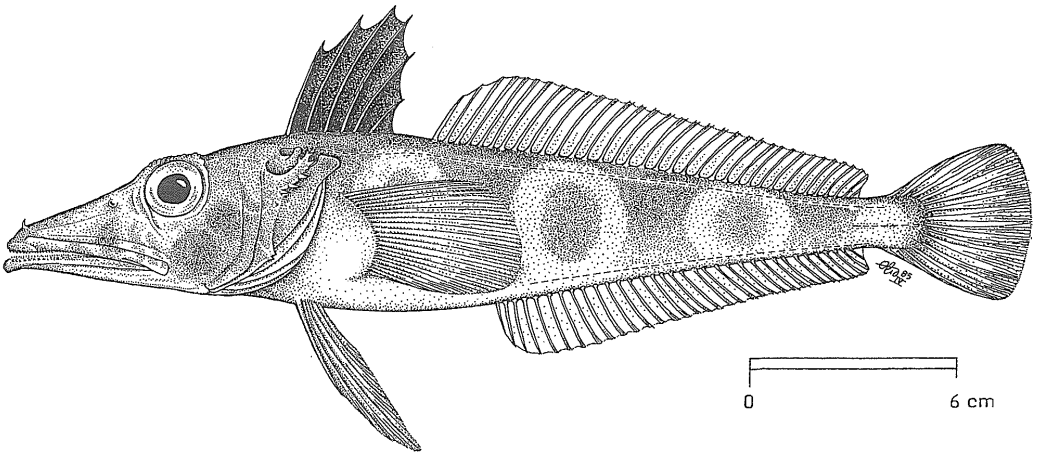
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Chionodraco rastrospinosus DeWitt & Hureau, 1979

OTHER SCIENTIFIC NAMES STILL IN USE : Often confused with Chionodraco hamatus non Lönnberg, 1905 (misidentification)



VERNACULAR NAMES :

FAO/CCAMLR : En - Ocellated icefish
Fr - Grande-gueule ocellée
Ru - Kolyuchaya belokrovka
Sp - Draco ocelado

NATIONAL :

DISTINCTIVE CHARACTERS :

Body elongate, its depth about 16% of standard length. Head depressed, its dorsal profile flat or slightly concave; length of head 37 to 38.5% of standard length; snout depressed, slightly spatulate, about half head length; a backward pointing rostral spine on tip of snout; opercle with 4 spines, the upper quadrifid; a pair of spines on the posteroventral angle of the interopercular bone; eye 20 to 21% of head length; interorbital width 23 to 32% of head length; supraorbital region with radiating ridges and with crenulate margins; preoperculo-mandibular lateral line canal not joined to temporal canal; 8 to 14 short dentigerous gillrakers on lower part of anterior arch, reduced to low knobs, each bearing one to several teeth; mouth slightly oblique, maxilla extending posteriorly to middle of eye; jaws almost equal anteriorly; teeth in both jaws in 2 or 3 rows, small, conical and curved. Two dorsal fins, their base well separated, the first with 4 to 6 long and flexible spines, the second usually longest, the second dorsal fin with 34 to 42 soft rays; 33 to 37 anal fin rays; pectoral fins long and fan-like, with 22 or 23 rays, extending to above anterior rays of anal fin; pelvic fins narrow and elongate; two outer soft rays of pelvic fins the longest; 1 spine and 5 rays in the pelvic fins; caudal fin rounded. Three lateral lines without bony plates, but covered with tubular scales, 94 to 118 in the upper, 9 to 17 in the median and 63 to 92 in the lower; body entirely scaleless, except for lateral lines.

Colour: normal colour pattern with four large pale circles on a dark background, each circle with a dark centre and displaced ventrally such that their lower part is incomplete; dark crossbars between the circles; a dorsomedial dark area anterior to first dorsal fin; top of head mottled and blotched; cheeks with two dark regions; first dorsal fin uniformly blackish; other fins pale.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Chionodraco hamatus: 2 to 7 gillrakers on lower limb of first arch (8 to 14 in C. rastrospinosus), reduced to small knobs, non-dentigerous.

C. myersi: rostral spine reduced to a small knob; supraorbital region smooth and without crenulate margins; preoperculomandibular canal joined to temporal canal.

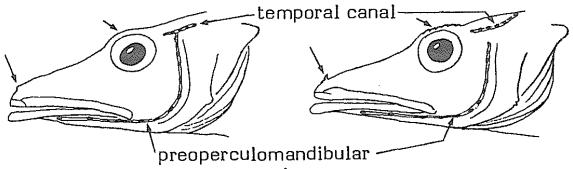
Chaenodraco wilsoni: pelvic fins with one spine and 4 rays (1 spine and 5 rays in C. rastrospinosus).

Chaenocephalus aceratus, Chionobathyscus dewitti and Cryodraco antarcticus: no spine on the posteroventral angle of the interopercular bone.

Other Channichthyidae: middle rays of pelvic fins the longest.

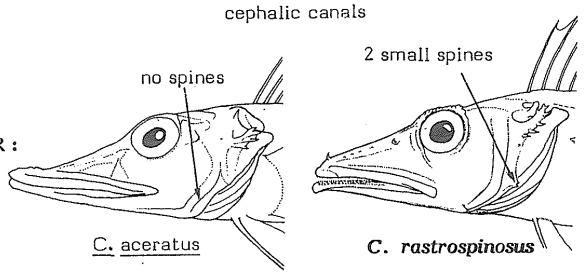
C. hamatus — *C. rastrospinosus*

gillrakers



C. myersi — *C. rastrospinosus*

cephalic canals



C. aceratus — *C. rastrospinosus*

spine on interopercle

SIZE:

Maximum: 52 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

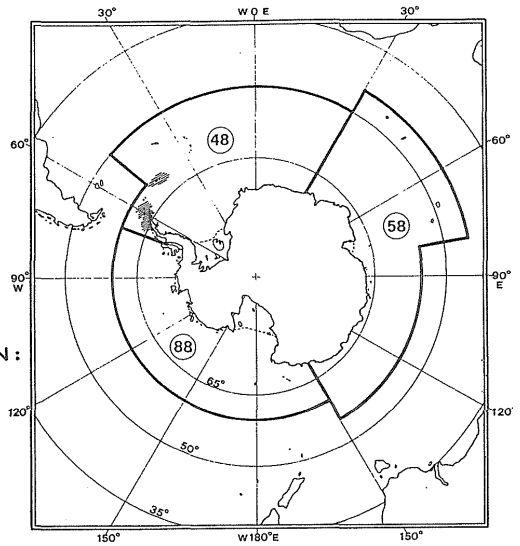
Reported only from the Antarctic Peninsula, the South Shetland and South Orkney Islands.

Found from about 200 to 1 000 m depth, Chionodraco rastrospinosus spawns from end of March onward. Postlarvae and juveniles inhabit pelagic waters in or close to krill swarms from December to February, while older juveniles and adults have demersopelagic habits. This species matures at a length of about 32 cm (between 4 and 5 years).

Feeds mostly on krill and other euphausiids and fishes.

PRESENT FISHING GROUNDS:

Mainly around the South Shetland Islands.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Reported catches for the two fishing seasons 1978/79 and 1979/80 from Fishing Area 48 have been 1 949 and 233 t, respectively.

Caught only with bottom trawls.

Marketed as frozen fish.

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1985

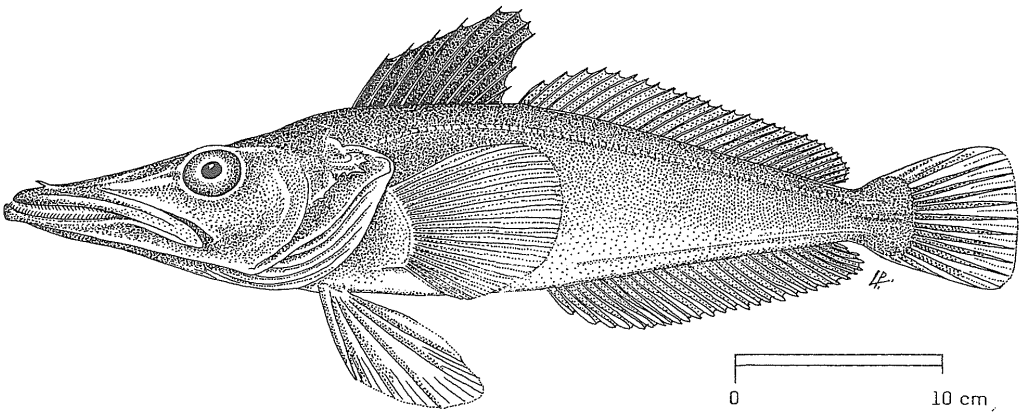
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : CHANNICHTHYIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pseudochaenichthys georgianus Norman, 1937

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - South Georgia icefish
Fr - Crocodile de Georgie
Ru - Femnaya belokrovka
Sp - Draco cocodrilo

NATIONAL :

DISTINCTIVE CHARACTERS :

Body relatively deep, its depth 16.6 to 22.5% of standard length. Head depressed, its dorsal profile flat or slightly concave; length of head 20 to 43.5% of standard length; snout depressed, spatulate, a little shorter than half of head; a forward pointing rostral spine on tip of snout; opercle with 4 or 5 spines, the upper with a forward pointing hook; diameter of eye variable with age, 14 to 20% of head length; interorbital width more than 25% of head length; very short, dentigerous and knob-like gillrakers on lower part of anterior arch; mouth horizontal, maxilla extending posteriorly to below middle of eye; lower jaw projecting; teeth in both jaws in broad bands, small, curved and sharp. Two dorsal fins, their base well separated, the first with 8 to 10 long and flexible spines, the second with 29 to 31 soft rays; 28 to 31 anal fin rays; pectoral fins long and fan-like, with 23 or 24 rays, extending to above anterior rays of anal fin; pelvic fins as long as or a little longer than pectoral fins; median rays of pelvic fins the longest; caudal fin subtruncate or a little rounded. Three lateral lines without bony plates; body entirely scaleless.

Colour: body greyish or greenish, whitish ventrally; a series of darker markings on the upper parts of the sides (young) which tend to become uniformly coloured in the adults; first dorsal and pelvic fins blackish; other fins pale or dusky; gills creamy-whitish due to absence of hemoglobin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

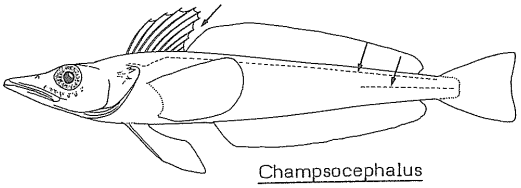
Champsocephalus species: dorsal fins more or less contiguous; two lateral lines (3 in P. georgianus).

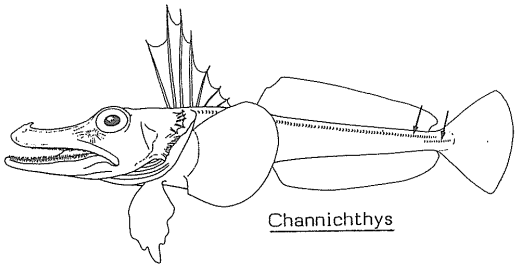
Channichthys species: two lateral lines with bony plates.

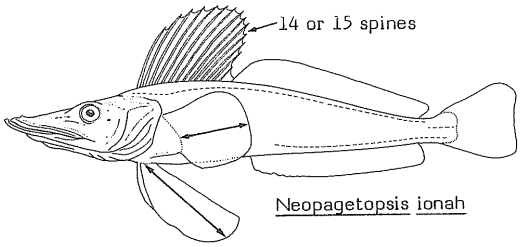
Neopagetopsis ionah: first dorsal fin with 14 to 15 spines (8 to 10 in P. georgianus); pelvic fins very long, longer than pectoral fins.

Pagetopsis species: first dorsal fin with more than 10 spines; two lateral lines.

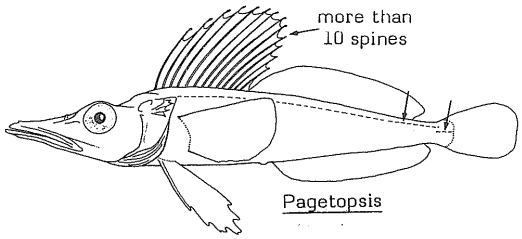
Other species of Channichthyidae: either 2 lateral lines or less than 8 spines in first dorsal fin.


Champsocephalus


Channichthys



Neopagetopsis ionah



Pagetopsis

SIZE :

Maximum: 60 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

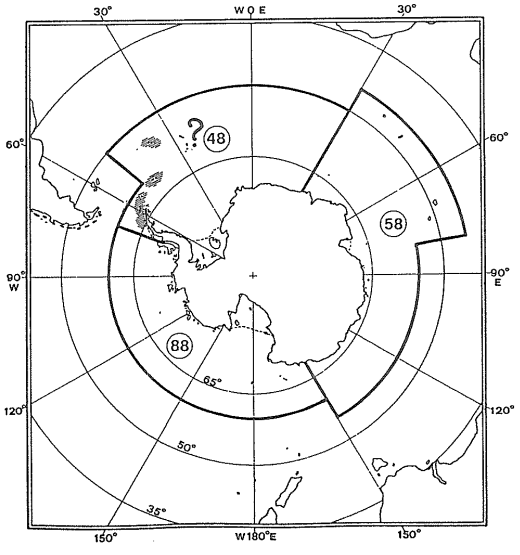
Reported from shelves of the Scotia Arc Islands (South Georgia, South Orkney, South Shetland Islands), and the northern part of the Antarctic Peninsula. Presence doubtful in South Sandwich Islands.

Found from shallow waters to about 500 m depth, Pseudochaenichthys georgianus spawns in the nearshore waters and fjords from April to May. Pelagic postlarvae and juveniles have been mostly encountered in pelagic waters often together with krill, while older juveniles and adults are demersal or semipelagic in habits, in the vicinity of krill swarms or other forage concentrations. This species matures at a length of about 42 cm (between 4 and 5 years).

Primarily feeds on krill and fish.

PRESENT FISHING GROUNDS :

Mainly around South Georgia and the South Orkney Islands.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

This species is commercially caught only since the 1976/77 season; 1 000 to 13 000 t have been reported annually from Fishing Area 48.

Caught only with bottom trawls.

Marketed as frozen fish (entire or fillets); the flesh is good.

CONGIO

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

CONGIOPODIDAE

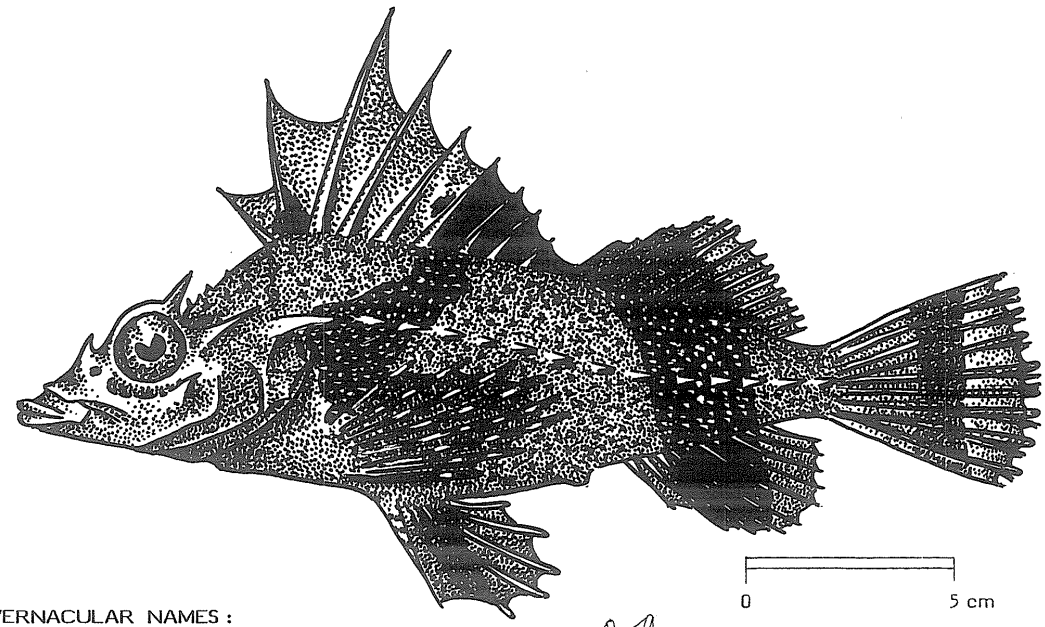
Horsefishes

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Museum national d'Histoire naturelle, Paris, France

Zanclorhynchus spinifer (Günther, 1880)

CONGIO Zancl 1

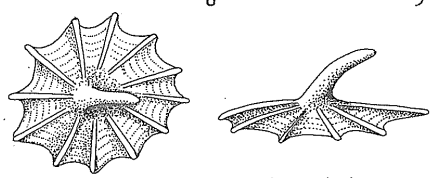
OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic horsefish
Fr - Cacique antarctique
Ru - Kolyuchka
Sp - Cacique antártico

NATIONAL :



scales

DISTINCTIVE CHARACTERS :

Body strongly compressed, its depth 30 to 33% of standard length. Head large and compressed, its length 33 to 35% of standard length; snout notably produced, longer than eye; eye diameter 22 to 33% of head length; mouth terminal, small, the maxilla in larger specimens not reaching level of nostrils; minute teeth in jaws and on vomer (roof of mouth); a spine present on each side of snout above nostrils; a strong supraorbital ridge ending backward in a strong spine; another strong spine just behind eye, above preopercle; a very large and long spine above opercle, nearly 25% of head length; head with a number of rugose areas on dorsal surface and

cheeks. Two contiguous dorsal fins, the first elevated anteriorly, with 8 to 10 strong spines, the third spine the longest, about as long as head; second dorsal fin with 12 to 15 unbranched soft rays, its base about 60% as long as that of spinous fin; dorsal fin membrane not connected to caudal peduncle posteriorly; 10 or 11 anal fin rays; pectoral fins low on body, with 9 unbranched rays, their bases relatively narrow; pelvic fin with 1 spine and 5 segmented rays; caudal fin truncate, with segmented rays branched. A single lateral line bearing 11 to 15 tubular and spiny scales, from opercular spine to middle of caudal peduncle. Body covered with small spiny scales embedded in the skin, giving the fish a rugose appearance, but some naked areas present around base of first dorsal fin and in the thoracic and abdominal regions.

Colour: variable from clear brown or purple to creamish ochre, with very dark markings; fins ochre, each with a broad dark bar; a black spot at base of second dorsal spine and a black blotch on posterior part of first dorsal fin; always a broad dark crossbar on caudal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The characteristic body shape, scalation, spines and colour readily distinguish this species from any other fishes occurring in the area.

SIZE:

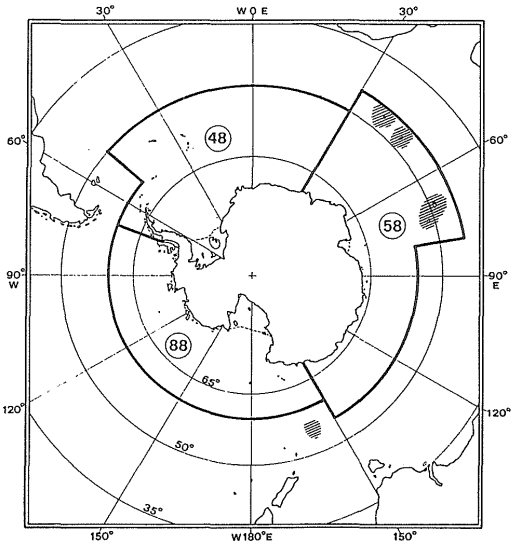
Maximum: 40 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Only known from Macquarie, Kerguelen, Heard(?) Crozet and Marion islands, but particularly abundant in the latter archipelago.

Bottom-living, at depths between 5 and 340 m, often found in kelp beds, or on sandy bottoms.

Feeds on small amphipods and other benthic invertebrates.



POTENTIAL FISHING GROUNDS:

Shelf areas thoughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught as bycatch in bottom trawls; not yet marketed for human comsumption, but sometimes used as fishmeal.

GADI

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

GADIDAE

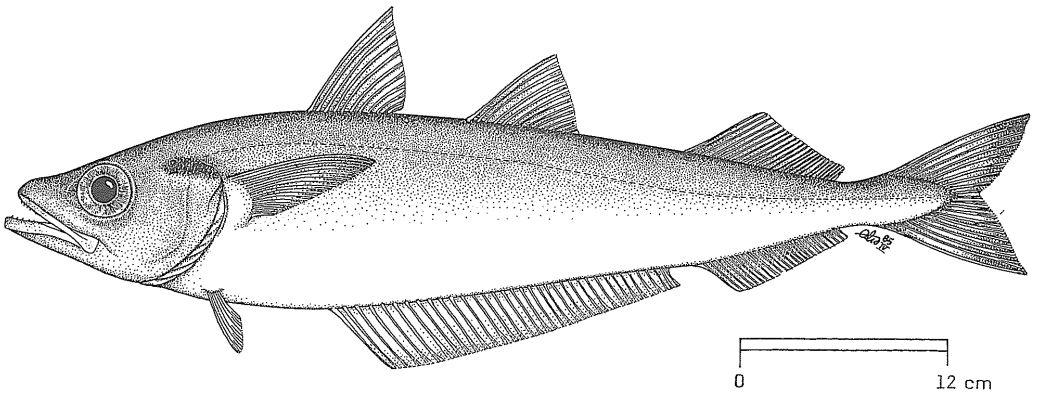
Cods

Prepared by A. Tomo, Instituto Antártico Argentino, Buenos Aires, Argentina

Micromesistius australis Norman, 1937

GADI Microm 2

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Southern blue whiting
Fr - Merlan bleu austral
Ru - Putassu yazknaya
Sp - Polaca argentina

NATIONAL :

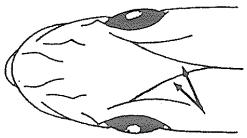
DISTINCTIVE CHARACTERS :

Body elongate, fusiform and compressed, its width about 1.7 times in greatest depth; caudal peduncle relatively deep. Head moderate, its length 4 to 4.5 times in standard length; mouth rather large and oblique; maxilla extending to below middle of eye, eye diameter 3.8 times in head length; 35 to 39 gillrakers on lower limb of first gill arch. No spines in fins; 3 dorsal fins, the space between the second and third much greater than that between first and second; 2 anal fins, the first very long-based and the second similar and slightly posterior to the third dorsal; pelvic fins small, thoracic in position; caudal fin spatulate, deeply emarginate; fin ray counts: first dorsal 11 or 12; second dorsal 12 to 15; third dorsal 20 to 25; first anal 34 to 37; second anal 24 to 26; pectorals 20 or 21; pelvics 6. Lateral line continuous from nape to base of caudal fin, with about 145 scales. Scales small, cycloid (smooth to touch), easily shed.

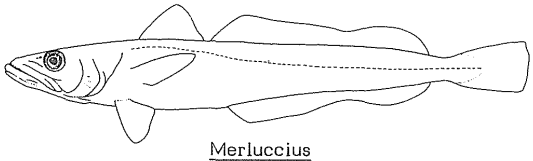
Colour: back bluish-silver, flanks and belly silvery-white; fins greyish; iris golden. A dark blotch on upper part of gill cover.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Merluccius species (Family *Merlucciidae*): a V-shaped ridge on top of head (characteristic of all Merlucciidae); only 2 dorsal fins and a single anal fin; caudal fin truncate.



top of head
Merluccidae



Merluccius

SIZE:

Maximum: to 90 cm; common to 60 cm. Average weight for medium-sized specimens 0.7 to 1 kg.

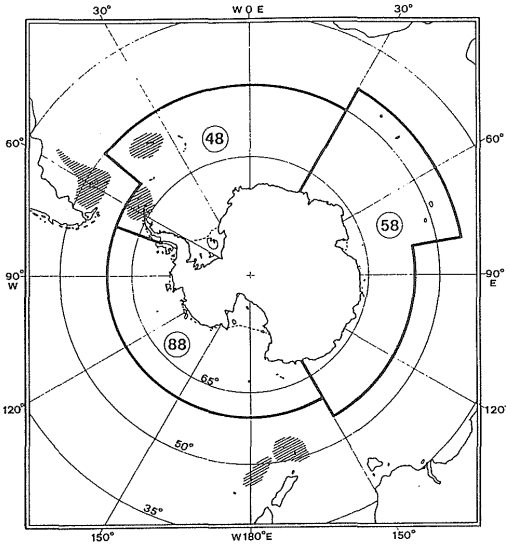
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Mainly found in waters of the Falkland/Malvinas current, on the Patagonian shelves off Argentina and the southernmost part of Chile between 55°S and 47°S, and on the Patagonian slope off Argentina northward to 38°S. In warm summers it migrates southward to South Georgia, the South Shetland Islands, Elephant Island and the northern part of the Antarctic Peninsula.

Another population (or subspecies) of *Micromesistius australis* (*M. australis pallidus* Inada and Nakamura, 1975) is fished on the southern shelf of New Zealand and around the Auckland and Campbell Islands.

It ranges in depth from 70 to 800 m, invading the shelf waters during summer and concentrating over the continental slope in winter south of 50°S, mostly restricted to slope areas north of this latitude.

Feeds on fishes, crustaceans and cuttlefishes.



PRESENT FISHING GROUNDS:

Throughout its range, with the largest catches (up to 1 to 5 t/h) outside the area, on the Patagonia/Fuegan shelf; often also very abundant around Elephant Island and South Orkeney Islands.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Catches vary considerably from year to year. In 1982 they totalled (for the entire distribution area of the species) 158 546 t (mostly by Poland and the USSR, and to a lesser extent by Argentina and Japan). Within Area 48, even though mean catch rates of 1.8 t/h were recorded in exploratory midwater trawling off the South Orkney Islands, commercial catches have been reported only twice: in 1977/78 (3 t) and 1979/80 (27 t).

Caught with bottom trawls.

Utilized mainly frozen (in blocks) and as fishmeal. Due to the strong infestation with parasites (protozoans, trematodes, copepods) the flesh was not highly appreciated in the past. However, more recently parasitic infestation has diminished and the marketing of the frozen product has improved.

HARPAG

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

HARPAGIFERIDAE

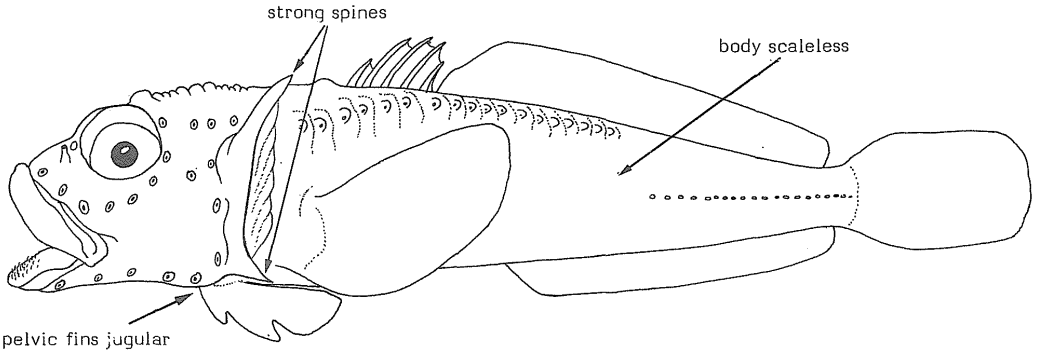
Spiny plunderfishes

Small bottom fishes, no more than 11 cm in length. Body shape somewhat elongate. Head large and wide; eyes large, sometimes upturned; snout short, about as long as eye; mouth protractile, terminal, rather large, set horizontally, the lower and upper jaws equal in length, with the maxilla reaching to below pupil; teeth in both jaws in villiform bands, without distinct canines; opercle and preopercle with strong spines; in some species, top of head with spines; branchiostegal rays 6; gillrakers reduced to a few rudimentary knobs near angle of arch. Two dorsal fins, the first with flexible spines, often placed over the base of the pectoral fins and close to the second dorsal fin which has a very long base and no spines; anal fin very long, without spines; pectoral fins large and fan-like; pelvic fins strong, jugular in position; caudal fin rounded. Body completely scaleless. Two lateral lines, a short upper one with tubules and a lower one reduced to a series of pores.

Colour: very variable, depending on the type of substrate on which the fish is living; body usually with dark blotches or irregular crossbars, sometimes pink-coloured; fins mostly with small dark spots or bars.

Harpagifers are marine fishes, widespread in the higher latitudes of the Southern Hemisphere. They are widely distributed in the sub-Antarctic area but also occur north of the Antarctic Convergence off southern South America and at several sub-Antarctic islands (Falkland/Malvinas, South Shetland, South Orkney, South Sandwich, South Georgia, Marion, Crozet, Kerguelen and Macquarie islands and north of Antarctic Peninsula). Most species are rather sedentary bottom forms which feed on a variety of invertebrates, mostly on benthic amphipods. They are found in shallow waters of the intertidal zone but some species can be found in waters as deep as 180 m.

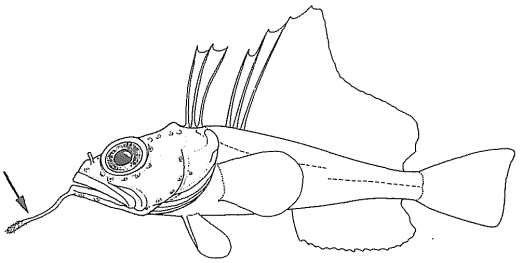
The Fishing Areas 48,58 and 88 comprise only one genus with 5 species, one of which is divided into two subspecies. None of them have any commercial value for fishing. They were included here because of their particular interest as members of the most common suborder (Notothenioidei) of Antarctic fishes and as major components of the diet of some other fish species (e.g., Channichthyidae).



SIMILAR FAMILIES OCCURRING IN THE AREA:

All other notothenioid fishes occurring in the Southern Ocean are easily distinguished from the Harpagiferidae, mainly by the following characters:

Artedidraconidae: a mental barbel present; no strong sharp spine on opercle.



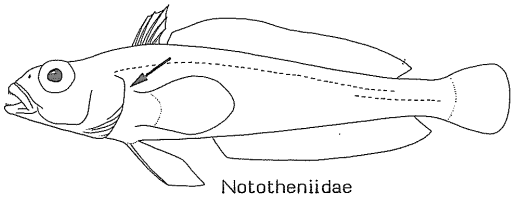
Artedidraconidae

Nototheniidae: opercle normal, not hooked upward posteriorly; body scaled.

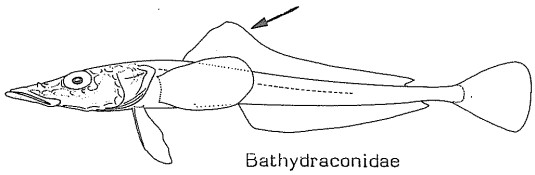
Bathydraconidae: only one dorsal fin; mouth non-protractile.

Channichthyidae: head very large, often spiny, with a produced and flattened snout. They also lack oxygen-carrying pigment in their blood which appears whitish or translucent, rather than red.

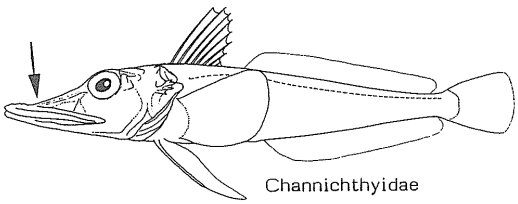
Bovichthyidae*: last rays of anal fin elongate and thickened distally.



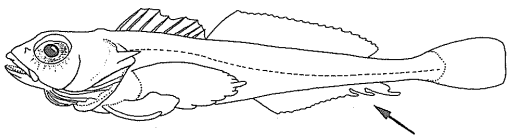
Nototheniidae



Bathydraconidae



Channichthyidae



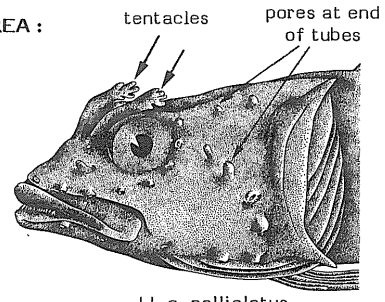
Bovichthyidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA:

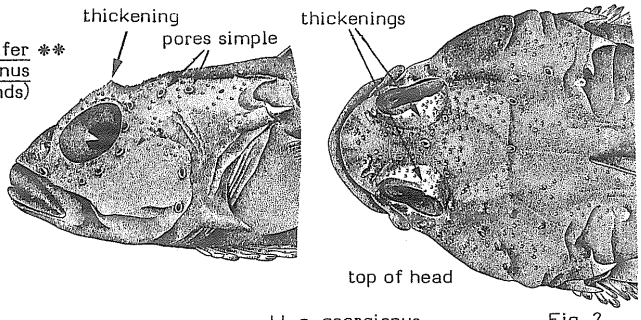
1a. Head length generally more than 35% (33 to 40%) of standard length

2a. Presence, above each eye, of one tentacle, simple in juveniles, multilobed in adults; cephalic pores opening at the extremity of long, projecting tubes (Fig. 1) .. Harpagifer georgianus palliolatus (Falkland/Malvinas Islands)

2b. No tentacle above eye but 2 thickenings at brow, more or less rounded; cephalic pores simple (Fig. 2) ..... Harpagifer ** georgianus georgianus (South Georgia, Marion Islands)



H. g. palliolatus Fig. 1



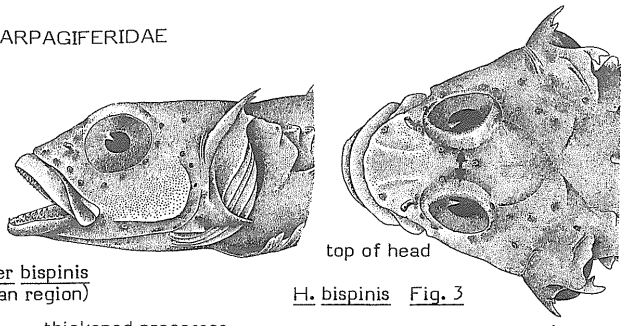
H. g. georgianus Fig. 2

* Only one species has been described from Area 48 (Antarctic Peninsula), Bovichthys elongatus Hureau & Tomo, 1977; the other species of the family are known from northern regions (southern coasts of South America, New Zealand and Australia)

** Some authors recognize another subspecies H. georgianus marionensis Nybelin, 1947, but it is here considered as a synonym of H. georgianus georgianus following Hureau et al., 1980

1b. Head length less than 35% of standard length

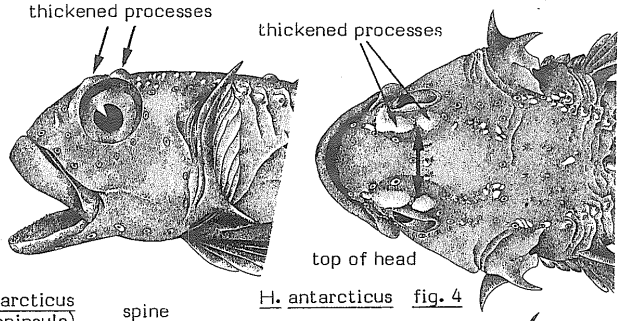
3a. Interorbital width less than 7% of standard length; pectoral fin with 11 to 16 rays (Fig. 3) ..... Harpagifer bispinis (Magellan region)



H. bispinis Fig. 3

3b. Interorbital width more than 7% of standard length; pectoral fin with 15 to 18 rays

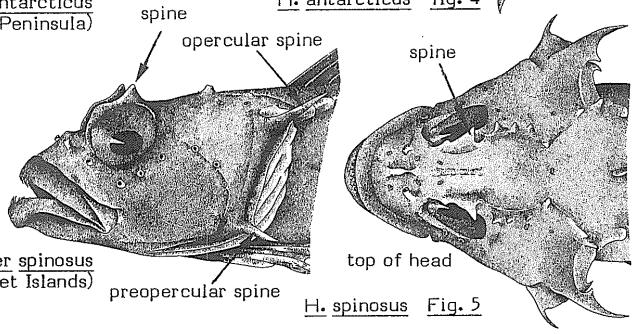
4a. Predorsal distance (tip of snout to base of first dorsal spine) 20 to 32% of standard length; preventral distance 16 to 26% of standard length; two separated, thickened processes above each orbit, the first low, the second higher and knob-like (Fig. 4) .... Harpagifer antarcticus (Antarctic Peninsula)



H. antarcticus fig. 4

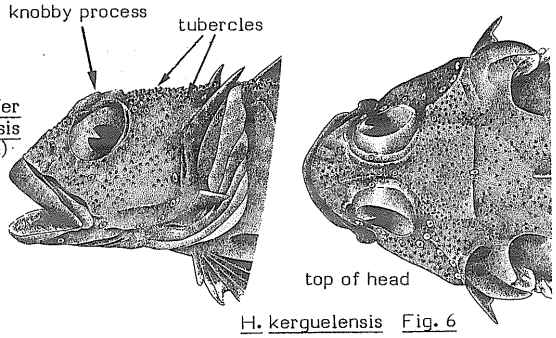
4b. Predorsal distance 29 to 37% of standard length; preventral distance 22 to 35% of standard length

5a. A spine present above each orbit; 2 very sharp spines on opercle and preopercle (Fig. 5) ..... Harpagifer spinosus (Crozet Islands)



H. spinosus Fig. 5

5b. No spine above the orbits, but sometimes, presence of a round knobby process above each eye; no tentacle but small tubercles scattered over the entire surface of head (Fig. 6) ..... Harpagifer kerguelensis (Kerguelen Islands)



H. kerguelensis Fig. 6

LIST OF SPECIES OCCURRING IN THE AREA :

Harpagifer antarcticus Nybelin, 1947
Harpagifer bispinis (Schneider, 1801)
Harpagifer georgianus georgianus Nybelin, 1947 (= H. georgianus marionensis Nybelin, 1947)
Harpagifer georgianus palliolatus Richardson, 1845
Harpagifer kerguelensis Nybelin, 1947
Harpagifer spinosus Hureau et al., 1980

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

LIPA

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

LIPARIDIDAE

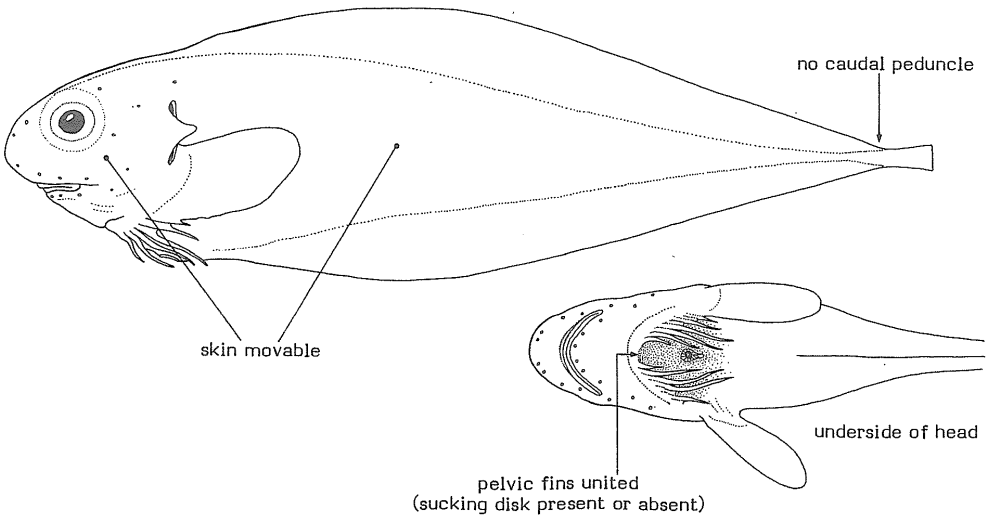
Snailfishes

Small to moderate-sized fishes (rarely up to 70 cm). Body cavity short, usually less than a half of standard length; tail part moderately or greatly elongated, compressed. Second suborbital bone styliform, not widened posteriorly, joined to the preopercle; teeth in jaws trilobed or simple, in bands, rarely uniserial or absent; teeth on vomer and palatines (roof of mouth) absent; pharyngeal teeth in one pair of patches; gill openings small, usually not extending lower than base of upper pectoral fin lobe, may be pore-like; gill 3 1/2, no slit behind the last; pseudobranchiae rudimentary or absent, branchiostegals 6, rarely 5. A single long dorsal fin, sometimes notched anteriorly, of 31 to 82 unbranched rays, the anterior ones not segmented; anal fin similar to the dorsal, with 25 to 76 rays; dorsal and anal fins usually overlapping caudal fin to some degree; no caudal peduncle; pectoral radials 4, 3 or 2, incised or rounded (in specialized forms); pectoral fins very broad-based, of 14 or 15 rays, forming a distinct lower lobe; pelvic fins, if present, with 1 spine and 5 soft rays, the fins united, forming a sucking disc, which is large in shallow-water species but usually reduced or absent in the midwater and deep-sea species; number of principal caudal fin rays 10-12 to 2; procurrent rays often reduced or absent. Skin movable with a more or less developed underlying gelatinous layer ("pseudotissue" Burke, 1930), naked or with prickles, but without bony tubercles. Lateral line on body never consists of canals with pores, but is represented by free neuromasts or indistinguishable. Pyloric caeca numerous (about 200 to 300) or in moderate number (3 to 70), rarely absent. No air bladder. Vertebrae 35 to 86. Two hypurals, separated or fused into one plate; epurals 2, often only one rudimentary or absent.

Colour highly variable in shallow-water species, mottled, spotted, with crossbars or longitudinal stripes. Deeper-living species are more uniformly coloured, pinkish, red or brown to black. Some abyssal and hadal species loose their pigmentation completely.

The Liparididae are marine fishes, widely distributed in cold and temperate waters of both hemispheres, occasionally occurring in the tropics. More than 210 species belonging to 20 genera are known to date (not including new genera and species discovered recently, but not yet published). The greatest species diversity occurs in the North Pacific and in the Antarctic and adjacent waters. The Fishing Areas 48, 58 and 88 comprise four genera with about 30 species.

Snailfishes are mainly bottom-dwellers, partly inhabiting also midwaters. Their bathymetric limits are very wide, from the tidal zone to more than 7 000 m depth, and in the Antarctic, from 100 to 5 500 m. The eggs are large and demersal (to 5 mm diameter); the fecundity is low. Many species are common in cold water below zero (to -1.9°C), but blood antifreezes are not found in the high Antarctic species Paraliparis devriesi Andriashev (DeVries, 1977). None of the species appear to be of commercial value.



SIMILAR FAMILIES OCCURRING IN THE AREA :

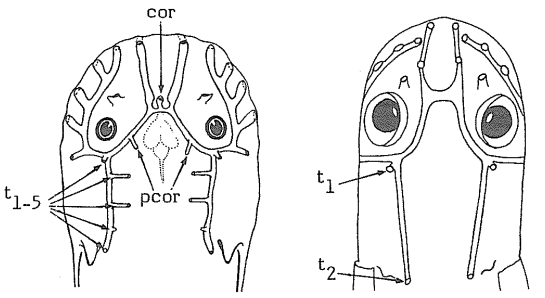
Zoarcidae (Melanostigma, Oidiphorus, etc.): no connection of second suborbital bone to preopercle; base of pectoral fin narrow, always less than length of jaw; dorsal and anal fins completely confluent with caudal fin.

Zoarcidae (Melanostigma)

KEY TO GENERA OCCURRING IN THE AREA :

1a. Ventral sucking disc present, not rudimentary

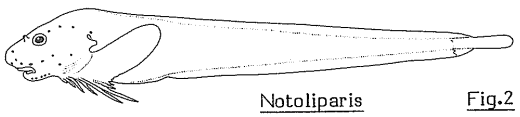
2a. One unpaired coronal pore (cor) and one pair of postcoronal pores (pcor) present in supraorbital canals (Fig.1a); 4 or 5 pores in temporal canal (t_{1-5}). Eye very small, 2.2 to 2.6% of standard length. Entire body without pigmentation (Fig.2). Inhabits hadal trenches, at about 5 000 to 8 000 m depth ..... Notoliparis



a) Notoliparis b) Careproctus

top of head showing pores and canals Fig.1

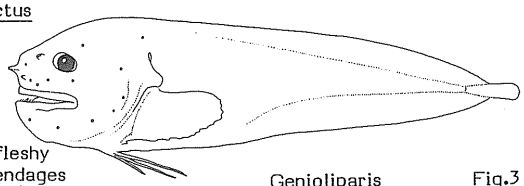
2b. Coronal and postcoronal pores absent; temporal pores reduced in number, usually to one postorbital and 1 or 2 terminal (suprabranchial) pores (Fig.1b). Eye not reduced, about 4 to 5% of standard length or more. Body pigmented, usually pinkish to red, brown or black. Inhabits mostly the shelf and slope (bathyal zone) and adjacent abyssal depths ..... Careproctus



Notoliparis Fig.2

1b. Ventral sucking disc absent

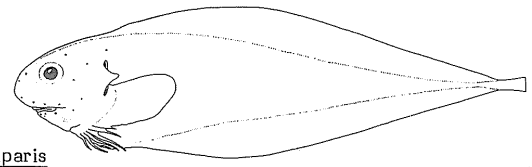
3a. Front part of snout with a transversal row of five fleshy barbel-like appendages. Skin of head, body and fins densely covered with small, sharp prickles. Teeth in posterior rows comparatively large, sharpened, canine-like, curved inward. Two separate hypurals present in urostyle vertebrae ... Genioliparis (Fig.3)



Genioliparis Fig.3

underside of head

3b. Snout without any barbel-like appendages. Skin smooth, without prickles. No canine-like, curved teeth. A single hypural plate present in urostyle vertebrae (remains of an interhypural slit may be discernible in few species) ..... Paraliparis (Fig.4)



Paraliparis Fig.4

LIST OF SPECIES OCCURRING IN THE AREA :

Careproctus georgianus Lönnberg, 1905
* Careproctus sp.n. 1 (South Shetland Islands, depth: 750 to 850 m)
* Careproctus sp.n. 2 (South Shetland Islands, depth: 570 to 583 m)
* Careproctus sp.n. 3 (South Georgia Island, depth: 500 to 600 m)

Genioliparis lindbergi Andriashev & Neelov, 1976

Notoliparis kurchatovi Andriashev, 1975
Notoliparis macquariensis Andriashev, 1978

Paraliparis antarcticus Regan, 1914
Paraliparis copei gibbericeps Andriashev, 1982
Paraliparis copei kerguelensis Andriashev, 1982
Paraliparis devriesi Andriashev, 1980
Paraliparis gracilis Norman, 1930
Paraliparis leobergi Andriashev, 1982
Paraliparis meganchus Andriashev, 1982
Paraliparis monoporus Andriashev & Neelov, 1979
Paraliparis neelovi Andriashev, 1982
Paraliparis operculosus Andriashev, 1982
Paraliparis somovi Andriashev & Neelov, 1979
Paraliparis terraenovae Regan, 1916
Paraliparis tetrapteryx Andriashev & Neelov, 1979
Paraliparis thalassobathyalis Andriashev, 1982
Paraliparis valentinae Andriashev & Neelov, 1985
Paraliparis spp.n. 1,2,3 (East Antarctica, depths: 950 to 1 100 m; 900 to 960 m; 980 to 1 080 m, respectively. In press)
Paraliparis spp.n. 4,5,6 (east of South Georgia Island, depth: 2 600 m. In press)
Paraliparis sp.n. 7 (southern part of Weddell Sea, depth: 550 m. In press)
Paraliparis sp.n. 8 (Antarctic Peninsula, depth: 210 to 260 m. In press)

Prepared by A.N. Andriashev, Zoological Institute, Academy of Sciences, Leningrad, USSR.

* Descriptions of Careproctus spp.n. 1 to 3 are in preparation

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

MACROURIDAE

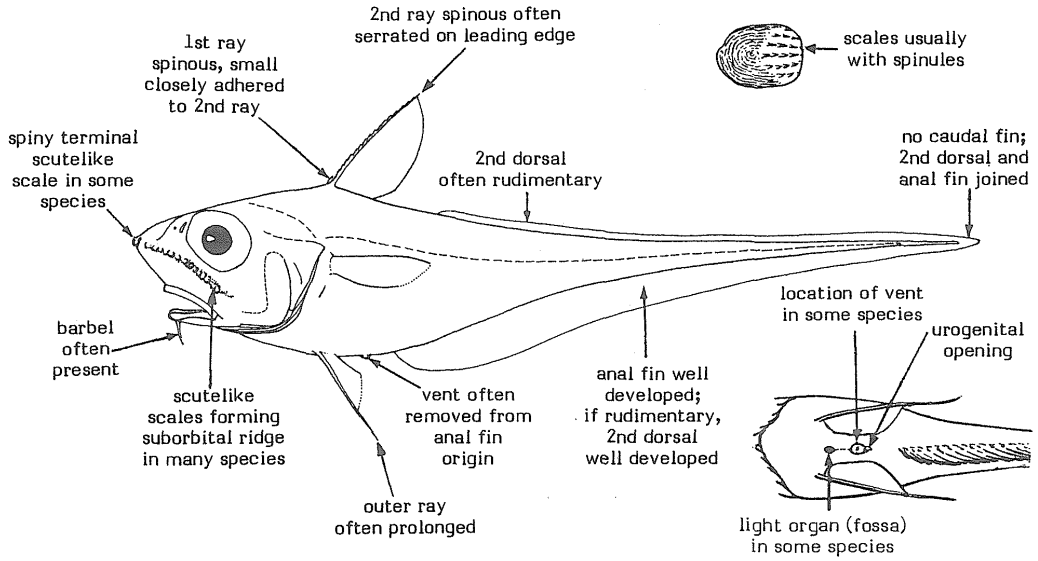
(sometimes Coryphaenoididae and Macrouroididae, in part, in literature)

Grenadiers

Trunk short, moderately compressed; tail greatly elongated, tapering to a point that usually lacks a caudal fin*. Head shape compressed, rounded or cylindrical, with a bluntly rounded to sharply pointed snout; mouth terminal to inferior, small to moderate in size; chin barbel usually present; eyes moderate to very large in most; teeth on premaxilla and mandible only, none on roof of mouth; arrangement variable, in single row to broad villiform band, sometimes with outer series enlarged; gillrakers tubercular in most, long and slender in some; branchiostegal rays 6 or 7. Dorsal fins two except in Macrouroidinae with one; first dorsal with the 2 anteriormost rays spinous except in Trachyrhyncus and Macrouroidinae; first ray often minute and closely appressed to base of long second ray; second dorsal and anal fins long, usually with more than 80 rays, both fins meet at tip of tail; pectoral fins narrow-based, positioned relatively high on trunk; pelvic fins narrow-based, thoracic to almost jugular in position, with 5 to 17 rays , outer ray often prolonged. Vent (or anus) closer to pelvic fins than to anal fin in some species; a light organ sometimes present on ventral midline of abdomen. Scales cycloid, but exposed field of each scale often covered with spinules, which are sometimes arranged in ridge-like rows; a stout, terminal, scute-like scale at tip of snout in some species; ridge-like rows of coarse, scute-like scales sometimes present on head.

Colour: usually grey, brown, or blackish, sometimes with a blue or violet tinge; some silvery along sides.

Deep-sea fishes, almost all benthopelagic in habit, found primarily at upper continental slope depths of 150 (rare) to 2 000 m, but a few species recorded from below 5 000 m. Distribution of family worldwide, except in high Arctic waters; species most numerous in tropics.



* Trachyrhyncus has a small caudal fin; other species may develop what appears to be a caudal fin when the tail tip is broken off and the dorsal and anal rays overgrow the broken end

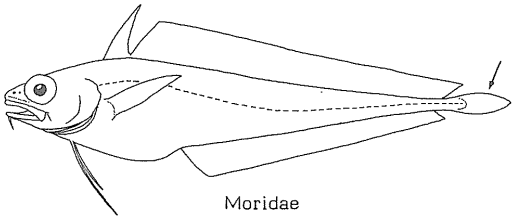
** Macrouroides, placed in Macrouroididae by some, lacks a pelvic fin

SIMILAR FAMILIES OCCURRING IN THE AREA :

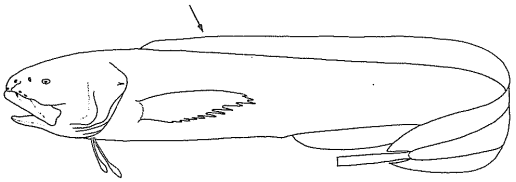
Moridae: a small but distinct caudal fin; both anal and second dorsal fins well developed, not confluent around tip of tail.

Ophidiidae, Zoarcidae and Carapidae : a single, spineless dorsal fin.

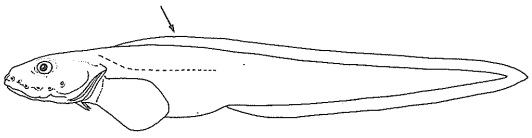
Muraenolepididae: first dorsal fin consisting of a single filamentous ray; gill openings restricted to area below pectoral fin.



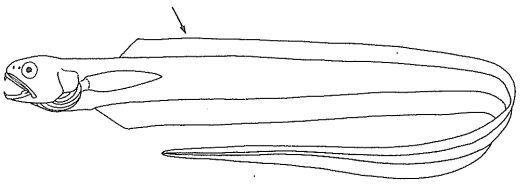
Moridae



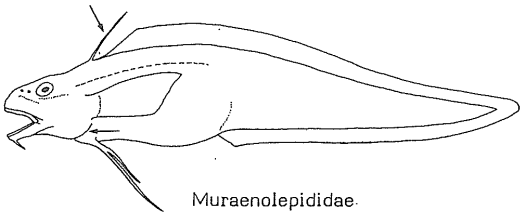
Ophidiidae



Zoarcidae



Carapidae



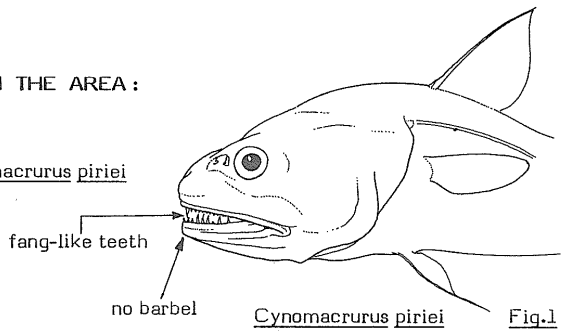
Muraenolepididae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA :

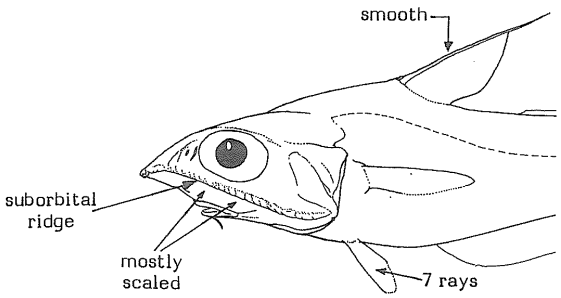
1a. Large fang-like teeth in both jaws (Fig.1); no chin barbel; colour black overall; bathypelagic ..... Cynomacrurus piriei

1b. Teeth small or slightly enlarged, not fang-like; chin barbel present; colour greyish-white to dark brown; benthopelagic

2a. Pelvic rays 7; a scaleless black fossa on belly or chest (Figs 3,5); second spinous ray of first dorsal fin smooth; a sharp spiny suborbital ridge extending from tip of snout to preopercular angle (Figs 2,4) (Coelorhynchus)



Cynomacrurus piriei Fig.1



Coelorhynchus marinii Fig.2

3a. Most ventral surfaces of head scaled (Fig.2); a large oval or lens-shaped black scaleless fossa on midline of chest, far removed from vent (Fig.3) ..... Coelorhynchus marinii

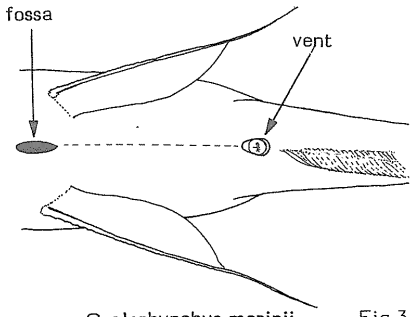
3b. Ventral surfaces of head scaleless (Fig.4); a large, lens-shaped, black, scaleless fossa on abdomen immediately before vent (Fig.5) ..... Coelorhynchus fasciatus

2b. Pelvic rays 8 to 12; no scaleless black fossa on belly or chest; second spinous ray of first dorsal fin denticulate (Fig.6) (denticulations weak or obsolete in larger specimens of some species); suborbital ridge rounded, not continuous to angle of preopercle

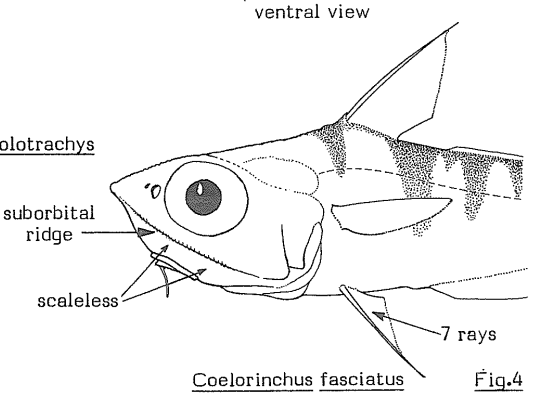
4a. Orbits large, about 3 times in head length (Fig.7) ..... Macrourus holotrachys

4b. Orbits moderate to small, more than 4 times in head length (Figs 8 to 11)

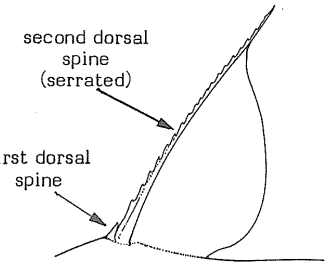
5a. Barbel thin and short, its length less than half of orbit diameter (Fig.8); scales either completely devoid of spinules, or spinules few, applied as small, greatly reclined points ..... Lionurus filicauda



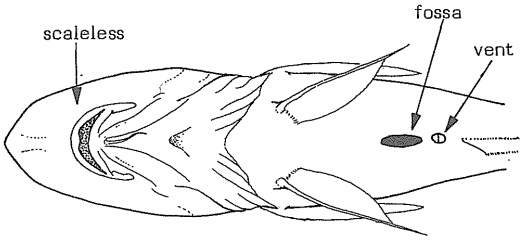
Coelorhynchus marinii Fig.3
ventral view



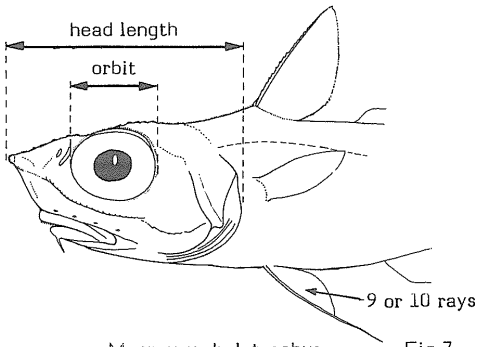
Coelorinchus fasciatus Fig.4



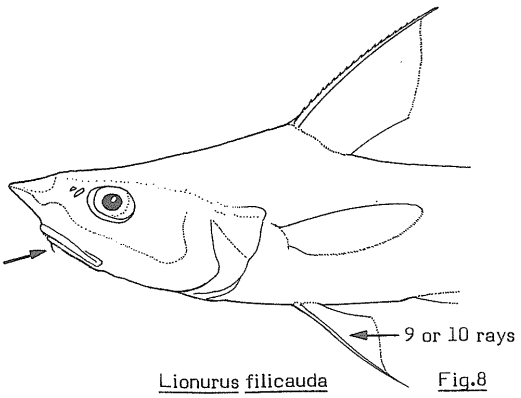
dorsal fin Fig.6



Coelorhynchus fasciatus Fig.5
ventral view



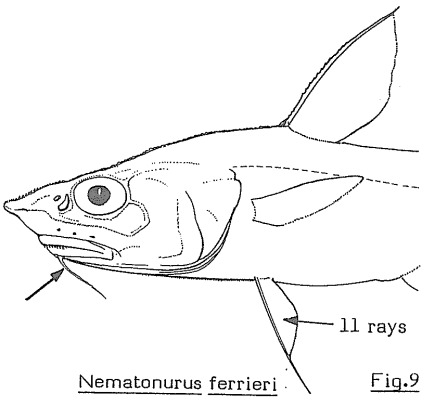
Macrourus holotrachys Fig.7



Lionurus filicauda Fig.8

5b. Barbel thick (at least at base), its length much more than half of orbit diameter (Figs 9 to 11)

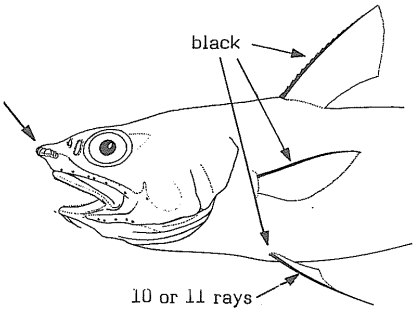
6a. Premaxillary dentition relatively slender, conical, without arrowhead-like tips, in irregular bands; scales relatively firm, strongly adherent (Fig.9) ..... Nematonurus ferrieri



Nematonurus ferrieri Fig.9

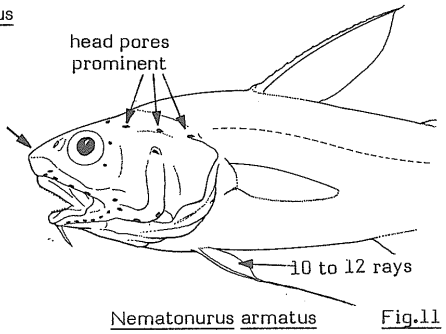
6b. Premaxillary dentition stoutly conical, with arrowhead-like tips, teeth in 1 or 2 distinct rows; scales thin, deciduous, with small low spinules

7a. General body colour whitish; serrated spinous ray in first dorsal, uppermost first pectoral ray and outermost first pelvic ray black, remainder of fin rays whitish or pale; sensory pores on head not well developed; snout narrow and rather sharply pointed; most ventral surfaces of head, including mandibular rami, scaled (Fig.10).. Nematonurus lecointei



Nematonurus lecointei Fig.10

7b. General body colour brown; all fin rays brownish to black; sensory pores on head large, prominent; snout broad, bluntly rounded; most ventral surfaces of head scaleless (Fig.11) ..... Nematonurus armatus



Nematonurus armatus Fig.11

LIST OF SPECIES OCCURRING IN THE AREA :

Code numbers are given for those species for which Identification Sheets are included

Coelorhynchus fasciatus (Günther, 1878)	MACROUR Coel 2
Coelorhynchus marinii Hubbs, 1934	MACROUR Coel 3
Cynomacrurus piriei Dollo, 1909	MACROUR Cyn 1
Lionurus filicauda (Günther, 1878)	
Macrourus holotrachys Günther, 1878	MACROUR Macr 1
Nematonurus armatus (Hector, 1875)	MACROUR Nem 1
Nematonurus ferrieri (Regan, 1913)	
Nematonurus lecointei (Dollo, 1900)	

Prepared by T. Iwamoto, Department of Ichthyology, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, USA and P. Geistdoerfer, Muséum national d'Histoire naturelle, Ichtyologie générale et appliquée, Paris, France

MACROUR Coel 2

1985

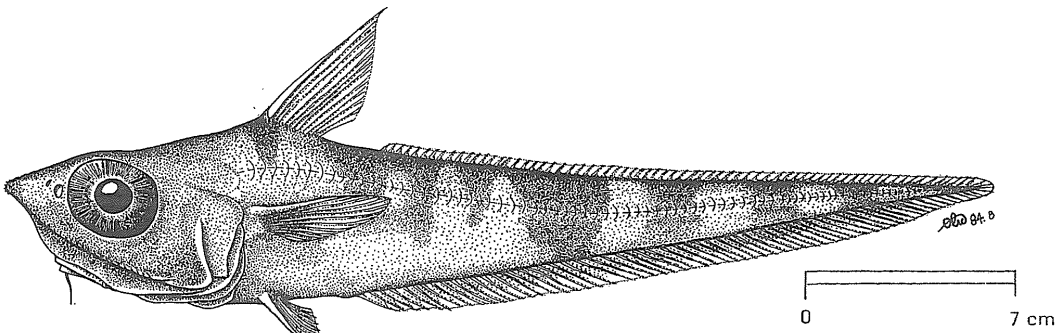
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MACROURIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Coelorhynchus fasciatus (Günther, 1878)

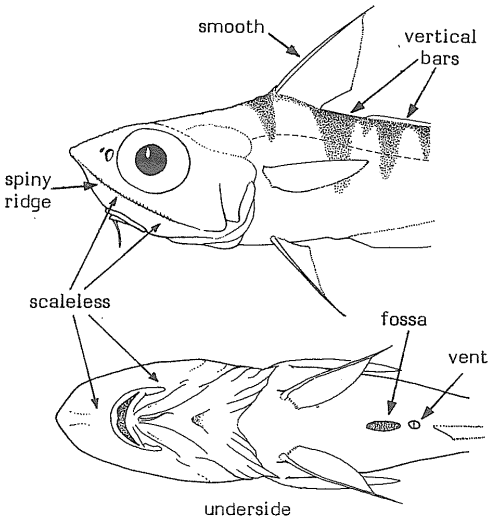
OTHER SCIENTIFIC NAMES STILL IN USE : Coelorinchus fasciatus (Günther, 1878)



VERNACULAR NAMES :

FAO/CCAMLR : En - Southern grenadier
Fr - Grenadier austral
Ru - Dolgokhvost polosatyi
Sp - Granadero austral

NATIONAL :



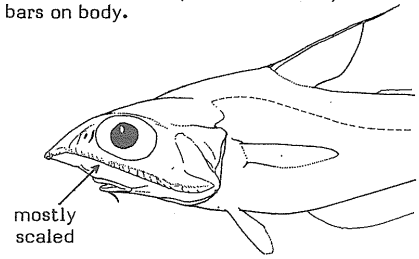
DISTINCTIVE CHARACTERS :

Mouth small, subterminal; snout bluntly pointed; a stout spiny ridge extends from snout tip to angle of preopercle; orbits large, equal to or larger than post-orbital length; ventral surfaces of head scaleless. Vent slightly removed from anal fin, preceded by a large, lens-shaped black scaleless fossa. Second spinous dorsal fin ray smooth; pelvic fins with 7 rays. No outer series of gillrakers on first (outer) gill arch.

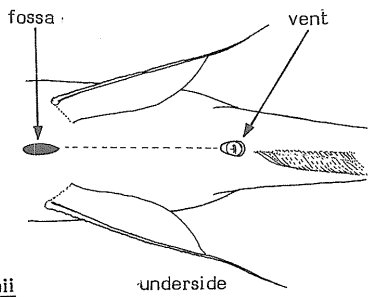
Colour: tawny to brownish, about 7 or 8 broad vertical bars across body.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Coelorhynchus marinii: ventral surfaces of head mostly scaled; scaleless fossa present on chest between pelvic fin bases; no vertical bars on body.

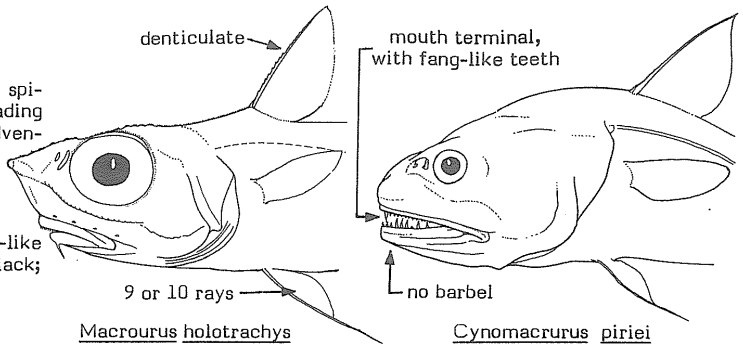


Coelorhynchus marinii

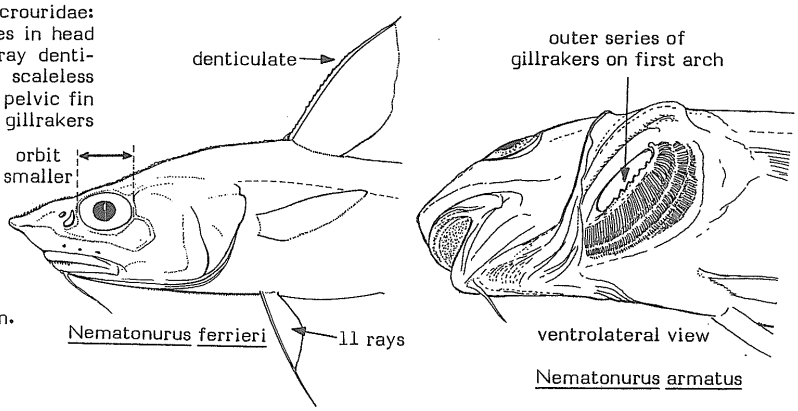


Macrourus holotrachys: second spinous dorsal ray denticulate on leading edge; no scaleless black fossa on midventral line; pelvic fin rays 9 or 10.

Cynomacrurus piriei: fang-like teeth on jaws; no barbel; colour black; mouth terminal; bathypelagic.



Other species of Macrouridae: orbits smaller, 4 or more times in head length; second spinous dorsal ray denticulate on leading edge; no scaleless black fossa on midventral line; pelvic fin rays 9 to 12; outer series of gillrakers present on first arch.



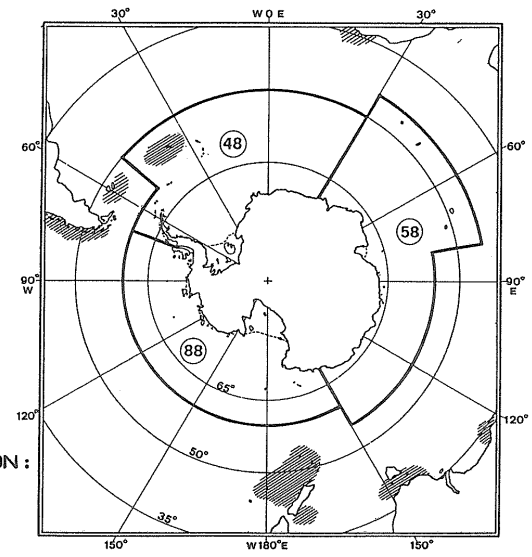
SIZE :

Maximum: to about 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Although so far only reported from the southernmost parts of South America, Africa, Australia and New Zealand, this species most probably occurs within the area.

Found at depths from about 150 m to more than 1 000 m.



POTENTIAL FISHING GROUNDS :

Continental slope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species. It is taken (often in large quantities) as a bycatch of the commercially important hake (Merluccius) off Patagonia and southern Africa.

MACROUR Coel 3

1985

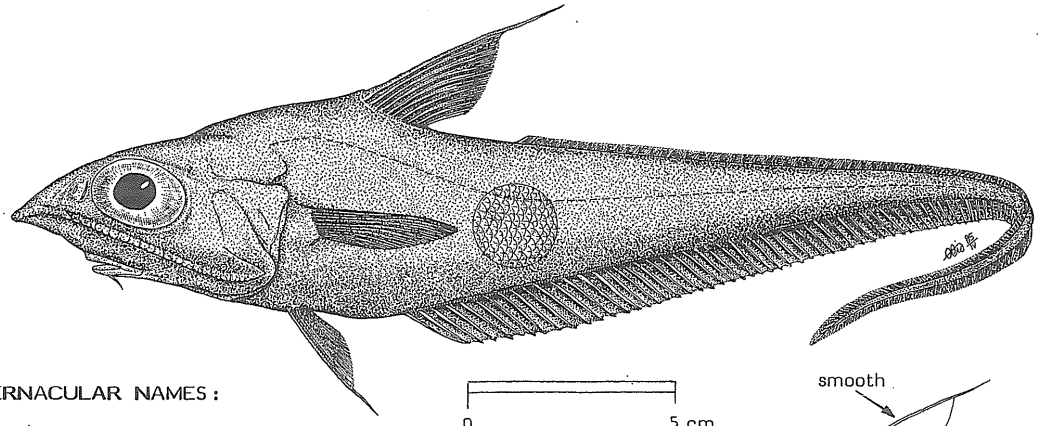
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MACROURIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Coelorhynchus marinii Hubbs, 1934

OTHER SCIENTIFIC NAMES STILL IN USE : Coelorinchus marinii Hubbs, 1934



0 5 cm

VERNACULAR NAMES :

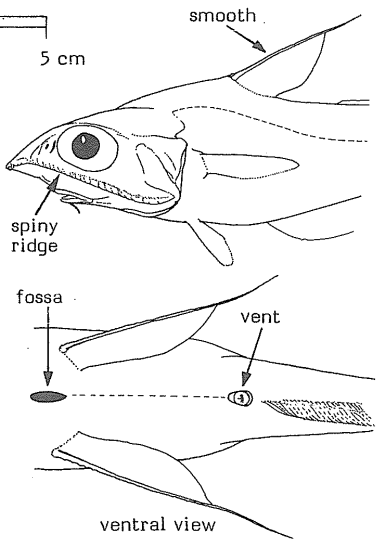
FAO/CCAMLR : En - Marini's grenadier
Fr - Grenadier de Marini
Ru - Dolgokhvost marini
Sp - Granadero de Marini

NATIONAL :

DISTINCTIVE CHARACTERS :

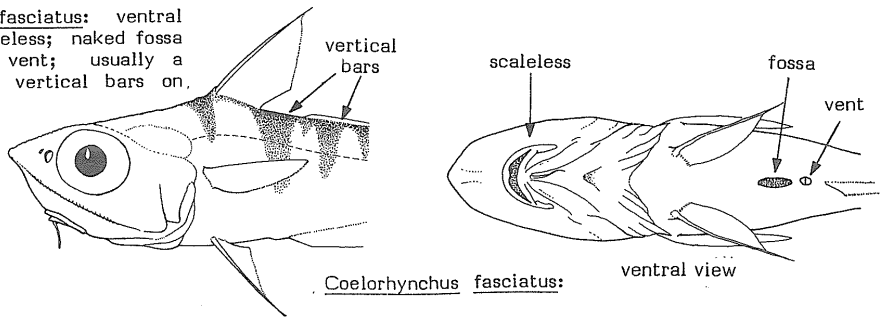
Mouth small, subterminal; snout pointed, divided into dorsal and ventral halves by a stout spiny ridge which extends from snout tip to angle of preopercle; orbits large, about equal to or larger than postorbital length; most ventral surfaces of snout scaled. Vent close before anal fin; a large oval or lens-shaped, black, scaleless fossa on midline of chest, far removed from vent. Second spinous dorsal fin ray smooth; pelvic fins with 7 rays. No outer series of gillrakers on first (outer) gill arch.

Colour: brownish, head and trunk ventrally blackish. Fins dusky to blackish.



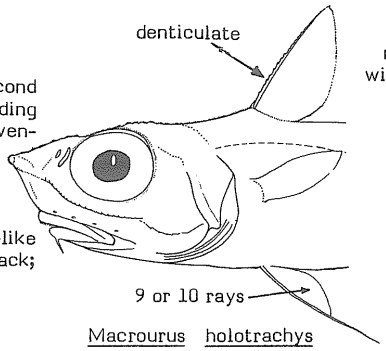
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Coelorhynchus fasciatus: ventral surfaces of head scaleless; naked fossa immediately before vent; usually a series of prominent vertical bars on body.

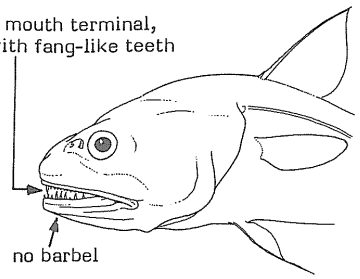


Macrourus holotrachys: second spinous dorsal ray denticulate on leading edge; no scaleless black fossa on midventral line; pelvic fin rays 9 or 10.

Cynomacrurus piriei: fang-like teeth in jaws; no barbel; colour black; mouth terminal; bathypelagic.

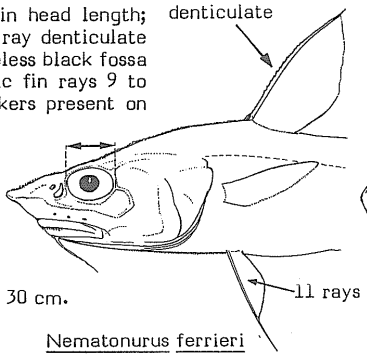


Macrourus holotrachys

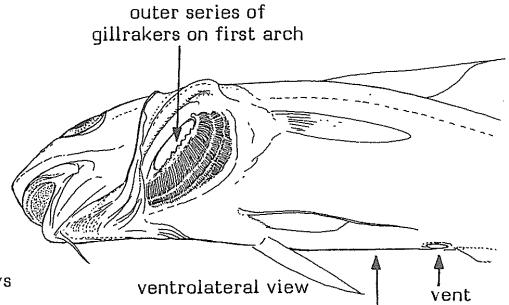


Cynomacrurus piriei

Other species of Macrouridae: orbits 4 or more times in head length; second spinous dorsal fin ray denticulate on leading edge; no scaleless black fossa on midventral line; pelvic fin rays 9 to 12; outer series of gillrakers present on first arch.



Nematonurus ferrieri



Nematonurus armatus

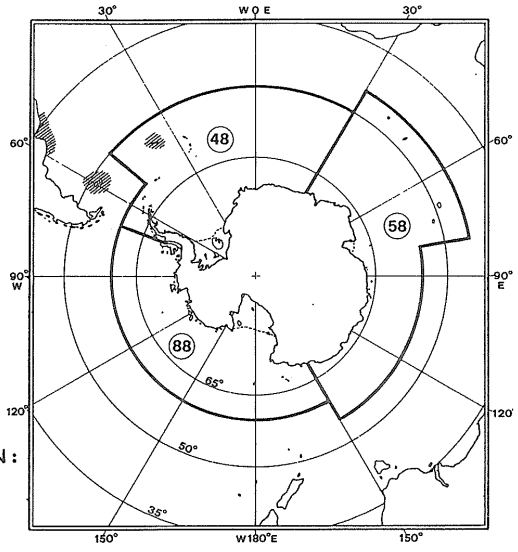
SIZE :

Maximum: to about 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Western Atlantic south of Uruguay to the Falkland/Malvinas and South Georgia.

Found at depths of about 300 m (probably 200 to 500 m).



POTENTIAL FISHING GROUNDS :

Continental slope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species. At present it is taken almost exclusively by research vessels in bottom trawls from deep waters and incidentally in the bycatch of vessels fishing for the Patagonian hake (Merluccius hubbsi).

MACROUR Cyn 1

1985

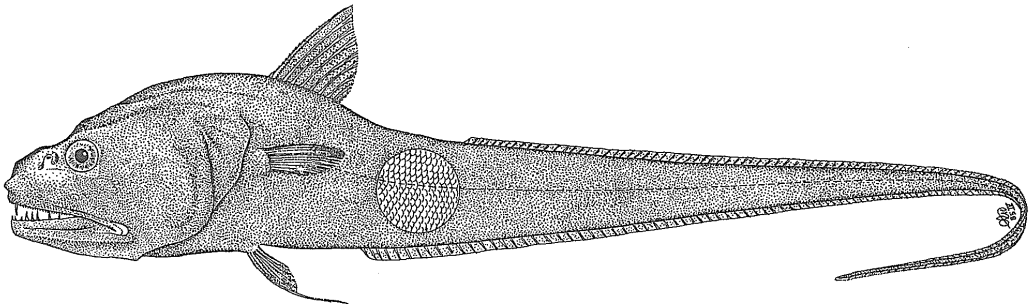
FAO SPECIES IDENTIFICATION SHEETS

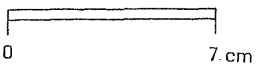
FAMILY : MACROURIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Cynomacrurus piriei Dollo, 1909

OTHER SCIENTIFIC NAMES STILL IN USE : None





VERNACULAR NAMES :

FAO/CCAMLR : En - Dogtooth grenadier
Fr - Grenadier denté
Ru - Dolgokhvost Pirri
Sp - Granadero dentón

NATIONAL :

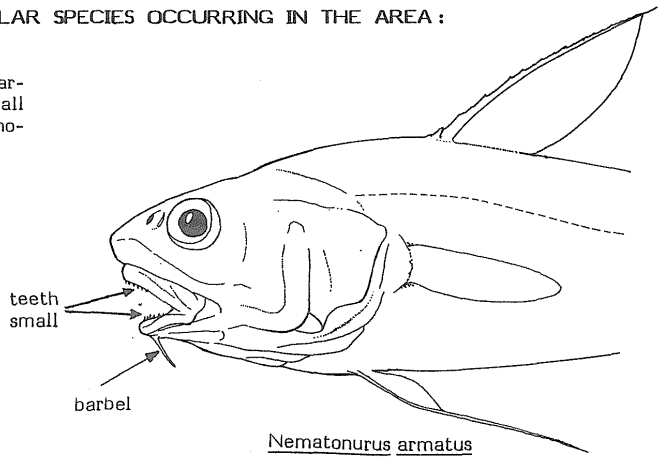
DISTINCTIVE CHARACTERS :

Mouth large and terminal; barbels absent; upper jaw with a narrow band of small pointed teeth, and a strong pair of anterolateral canines; lower jaw with 7 to 11 (in adults) strong, unequal, well-spaced and uniserial teeth; eye small (less than 15% of head length). Pelvic fins with 7 or 8 rays. Scales with diverging rows of spinules. Vent just before anal fin; no light organ.

Colour: brownish. Mouth and branchial cavities black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

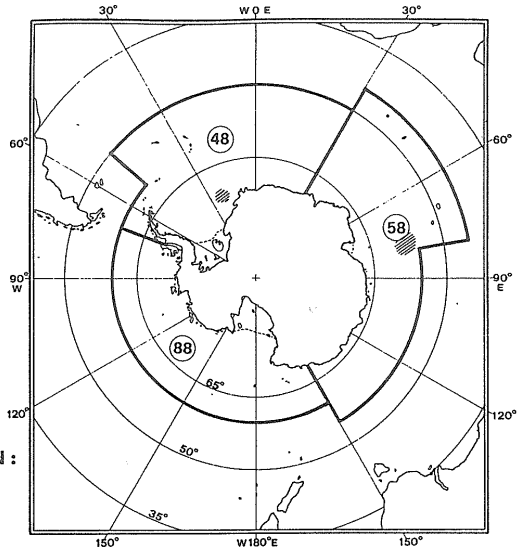
Other species of Macrouridae: chin barbel present; mouth subterminal; teeth small or slightly enlarged, not fang-like; benthopelagic.



Nematonurus armatus

SIZE :

Maximum: 31 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Weddell Sea and Banzare Bank, but probably circum-Antarctic. Bathypelagic, to depths of about 3 800 m.

POTENTIAL FISHING GROUNDS :

Continental slope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species. At present it is taken almost exclusively by research vessels in bottom trawls from deep waters.

MACROUR Macr 1

1985

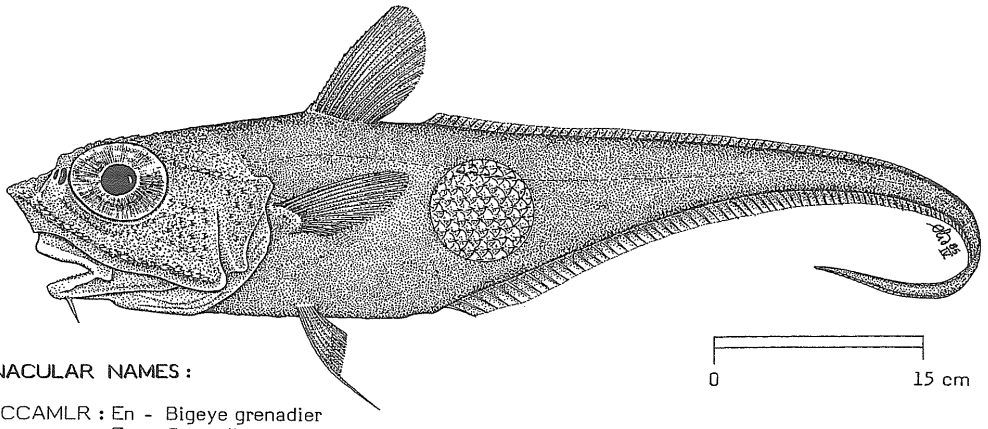
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MACROURIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Macrourus holotrachys Günther, 1878

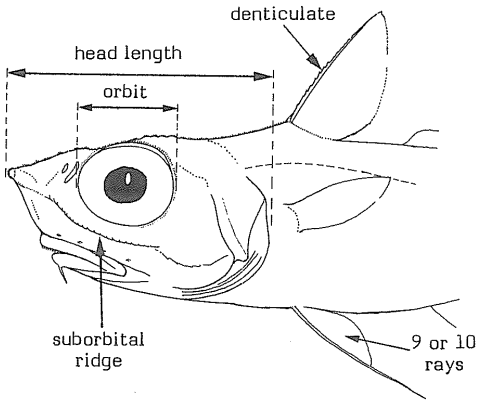
OTHER SCIENTIFIC NAMES STILL IN USE : Macrourus carinatus Günther, 1878
Macrourus whitsoni Regan, 1913



VERNACULAR NAMES :

FAO/CCAMLR : En - Bigeye grenadier
Fr - Grenadier grosyeux
Ru - Bolsheglazyi dolgokhvost
Sp - Granadero ojisapo

NATIONAL :



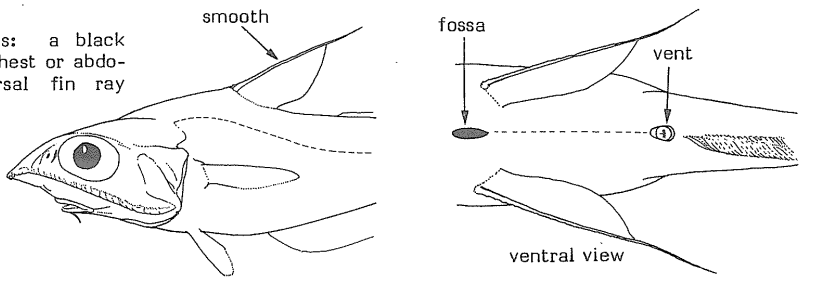
DISTINCTIVE CHARACTERS :

Mouth moderate in size, subterminal; snout bluntly pointed; a stout spiny ridge extends from snout tip to angle of preopercle; orbits large, about equal to or larger than postorbital length; ventral surfaces of snout mostly scaleless. Scales with prominent median row of spinules forming longitudinal striations on body surfaces. Vent close before anal fin; no ventral fossa. Second spinous dorsal fin ray denticulate; pelvic fins with 9 or 10 rays. No outer series of gillrakers on first (outer) gill arch.

Colour: light brown. Fins dusky to blackish.

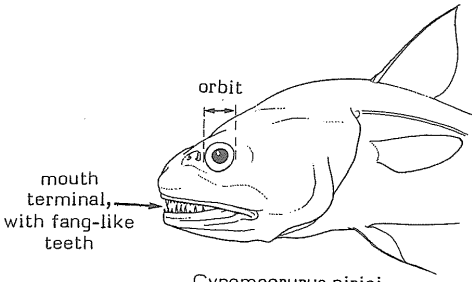
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Coelorhynchus species: a black scaleless fossa present on chest or abdomen; second spinous dorsal fin ray smooth.



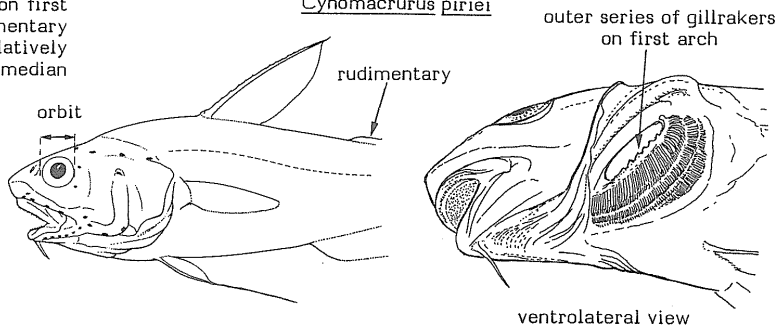
Coelorhynchus marini

Cynomacrurus piriei: fang-like teeth in jaws; colour black; mouth terminal; bathypelagic; orbits smaller.



Cynomacrurus piriei

Other species of Macrouridae: orbits 4 or more times in head length; outer series of gillrakers present on first gill arch; second dorsal fin rudimentary anteriorly; scale spinulation relatively fine, without an especially strong median ridge.



Nematonurus armatus

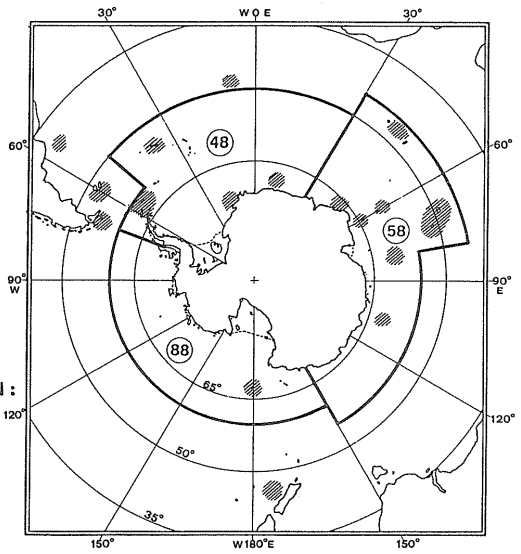
SIZE :

Maximum: to about 87 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circum-Antarctic and also from off Uruguay, southern tip of South America, Prince Edward Island and New Zealand.

Found at depths from 272 m to more than 1 200 m.



POTENTIAL FISHING GROUNDS :

Continental slope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species. At present it is taken almost exclusively by research vessels in bottom trawls from deep waters and incidentally in the bycatch of vessels fishing for the Patagonian hake (Merluccius hubbsi).

MACROUR Nem 1

1985

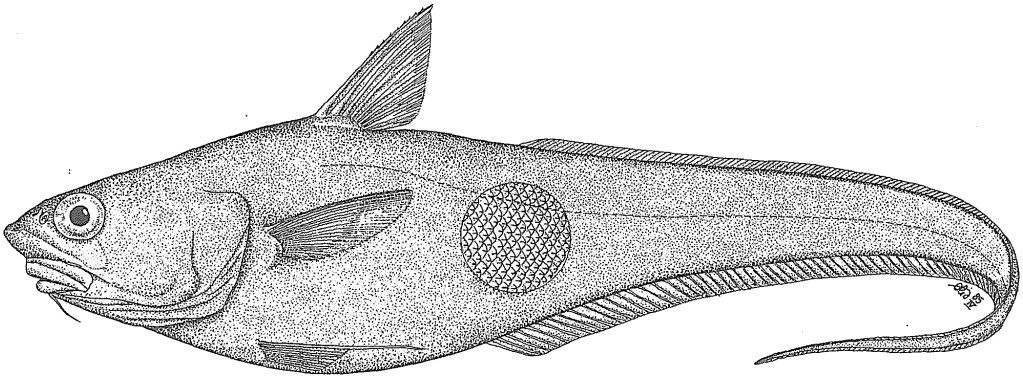
FAO SPECIES IDENTIFICATION SHEETS

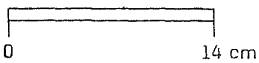
FAMILY : MACROURIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Nematonurus armatus (Hector, 1875)

OTHER SCIENTIFIC NAMES STILL IN USE : Coryphaenoides (Nematonurus) armatus (Hector, 1875)





VERNACULAR NAMES :

FAO/CCAMLR : En - Armed grenadier
Fr - Grenadier armé
Ru - Dolgokhvost vooruzhennyi
Sp - Granadero armado

NATIONAL :

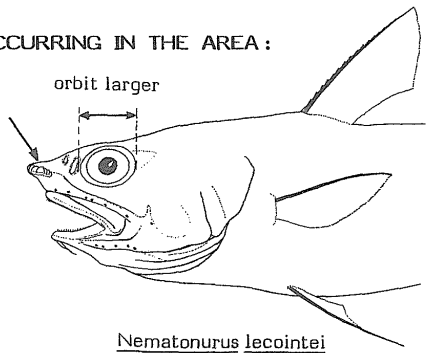
DISTINCTIVE CHARACTERS :

Mouth moderate, subterminal to inferior, upper jaw with teeth in two rows, the outer row enlarged; a single row of teeth in lower jaw; orbit relatively small, its diameter less than interorbital width and than length of snout (horizontal diameter of orbit ranges from 18.3 to 23% of head length); a pair of scaleless areas above snout, just behind the leading edge of snout; underside of snout scaleless. Origin of first dorsal fin well behind insertions of pectoral fins, with spinous ray of first dorsal fin serrated; pelvic fins with 10 or 11 rays. Scales with spines arranged in regular, parallel to divergent rows. Vent close before anal fin; no light organ.

Colour: brownish to reddish-brown. Fins brownish; mouth and branchial cavities blackish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

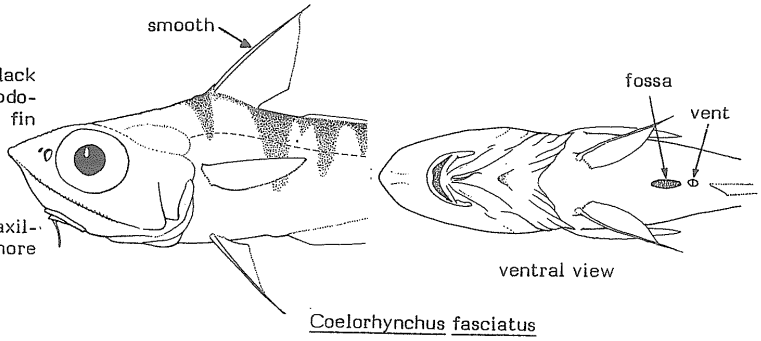
Nematonurus lecointei: snout narrow and rather sharp-pointed; diameter of orbit greater than interorbital width.



Nematonurus lecointei

Coelorhynchus species: a black scaleless fossa present on chest or abdomen; spinous ray of first dorsal fin smooth.

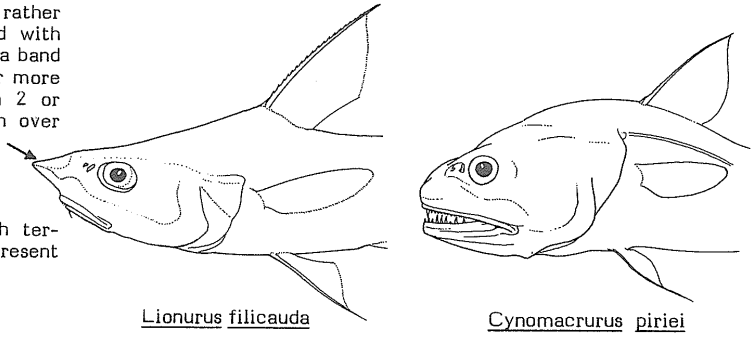
Nematonurus ferrieri: premaxillary teeth relatively slender and in more than 2 rows.



Coelorhynchus fasciatus

Lionurus filicauda: snout rather pointed, its tip and angles armed with tubercular scales; upper jaw with a band of pointed premaxillary teeth (3 or more near symphysis); lower jaw with 2 or more rows of small pointed teeth over anterior part of mandible.

Cynomacrurus piriei: mouth terminal; no barbel; fang-like teeth present in jaws; bathypelagic.

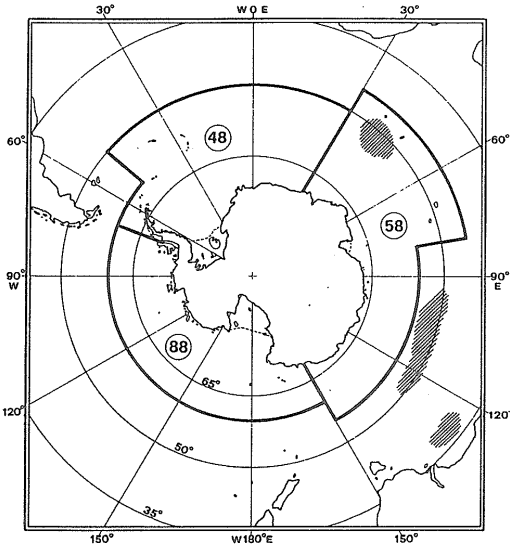


Lionurus filicauda

Cynomacrurus piriei

SIZE :

Maximum: to at least 80 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Antarctic Indian Ocean sector and off south Australia and New Zealand, probably circumantarctic; also in the Atlantic and Pacific oceans. Benthopelagic between 280 and 4 700 m.

Feeds on benthic crustaceans (amphipods, isopods, cumaceans), pelagic crustaceans (mysids, euphausiids); echinoderms, cephalopods and fishes.

POTENTIAL FISHING GROUNDS :

Continental slope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species. At present it is taken almost exclusively by research vessels in bottom trawls from deep waters.

MOR

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

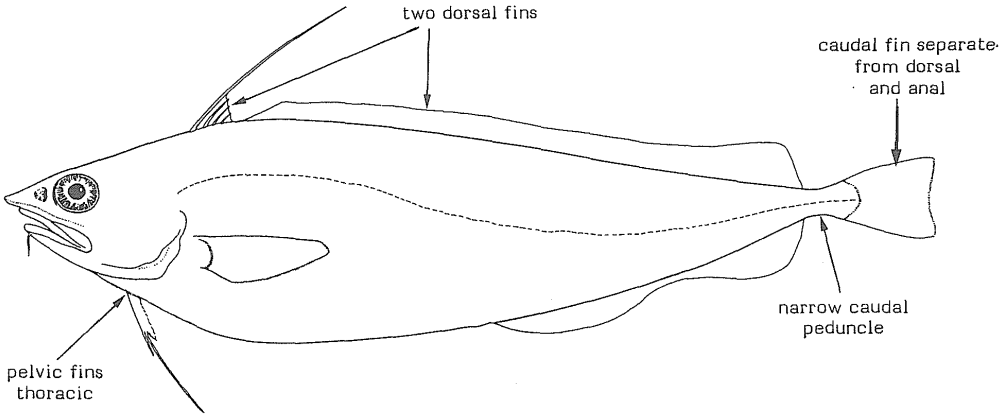
MORIDAE

Moras

Body elongate, tapering to a narrow caudal peduncle. Mouth terminal or inferior; a mental barbel present; teeth few or lacking on anterior part of vomer; gill openings wide. Sometimes ventral luminous organ present. No spines in fins; 2 or 3 dorsal fins, the first with a short base; 1 or 2 anal fins; pelvic fins thoracic, attached far in front of pectoral fins, never very close together; first dorsal fin and pelvic fins often with 1 or 2 elongate rays; caudal fin always separate from dorsal and anal fins. Small cycloid scales on body and head. Anterior paired projections of swimbladder attached to a membranous area at rear of cranium.

Colour: variable, black or grey to light-brown or pink; some species may have iridescent areas.

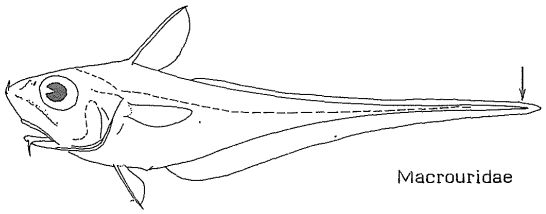
Small to large size fishes (up to 70 cm), found close to the bottom of the continental slope and in abyssal depths. Locally abundant in some habitats. About 20 genera, 3 in the area. Taken as bycatch in bottom trawls.

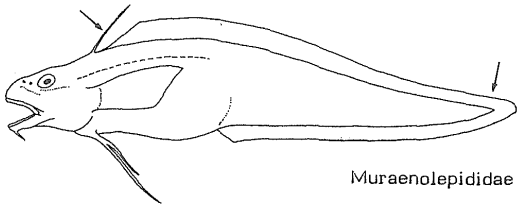


SIMILAR FAMILIES OCCURRING IN THE AREA :

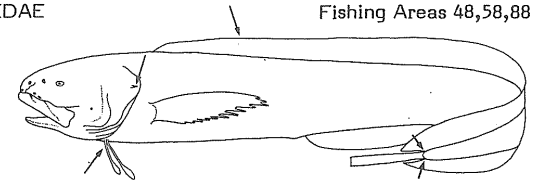
Macrouridae: body very elongate, tapering to a point; caudal fin generally lacking.

Muraenolepididae: body elongate, but dorsal, caudal and anal fins joined together, first dorsal fin with one elongate ray.



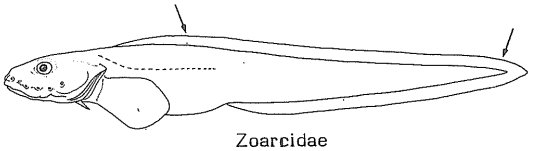


Ophidiidae: a single dorsal fin; pelvic fins close together; dorsal, caudal and anal fins joined together in most species; one opercular spine present.



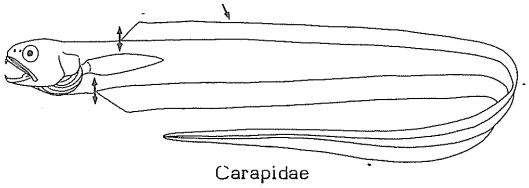
Ophidiidae

Zoarcidae: a single dorsal fin; dorsal and anal fins confluent with caudal fin.



Zoarcidae

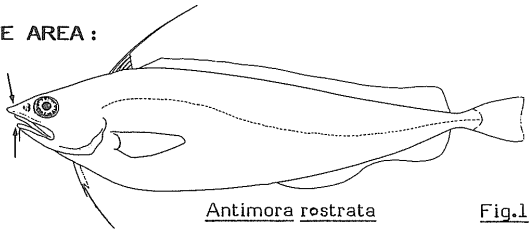
Carapidae: a single dorsal fin; anal fin origin in advance of dorsal origin and under pectoral fin.



Carapidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA:

1a. Mouth inferior, snout prominent, flattened, pointed and bony (Fig.1) ..... Antimora rostrata



Antimora rostrata Fig.1

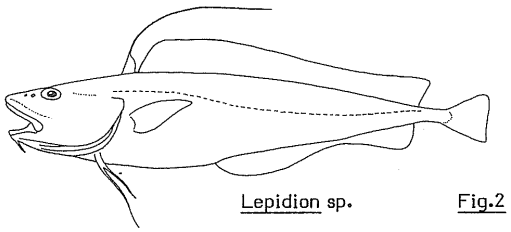
1b. Mouth terminal, snout normal

2a. First dorsal fin short, elevated and filamentous (Fig. 2) ..... Lepidion sp.

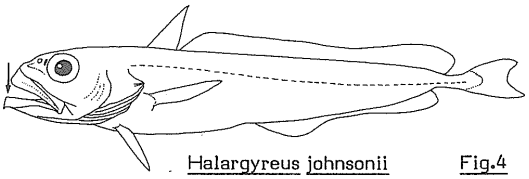
2b. First dorsal fin normal

3a. Only one anal fin (Fig.3) ..... Physiculus marginatus

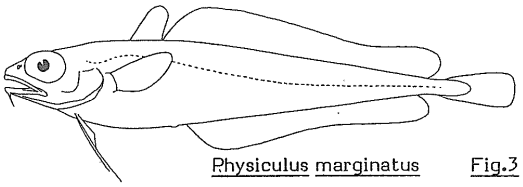
3b. Two joined anal fins (Fig.4) ..... Halargyreus johnsonii



Lepidion sp. Fig.2



Halargyreus johnsonii Fig.4



Physiculus marginatus Fig.3

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Antimora rostrata (Günther, 1878)	MOR Ant 1
Halargyreus johnsoni Günther, 1862	
Lepidion sp.	
Physiculus marginatus	

Prepared by G. Geistdoerfer and J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

* The Lepidion species occurring in the area need more accurate studies

MOR Ant 1

1985

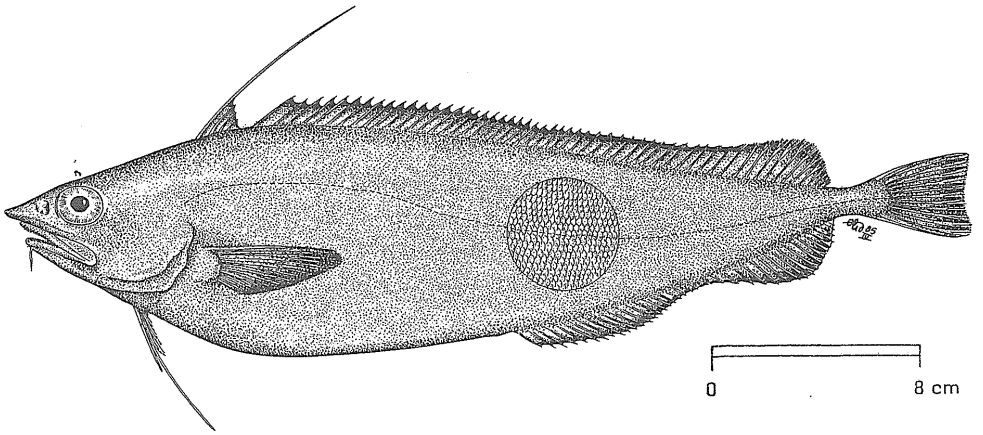
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MORIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Antimora rostrata (Günther, 1878)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Blue antimora
Fr - Antimore bleu
Ru - Antimora
Sp - Mollera azul

NATIONAL :

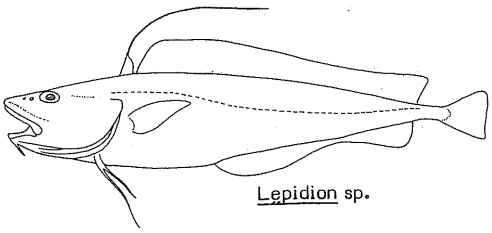
DISTINCTIVE CHARACTERS :

Snout pointed, rostrum flattened; mouth inferior; mental barbel well developed; teeth on both jaws villiform and pluriserial; teeth also present on anterior part of vomer (roof of mouth). Gillrakers relatively short, 76 to 90 on first arch. First dorsal fin short-based, its first ray elongate; second dorsal fin long, with more than 50 rays; anal fin deeply notched in its posterior part; pelvic fin rays 6, some elongate.

Colour: dark brown to black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Lepidion species: mouth terminal; pelvic fins with 7 or 8 rays (6 in A. rostrata); snout not pointed; colour grey. This genus has been recorded from Kerguelen, Crozet, Marion and Prince Edward islands.



Lepidion sp.

SIZE :

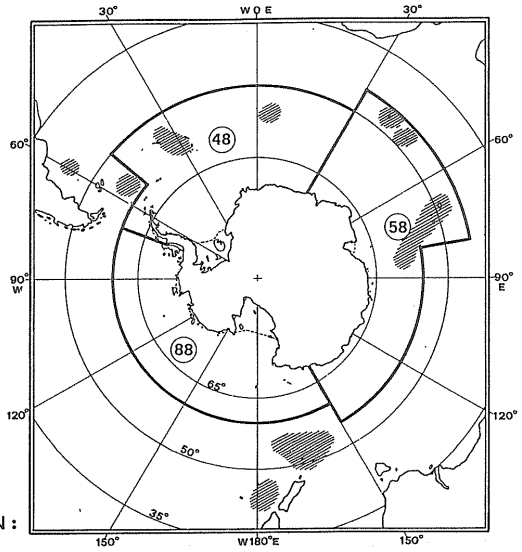
Maximum: over 60 cm; common to 40 cm; females attain greater sizes than males.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circum-Antarctic, found to the south of the Falkland/Malvinas Islands, off South Georgia and South Sandwich islands, around Bouvet, Marion, Prince Edward, Crozet, Kerguelen and Heard islands. This nearly cosmopolitan species (except north of 10^{0}N in the Pacific Ocean) can be locally very abundant.

A benthopelagic species on the continental slopes, from 400 m to over 3 000 m.

Feeds on pelagic crustaceans, cephalopods and other pelagic invertebrates.



POTENTIAL FISHING GROUNDS :

Not yet commercially exploited.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Caught only by research ships during deep trawling. General abundance apparently rather low.

MURAENOL

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

MURAENOLEPIDIDAE

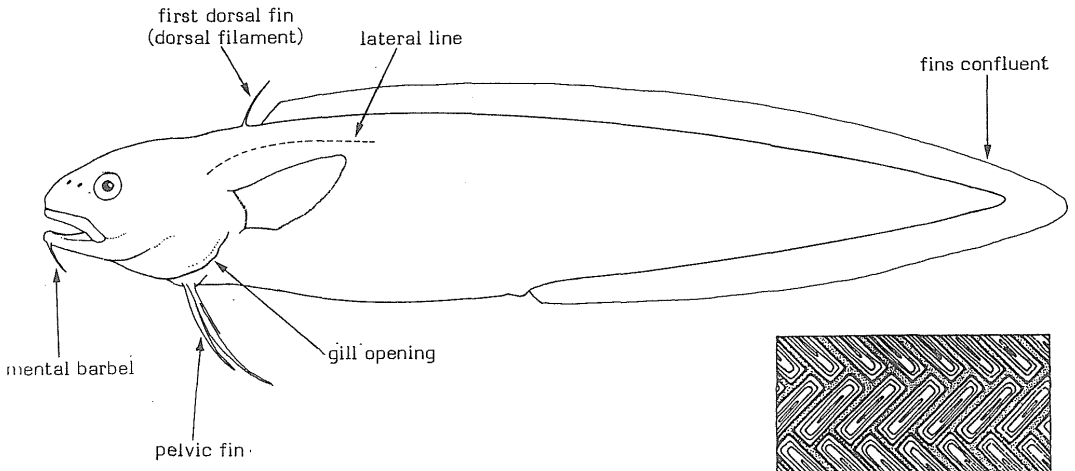
Moray cods

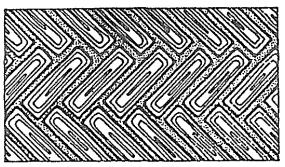
A somewhat anomalous group of fishes of the Order Gadiformes. Body long and compressed. Head small, with a mental barbel; gill openings restricted below the pectoral fins. No spines in fins; dorsal, caudal and anal fins joined together; 2 dorsal fins, the first with only 1 ray (dorsal filament); a single anal fin; pectoral fin rays 10 to 13; pelvic fins thoracic in position, with 5 rays, of which the 2 or 3 outer rays are prolonged and at least partially free. Lateral line not extending to hind part of body. Scales elongate, non-imbricate, set at right angles to each other, embedded in the skin which appears smooth.

Colour: greyish-brown to reddish, often with typical iridescent reflections.

The muraenolepids are restricted to the cold-temperate waters of the Southern Hemisphere. They were considered a typically Antarctic family by Andriashev (1965), but De Witt (1971) believes that they are more recent invaders of the Southern Ocean. The four species described in a single genus, Muraenolepis, are not well known and a revision of the family is needed.

Muraenolopids live near the sea bottom at moderate depths on the continental shelf and the upper part of the slope, but feed primarily on zooplankton. They are occasionally taken with bottom trawls, but none of the species present in the Southern Ocean appear to be of commercial importance at present.

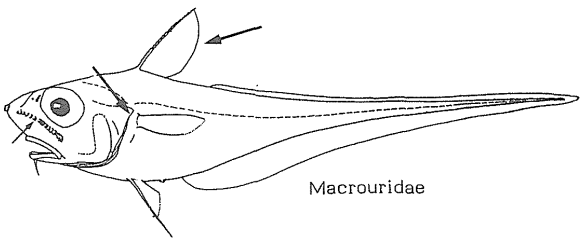




arrangement of scales
(schematic)

SIMILAR FAMILIES OCCURRING IN THE AREA:

Macrouridae: gill openings extending up to at least level of pectoral fins; first dorsal fin with more than one ray, the first two usually spinous; second dorsal fin often rudimentary; scales imbricate, cycloid or ctenoid, exposed field of each scale covered with spinules; ridge-like rows of course, scute-like scales often present on head.



Macrouridae

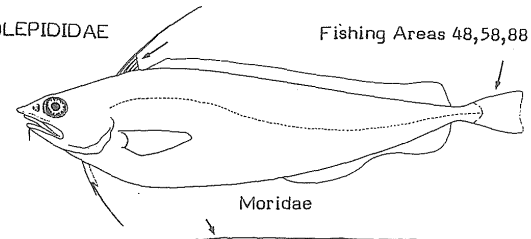
FAO Sheets

MURAENOLEPIDIDAE

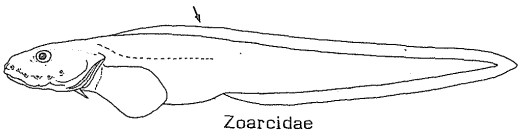
Fishing Areas 48,58,88

Moridae: some species superficially similar, but first dorsal fin with more than one ray, caudal fin not confluent with dorsal and anal fins, lateral line extending backward to base of caudal fin.

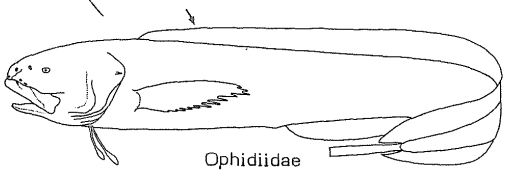
Ophidiidae and Zoarcidae: a single dorsal fin; no mental barbel; gill opening reduced to a pore or extending to upper edge of pectoral fin base.



Moridae



Zoarcidae



Ophidiidae

KEY TO SPECIES OCCURRING IN THE AREA:

1a. Lateral line reaching backward to below middle of second dorsal fin (Figs 1,2)

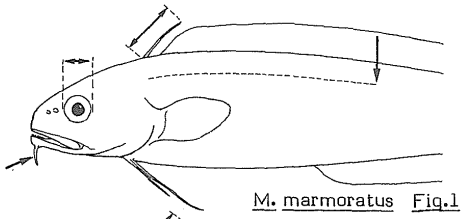
2a. Filament of first dorsal fin equal to, or a little longer than eye diameter; mental barbel shorter than eye diameter (Fig.1) ..... Muraenolepis marmoratus

2b. Dorsal filament 3 times longer than eye diameter; mental barbel equal to eye diameter (Fig.2) ..... Muraenolepis orangiensis

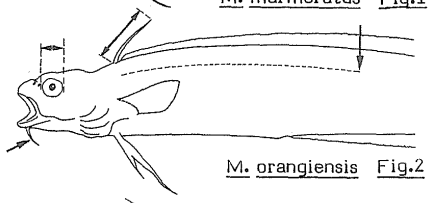
1b. Lateral line reaching backward slightly beyond tips of pectoral fins (Figs 3,4)

3a. Dorsal filament no longer than twice the eye diameter; mental barbel longer than eye diameter (Fig.3) .....Muraenolepis microps

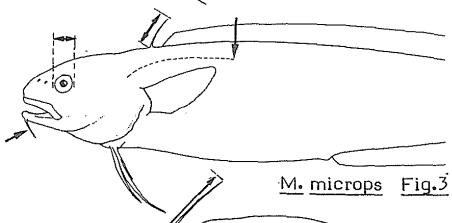
3b. Dorsal filament more than 4 times the eye diameter; mental barbel equal to eye diameter (Fig.4) .....Muraenolepis microcephalus



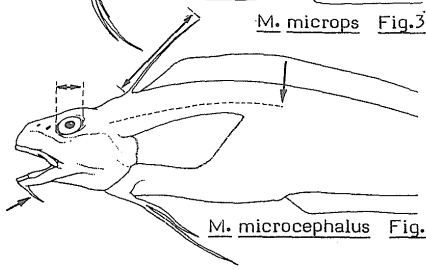
M. marmoratus Fig.1



M. orangiensis Fig.2



M. microps Fig.3



M. microcephalus Fig.4

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Muraenolepis marmoratus Günther, 1880	MURAENOL Mur 1
Muraenolepis microcephalus Norman,1932	MURAENOL Mur 2
Muraenolepis microps Lönnberg, 1905	MURAENOL Mur 3
Muraenolepis orangiensis Vaillant, 1907	MURAENOL Mur 4

Prepared by A. Tomo, Instituto Antártico Argentino, Buenos Aires, Argentina and J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

MURAENOL Mur 1

1985

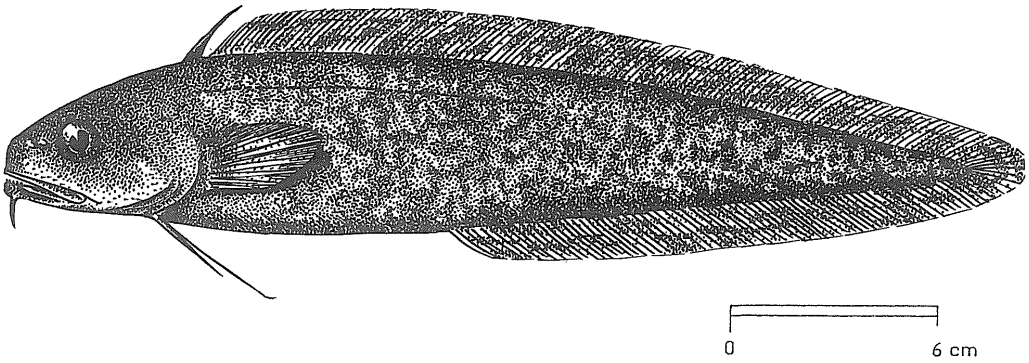
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MURAENOLEPIDIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Muraenolepis marmoratus Günther, 1880

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Marbled moray cod
Fr - Gadomurène marbrée
Ru - Mrumorny parketnik
Sp - Gadimorena jaspeada

NATIONAL :

DISTINCTIVE CHARACTERS :

Head and body compressed; body depth 5 to 6 times in standard length; head profile above eye nearly straight; head length about 5.2 times in standard length; eye diameter smaller than, or equal to interorbital width; snout blunt; mental barbel shorter than eye diameter. Dorsal filament (single ray in first dorsal fin) equal to, or larger than eye diameter; pectoral fins not extending to anus when appressed; pelvic fins narrow, with 5 rays, the 2 outer rays filamentous, of different length. Lateral line reaching backward to below middle of second dorsal fin. Scales elongate, non-imbricate, set at right angles to each other.

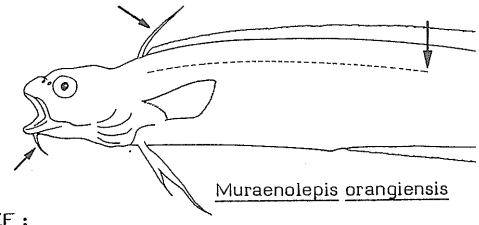
Colour: variable, usually reddish, marbled with brown, with iridescent hues.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

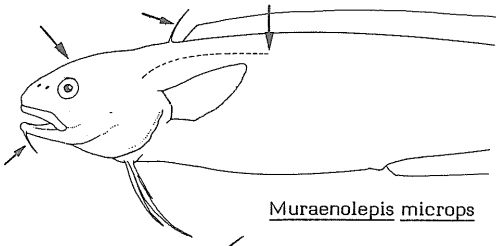
Muraenolepis microps: head smaller, its profile distinctly curved; eye smaller, dorsal filament usually longer; mental barbel always longer than eye diameter (shorter in M. marmoratus); lateral line shorter, extending to just behind pectoral fin tips.

M. microcephalus: head smaller, 5.7 to 6 times in standard length (5.2 times in M. marmoratus); dorsal fin filament more than 4 times longer than eye diameter; mental barbel equal to eye diameter (shorter in M. marmoratus); lateral line shorter, extending just to behind pectoral fin tips.

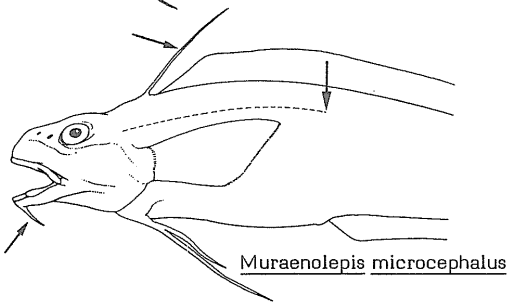
M. orangiensis: dorsal filament 3 times longer than eye diameter; mental barbel equal to eye diameter.



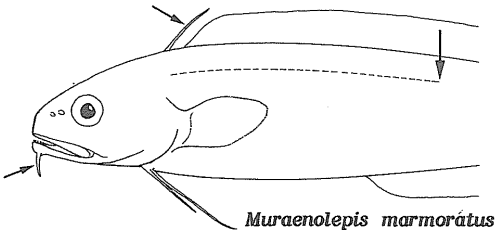
Muraenolepis orangiensis



Muraenolepis microps



Muraenolepis microcephalus



Muraenolepis marmoratus

SIZE:

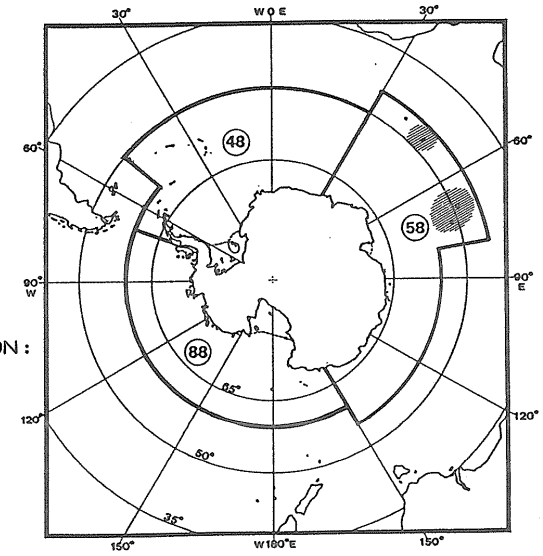
Maximum: 40 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Only known from the Crozet, Kerguelen and Heard islands.

Inhabits waters over the continental shelf and slope, from 30 to 1 600 m depth.

Feeds on zooplankton.



PRESENT FISHING GROUNDS:

Shelf and slope waters around the Kerguelen Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Separate statistics are not reported for this species.

Commonly taken as bycatch in bottom trawls (Kerguelen fisheries).

MURAENOL Mur 2

1985

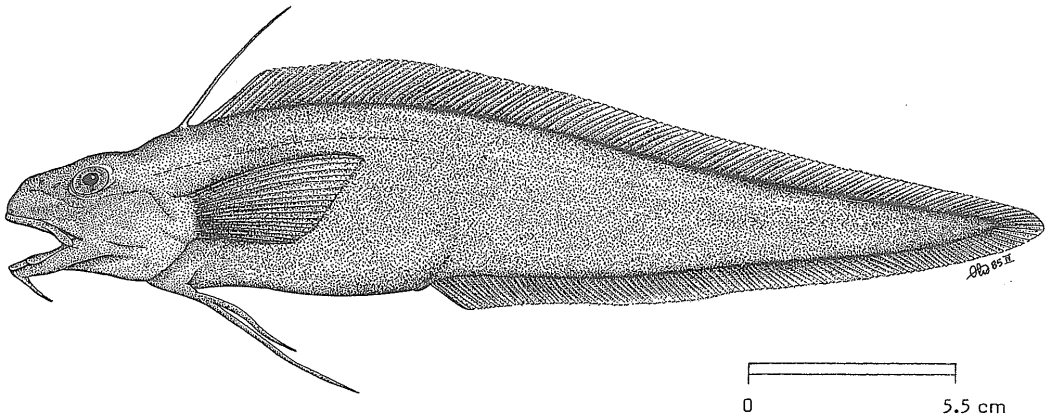
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MURAENOLEPIDIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Muraenolepis microcephalus Norman, 1937

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Smallhead moray cod
Fr - Gadomurène microcéphale
Ru - Malugolovy parketnik
Sp - Gadimorena microcéfala

NATIONAL :

DISTINCTIVE CHARACTERS :

Body and head compressed; body depth about 5.5 times in standard length. Head rather small, its length 5.7 to 6 times in standard length; eye diameter 5.3 to 5.8 times in head length; interorbital width 4 times in head length and larger than eye diameter; mental barbel equal to eye diameter. Dorsal filament (single ray in first dorsal fin) more than 4 times the eye diameter; pectoral fins not extending backward to anus when appressed; pelvic fins narrow, with 5 rays, the 2 outer rays filamentous, of different lengths. Lateral line reaching backward slightly beyond tips of pectoral fins. Scales elongate, non-imbricate, set at right angles to each other.

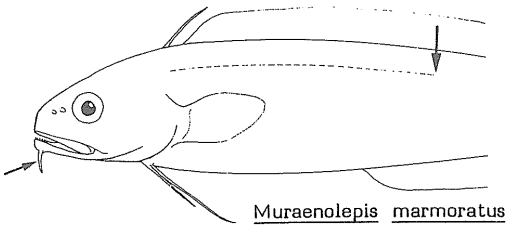
Colour: brownish-grey, with iridescent hues.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

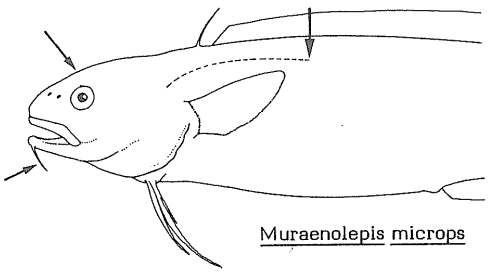
Muraenolepis marmoratus: head distinctly longer, 5.2 times in standard length (5.7 to 6 times in M. microcephalus); mental barbel shorter than eye diameter (equal in M. microcephalus); dorsal filament much shorter; lateral line longer, extending to below middle of second dorsal fin.

M. microps: head slightly larger, its dorsal profile distinctly curved; mental barbel longer than eye diameter (equal to eye diameter in M. microcephalus); dorsal filament much shorter.

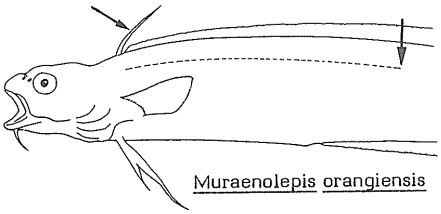
M. orangiensis: lateral line reaching backward to below middle of second dorsal fin; dorsal filament 3 times longer than eye diameter.



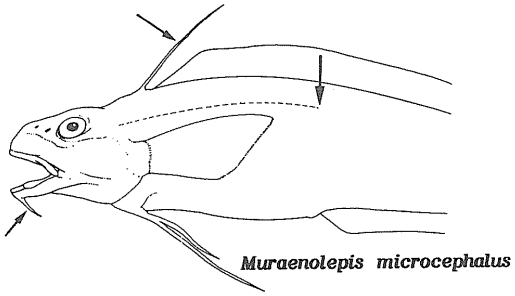
Muraenolepis marmoratus



Muraenolepis microps



Muraenolepis orangiensis



Muraenolepis microcephalus

SIZE:

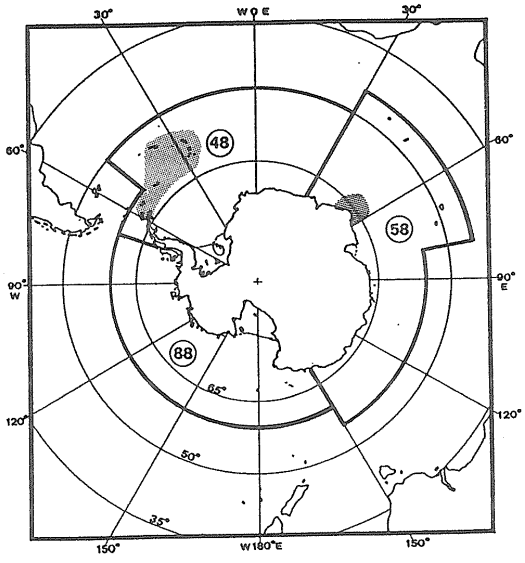
Maximum: 30 cm; common to 27 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Scotia Ridge (South Georgia, Sandwich Islands), South Orkney and South Shetland Islands, northern part of Antarctic Peninsula and Enderby coast.

Inhabits waters over the continental shelf and slope.

Feeds on zooplankton.



PRESENT FISHING GROUNDS:

Islands of the Scotia Arc.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Separate statistics are not reported for this species, but taken occasionally as bycatch in bottom trawls.

Probably used only for fishmeal.

MURAENOL Mur 3

1985

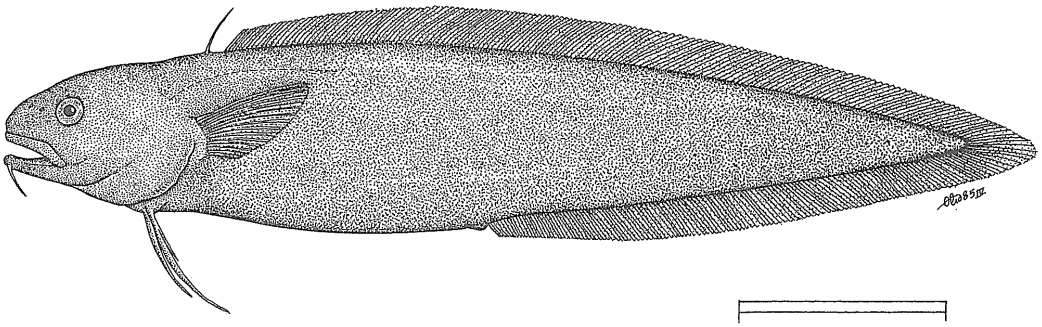
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MURAENOLEPIDIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Muraenolepis microps Lönnberg, 1905

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Smalleye moray cod
Fr - Gadomurène petit oeil
Ru - Maloylazy parketnik
Sp - Gadimorena ojichica

NATIONAL :

DISTINCTIVE CHARACTERS :

Body and head compressed; body depth 4.8 times in standard length. Head length about 5.6 times in standard length, head profile over eye distinctly curved; eye diameter 5.3 times in head length; interorbital width about 4.5 times in head length; mental barbel longer than eye diameter. Dorsal filament (single ray in front of dorsal fin) variable in length, but never longer than twice the eye diameter; pelvic fins narrow, with 5 rays, the outer rays filamentous, of different length. Lateral line arched above pectoral fin, reaching backward to slightly beyond pectoral tips. Scales elongate, non-imbricate, set at right angles to each other.

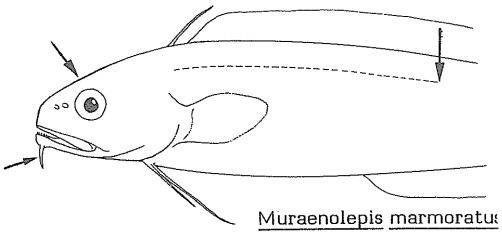
Colour: uniform grey-brown, with iridescent hues.

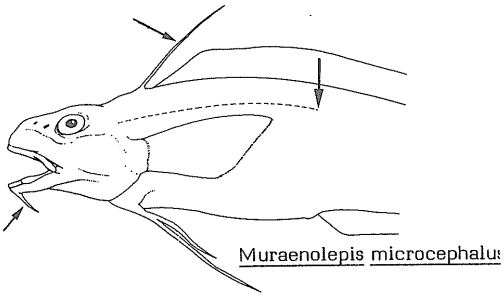
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

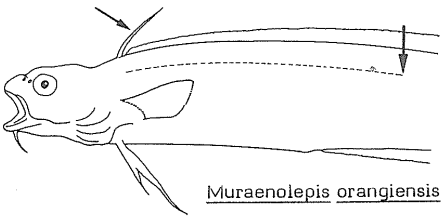
Muraenolepis marmoratus: head larger, 5.2 times in standard length (5.6 times in M. microps); head profile straight; mental barbel shorter than eye diameter (longer in M. microps); lateral line longer, extending to below middle of second dorsal fin. So far only known from the Kerguelen Islands.

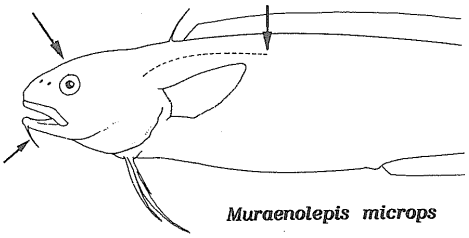
M. microcephalus: head smaller, 5.7 to 6 times in standard length; dorsal filament more than 4 times eye diameter; mental barbel equal to eye diameter.

M. orangiensis: lateral line reaching backward to below middle of second dorsal fin; dorsal filament 3 times longer than eye diameter.


Muraenolepis marmoratus


Muraenolepis microcephalus


Muraenolepis orangiensis


Muraenolepis microps

SIZE :

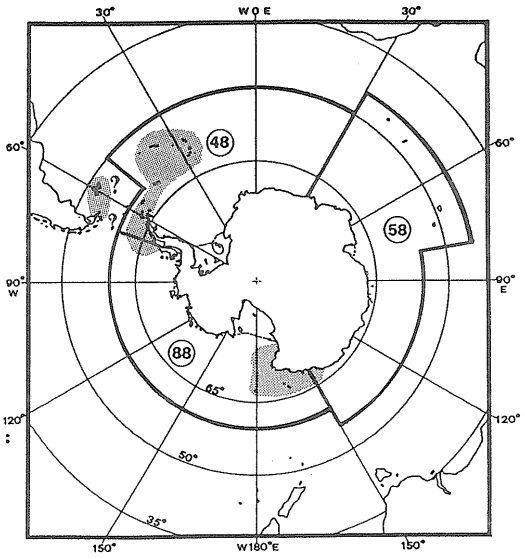
Maximum: 35 cm; common to 27 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Coasts of Antarctic Peninsula, South Georgia, Sandwich, Orkney and Shetland Islands and Victoria Land.

Inhabits waters between 10 and 1 600 m depth.

Feeds mainly on zooplankton.



PRESENT FISHING GROUNDS :

Islands of the Scotia Arc.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species, but taken occasionally as bycatch in bottom trawls.

Probably used only for fishmeal.

MURAENOL Mur 4

1985

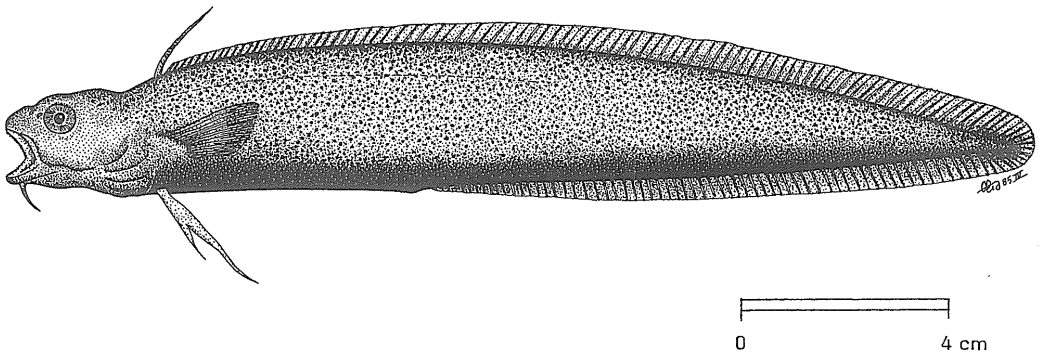
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : MURAENOLEPIDIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Muraenolepis orangiensis Vaillant, 1907

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Patagonian moray cod
Fr - Gadomurène de Patagonie
Ru - Patagonsky parketnik
Sp - Gadimorena patagonica

NATIONAL :

DISTINCTIVE CHARACTERS :

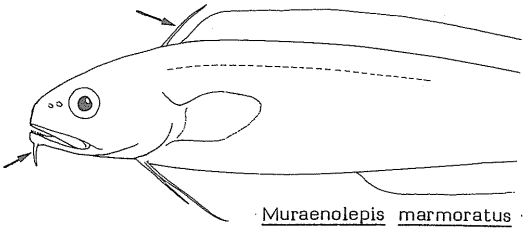
Body and head compressed; body depth 6.5 times in standard length. Head small, its length about 6.3 times in standard length; eye diameter more than 5 times in head length and greater than interorbital width; mental barbel equal to eye diameter. Dorsal filament (single ray in first dorsal fin) 3 times longer than eye diameter; pelvic fins rather short, not extending backward to anus when appressed; pelvic fins narrow, with 5 rays, the outer ray filamentous. Lateral line reaching backward to below middle of second dorsal fin. Scales elongate, non-imbricate, set at right angles to each other.

Colour: grey-reddish; body covered with numerous small black dots; abdomen black.

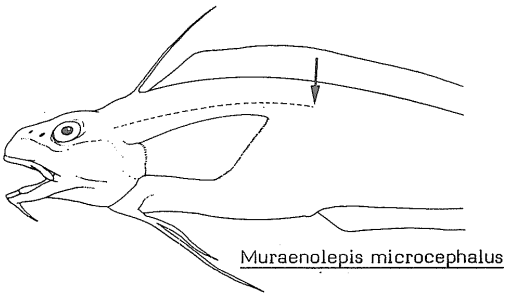
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Muraenolepis marmoratus: dorsal filament equal to or a little longer than eye diameter; mental barbel shorter than eye diameter.

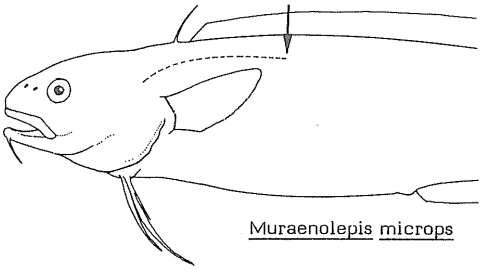
M. microcephalus and M. microps: lateral line reaching backward only slightly beyond tips of pectoral fins.



Muraenolepis marmoratus



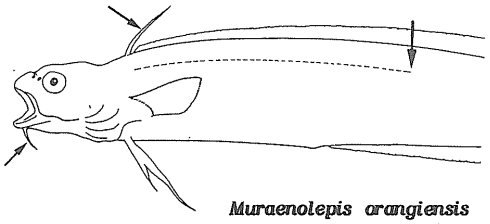
Muraenolepis microcephalus



Muraenolepis microps

SIZE :

Maximum: 30 cm; common to 20 cm.



Muraenolepis orangiensis

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

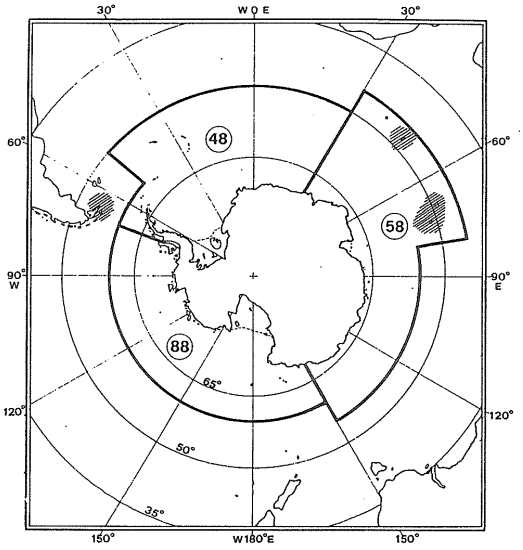
Muraenolepis orangiensis has been reported from Patagonian waters and from the Kerguelen, Heard and Crozet Islands.

Inhabits waters over the continental shelf and slope from 140 to 600 m depth.

Feeds on zooplankton.

PRESENT FISHING GROUNDS :

Shelf and slope waters around the Kerguelen Islands.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species, but taken as bycatch in bottom trawls.

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1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

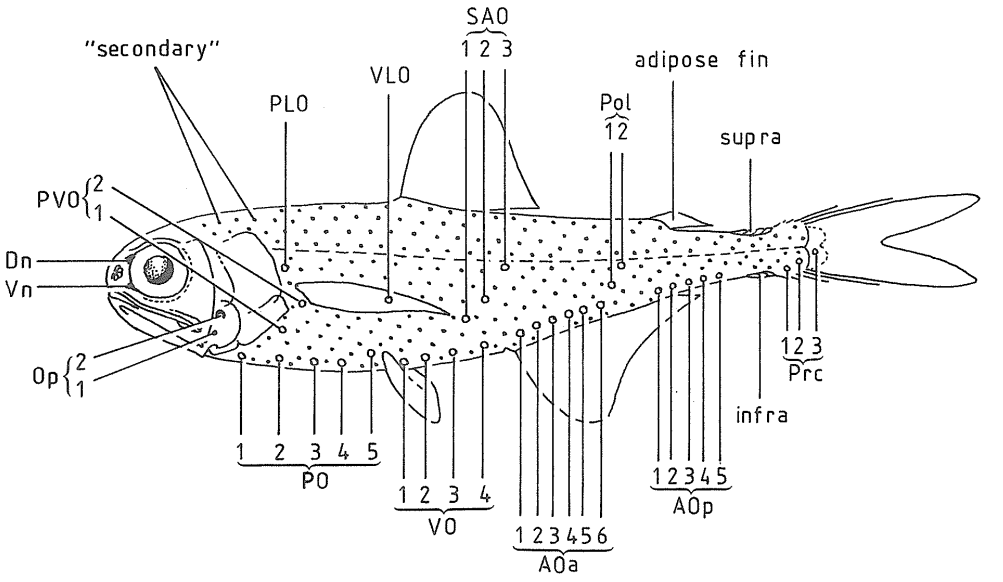
MYCTOPHIDAE

Lanternfishes

Head and body compressed. Eyes large and lateral (dorsolateral in Protomyctophum (Hierops)); mouth terminal (subterminal in Centrobranchus, Gonichthys, Loweina); jaws extending to or beyond vertical through posterior margin of eye; edge of upper jaw formed by premaxillae only; maxillae expanded posteriorly and truncate; premaxillary and dentary teeth numerous, small, and closely set in bands, those of inner rows sometimes slightly enlarged (some species with posterior teeth broad-based and hooked forward); teeth present on roof of mouth; palatines with a close-set band or with 1 or 2 rows of enlarged, widely-spaced teeth; mesopterygoids with a close-set patch of small teeth or a patch of widely-spaced, enlarged teeth; and vomer with a cluster of small teeth on each side; branchiostegal rays usually 7 to 11; gillrakers well-developed, except in Centrobranchus. All fins lacking spines (a rudimentary spine at origin of dorsal and anal, and at uppermost pectoral and outermost pelvic ray); dorsal adipose fin present; origin of anal fin under or close behind base of dorsal fin; pelvic fins with 8 principal rays, except in Notolychnus (6) and Gonichthys (7); caudal fin with 10 dorsal and 9 ventral principal rays. Scales cycloid or ctenoid, but easily lost except in some shallow-living species. Photophores present (absent in Taaningichthys paurolychnus), arranged in distinct groups on head and trunk; smaller "secondary" photophores on head, trunk and fins in some species. Luminous organs of various shapes and sizes on head or caudal peduncle, and at base of adipose fin in some species.

Colour: mainly brown to black in forms which lose their scales, but shallow-living species silvery; some genera with metallic green to metallic blue scales.

Myctophids range in size from 2 cm to 30 cm. They occur from Arctic to Antarctic waters in the open ocean mesopelagic and bathypelagic zones or in the pelagic and epibenthic faunas above continental shelf and slope regions. Mesopelagic and pseudoceanic pelagic species exhibit diurnal vertical migration to between the surface of the sea and 200 m depth at night, some showing size stratification with depth and some with adults and/or juveniles non-migratory. Bathypelagic species do not migrate vertically. Lanternfishes are mainly opportunistic feeders on copepods, amphipods, ostracods, euphausiids, chaetognaths, fish eggs and fish larvae.



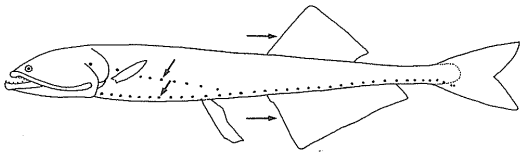
General distribution of luminous organs and their abbreviated terminology in the family Myctophidae

Myctophids are mostly abundant, although a few species are rare. They represent a potentially important, alternate fishery resource for the production of fishmeal and fish oil. In the eastern South Atlantic, the catches of one species (Lampanyctodes hectoris) have fluctuated annually since 1969, with a maximum of 42 560 t (10.45% of the total pelagic catch) having been taken in 1973. Catch rates of 30 t/h (Diaphus dumerilii) and 20 t/h (Benthosema pterotum) have been reported off the coast of Uruguay and in the Arabian Sea, respectively. Some epibenthic species of the Southern Ocean (Gymnoscopelus spp.) and Indian Ocean (Diaphus coeruleus) have been fished on a commercial basis for human consumption, when the fishes are smoked.

More than 340 species of myctophids have been described, but only about 250 species (in 30 genera) are currently recognized. While 21 species (9 genera) have actually been recorded in Fishing Areas 48, 58 and 88, stray specimens of additional sub-Antarctic and Convergence species could well be recorded in the future, depending upon variations in meridional current flow. Seven species (Electrona antarctica, Gymnoscopelus braueri, Gymnoscopelus nicholsi, Gymnoscopelus opisthopterus, Krefftichthys anderssoni, Protomyctophum bolini, Protomyctophum tenisoni) are considered to be truely representative of regions to the south of the Antarctic Polar Front.

SIMILAR FAMILIES OCCURRING IN THE AREA :

Gonostomatidae: posterior portion of upper jaw formed by toothed maxilla; dorsal and anal fins displaced posteriorly; one or more horizontal rows of photophores on ventral part of body and sides.



Gonostomatidae
(Cyclothone)

KEY TO GENERA RECORDED FROM OR POTENTIALLY OCCURRING IN THE AREA :

1a. Two Prc photophores (Fig.1a,b)

2a. PLO from less than its diameter above to well below level of upper end of pectoral fin base (Figs 2,3)

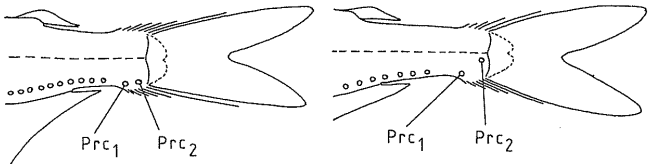


Fig.1

3a. Mouth subterminal; snout conical and more-or-less protruding; PLO at or slightly above level of upper end of pectoral fin base (Fig.3); AO series divided into AOa and AOp; caudal peduncle markedly slender, its least depth 2.5 times or more in its length (Figs 4,5)

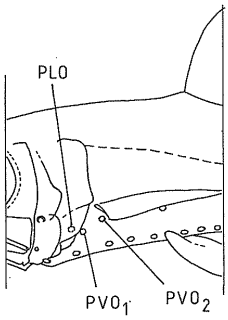


Fig.2

4a. Origin of anal fin under middle of base of dorsal fin; none or only one AOp photophore over base of anal fin; least depth of caudal peduncle about 2.5 times in peduncle length (Fig.4) ..... Loweina

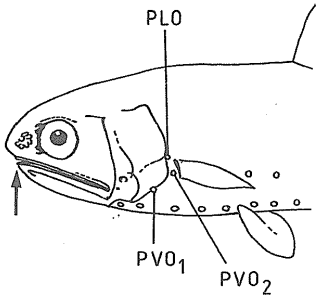
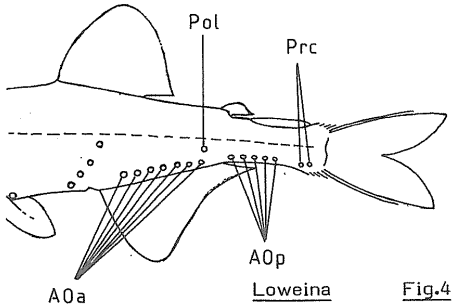
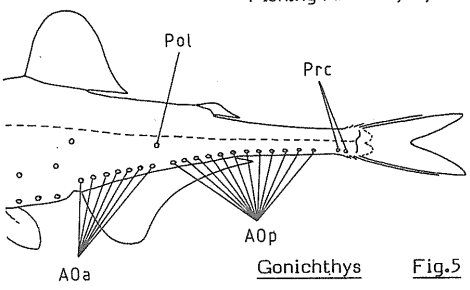


Fig.3



Loweina Fig.4

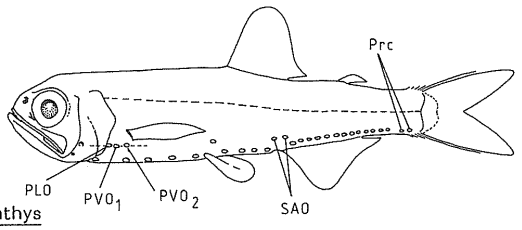
4b. Origin of anal fin on or slightly in advance of vertical through base of last dorsal ray; 5 to 7 AOp photophores over base of anal fin; least depth of caudal peduncle 3.5 times or more in peduncle length (Fig.5) ..... Gonichthys



Gonichthys Fig.5

3b. Mouth terminal; snout not protruding; PLO well below level on upper end of base of pectoral fin; AO series continuous; caudal peduncle not markedly slender, its least depth less than 2.5 times in its length (Figs 6,7)

5a. Body slender, with dorsal and ventral profiles parallel; PLO, PVO_1, PVO_2 on same straight horizontal line; 2 SAO; Prc_2 above anterior procurrent caudal ray, Prc_1 in front (Fig.6) ..... Krefftichthys



Krefftichthys Fig.6

5b. Dorsal and ventral profiles of body not parallel; PLO slightly above to well above PVO_1; 3 SAO; Prc_1 above anterior procurrent caudal ray, Prc_2 behind (Fig.7)

6a. PLO in front of and slightly higher than PVO_1; PLO, PVO_1, PVO_2 on somewhat angulate line

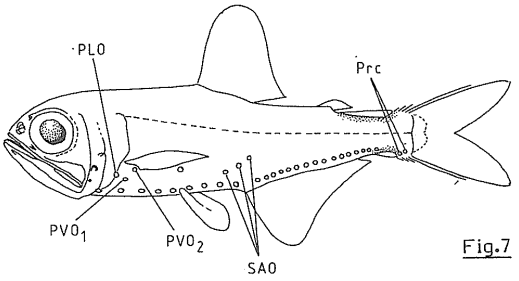
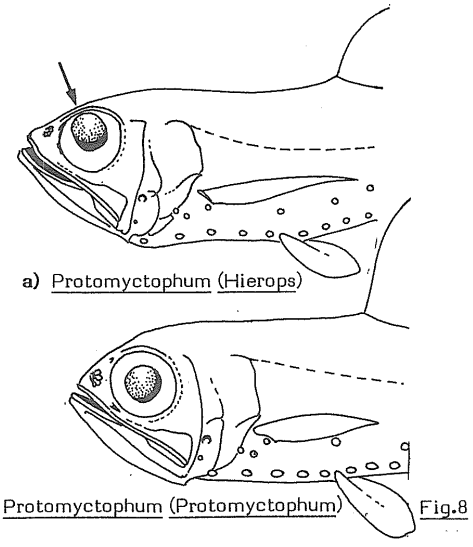


Fig.7

7a. Eyes semi-telescopic; interorbital width less than expanded posterior end of maxilla (Fig.8a)..... Protomyctophum (Hierops)

7b. Eyes normal; interorbital width greater than expanded posterior end of maxilla (Fig.8b) ..... Protomyctophum (Protomyctophum)



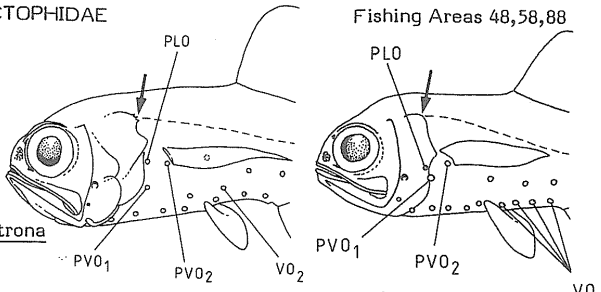
a) Protomyctophum (Hierops)

b) Protomyctophum (Protomyctophum) Fig.8

6b. PLO almost directly above PVO_1; PLO, PVO_1, PVO_2 forming a triangle (Fig.9)

8a. VO_2 elevated; posterodorsal margin of opercle sharply rounded and serrate (Fig.9a) ..... Metelectrona

8b. VO series level or VO_2 only slightly raised; posterodorsal margin of opercle broadly rounded, without serrations (Fig.9b) .... Electrona



a) Metelectrona b) Electrona Fig.9

2b. PLO more than its diameter above level of upper end of base of pectoral fin (Fig.10)

9a. 1 Pol (Fig.11a) ..... Symbolophorus

9b. 2 Pol (Fig.11b) ..... Hygophum

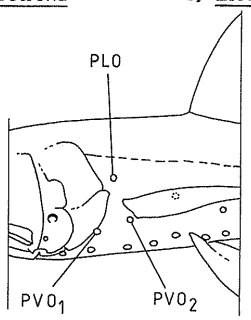
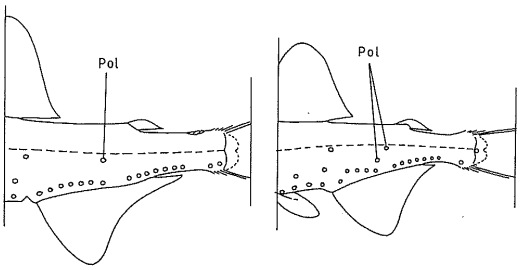


Fig.10

1a. More than 2 Prc photophores (Fig.12)

10a. PO_1, PVO_1, PVO_2 on a straight, ascending, oblique line; VO_1, VO_2, VO_3 on a straight, ascending, oblique line (Fig.13) ..... Diaphus

10b. PO_1, PVO_1, PVO_2 not on a straight, ascending, oblique line; VO_1, VO_2, VO_3 not on straight, ascending, oblique line.



a) Symbolophorus b) Hygophum Fig.11

11a. Supracaudal and infracaudal luminous glands large, singular, and bordered by heavy black pigment (Fig.14)

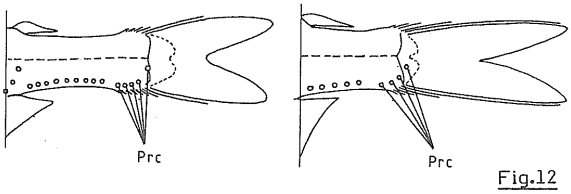
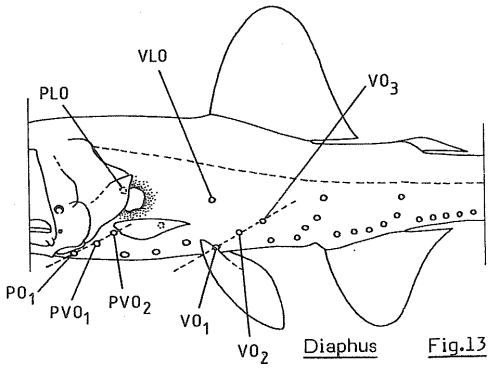


Fig.12



Diaphus Fig.13

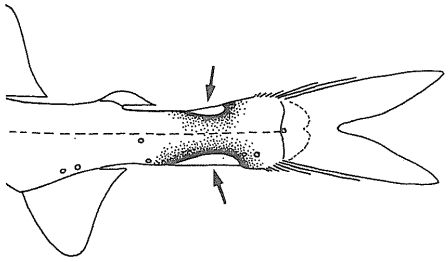
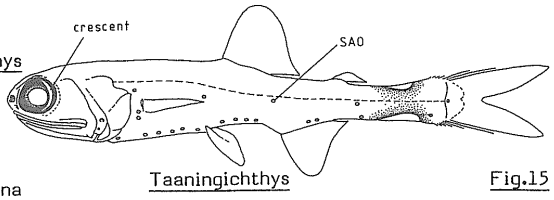


Fig.14

12a. Origin of dorsal fin behind vertical through outer base of pelvic fin; a large crescent of whitish tissue on posterior half of iris; 1 SAO (Fig.15) ..... Taaningichthys

12b. Origin of dorsal fin on or somewhat in advance of vertical through outer base of pelvic fin; no crescent of whitish tissue on posterior half of iris; 3 SAO (Fig.16).. Lampadena

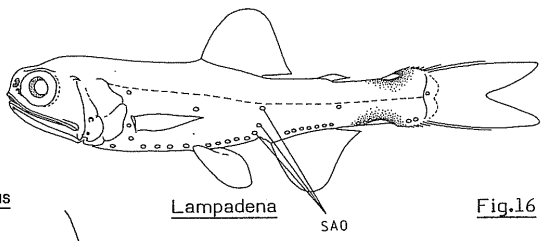


Taaningichthys Fig.15

11b. Supracaudal and infracaudal glands (when present) consisting of a series of overlapping, scale-like structures, not bordered by heavy black pigment (Fig.17)

13a. PO_4 highly elevated and anteriorly displaced to about above PO_3 (Fig.18). Lampanyctus

13b. PO_4 level with rest of series



Lampadena Fig.16

14a. Luminous scale-like structures mid-ventrally between bases of pelvic fins and anus present (Fig.19) ..... Ceratoscopelus

14b. Luminous scale-like structures mid-ventrally between bases of pelvic fins and anus absent

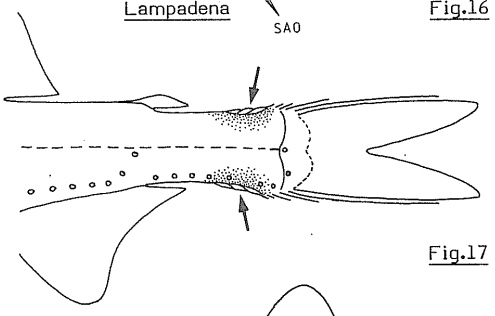
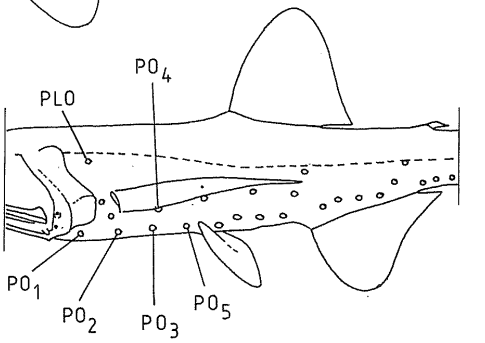


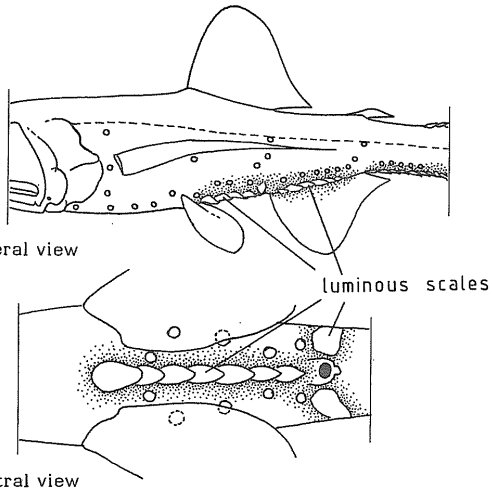
Fig.17

15a. VO_2 elevated; less than 14 anal rays ..... Hintonia

15b. VO series level or only slightly arched; more than 17 anal rays



Lampanyctus Fig.18



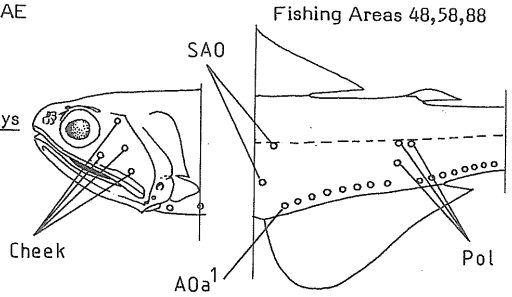
lateral view

ventral view

Ceratoscopelus Fig.19

16a. 3 to 7 cheek photophores; 3 Pol, forming a right angle; AOa^1 level; "secondary" photophores on head and body (Fig.20) ..... Lampichthys

16b. Cheek photophores absent; 2 Pol, forming a subvertical line with last AOa; AOa^1 elevated above rest of series; "secondary" photophores on head and body absent (Fig.21)



Lampichthys Fig.20

17a. PVO_1 and PVO_2 below level of upper end of base of pectoral fin (Fig.22a) ..... Gymnoscopelus (Gymnoscopelus)

17b. PVO_2 noticeably above level of upper end of base of pectoral fin (Fig.22b) ..... Gymnoscopelus (Nasolychnus)

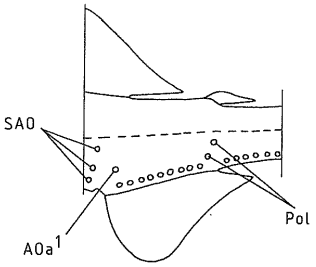
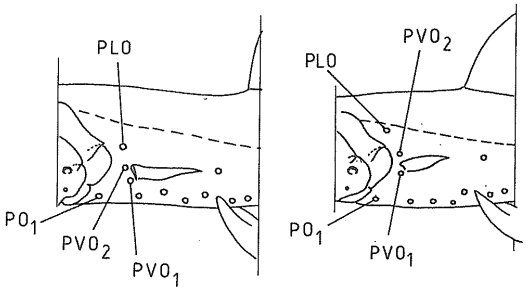


Fig.21



a) Gymnoscopelus (Gymnoscopelus) b) Gymnoscopelus (Nasolychnus) Fig.22

LIST OF SPECIES RECORDED FROM OR POTENTIALLY OCCURRING IN THE AREA:

*Ceratoscopelus warmingii (Lütken, 1892)

Diaphus hudsoni Zubrigg & Scott, 1976
Diaphus meadi Nafpaktitis, 1978
Diaphus ostenfeldi Taning, 1932

*Electrona antarctica (Günther, 1878)
*Electrona carlsbergi (Taning, 1932)
Electrona paucirastra Bolin in Andriashev, 1962
*Electrona subaspera (Günther, 1864)

Gonichthys barnesi Whitley, 1943

*Gymnoscopelus (Gymnoscopelus) bolini Andriashev, 1962
*Gymnoscopelus (Gymnoscopelus) braueri (Lönnberg, 1905)
*Gymnoscopelus (Gymnoscopelus) nicholsi (Gilbert, 1911)
*Gymnoscopelus (Gymnoscopelus) opisthopterus Fraser-Brunner, 1949
*Gymnoscopelus (Nasolychnus) fraseri (Fraser-Brunner, 1949)
Gymnoscopelus (Nasolychnus) hintonoides Hulley, 1981
*Gymnoscopelus (Nasolychnus) microlampas Hulley, 1981
Gymnoscopelus (Nasolychnus) piabilis (Whitley, 1931)

Hintonia candens Fraser-Brunner, 1949

Hygophum hanseni (Taning, 1932)

*Krefftichthys anderssoni (Lönnberg, 1905)

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*Recorded from Areas 48,58 and 88

Lampadena dea Fraser-Brunner, 1949
Lampadena notialis Nafpaktitis & Paxton, 1968
Lampadena speculigera Goode & Bean, 1896

*Lampanyctus achirus Andriashev, 1962
Lampanyctus australis Tåning, 1932
Lampanyctus intricarius Tåning, 1928
Lampanyctus lepidolychnus Bekker, 1967
*Lampanyctus macdonaldi (Goode & Bean, 1896)

Lampichthys procerus Brauer, 1906

Loweina interrupta (Tåning, 1928)

Metelectrona herwigi Hulley, 1981
Metelectrona ventralis (Bekker, 1963)

*Protomyctophum (Hierops) parallelum (Lönnberg, 1905)
Protomyctophum (Hierops) subparallelum (Tåning, 1932)
*Protomyctophum (Protomyctophum) andriashevi Bekker, 1963
*Protomyctophum (Protomyctophum) bolini (Fraser-Brunner, 1949)
*Protomyctophum (Protomyctophum) choriodon Hulley, 1981
*Protomyctophum (Protomyctophum) gemmatum Hulley, 1981
*Protomyctophum (Protomyctophum) luciferum Hulley, 1981
Protomyctophum (Protomyctophum) normani (Tåning, 1932)
*Protomyctophum (Protomyctophum) tenisoni (Norman, 1930)

*Symbolophorus boops (Richardson, 1845)

*Taaningichthys bathyphilus (Tåning, 1928)

Prepared by P. Alexander Hulley, South African Museum, Cape Town, South Africa

*Recorded from Areas 48,58 and 88

NOT

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

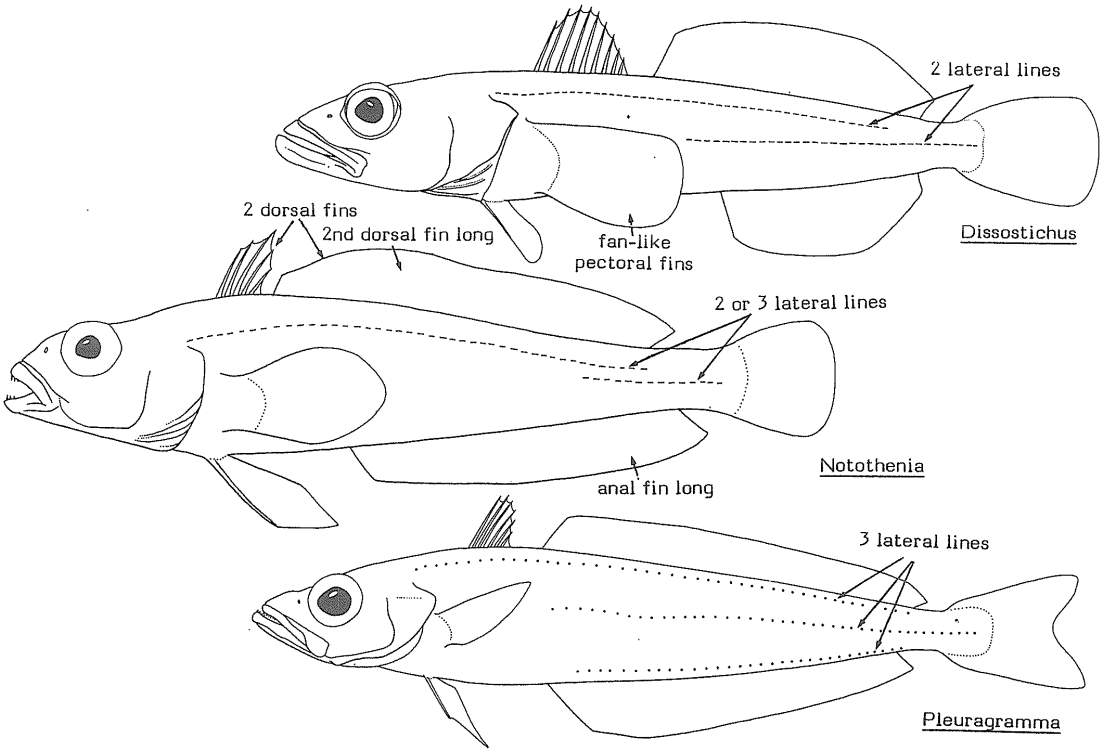
NOTOTHENIIDAE

Antarctic rock cods, Southern rock cods, Toothfishes, Nties

Small to very large fishes. Body shape somewhat elongate. Head large and more or less depressed; eyes large, sometimes upturned; snout moderately produced; mouth protractile, set obliquely, the lower jaw longer than the upper, with the maxilla reaching to below the eye; teeth in both jaws villiform or cardiform, sometimes with a few stronger canine-like teeth, arranged in one or two rows; palate toothless; opercle and preopercle without spines, opercle with a protruding margin at the upper edge of pectoral fin base; gill membranes forming a fold across the isthmus; branchiostegal rays 6 or 7; gillrakers generally short, not numerous. Two dorsal fins, the first with a short base and with flexible spines, well separated from the second dorsal which has a very long base and no spines; anal fin very long, without spines or occasionally with one spine; pectoral fins broad and fan-like; pelvic fins strong, jugular in position; caudal fin usually rounded, sometimes truncate or slightly forked. Body entirely scaly; parts of head sometimes scaleless; scales ctenoid (rough to touch) or cycloid (smooth), generally covered with thick mucus. One to 3 lateral lines, usually two, covered or not by tubular scales; distribution of cephalic pores is an important diagnostic character (see key). No air bladder; pectoral girdles with all radials on the coracoid; caudal skeleton with 5 hypurals and 3 epurals that may be fused together to different extents according to the genera.

Colour: usually greyish with dark or black patches, but some species have a typical pattern with various bright colours: yellow, red, blue or green.

Antarctic rock cods are widely distributed in the higher latitudes of the Southern Hemisphere, only in marine waters. This family forms the largest assemblage of Antarctic fishes and is the most diversified fish group in regard to structure, habits and distribution. Most species are rather sedentary bottom forms which feed on a variety of invertebrates and in some cases, on algae. Some have become specifically adapted to living in or under the surface of the sea ice. Only a few species are entirely pelagic in habit. The Fishing Areas 48, 58 and 88 comprise 49 species, some of which attain large sizes (over 200 cm for both Dissostichus species). Up to the present time only 6 or 7 species are commercially caught. The Antarctic rockcod catches reported in 1982/83 totalled 9 791 t which is much less than those reported in the early seventies (up to 600 000 t). Some species (especially Notothenia rossii marmorata, around South Georgia Island, and Notothenia rossii rossii, around Kerguelen Islands) are already overexploited and require conservation measures. The flesh of these fishes is usually of good quality, but some species have more fat than others.



SIMILAR FAMILIES OCCURRING IN THE AREA:

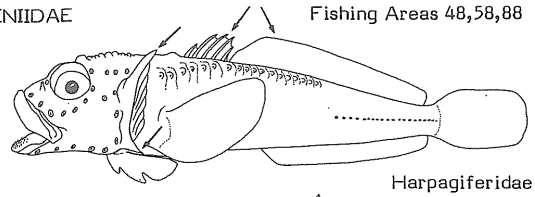
All other Notothenioid fishes occurring in the Southern Ocean are easily distinguished from the Notothenidae, mainly by the following characters:

Harpagiferidae and Artedidraconidae: body scaleless; head larger. Furthermore, 2 strong spines on opercle in Harpagiferidae; opercle hooked upward posteriorly, with a deeply concave upper edge, and a mental barbel present in Artedidraconidae.

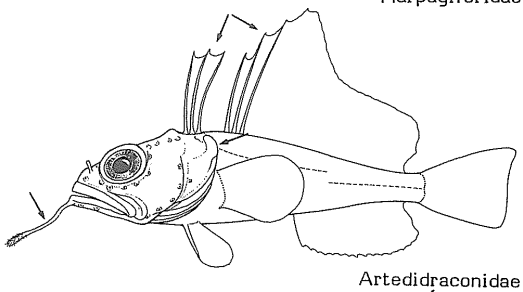
Bathydraconidae: body conspicuously elongate; spinous anterior dorsal fin absent; some species with only a few scales, and others with pointed snout and large canine teeth.

Channichthyidae: scales almost completely absent; head very large, often spiny, with a produced and flattened snout. They also lack oxygen-carrying pigment in their blood which appears whitish or translucent, rather than red.

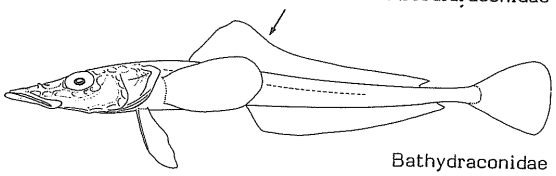
Bovichthyidae: gill membranes extending far forward, not attached to isthmus; body scaleless. Two dorsal fins; last rays of anal fin, elongate and distally thickened.



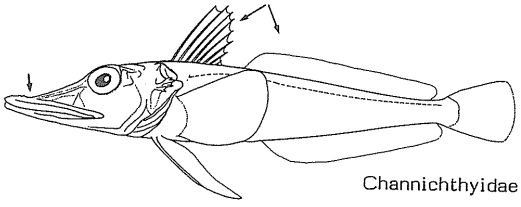
Harpagiferidae



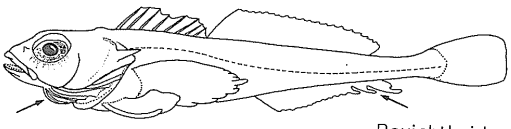
Artedidraconidae



Bathydraconidae

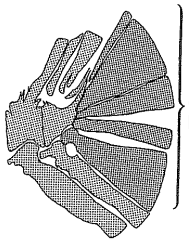


Channichthyidae



Bovichthyidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA:*



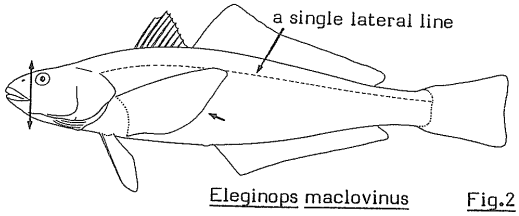
caudal skeleton

D. mawsoni Fig.1

1a. The five hypural bones separated (type 1+1+1+1+1, Fig.1); cephalic sensory canals with prolonged superficial canaliculi

2a. Lateral line single, uninterrupted; maxilla not extending to eye in adult; pectoral fin obliquely truncate, the upper rays longest (Fig.2) ...Eleginops maclovinus

2b. Two lateral lines; maxilla reaching to below middle of eye or beyond; pectoral fin rounded or vertically truncate (Figs 4,5) .....genus Dissostichus



Eleginops maclovinus Fig.2

* The classification here adopted follows the new system proposed by N.C. Andersen (1984) which has been approved by the BIOMASS Working Group on Fish Ecology of the SCAR GROUP OF Specialists on Antarctic marine ecosystems and their living resources. The author has also used part of the key prepared by H.H. DeWitt (1966) for the genus Notothenia (and related genera) and has adopted some of the new genera defined by A.V. Balushkin (1976) as revised by Andersen and J. C. Hureau (1979)

3a. Elongate scaleless areas present on upper surface of head (Fig.3a); lower lateral line begins below anterior half of soft dorsal fin (Fig.4) ..... Dissostichus eleginoides*

3b. No elongate scaleless areas on upper surface of head (Fig.3b); lower lateral line begins below posterior third of soft dorsal fin (Fig.5)..... Dissostichus mawsoni*

1b. Hypural bones 1 and 2 fused together (Fig. 6a); cephalic sensory canals without prolonged superficial canaliculi

4a. Supraorbital canal with 5 pores; first two hypural bones fused, the others separate (type 2+1+1+1, Fig.6a); pectoral foramen bordered by scapula and coracoid bones (Fig.6b) ..... genus Patagonotothen

5a. Occipital region of top of head scaly (except some individuals of P. sima)

6a. Upper lateral line with 57 to 65 tubular scales..... Patagonotothen canina

6b. Upper lateral line with 30 to 41 tubular scales

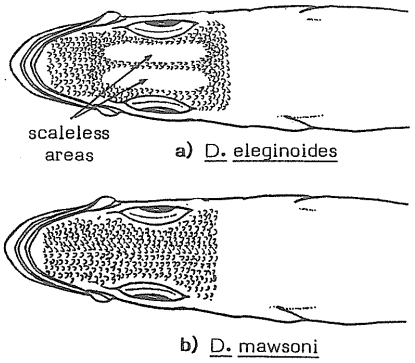
7a. 40 to 51 scales in lateral series; second dorsal fin with 26 to 32 rays

8a. 13 to 19 gillrakers on lower limb of first gill arch; interorbital width 21.6 to 27.5% of head length ..... Patagonotothen squamiceps

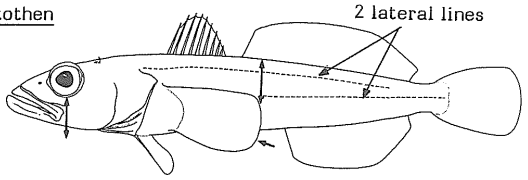
8b. 9 to 13 gillrakers; interorbital width 12 to 18% of head length ..... Patagonotothen sima

7b. 54 to 80 scales in lateral series; second dorsal fin with 31 to 37 rays

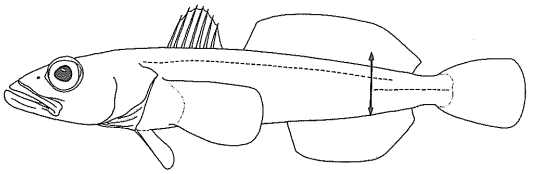
9a. Second dorsal fin with numerous distinct spots and lines; upper lateral line ending below, or a little behind, last ray of soft dorsal fin (Fig.7)



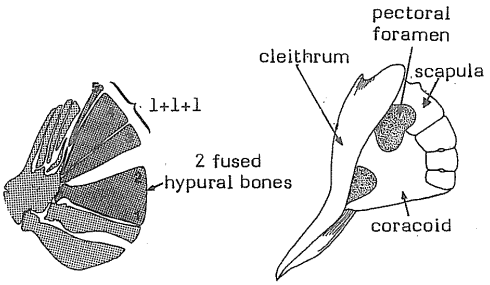
top of head Fig.3



Dissostichus eleginoides Fig.4



Dissostichus mawsoni Fig.5



caudal fin skeleton (schematic)
a) Patagonotothen (tessellata)

pectoral girdle
b) Patagonotothen

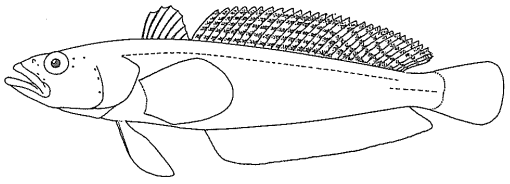
Fig.6

*A third species of Dissostichus (D. amissus) has been described from southern Chile but is known only from a photograph and cannot be retained here; it is considered as a synonym of D. eleginoides

10a. Lower limb of first gill arch with 20 to 25 gillrakers; interorbital width 19.6 to 21.5% of head length ..... Patagonotothen jordani

10b. Lower limb of first gill arch with 12 to 16 gillrakers; interorbital width 12.6 to 16.5% of head length. (Fig.7) .... Patagonotothen tessellata

9b. Second dorsal fin plain (dusky or light); upper lateral line ending well beyond last ray of soft dorsal fin (Fig.8)



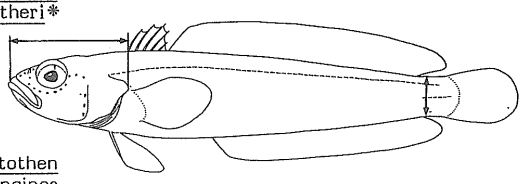
Patagonotothen tessellata Fig.7

11a. First dorsal fin with 4 to 7 spines; pectoral fin with 22 to 28 rays

12a. 14 to 20 gillrakers on lower limb of first gill arch; least depth of caudal peduncle 30.5 to 32.8% of head length ..... Patagonotothen brevicauda brevicauda

12b. 16 to 22 gillrakers; least depth of caudal peduncle 25.7 to 30.8% of head length. (Fig.8) ..... Patagonotothen brevicauda guntheri*

11b. First dorsal fin with 5 to 8 spines; pectoral fin with 24 to 29 rays



Patagonothothen brevicauda guntheri Fig.8

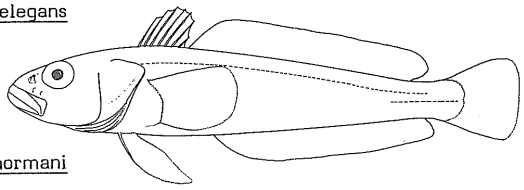
13a. 14 to 16 gillrakers on lower limb of first gill arch; total number of anterior gillrakers 23 to 30 ..... Patagonotothen longipes longipes

13b. 16 to 25 gillrakers on lower limb of first gill arch; total number of anterior gillrakers 30 to 43. (Fig.9) ..... Patagonotothen longipes ramsayi

5b. Occipital region of top of head scaleless (except some individuals of P. sima)

14a. Interorbital width less than 10% of head length ..... Patagonotothen elegans

14b. Interorbital width greater than 10% of head length



Patagonotothen longipes ramsayi Fig.9

15a. No tubular scales in middle lateral line; interorbital width 11.6 to 13.5% of head length ..... Patagonotothen normani

15b. Tubular scales present in middle lateral line; interorbital width 15.6 to 20.5% of head length

16a. Opercle completely or nearly completely scaled; 3 or 4 pores in supratemporal canal ..... Patagonotothen sima

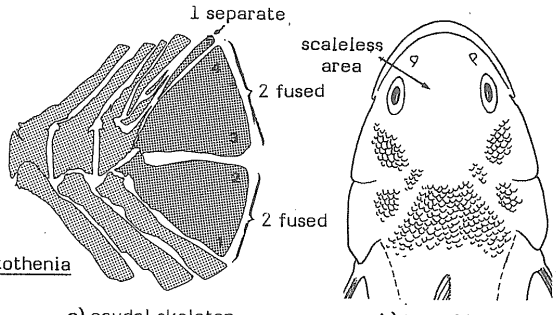
16b. Opercle scaled only on upper parts; 5 to 7 pores in supratemporal canal .....Patagonotothen cornucola

*Another subspecies P. brevicauda shagensis has been described by A.V. Balushkin and Y.Y. Permitin in 1982 from Shag Rocks near South Georgia; it closely resembles P. brevicauda guntheri

4b. Supraorbital canal with 4 pores (5 in Cryothenia); hypurals 3, 4 and 5 fused or partially fused

17a. Temporal canal with 4 pores

18a. Hypurals 3 and 4 entirely fused (type 2+2+1, Fig.10); pectoral foramen bordered by scapula and coracoid bones (Fig.6b)..... genus Notothenia



a) caudal skeleton b) top of head

Notothenia (N.) rossii Fig.10

19a. Upper surface of head scaleless (Fig.10b); 8 or 9 pores in the infraorbital canal .....subgenus Notothenia

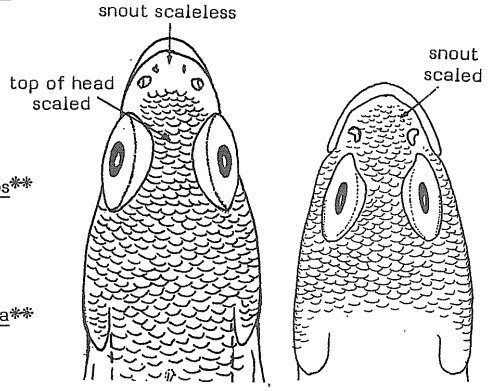
20a. 21 to 24 pectoral fin rays..... Notothenia (N.) rossii*

20b. 16 to 19 pectoral fin rays

21a. Interorbital width 22 to 25% of head length; second dorsal fin with 35 to 38 rays.. Notothenia (N.) coriiceps**

21b. Interorbital width 26 to 33% of head length; second dorsal fin with 37 to 41 rays ..Notothenia (N.) neglecta**

19b. Upper surface of head scaled, at least posteriorly (Fig.11a,b); 7 pores in the infraorbital canal



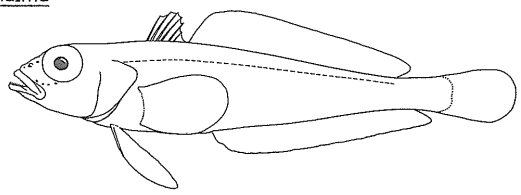
a)N.(L.)macrophthalma b)N.(L.) squamifrons

top of head Fig.11

22a. Preorbital area scaled..... subgenus Lepidonotothen

23a. 33 to 35 dorsal fin rays; 28 to 31 anal fin rays; snout scaleless (Figs 11a, 12)... Notothenia (L.) macrophthalma

23b. 35 to 38 dorsal fin rays; 31 to 35 anal fin rays; snout completely scaled (Fig.11b)



Notothenia (L.) macrophthalma Fig.12

*Notothenia (N.) rossii is often split into two subspecies, N. (N.) rossii rossii from the Indian sector of the Southern Ocean (e.g., Kerguelen Islands) and N. (N.) rossii marmorata from South Georgia. These subspecies are probably geographical populations; they differ only by their coloration and in some ecological aspects

**Notothenia (N.) coriiceps and N. (N.) neglecta are considered by some authors as subspecies of N. (N.) coriiceps

24a. Interorbital width 7.6 to 11.5% of head length (Fig.11b) ..... Notothenia (L.) squamifrons*

24b. Interorbital width 4.6 to 7.5% of head length ..... Notothenia (L.) kempi

22b. Preorbital area scaleless (Fig.13) ..... subgenus Gobionotothen

25a. Interorbital width less than 9% of head length

26a. Lower parts of opercle scaleless; upper lateral line with 26 to 34 tubular scales ..... Notothenia (G.) angustifrons

26b. Lower parts of opercle scaled; upper lateral line with 34 to 51 tubular scales

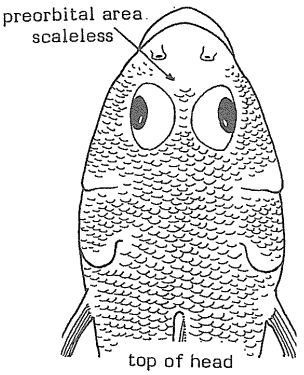
27a. Middle lateral line with 25 to 42 tubular scales; second dorsal fin with 31 to 34 rays ..... Notothenia (G.) gibberifrons

27b. Middle lateral line with 15 to 18 tubular scales; second dorsal fin with 28 to 30 rays ..... Notothenia (G.) acuta

25b. Interorbital width greater than 9% of head length

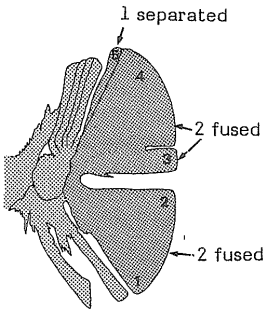
28a. Middle lateral line with 15 to 17 tubular scales; interorbital width about 10% of head length ..... Notothenia (G.) marionensis

28b. Middle lateral line with 4 to 15 tubular scales; interorbital width 11.6 to 20.5% of head length ..... Notothenia (G.) cyanobrancha



N. (G.) angustifrons Fig.13

18b. Hypurals 3 and 4 partially fused (type 2+(2)+1, Fig.14); pectoral foramen bordered by scapula and coracoid (Fig.6b)



caudal skeleton

Paranotothenia magellanica Fig.14

29a. Middle lateral line with tubular scales (Fig.15a); infraorbital canal with 8 to 11 pores; upper and lower hypural plates fused to the ural centrum (Fig.14) ..... genus Paranotothenia

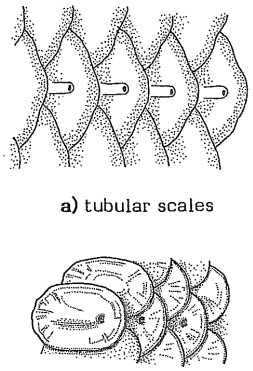
30a. Middle lateral line with 24 to 37 tubular scales; upper lateral line with 59 to 75 tubular scales ..... Paranotothenia microlepidota

30b. Middle lateral line with 23 or less tubular scales; upper lateral line with 30 to 61 tubular scales

31a. Length of caudal peduncle 37 to 45.5% of head length ..... Paranotothenia magellanica

31b. Length of caudal peduncle 25.5 to 34.5% of head length ..... Paranotothenia angustata

29b. Middle lateral line with perforated scales (Fig.15b); infraorbital canal with 9 pores ..... genus Nototheniops



a) tubular scales

b) perforated scales

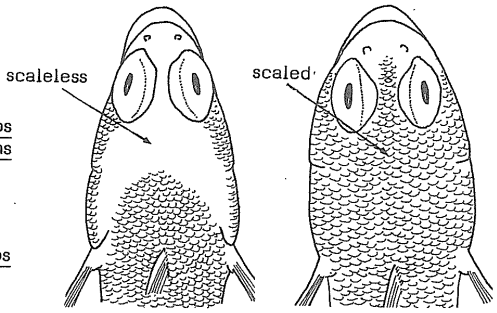
Fig.15

*Notothenia (L.) squamifrons is often split into two subspecies: N. (L.) squamifrons squamifrons from Kerguelen area and N. (L.) squamifrons atlantica from the south Atlantic sector of the Southern Ocean. The present author prefers to consider them as a single species until conclusive evidence on their conspecificity is given

32a. Preorbital region scaleless

33a. Upper surface of head scaleless (Fig. 16a); origin of anal fin under base of 7th to 10th ray of second dorsal fin.. Notothenioops nudifrons

33b. Scales present on top of head behind eyes (Fig.16b); origin of anal fin under base of 5th to 8th ray of second dorsal fin ..... Notothenioops mizops



a) N. nudifrons b) N. mizops

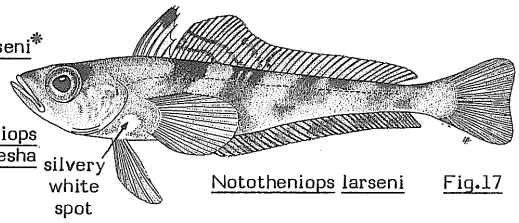
top of head Fig.16

32b. Preorbital region scaled

34a. Lower jaw covered with scales

35a. 37 or 38 anal fin rays; 16 to 18 gillrakers on lower part of the first arch; a silvery-white spot on breast and lower part of pectoral fin bases (Fig.17)..... Notothenioops larseni*

35b. 34 to 36 anal fin rays; 14 or 15 gillrakers on lower part of the first arch; no silvery-white spot..Notothenioops loesha



Notothenioops larseni Fig.17

34b. No scales on lower jaw

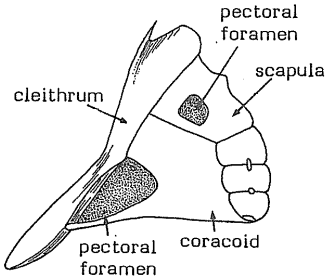
36a. Interorbital width 5 to 7% of head length; 22 to 25 pectoral fin rays; no silvery-white spot on breast or pectoral fin bases ..... Notothenioops nybelini

36b. Interorbital width 9 to 10% of head length; 25 to 27 pectoral fin rays; a silvery-white spot on breast and pectoral fin bases ... Notothenioops tchizh

17b. Temporal canal with 5 pores

37a. Hypurals 3 and 4 entirely fused (type 2+2+1, Fig.10a)

38a. 3 pores in supratemporal canal; pectoral foramen entirely in scapula (Fig.18) ..... genus Trematomus



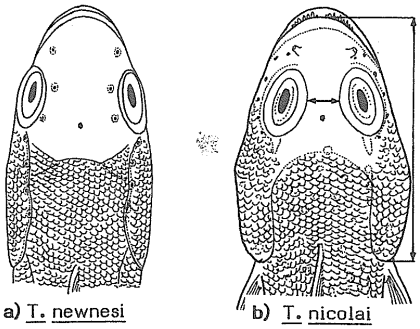
pectoral girdle

Trematomus newnesi Fig.18

39a. Upper surface of head scaleless

40a. Interorbital width 20 to 30% of head length; first dorsal fin with 5 to 8 spines (Fig.19a) ..... Trematomus newnesi

40b. Interorbital width 11.1 to 14.3% of head length; first dorsal fin with 4 spines (Fig.19b) ..... Trematomus nicolai



a) T. newnesi b) T. nicolai

top of head Fig.19

* The "larseni" species group is considered by some authors as a single species comprising of 4 subspecies or geographical populations: N. larseni larseni, N. larseni loesha, N. larseni nybelini and N. larseni tchizh

39b. Upper surface of head scaled, at least posteriorly

41a. Interorbital region with 2 or 3 longitudinal series of scales (Fig.20a) ..... Trematomus vicarius

41b. Interorbital region fully scaled (Fig.20b)

42a. Snout and lower jaw scaleless; preorbital area scaleless (except in T. scotti)

43a. Upper lateral line with 30 or more tubular scales

44a. 60 to 83 scales in a longitudinal series ..... Trematomus loennbergi

44b. 49 to 60 scales in a longitudinal series

45a. Dorsal spines flexible, as long as rays; eye diameter 28.6 to 31.2% of head length (Fig.21)..Trematomus pennelli

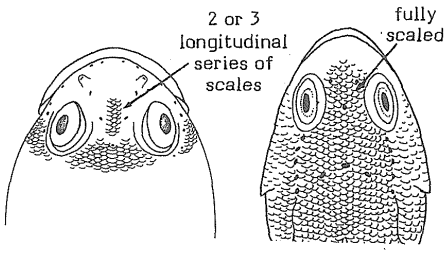
45b. Dorsal spines pungent, shorter than rays eye diameter 30.3 to 38.5% of head length (Fig.22)..... Trematomus centronotus

43b. Upper lateral line with 10 to 23 tubular scales ..... Trematomus scotti

42b. Snout, lower jaw and preorbital area scaled

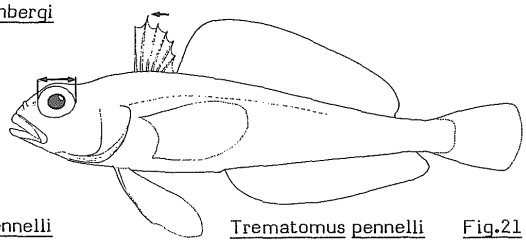
46a. Middle lateral line with 26 to 38 tubular scales; 2nd dorsal fin with 31 to 33 rays (Fig.23); preanal distance shorter than anal fin base ..Trematomus lepidorhinus

46b. Middle lateral line with 10 to 22 tubular scales; 2nd dorsal fin with 34 to 37 rays (Fig.24); preanal distance longer than or equal to anal fin base .....Trematomus eulepidotus

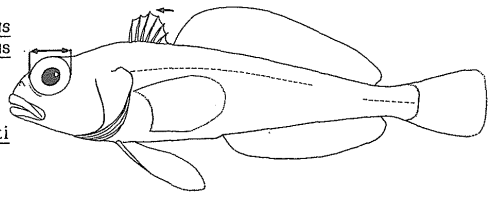


a) Trematomus vicarius b) Trematomus loennbergi

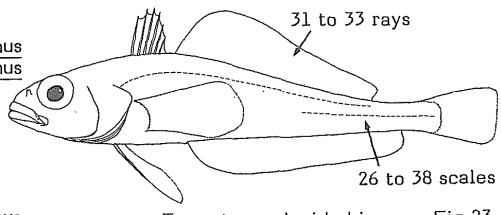
Fig.20



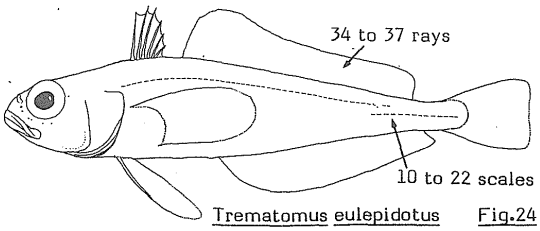
Trematomus pennelli Fig.21



Trematomus centronotus Fig.22



Trematomus lepidorhinus Fig.23



Trematomus eulepidotus Fig.24

38b. 5 or more pores in supratemporal canal which is divided into 3 or 4 sections; pectoral foramen entirely or not in scapula, separated or not from coracoid by a very narrow bridge of bone (Fig.25) ..... genus Pagothenia

47a. Supraorbital commissure with 2 pores; supratemporal canal divided into 4 sections; 30 to 34 caudal vertebrae

48a. Dark transversal bands on caudal fin (Fig.26); distal part of dorsal, anal, caudal and pelvic fins bordered with black colour; interorbital width 18 to 25% of head length; 23 or 24 pectoral fin rays ... Pagothenia brachysoma

48b. No dark transversal bands on caudal fin; interorbital width 25 to 33% of head length; about 23 pectoral fin rays ..... Pagothenia borchgrevinki

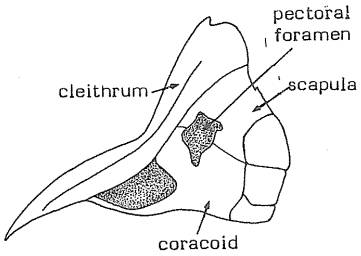
47b. Supraorbital commissure with only one pore; supratemporal canal divided into 3 sections; 35 to 37 caudal vertebrae

49a. Dark transversal bands on caudal fin (Fig.27); 27 to 33 pectoral fin rays ..... Pagothenia hansoni

49b. No dark transversal bands on caudal fin

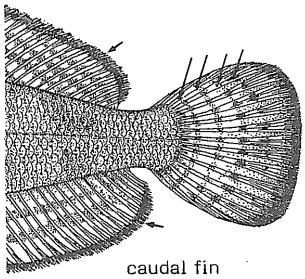
50a. Occiput scaled; interorbital region scaleless or with a median series of scales; 3 green spots on upper part of pectoral fin base; distal part of first dorsal fin dark; 22 to 26 pectoral fin rays (Fig.28) .. Pagothenia bernacchii

50b. Upper surface of head scaleless; no green spots on pectoral fin base; one black spot on middle of first dorsal fin; 29 or 30 pectoral fin rays (Fig.29)..... Pagothenia tokarevi



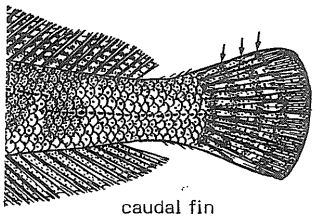
pectoral girdle

Pagothenia (hansoni) Fig.25



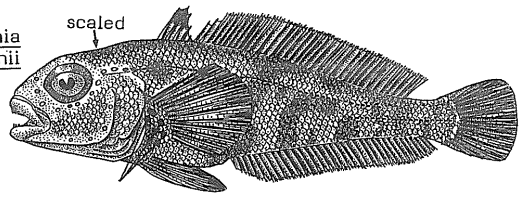
caudal fin

Pagothenia brachysoma Fig.26

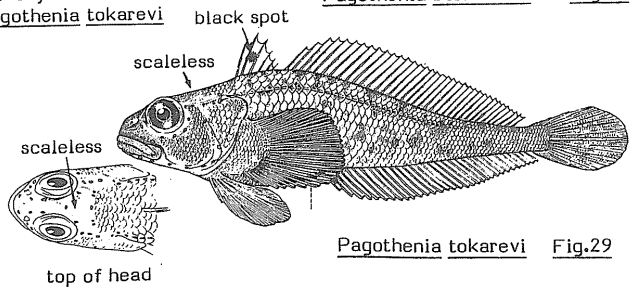


caudal fin

Pagothenia hansoni Fig.27



Pagothenia bernacchii Fig.28



Pagothenia tokarevi Fig.29

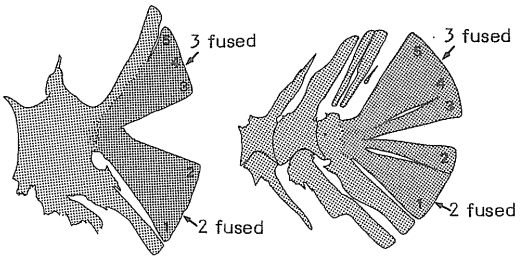
37b. Hypurals 3, 4 and 5 fused (type 2¡3, Fig.30a,b)

51a. Two lateral lines

52a. No tubular scales on lateral lines; 15 to 17 short gill-rakers on first arch ..... Cryothenia peninsulae

52b. Tubular scales present on lateral lines; numerous (about 50) elongate gillrakers on first arch ..... Aethotaxis mitopteryx

51b. Three lateral lines without tubular scales, but scales pored, 20 to 25 gillrakers on first arch ..... Pleuragramma antarcticum



a) Pleuragramma antarcticum b) Aethotaxis mitopteryx

caudal skeleton Fig.30

LIST OF SPECIES OCCURRING IN THE AREA :

Code numbers are given for those species for which Identification Sheets are included

Aethotaxis mitopteryx DeWitt, 1962	NOT Aet 1
Cryothenia peninsulae Daniels, 1981	NOT Cryo 1
Dissostichus eleginoides Smitt, 1898	NOT Dis 1
Dissostichus mawsoni Norman, 1937	NOT Dis 2
*Eleginops maclovinus (Cuvier & Valenciennes, 1830)	
Notothenia (Gobionotothen) acuta Günther, 1880	NOT Not 1
Notothenia (Gobionotothen) angustifrons Fischer, 1885	NOT Not 2
Notothenia (Notothenia) coriiceps Richardson, 1844	NOT Not 3
Notothenia (Gobionotothen) cyanobrancha Richardson, 1844	NOT Not 4
Notothenia (Gobionotothen) gibberifrons Lönnberg, 1905	NOT Not 5
Notothenia (Lepidonotothen) kempi Norman, 1937	NOT Not 6
Notothenia (Lepidonotothen) macrophthalma Norman, 1937	
Notothenia (Gobionotothen) marionensis Günther, 1880	
Notothenia (Notothenia) neglecta Nybelin, 1951	NOT Not 7
Notothenia (Notothenia) rossii Richardson, 1844	NOT Not 8
Notothenia (Lepidonotothen) squamifrons Günther, 1880	NOT Not 9
Nototheniops larseni (Lönnberg, 1905)	NOT Noto 1
Nototheniops loesha (Balushkin, 1976)	
Nototheniops mizops (Günther, 1880)	NOT Noto 2
Nototheniops nudifrons (Lönnberg, 1905)	NOT Noto 3
Nototheniops nybelini (Balushkin, 1976)	
Nototheniops tchizh (Balushkin, 1976)	
Pagothenia bernacchii (Boulenger, 1902)	NOT Pag 1
Pagothenia borchgrevinki (Boulenger, 1902)	NOT Pag 2
Pagothenia brachysoma (Pappenheim, 1912)	NOT Pag 3
Pagothenia hansoni (Boulenger, 1902)	NOT Pag 4
Pagothenia tokarevi (Andriashev, 1978)	
*Paranotothenia angustata (Hutton, 1875)	
Paranotothenia magellanica (Forster, 1801)	NOT Par 1
*Paranotothenia microlepidota (Hutton, 1875)	

* Species which do not occur in Fishing Areas 48, 58 and 88 but are included in the family key

*Patagonotothen brevicauda brevicauda (Lönnberg, 1905)	
Patagonotothen brevicauda guntheri (Norman, 1937)	NOT Pat 1
*Patagonotothen canina (Smitt, 1897)	
*Patagonotothen cornucola (Richardson, 1844)	
*Patagonotothen elegans (Günther, 1880)	
*Patagonotothen jordani (Thompson, 1916)	
*Patagonotothen longipes longipes (Steindachner, 1876)	
*Patagonotothen longipes ramsayi (Regan, 1913)	
Patagonotothen normani (Nybelin, 1947)	
*Patagonotothen sima (Richardson, 1845)	
*Patagonotothen squamiceps (Peters, 1876)	
*Patagonotothen tessellata (Richardson, 1845)	
Pleuragramma antarcticum Boulenger, 1902	NOT Pleu 1
Trematomus centronotus Regan, 1914	
Trematomus eulepidotus Regan, 1914	
Trematomus lepidorhinus Pappenheim, 1911	
Trematomus loennbergi Regan, 1913	NOT Trem 1
Trematomus newnesi Boulenger, 1902	NOT Trem 2
Trematomus nicolai Boulenger, 1902	
Trematomus pennelli Regan, 1914	
Trematomus scotti Boulenger, 1907	NOT Trem 3
Trematomus vicarius Lönnberg, 1905	

Prepared by J.C. Hureau, Ichtyologie générale et appliquée, Muséum national d'Histoire naturelle, Paris, France

* Species which do not occur in Fishing Areas 48, 58 and 88 but are included in the family key

NOT Aet 1

1985

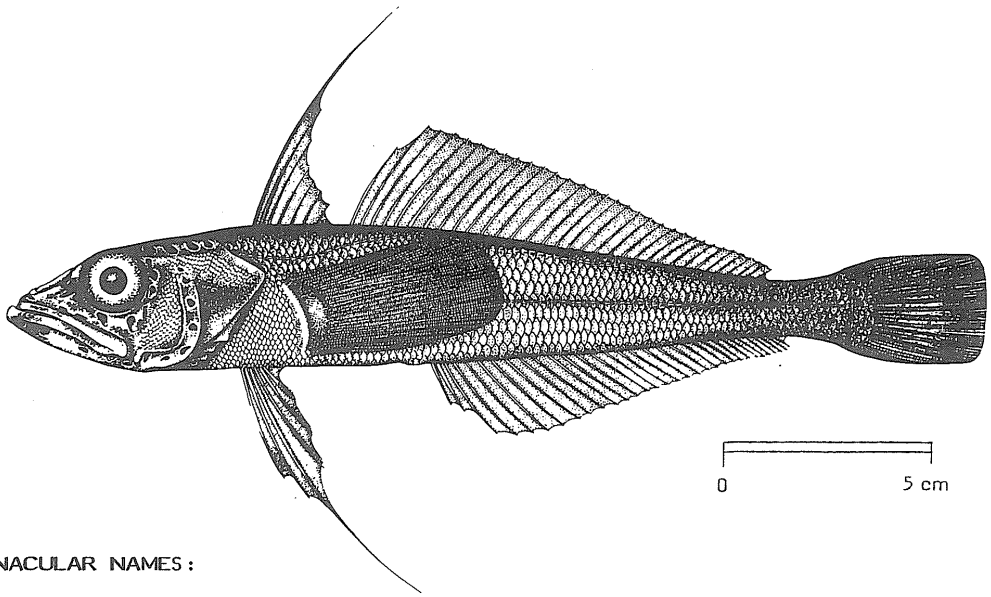
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Aethotaxis mitopteryx DeWitt, 1962

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Longfin icedevil
Fr - Calandre fil
Ru - Dolgoperka
Sp - Diablillo de hebra

NATIONAL :

DISTINCTIVE CHARACTERS :

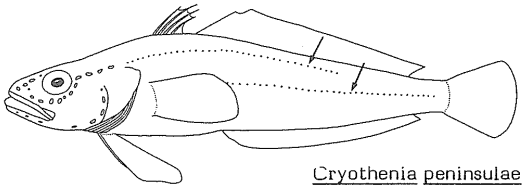
Body elongate, moderately compressed, its depth 20 to 21% of standard length. Head moderate in size, its length 3.3 to 3.5 times in standard length; cephalic sensory canals possess very large open pores; median part of supratemporal canal lost; infraorbital canal in 3 sections with 5+2+1 pores; temporal canal with 5 pores; supraorbital canal with 4 large pores, the canal of each side opening into a large coronal pit which has the shape of a pair of wings; preoperculomandibular canal in 2 sections with 4+7 pores; eye 3.8 to 4.4 times in head length; interorbital width 23 to 26% of head length; 47 to 51 elongate gillrakers on lower part of anterior arch; mouth large and oblique, maxilla extending posteriorly to below anterior part of pupil; lower jaw protruding; teeth in both jaws small, villiform. Two dorsal fins, the first with 7 or 8 flexible spines, the 2 first elongate, the second dorsal fin with 32 to 34 soft rays; 30 or 31 anal fin rays; pectoral fins large, fan-like, with 24 to 28 rays, shorter than the pelvics whose second ray is greatly elongated. Two lateral lines, the upper ending below the last rays of second dorsal fin; 49 to 54 tubular scales in upper lateral line and 30 in the middle line; the body entirely covered with large and deciduous scales; upper surface of head, snout and preorbital area scaleless; upper half of opercles and cheeks scaled. The hypural bones 1 and 2, 3, 4 and 5 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely located in scapula bone.

Colour: grey with violet hue; lighter below with metallic lustre; fins dark-grey; caudal fin apparently unpigmented but with whitish margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Cryothenia peninsulae: only 2 lateral lines without tubular scales; 15 to 17 short gillrakers on first arch (47 to 51 in A. mitopteryx).

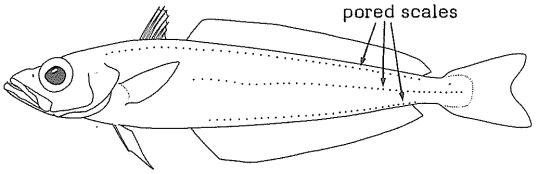
Pleuragramma antarcticum: 3 lateral lines covered with pored scales; 20 to 25 gillrakers on lower limb of first arch.



Cryothenia peninsulae

SIZE :

Maximum: 35 cm; common to 25 cm.



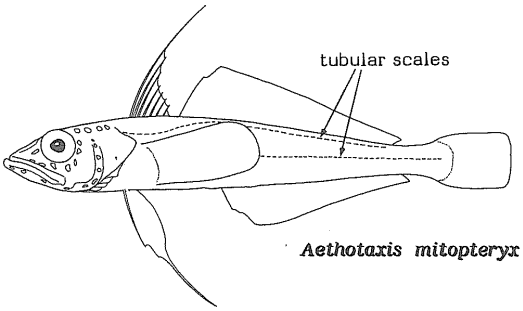
Pleuragramma antarcticum

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Apparently distribution is circumpolar with records in South Shetland, South Orkney and South Sandwich Islands, in Prydz Bay and in the Ross Sea. The Ross Sea specimens may represent a separate subspecies.

Pelagic species known from the surface (rarely) to 850 m depth.

Feeds on pelagic small organisms, probably krill, copepods and pelagic amphipods.



Aethotaxis mitopteryx

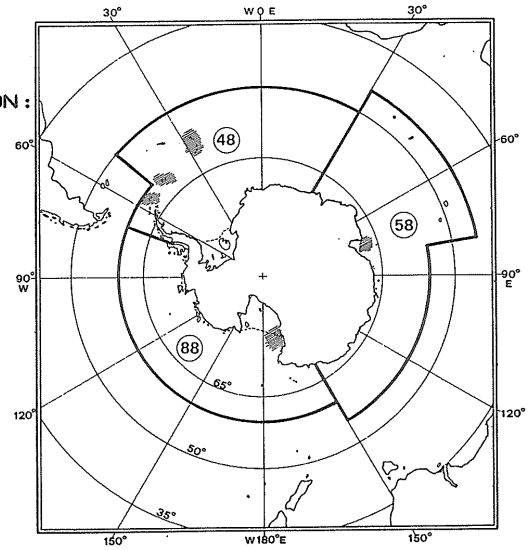
PRESENT FISHING GROUNDS :

Not yet commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Could be caught only with pelagic trawls.



NOT Cryo 1

1985

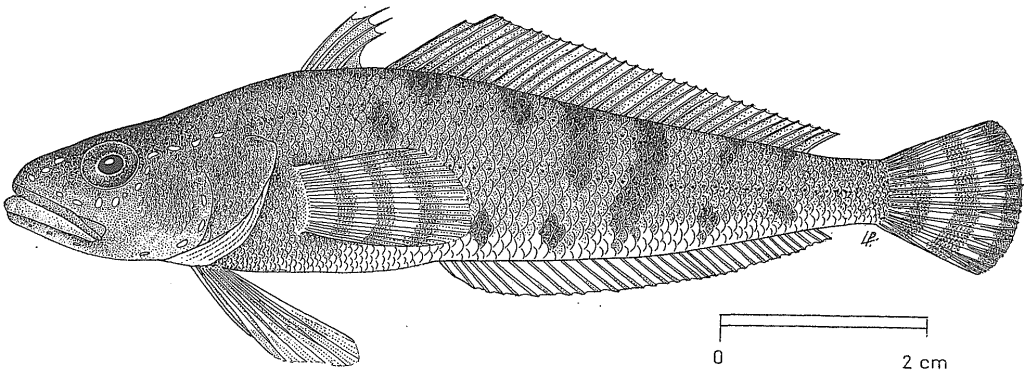
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Cryothenia peninsulae Daniels, 1981

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - True icedevil
Fr - Calandre des glaces
Ru - Kriotenia
Sp - Diablillo heladero

NATIONAL :

DISTINCTIVE CHARACTERS :

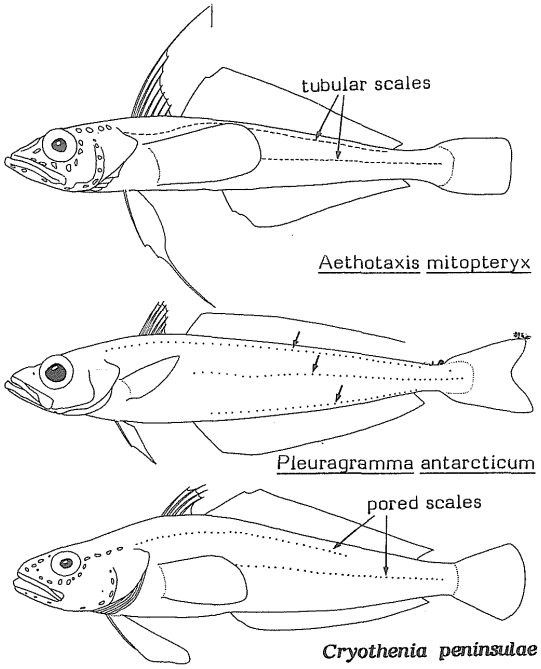
Body fusiform, slightly compressed, its depth 15.7 to 21% of standard length. Head relatively small, its length 3.2 to 3.5 times in standard length; cephalic sensory canals possess large open pores; median part of supratemporal canal and supraorbital commisure lost; 7 to 9 pores in the infraorbital canal; temporal canal with 5 pores; supraorbital canal with 5 pores; preoperculomandibular canal in 2 sections with 4 and 7 pores; eye 3.2 to 4.0 times in head length; interorbital width deeply depressed, 18 to 23% of head length; 15 to 17 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below middle of eye; lower jaw slightly protruding; teeth in both jaws villiform at symphyses, on a single row laterally. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 34 to 36 soft rays; 33 to 35 anal fin rays; pectoral fins large, fan-like, with 24 to 26 rays, as long as the pelvics; caudal fin rounded. Two lateral lines without tubular scales but with pored scales; 32 to 37 pored scales in upper lateral line and 34 to 38 in the lower; the body entirely covered with large and cycloid (smooth) scales; occiput and opercle fully scaled; interorbital space, snout, preorbital area, lower jaw and lower part of cheeks scaleless. The hypural bones 1 and 2, 3, 4 and 5 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely located in scapula bone.

Colour: barred with light and dark areas of purple and silver; head purple; both dorsal fins and posterior rays of anal fin purple; pectoral and caudal fins barred.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Aethotaxis mitopteryx: 3 lateral lines with tubular scales; numerous elongate gillrakers on lower part of anterior arch (15 to 17 in C. peninsulae).

Pleuragramma antarcticum: 3 lateral lines with pored scales; 20 or more gillrakers on lower part of anterior arch.



SIZE:

Maximum: 15 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Only reported from the west coast of the Antarctic Peninsula.

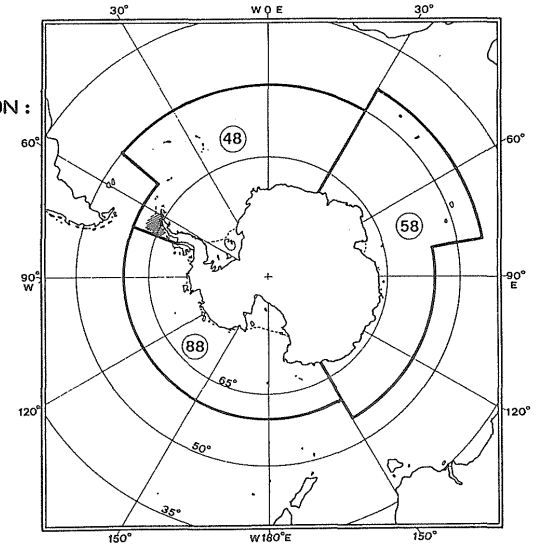
Pelagic species in midwaters between 50 and 100 m depth. Spawning in autumn and winter.

Feeds on small pelagic invertebrates: krill, copepods.

PRESENT FISHING GROUNDS:

Not yet commercially exploited.

Cryothenia peninsulae



CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Separate statistics are not reported for this species.

Could be caught with pelagic trawls.

NOT Dis 1

1985

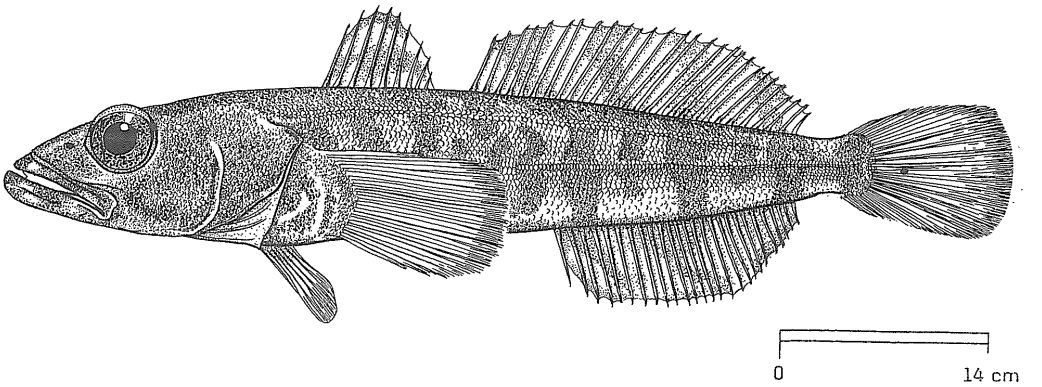
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Dissostichus eleginoides Smitt, 1898

OTHER SCIENTIFIC NAMES STILL IN USE : Dissostichus amissus (Gill & Townsend, 1901)



VERNACULAR NAMES :

FAO/CCAMLR : En - Patagonian toothfish
Fr - Légine australe
Ru - Patagonsky klykach
Sp - Austromerluza negra

NATIONAL :

DISTINCTIVE CHARACTERS :

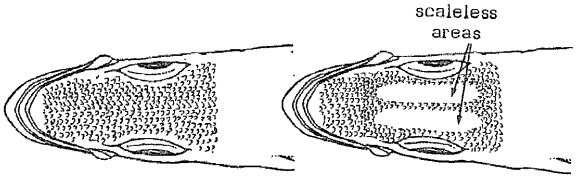
One of the two largest species occurring in the Antarctic. Body fusiform, rather elongate, its depth 16 to 20% of standard length. Head depressed, its dorsal profile flat; length of head about 3 times in standard length; cephalic sensory canals with prolonged superficial canaliculi; eye 5 or 6 times in head length; 11 or 12 small gillrakers on lower part of anterior arch; mouth large, maxilla extending posteriorly to below middle or posterior part of eye; lower jaw strongly projecting; teeth biserial in upper jaw, those of the outer row enlarged, canine-like; a group of stronger canine teeth on each premaxilla; teeth on lower jaw uniserial, canine-like. Two dorsal fins, the first with 8 to 11 flexible spines, the second with 26 to 30 soft rays; 26 to 30 anal fin rays; pectoral fins large, fan-like, with 24 rays, much longer than the pelvics; caudal fin truncate or a little emarginate. Two lateral lines, the lower beginning below or anterior to the middle of the second dorsal fin; about 95 tubular scales in upper lateral line and 64 in the lower; the body entirely covered with large and more or less smooth scales; upper surface of head (except snout and preorbital area), cheeks and opercles with small scales; 2 elongate scaleless areas symmetrically arranged on upper surface of head. The five hypural bones of the caudal skeleton are separated from each other. Pectoral foramen entirely located in the scapula bone.

Colour: brown-grey, with more or less indistinct darker markings; spinous dorsal fin with a distal dusky area. Juveniles without black crossbars.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Dissostichus mawsoni: no elongate scaleless areas on upper surface of head; lower lateral line begins below posterior third of soft dorsal fin.

Other species of Nototheniidae: no strong canine-like teeth on upper and lower jaws.



SIZE:

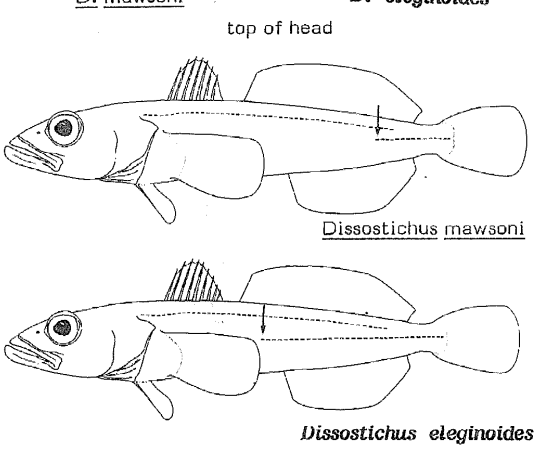
Maximum: 215 cm; common to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, reported from all shelves of the sub-Antarctic islands, from the Kerguelen-Heard Ridge to Bouvet Island in the Indian and east Atlantic parts of the Southern Ocean, and also from all the islands of the Scotia Arc and the northern part of the Antarctic Peninsula.* Outside the area, it is known from the southern coast of Chile northward to 30°S and the coast of Argentina, especially in the Patagonian area.

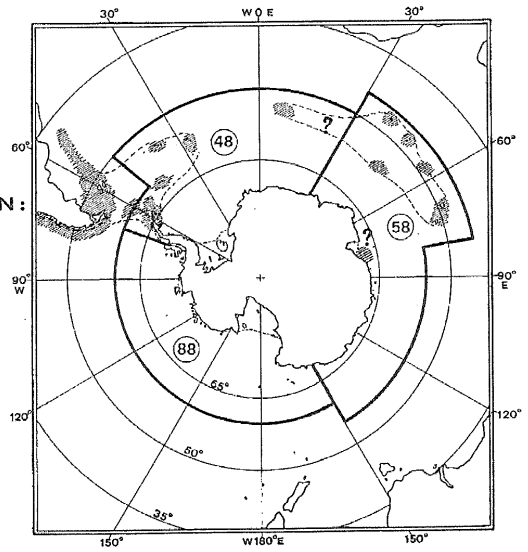
Found between 70 and 1 500 m depth, D. eleginoides is reported as having a pelagic behaviour during some periods of its life.

Feeds on other fishes and cephalopods.



PRESENT FISHING GROUNDS:

Mainly around the Kerguelen Islands, South Georgia, South Shetlands and outside the area, on the Patagonian shelf.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Less than 400 t are reported annually from the area, but 6 500 t were caught around the Kerguelen Islands during the 1984/85 season. The extraterritorial catches (Patagonian Shelf) are higher.

Caught only with bottom trawls.

Marketed as frozen fish and fishmeal, flesh of excellent quality.

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* One young specimen has been recorded from Prydz Bay: it has very few scales on the upper surface of head and the lower lateral line is characteristic of D. eleginoides

NOT Dis 2

1985

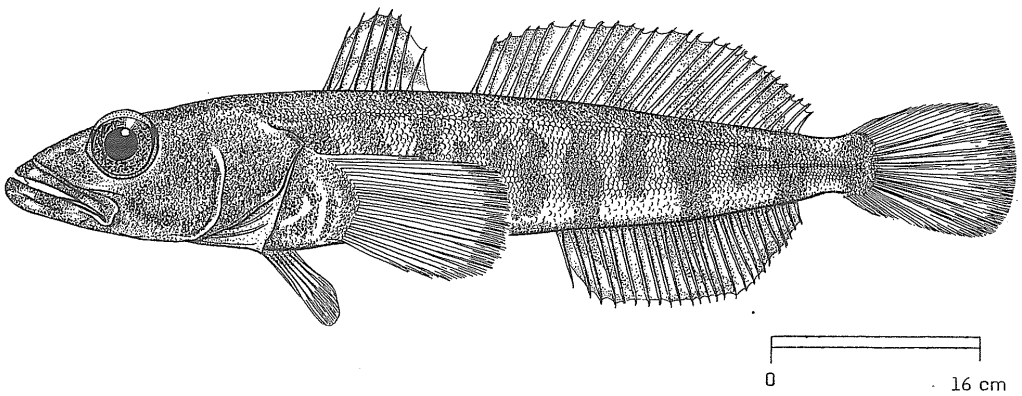
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Dissostichus mawsoni Norman, 1937

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic toothfish
Fr - Légine antarctique
Ru - Antarktichesky klykach
Sp - Austromerluza antártica

NATIONAL :

DISTINCTIVE CHARACTERS :

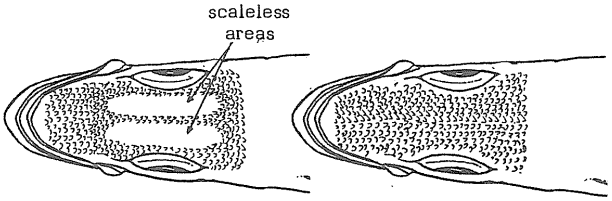
One of the two largest species occurring in the Antarctic. Body fusiform, rather elongate, its depth less than 16% of standard length. Head depressed, its dorsal profile flat; length of head about 3.3 times in standard length; cephalic sensory canals with prolonged superficial canaliculi; eye 4 or 5 times in head length; 12 or 13 small gillrakers on lower part of anterior arch; mouth large, maxilla extending posteriorly to below middle of eye or a little beyond; lower jaw strongly projecting; teeth biserial in upper jaw, those of the outer row enlarged, canine-like; a group of stronger canine teeth on each premaxilla; teeth on lower jaw uniserial, canine-like. Two dorsal fins, the first with 7 to 9 flexible spines, the second with 24 to 27 soft rays; 25 to 28 anal fin rays; pectoral fins large, fan-like, with 26 to 29 rays, much longer than the pelvics; caudal fin rounded or truncate. Two lateral lines, the lower beginnning below the posterior third of the second dorsal fin; about 95 tubular scales in upper lateral line and 43 to 48 in the lower; the body entirely covered with large and more or less smooth scales; upper surface of head (except snout and preorbital area), cheeks and opercles with small scales; no elongate scaleless areas on upper surface of head. The five hypural bones of the caudal skeleton are separated from each other. Pectoral foramen entirely located in the scapula bone.

Colour: uniformly brownish with 4 black crossbars in the juveniles which fade with age; spinous dorsal fin with a transversal medial dark stripe.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Dissostichus eleginoides: two elongate scaleless areas on upper surface of head; lower line begins below or anterior to the middle of the second dorsal fin.

Other species of Nototheniidae: no canine-like teeth on upper and lower jaws.



D. eleginoides *D. mawsoni*

top of head

SIZE :

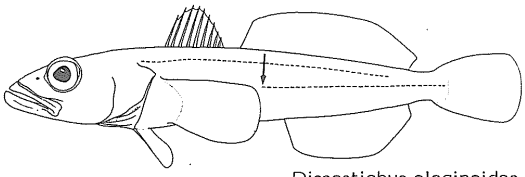
Maximum: 175 cm; common to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

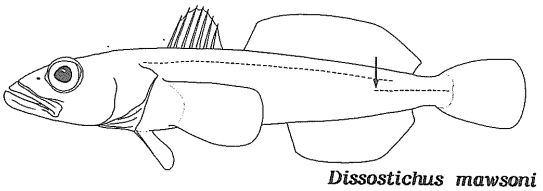
Circumpolar distribution; reported from all the coast of the Antarctic Continent, and also from the islands of the Scotia Arc (South Orkney and South Shetland) and the northern part of the Antarctic Peninsula. Presence questionable in South Georgia and South Sandwich Islands.

Found between 100 and 1 600 m depth, D. mawsoni is reported as having a demersal behaviour, but with pelagic juveniles. Adult specimens (120 cm and more) are known to undertake extensive oceanic migrations.

Feeds on other fishes and cephalopods.



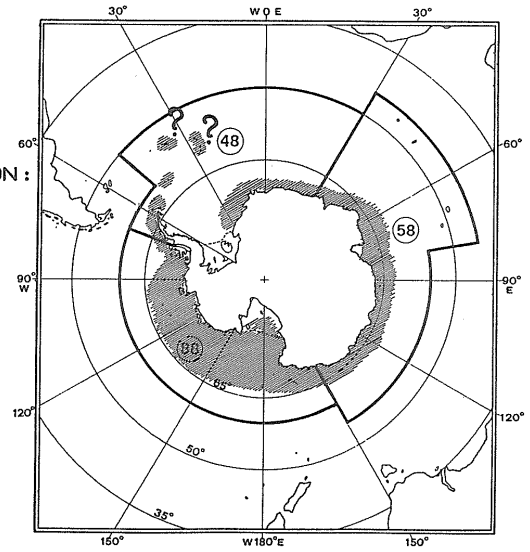
Dissostichus eleginoides



Dissostichus mawsoni

PRESENT FISHING GROUNDS :

This species is not fished, except locally (Ross Sea or Antarctic Peninsula) for the scientific stations.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught with bottom trawls, but also with hook-and-line.

Flesh of excellent quality.

NOT Not 1

1985

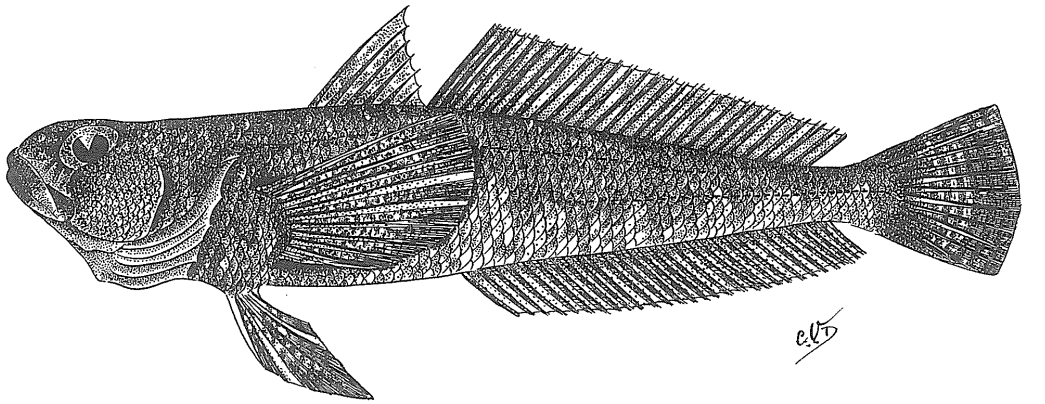
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Gobionotothen) acuta Günther, 1880

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Triangular rockcod
Fr - Bocasse triangulaire
Ru - Nototenia ostroluchka
Sp - Trama triangular

NATIONAL :

DISTINCTIVE CHARACTERS :

Body slender, compressed posteriorly, its depth about 15.5% of standard length. Head behind eyes broad and depressed, becoming narrow in area of eyes; snout rather narrow, rising nearly uniformly at a steep angle, its dorsal profile curving most strongly just anterior to eye; eyes placed just below dorsal profile of head, bulging slightly into it; length of head a little more than 3 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 7 pores in the infraorbital canal; temporal canal with 4 pores; preoperculo-mandibular canal with 10 pores; eye 3 to 3.7 times in head length; interorbital width very narrow, about 6% of head length; 12 to 14 gillrakers on lower part of anterior arch; mouth small and narrow, maxilla extending posteriorly to below anterior part of eye; jaws equal anteriorly; teeth in upper jaws in two narrow bands, those of the outer band composed of larger teeth; teeth in lower jaws in a single narrow band. Two dorsal fins, the first with 5 to 7 flexible spines, the second with 28 to 30 soft rays; 28 to 31 anal fin rays; pectoral fins large, fan-like, with 19 or 20 rays, much longer than the pelvics; caudal fin slightly rounded. Two lateral lines, the upper ending under base of about 5th last ray of second dorsal fin; 34 to 39 tubular scales in upper lateral line and 15 to 18 in the lower; a few pored scales present anteriorly, the body entirely covered with large and ctenoid scales; upper surface of head scaled; lower parts of opercle and cheeks scaled; preorbital region scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates, themselves fused to the ural vertebral centrum. Pectoral foramen bordered by scapula and coracoid.

Colour: brown, darker dorsally, with 4 or less distinct dark bars; dorsal rays with a series of small spots; caudal fin faintly barred; rays of pectoral fins with spots forming irregular bars, the membrane clear.

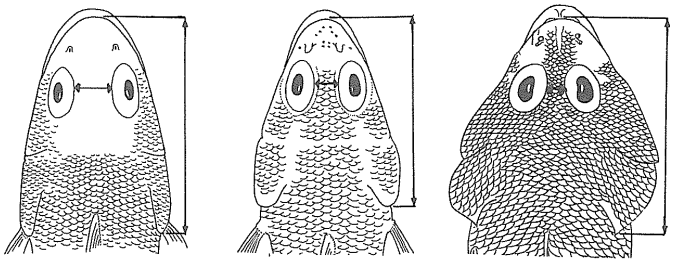
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (G.) angustifrons: lower part of opercle scaleless; upper lateral line with 26 to 34 tubular scales (34 to 39 in N. (G.) acuta).

N. (G.) cyanobrancha: posterior membrane of the opercle dark-blue; interorbital width 11.6 to 20.5% of head length (about 6% in N. (G.) acuta); lower lateral line with 4 to 15 tubular scales (15 to 18 in N. (G.) acuta).

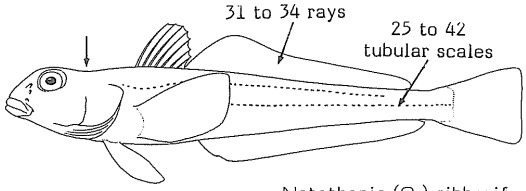
N. (G.) gibberifrons: head strongly depressed behind eyes; lower lateral line with 25 to 42 tubular scales; second dorsal fin with 31 to 34 rays (28 to 30 in N. (G.) acuta).

N. (G.) marionensis: interorbital width about 10% of head length.



N. (G.) cyanobrancha — N. (G.) marionensis — *N. (G.) acuta*

top of head



Notothenia (G.) gibberifrons

SIZE :

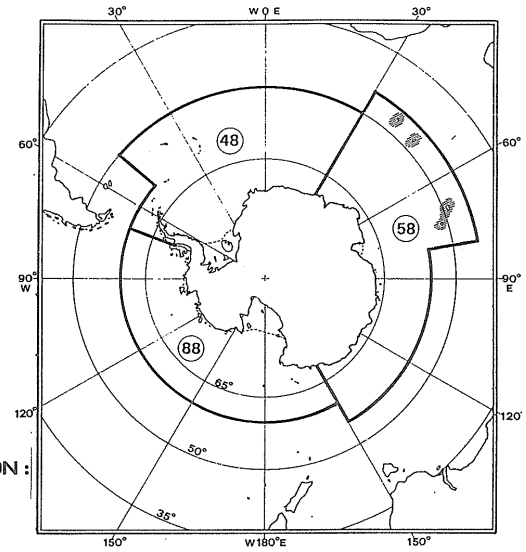
Maximum: 35 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from shelves of the sub-Antarctic islands: Kerguelen, Heard, Crozet and Marion-Prince Edward.

Found from the shore to 300 m depth.

Feeds on benthic invertebrates (mostly amphipods and isopods).



PRESENT FISHING GROUNDS :

Not commercially exploited, but taken as by-catch around the Kerguelen Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught as bycatch in bottom trawls.

Not yet marketed.

NOT Not 2

1985

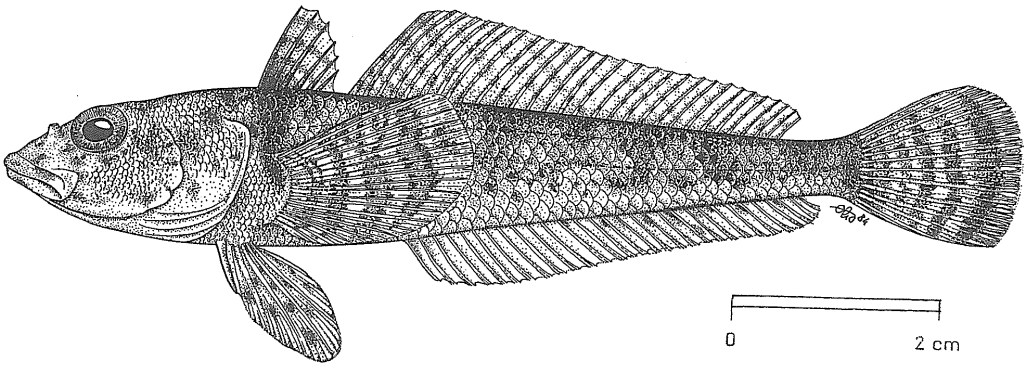
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Gobionotothen) angustifrons Fischer, 1885

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia sandwichensis Nybelin, 1947



VERNACULAR NAMES :

FAO/CCAMLR : En - Narrowhead rockcod
Fr - Bocasse obtuse
Ru - Uzkolobaya nototenia
Sp - Trama

NATIONAL :

DISTINCTIVE CHARACTERS :

Body rather elongate and slender, its depth about 16 to 19% of standard length. Head moderate in length, a little more than 3 times in standard length, its width about 5 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 7 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 10 pores; eye 3.7 to 5 times in head length; interorbital width narrow, about 5.3% of head length; 12 or 13 gillrakers on lower part of anterior arch; mouth relatively small, maxilla extending posteriorly to below anterior margin or anterior quarter of eye; jaws equal anteriorly; teeth in both jaws in two narrow bands, those of the outer band slightly larger. Two dorsal fins, the first with 5 to 8 flexible spines, the second with 28 to 32 soft rays; 29 to 32 anal fin rays; pectoral fins large, fan-like, with 18 to 21 rays, much longer than the pelvics; caudal fin rounded. Two lateral lines, the upper ending below middle or posterior part of second dorsal fin; 26 to 34 tubular scales in upper lateral line and 15 to 26 in the lower; the body entirely covered with large and ctenoid scales; upper surface of head scaled; lower part of opercle scaleless; cheeks scaled, preorbital region scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates, themselves fused to the ural vertebral centrum. Pectoral foramen bordered by scapula and coracoid.

Colour: grey-brown, darker dorsally, with black transverse bars; spots on the sides of the body; dorsal, caudal and pectoral fins with series of small dark spots on the rays. Often a dark bar through the spinous dorsal fin, connecting the bases of the pectoral fins.

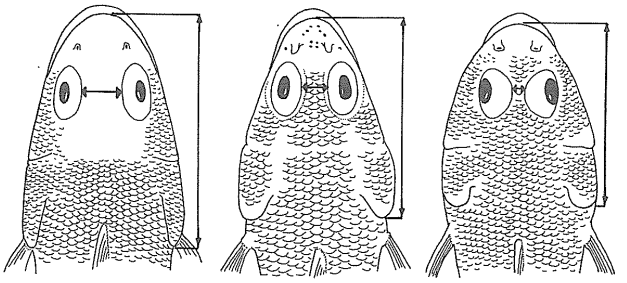
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (G.) acuta: snout narrow, head triangular; lower parts of opercle scaled; lower lateral line with 15 to 18 tubular scales (15 to 26 in N. (G.) angustifrons).

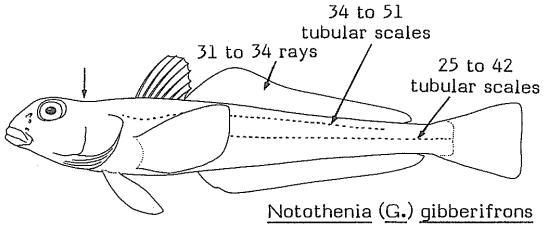
N. (G.) cyanobrancha: posterior membrane of the opercle dark-blue; interorbital width 11.6 to 20.5% of head length (about 5.3% in N. (G.) angustifrons); lower lateral line with 4 to 15 tubular scales.

N. (G.) gibberifrons: head strongly depressed behind eyes; lower parts of opercle scaled; upper lateral line with 34 to 51 tubular scales (26 to 34 in N. (G.) angustifrons); lower lateral line with 25 to 42 tubular scales; second dorsal fin with 31 to 34 rays (28 to 32 in N. (G.) angustifrons).

N. (G.) marionensis: interorbital width about 10% of head length; lower lateral line with 15 to 17 tubular scales.



N. (G.) cyanobrancha N. (G.) marionensis top of head *N. (G.) angustifrons*



Notothenia (G.) gibberifrons

SIZE :

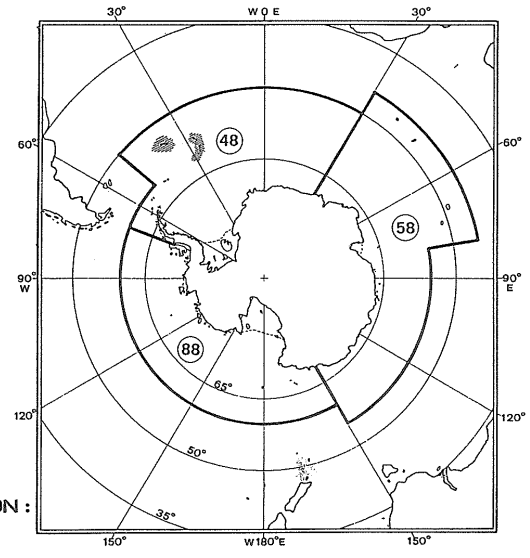
Maximum: 20 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Notothenia (Gobionotothen) angustifrons is confined to South Georgia and the South Sandwich Islands.

Found from the shore to 100 m depth, this species is commonly caught between 15 and 40 m. Nothing is known about its behaviour.

Feeds probably on benthic invertebrates and is often found in the stomachs of Notothenia (N.) rossii.



PRESENT FISHING GROUNDS :

No specific fishery.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught as bycatch in bottom trawls.

Not yet marketed.

NOT Not 3

1985

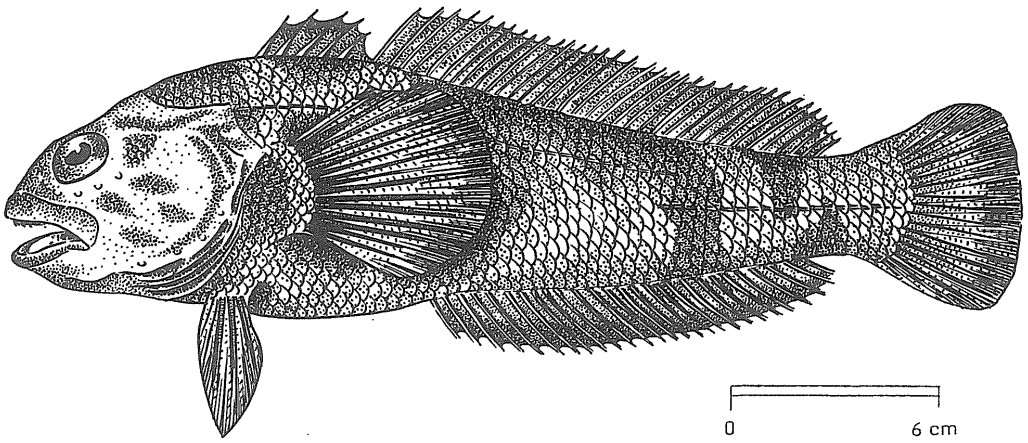
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Notothenia) coriiceps Richardson, 1844

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia coriiceps coriiceps Richardson, 1844



VERNACULAR NAMES :

FAO/CCAMLR : En - Black rockcod
Fr - Notothenia noir, Bocasse noire
Ru - Subantarkticheskaya golobaya nototenia
Sp - Trama negra

NATIONAL :

DISTINCTIVE CHARACTERS :

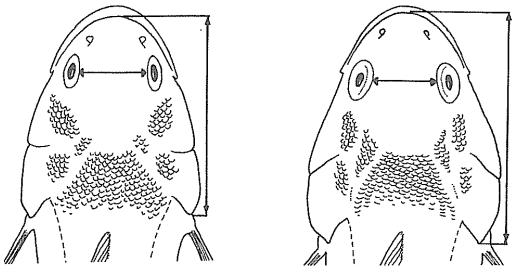
Body robust and rather broad in larger specimens, its depth 20 to 25% of standard length. Head large and broad, slightly depressed; length of head a little less than 3 times in standard length; cephalic sensory canals normal in pattern; 9 pores in the infraorbital canal; temporal canal with 4 pores, but preoperculomandibular canal with only 8 or 9 pores; eye 5 or 6 times in head length much larger in small specimens; interorbital width 22 to 25% of head length; 11 to 13 small spiny gillrakers on lower part of anterior arch; mouth rather large; gape of mouth nearly horizontal; maxilla extending posteriorly to below middle or posterior half of eye; jaws about equal anteriorly; teeth in both jaws in two bands, those of the outer band uniserial and enlarged. Two dorsal fins, the first with 4 or 5 flexible spines, the second with 35 to 38 soft rays; 27 to 29 anal fin rays; pectoral fins large, fan-like, with 16 or 17 rays, much longer than the pelvics; caudal fin slightly rounded in large specimens, lobed in juveniles. Two lateral lines, the upper ending a little anterior to posterior end of base of second dorsal fin; about 34 to 49 tubular scales in upper lateral line and 6 to 17 in the lower; the body nearly fully covered with large and mostly cycloid (smooth) scales; upper surface of head scaleless; very upper part of opercles and area behind eyes with small scales. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen bordered by scapula and coracoid.

Colour: coloration pattern very variable; uniformly blackish-brown above; ventral parts lighter; belly and branchiostegal region usually mustard-yellow in colour; irregular blackish markings present across back and on sides of body; juveniles silvery or light brown.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (N.) neglecta: 17 to 19 pectoral fin rays (16 or 17 in N. (N.) coriiceps); interorbital width 26 to 33% of head length (22 to 25% in N. (N.) coriiceps); 37 to 41 rays in the second dorsal fin (35 to 38 in N. (N.) coriiceps).

N. (N.) rossii: 21 to 24 pectoral fin rays; interorbital width 29 to 31.5% of head length; 10 preoperculomandibular pores (8 or 9 in N. (N.) coriiceps).



N. (N.) rossii — *N. (N.) coriiceps*

top of head

SIZE :

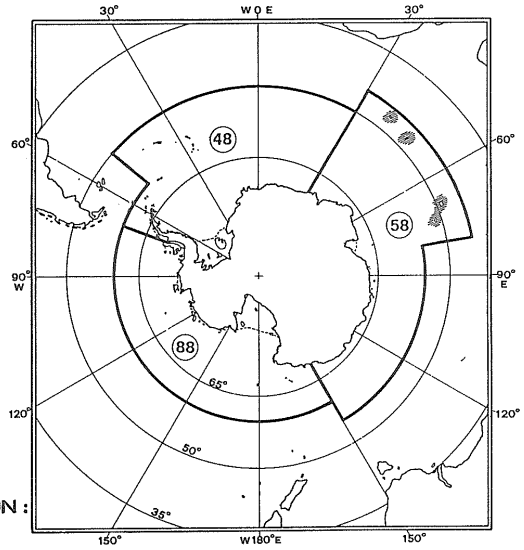
Maximum: 50 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from all shelves of the sub-Antarctic islands of the Indian sector of the Southern Ocean (Kerguelen, Heard, Crozet, Marion-Prince Edward Islands).

Generally found in shallow waters near shore.

Feeds on bottom invertebrates.



PRESENT FISHING GROUNDS :

Not commercially exploited at present but of potential importance.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species, but isolated specimens may be included in the Notothenia rossii catches.

Caught only with bottom trawls, or by hook-and-line close to the scientific stations.

NOT Not 4

1985

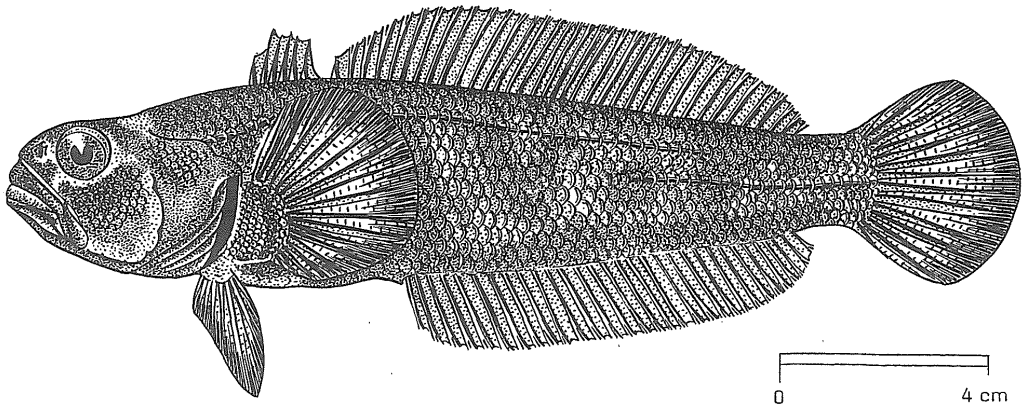
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Gobionotothen) cyanobrancha Richardson, 1844

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia purpuriceps Richardson, 1844



VERNACULAR NAMES :

FAO/CCAMLR : En - Blue rockcod
Fr - Bocasse bleue
Ru - Sunegorlaya nototenia
Sp - Trama azul

NATIONAL :

DISTINCTIVE CHARACTERS :

Body elongate, compressed, its depth 18 to 19.5% of standard length. Head a little compressed; interorbital space, smooth and thrown into irregularly arranged folds; length of head 3 or a little more than 3 times in standard length; cephalic sensory canals normal, the rim of each pore being raised slightly; 7 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 10 pores; eye 4.6 to 4.8 times in head length; moderate-sized interorbital width, 17 to 18% of head length; 10 to 13 pointed and elongate gillrakers on lower part of anterior arch; mouth large, maxilla extending posteriorly to below posterior 1/4 of eye; jaws equal anteriorly; teeth in upper jaw in two uniserial rows; teeth in lower jaw rather large, spaced and canine-like, arranged in a single uniserial row. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 33 to 36 soft rays; 30 to 34 anal fin rays; pectoral fins large, fan-like, with 20 or 21 rays, much longer than the pelvics; caudal fin well rounded. Two lateral lines, the upper ending posteriorly below beginning of last third of second dorsal fin; 31 to 39 tubular scales in upper lateral line and 4 to 15 in the lower; the body entirely covered with large and cycloid (smooth) scales; ctenoid scales only in area covered by pectoral fins; upper surface of head and preorbital area scaleless; upper quarter of opercles and cheeks with small cycloid scales. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates, themselves fused to the ural vertebral centrum. Pectoral foramen bordered by scapula and coracoid.

Colour: body uniformly dark brown, a little lighter ventrally; margin of opercular membrane dark-blue; all fins are dark, the lightest being the pelvics.

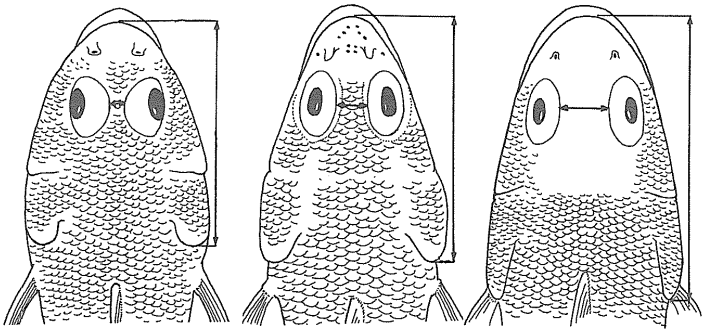
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (G.) acuta: snout narrow, head triangular; lower lateral line with 15 to 18 tubular scales (4 to 15 in N. (G.) cyanobrancha); second dorsal fin with 28 to 30 rays (33 to 36 in N. (G.) cyanobrancha).

N. (G.) angustifrons: interorbital width narrow, about 5.3% of head length (17 to 18% in N. (G.) cyanobrancha); 15 to 26 tubular scales in lower lateral line.

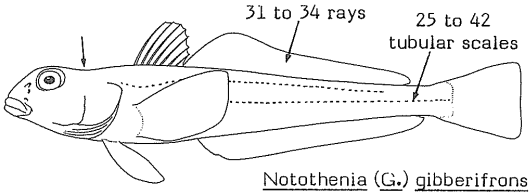
N. (G.) gibberifrons: head strongly depressed behind eyes; general coloration bright, yellow to green; lower lateral line with 25 to 42 tubular scales; second dorsal fin with 31 to 34 rays.

N. (G.) marionensis: interorbital width about 10% of head length; lower lateral line with 15 to 17 tubular scales.



N. (G.) angustifrons — N. (G.) marionensis — *N. (G.) cyanobrancha*

top of head



Notothenia (G.) gibberifrons

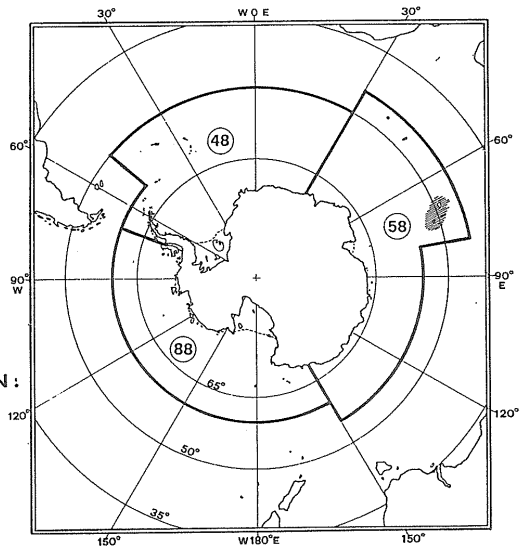
SIZE :

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Species known only from the Kerguelen and Heard Islands in very shallow waters from the shore and intertidal pools, under small rocks, down to about 20 m depth.

Feeds on benthic invertebrates (amphipods, molluscs of the Patinigera group).



PRESENT FISHING GROUNDS :

Only in the bays of Kerguelen and Heard Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet commercially exploited.

Caught only with gillnets and hook-and-line.

Not yet marketed.

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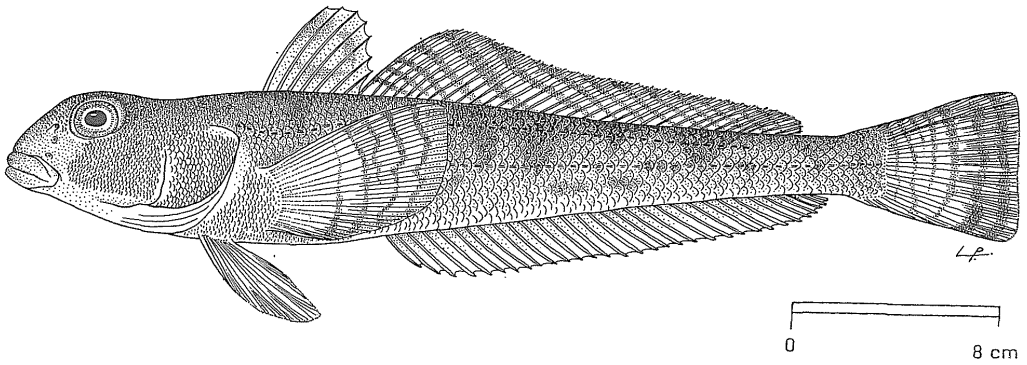
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Notothenia (Gobionotothen) gibberifrons Lönnberg, 1905

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Humped rockcod
Fr - Bocasse bossue
Ru - Zilenaya nototenia; Antarktichesky bychok
Sp - Trama jorobada

NATIONAL :

DISTINCTIVE CHARACTERS :

Body relatively elongate and slender, its depth about 15% of standard length; dorsal profile much more convex than ventral which is nearly horizontal; compressed posteriorly, becoming depressed in region of bases of pectoral fins; the body behind the head rises abruptly toward the origin of the first dorsal fin; profile of snout very steep; length of head 3.2 to 3.8 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 7 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 9 or 10 pores; eye 3 (young) to 4.6 times in head length; interorbital width narrow, 6 to 7% of head length; 8 to 11 gillrakers on lower part of anterior arch; mouth small and narrow nearly horizontal, maxilla extending posteriorly to below anterior margin of eye; teeth in both jaws conical in a single band. Two dorsal fins, the first with 6 to 8 flexible spines, the second with 31 to 34 soft rays; 31 to 34 anal fin rays; pectoral fins large, fan-like, with 20 to 22 rays, much longer than the pelvics; caudal fin truncate. Two lateral lines, the upper ending posteriorly below bases of second or third last rays of second dorsal fin; 34 to 51 tubular scales in upper lateral line and 30 to 42 in the lower, which is much longer than in most nototheniids; the body entirely covered with large and ctenoid scales; upper surface of head and greater part of snout scaled, but preorbital area scaleless; lower parts of opercle scaled. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates, which are themselves fused to the ural vertebral centrum. Pectoral foramen bordered by scapula and coracoid.

Colour: ground colour yellow, fins greenish with brown spots; upper part of head and body irregularly spotted and blotched; dorsal, caudal and pectoral fins with series of dark spots forming bars; anal fin pale.

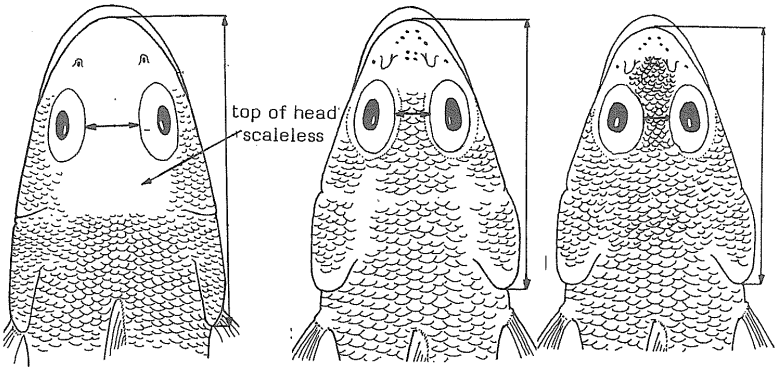
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

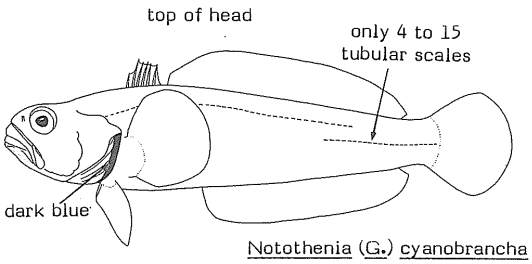
Notothenia (G.) angustifrons: lower part of opercle scaleless; upper lateral line with 26 to 34 tubular scales (34 to 51 in N. (G.) gibberifrons).

N. (G.) acuta: snout narrow, head triangular; lower lateral line with 15 to 18 tubular scales (30 to 42 in N. (G.) gibberifrons); second dorsal fin with 28 to 30 rays (31 to 34 in N. (G.) gibberifrons).

N. (G.) cyanobrancha: posterior membrane of the opercle dark-blue; interorbital width 11.6 to 20.5% of head length (6 to 7% in N. (G.) gibberifrons); lower lateral line with 4 to 15 tubular scales. Top of head scaleless.

N. (G.) marionensis: interorbital width about 10% of head length; lower lateral line with 15 to 17 tubular scales.





SIZE :

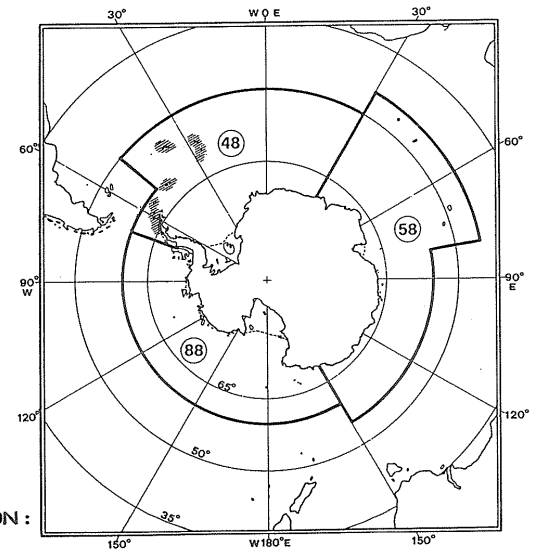
Maximum: 55 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from shelves of all islands of the Scotia Arc: South Georgia, South Sandwich, South Orkney, South Shetland Islands, and the northern part of the Antarctic Peninsula.

Found from 5 to 750 m depth, N. (G.) gibberifrons spawns in August/September. Pelagic fingerlings inhabit the 100 m waters over the bottom. After settling on the bottom, both juveniles and adults are observed on the same grounds.

Feeds mostly on benthic organisms (polychaetes, amphipods and isopods) and to a less extent on krill and other euphausiids or on algae.



PRESENT FISHING GROUNDS :

Mainly around South Georgia, South Orkneys and the South Shetland Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Reported catches are variable from one year to another and range between about 3,000 and 15,000 t annually.

Caught only in bottom trawls.

Marketed as frozen fish; flesh is good. The low reported catch during the season 1982/83 means that this species needs particular conservation measures.

NOT Not 6

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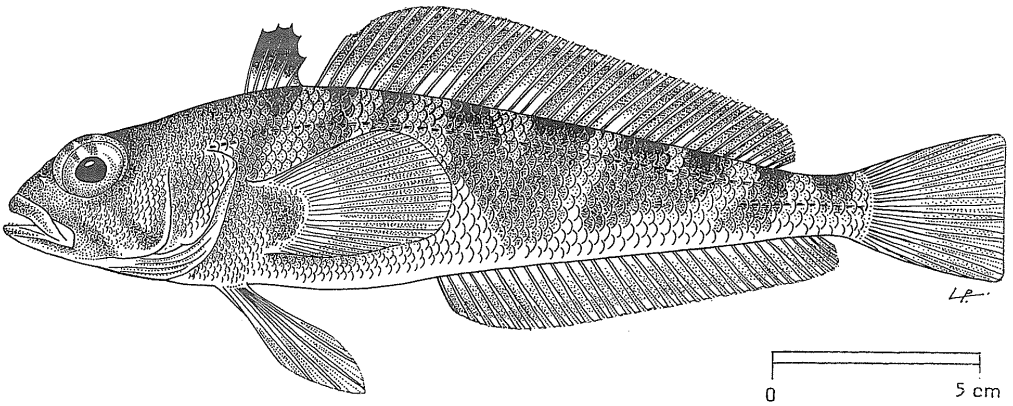
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Lepidonotothen) kempi Norman, 1937

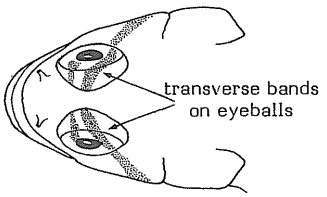
OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Striped-eyed rockcod
Fr - Bocasse aux yeux rayés
Ru - Cheshueglazku kempa
Sp - Trama ojirayada

NATIONAL :



top of head

DISTINCTIVE CHARACTERS :

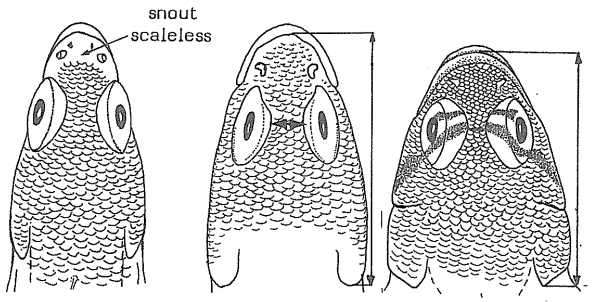
Body compressed, its depth about 16 to 20% of standard length. Head a little depressed, its dorsal profile more convex than ventral; length of head 3 or 4 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 7 pores in the infraorbital canal; temporal canal with 4 pores; preoperculo-mandibular canal with 10 pores; eye large and bulbous 2.7 to 3 times in head length; interorbital width very narrow, 4.6 to 7.5% of head length; 12 to 17 gillrakers on lower part of anterior arch; mouth slightly oblique, maxilla extending posteriorly to below anterior 1/4 to 1/3 of eye; lower jaw slightly protruding; teeth all conical in both jaws in 2 bands, those of the outer band uniserial, slightly enlarged; inner band composed of smaller, variably-sized teeth. Two dorsal fins, the first with 5 or 6 flexible spines, the second with 34 to 38 soft rays; 30 to 35 anal fin rays; pectoral fins large, fan-like, with 23 to 26 rays, about the same length as the pelvics; caudal fin truncate or slightly emarginate. Two lateral lines, the upper extending posteriorly almost to end of the second dorsal fin; 38 to 48 tubular scales in upper lateral line and 7 to 19 in the lower; the body entirely covered with large and ctenoid scales; head entirely scaled; scales present on upper parts of eyes, on proximal part of lower jaw and over the interopercular area. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen bordered by scapula and coracoid.

Colour: light grey; broad dark transverse bands on back and sides of body; head and snout dark grey; two dark oblique stripes on cheeks; dark grey transverse band on upper part of eyeball; proximal 2/3 of first dorsal fin very dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (Lepidonotothen) macrophthalma: 33 to 35 dorsal fin rays, 28 to 31 anal fin rays (34 to 38 and 30 to 35, respectively, in N. (L.) kempi); snout scaleless.

N. (L.) squamifrons: interorbital width 7.6 to 11.5% of head length (4.6 to 7.5% in N. (L.) kempi).



N. (L.) macrophthalma N. (L.) squamifrons *N. (L.) kempi*

top of head

SIZE :

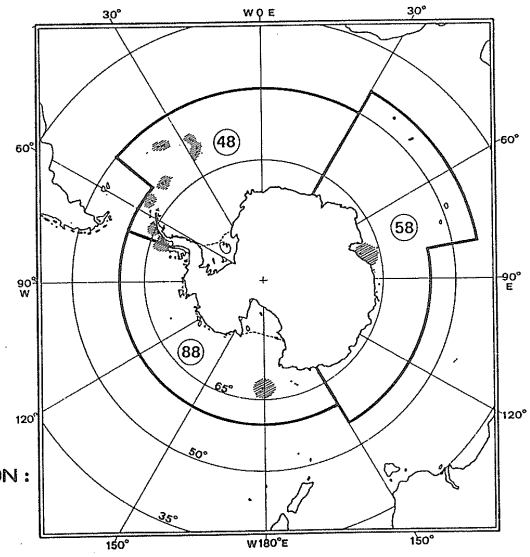
Maximum: 40 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from shelves of the Scotia Arc. South Georgia, South Sandwich, South Orkney, South Shetland Islands, and the northern part of the Antarctic Peninsula. Also known from the east Antarctica shelf (Prydz Bay) and Scott Island.

Found from 160 to 900 m depth.

Feeds on krill, other euphausiids, bottom invertebrates (cephalopods, amphipods) and algae.



PRESENT FISHING GROUNDS :

Caught throughout its range, but no specific fishery.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught as bycatch in bottom trawls.

Not yet marketed.

NOT Not 7

1985

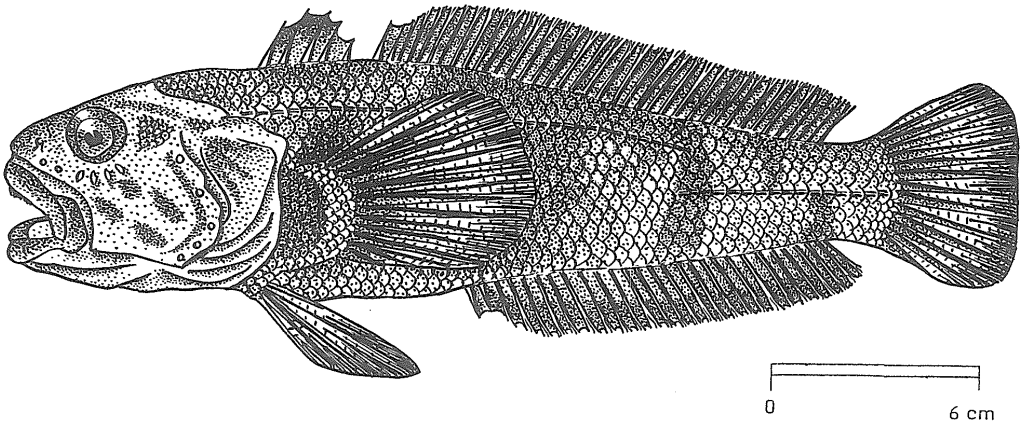
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Notothenia (Notothenia) neglecta Nybelin, 1951

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia coriiceps neglecta Nybelin, 1951



VERNACULAR NAMES :

FAO/CCAMLR : En - Yellowbelly rockcod
Fr - Bocasse jaune
Ru - Antarkticheskaya golobaya nototenia
Sp - Trama amarilla

NATIONAL :

DISTINCTIVE CHARACTERS :

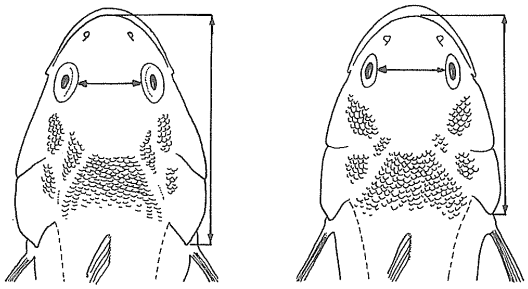
Body rather broad in large specimens, compressed in juveniles, its depth 20 to 25% of standard length. Head large and slightly depressed, length of head about 4 times in standard length; cephalic sensory canals normal in pattern; 9 pores in the infraorbital canal; temporal canal with 4 pores but preoperculomandibular canal with 8 or 9 pores; eye 5 or 6 times in head length; interorbital width 26 to 33% of head length; 11 to 13 small spiny gillrakers on lower part of anterior arch; mouth large, maxilla extending posteriorly to below middle or posterior half of eye; jaws about equal anteriorly; teeth in both jaws in two bands, those of the outer band uniserial and enlarged. Two dorsal fins, the first with 3 to 7 flexible spines, the second with 37 to 41 soft rays; 28 to 32 anal fin rays; pectoral fins large, fan-like, with 17 to 19 rays, much longer than the pelvics; caudal fin slightly rounded or subtruncate. Two lateral lines, the upper ending a little anterior to posterior end of second dorsal fin; about 34 to 49 tubular scales in upper lateral line and 6 to 77 in the lower; the body entirely covered with large and mostly cycloid (smooth) scales; upper surface of head scaleless; very upper part of opercles and area behind eyes, with small scales. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen bordered by scapula and coracoid.

Colour: adult specimens with a more or less deep brown colour, with numerous spots, light brown, black or greenish; abdomen light yellow, becoming greenish-yellow or green with age; dorsal and anal fins with some dark stripes; young fish are bright red with the abdomen golden-yellow; top of the head adorned with a big black spot; one black spot situated in front of the first dorsal; opercle with four elongated black spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Notothenia (N.) coriiceps: 16 or 17 pectoral fin rays (17 to 19 in N. (N.) neglecta); interorbital width 22 to 25% of head length (26 to 33% in N. (N.) neglecta); 35 to 38 rays in the second dorsal fin (37 to 41 in N. (N.) neglecta).

N. (N.) rossii: 21 to 24 pectoral fin rays; interorbital width 29 to 31.5% of head length.



N. (N.) coriiceps — *N. (N.) neglecta*

top of head

SIZE:

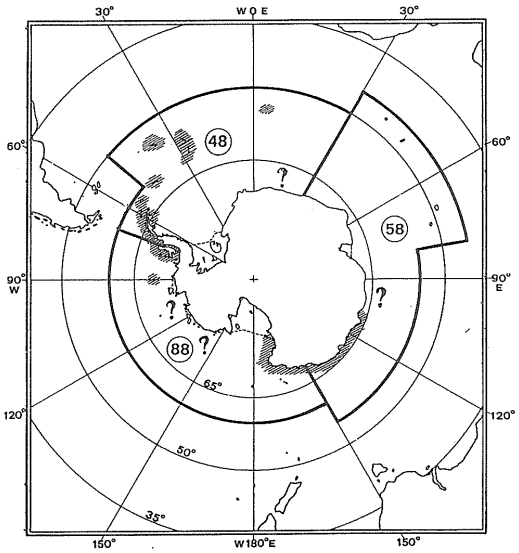
Maximum: 58 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Circum-Antarctic distribution, coasts of the Antarctic Continent, Antarctic Peninsula, South Georgia, South Sandwich, South Shetland, South Orkney, Bouvet and Peter I Islands. Presence questionable on the Pacific coast and on the Indian coasts of Antarctica.

A shallow water species to 35 m depth, exceptionally to 100 m; juveniles are known to be pelagic during a few months, down to 250 m depth.

Feeds on benthic invertebrates (amphipods, isopods, molluscs, polychaetes) and partly on euphausiids and cephalopods.



PRESENT FISHING GROUNDS:

Not commercially exploited at present but of potential importance for coastal fishing.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Separate statistics are not reported for this species.

Caught only with traps, gillnets and hook-and line.

NOT Not 8

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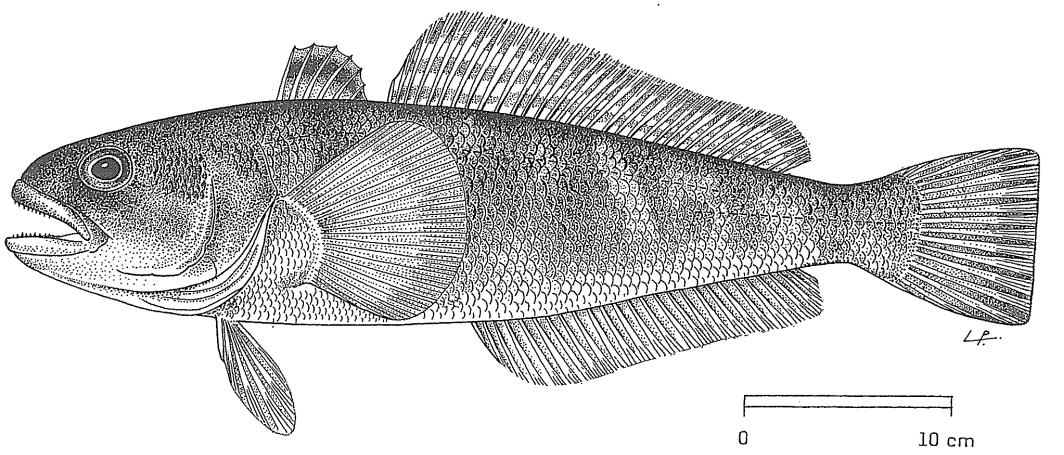
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Notothenia) rossii Richardson, 1844

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia rossii rossii Richardson, 1844
Notothenia rossii marmorata (Fischer, 1885)



VERNACULAR NAMES :

FAO/CCAMLR : En - Marbled rockcod
Fr - Bocasse marbrée, Colin de Kerguelen
Ru - Mramornaya nototenia
Sp - Trama jaspeada

NATIONAL :

DISTINCTIVE CHARACTERS :

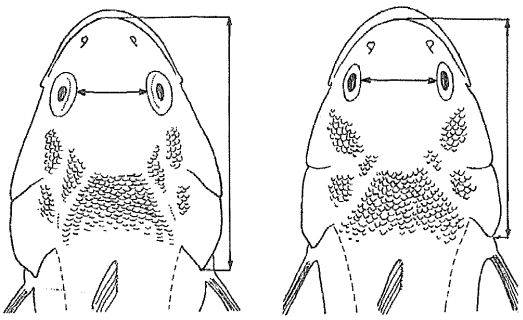
Body moderately compressed, its depth 21 to 26% of standard length. Head a little depressed, its dorsal profile flat or lightly curved; length of head a little more than 3 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 9 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 10 pores; eye 3.6 (young) to 6.5 times in head length; interorbital width 29 to 31.5% of head length; 13 or 14 small gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below middle or posterior part of eye; lower jaw slightly protruding; teeth in both jaws in two bands, those of the outer band uniserial, canine-like; inner bands composed of smaller, variably-sized teeth. Two dorsal fins, the first with 4 to 7 flexible spines, the second with 32 to 36 soft rays; 26 to 30 anal fin rays; pectoral fins large, fan-like, with 21 to 24 rays, much longer than the pelvics; caudal fin truncate in large specimens or lobed in young. Two lateral lines, the upper ending anterior to posterior end of second dorsal fin; 40 to 46 tubular scales in upper lateral line and 10 to 23 in the lower; body entirely covered with large and cycloid (smooth) scales; upper surface of head scaleless; upper half of opercles and cheeks behind eyes, with small scales. The hypurals bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen bordered by scapula and coracoid.

Colour: light brown, darker dorsally, with more or less distinct marbling black spots; the coloration pattern is very variable, the juveniles being yellow-brown or yellow-orange; the adults are darker but the dominant yellow colour remains; spinous dorsal fin with medial dusky marks at posterior edges of each membrane section.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Notothenia (N.) coriiceps: 16 or 17 pectoral fin rays (21 to 24 in N. (N.) rossii); interorbital width 22 to 25% of head length (29 to 31.5% in N. (N.) rossii); 8 or 9 preoperculomandibular pores (10 in N. (N.) rossii).

Notothenia (N.) neglecta: 17 to 19 pectoral fin rays; interorbital width 26 to 33% of head length.



N. (N.) coriiceps — *N. (N.) rossii*

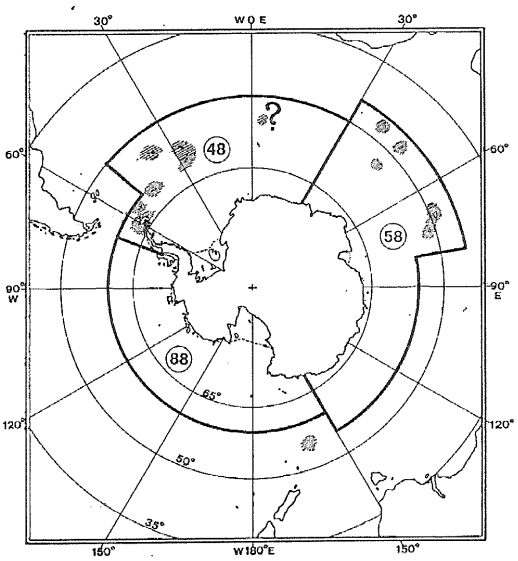
top of head

SIZE:

Maximum: 90 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Reported from shelves of the sub-Antarctic islands: Kerguelen, Heard, Crozet, Marion-Prince Edward, Macquarie (N. rossii rossii), South Georgia, South Sandwich, South Orkney, South Shetland Islands, and the northern part of the Antarctic Peninsula (N. rossii marmorata). Presence questionable at Bouvet Island. Also reported from some seamounts (Ob and Lena seamounts, Skiff bank).



Found from the shore to 500 m depth, N. rossii spawns on the continental shelf from April to June. Pelagic fingerlings inhabit the surface waters and after six months migrate inshore and become demersal. Offshore migration starts from age 5 when the fish reach sexual maturity.

Feeds on fishes (mainly Champsocephalus gunnari), krill and other euphausiids, hyperiids and ctenophores.

PRESENT FISHING GROUNDS:

Mainly around the Kerguelen Islands, South Georgia and the South Shetland Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

After extensive catches (up to 400 000 t in the early seventies) less than 3 000 t are now reported annually from the area.

Caught only with bottom trawls.

Marketed as frozen fish; flesh is good but a thick layer of fat occurs between the skin and the flesh. Often caught for its eggs, this species needs particular conservation measures.

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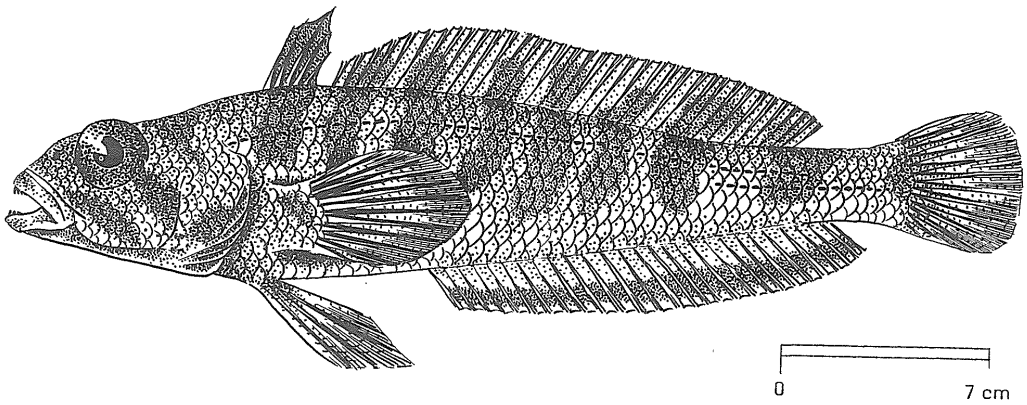
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia (Lepidonotothen) squamifrons Günther, 1880

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia squamifrons squamifrons
Notothenia squamifrons atlantica Permitin & Sàzonov, 1974
Notothenia brevipectoralis Hureau, 1966



VERNACULAR NAMES :

FAO/CCAMLR : En - Grey rockcod
Fr - Bocasse grise, Colin austral
Ru - Squama, Seraya nototenia
Sp - Trama gris

NATIONAL :

DISTINCTIVE CHARACTERS :

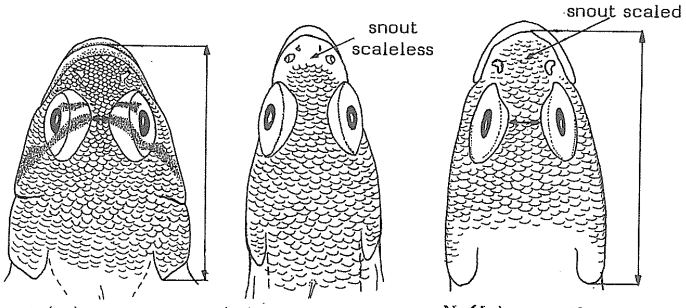
Body rather compressed, its depth about 22% of standard length. Head depressed, its length about 3.6 times in standard length; cephalic sensory canals normal in pattern; 7 pores in the infraorbital canal; temporal canal with 4 pores; eye 3 to 3.5 times in head length; interorbital width 7.6 to 11.5% of head length; 12 to 16 gillrakers on lower part of anterior arch; mouth large, maxilla extending posteriorly to below anterior 1/4 of eye; jaws equal anteriorly; teeth in both jaws in 2 or 3 rows. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 36 or 37 soft rays; 31 to 33 anal fin rays; pectoral fins large, fan-like, with 23 to 26 rays, much longer than the pelvics; caudal fin slightly rounded. Two lateral lines, the upper ending below the end of the second dorsal fin; 37 to 46 tubular scales in upper lateral line and 9 to 29 in the lower; the body entirely covered with feebly ctenoid or cycloid scales; top of head, interorbital space, snout, cheeks and opercles covered with ctenoid scales. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen bordered by scapula and coracoid.

Colour: greyish to greyish-green; dark grey transverse bands on body; two oblique dark bands on cheeks; dorsal and anal fins dark, distal end of rays white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia (Lepidonotothen) kempi: interorbital width narrow, 4.6 to 7.5% of head length (7.6 to 11.5% in N. (L.) squamifrons).

N. (L.) macrophthalma: 33 to 35 dorsal fin rays, 28 to 31 anal fin rays (36 or 37 and 31 to 33, respectively, in N. (L.) squamifrons); snout scaleless.



N. (L.) kempi — N. (L.) macrophthalma — *N. (L.) squamifrons*

top of head

SIZE :

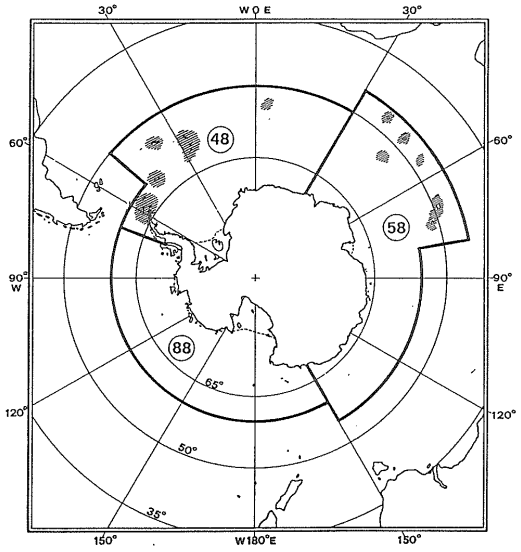
Maximum: 55 cm; common to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Common and abundant species over the shelves of the sub-Antarctic islands of the Indian sector of the Southern Ocean (Kerguelen, Heard, Crozet, Marion-Prince Edward Islands) and over the seamounts Skiff, Kara-Dag, Ob and Lena (Notothenia squamifrons squamifrons). Known around South Georgia and the islands of the Scotia Arc under the name Notothenia squamifrons atlantica.

Found between 10 and 570 m depth, Notothenia (L.) squamifrons spawns between 270 and 380 m depth.

Feeds at night on pelagic organisms (pelagic amphipods, salps, euphausiids) and also partly on benthic invertebrates and young fish.



PRESENT FISHING GROUNDS :

Mainly around the Kerguelen Islands, South Georgia and the Ob and Lena seamounts.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

During the seventies, 20 000 to 30 000 t were reported annually from the Fishing Area 58. Since 1980, less than 2,000 t are reported annually.

Caught only with bottom trawls.

Marketed as frozen fish and fishmeal, flesh of good quality.

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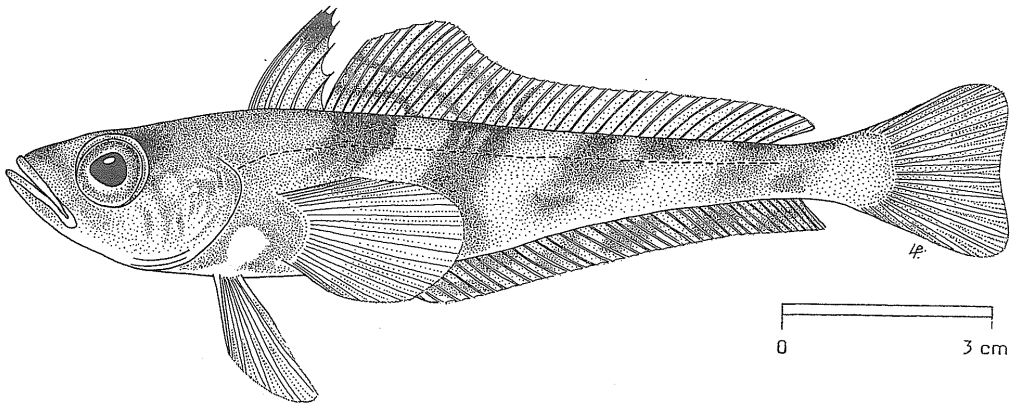
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notothenia larseni (Lönnberg, 1905)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Painted notie
Fr - Bocassette écrivain
Ru - Nototeniops larsena
Sp - Doradillo escribano

NATIONAL :

DISTINCTIVE CHARACTERS :

Body compressed, relatively slender, its depth 13 to 19% of standard length. Head rather small, its length 3.3 to 4 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 9 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 9 pores; eye 2.8 to 3.2 times in head length; interorbital width narrow 5.4 to 9% of head length; 16 to 18 slender and elongate gillrakers on lower part of anterior arch; mouth oblique, lips narrow, maxilla extending posteriorly to below anterior margin of eye; jaws equal anteriorly; teeth in both jaws, conical and small, in two bands, snout not steep, distinctly shorter than eye. Two dorsal fins, the first with 5 or 6 flexible spines, the second with 37 to 39 soft rays; 37 or 38 anal fin rays; pectoral fins large, fan-like, with 25 or 26 rays, as long as the pelvics; caudal fin emarginate. Two lateral lines, the upper ending below the end of second dorsal fin; 46 to 58 tubular scales in upper lateral line; lower lateral line with pored scales only; the body entirely covered with large and ctenoid (rough) scales; upper and lateral parts of head, including preorbital region scaled; lower jaw covered with scales. The hypural bones 1 and 2 of the caudal skeleton are fused; the hypural bones 3 and 4 are partially fused. Pectoral foramen bordered by scapula and coracoid.

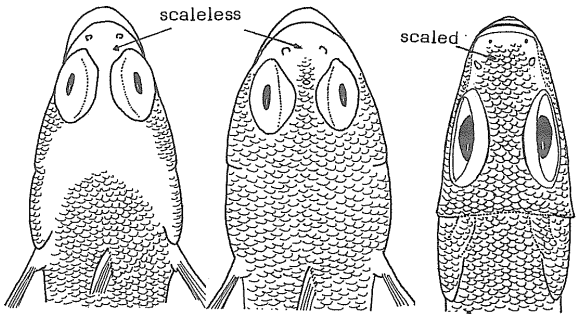
Colour: 4 dark transverse stripes on the sides of the body; a black occipital spot on the head; a silvery white coloration of the breast, extending upward to the middle of the depth of the bases of the pectoral fins is extremely typical of this species; second dorsal fin with a series of transverse dark stripes; first dorsal fin with a black spot on top; remaining fins light.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia nudifrons and N. mizops: preorbital region scaleless.

N. loesha: 34 to 36 anal fin rays (37 or 38 in N. larseni); 14 or 15 gillrakers on lower limb of first arch (16 to 18 in N. larseni); no silvery-white coloration of the breast and bases of pectoral fins.

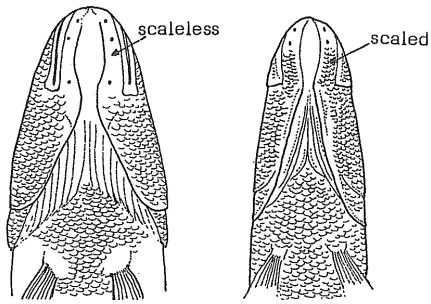
N. nybelini and N. tchizh: no scales on the lower jaw.



top of head

SIZE :

Maximum: 23 cm; common to 15 cm.



underside of head

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported only from the shelves of South Georgia and South Sandwich Islands and Bouvet Island. The other species of the "larseni" group of species have the following distribution:

Nototheniops nybelini: South Orkney, South Shetland Islands, north of Antarctic Peninsula and Peter I Island.

N. loesha: Balleny Islands.

N. tchizh: Crozet, Marion-Prince Edward Islands and Ob and Lena seamounts.

Found from 30 to 300 m depth, the fish spawn in winter.

Feeds on polychaetes worms, amphipods and krill.

PRESENT FISHING GROUNDS :

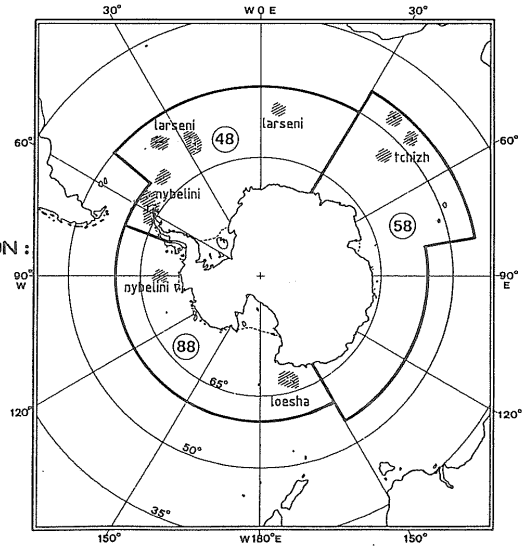
Not yet commercially fished.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught as bycatch with bottom trawls.

Not marketed, except perhaps as fishmeal.



Distribution of the "larseni" species group

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1985

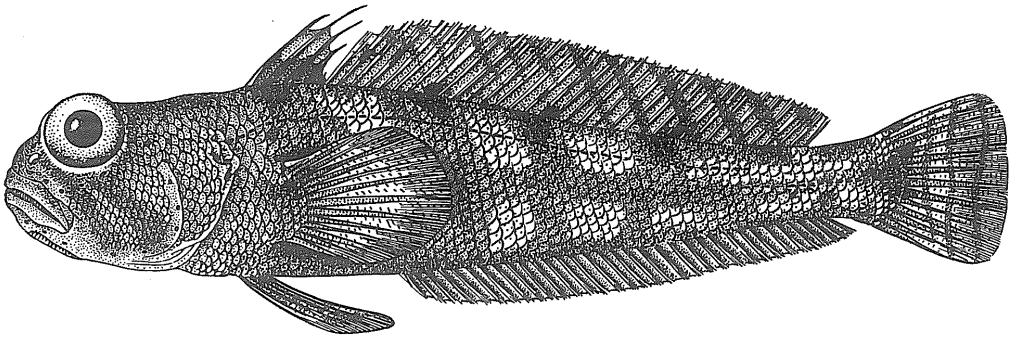
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Nototheniops mizops (Günther, 1880)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia mizops Günther, 1880
Lindbergichthys mizops (Günther, 1880)



VERNACULAR NAMES :

FAO/CCAMLR : En - Toad notie
Fr - Bocassette crapaud
Ru - Kergelenskaya nototenia-zvezdochet
Sp - Ojo de sapo

NATIONAL :

DISTINCTIVE CHARACTERS :

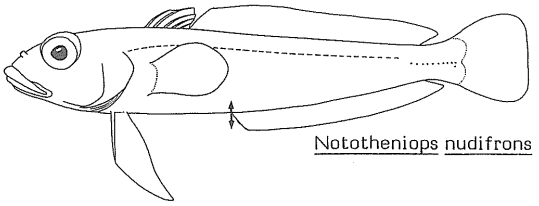
Body moderately deep, relatively compressed, its depth 19.7 to 21.4% of standard length. Head rather small, its length 3.4 to 3.6 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 9 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 9 pores; eye 3 to 3.5 times in head length; interorbital width narrow, 6 to 7.5% of head length; 9 to 13 slender and elongate gillrakers on lower part of anterior arch; mouth oblique, small, lips narrow, maxilla extending posteriorly to below anterior one-third of eye; jaws equal anteriorly; teeth in both jaws conical, outermost enlarged; snout short and steep. Two dorsal fins, the first with 4 or 5 flexible spines, the second with 34 to 37 soft rays; 33 to 35 anal fin rays; origin of anal fin under base of 5th to 8th ray of second dorsal fin; pectoral fins large, fan-like, with 21 or 22 rays, much shorter than the pelvics; caudal fin rounded. Two lateral lines, the upper ending under last quarter of second dorsal fin; 26 to 39 tubular scales in upper lateral line; lower lateral line with pored scales only; the body entirely covered with large and ctenoid (rough) scales; scales present on top of head behind eyes; opercles and cheeks with small cycloid scales; remainder of head scaleless. The hypural bones 1 and 2 of the caudal skeleton are fused; the hypural bones 3 and 4 are partially fused. Pectoral foramen bordered by scapula and coracoid.

Colour: body yellow with 5 dark brown bars across back; below midline, a series of 5 dark brown blotches somewhat non-aligned with crossbars; a median dark brown blotch at base of caudal fin; two dark lines on cheeks; a median dark blotch present on first dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia nudifrons: upper surface of head scaleless; anal fin origin under base of 7th to 10th ray of second dorsal fin (under 5th to 8th in N. mizops).

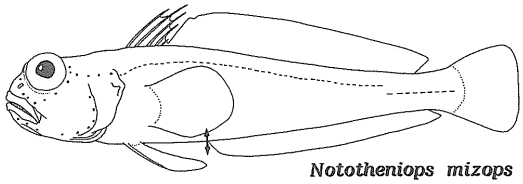
N. larseni, N. loesha, N. nybelini and N. tchizh: preorbital region scaled.



Nototheniops nudifrons

SIZE :

Maximum: 15 cm; common to 10 cm.



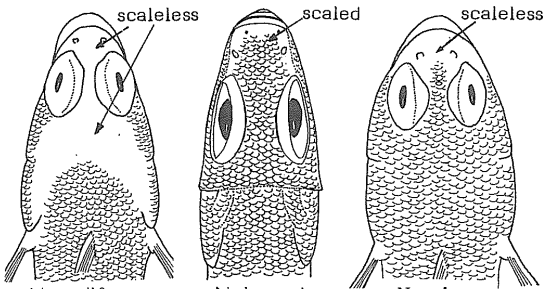
Nototheniops mizops

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported only from Kerguelen and Heard Islands.

Found between 20 to 220 m depth, Nototheniops mizops is a common species in its distribution area.

Feeds on small benthic invertebrates.



N. nudifrons | N. larseni | *N. mizops*

top of head

PRESENT FISHING GROUNDS :

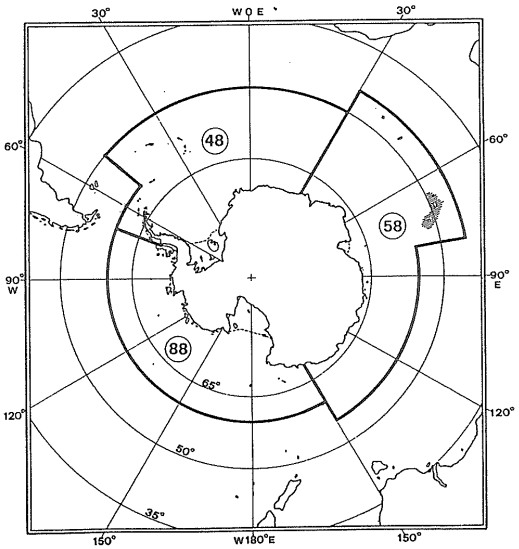
Mainly around the Kerguelen Islands.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught as bycatch with bottom trawls, together with the catches of Notothenia (Lepidonotothen) squamifrons.

Not marketed, except perhaps as fishmeal.



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1985

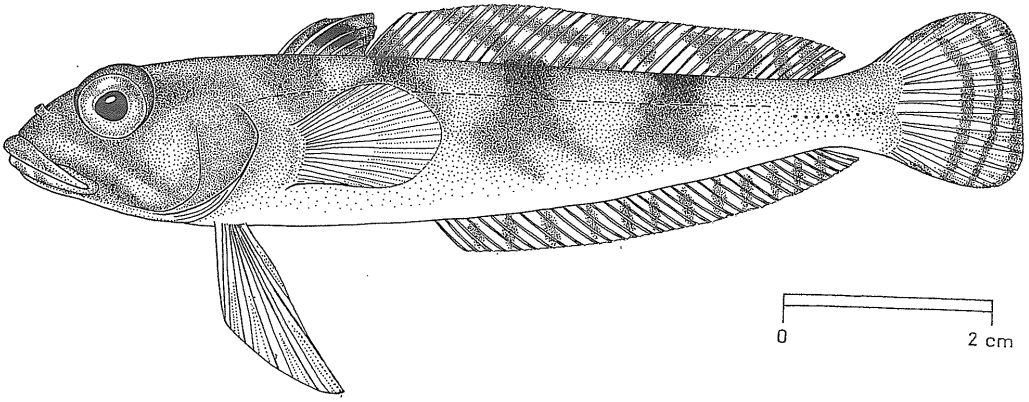
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Nototheniops nudifrons (Lönnberg, 1905)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia nudifrons Lönnberg, 1905
Lindbergichthys nudifrons (Lönnberg, 1905)



VERNACULAR NAMES :

FAO/CCAMLR : En - Yellowfin notie
Fr - Bocassette dégarnie
Ru - Lysaya nototenia, zvezdochet
Sp - Doradillo pobre

NATIONAL :

DISTINCTIVE CHARACTERS :

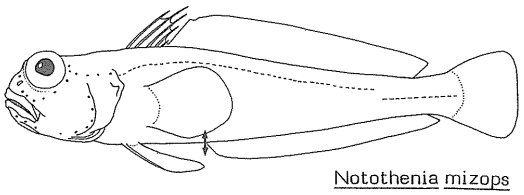
Body compressed, its depth 19 to 22.6% of standard length. Head length shorter than average for nototheniids, 3.4 to 3.6 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 9 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 9 pores; eye 3 or 4 times in head length; interorbital width narrow, 5.5 to 7% of head length; 10 to 13 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior quarter or third of eye; jaws equal anteriorly; teeth all conical in both jaws in two bands, those of the outer band larger. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 36 to 40 soft rays; 33 to 36 anal fin rays; origin of anal fin under base of 7th to 10th ray of second dorsal fin; pectoral fins large, fan-like, with 21 to 23 rays, shorter than the pelvics; caudal fin rounded or subtruncate. Two lateral lines, the upper ending below posterior part of second dorsal fin; 32 to 42 tubular scales in upper lateral line; lower lateral line with a series of pored scales; the body entirely covered with large and ctenoid (rough) scales; upper surface of head and preorbital region scaleless; opercles and cheeks anteriorly to preorbital zone, with small cycloid scales. The hypural bones 1 and 2 of the caudal skeleton are fused; the hypural bones 3 and 4 are partially fused. Pectoral foramen bordered by scapula and coracoid.

Colour: body yellowish or whitish ground colour above and on sides, silvery-white below; sides with 2 or 3 series of large, partly confluent, irregular blackish spots; cheeks with two oblique dark stripes; a round black spot on spinous dorsal fin; soft dorsal, caudal and anal fins with small dark spots; pectoral and pelvic fins pale.

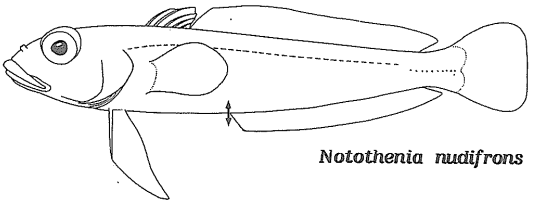
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notothenia mizops: scales present on top of the head behind eyes; origin of anal fin under base of 5th to 8th ray of second dorsal fin (under 7th to 10th ray in N. nudifrons).

N. larseni, N. loesha, N. nybelini and N. tchizh: preorbital region scaled.



Notothenia mizops



Notothenia nudifrons

SIZE :

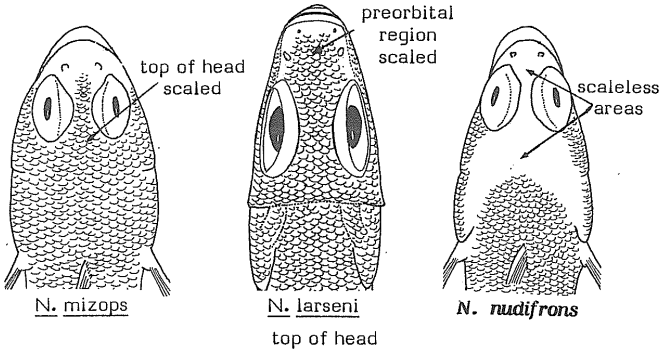
Maximum: 15 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from the shelves of the islands of the Scotia Arc (South Georgia, South Sandwich, South Orkney, South Shetland Islands) and from the Antarctic Peninsula.

Found from the shore to 220 m depth, Notothenios nudifrons is a very common species.

Feeds on small benthic invertebrates.



PRESENT FISHING GROUNDS :

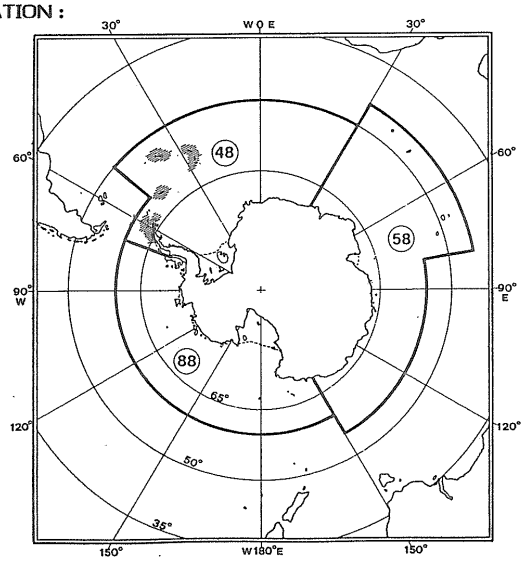
Not yet commercially fished.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Caught only as bycatch with bottom trawls.

Not marketed, except perhaps as fishmeal.



NOT Pag 1

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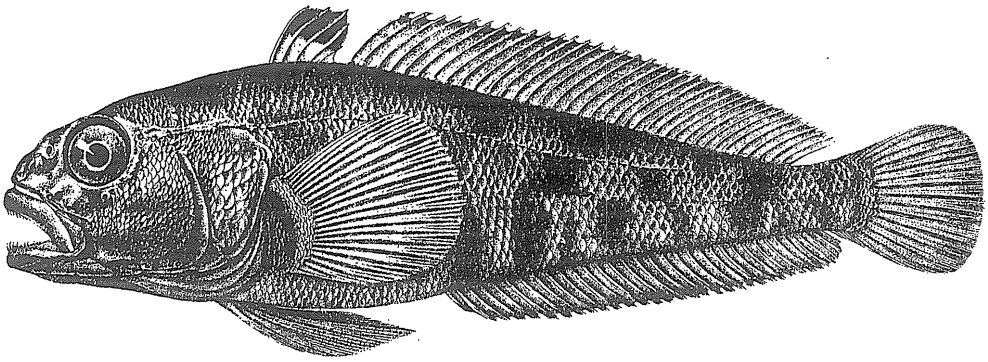
FAO SPECIES IDENTIFICATION SHEETS

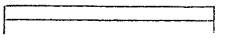
FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pagothenia bernacchii (Boulenger, 1902)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia (Trematomus) bernacchii (Boulenger, 1902)
Trematomus bernacchii Boulenger, 1902





VERNACULAR NAMES :

FAO/CCAMLR : En - Emerald rockcod
Fr - Bocasson émeraude
Ru - Trematom-pestryak
Sp - Austrobacalao esmeralda

NATIONAL :

DISTINCTIVE CHARACTERS :

Body moderately compressed, its depth 22 to 33% of standard length. Head a little depressed, snout rather shorter than eye; length of head 3.2 to 4 times in standard length; cephalic sensory canals deeply modified; supratemporal canal divided into 3 sections with 1+3+1 pores; infraorbital canal divided into 2 sections with 5+3 pores; temporal canal with 5 pores; supraorbital commissure with one pore; preoperculomandibular canal divided into 2 sections with 4+7 pores; eye 3 to 4.5 times in head length; interorbital width 11 to 20% of head length; 13 to 15 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below middle or anterior part of eye; lower jaw slightly protruding; teeth in both jaws villiform; numerous pitlines well visible on top of head, cheeks, mandibula and snout. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 34 to 39 soft rays; 31 to 35 anal fin rays; pectoral fins large, fan-like, with 22 to 26 rays, as long as the pelvics; caudal fin rounded. Two lateral lines, the lower one usually without tubular scales; 30 to 42 scales in upper lateral line; the body entirely covered with large and ctenoid scales; occiput, cheeks and opercles scaled; interorbital space scaleless or with a median series of scales; snout, lower jaw and preorbital area scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in the scapula bone but separated from coracoid by a very narrow bridge of bone.

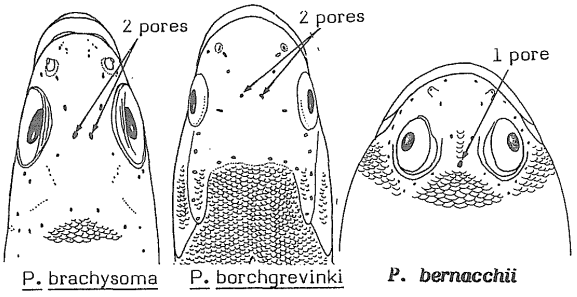
Colour: light brown or pink-brown, darker dorsally; sides of the body with bands or large spots, black or dark brown; dorsal and anal fins uniformly light-brown; pectoral fins, dark, with numerous small light spots; 3 green spots on upper part of pectoral fin base.

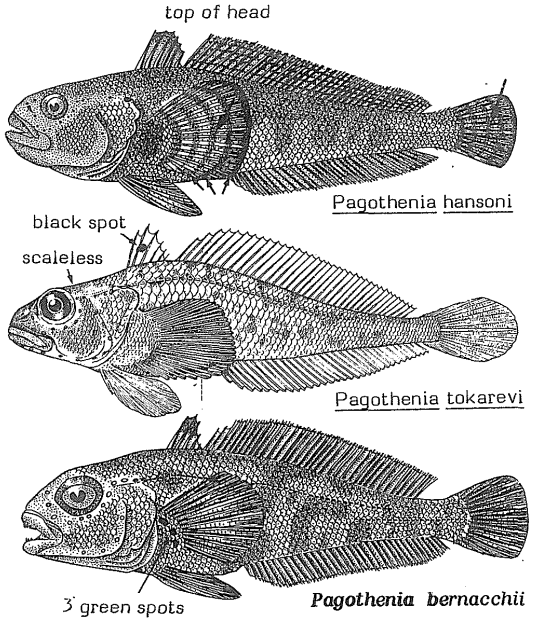
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Pagothenia brachysoma and P. borchgrevinki: supraorbital commissure with 2 pores (1 in P. bernacchii); 30 to 34 caudal vertebrae (33 to 36 in P. bernacchii).

P. hansoni: general colour greenish; dark transversal bands on caudal and pectoral fins; 27 to 33 pectoral fin rays (22 to 26 in P. bernacchii).

P. tokarevi: no green spots on upper part of pectoral fin base; upper surface of head scaleless; one black spot on middle of first dorsal fin; 29 or 30 pectoral fin rays (22 to 26 in P. bernacchii).





SIZE :

Maximum: 30 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

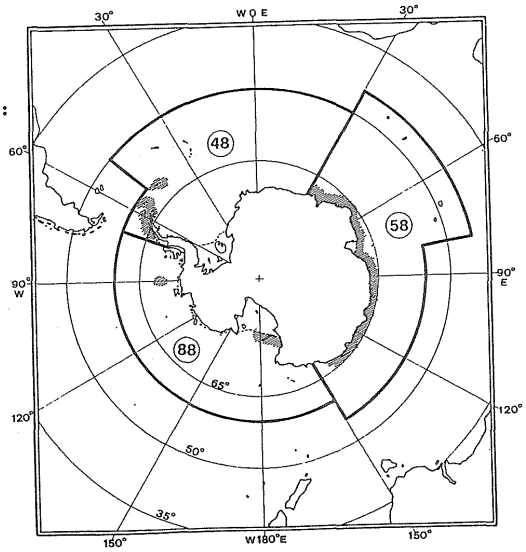
Circum-Antarctic species; Mac Robertson, Queen Mary and Adelie coasts; Davis and Ross Seas; South Shetland, South Orkney and Peter I Islands; Antarctic Peninsula.

Found from the shore to 400 m depth, P. bernacchii spawns in October and November, at the age of about 3 or 4 years. This species mostly lives among moraine rocks covered with algae.

Feeds on polychaetes, gasteropods, isopods, amphipods and few algae.

PRESENT FISHING GROUNDS :

Not commercially exploited.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are not reported for this species.

Can be caught with traps or gillnets.

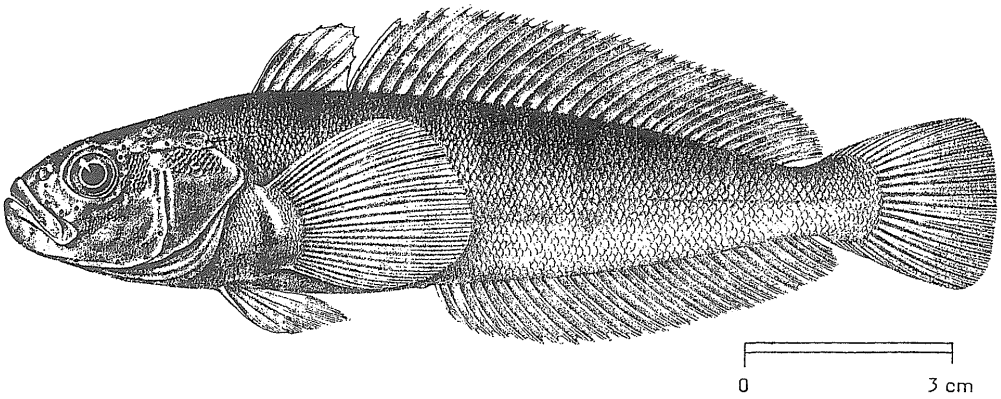
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pagothenia borchgrevinki (Boulenger, 1902)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia hodgsoni (Boulenger, 1907)



VERNACULAR NAMES :

FAO/CCAMLR : En - Bald rockcod
Fr - Bocasson chauve
Ru - Bolshoi shirokolobik
Sp - Austrobacalao pelado

NATIONAL :

DISTINCTIVE CHARACTERS :

Body compressed, its depth 20 to 25% of standard length. Head a little depressed, snout as long as or a little longer than eye; length of head 3.5 to 4.2 times in standard length; cephalic sensory canals deeply modified; supraorbital commissure absent, interrupted between the 2 coronal pores; infraorbital canal divided into 3 sections with 4+2+1 pores; temporal canal with 5 pores; supratemporal canal divided into 4 sections with 1+2+2+1 pores; preoperculomandibular canal divided into 2 sections with 4+6 pores; eye 3 to 5 times in head length; interorbital width 25 to 33% of head length; 16 to 19 long gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior third of eye; lower jaw slightly protruding; teeth in both jaws villiform; numerous pitlines easily visible on top of head, cheeks, mandible and snout. Two dorsal fins, the first with 5 to 7 flexible spines, the second with 34 to 38 soft rays; 31 to 35 anal fin rays; pectoral fins large, fan-like, with about 23 rays, longer than the pelvics; caudal fin subtruncate or rounded. Two lateral lines, with or without only a few tubular scales; 43 to 52 scales in upper lateral line and 8 to 10 in the lower; the body entirely covered with ctenoid scales; upper surface of head scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in the scapula bone but separated from coracoid by a very narrow bridge of bone.

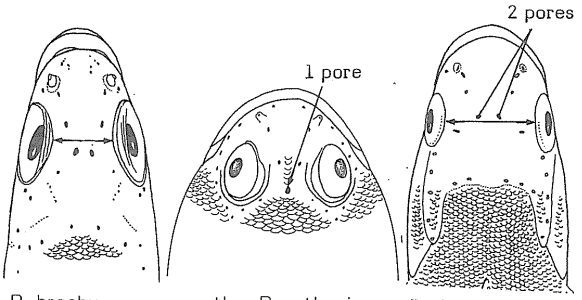
Colour: yellowish with dark spots or irregular crossbars; dorsal and caudal fins with a series of spots but caudal fin without transverse bands.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Pagothenia brachysoma: dark transversal bands on caudal fin; interorbital width 18 to 25% of head length (25 to 33% in P. borchgrevinki).

P. hansoni and P. tokarevi: 27 or more pectoral fin rays (about 23 in P. borchgrevinki).

Other Pagothenia species: supraorbital commissure with only 1 pore (2 pores in P. borchgrevinki); supratemporal canal divided into 3 sections (4 sections in P. borchgrevinki); 35 to 37 caudal vertebrae (30 to 34 in P. brachysoma and P. borchgrevinki).



SIZE :

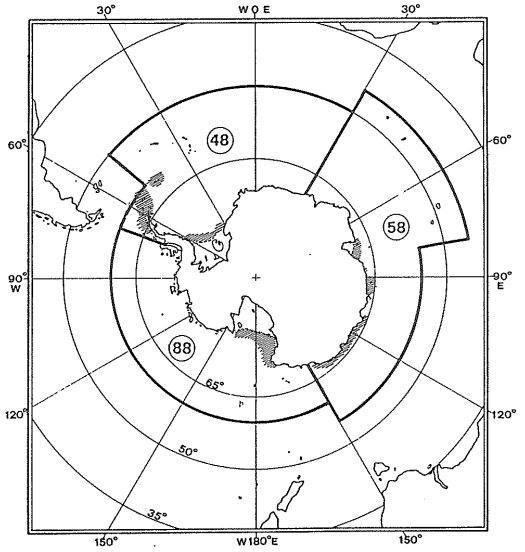
Maximum: 25 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumpolar cryopelagic species; Ross Sea, Davis Sea, Weddell Sea, Antarctic Peninsula, South Orkney and South Shetland Islands. Together with Pleuragramma antarcticum and Pagothenia brachysoma, this species is one of the most southern fish.

Found on the upper layer of the Antarctic seas from the surface to about 30 m depth, among the ice or even under the ice.

Feeds on copepods and young krill.



PRESENT FISHING GROUNDS :

Not commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet caught by fishing boats.

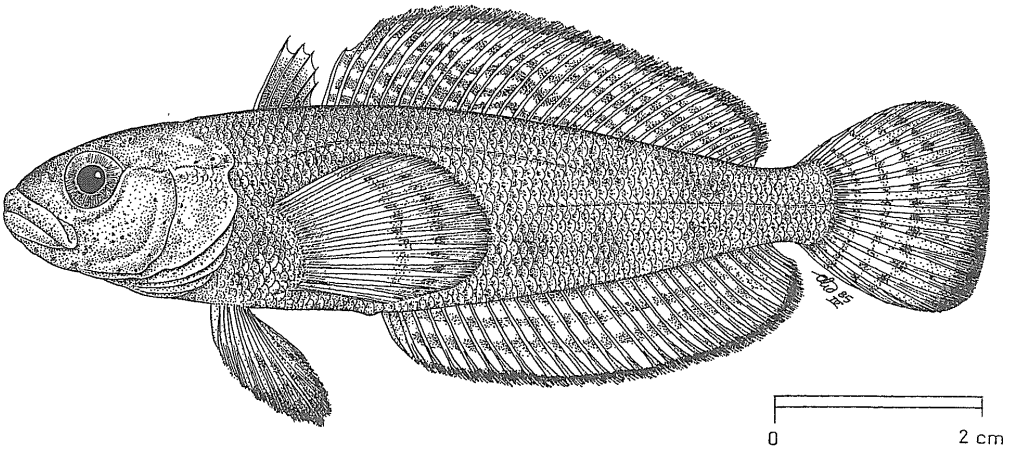
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pagothenia brachysoma (Pappenheim, 1912)

OTHER SCIENTIFIC NAMES STILL IN USE : Pagothenia antarctica Nichols & Lamonte, 1936



VERNACULAR NAMES :

FAO/CCAMLR : En - Stocky rockcod
Fr - Bocasson trapu
Ru - Malyi shirokolobik
Sp - Austrobacalao mocho

NATIONAL :

DISTINCTIVE CHARACTERS :

Body deep and compressed, its depth 20.8 to 24.4% of standard length. Head a little depressed, snout as long as or shorter than eye; length of head 3 to 3.4 times in standard length; cephalic sensory canals deeply modified; infraorbital canal divided into 3 sections with 4+2+1 pores; temporal canal with 5 pores; supraorbital commissure with 2 separate pores; supratemporal canal divided into 4 sections with 1+2+2+1 pores; preoperculo-mandibular canal divided into 2 sections with 4+6 pores; eye 3.4 to 4 times in head length; interorbital width 18 to 25% of head length; 15 to 19 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior margin or middle of eye; jaws equal anteriorly; teeth in both jaws villiform; numerous small pitlines easily visible on top of head, cheeks, mandible and snout. Two dorsal fins, the first with 4 or 5 flexible spines, the second with 29 to 32 soft rays; 29 or 30 anal fin rays; pectoral fins large, fan-like, with 23 or 24 rays, as long as the pelvics; caudal fin rounded. Two lateral lines, without or with only a few tubular scales; the body entirely covered with cycloid or feebly ctenoid scales; upper surface of head scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in the scapula bone but separated from the coracoid by a very narrow bridge of bone.

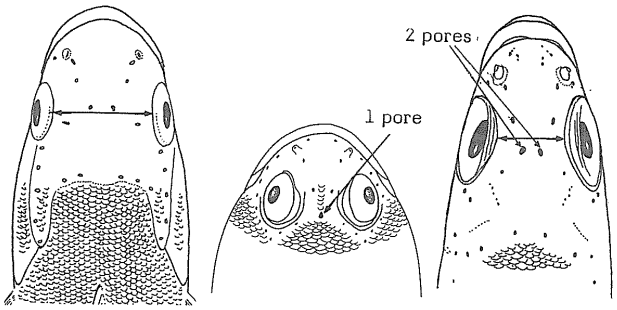
Colour: iridescent blue, with sometimes some patches of coral pink near the head; scattered dark punctuations, larger and more spaced on the top of head; fins with dusky tips or edges; spinous dorsal fin blackish; second dorsal fin and anal fin with spots on membrane; dark transversal bands on caudal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pagothenia borchgrevinki: no dark transversal bands on caudal fin; interorbital width 25 to 33% of head length (18 to 25% in P. brachysoma).

P. hansoni and P. tokarevi: 27 or more pectoral fin rays (23 or 24 in P. brachysoma).

Pagothenia species other than P. borchgrevinki: supraorbital commissure with only 1 pore (2 in P. brachysoma); supratemporal canal divided into 3 sections (4 in P. brachysoma); 35 to 37 caudal vertebrae (30 to 34 in P. brachysoma and P. borchgrevinki).



SIZE:

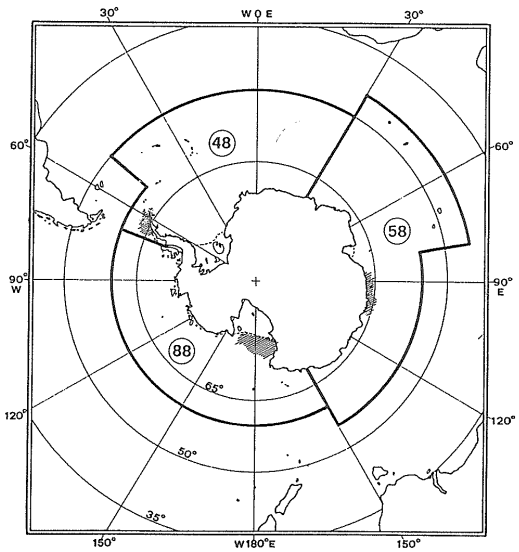
Maximum: 15 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Circumpolar cryopelagic species; Ross Sea, Davis Sea, Wilhelm coast and west coast of the Antarctic Peninsula. Together with Pleuragramma antarcticum and Pagothenia borchgrevinki, this species is one of the most southern fish.

This species is only known from the superficial waters to 6 m depth, often found together with krill swarms and in the middle of ice flows.

Feeds on copepods and probably on small euphausiids.



PRESENT FISHING GROUNDS:

Not commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Not yet caught by fishing boats.

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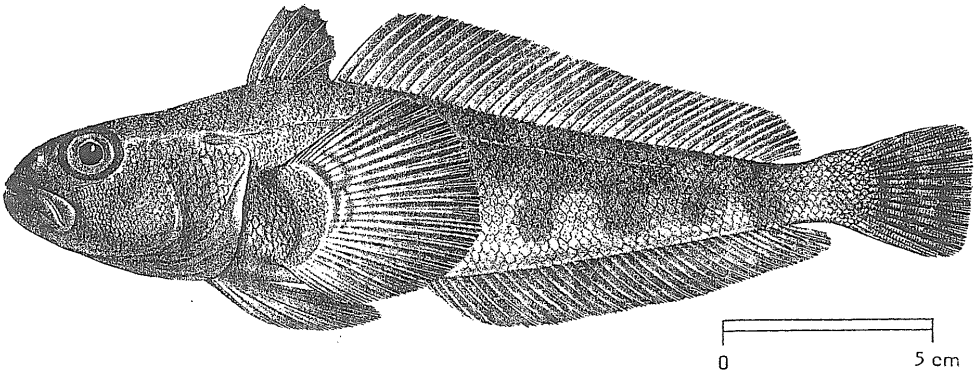
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pagothenia hansoni (Boulenger, 1902)

OTHER SCIENTIFIC NAMES STILL IN USE : Trematomus hansoni Boulenger, 1902
Notothenia (Trematomus) hansoni (Boulenger, 1902)
Trematomus hansoni georgianus Lönnberg, 1905



VERNACULAR NAMES :

FAO/CCAMLR : En - Striped rockcod, green rockcod
Fr - Bocasson rayé
Ru - Trematom-polosatik
Sp - Austrobacalao rayado

NATIONAL :

DISTINCTIVE CHARACTERS :

Body moderately compressed, a little elongate, its depth 18.8 to 28.5% of standard length. Head a little depressed, snout as long as or a little longer than eye; length of head 3 to 4.5 times in standard length; cephalic sensory canals deeply modified; supratemporal canal divided into 3 sections with 1+3+1 pores; infraorbital canal divided into 2 sections with 5+3 pores; temporal canal with 5 pores; supraorbital commissure with one pore; preoperculomandibular canal 10 pores; eye 3.4 to 5 times in head length; interorbital width 13 to 20% of head length; 13 to 19 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below middle or anterior part of eye; jaws about equal anteriorly; teeth in both jaws villiform; numerous pitlines visible on top of head, cheeks, mandible and snout. Two dorsal fins, the first with 5 to 8 flexible spines, the second with 36 to 41 soft rays; 33 to 37 anal fin rays; pectoral fins large, fan-like, with 27 to 33 rays, longer than the pelvics; caudal fin subtruncate. Two lateral lines, the lower one usually without tubular scales; 36 to 48 tubular scales in upper lateral line; the body entirely covered with cycloid or ctenoid scales; occiput, interorbital space, cheeks and opercles scaled; snout, lower jaw and preorbital area scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen variable in position; often included entirely in the scapula bone but separated from coracoid by a very narrow bridge of bone, or bordered by scapula and coracoid, or included in scapula and presence of a second foramen in coracoid.

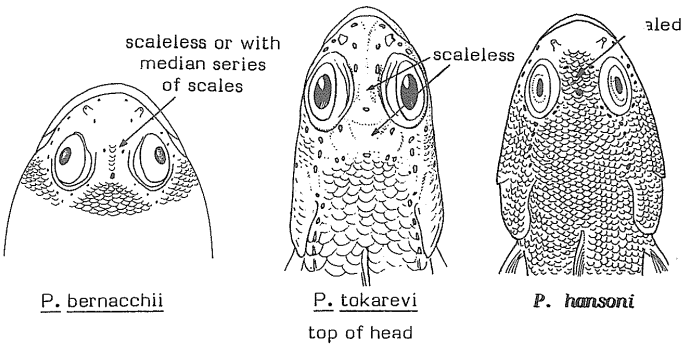
Colour: greenish-grey with large black crossbars; head bluish mauve at lower part; dorsal and anal fins with greyish-green rays and black membrane; caudal fin with dark transversal narrow bands, membrane clear; pectoral fins with light and grey bands, dark membrane between the 4 last rays; pelvic fins punctuated with black spots on the rays.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pagothenia bernacchii: no dark transversal bands on caudal fin; interorbital space scaleless or with a median series of scales; less than 27 pectoral fin rays (27 to 33 in P. hansoni).

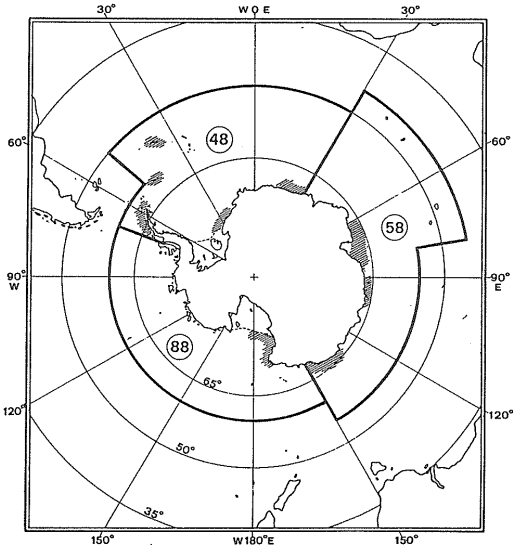
P. brachysoma and P. borchgrevinki: supraorbital commissure with 2 pores (1 in P. hansoni); 30 to 34 caudal vertebrae (35 to 37 in P. hansoni); less than 27 pectoral fin rays. Top of head scaleless.

P. tokarevi: upper surface of head scaleless; one black spot on middle of first dorsal fin; 29 or 30 pectoral fin rays.



SIZE:

Maximum: 40 cm; common to 25 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Circum-Antarctic species; Ross, Davis and Weddell Seas; Victoria, Adelie, Queen Mary coasts; Antarctic Peninsula; South Sheltand, South Orkney and South Georgia Islands.

Found from the shore to 550 m depth, Pagothenia hansoni spawns on the continental shelf in December or January.

Feeds on small fishes, krill and other euphausiids, polychaetes, copepods, amphipods, isopods and small gastropods.

PRESENT FISHING GROUNDS:

Not commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION:

Separate statistics are not reported for this species.

Can be caught with traps or gillnets.

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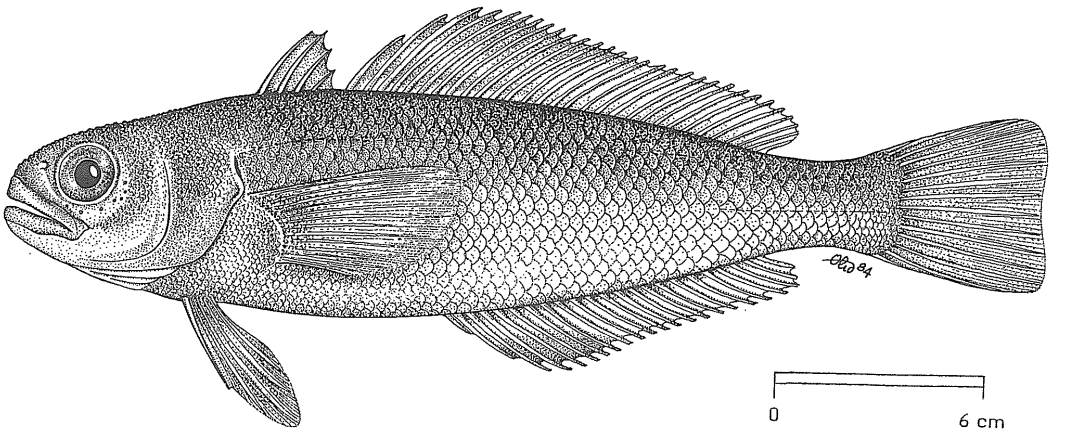
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Paranotothenia magellanica (Forster, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia macrocephala Günther, 1860
Notothenia maoriensis Haast, 1873
Notothenia antarctica Peters, 1876



VERNACULAR NAMES :

FAO/CCAMLR : En - Magellanic rockcod
Fr - Bocasse magellanique
Ru - Sinyaya nototenia
Sp - Trama común

NATIONAL :

DISTINCTIVE CHARACTERS :

Body evenly curved both dorsally and ventrally from head to base of caudal fin, compressed posteriorly, its depth 25 to 33% of standard length. Head width and length about equal, dorsal profile of head flat or slightly curved with small tubercles; length of head a little more than 3 times in standard length; snout very bluntly rounded from dorsal view; in lateral view rising steeply from tip of upper jaw to a point above the nostrils; cephalic sensory canals with small pores, difficult to see; 8 or 9 pores in the infraorbital canal; temporal canal with 4 pores; preoperculomandibular canal with 9 pores; eye 3 (young) to 6 times in head length; interorbital width broad and flat, 31 to 42% of head length; 10 to 13 gillrakers on lower part of anterior arch; jaws short but wide, maxilla extending posteriorly to below pupil of eye; jaws equal anteriorly; teeth in both jaws in two almost uniserial bands. Two dorsal fins, the first with 3 to 6 flexible spines, the second with 28 to 31 soft rays; 22 to 26 anal fin rays; pectoral fins large, fan-like, with 16 to 18 rays, much longer than the pelvics; caudal fin emarginate or even rounded in large specimens but deeply forked in very small individuals. Two lateral lines, the upper ending below posterior rays of second dorsal fin; 36 to 46 tubular scales in upper lateral line and 5 to 14 in the lower; the body entirely covered with large and cycloid (smooth) scales; ctenoid scales present in area covered by pectoral fins; head nearly entirely scaleless; uppermost part of opercles scaled, small patches of scales behind eyes, and posterolateral parts of top of head. The hypural bones 1 and 2, of the caudal skeleton are fused, the hypural bones 3 and 4 are partially fused; these 4 bones are fused to the ural vertebral centrum; epurals large and fused also to the ural centrum. Pectoral foramen bordered by scapula and coracoid.

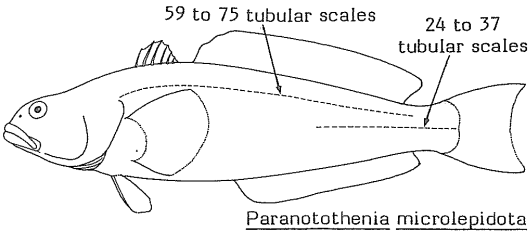
Colour: very bright colour, but most variable; back may be dark brown, dark grey-green, silvery-blue or rich golden brown, passing to golden yellow or reddish on the belly; branchiostegal membranes always bright orange-red or orange-yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

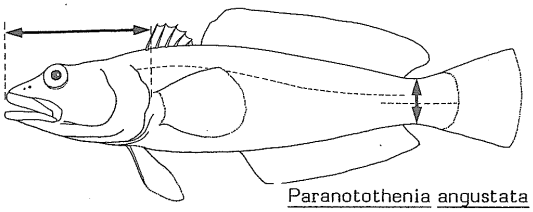
Paranotothenia microlepidota: lower lateral line with 24 to 37 tubular scales (5 to 14 in P. magellanica); upper lateral line with 59 to 75 tubular scales (36 to 46 in P. magellanica).

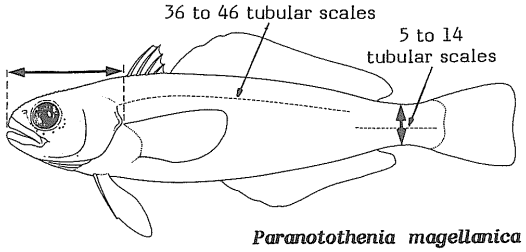
P. angustata: length of caudal peduncle 25.5 to 34.5% of head length (37.0 to 45.5% in P. magellanica).

Notothenions nudifrons, N. mizops, "N. larseni" species group: upper lateral line without tubular scales, but with perforated scales.



Paranotothenia microlepidota


Paranotothenia angustata



Paranotothenia magellanica

SIZE :

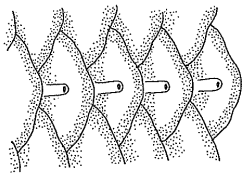
Maximum: 35 cm; common to 30 cm.

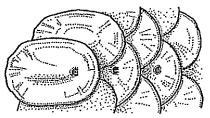
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Reported from the Magellanic region, Patagonia, coast of Chile, Straits of Magellan, Falkland/Malvinas Islands, South Georgia and South Orkneys Islands, Marion-Prince Edward, Crozet, Kerguelen and Heard Islands, Macquarie, Campbell and Auckland Islands, and New Zealand. One specimen has been recorded from the Ross Sea, possibly representing an undescribed subspecies.

Found from the shore to 255 m depth, it seems that this species is not so demersal in habit as most nototheniids (some specimens have been found pelagically in the South Pacific Ocean).

Feeds on benthic and pelagic invertebrates (isopods, amphipods, small crabs, krill, small molluscs, bivalves) and fish.

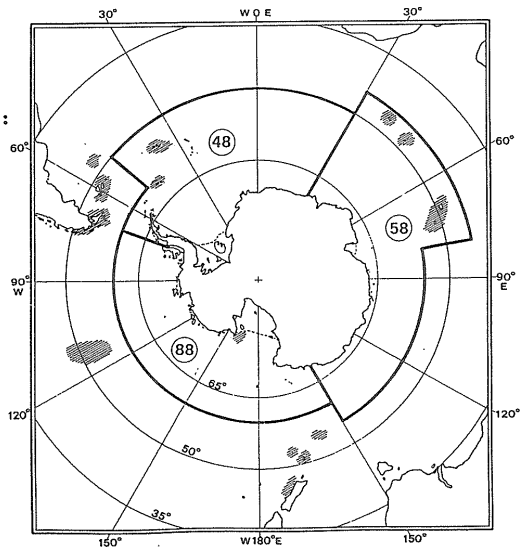

tubular scales


perforated scales

scales of upper lateral line

PRESENT FISHING GROUNDS :

In the areas, mainly around the Kerguelen and Heard Islands and South Georgia.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet commercially exploited.

Rarely caught as bycatch in bottom trawls.

Not yet marketed, this fish has a particularly excellent flesh.

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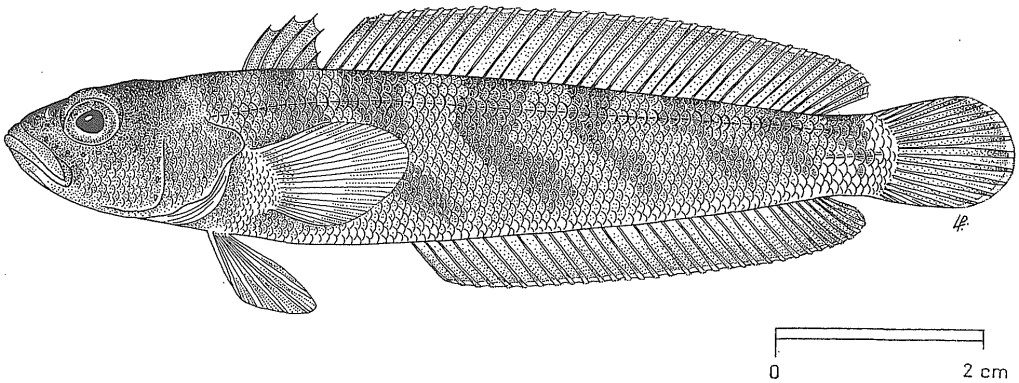
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Patagonothen brevicauda guntheri (Norman, 1937)

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia guntheri Norman, 1937
Patagonotothen guntheri shagensis Balushkin & Permitin, 1982



VERNACULAR NAMES :

FAO/CCAMLR : En - Patagonian rockcod
Fr - Bocasse de Patagonie
Ru - Zheltoperca
Sp - Trama patagónica

NATIONAL :

DISTINCTIVE CHARACTERS :

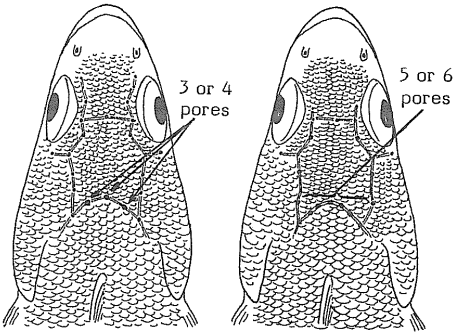
Body compressed throughout, widest at bases of pectoral fins, its depth 16 to 20% of standard length. Head a little depressed, about as deep as wide; length of head a little more than 3 times in standard length; cephalic sensory canals normal with small pores, difficult to see; 8 pores in the infraorbital canal; temporal canal with 4 pores; supratemporal canal with 5 (rarely 6) pores; preoperculomandibular canal with 9 pores; eye 3 to 4.2 times in head length; interorbital width 12 to 15% of head length; 16 to 22 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below 1/4 to 1/2 of eye; lower jaw slightly protruding; teeth in both jaws in two bands, those of the outer band uniserial, and enlarged. Two dorsal fins, the first with 4 to 7 flexible spines, the second with 35 to 37 soft rays; 32 to 35 anal fin rays; pectoral fins large, fan-like, with 22 to 28 rays, as long as the pelvics; caudal fin rounded. Two lateral lines, the upper ending well posterior to end of base of second dorsal fin; 44 to 50 tubular scales in upper lateral line and 3 to 10 in the lower; the body entirely covered with ctenoid scales; upper surface of head, interorbital region, opercles and cheeks with small cycloid scales. The hypural bones 1 and 2 of the caudal skeleton are fused, the hypural bones 3 and 4 are well separated. Pectoral foramen bordered by scapula and coracoid.

Colour: grey brown. On the body 7 or 8 dark transverse stripes; snout and top of head dark; caudal, pectoral and pelvic fins lemon yellow, anal and dorsal fins yellow; the tips of all fins are lighter; 2 or 3 dark stripes on cheeks.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Patagonotothen brevicauda brevicauda: 14 to 20 gillrakers on lower limb of first gill arch (16 to 22 in P. b. guntheri); least depth of caudal peduncle, 30.5 to 32.8% of head length (25.7 to 30.8% in P. b. guntheri).

P. longipes species: supratemporal canal with 3 or 4 pores (5, rarely 6 in P. brevicauda species).



P. longipes P. brevicauda sp.

top of head

SIZE :

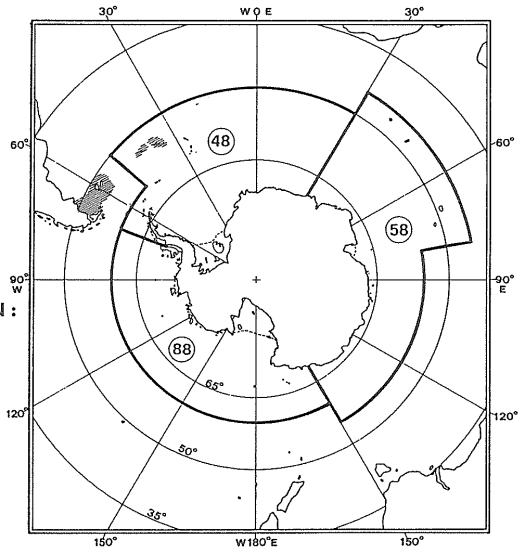
Maximum: 23 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Patagonotothen brevicauda guntheri is distributed from the Patagonian shelf south of 49-S and Burdwood Bank to Shag Rocks.

Found from 140 to 320 m depth.

Feeds on small benthic invertebrates.



PRESENT FISHING GROUNDS :

Mainly around Shag Rocks near South Georgia Island.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Recently caught, this species has been reported for 31 000 t in 1981/82 and 5 000 t in 1982/83.

Caught only with bottom and pelagic trawls.

Probably used only for fishmeal.

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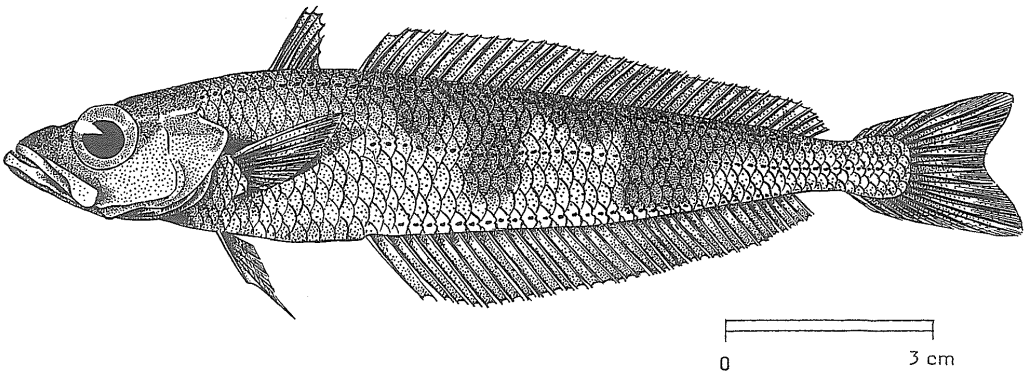
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Pleuragramma antarcticum Boulenger, 1902

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic silverfish
Fr - Calandre antarctique
Ru - *Antarkticheskaya serebryanka*
Sp - Diablillo antártico

NATIONAL :

DISTINCTIVE CHARACTERS :

Body compressed, its depth 12.6 to 17.5% of standard length. Head a little depressed, snout pointed; length of head 3.4 to 4 times in standard length; cephalic sensory canals deeply modified, infraorbital canal in 2 sections with 4 and 2 pores, median part of supratemporal canal lost; temporal canal with 5 pores; supraorbital commisure lost; preoperculomandibular canal with 8 pores; eye 3.1 to 4 times in head length; interorbital width 17 to 25% of head length; 20 to 25 comb-like gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior third of eye; lower jaw protruding; teeth in both jaws pointed. Two dorsal fins, the first with 6 to 8 flexible spines, the second with 33 to 39 soft rays; 36 to 38 anal fin rays; pectoral fins large, fan-like, with 20 or 21 rays, as long as or longer than the pelvics; caudal fin emarginate. Three lateral lines with pored scales, the upper ending below last rays of second dorsal fin; about 45 pored scales in upper lateral line and 35 in both middle and lower; the body entirely covered with large and cycloid (smooth) scales; upper surface of head scaleless; opercles and cheeks scaled. The hypural bones 1 and 2 on one hand, 3, 4 and 5 on the other hand are fused into two wide plates together with the epurals and the ural vertebral centrum. Pectoral foramen entirely located in scapula bone.

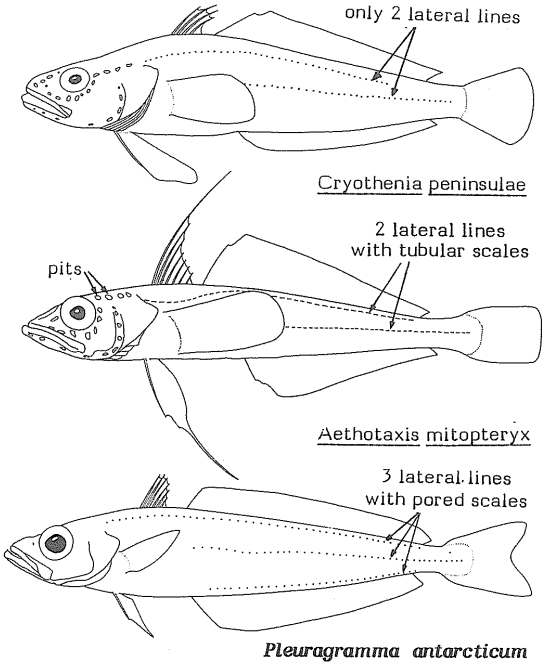
Colour: silvery, back darker; back and sides powdered with blackish dots; fins all pale.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Cryothenia peninsulae: only 2 lateral lines, both without tubular scales.

Aethotaxis mitopteryx: 2 lateral lines but covered with tubular scales; cephalic lateral lines enlarged, the pores appearing as deep pits.

Other nototheniids: hypural 5 never fused with hypurals 3 and 4.



Pleuragramma antarcticum

SIZE :

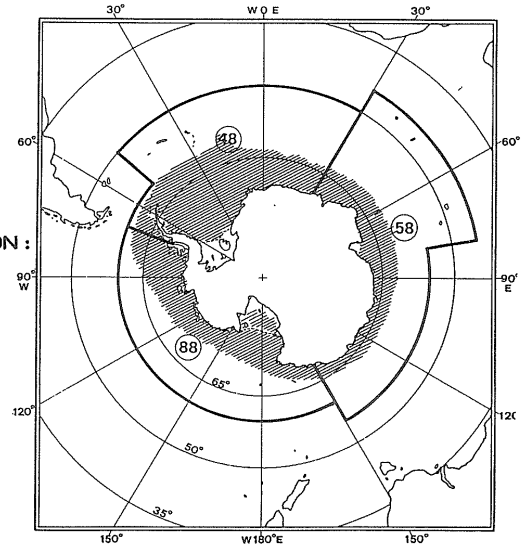
Maximum: 25 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circum-Antarctic species in cold waters (less than +2°C), mainly close to the Antarctic Continent. Weddell, Bellinghausen, Ross and Davis Seas. South Shetland, South Orkney.

Pelagic species from the surface to more than 700 m depth. Spawns from October to December.

Feeds on small pelagic organisms, krill and other euphausiids, copepods, postlarval fish.



PRESENT FISHING GROUNDS :

This abundant species is not yet commercially exploited. Small catches are made, mostly in the Pacific sector of the Southern Ocean.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Separate statistics are reported for this species.

Could be caught only with pelagic trawls, and sometimes with bottom trawls.

NOT Trem 1

1985

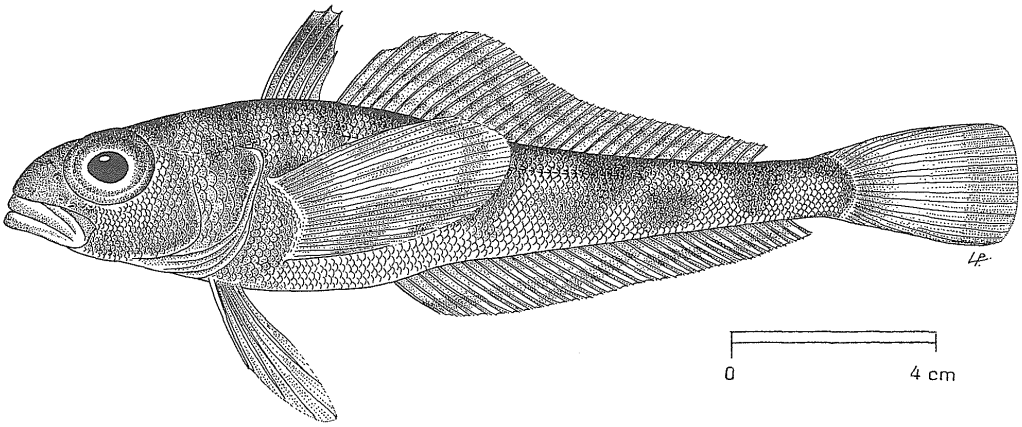
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Trematomus loennbergi Regan, 1913

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia (Trematomus) loennbergi (Regan, 1913)



VERNACULAR NAMES :

FAO/CCAMLR : En - Scaly rockcod
Fr - Bocasson écailleux
Ru - Trematom Lönnberga
Sp - Austrobacalao escamudo

NATIONAL :

DISTINCTIVE CHARACTERS :

Body moderately compressed, its depth 17 to 26% of standard length. Head a little depressed, snout rather shorter than eye; length of head 3 to 3.8 times in standard length; cephalic sensory canals normal; 7 pores in the infraorbital canal; temporal canal with 5 pores; 3 pores in supratemporal canal; preoperculomandibular canal with 10 pores; eye 3 to 4.2 times in head length; interorbital width 10 to 21% of head length; 10 to 14 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior quarter or third of eye; jaws about equal anteriorly; teeth in both jaws villiform. Two dorsal fins, the first with 5 to 7 flexible spines, the second with 31 to 35 soft rays; 31 to 35 anal fin rays; pectoral fins large, fan-like, with 25 to 29 rays, longer than the pelvics; caudal fin subtruncate or rounded. One or two lateral lines; 33 to 49 tubular scales in upper lateral line and 9 to 17 in the lower when developed; the body entirely covered with more or less ctenoid scales; upper surface of head scaled; interorbital space fully scaled; snout, lower jaw and preorbital area scaleless. The hypurals bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in scapula bone.

Colour: light brown or reddish, darker dorsally; 4 or 5 irregular darker crossbars through the sides of the body; sometimes one indistinct darker blotch on spinous dorsal fin; inside of mouth and branchial cavity blackish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OGCURRING IN THE AREA :

Trematomus newnesi and T. nicolai: upper surface of head scaleless.

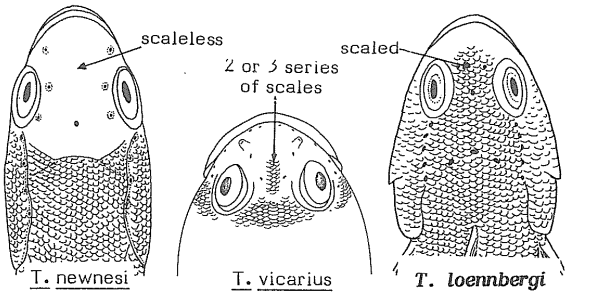
T. pennelli and T. centronotus: 60 or less scales in a longitudinal series (60 to 83 in T. loennbergi).

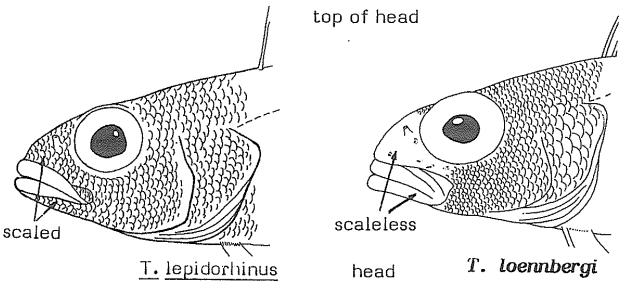
T. scotti: upper lateral line with 10 to 23 tubular scales (33 to 49 in T. loennbergi).

T. lepidorhinus and T. eulepidotus: snout, lower jaw and preorbital area scaled.

T. vicarius: interorbital region with only 2 or 3 series of scales (fully scaled in T. loennbergi).

Pagothenia species: 5 or more pores in supratemporal canal which is divided into 3 or 4 sections (3 pores in T. loennbergi).





SIZE :

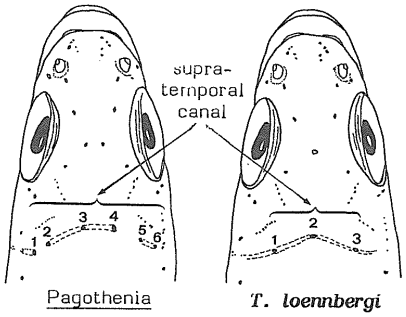
Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumpolar distribution; coast of Antarctic Peninsula, Weddell Sea, Queen Mary, Adelie and South Victoria coasts; Ross Sea, Davis Sea. This species has a benthopelagic behaviour.

Trematomus loennbergi probably spawns at the beginning of austral summer (December). This species, which apparently closely resembles Pagothenia hansoni, lives in deeper water.

Feeds on fishes, isopods and other crustaceans.

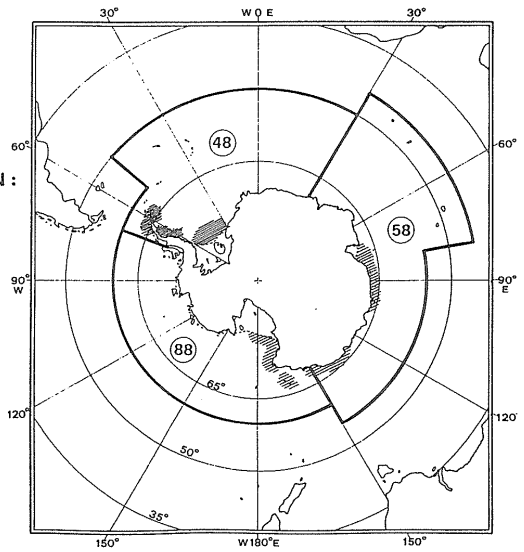


PRESENT FISHING GROUNDS :

Not commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet caught by fishing boats.



NOT Trem 2

1985

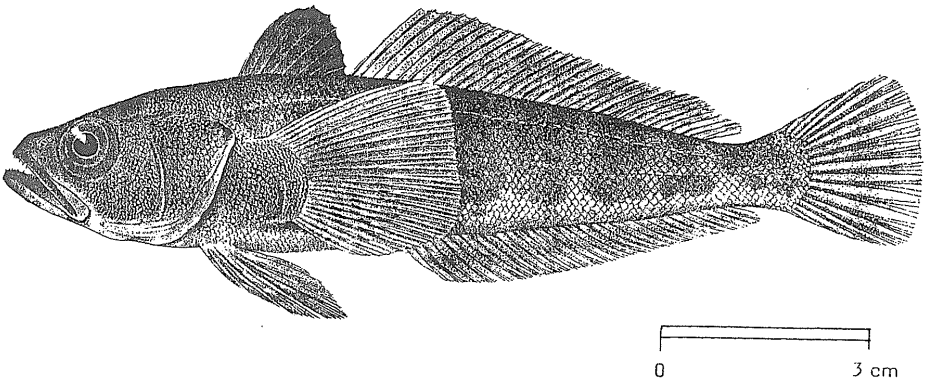
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Trematomus newnesi Boulenger, 1902

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia (Trematomus) newnesi (Boulenger, 1902)



VERNACULAR NAMES :

FAO/CCAMLR : En - Dusky rockcod
Fr - Bocasson terne
Ru - Trematom-gonets
Sp - Austrobacalao oscuro

NATIONAL :

DISTINCTIVE CHARACTERS :

Body moderately compressed, its depth 17 to 25% of standard length. Head a little depressed, snout rather shorter than eye; length of head 3.2 to 4.2 times in standard length; cephalic sensory canals normal; 7 pores in the infraorbital canal; temporal canal with 5 pores; 3 pores in supratemporal canal; preoperculomandibular canal with 10 pores; eye 3 to 4.3 times in head length; interorbital width 20 to 30% of head length; 15 to 20 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below middle or posterior part of eye; lower jaw slightly protruding; teeth in both jaws fine and pointed. Two dorsal fins, the first with 5 to 8 flexible spines, the second with 29 to 38 soft rays; 29 to 36 anal fin rays; pectoral fins large, fan-like, with 24 to 27 rays, longer than the pelvics; caudal fin truncate in large specimens or a little emarginate in young. Two lateral lines; the upper ending below posterior rays of second dorsal fin; 37 to 52 tubular scales in upper lateral line and 10 to 24 in the lower when developed; the body entirely covered with large and feebly ctenoid scales; upper surface of head scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in scapula bone.

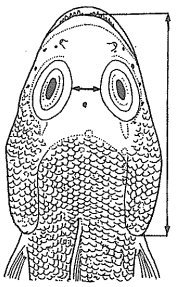
Colour: light brown, darker dorsally, with more or less distinct black spots, or with irregular crossbars spinous dorsal blackish; other fins dusky, often with small dark spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

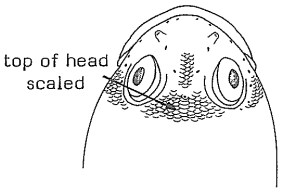
Trematomus nicolai: interorbital width 11.1 to 14.3% of head length (20 to 30% in T. newnesi); first dorsal fin with 4 spines (5 to 8 in T. newnesi).

Other Trematomus species: upper surface of head scaled, at least posteriorly.

Pagothenia borchgrevinki: similar in appearance and in habitat, but easily distinguished by having no obvious lateral lines and 2 pores in the central commissure.



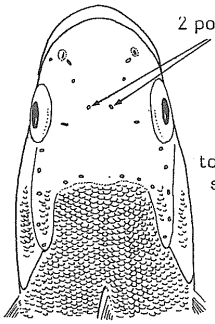
T. nicolai



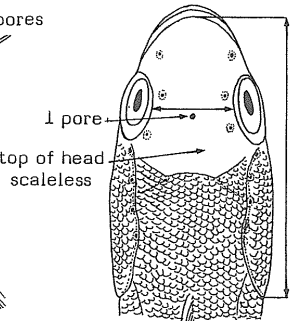
other Trematomus

SIZE :

Maximum: 20 cm; common to 15 cm.



P. borchgrevinki



T. newnesi

top of head

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

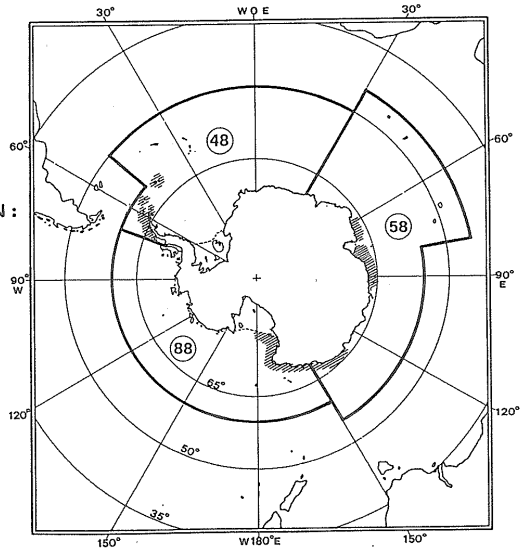
Reported from the west coast of Antarctic Peninsula, coasts of the Antarctic Continent (Mac Robertson, George V, Queen Mary and Adelie coasts, Davis Sea and Ross Sea) also South Shetland and South Orkney Islands. Probably a circumpolar species.

Found from the shore to 160 m depth, rather abundant in the intertidal zone. Trematomus newnesi spawns near shores in September.

Feeds on euphausiids, copepods, amphipods and polychaetes.

PRESENT FISHING GROUNDS :

Not commercially exploited, this species plays an important role in the diet of many Antarctic seabirds.



CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet caught by fishing boats.

NOT Trem 3

1985

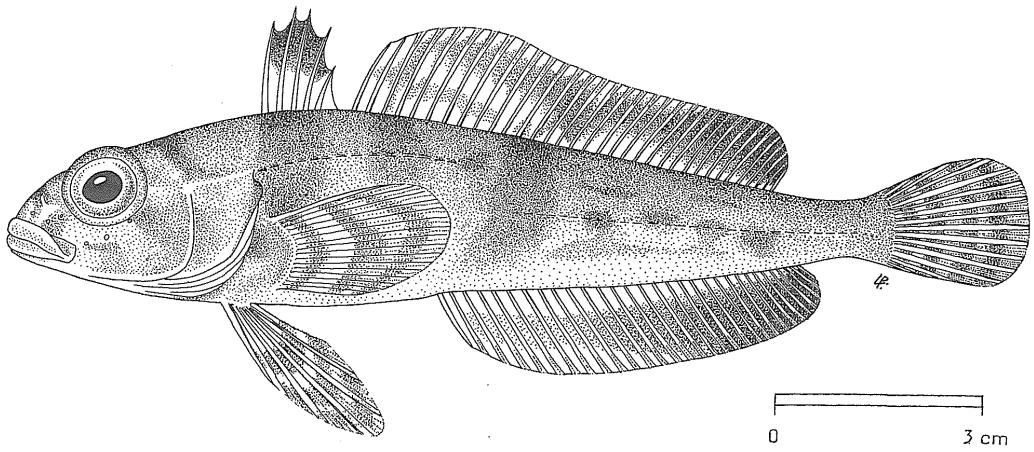
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : NOTOTHENIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Trematomus scotti Boulenger, 1907

OTHER SCIENTIFIC NAMES STILL IN USE : Notothenia (Trematomus) scotti (Boulenger, 1907)



VERNACULAR NAMES :

FAO/CCAMLR : En - *Crowned rockcod*
Fr - Bocasson couronné
Ru - Trematom-skotta
Sp - Austrobacalao coronado

NATIONAL :

DISTINCTIVE CHARACTERS :

Body moderately compressed, its depth 17.5 to 25.6% of standard length. Head a little depressed, snout shorter than eye; length of head 3 to 3.7 times in standard length; cephalic sensory canals normal; 7 pores in the infraorbital canal; temporal canal with 5 pores; 3 pores in supratemporal canal; preoperculomandibular canal with 10 pores; eye 2.6 to 3.5 times in head length; interorbital width narrow 7.4 to 12.5% of head length; 9 to 15 gillrakers on lower part of anterior arch; mouth oblique, maxilla extending posteriorly to below anterior quarter of eye; jaws almost equal anteriorly; teeth in both jaws villiform. Two dorsal fins, the first with 4 to 6 flexible spines, the second with 31 to 36 soft rays; 29 to 33 anal fin rays; pectoral fins large, fan-like, with 19 to 22 rays, as long as the pelvics; caudal fin rounded. Two lateral lines; the upper, short, ending at the level of extremity of pectoral fin; 10 to 23 tubular scales in upper lateral line; lower line without tubular scales; the body entirely covered with ctenoid scales; upper surface of head scaled; interorbital region fully scaled; snout, lower jaw and preorbital area scaleless. The hypural bones 1 and 2, 3 and 4 of the caudal skeleton are fused into two wide plates. Pectoral foramen entirely included in scapula bone.

Colour: brownish, darker dorsally, with black spots or irregular crossbars; spinous dorsal fin with a deep black blotch; soft dorsal and anal fins with a blackish band, broadest and most intense posteriorly; caudal, pectoral and pelvic fins often barred.

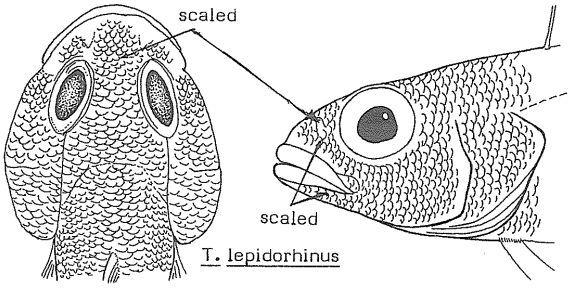
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

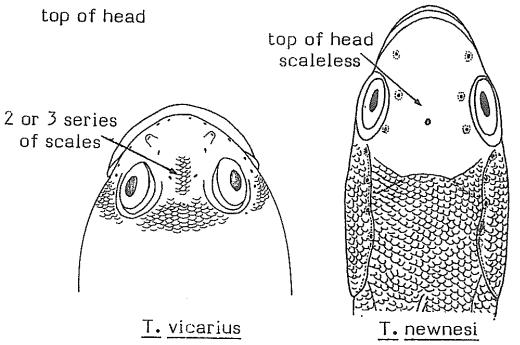
Trematomus loennbergi, T. pennelli and T. centronotus: upper lateral line with 30 or more tubular scales (10 to 23 in T. scotti).

T. lepidorhinus and T. eulepidotus: snout, lower jaw and preorbital area scaled.

T. vicarius: interorbital region with only 2 or 3 series of scales.

T. newnesi and T. nicolai: upper surface of head scaleless.





SIZE :

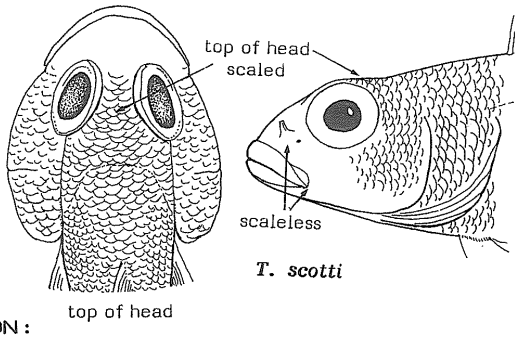
Maximum: 20 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumpolar species; coasts of east Antarctica, Weddell Sea, Ross Sea, Antarctic Peninsula and neighbouring islands, South Shetland Islands and Prydz Bay.

Found from 20 to 666 m depth.

Food unknown.

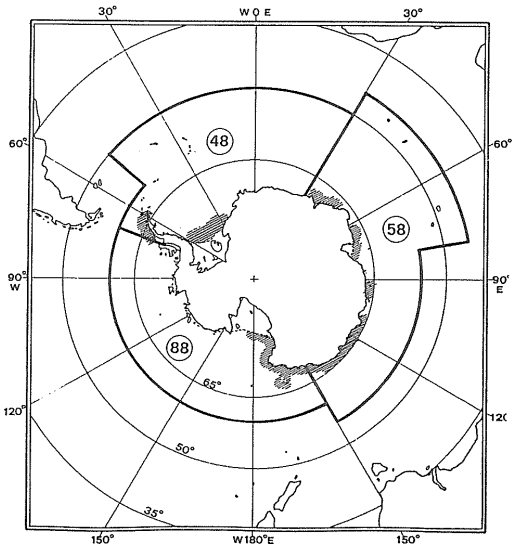


PRESENT FISHING GROUNDS :

Though this species seems to be one of the most abundant circum-Antarctic species, it is not yet commercially exploited.

CATCHES, FISHING GEAR AND FORM OF UTILIZATION :

Not yet caught by fishing boats.



PARALEP

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

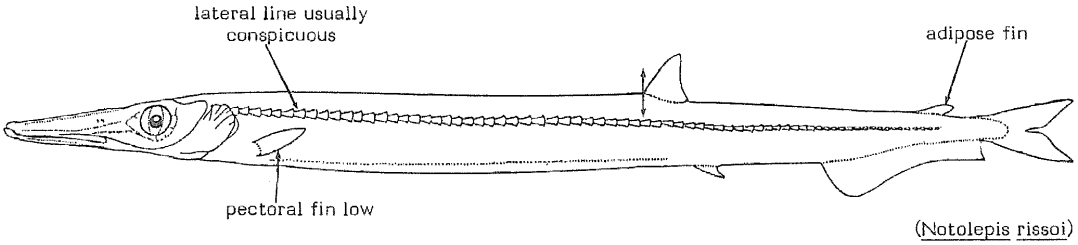
PARALEPIDIDAE

Barracudinas, Jonasfishes

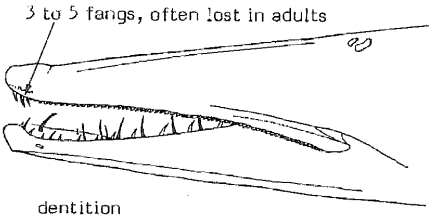
Body elongate and slender, subcylindrical to laterally compressed. Snout pointed, mouth terminal, the lower jaw projecting by a non-ossified process; alternatively fixed and depressible fang-like teeth on dentary (lower jaw) and palatine (roof of mouth); premaxilla of upper jaw with fangs at tip followed by small saw-like canines; gillrakers reduced to teeth or spines in multiple series on a bony shield; disappearing by a fusing process in old adults. No spiny rays in fins; the single short dorsal fin set behind midpoint of body; a dorsal adipose fin always present above last anal fin rays; no ventral adipose fin in Antarctic species; anal fin long, with 20 to 35 rays, its origin well behind dorsal fin; pectoral fins set low on body, short. Lateral line usually conspicuous, except in N. coatsi. Scales cycloid (smooth to touch) and easily shed. No light organs in Antarctic species. No swimbladder. Hermaphrodites.

Colour: adults silvery with a brownish dorsal band; juveniles yellowish transparent.

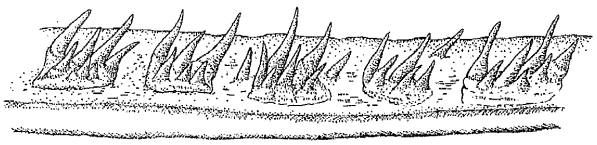
Medium-sized fishes ranging from 25 to 55 cm in total length. They are meso- to bathypelagic and may occur in large numbers from the surface to depths beyond 2 000 m. They are swift swimmers, the adults being able to avoid nets and other collecting gear. The possible interest of barracudinas as a potential resource in future midwater fisheries operations is yet to be tested. In the Southern Ocean, barracudinas are taken as bycatch in offshore trawl-fisheries (pelagic trawls) and krill fisheries.



(Notolepis rissoi)



dentition

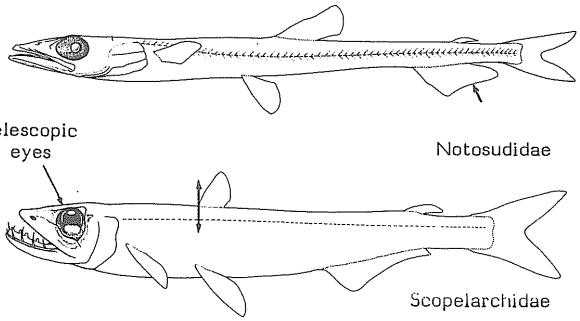


example of gillrakers on first gill arch

SIMILAR FAMILIES OCCURRING IN THE AREA :

Notosudidae: gillrakers lath-like, not in form of teeth or spines; anal fin rather short with 16 to 20 rays (20 to 35 in Paralepididae); hind tip of maxilla below eye (before eye in Paralepididae).

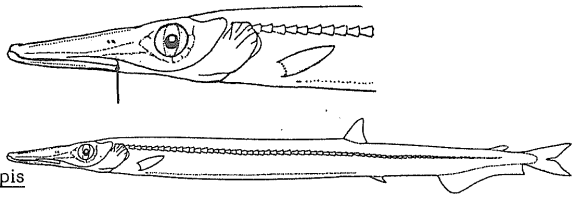
Scopelarchidae: eyes telescopic; dorsal fin set before midpoint of body.



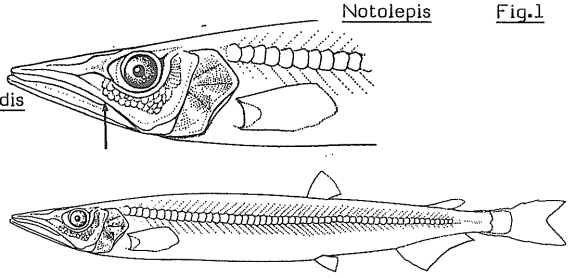
KEY TO GENERA OCCURRING IN THE AREA :

1a. 25 to 33 anal fin rays (rarely 24 in N. annulata); hind tip of maxilla below a vertical from nasal aperture; maximal standard length about 40 cm (Fig.1)..... Notolepis

1b. 20 to 24 anal fin rays; hind tip of maxilla distinctly behind a vertical from nasal aperture; maximal standard length about 50 cm (Fig.2) ..... Magnisudis



Notolepis Fig.1



Magnisudis Fig.2

LIST OF SPECIES OCCURRING IN THE AREA :

Code numbers are given for those species for which Identification Sheets are included

Magnisudis prionosa (Rofen, 1963)	PARALEP Mag 1
Notolepis annulata Post, 1978	PARALEP Not 1
Notolepis coatsi Dollo, 1908	PARALEP Not 2
Notolepis rissoi (Bonaparte, 1840)	PARALEP Not 3

Prepared by A. Post, Ichthyologie, Institut für Seefischerei, am Zool. Institut und Zool. Museum der Universtät Hamburg, Martin-Luther-King Platz 3, D-2000 Hamburg 13, Federal Republic of Germany

PARALEP Mag 1

1985

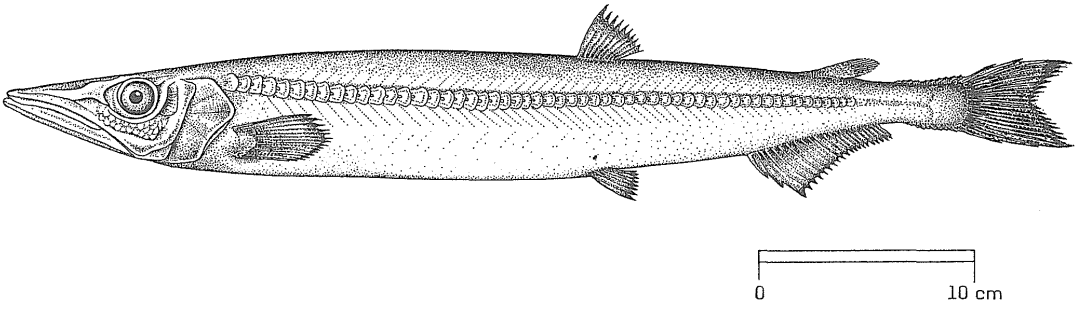
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PARALEPIDIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Magnisudis prionosa (Rofen, 1963)

OTHER SCIENTIFIC NAMES STILL IN USE : Paralepis atlantica prionosa Rofen, 1963



VERNACULAR NAMES :

FAO/CCAMLR : En - Southern barracudina
Fr - Barracudine australe
Ru - Yuzhanaya barrakudina
Sp - Barracudina austral

NATIONAL :

DISTINCTIVE CHARACTERS :

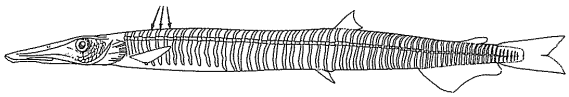
A rather large and compact fish within the family. Head length about 1/4 of standard length; upper jaw extending to slightly before anterior margin of eye. Length of adipose fin base about equal to height of caudal peduncle; anal fin far back on body, with 21 to 24 rays; pectoral fins with 14 to 17 rays; origin of pelvic fins below or slightly behind first dorsal fin ray. Lateral line distinct, visible parts of scales higher than long on anterior part of body; 68 to 73 vertebrae.

Colour: adults silvery when fresh and fully scaled; brown to grey dorsally, light ventrally; pectoral fins black. Juveniles light with the black peritoneum shining through the transparent belly; 3 peritoneal sections in young juveniles (rarely 4).

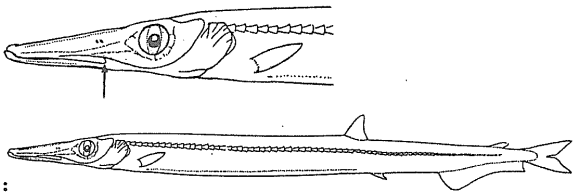
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Notolepis annulata: dorsal and ventral processes of each lateral line scale running to dorsal and ventral midline, forming transverse stripes on body. Ten or 11 pectoral fin rays (14 to 17 in M. prionosa).

N. coatsi and N. rissoi: hind tip of maxilla below nasal aperture; 26 to 33 anal fin rays (21 to 24 in M. prionosa); 9 to 12 pectoral fin rays.



Notolepis annulata



Notolepis rissoi

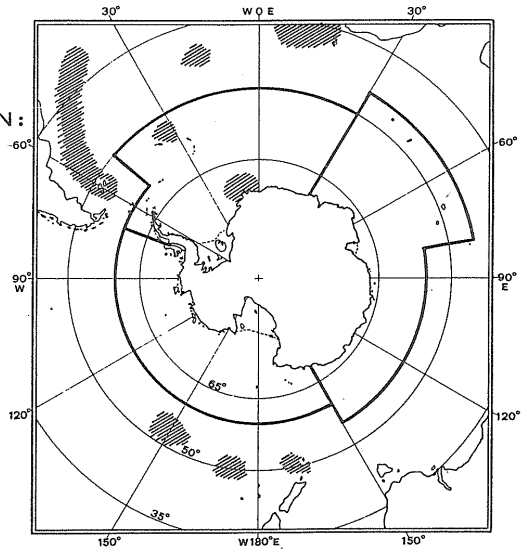
SIZE :

Maximum: 55 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Probably circumglobal in the Southern Ocean from 20°S to 60°S; but not yet reported from the southern Indian Ocean; specimens south of the Antarctic Convergence probably expatriated.

Spawns in temperate and subtropical waters; feeds mainly on fishes.



CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Taken as bycatch in pelagic trawls and used for fishmeal.

PARALEP Not 1

1985

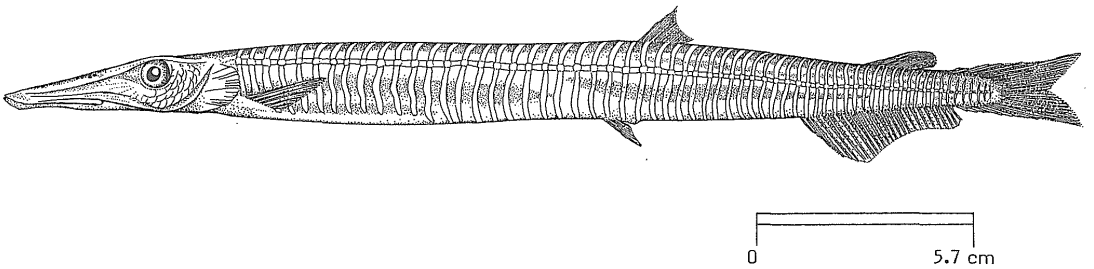
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PARALEPIDIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notolepis annulata Post, 1978

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Ringed barracudina
Fr - Barracudine annelée
Ru - Kolchataya barrakudina
Sp - Barracudina anillada

NATIONAL :

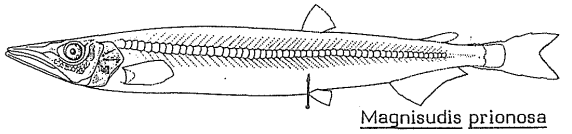
DISTINCTIVE CHARACTERS :

Body elongate, subcylindrical. Snout terminal, pointed; upper jaw extending just below nasal aperture. Base of dorsal adipose fin long, at least twice the height of caudal peduncle; anal fin with 24 to 27 rays, its origin at hindmost fifth of standard length; pectoral fins with 10 or 11 rays; origins of pelvic fins distinctly in front of a vertical from first dorsal fin ray. Lateral line conspicuously modified; dorsal and ventral protrusions of each lateral line scale extend to dorsal and ventral midline, thus forming a transverse striation of the body; 75 to 82 vertebrae.

Colour: brownish to greyish in a continuous sequence of light and dark transverse stripes. Young specimens yellowish with the black peritoneum shining through the belly.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

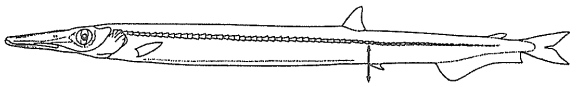
Magnisudis prionosa: no striation on body; 14 to 17 rays in pectoral fins (10 or 11 in N. annulata); base of dorsal adipose fin short; origin of pelvic fins below or slightly behind first dorsal fin ray.



Magnisudis prionosa

Notolepis coatsi: no striation on body; gill chamber black.

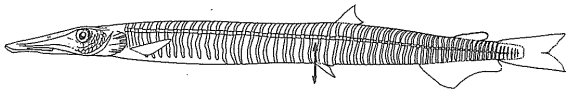
N. rissoi: no striation on body; 28 to 33 rays in anal fin (24 to 27 in N. annulata); origin of pelvic fins behind a vertical from first dorsal fin ray; gill chamber black.



Notolepis rissoi

SIZE :

Maximum: about 30 cm.



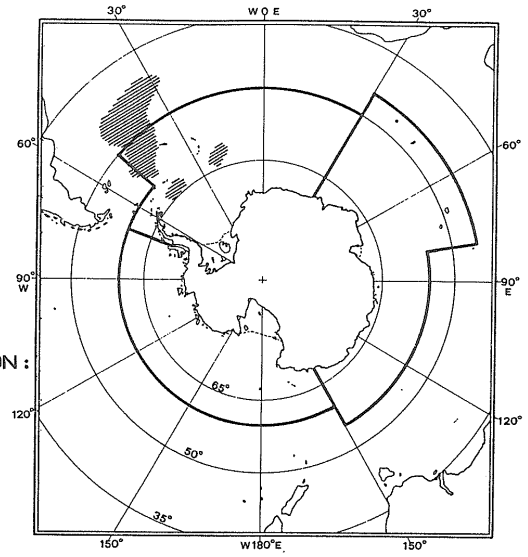
Notolepis annulata

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Only known from the western Atlantic section of the Antarctic between 43°S and 62°S; probably circumglobal in Antarctic waters.

Pelagic between the surface and 2,000 m. Nothing is known about spawning areas.

Feeds on fish, occasionally on krill; the complex lateral line system has been interpreted as a sensory organ to detect fishes (prey or enemies) in a krill-cluster.



CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

This species has been discovered recently; no forecast can as yet be made about its possible commercial importance.

PARALEP Not 2

1985

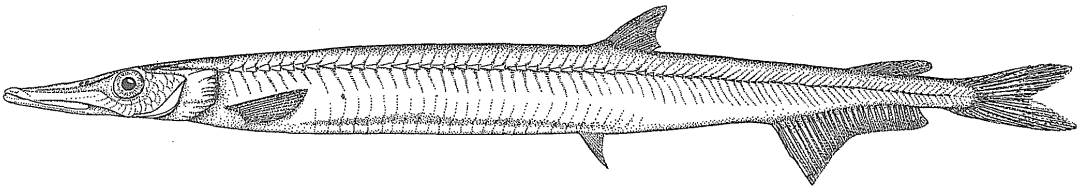
FAO SPECIES IDENTIFICATION SHEETS

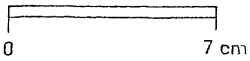
FAMILY : PARALEPIDIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Notolepis coatsi Dollo, 1908

OTHER SCIENTIFIC NAMES STILL IN USE : None





VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic jonasfish
Fr - Barracudine antarctique
Ru - Antarktischeskaya barrakudina
Sp - Barracudina antártica

NATIONAL :

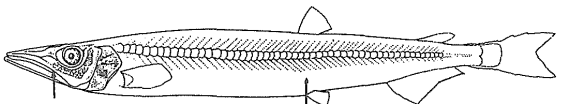
DISTINCTIVE CHARACTERS :

Body elongate, compressed. Snout terminal, pointed; upper jaw extending just below nasal aperture. Base of dorsal adipose fin long, at least twice the height of caudal peduncle; anal fin with 26 to 29 rays, its origin at hindmost fifth of standard length; pectoral fins with 9 to 11 rays; origin of pelvic fins distinctly in front of a vertical from first dorsal fin ray. Lateral line scales almost cryptic; 86 to 89 vertebrae.

Colour: almost colourless, thus looking yellowish except for some brownish areas at tip of snout, base of caudal fin rays, nasal aperture and pectoral fins; this appearance might be artificial as scales and epidermis are easily shed in the fishing gear; the black or dark brownish skin remaining on caudal fin, around nasal apertures and in the gill chamber may in fact indicate that adults of this species are heavily coloured and even black in life.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

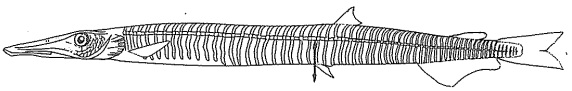
Magnisudis prionosa: 21 to 24 anal fin rays (26 to 29 in N. coatsi); 14 to 17 pectoral fin rays (9 to 11 N. coatsi); lateral line scales distinctly visible; origin of pelvic fins below or slightly behind first dorsal fin ray.



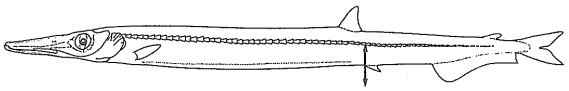
Magnisudis prionosa

Notolepis annulata: conspicuous vertical striation on body; gill chamber light.

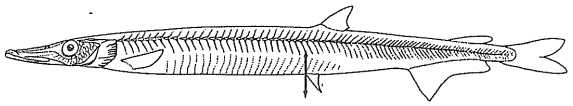
N. rissoi: lateral line scales distinctly visible; dark spots on rear part of body; origin of pelvic fins behind a vertical from first dorsal ray.



Notolepis annulata



Notolepis rissoi



Notolepis coatsi

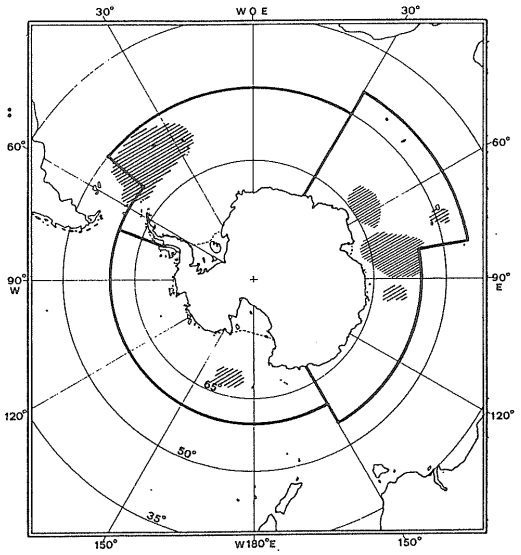
SIZE :

Maximum: about 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumglobal in Antarctic waters south to 65°S; most records are from the western Atlantic sector; records from the Indian and Pacific sectors refer to very young specimens collected from the surface to 2 000 m depth.

Seems to feed on krill exclusively.



CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Taken as bycatch in krill trawls and used as fishmeal.

PARALEP Not 3

1985

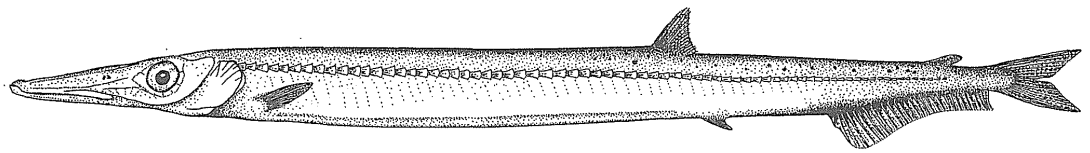
FAO SPECIES IDENTIFICATION SHEETS

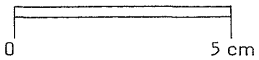
FAMILY : PARALEPIDIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Notolepis rissoi (Bonaparte, 1840)

OTHER SCIENTIFIC NAMES STILL IN USE : None





VERNACULAR NAMES :

FAO/CCAMLR : En - Spotted barracudina
Fr - Barracudine pintade
Ru - Barrakudina Risso
Sp - Barracudina pintada

NATIONAL :

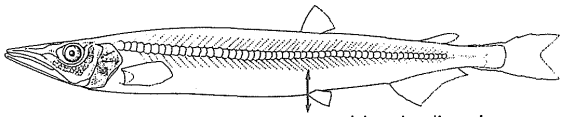
DISTINCTIVE CHARACTERS :

Body elongate, compressed. Snout terminal, pointed; upper jaw extending just below nasal aperture. Length of dorsal adipose fin base about equal to height of caudal peduncle; anal fin with 28 to 33 rays, its origin at hindmost fifth of standard length; pectoral fins with 10 to 12 rays; origin of pelvic fins below last dorsal fin ray; origin of anal fin at hindmost fifth of standard length. Lateral line distinct; 80 to 83 vertebrae.

Colour: silvery when fresh and fully scaled; greyish dorsally, light ventrally; small but distinct black spots scattered along rear part of body; a black area at base of first anal fin rays. Young specimens with at least 7 peritoneal sections shining through the belly, confluent in larger adolescents.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

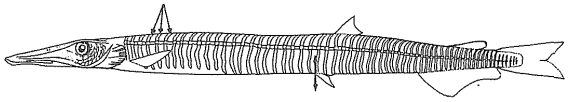
Magnisudis prionosa: 21 to 24 rays in anal fin (28 to 33 in N. rissoi); 14 to 17 rays in pectoral fins (10 to 12 in N. rissoi); pelvic origin below first dorsal fin ray; no scattered black spots on rear part of body; upper jaw extending to below anterior margin or eye.



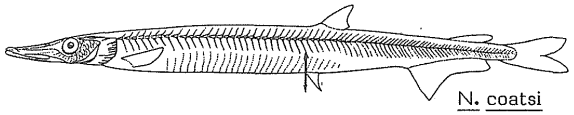
Magnisudis prionosa

Notolepis annulata: processes of lateral line scales forming transverse stripes on body; origin of pelvic fins distinctly in front of a vertical from first dorsal fin ray; gill chamber light; 24 to 27 rays in anal fin.

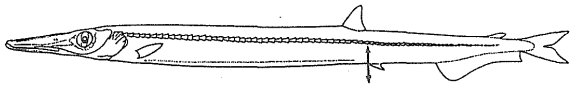
N. coatsi: lateral line scales hardly visible without staining; no scattered spots on rear part of body; origin of pelvic fins distinctly in front of a vertical from first dorsal fin ray.



Notolepis annulata



N. coatsi



N. rissoi

SIZE :

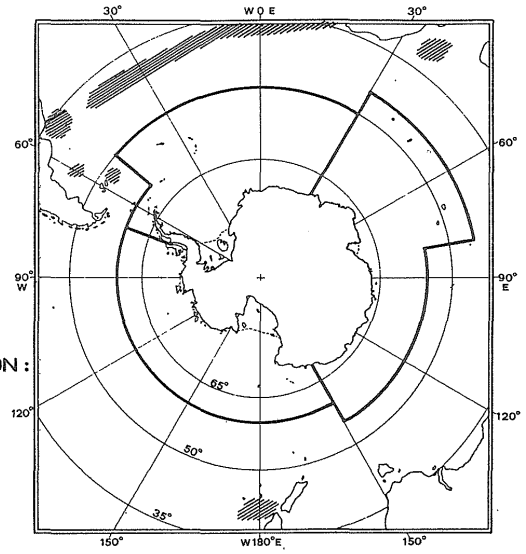
Maximum: about 30 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Worldwide in all kinds of waters; in the Atlantic consistently reported from about 60°N to 52°S; within the area probably expatriated; southernmost record from off the Falkland/Malvinas Islands, not yet found in the southern Indian Ocean and eastern South Pacific.

Inhabits open oceans between the surface and about 1 000 m depth; possibly at least temporarily pseudoceanic, found in high concentrations over continental slopes at 600 m depth. Spawns in tropical and subtropical waters.

Feeds mainly on fishes and crustaceans.



CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Taken as bycatch in pelagic trawls and used for fishmeal.

ZOAR

1985

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 48,58,88
(Southern Ocean)

ZOARCIDAE

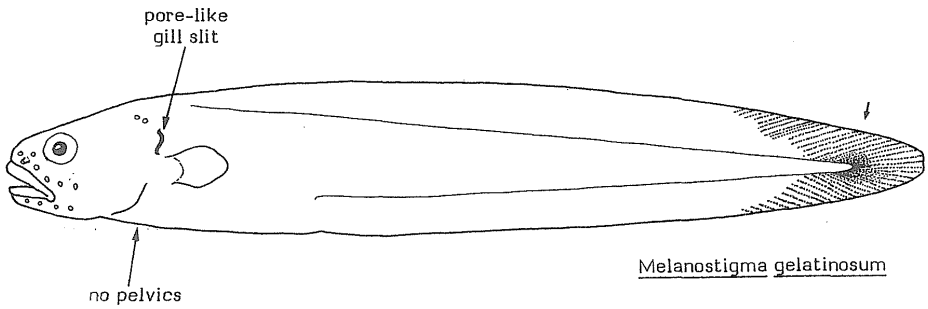
Eelpouts

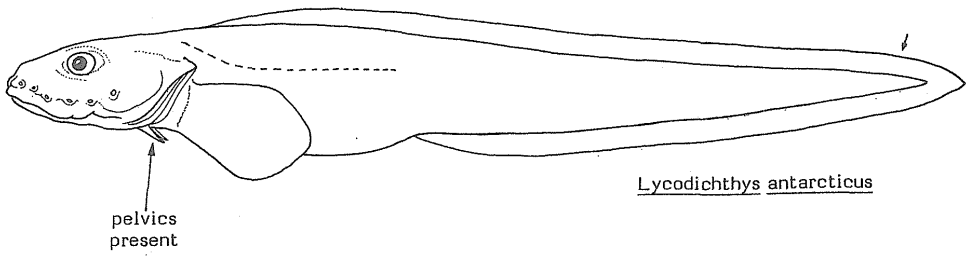
Small to medium-sized fishes recognized by their shortened, eel-like shape. Head ovoid or flattened; eyes very near or on top of head; nostrils single; no spines on head or opercle; supramaxilla and basibranchial teeth absent; mouth small or moderately large; gill openings variable, from a small pore above pectoral fin to a broad fold not connected to isthmus; branchiostegal rays 4 to 7. Dorsal and anal fins confluent with caudal; fin supports in 1:1 relationship with successive vertebrae; dorsal fin usually with no spines (first and second elements sometimes "flexible spines"); anal fin with no spines; pelvic fins rudimentary or absent (with 2 or 3 rays when present). Scales, when present, very small, cycloid, imbedded in the skin. Lateral line on body, when present, consisting of "free lateralis organs" (neuromasts not in a canal). No swimbladder. Head pores prominent.

Colour: Austrolycichthys and Ophthalmolycus uniformly dark brown, abdomen dark bluish, branchiostegal membranes and lower parts of head black; Lycenchelys uniformly dark brown, purplish or black, fins may have black margins; Lycodapus and Melanostigma pearly-white, posterior margins of dorsal and anal fins, as well as anterior portion of head, often black (M. vitiazi is uniformly dark brown). Lycodichthys dark brown above, with lighter brown to yellowish or whitish mottling below.

Most eelpouts are benthic slope dwellers found around the world, but Lycodapus and Melanostigma are meso- or bathypelagic. Benthic forms are usually sexually dimorphic, with males having larger heads, and longer jaws and pectoral fins than females. They eat mostly infaunal invertebrates, and females spawn few very large eggs.

At present, eelpouts have no economic importance in Antarctic regions. In fact, most species from the region are rare in museum collections and the literature on them is poor.





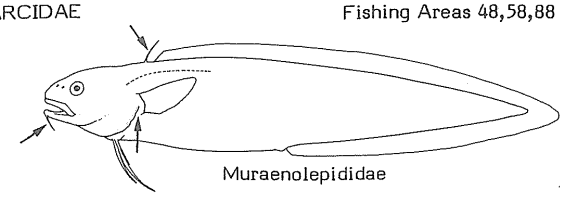
SIMILAR FAMILIES OCCURRING IN THE AREA :

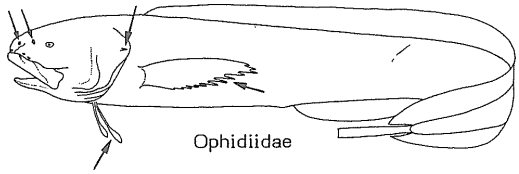
Muraenolepididae: two dorsal fins, the first with one elongate ray; chin barbel and swimbladder present; upper edge of gill slit under pectoral fin.

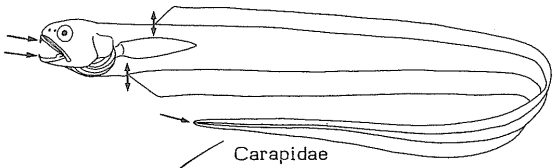
Ophidiidae (Holcomycteronus brucei only): opercular spine and basibranchial teeth present; two pairs of nostrils; branchiostegal rays 8; posterior margin of pectoral fin membrane well separated from ray tips, ventralmost rays more or less free; pelvic fins long, flattened at tips (paddle-shaped).

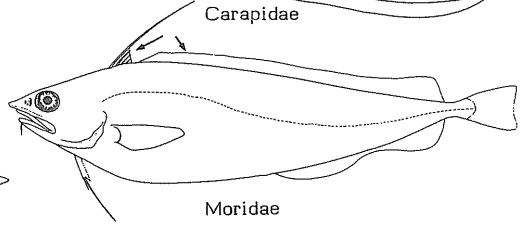
Carapidae: anal fin origin in advance of dorsal origin and under pectoral fin; isolated and enlarged canines at symphysis of both jaws; two pairs of nostrils; swimbladder present; posterior region of tail whip-like.

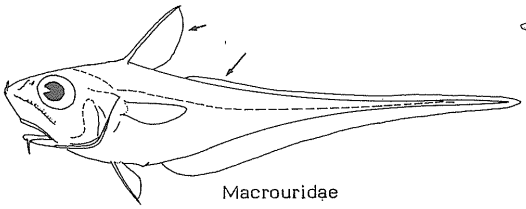
Moridae and Macrouridae: at least 2 dorsal fins; pelvic fins always well developed even if filamentous.


Muraenolepididae


Ophidiidae


Carapidae


Moridae


Macrouridae

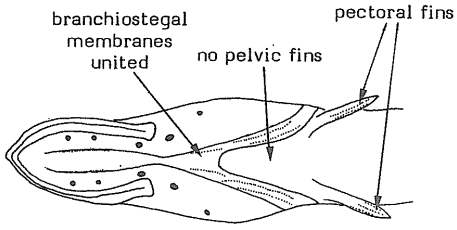
KEY TO GENERA OCCURRING IN THE AREA :

1a. Branchiostegal membranes united, entirely free of isthmus posteriorly (Fig.1); no suborbital pores or palatine membrane (oral valve); mandibular and preopercular "lateralis" canals separated by septum; scales and pelvic fins absent..... Lycodapus

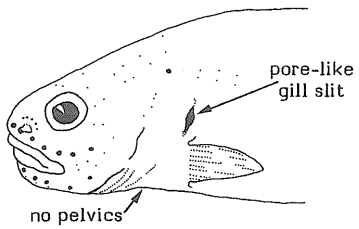
1b. Branchiostegal membranes joined to isthmus; gill slit a small pore above pectoral fin, or extending ventrally to near pelvic or pectoral fin base; suborbital pores present; palatine membrane present; mandibular and preopercular canals joined (except in Lycenchelys antarctica)

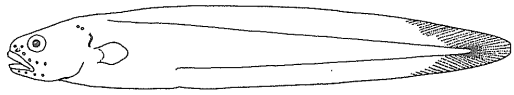
2a. Scales absent; gill slit restricted, either a small pore above pectoral or extending ventrally to middle of pectoral base; pelvic fins absent

3a. Gill slit a small pore above pectoral fin (Fig.2); preopercular pores absent; postorbital pores 0 or 1; one (anterior) nasal pore; body lateral line absent (except in M. vitiazi) ..... Melanostigma



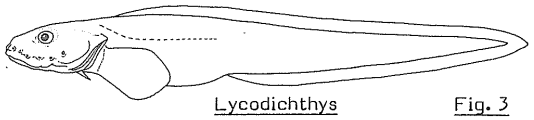
underside of head
Lycodapus Fig. 1




Melanostigma Fig.2

3b. Gill slit extending ventrally to mid-pectoral base; preopercular pores 3; postorbital pores 2 or 3; nasal pores 2; body lateral line present ..... Oidiphorus?*

2b. Scales present; gill slit extending ventrally to lower edge of pectoral base or farther; pelvic fins present (except in Lycenchelys hureaui and Lycodichthys dearborni)

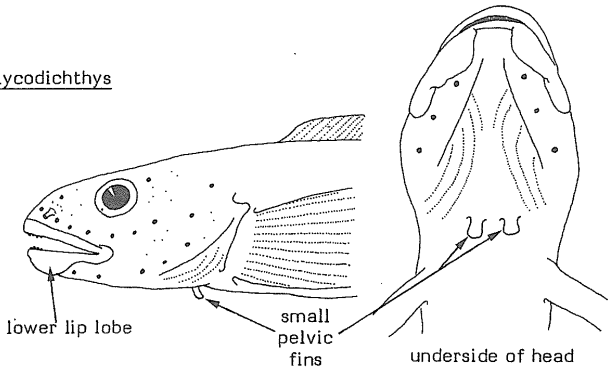


Lycodichthys Fig. 3

4a. Vomerine and palatine teeth absent; pyloric caeca and pseudobranch absent; suborbital bones 5 (Fig.3) ..... Lycodichthys

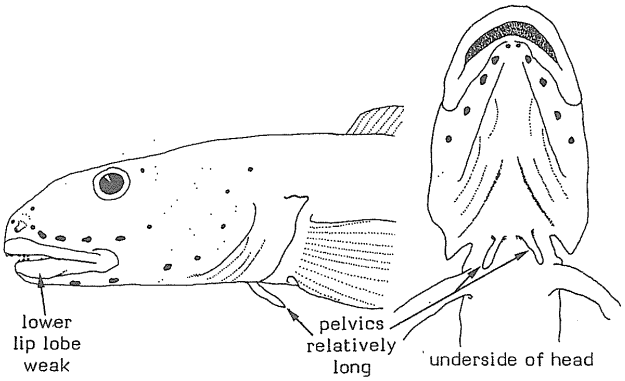
4b. Vomerine and palatine teeth present; pyloric caeca and pseudobranch present; suborbital bones 6 to 10

5a. Body height at anal fin origin 9.3 to 11.6% standard length; lower lip with well developed lobe (Fig. 4); posterior tips of pelvic fins separated from lower edge of pectoral fins by 1 to 2.5 times its length ..... Austrolycichthys**



Austrolycichthys Fig.4

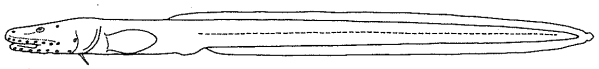
5b. Body height at anal fin origin 2.3 to 9.5% standard length; lower lip without, or with only slight, lobe (Fig.5); posterior tip of pelvic fin separated from lower edge of pectoral fin by its length or less, or overlapping pectoral base entirely (when less than a distance of more than 3/4 pelvic length, body height 2.3 to 6% standard length; Lycenchelys hureaui lacks pelvic fins)



Ophthalmolycus Fig.5

6a. Pyloric caeca relatively long, about 1 eye diameter in length; dorsal fin origin associated with vertebrae 3 to 5; number of vertebrae 94 to 110 (Fig.5) ..... Ophthalmolycus

6b. Pyloric caeca reduced, two small knobs; dorsal fin origin associated with vertebrae 7 to 13; number of vertebrae 102 to more than 120 (Fig.6) ... Lycenchelys***



Lycenchelys Fig.6

* "Oidiphorus" laevifasciatus, described from a single specimen from the South Sandwich Islands, does not belong in Oidiphorus McAllister & Rees, and its status is uncertain

** Status of genus uncertain

*** The gender of Lycenchelys is feminine (but "nigripalatum" is a noun in apposition)

LIST OF SPECIES OCCURRING IN THE AREA :

Austrolycichthys brachycephalus (Pappenheim, 1912)

Lycenchelys amberensis Tomo, Marschoff & Torno, 1977
Lycenchelys antarctica Regan, 1913
Lycenchelys aratrirostris Andriashev & Permitin, 1968
Lycenchelys argentina Marschoff, Torno & Tomo, 1977
Lycenchelys bellingshauseni Andriashev & Permitin, 1968
Lycenchelys hureaui (Andriashev, 1979) (= Apodolychus hureaui)
Lycenchelys nigripalatum DeWitt & Hureau, 1979
Lycenchelys tristichodon DeWitt & Hureau, 1979

Lycodapus antarcticus Tomo, 1981
Lycodapus pachysoma Peden & Anderson, 1978

Lycodichthys antarcticus Pappenheim, 1911
Lycodichthys dearborni (DeWitt, 1962) (= Rhigophila dearborni)

Melanostigma bathium Bussing, 1965
Melanostigma gelatinosum Günther, 1881

"Oidiphorus" laevifasciatus Torno, Tomo & Marschoff, 1977

Ophthalmolycus bothriocephalus (Pappenheim, 1912) (= Austrolycichthys bothriocephalus)
* Ophthalmolycus concolor (Roule & Despax, 1911)

Prepared by M. Eric Anderson, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, USA

* The name "Lycodes concolor (Roule & Despax, 1911)" is preoccupied by "Lycodes concolor" "Gill & Townsend, 1897". Hence "Ophthalmolycus concolor" will have to be replaced by a new name in the near future

GENERAL REMARKS

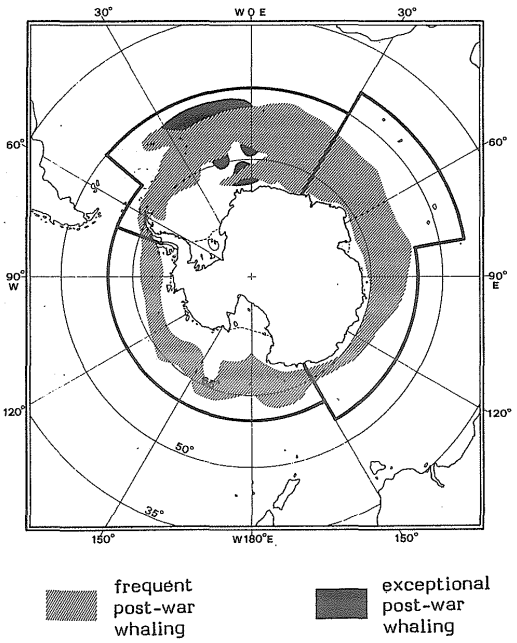
There is a very natural desire on encountering a seal or a whale to try to put a name to the animal. But the identification of marine mammals presents more problems than that of many groups. The characters that distinguish one species from another are not usually those of simple colour patterns, as is often the case with birds, nor is it possible to have the specimen 'in the hand' as one can with fish, for example, so a detailed examination is not usually possible. Very often the best has to be made of a fleeting glimpse of the animal and in these circumstances doubts will certainly remain as to its specific identity.

Seals are most often seen on land or on floating ice, and in those cases where close approach is possible there need never be any difficulty in identifying the Antarctic species, though some northern forms of fur seals straying into the area could pose problems. Whales are very occasionally found cast ashore and in most cases it will be easy to identify these strandings, though with some toothed whales it may not be possible to identify down to species without expert examination of prepared skulls.

At sea seals are rather rarely seen (considering their adundance), though fur seals are in places conspicuous, porpoising on their way to and from their feeding grounds, and occasionally large groups of crabeater seals may be seen swimming purposefully along. Whales are most often seen at sea but identifying them there is a task for a very skilled observer. Although some sightings will be plainly enough of one species or another, there will be many more sightings where it will be impossible to determine the species, genus or even family of cetacean seen. A recently published guide to whales implies that it is possible to identify cetaceans at sea down to species. For most whales this is not possible without a great deal of practical experience; for some it will not be possible even then. The present authors, who have both been familiar with whales in the Antarctic for more than thirty years each, freely admit that only a minority of sightings can be positively identified. Nevertheless, the characters given in the following accounts should assist in many cases in putting a tentative name to a sighting. As a result of the difficulties with identification of sightings, the precise distribution of the large whales are insufficiently known. The Antarctic whaling grounds for these species are shown here.

A further warning must be given. Because of the great difficulty of identification at sea, it is still uncertain which species of toothed whales (particularly dolphins and beaked whales) occur in the Southen Ocean. All species known to occur south of the Antarctic Convergence have been included in these accounts, but the possibility remains that others may turn up from time to time. If this is the case the accounts will be incomplete and the key defective.

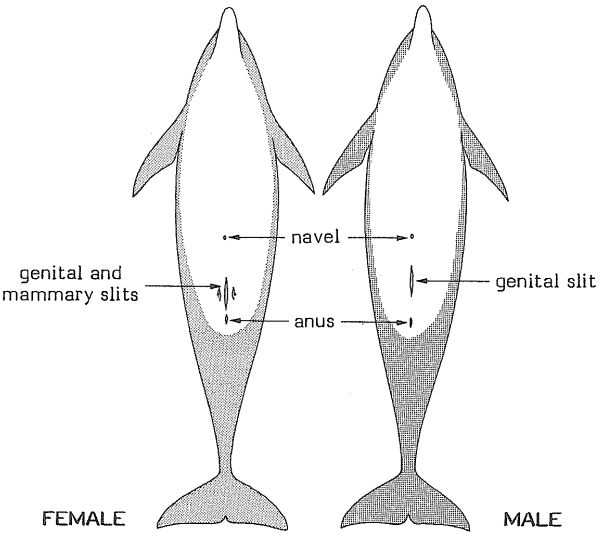
The Antarctic marine mammals comprise major orders: the whales, dolphins and porpoises (Order Cetacea) and the seals, sea lions and walrusses (Order Pinnipedia).



Antarctic whaling grounds

ORDER CETACEA - Whales, dolphins and porpoises

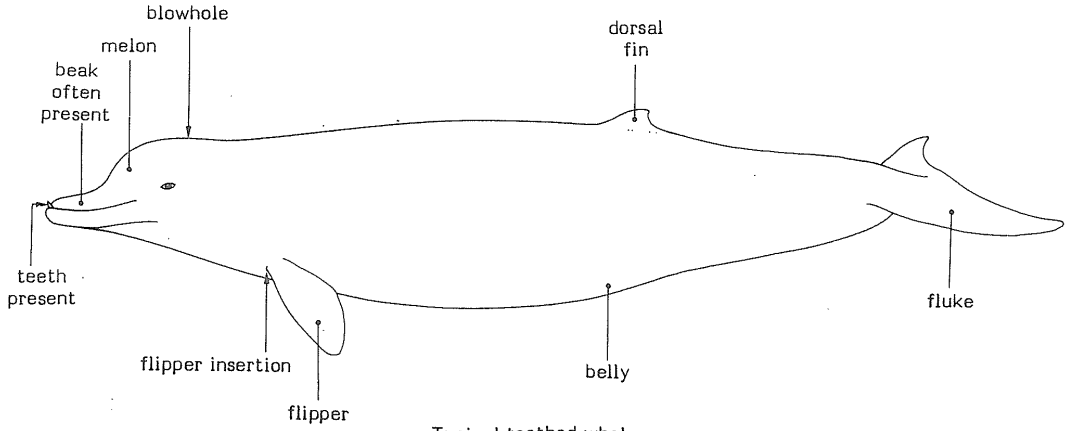
The order Cetacea is made up of two suborders, the Mysticeti (baleen or whalebone whales) and the Odontoceti (toothed whales). A third suborder, the Archaeoceti, became extinct in the Miocene. All are warm-blooded air-breathing mammals, highly adapted for life in the water, which they never leave. The body shape is highly streamlined: the typical mammalian hair coat has been lost (except for a few sensory whiskers in some species); there are no external ear flaps; the male penis at rest is completely internal and the female genitalia and nipples are contained within a common furrow just anterior to the anus. There is no trace of hind limbs (but vestiges of the pelvic girdle are present internally). Locomotion is by means of vertical undulations of the posterior end of the body. Fibrous lateral extensions of the tail tip, unsupported by bony structures, form the tail flukes. In most cetaceans there is a dorsal fin, also entirely fibrous and without skeletal support.



underside of cetacean (schematic)
Adapted from L. Watson, 1981

SUBORDER ODONTOCETI - Toothed whales

The Odontoceti comprise seven families (more or less), of which four have been recorded in the Southern Ocean. All odontocetes are characterized by the presence of teeth (though in some species these do not emerge from the gum), an asymmetrical skull, a single nasal opening, double-headed ribs, sternal ribs present (cartilaginous in some families), and a sternum composed of three or more sternebrae articulating with three or more pairs of ribs. In most odontocetes the area between the front of the mouth and the nasal opening (usually referred to as the "forehead", but actually the upper lip) is expanded to form a rounded body or "melon". This contains a concentration of oil and liquid wax and probably functions as a hydrostatic organ. It may also serve to focus sound beams. The teeth are simple, either conical, flattened plates or spade-shaped (except for the Arctic narwhal, Monodon monoceros). They have single roots and only one set is present throughout life.

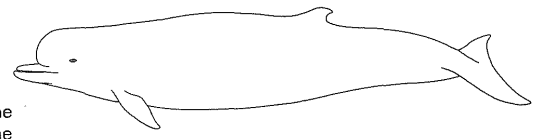


Typical toothed whale

GUIDE TO FAMILIES OF TOOTHED WHALES

ZIPH

ZIPHIIDAE: Beaked whales



(18 species in 5 genera)

Medium-sized (6 to over 12 m) toothed whales with the snout drawn out into a beak. Existing forms (with one exception) all show a strong reduction of dentition, usually with 1 or 2 pairs of visible teeth in lower jaw (usually only in adult males). There are two diverging longitudinal lines on the throat. Flippers are comparatively small and there is a small dorsal fin set well back. There is no central notch between the flukes.

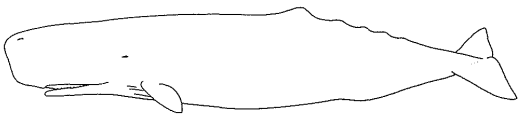
Species known from the Southern Ocean:

Berardius arnuxii Duvernoy, 1851	ZIPH Ber 1
Hyperoodon planifrons Flower, 1882	ZIPH Hyp 1

This group is very imperfectly known. They are believed to be oceanic and to feed mainly on squid and deepsea fish. Mass strandings seldom or never occur.

PHYS

PHYSETERIDAE: Sperm whales



(3 species in 2 genera)

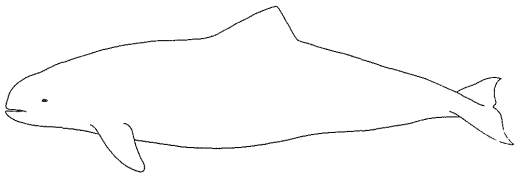
Small (2.7 m) to very large (20.7 m) toothed whales, characterized by the development of a spermaceti organ in place of the melon. The tip of lower jaw does not extend to the end of snout. The two smaller members of the family, the Pygmy sperm whale, Kogia breviceps, and the Dwarf sperm whale, K. simus, resemble the Sperm whale only slightly. They possess prominent dorsal fins and pointed flippers and have not been recorded from the Southern Ocean.

Species known from the Southern Ocean:

Physeter catodon Linnaeus, 1758	PHYS Phys 1

PHOC

PHOCOENIDAE: *Porpoises*



(6 species in 3 genera)

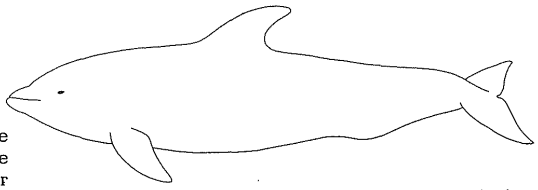
Small (1.2 to 2.25 m) toothed whales, lacking a beak and having spade-shaped teeth in both jaws. They are very similar (apart from these characters) to the Delphinidae and some authorities do not consider them a separate family. They are generally coastal in habit (except Dall's porpoise, Phocoenoides dalli) and are believed to feed largely on fish.

Species known from the Southern Ocean:

Phocoena dioptrica Lahille, 1912	PHOC Phoc 1

DELPH

DELPHINIDAE: True dolphins



(32 species in 17 genera)

Small (1.2 m) to large (8.2 m) toothed whales. The true dolphins form the largest family in the Odontoceti. There is a well-developed beak (except in the Orcininae - Killer whales and Pilot whales, and in Cephalorhynchus) and the jaws are neither exceedingly long nor narrow, with the tooth rows well separated and diverging posteriorly. They are the most abundant and varied of all the Cetacea and are found in all the oceans, from the tropics to the polar seas. Several genera (Delphinus, Stenella, Susa and Sotalia) contain species which at sea are indistinguishable from each other. The genus Cephalorhynchus shows convergence with the Phocoenidae.

Species known from the Southern Ocean:

Cephalorhynchus commersonii (Lacepède, 1804)	DELPH Ceph 1
Globicephala melaena (Traill, 1809)	DELPH Glob 1
Lagenorhynchus cruciger (Quoy & Gaimard, 1824)	DELPH Lag 1
Lissodelphis peronii (Lacepède, 1804)	DELPH Liss 1
Orcinus orca (Linnaeus, 1758)	DELPH Orc 1

NOTE: The Species Identification Sheets which follow are arranged in alphabetical order by family, genera and species.

DELPH Ceph 1

1985

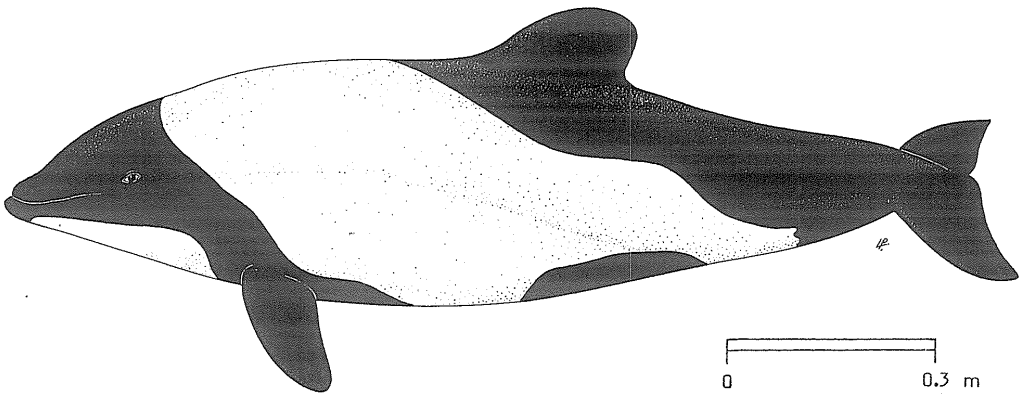
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : DELPHINIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Cephalorhynchus commersonii Lacepède, 1804)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

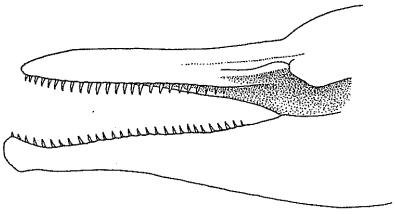
FAO/CCAMLR : En - Commerson's dolphin
Fr - Dauphin de Commerson, Jacobite
Ru - Delfin commersona
Sp - Tonina overa

NATIONAL :

DISTINCTIVE CHARACTERS :

A very small, rather tubby dolphin. Head broad and flat, with no trace of bulbous forehead; 29 to 32 pairs of peg-like teeth in both jaws. Dorsal fin a rounded lobe set well back, flukes slightly hollowed behind, with a definite notch.

Colour: black or dark grey with a large white cape across front half, extending down over belly, leaving a black patch around anus. White on throat and chin, so that the black area in the head region is confined to forehead, snout, lips and a broad area across the neck region to the flippers, which are black. The black colour on back extends over both upper and lower surfaces of flukes and around tail stock.



teeth

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other small cetaceans: different colour patterns; never a large white cap extending across front half of body; dorsal fin more pointed, set near midpoint of back or before, or absent (Lissodelphis peronii), or straight-edged (Phocoena dioptrica); size much larger in Orcinus orca and Phocoena dioptrica.

SIZE :

Length range 1.35 to 1.65 m, weight 50 to 66 kg.

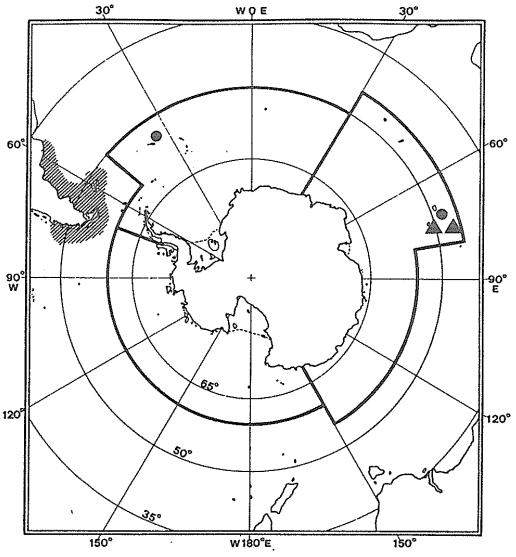
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Found in coastal waters along off Argentina from Peninsula Valdés to Tierra del Fuego, Falkland/Malvinas Islands, South Georgia (very rare), and Kerguelen Islands.

In their general shape, behaviour and coastal habits these dolphins strongly resemble porpoises. They occur in small groups (less than 10 individuals) and are seldom (never?) seen more than a few miles from land. Nothing is known of their breeding or food habits.

EXPLOITATION :

Some hunting for meat, both for bait and human consumption occurs in Argentina, but the species is not exploited in the Southern Ocean. No information exists on stock size. Very uncommon in waters to the south of the Antarctic Convergence.



: observations in this area

: at-sea observations

: specimen

DELPH Glob 1

1985

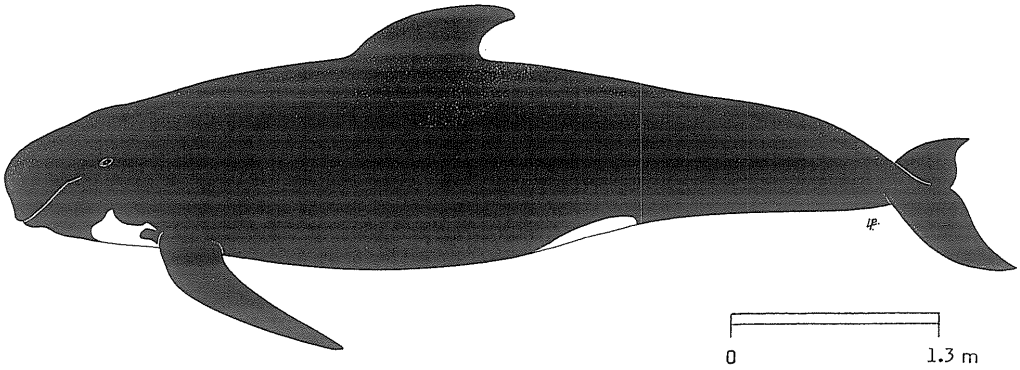
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : DELPHINIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Globicephala melaena (Traill, 1809)

OTHER SCIENTIFIC NAMES STILL IN USE : None



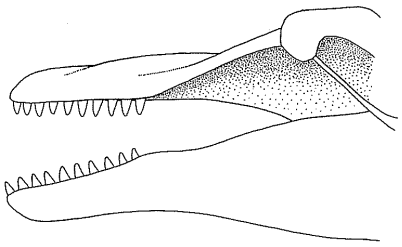
VERNACULAR NAMES :

FAO/CCAMLR : En - Longfinned pilot whale
Fr - Globicéphale noir
Ru - Grinda
Sp - Calderón de aleta larga

NATIONAL :

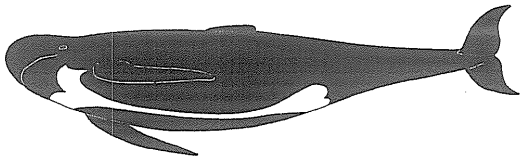
DISTINCTIVE CHARACTERS :

A medium-sized, long, slender whale (or large dolphin) with a characteristic bulging forehead ("pothead") which sometimes overhangs the upper lip (this feature is more pronounced in old males). Dorsal fin distinctive, set forward of midpoint of body, with a long base and a low profile, almost always strongly recurved on trailing edge, and rounded at tip. Flippers long, tapering and pointed, about one fifth of body length, and set well forward. Flukes notched and slightly concave along rear margin. Eight to 11 pairs of conical teeth in both upper and lower jaws.



teeth

Colour: black or dark brown, with a conspicuous anchor-shaped white patch on throat continued tailward to a varying distance. Adult males sometimes heavily scarred.



anchor-shaped pale marking

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other species of Delphinidae (true dolphins): size smaller; forehead not bulging; dorsal fin located farther back, or taller and short-based (Orcinus orca) or absent (Lissodelphis peronii); more than 27 pairs of teeth in each jaw in all except Orcinus orca (8 to 11 pairs in Globicephala melaena); also different colour patterns.

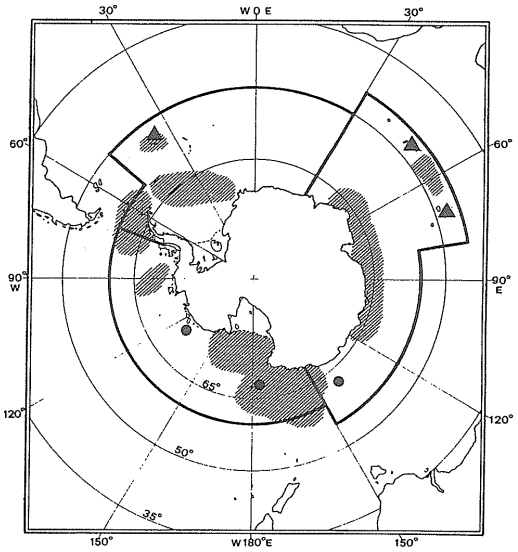
Phocaena dioptrica: teeth spatulate, dorsal fin straight-edged; typical colour pattern including a black ring around eye.

SIZE :

Adult males: length about 6.2 m (though it can be up to 8.5 m); females: length about 5 m (though up to 6 m. A 6 m long pilot whale weighs about 2 900 kg. Newborn: length about 1.8 m, weight 100 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Longfin pilot whales occur in the North Atlantic and around the Southern Hemisphere south of the tropics. In northern latitudes they are migratory, breeding in warm temperate waters and migrating poleward to feed. Probably the same occurs in the Southern Hemisphere.



: observations in this area

● : at-sea observations

▲ : specimen

OBSERVATION AT SEA :

Very gregarious whales, ocurring in schools of many hundreds, swimming slowly and steadily at the surface and rising to blow every 1 or 2 minutes. The bulbous forehead appears first, followed by a strong blow about 1 to 1.5 m high, then the back and dorsal fin arch over as the animal prepares to submerge. Before long dives, the flukes are generally shown. Pilot whales are notorious for mass strandings. These have not been recorded from the shores of the Southern Ocean. In the North Atlantic they feed largely on squid and fish. Their habits are probably similar in the Southern Ocean.

EXPLOITATION :

Subject to drive fisheries in the North Atlantic but unexploited in the south. No data exist on stock sizes.

DELPH Lag 1

1985

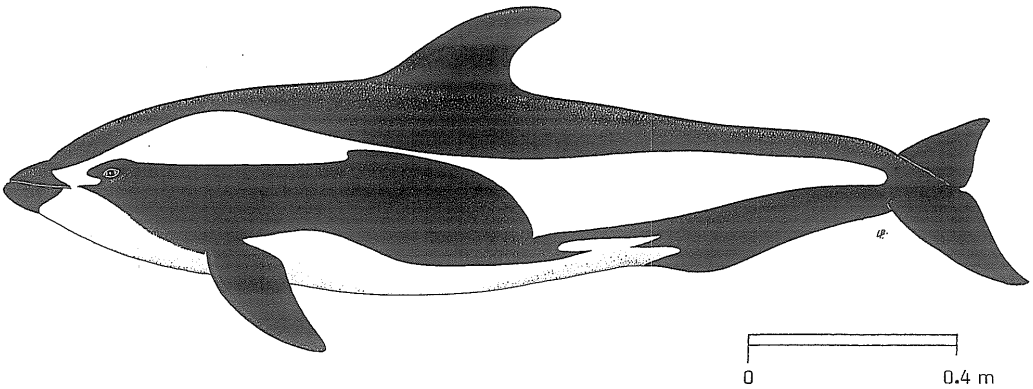
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : DELPHINIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Lagenorhynchus cruciger (Quoy & Gaimard, 1824)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

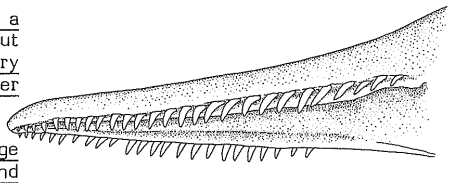
FAO/CCAMLR : En - Hourglass dolphin
Fr - Dauphin crucigère
Ru - Krestovidnyi delfin
Sp - Delffn cruzado

NATIONAL :

DISTINCTIVE CHARACTERS :

A small species of typical streamlined dolphin shape, with a tall, curved dorsal fin, generally very concave on trailing edge, but said occasionally to be more triangular. Snout rounded, with a very short, blunt beak; 28 pairs of small, pointed teeth in upper and lower jaws.

Colour: basically black above with a white belly. Two large white areas on each side, connected by a narrow white band ("hourglass"). Jaws, flippers and flukes black.



teeth in upper jaw

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

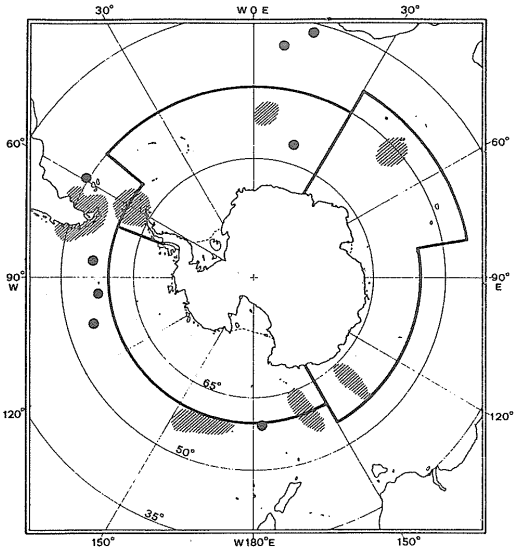
Other small cetaceans: none has the white "hourglass" patch on flanks nor the short blunt beak typical of L. cruciger. Furthermore: dorsal fin low and rounded in Cephalorhynchus commersonii, and absent in Lissodelphis peronii; head bulbous in Globicephala melaena; much larger size, dorsal fin taller and more erect, and typical white patches on sides of head and flanks in Orcinus orca; size much larger, dorsal fin low and straight-edged, teeth spatulate and a typical dark ring around eye in Phocoena dioptrica.

SIZE :

Length range 1.6 to 1.8 m.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Occurs circumpolarly both north and south of the Antarctic Convergence and in the cool waters of the West Wind Drift. Rarely seen near land. Forms groups of 5 to 15 (perhaps more) individuals, often associated with fin whale pods. Nothing is known of breeding or food habits. There is no history of exploitation, nor information on stock size.



: observations in this area

: at-sea observations

DELPH Liss 1

1985

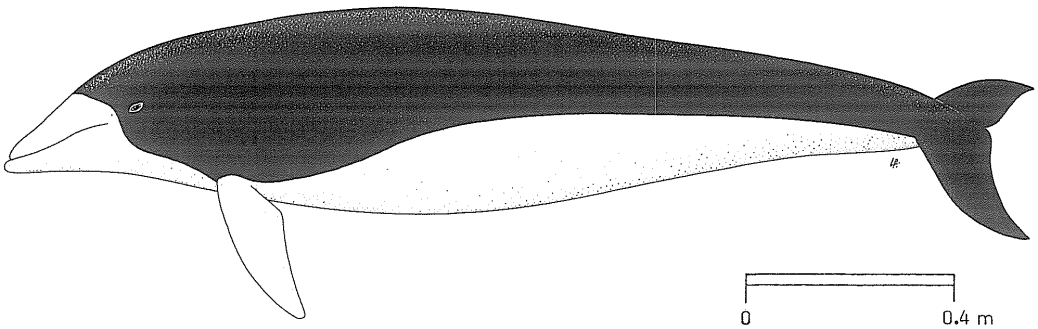
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : DELPHINIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Lissodelphis peronii (Lacepède, 1804)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Southern rightwhale dolphin
Fr - Dauphin de Péron
Ru - Yuzhnyi kitovidnyi delfin
Sp - Delfín liso austral

NATIONAL :

DISTINCTIVE CHARACTERS :

A small dolphin, uniquely shaped, with the body somewhat wider than high (other dolphins are laterally compressed). No trace of dorsal fin and an evenly pointed, slender snout. Flukes concave behind with a pronounced notch. Fortythree to 47 pairs of small, conical teeth in both upper and lower jaws.

Colour: black above, white below, the white extending over snout from the insertion of flippers to in front of eyes. Flippers and undersides of flukes white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other small cetaceans: body laterally compressed; dorsal fin present; less than 33 pairs of teeth in both jaws (43 to 47 in L. peronii); different colour patterns.

SIZE :

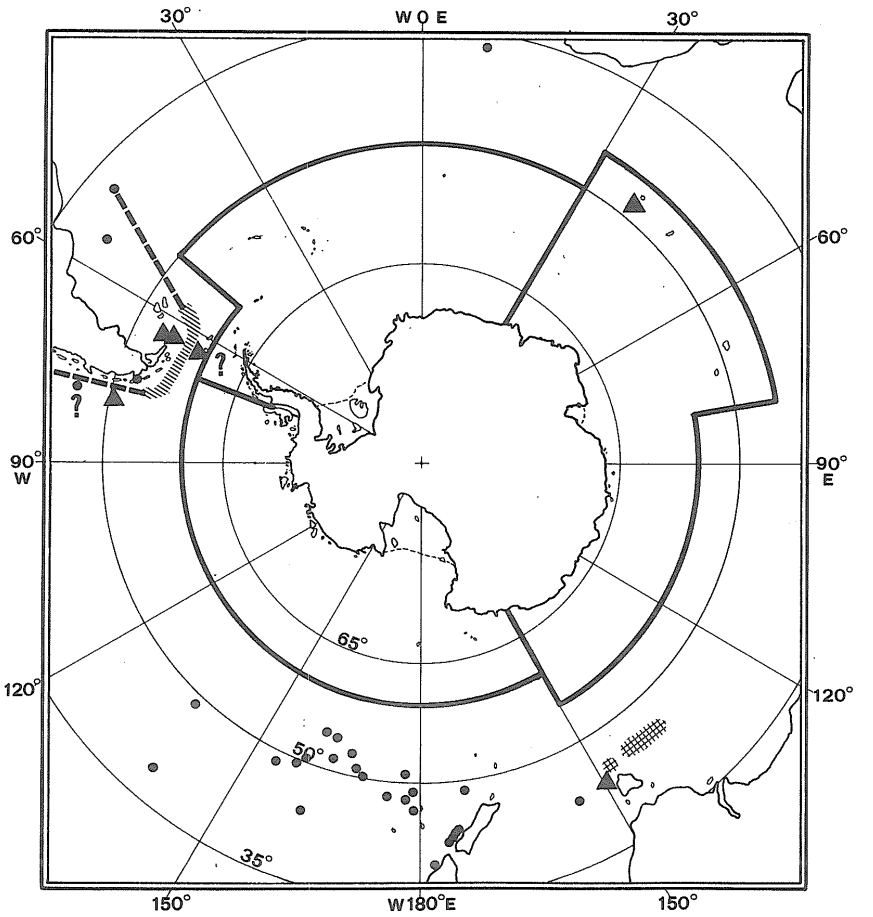
Maximum: 2.4 m length and 82 kg weight; common to 1.8 m length and 60 kg weight.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

A southern circumpolar pelagic species, occurring mainly north of the Antarctic Convergence in the West Wind Drift; also in the Falkland/Malvinas Current, the Humboldt Current, off South Africa and around New Zealand.

Occurs in large schools of 30 to 100, or up to 1 000 individuals, often associated with pilot whales.

Nothing is known of breeding or food habits. There is no history of exploitation nor information on stock size, but perhaps this species is not uncommon.



: observations within this area

: numerous observations along ship track

: at-sea observations

: scattered observations along ship track

: observation, exact locality not known

: specimen

DELPH Orc 1

1985

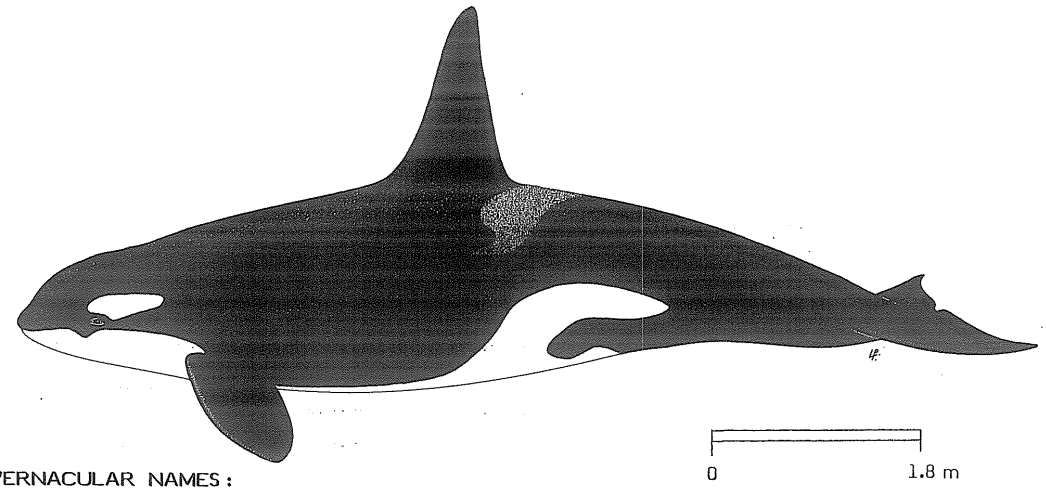
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : DELPHINIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Orcinus orca (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE : None



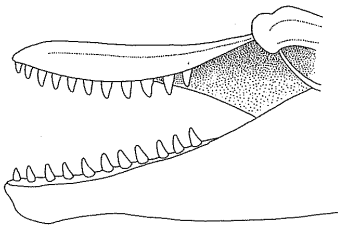
VERNACULAR NAMES :

FAO/CCAMLR : En - Killer whale
Fr - Orque, Epaulard
Ru - Kasatka
Sp - Orca

NATIONAL :

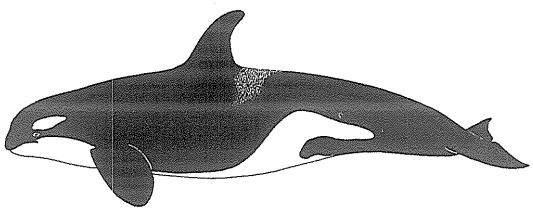
DISTINCTIVE CHARACTERS :

A medium-sized whale (or very large dolphin). Body bulky with a blunt, rounded head. The most conspicuous feature is the prominent dorsal fin situated in the middle of the back, shaped like an isosceles triangle with the height twice or more times the length of base. In adult males this fin may be 1.8 m tall; in females and juvenile males it is much smaller and has a more concave trailing edge. Even in females and juveniles, however, the dorsal fin is much taller than in other similar-sized cetaceans. Flippers broad, rounded and paddle-shaped; they increase from their original length (about one-ninth of body length) to about one fifth of body length in old males. Flukes concave on trailing edge, pointed at tip and with a deep notch. Mouth wide and jaws heavy, with 10 to 13 pairs of stout conical teeth (up to 5 cm protruding from gum) in both upper and lower jaws.



teeth

Colour: strikingly black and white with a sharp demarcation between these zones. A large oval white patch on side of head just above and behind eye; chin and throat white, this white area continuing back along the mid-ventral line. Beyond navel, on each side a broad white lobe reaches up and back while the ventral white area reaches back past these lobes. Most animals have a light grey saddle patch just behind the dorsal fin. In calves white areas are tan to yellow. Underside of flippers usually white. There are regional differences in pattern; animals from the Southern Ocean have not been described. All-black and all-white killer whales have been recorded.



female

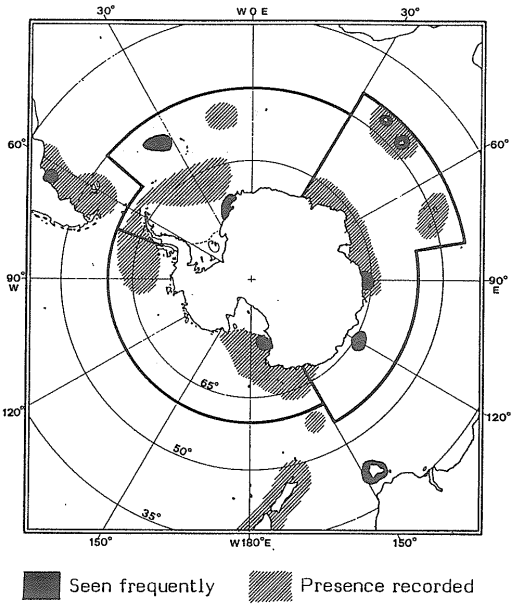
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

None of the other small cetaceans from the Southern Ocean have such a tall and erect dorsal fin, nor the 2 white marks typical of Orcinus orca (1 behind eye and the other on flank beyond the navel). All other true dolphins, except Globicephala melaena, have more than 17 pairs of teeth in each jaw (10 to 13 pairs in O. orca).

SIZE :

Adult males: length up to 8.2 m (possible maximum 9.4 m), weight to 8 t; females: length up to 7 m (possible maximum 8.2 m), weight to 4 t (sexual maturity at 4.9 m length). Newborn: length 2.1 to 2.4 m, weight 180 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :



A cosmopolitan whale, occurring in all parts of the ocean, right up to the pack ice edge and even into dense pack or under fast ice. Usually travels in pods of a few to 25 or 30 individuals. Occasionally the pods coalesce to form herds of over 100 individuals. There is evidence that pods form complex and stable social associations.

Breeding: generally in warmer waters (not described from the Southern Ocean). Sexual maturity: females 8 to 10 years; males probably in excess of 16 years. Gestation period 15 (13 to 16) months, most calves born in autumn. Lactation period about 12 months; birth interval minimum of 3 years, may be much more. Calves may remain with the mother for as long as 10 years.

Killers are extremely fast swimmers, capable of reaching 25 knots or more. Very active at the surface, breaching (leaping clear of water) and spy-hopping (raising head and forequarters out of the water to look around) frequently. Cooperative group hunting behaviour is characteristic. Besides fish and cephalopods, they feed extensively on warm-blooded prey. In the Antarctic, killers have been observed to feed on penguins and crabeater seals. They have been seen to dislodge prey from ice floes by tipping the floe up or, by swimming past, creating a wash that sweeps the prey off. Records of killers attacking large whales are numerous (though none of these are from the Southern Ocean).

EXPLOITATION :

Virtually unexploited in the south. The USSR took some tens of killer whales between 1972 and 1978; in 1979/80, 916 individuals were taken. Other than this, there is no recorded exploitation in the Antarctic. No information is available on stock size, but the killer whale, though conspicuous and frequently recorded, seems to be a relatively scarce species.

PHOCO Phoc 1
1985

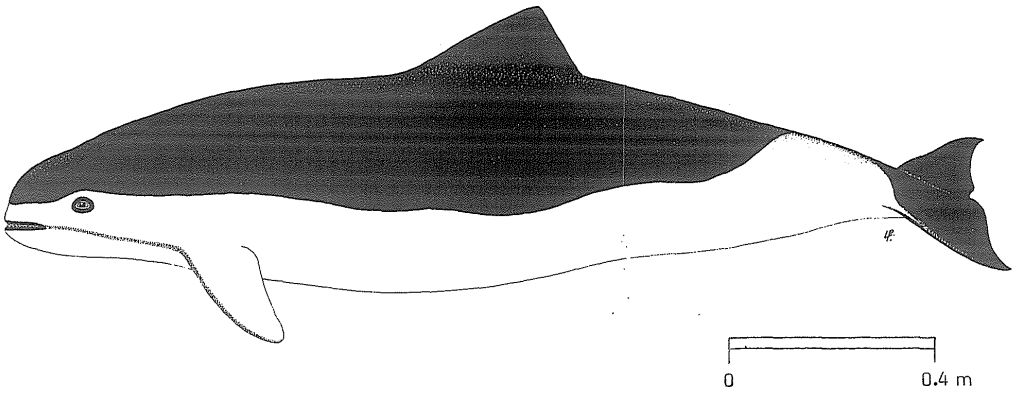
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHOCOENIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Phocoena dioptrica Lahille, 1912

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

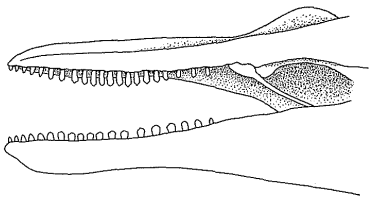
FAO/CCAMLR : En - Spectacled porpoise
Fr - Marsouin de Lahille
Ru - Ochkovaya morskaya svinya
Sp - Marsopa de anteojos

NATIONAL :

DISTINCTIVE CHARACTERS :

A large porpoise, with a typical blunt, beakless snout and a low, straight-edged dorsal fin. Seventeen to 23 pairs of spade-shaped teeth in upper jaw, generally rather fewer in the lower.

Colour: black above and white below. The junction of black and white rises above snout over eye, but the eye is ringed with a broad band of black (hence "spectacled") and the upper and lower lips are edged dark. This pigmented area continues as a thin band to the insertion of the flippers which are usually white, but may be black. The white colour rises up over the stock in older animals.



teeth (schematic)

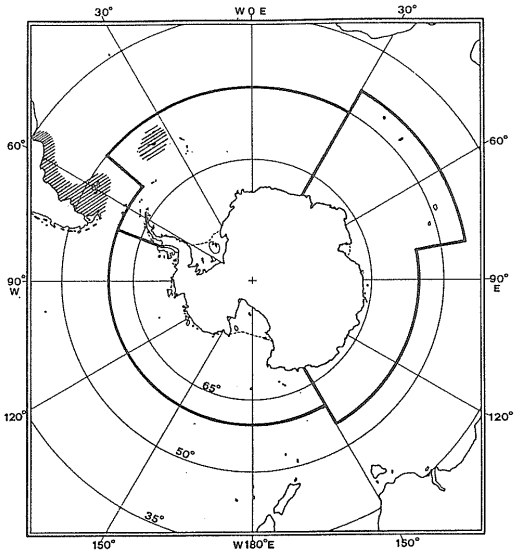
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Family Delphinidae (true dolphins): teeth conical, circular or slightly flattened from front to back in cross-section (spade-shaped, laterally compressed in P. dioptrica; different colour patterns.

None of the smaller cetaceans occurring in the Southern Ocean has the broad black ring around the eye nor the spade-shaped teeth typical of P. dioptrica.

SIZE :

Length within the range of 155 to 204 cm; weight between 60 and 84 kg.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Within the Southern Ocean, only one specimen is known from South Georgia. Also found on the eastern coast of South America from Uruguay to Tierra del Fuego and on the Falkland/Malvinas Islands. A Pacific population is described from Auckland Islands, New Zealand.

Nothing is known about food habits or breeding behaviour. There is no history of exploitation and no information on stock size, but this species is probably not as uncommon as the few records indicate.

PHYS Phys 1

1985

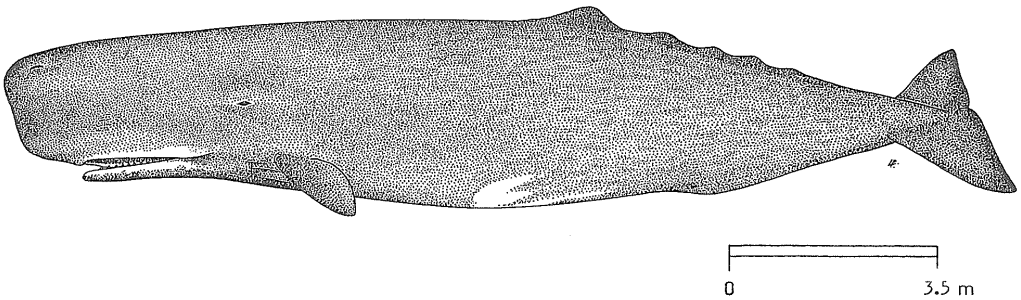
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHYSETERIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Physeter catodon Linnaeus, 1758*

OTHER SCIENTIFIC NAMES STILL IN USE : Physeter macrocephalus (Linnaeus, 1758)



VERNACULAR NAMES :

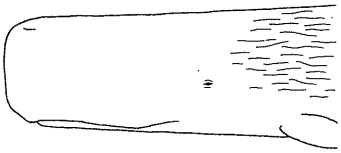
FAO/CCAMLR : En - Sperm whale
Fr - Cachalot
Ru - Kashalot
Sp - Cachalote

NATIONAL :

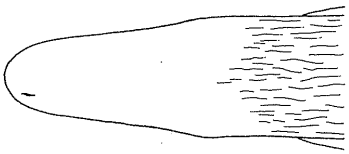
DISTINCTIVE CHARACTERS :

The largest of toothed whales, characterized by a blunt, squarish snout and an enormous head, which makes up a fourth to a third of the bulk of the animal. Dorsal fin (or hump) ill-defined, but followed by a series of 4 or 5 low crenulations. Body surface irregularly corrugated (though this is less evident in fat animals on the feeding grounds), particularly at the anterior end of the body. Numerous short grooves present on throat, most evident in adults. A single blowhole located well to the left of midline and far forward on head. Lower jaw a relatively narrow rod, not reaching to tip of upper jaw; 18 to 28 pairs of large, conical teeth in lower jaw which fit into sockets in the upper jaw; upper jaw either toothless or with a few stunted teeth, often concealed within the gum. Flukes shaped as right triangles with the hypotenuse as leading edge; right and left flukes often overlap slightly at median notch. Flippers short and paddle-shaped, tapering only slightly at tip.

Colour: dark brownish or slaty grey, paler on belly, where white patches often occur. Often extensively scarred, mostly around the head, with long single or groups of parallel scratches. Inside of mouth and lips white, but tongue bright pink.



head from side



head from above

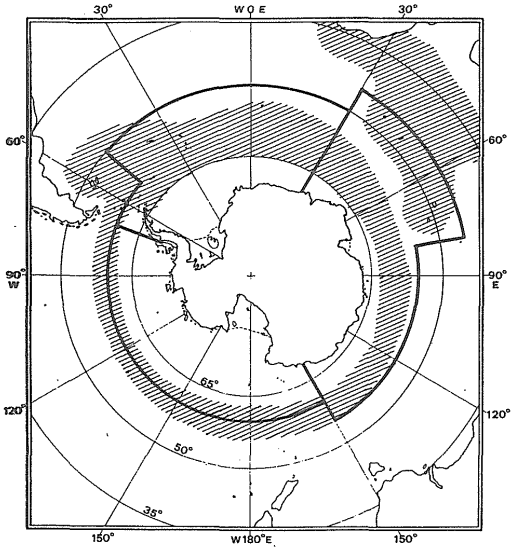
*There is still controversy about the priority of this name over P. macrocephalus

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

The very large head, the squarish snout, the narrow, underslung lower jaw and the crenulations on back make this species more easily recognizable than other cetaceans.

SIZE :

Males much larger than females, occasionally reaching 18.3 m, but more often 15 m, weight 40 to 70 t. Females rarely exceed 11.6 m, 15 to 20 t.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

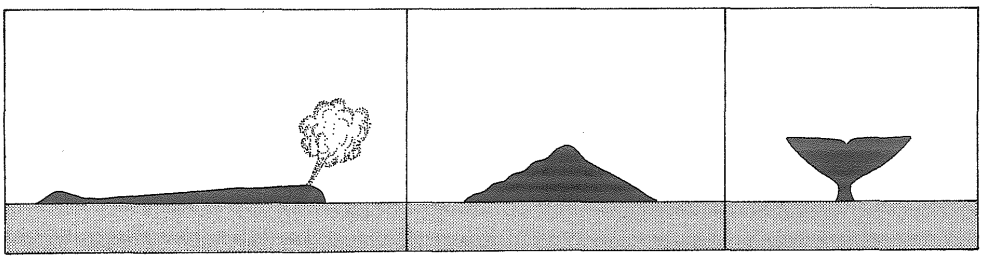
Cosmopolitan in warm waters; in polar waters only adult males occur (from October to March).

Breeding: takes place in tropical waters, in the season from February to March (Southern stocks). Gestation period 14 to 15 months; sexual maturity: females 7 to 12 years, males 18 to 19 years, social maturity: about 26 years. Very complex social structure, with males maintaining large harems. Mass strandings are known to occur, but have not been recorded in the Southern Ocean.

Feeding: based mainly on squid, but also takes demersal and bathypelagic fish, using echolocation to find its prey, and perhaps concentrated sonar pulses to stun it. A very deep diver, reaching depths in excess of 1 000 m, and can remain submerged for more than 1 hour.

OBSERVATION AT SEA :

Large head usually conspicuous; a single blow projected forward at a sharp angle and slightly to the left, short and bushy. Hump and crenulations following it clearly visible as the animal arches its back on diving. Flukes often displayed in final appearance at the surface before a long dive.



Blow from side

Diving sequence

EXPLOITATION :

Extensively harvested in the Southern Ocean, mainly in post-war years. Protected since 1981 from factory ship whaling by the International Convention for the Regulation of Whaling. It is likely that the harvesting (confined to adult males) may have adversely affected the social structure on the breeding grounds. The Southern Hemisphere stock is estimated at 71 000 males and 125 000 females.

ZIPH Ber 1

1985

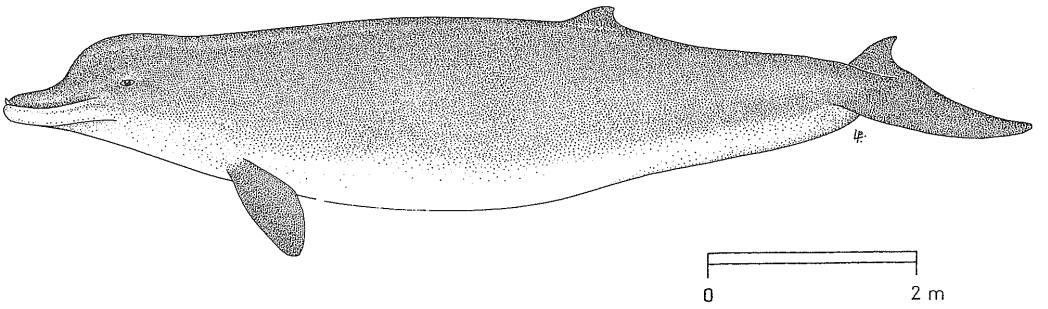
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : ZIPHIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Berardius arnuxii Duvernoy, 1851*

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

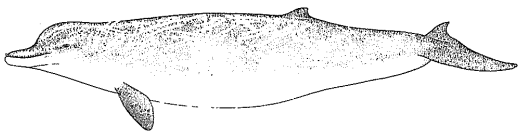
FAO/CCAMLR : En - Arnoux's beaked whale
Fr - Dauphin-à-bec d'Arnoux
Ru - Yuzhnyi plavun
Sp - Ballenato de Arnoux

NATIONAL :

DISTINCTIVE CHARACTERS :

A medium-sized whale with the snout drawn out into a beak; tip of lower jaw markedly protruding beyond upper jaw. A small, rather low dorsal fin located behind midpoint of back. Flippers comparatively short. Two pairs of large, triangular teeth at tip of lower jaw in adult males. Two conspicuous grooves on outer surface of throat forming a V-shape pointing forward. No notch between the flukes.

Colour: blue grey, becoming lighter on flanks; throat and belly pale.



scars typically present

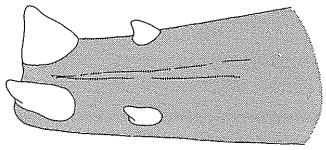
* This species may be conspecific with Berardius bairdii Stejneger, 1883 of the North Pacific

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

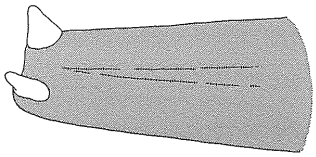
Hyperoodon planifrons: forehead extremely bulbous; tip of lower jaw only slightly longer than upper; dorsal fin higher and distinctly sickle-shaped; a single pair of conical teeth at tip of lower jaw in adult males (possibly also in females).

Females and juvenile males of these two species cannot certainly be separated (in the present state of knowledge) without the examination of prepared skulls. Adult males could be separated on the basis of the teeth.

The beak, together with the bulbous forehead and the absence of a notch between the tail flukes readily distinguish this species from other toothed whales.



B. arnuxii



Hyperoodon planifrons

teeth in lower jaw of adult male (schematic)

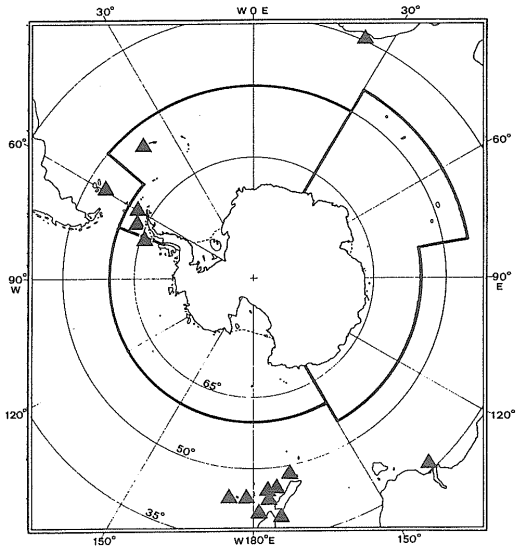
SIZE :

Length probably within the range of 8 to 10 m (longest recorded specimen a female, 9.75 m).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Positive records of this species in the Southern Ocean seem to be restricted to the South Shetlands and the northeastern part of Graham Land, but it is probably more widespread. Also recorded from southern Chile, Argentina, the Falkland/Malvinas Islands, South Africa, southwestern Australia, New Zealand and the Chatham Islands.

The habits of this apparently uncommon species are practically unknown. It is believed to be oceanic and to feed on squid and deepsea fish. Mass strandings unknown.



ZIPH Hyp 1

1985

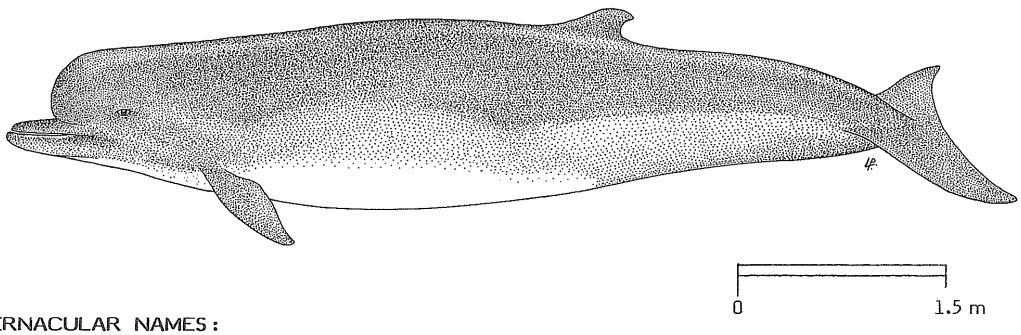
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : ZIPHIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Hyperoodon planifrons Flower, 1882

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Southern bottlenose whale
Fr - Dauphin-à-bec austral
Ru - Ploskolobyi butylkonos
Sp - Gran calderón austral

NATIONAL :

DISTINCTIVE CHARACTERS :

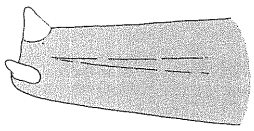
A medium-sized whale with the snout drawn out into a beak, the tip of lower jaw only slightly longer than upper jaw. A small, distinctly sickle-shaped dorsal fin located behind midpoint of back. Flippers comparatively short. A single pair of conical teeth (which erupt only in adult males) at tip of lower jaw. Two conspicuous grooves on outer surface of throat forming a V-shape pointing forward. No notch between flukes.

Colour: probably metallic deep grey, becoming light bluish on flanks; throat and belly rather pale.

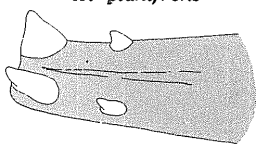
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Berardius arnuxii: forehead not as bulbous as in the southern bottlenose whale; tip of lower jaw more markedly protruding beyond the upper; dorsal fin lower and less curved; two pairs of triangular teeth at tip of lower jaw in adult males (possibly also in females). Females and juvenile males of these two species cannot certainly be separated (in the present state of knowledge) without the examination of prepared skulls.

The beak, together with the bulbous forehead and the absence of a notch between the tail flukes readily distinguish this species from other toothed whales.



H. planifrons



Berardius arnuxii

teeth in lower jaw of adult males (schematic)

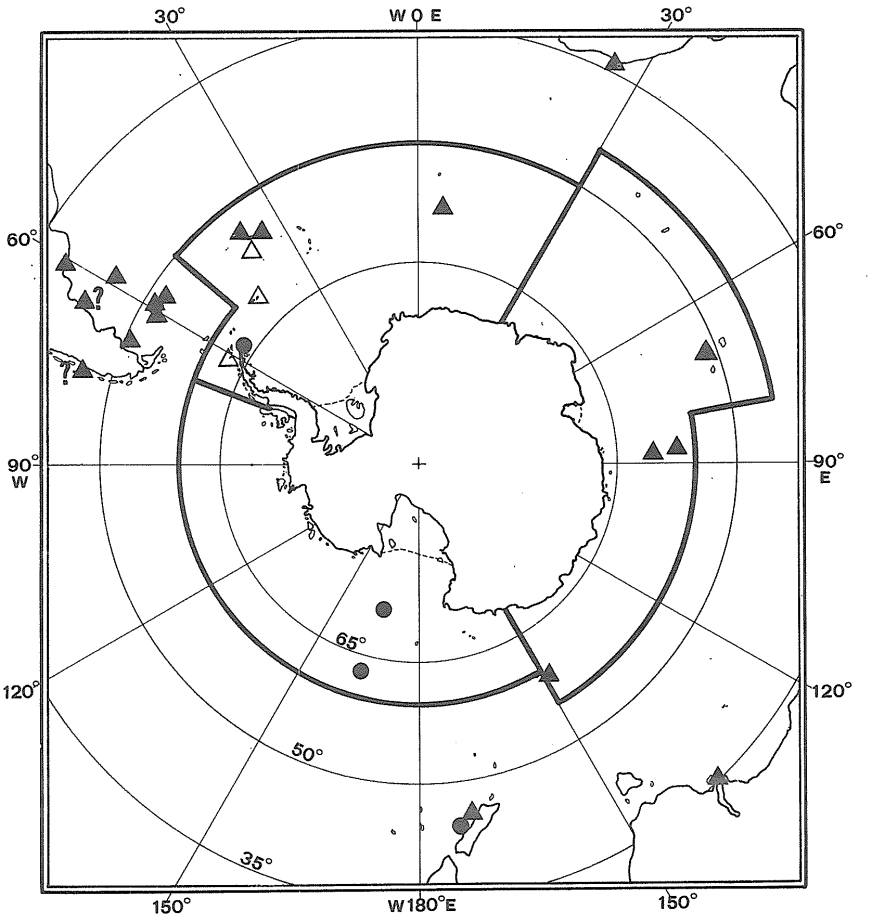
SIZE :

Length probably within the range of 7 to 9 m (largest measured specimens: male 6.94 m, female 7.45 m).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Probably widespread in the Southern Ocean, as well as in the southern parts of the Atlantic, Indian and Pacific Oceans.

The habits of this species are not well-known. It is believed to be oceanic and to feed on squid and deepsea fish. Mass strandings seldom or never occur.



▲ : specimen

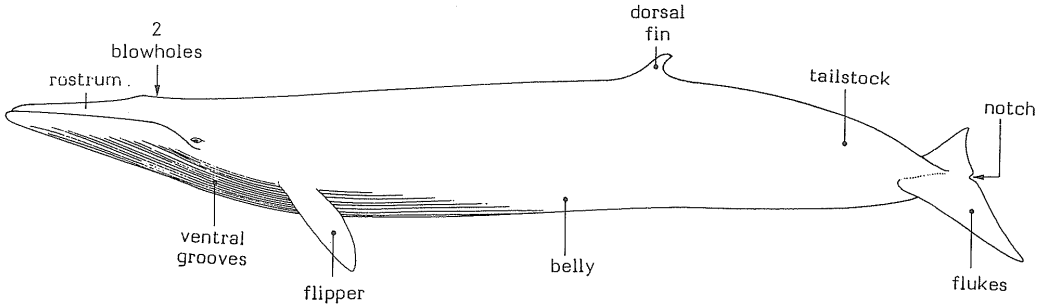
▲? : specimen, exact locality not known

△ : catch record

● : at-sea observation, identification uncertain

SUBORDER MYSTICETI - Baleen (or whalebone) whales

The Mysticeti comprise three families of which two occur in the Southern Ocean. All baleen whales lack teeth (though simple tooth germs are found in the gums of foetal baleen whales) but possess plates of whalebone or baleen hanging from the upper jaw. They have a symmetrical skull, paired external nasal openings, single-headed ribs and a sternum composed of a single bone articulating with the first pair of ribs only. They generally feed on relatively small prey, plankton or schooling fish.



Typical baleen (whalebone) whale

GUIDE TO FAMILIES OF BALEEN WHALES

BAL

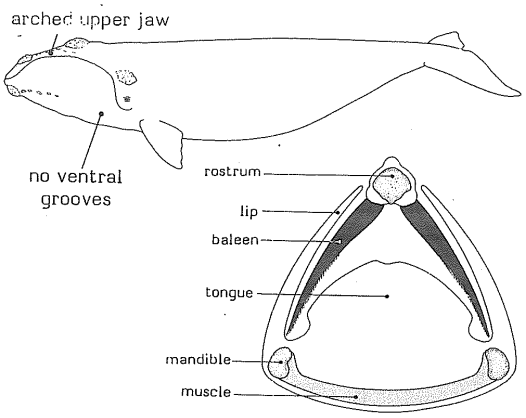
BALAENIDAE: Right whales

(3 species in 2 genera)

The three species forming this family are rather dissimilar. In all three the upper jaw is narrow and arched, the lower lips rising up to meet the upper jaw, and the seven neck vertebrae are fused into a single mass. The two species of Balaena (B. glacialis, Black right whale and B. mysticetus, Bowhead whale) have very large heads, up to one third of body length, strongly arched upper jaws and lack a dorsal fin. The Pygmy right whale, Caperea marginata, has a smaller head (one quarter body length), a less arched upper jaw, a dorsal fin and more ribs that any other cetacea (17 pairs).

Species known from the Southern Ocean:

Balaena glacialis Müller, 1776 BAL Bal 1



cross-section through mouth

Adapted from L. Watson, 1981

BALAEN

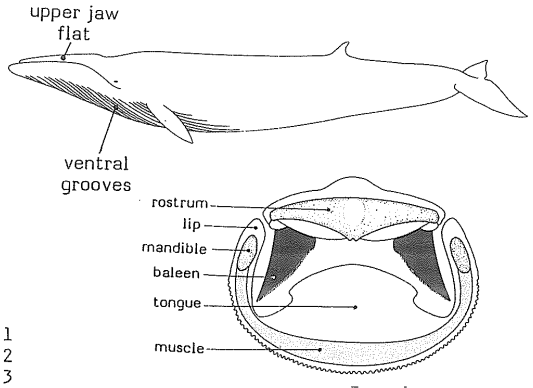
BALAENOPTERIDAE: Rorquals

(6 species in 2 genera)

These whales are characterized by the presence of grooves on the throat and chest which extend a variable distance backward. They permit expansion of the floor of the mouth cavity and are associated with the gulping method of feeding of these whales. All possess dorsal fins. The lower jaw is conspicuously bowed outward and the upper jaw is flat, not arched as in right whales. The genus Balaenoptera contains five species (four of which occur in the Southern Ocean) of long slender whales. the other genus contains a single species, Megaptera novaeangliae, the Humpback whale. This is a stout, thick-bodied whale which also occurs in the Southern Ocean.

Species known from the Southern Ocean :

Balaenoptera acutorostrata Lacepède, 1804	BALAEN Bal 1
Balaenoptera borealis Lesson, 1828	BALAEN Bal 2
Balaenoptera musculus (Linnaeus, 1758)	BALAEN Bal 3
Balaenoptera physalus (Linnaeus, 1758)	BALAEN Bal 4
Megaptera novaeangliae (Borowski, 1781)	BALAEN Meg 1



cross-section through mouth (schematic)

Adapted from L. Watson, 1981

BAL Bal 1
1985

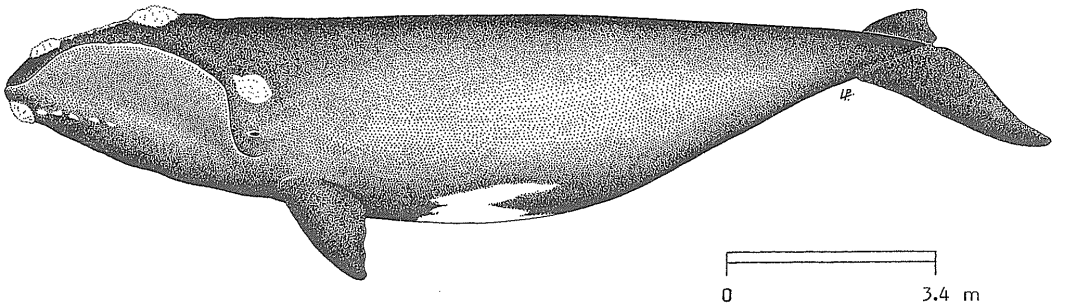
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : BALAENIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Balaena glacialis Müller, 1776

OTHER SCIENTIFIC NAMES STILL IN USE : Eubalaena australis (Borowski, 1781)



VERNACULAR NAMES :

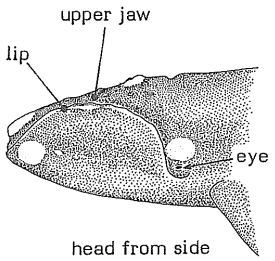
FAO/CCAMLR : En - Black right whale
Fr - Baleine de Biscaye, Baleine franche australe
Ru - Yuzhnyi gladkyi kit
Sp - Ballena franca

NATIONAL :

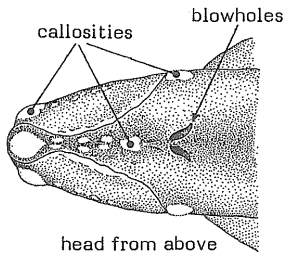
DISTINCTIVE CHARACTERS :

A large bulky whale, the body rotund and completely lacking a dorsal fin. Head very large, 1/4 or more of total length; upper jaw long, arched and narrow, in dorsal view flanked by two huge lips which rise up to meet it; top of head in front of paired blowholes covered with a series of rough whitish lumps, the callosities; these are usually infested with acorn barnacles (Coronula balaenaris) and whale lice (isopod crustacea of the family Cyamidae, generally Cyamus spp.); other callosities occur above the eye, on the tip of the lower jaw and lips and toward the end of the snout; the arrangement of the callosities varies individually and can be used to recognize individual whales. The two blowholes are widely separated, resulting in a blow that appears as two distinct spouts. Baleen plates very large, up to 2.5 m in length, very narrow, variable in colour from dark brown to black; said to look yellowish-grey when the animal is feeding at the surface with the mouth agape. There are no ventral grooves. The flippers show the outline of the digits that make up the limb, the trailing edge being wavy, the waves corresponding to the tips of the digits. Flukes with a deeply concave, deeply notched, smooth trailing edge, pointed at tips, and dark below.

Colour: black, or very dark brown above, callosities whitish-yellow. Often an irregularly shaped patch of white on chest or belly. Undersurface of flukes and flippers always dark.



head from side



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other species of baleen whales: dorsal fin present; underside (throat and anterior part of belly) with ventral grooves; upper jaw relatively flat and broad, not strongly arched; baleen plates relatively small; lack the rough whitish callosities characteristic of the black right whale.

SIZE :

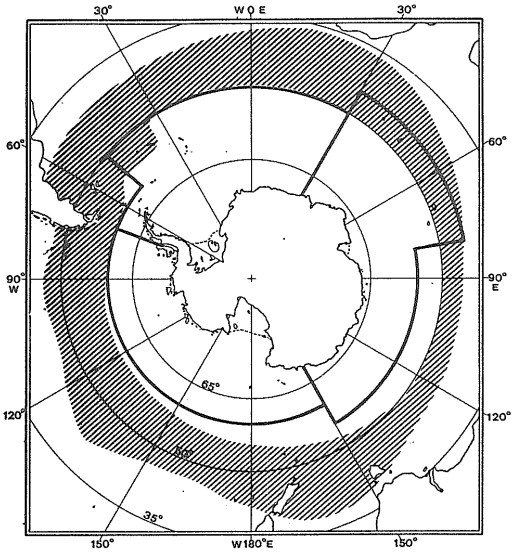
Maximum: 18 m; common length range probably from 15 to 16 m.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Found in both North and South Hemispheres. Strongly migratory, feeding in cold temperate waters and breeding in warmer (but not usually tropical) waters. Recorded off the South Orkney Islands in the Southern Ocean, but probably does not often go so far south. Most often seen in shallow coastal waters, particularly on breeding grounds.

Breeding: mating takes place in mid- to late summer (mating activity also observed in winter). Gestation period 10 to 11 months; calves are born in late spring or early summer. Birth interval 2, probably 3 years.

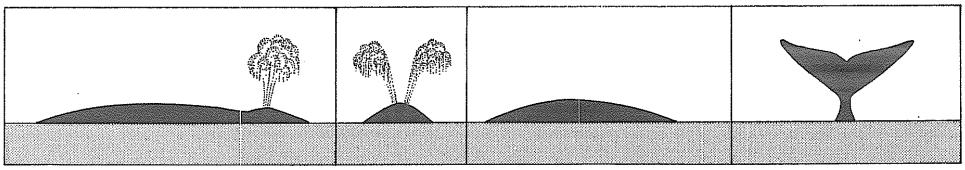
Feeding: right whales feed on concentrated, but not necessarily swarming, plankton. In the Southern Ocean they are often seen surface-skimming in company with seabirds, almost certainly feeding on planktonic crustacea; both copepods and krill (Euphausia superba) have been recorded from stomachs of right whales taken in the Antarctic.



Austral summer distribution

OBSERVATION AT SEA :

Right whales are placid in disposition and easily approached by boat. They rarely swim at more than 5 knots, and usually less. The blow appears as two distinct bushy spouts (unique for this species in the Southern Ocean), about 3 to 5 m high. The typical breathing cycle is made up from a period of 5 to 10 minutes at the surface, blowing every minute or so, followed by a 10 to 20 minutes dive. They characteristically throw the flukes in the air before diving. The only other species of large whales occurring in the Southern Ocean which do this are sperm and humpback whales, but sperm whale flukes are more nearly triangular, and humpback flukes are very jagged on the trailing edge and usually predominantly white below. Furthermore, the other large whales all have a dorsal fin (absent in right whales).



Blow from side | Blow from front | Diving sequence

EXPLOITATION :

Few right whales were killed by whalers in the Antarctic, as this species was already rare at the beginning of the present century, when whalers arrived. This was probably because the right whales had been killed on their breeding grounds off South America, South Africa and Australia by whalers in the previous century. There are indications that the species is recovering, but it is not possible to make a stock assessment. Protected under the International Convention for the Regulation of Whaling.

BALAEN Bal 1
1985

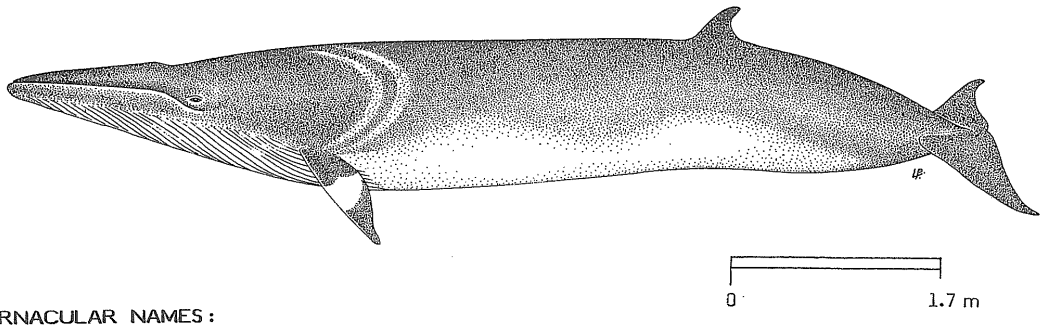
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: BALAENOPTERIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Balaenoptera acutorostrata Lacepède, 1804

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

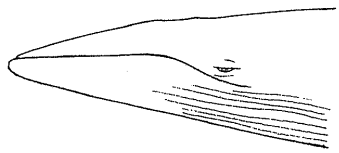
FAO/CCAMLR: En - Minke whale
Fr - Petit rorqual
Ru - Kit-minke, malyi polosatik
Sp - Rorcual aliblanco

NATIONAL :

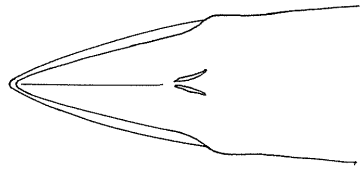
DISTINCTIVE CHARACTERS:

The smallest baleen whale of the Southern Ocean. Snout extremely pointed, triangular when viewed from above. A sickle-shaped dorsal fin on last third of body (as in sei whale) but relatively taller. Flippers relatively long, about 12% of body length, and sharply pointed. Ventral grooves 50 to 70 between flippers, ending well before navel, often just after flippers. Baleen plates very short, up to 20.5 cm, 12 cm wide at base, 260 to 300 pale yellow plates on each side, very finely fringed.

Colour: dark grey on back and white on belly and beneath flippers. Most (but not all) minke whales have a white diagonal band on each flipper, the extent and orientation of which varies individually. There may be a pale chevron on the back behind the head (as in the fin whale), or pale grey bracket marks, like gill slits, above the flipper. In some minke whales there is a patch, or a pair of patches, of pale grey on the flanks.



head from side



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other baleen whales: adult size much larger, snout less pointed. Furthermore:

Sei whale: relatively fewer ventral grooves (36 to 50 against 50 to 70 in minke whale); baleen plates uniformly bluish.

Humpback whale: less than 22 ventral grooves, the longest reaching backward to the navel; flippers longer, 1/4 to 1/3 of body length (less than 1/5 in minke whale), knobbed on their leading edges; flukes concave, deeply notched and irregularly jagged on trailing edges.

Black right whale: upper and lower jaws very narrow, strongly arched in profile; colour black with distinct yellowish-white callosities present on head; no ventral grooves; underside of flippers dark.

Blue and fin whales: adult size over 20 m; ventral grooves reach back to navel; flippers less than 1/5 of body length. Furthermore: dorsal fin relatively smaller and further backward, and baleen plates black in the blue whale; back distinctly ridged toward tail in the fin whale.

SIZE :

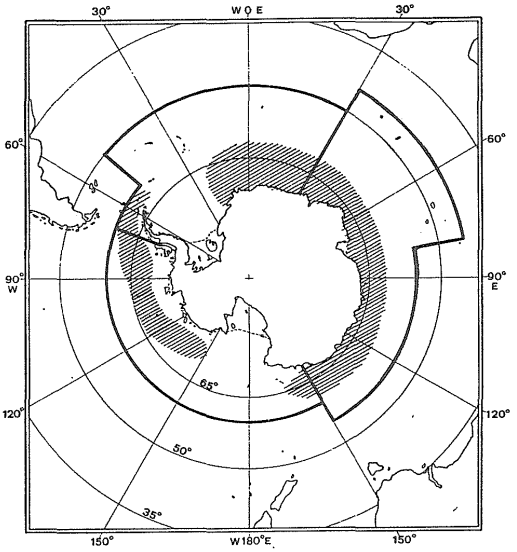
Males: maximum length 9 m, average 8 m; females: maximum length 10.2 m, average 8.2 m.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Cosmopolitan. In the Southern Ocean most often seen near the ice-edge, but probably more generally distributed. Usually found singly or in pairs.

Breeding: both sexes reach maturity at around 6 years, when males are about 7 m and females about 7.6 m long. In 1944, the mean age at sexual maturity was 14 years. The female ovulates twice a year (other whales once only). Gestation period 10 months; lactation period 4 months; birth interval about 18 months.

Feeding: in the Southern Ocean it feeds on Antarctic krill, Euphausia superba, taking predominantly individuals in the size range of 10 to 20 mm.



Map of distribution based on catches between 1973 and 1980 (December to March)

OBSERVATION AT SEA :

This species may come much closer to the shore than other rorquals and shows a tendency to approach ships, particularly when at anchor. The blow is small, low and inconspicuous, hence difficult to sight at sea. It has a breathing sequence of 5 to 8 blows at intervals of less than 1 minute, followed by a dive of up to 20 minutes. When surfacing, the dorsal fin always appears simultaneously with the blow (as in the sei whale). It humps the tail stock high in the air before diving, but the flukes are not shown. It will often breach 2 or 3 times in a row, sometimes falling back with a splash, but more often re-entering the water cleanly.

EXPLOITATION :

Virtually unexploited in the Southern Ocean until the 1970's. Current quotas amount to a few thousand individuals a year, taken mostly for meat for human consumption. (There is a prospect that all commercial whaling will end in 1986 under the moratorium agreed by the International Convention for the Regulation of Whaling).

Reduction of competition for food (krill) caused by the removal of other rorquals in the Southern Ocean by commercial whaling, probably caused the lowering of age at sexual maturity, and this, coupled with the short birth interval, has enabled minke whales to increase rapidly. Stock size in 1930 estimated at about 200 000 individuals. Current stocks estimated to number 323 000*

* Estimated exploitable stock sizes

BALAEN Bal 2

1985

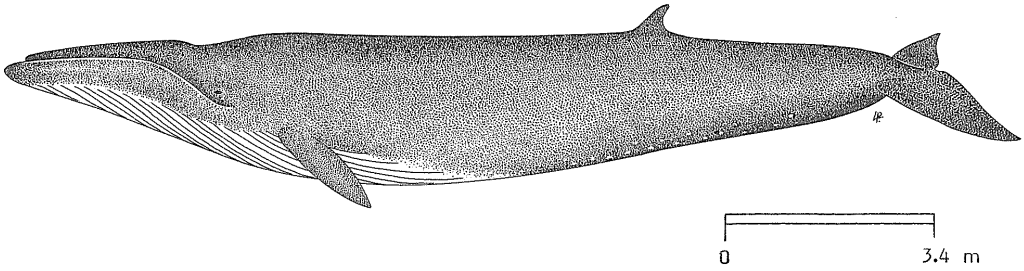
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : BALAENOPTERIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Balaenoptera borealis Lesson, 1828

OTHER SCIENTIFIC NAMES STILL IN USE : None



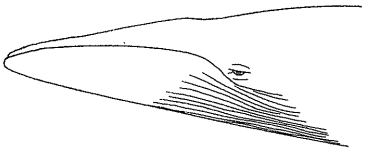
VERNACULAR NAMES :

FAO/CCAMLR : En - Sei whale
Fr - Rorqual de Rudolphi
Ru - Seival, seldyanoi kit
Sp - Rorcual norteño

NATIONAL :

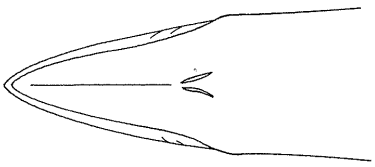
DISTINCTIVE CHARACTERS :

A medium-sized rorqual, rather less slender than the fin whale. Snout less sharply pointed than in the fin whale, intermediate between that species and the blue whale. When viewed from the side, the snout appears slightly arched. Dorsal fin about 61 cm tall, relatively larger than in the fin whale, strongly sickle-shaped and set at an angle of more than 40°, further forward on the body than in other rorquals. Flippers relatively slightly shorter than in other rorquals (about 9% of body length). Ventral grooves 38 to 56 between flippers and ending well short of navel. Baleen plates up to 73 cm long, 318 to 340 on each side, very finely fringed (35 to 60 fibres per cm).



head from side

Colour: dark steel grey on back and sides. Body often with "galvanized" appearance, caused by numerous and often overlapping pale grey scars inflicted by small sharks in warm waters. On the belly there is a region of grey-white confined to the area of the ventral grooves. Neither the flippers nor the flukes are white underneath. Baleen plates uniformly bluish-black with white bristles.



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Blue and fin whales: adult size considerably larger; ventral grooves more numerous and longer, the longest reaching to about navel. Furthermore, rostrum U-shaped and dorsal fin very small and located near tail in the blue whale; back distinctly ridged and undersides of belly, flippers and flukes white in the fin whale.

Minke whale: adult size much smaller, snout more pointed, triangular (viewed from above), relatively more ventral grooves (50 to 70 against 38 to 56 in sei whale) and white colour on belly and underside of flippers.

Humpback whale: less than 22 ventral grooves, the longest reaching backward to the navel; flippers longer, 1/4 to 1/3 of body length, knobbed on their leading edges; flukes concave, deeply notched and irregularly jagged on trailing edges; some white colour on undersides of chin, belly, flippers and flukes.

Black right whale: upper and lower jaws very narrow, strongly arched in profile; distinct yellowish white callosities on head; no ventral grooves.

SIZE :

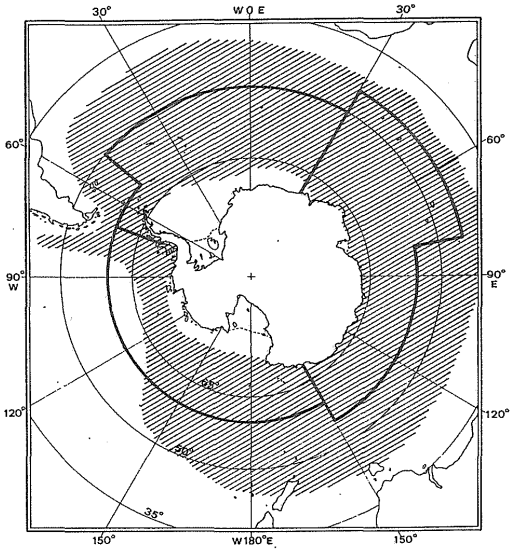
Males: maximum length 18.5 m, average 15 m; females: maximum length 18.3 m, average 16 m; weight 30 t.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Cosmopolitan, but does not extend so far poleward as the blue and fin whales. Enters the cold waters of the Southern Ocean later than these species. Usually found in groups of 4 or 5 individuals, sometimes larger.

Breeding: males are sexually mature at about 12 m (10 years) and females at 13.7 m (10 years). Gestation period 11.5 months; calves are born in warm waters; lactation period 6 months; birth interval 2 years.

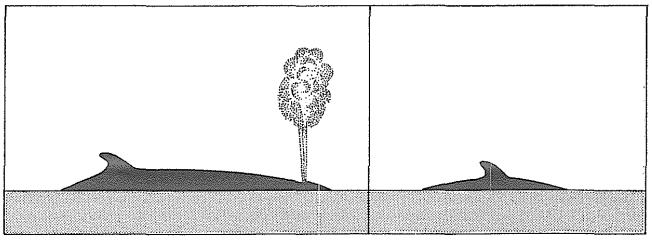
Feeding: like other rorquals, this species feeds on Antarctic krill, Euphausia superba, in the Southern Ocean, but it may also take smaller plankton, including calanoid copepods and the amphipod Parathemisto gaudichaudii.



Map of distribution based on catches between 1935 and 1978 (December to April)

OBSERVATION AT SEA :

This is another very fast-swimming rorqual, claimed to reach 26 knots in short bursts, but often easy to approach with a ship. Usually surfaces at a shallow angle, so that the blowholes and the major part of the back including fin appear simultaneously and remain visible for a relatively long period. The blow is an inverted cone, about 3 m high. It may blow 2 or 3 times at 20 second intervals followed by a dive of 5 to 6 minutes, or may blow more frequently at longer intervals followed by a longer dive. It does not arch the back or show flukes on diving but simply sinks down into the water.



Blow from side Diving sequence

EXPLOITATION :

Largely neglected by Antarctic whalers until after the second world war, but when blue and fin stocks became reduced they turned to sei whales. Peak catches were taken in the mid-1960's followed by a rapid decline. Initial stocks range between 125 000 and 150 000 individuals. The current Southern Hemisphere population is said to be about 54 000. Protected under the International Convention for the Regulation of Whaling.

BALAEN Bal 3
1985

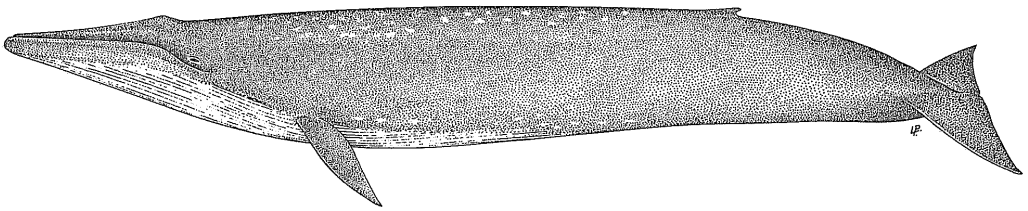
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: BALAENOPTERIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Balaenoptera musculus (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE: None



0 5.7 m

VERNACULAR NAMES:

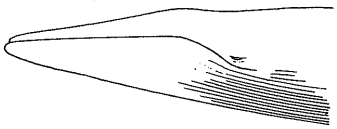
FAO/CCAMLR: En - Blue whale
Fr - Rorqual bleu
Ru - Siniji kit, blyuval
Sp - Ballena azul

NATIONAL :

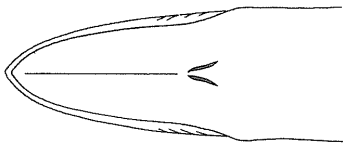
DISTINCTIVE CHARACTERS:

The largest of all animals, living or extinct. Long and streamlined, with a very small triangular or hook-shaped dorsal fin (less than 33 cm high) situated so far back that it is seldom visible before the animal begins to dive. Head less than 25% of body length; viewed from above, the rostrum is broad, flat and nearly U-shaped, rather flattened at tip, with a single ridge extending from the raised area just in front of the paired blowholes toward, but not reaching, snout. Baleen plates black all over, seldom more than 95 to 120 cm long and 270 to 395 on each side. Ventral grooves about 5 cm deep, separated by ridges 5 to 7.5 cm wide, numbering 55 to 88 between flippers, and reaching back about to navel. Flippers about 10% of body length and tapered.

Colour: mottled bluish-grey above and below. Lower surface of flippers and their tips a little lighter. Sometimes blue whales bear a film of yellow diatoms which has given rise to the (obsolete) name "Sulphur bottom whale".



head from side



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Fin whale (B. physalus): snout sharply pointed (V-shaped) when viewed from above, dorsal fin much longer and further forward on back; back distinctly ridged toward tail; baleen plates yellowish-white and bluish-grey.

Other baleen whales: size smaller; ventral grooves ending well before navel in sei whale and minke whale, fewer in number in humpback whale and absent in the black right whale; dorsal fin absent, upper and lower jaws very narrow and strongly arched in black right whale.

SIZE :

Common length range probably 25 to 28 m, average 27, and 150 t in weight, but specimens have exceeded 30 m (the largest measured was 33.27 m). Females slightly larger than males.

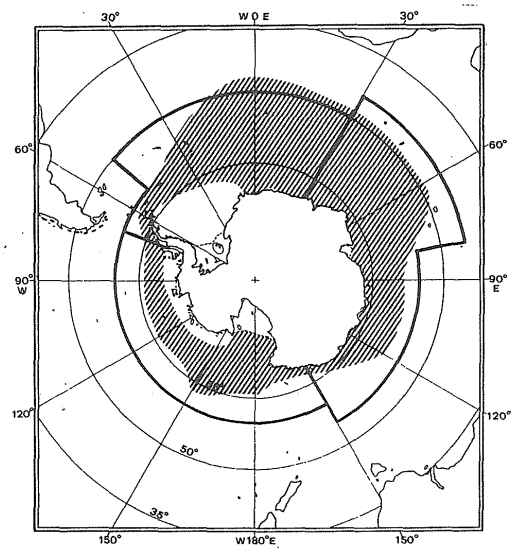
Southern Hemisphere blue whales are slightly larger than those from the north. However, a small form, the pygmy blue whale, Balaenoptera musculus brevicauda, reaching 21 m and 70 t, has been described from the Southern Indian Ocean and the South Pacific. The validity of this sub-species is not recognized by some authorities.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Cosmopolitan, but now greatly reduced in numbers and less frequently seen. Migrates to feeding grounds in the Southern Ocean in spring where it is most frequently seen singly or in pairs.

Breeding: males mature at about 22.5 m and females at 23 m. Gestation period 11 months, calves are born in tropical waters; lactation period 7 months; birth interval usually 3 years, minimum 2 years.

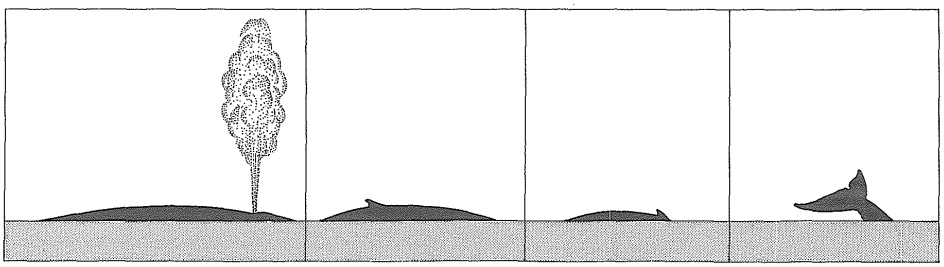
Feeding: in the Southern Ocean it feeds on Antarctic krill, Euphausia superba, taking medium-sized specimens 20 to 30 mm in length. Tends to feed near the ice edge.



Map of distribution based on catches between 1932 and 1967 (December to April)

OBSERVATION AT SEA :

A shy whale. Usually cruises at 3 to 4 knots but sounds readily if disturbed and can accelerate to speeds of 10 to 16 knots. The blow is about 9 m tall, slender, vertical and not bushy; dives for 10 to 30 minutes, surfaces, and blows 8 to 15 times, making series of 12 to 15 second dives between blows, then dives again. When diving scarcely lifts flukes.



Blow from side

Diving sequence

EXPLOITATION :

Heavily exploited in the Antarctic with peak catches (29 000 individuals) in 1930, followed by a smaller peak after the second world war. The original stock size of about 150 000 to 210 000 is now reduced to about 8 000 (with perhaps 5 000 pygmy blue whales). Protected under the International Convention for the Regulation of Whaling.

BALAEN Bal 4

1985

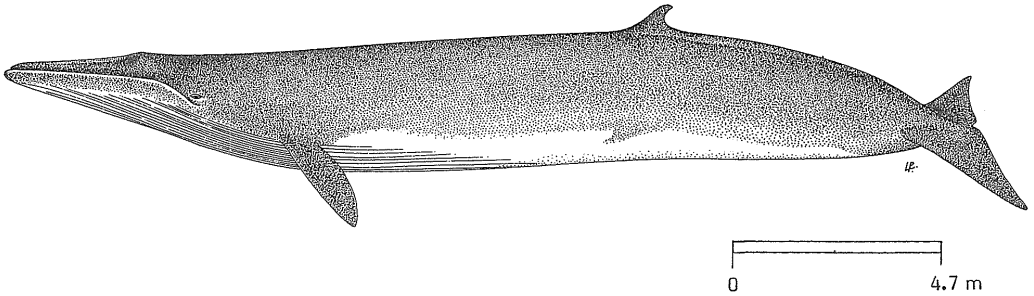
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : BALAENOPTERIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Balaenoptera physalus (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE : None



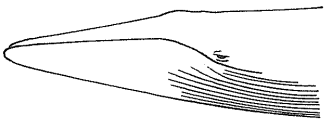
VERNACULAR NAMES :

FAO/CCAMLR : En - Fin whale
Fr - Rorqual commun
Ru - Finval
Sp - Rorcual común, Ballena de aleta

NATIONAL :

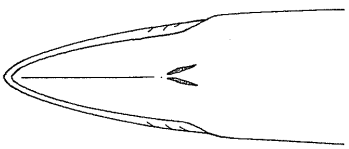
DISTINCTIVE CHARACTERS :

A very large rorqual. Back distinctly ridged toward tail ("Razorback"). Rostrum V-shaped when seen from above, top of head flat (but not so flat as in the blue whale) and with a single ridge running forward from blowholes. A large dorsal fin, up to 61 cm high, angled less than 40° on forward margin, located slightly more than one third forward from tail; appears at surface just after the blow. Baleen plates less than 92 cm long and 262 to 473 on each side. Ventral grooves (56 to 100 between flippers) extend to navel or beyond.



head from side

Colour: dark grey to brownish-black on back and sides with no mottling as in the blue whale (but oval scars, caused by small shark bites, may be present). Undersides, including undersides of flukes and flippers, white. On head, coloration markedly asymmetrical, the dark colour reaching further down on left than on right side. Lower lip on right side, mouth cavity and anterior one third to one fifth of baleen rows yellowish-white; remainder of baleen striped with alternate bands of yellowish-white and bluish-grey. Occasionally right upper lip white also.



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

None of the other large whales occurring in the Southern Ocean have a distinctly ridged back; all except the sei and minke whales, have a relatively lower dorsal fin. Only the blue whale reaches comparable or greater sizes, but this species has a U-shaped rather than pointed snout (viewed from above), a very small dorsal fin situated far backward near tail, relatively darker colour on the undersides of body, flippers and flukes, and uniform black baleen plates.

SIZE :

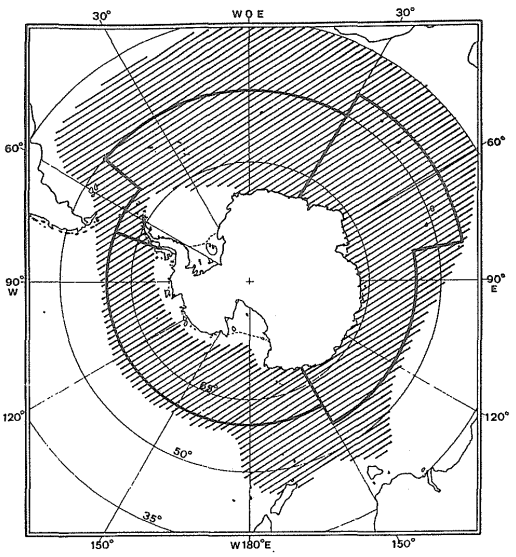
Males: length range 21 to 23 m; females: length range 22 to 26 m; about 80 t in weight.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Cosmopolitan, found on feeding grounds of the Southern Ocean throughout the summer.

Breeding: males mature at about 18 m (about 6 years) and females at 19.5 m (about 7 years). Gestation period 11 months, calves are born in tropical waters; lactation period 7 months; birth interval 2 years.

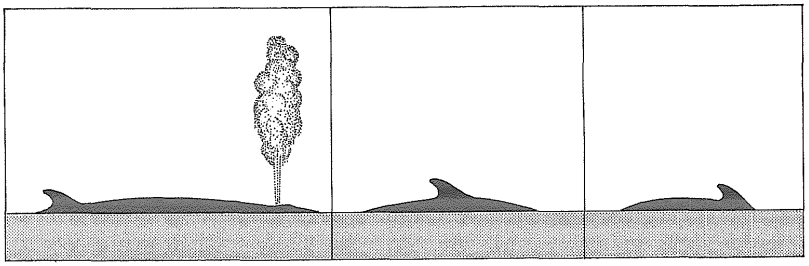
Feeding: in the Southern Ocean it feeds on Antarctic krill, Euphausia superba, concentrating on individuals 30 to 40 mm long and perhaps not approaching the ice edge as closely as blue whales.



Map of distribution based on catches between 1932 and 1976 (December to April)

OBSERVATION AT SEA :

A very fast-swimming whale, can make 20 knots for short bursts. Sometimes breaches, falling back into the water with a splash, never re-entering smoothly (contrary to the minke whale). Usually found singly or in groups of 6, 7 or more individuals. The blow is tall (about 6 m), in the shape of an inverted cone or elongated ellipse. It dives for 5 to 15 minutes (usually 6 to 7 minutes), blows 3 to 7 times at intervals of up to several minutes, then dives again, arching the back as it submerges; the flukes are not raised on dive. The only other large whale not showing the flukes when diving is the sei whale, but this species does not arch the back (simply sinks into the water) and its blow is much lower. The blue whale scarcely shows the flukes and all other species raise the tail clearly above the water on dive.



Blow from side

Diving sequence

EXPLOITATION :

Heavily exploited. Peak catches were taken just before and after the second world war. The original stock size (in the range of 375 000 to 425 000 individuals) is now reduced to about 85 000. Protected under the International Convention for the Regulation of Whaling.

BALAEN Meg 1

1985

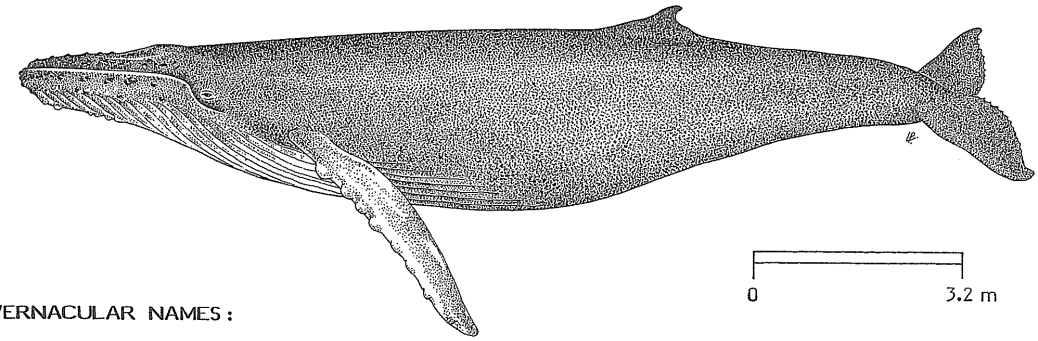
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : BALAENOPTERIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Megaptera novaeangliae (Borowski, 1781)

OTHER SCIENTIFIC NAMES STILL IN USE : Megaptera nodosa



VERNACULAR NAMES :

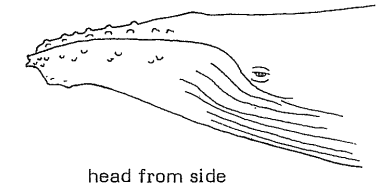
FAO/CCAMLR : En - Humpback whale
Fr - Baleine à bosse
Ru - Gorbache
Sp - Ballena jorobada

NATIONAL :

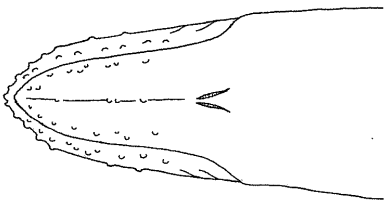
DISTINCTIVE CHARACTERS :

A large, fat whale. The body tapers sharply to the tail stock. Head broad and rounded, with a flattened upper surface. The ridge between blowholes and snout seen in other rorquals is absent or indistinct, but prominent on upper part of head are numerous knobs or tubercles, more or less randomly distributed, also on lower jaw. Fourteen to 21 ventral grooves between flippers, very wide and extending to navel. Dorsal fin set two-thirds of the way back on body, very indeterminate, often appearing as a low fleshy ridge, sometimes with a small triangular top, sometimes sickle-shaped as in other rorquals. Flippers very long, up to 33% of body length, scalloped on leading edge and predominantly white. Tail flukes concave, deeply notched and irregularly jagged on trailing edge. Usually numerous acorn barnacles (Coronula spp.), often in masses on leading edge of flippers. Cyamid whale lice also usually present.

Colour: basically black with very variable amounts of white on flippers, undersides of flukes, chin and belly.



head from side



head from above

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other baleen whales: either more than 35 ventral grooves or none in the black right whale (less than 22 in humpback whale); flippers shorter, less than 1/5 of body length (1/4 to 1/3 in humpback whale), without knobs on leading edges; 1 or 2 distinct ridges present between blowholes and snout; no knobs or tubercles on head (except for white callosites in the black right whale).

SIZE :

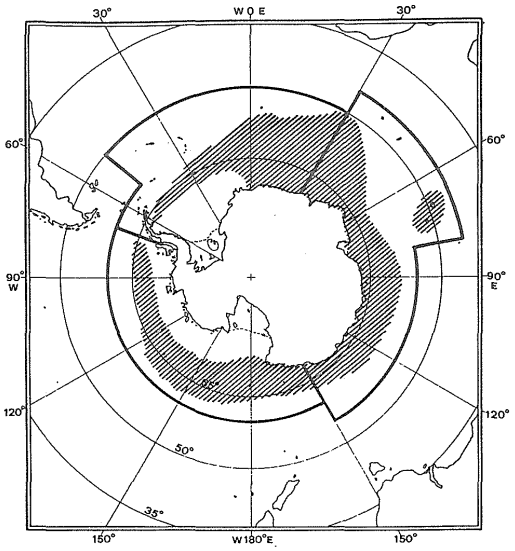
Males: maximum length 15.2 m, average 14.5 m; females: maximum length 19 m, average 16 m. Females may reach about 65 t in weight.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Cosmopolitan and strongly migratory, with well-marked migration routes often taking the whales close inshore. The Southern Hemisphere population enters the Southern Ocean to feed and returns to tropical waters to breed.

Breeding: sexually mature in less than 10 years, the males at about 11 m, the females at about 12 m. Mating takes place soon after birth, so the birth interval may be little over a year. Gestation period 11.5 months; lactation period 10.5 to 11 months. Mothers with calves on feeding grounds are often seen with a third whale, possibly an attendant male or perhaps a calf of the previous year.

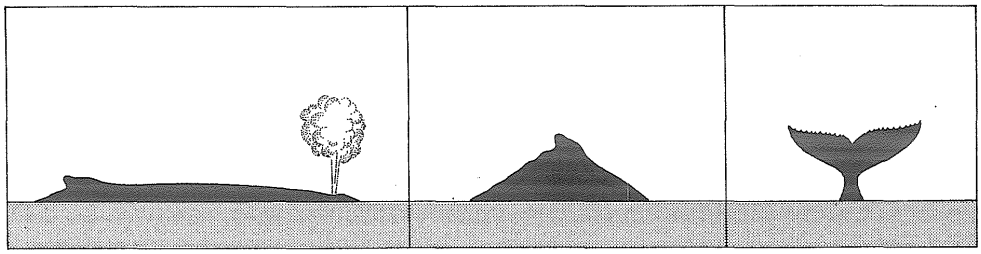
Feeding: in the Northern Hemisphere it feeds largely on schooling fish but in the Southern Ocean on Antarctic krill, Euphausia superba.



Map of distribution based on catches between 1932 and 1963 (December to April)

OBSERVATION AT SEA :

Humpback whales are easily approached by boat. When disturbed they swim slowly away, often remaining at the surface for a little while before diving. The blow is characteristic - short (less than 3 m), very bushy. Typically it remains 2 to 3 minutes at the surface, blowing every 20 to 30 seconds, then dives for 5 to 30 minutes. The dive is very characteristic, the whale jack-knifing ("humpback"), exposing the dorsal fin and raising the tail clear of the surface. None of the other large whales occurring in the Southern Ocean show this "jack-knifing" behaviour. The humpback whale often jumps clear of the surface (breaches), falling back with a huge splash, or slaps the surface with its tail (lobtails), or a flipper. These activities may serve to communicate with other whales. Humpbacks are very vocal but their underwater sounds are not usually audible above the surface.



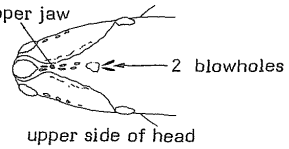
Blow from side

Diving sequence

EXPLOITATION :

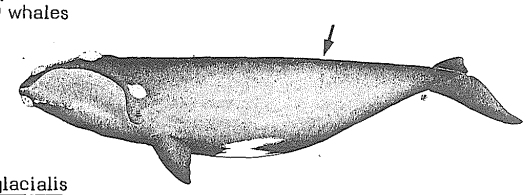
Humpbacks, originally numbering about 100 000 individuals, were among the first of the rorquals to be seriously reduced by whalers in the Southern Ocean. Partial protection was provided before the second world war and complete protection was conferred by the International Convention for the Regulating Whaling. By this time, however, stocks had been very severly reduced and probably only about 2 000 humpbacks remained in the Southern Hemisphere. There are some signs, however, that humpbacks are becoming a little more numerous. The current stock estimate is around 3 000 individuals.

KEY TO THE IDENTIFICATION OF STRANDED CETACEANS IN THE SOUTHERN OCEAN



1a. A double blowhole (Fig.1); no teeth present in either jaw; baleen plates in upper jaw ..... Sub-order Mysticeti
baleen (whalebone) whales

2a. Ventral grooves absent; dorsal fin absent: upper jaw very narrow, in profile upper jaw and lower lips strongly arched (Fig.1); 250 to 390 baleen plates per side with 35 to 70 very fine fibres per cm ..... Balaena glacialis
Black right whale



Black right whale Fig.1

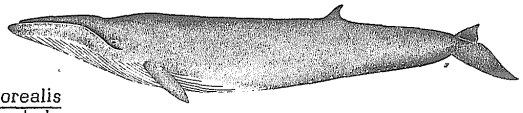
2b. Ventral grooves present; dorsal fin present; upper jaw relatively flat and broad ..... Family Balaenidae-right whales
Family Balaenopteridae-rorquals

3a. Ventral grooves end before navel

4a. 50 to 70 ventral grooves*, the longest often ending between flippers (Fig.2); 300 to 325 baleen plates on each side, less than 20.5 cm long, mostly white or yellowish white (some posterior plates may be dark) with 15 to 25 fibres per cm ..... Balaenoptera acutorostrata
Minke whale

Minke whale Fig.2

4b. 38 to 56 ventral grooves, the longest ending well short of navel (Fig.3); 318 to 340 baleen plates on each side, less than 78 cm long, black (some of the most anterior plates may be pale), with 35 to 60 fine silky fibres per cm ..... Balaenoptera borealis
Sei whale

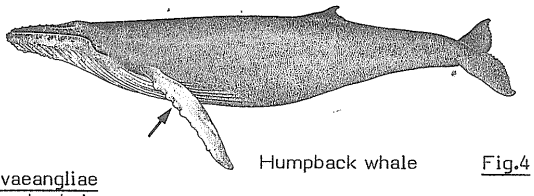


Sei whale Fig.3

3b. Ventral grooves extend to or beyond navel

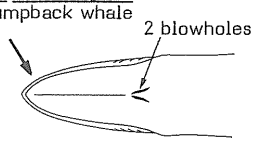
*Counts of ventral grooves are made between the flippers and do not include the short grooves often found on the sides above the flippers

5a. Flippers one quarter to one third of body length and knobbed on leading edges; less than 22 ventral grooves, the longest extending at least to navel; head covered with knobs (Fig.4); 270 to 400 baleen plates on each side, less than 61 cm long, black to olive brown (sometimes whitish), with 10 to 35 greyish-white fibres per cm ... Megaptera novaeangliae
Humpback whale



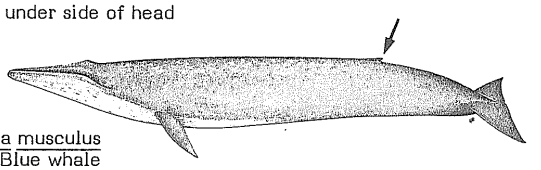
Humpback whale Fig.4

5b. Flippers less than one fifth of body length; no knobs; 55 to 100 ventral grooves, the longest extending at least to navel



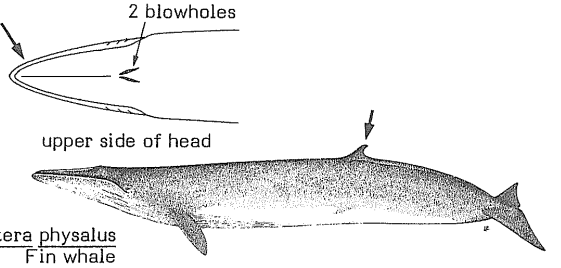
under side of head

6a. Head broad and U-shaped; dorsal fin less than 33 cm high and very far back on tail (Fig.5); 270 to 395 baleen plates on each side, all black with 10 to 30 fibres per cm, barely more than twice as long as wide ..... Balaenoptera musculus
Blue whale



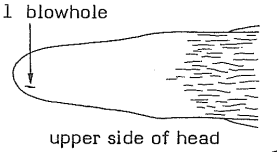
Blue whale Fig.5

6b. Head broad at corners of mouth but sharply pointed at snout; dorsal fin to 61 cm high, slightly more than one third forward from tail (Fig.6); one fifth to one third of baleen plates at right front creamy-white, remainder dark grey or bluish grey streaked with yellowish-white; 262 to 473 plates on each side with 10 to 35 grey or white fibres per cm, each plate narrow relative to length ..... Balaenoptera physalus
Fin whale

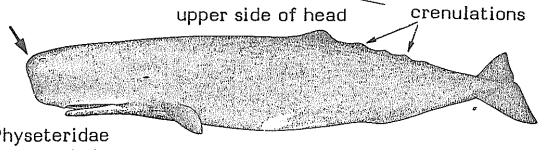


Fin whale Fig.6

1b. A single blowhole; teeth present (or concealed beneath gum) no baleen plates ..... Sub-order Odontoceti
toothed whales



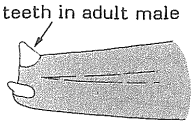
7a. Upper part of head extending well beyond tip of lower jaw, head massive, to one third of body length; lower jaw narrow with 18 to 25 pairs of teeth fitting into sockets in upper jaw (10 to 16 pairs of upper teeth rarely emerge); a low triangular or rounded dorsal fin followed by a series of crenulations (Fig.7) ..... Family Physeteridae
Physeter catodon - Sperm whale



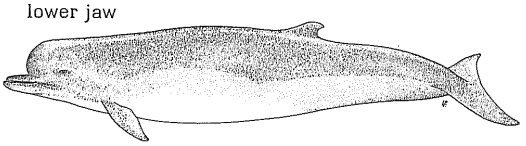
Sperm whale Fig.7

7b. Upper part of head not extending appreciably beyond lower jaw; lower jaw approximately the same width as upper jaw

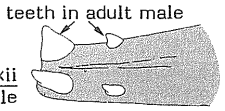
8a. Two conspicuous grooves on outer surface of throat forming a V-shape pointing forward; no notch in flukes ..... Family Ziphiidae
beaked whales



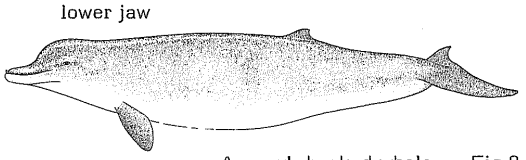
9a. In adult males, a single pair of conical teeth at tip of lower jaw* (Fig.8) ..... Hyperoodon planifrons
Southern bottlenose whale



Southern bottlenose whale Fig.8



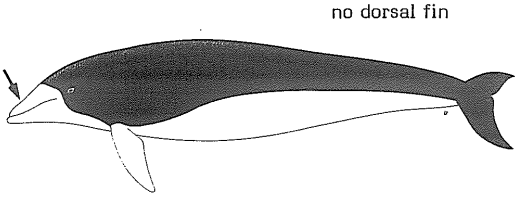
9b. In adult males, two pairs of triangular teeth at tip of lower jaw* (Fig.9) ..... Berardius arnuxii
Arnoux's beaked whale



Arnoux's beaked whale Fig.9

8b. No conspicuous grooves on throat; a deep median notch on trailing edge of flukes

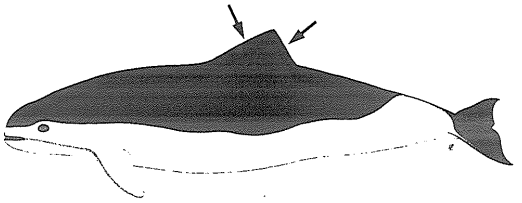
10a. No dorsal fin; snout slender and evenly pointed (Fig.10); 43 to 47 pairs of small conical teeth in both jaws ..... Lissodelphis peronii
Southern rightwhale dolphin



Southern rightwhale dolphin Fig.10

10b. Dorsal fin present

11a. Teeth spade-shaped, laterally compressed, 17 to 23 pairs in upper jaw, generally fewer in lower; dorsal fin low and straight-edged (Fig.11) ..... Phocoena dioptrica
Spectacled porpoise



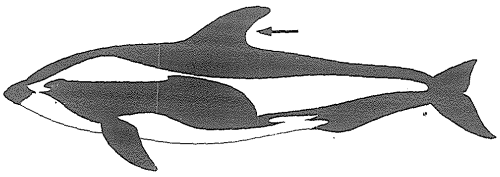
Spectacled porpoise Fig.11

11b. Teeth conical, circular or slightly flattened from front to back in cross section

12a. Less than 2 m in total length

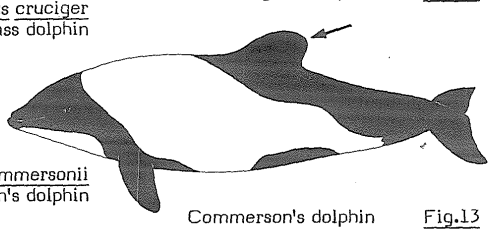
*In females and juveniles it may not be possible to distinguish the species of beaked whales except by examination of prepared skulls

13a. Dorsal fin tall, curved on trailing edge; flippers pointed (Fig.12); 28 pairs of small, pointed teeth in both jaws ..... Lagenorhynchus cruciger
Hourglass dolphin



Hourglass dolphin Fig.12

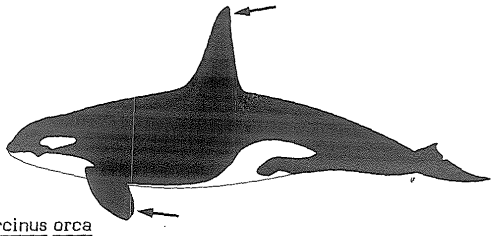
13b. Dorsal fin a rounded lobe; flipper tips rounded (Fig.13); 29 to 32 pairs of peg-like teeth in both jaws (Fig.13) ..Cephalorhynchus commersonii
Commerson's dolphin



Commerson's dolphin Fig.13

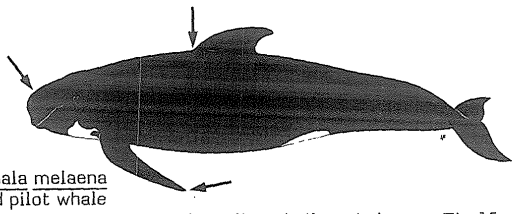
12b. More than 5 m in total length

14a. Flippers large and paddle-shaped, rounded at tips; dorsal fin tall and erect; 10 to 13 pairs of large teeth (up to 2.5 cm in diameter) in both jaws (Fig.14) ..... Orcinus orca
Killer whale



Killer whale Fig.14

14b. Flippers long and pointed, one fifth of body length or more; dorsal fin located on forward one third of body, very broad at base; head bulbous (Fig.15) ..... Globicephala melaena
Longfinned pilot whale



Longfinned pilot whale Fig.15

Prepared by W. Nigel Bonner and R.M. Laws, British Antarctic Survey, Cambridge, UK

Figures based on various sources, i.e., **Watson, L., 1981:** Sea Guide to Whales of the World; **Leatherwood, S. et al., 1982:** Whales, dolphins and porpoises of the Eastern North Pacific and adjacent Arctic waters and **Cagnolaro, L., et al., 1983:** Guide per il riconoscimento delle specie animali delle acque lagunari e costiere italiane - Cetacei.

ORDER PINNIPEDIA - Seals, sea lions and walruses

The Pinnipedia comprise three families: the Odobenidae, which today has only a single species, the Walrus of the Arctic; the Otariidae, the fur seals and sea lions, with 14 species; and the Phocidae, true seals, with 18 species. One otariid (rarely two) and five phocids are found in the Southern Ocean.

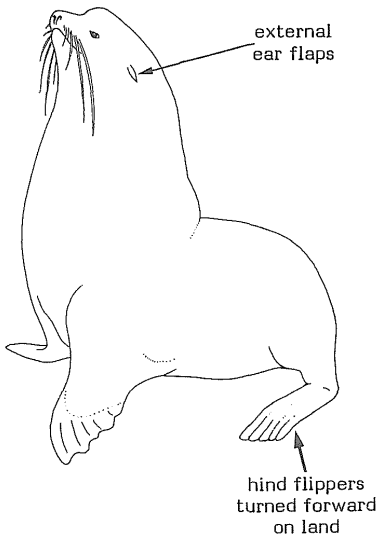
Most biologists believe that the Pinnipedia have a dual origin from Carnivore stock. The walruses, fur seals and sea lions were derived from a dog-like ancestor in the North Pacific about 25 million years ago. The true seals were derived from an otter-like ancestor in the North Atlantic about 15 million years ago.

All pinnipeds are highly adapted to an aquatic life and their bodies show profound changes from the basic mammalian pattern to fit them to life in the sea. However, unlike the whales and dolphins, they have to return to land (or floating ice) to bear their young.

GUIDE TO FAMILIES

OTAR OTARIIDAE: Fur seals and sea lions

All species are marine. The group includes the familiar California sea lion, Zalophus californianus, often seen in circuses, which is fairly typical. Otariids are characterized by the presence of small external ear flaps, in the shape of a tight scroll (and are often called "eared seals"), and the fact that the hind flippers can be turned forward and used to support the body so that the animal can walk, waddle or gallop on land on all fours with the body held clear of the ground. The long neck and well-developed fore-quarters balance the body over the foreflippers during locomotion on land. In the water, swimming is by simultaneous sweeps of the large oar-like foreflippers, the hind flippers being trailed behind. All flippers have naked soles and palms, and the exposed skin is pigmented deeply black. Males are always larger than the females (sometimes much larger) and maintain groups of females ("harems") in large breeding colonies. The young are suckled for extended periods of 4 months to more than a year. Anatomically, otariids can be recognized by the presence of supraorbital processes on the skull and the fact that the first and second upper incisors are transversely grooved. (There are many other less obvious characters.)

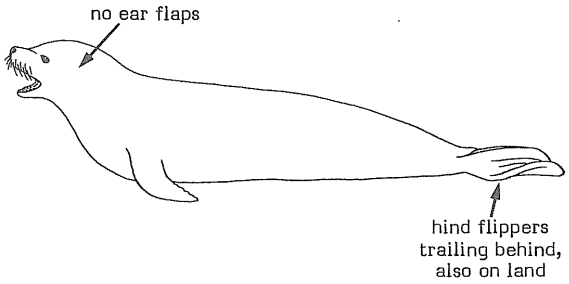


Species occurring in the Southern Ocean :

Arctocephalus gazella Peters, 1875 OTAR Arct 1
Arctocephalus tropicalis (Gray, 1872)*

* Occasionally straggling into the area

PHOC PHOCIDAE: True or earless seals

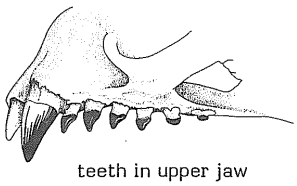


These are mainly marine, but one species and several populations occur in fresh water. There is no external ear flap and the hind flippers cannot be brought forward, but trail behind the animal on land. When moving on land, the animal humps along on its belly, or hitches itself with its foreflippers, its belly being mainly in contact with the ground. In the water, locomotion is by alternate laterally-directed strokes of the hind flippers, accompanied by lateral undulations of the hind end of the body. The foreflippers are held against the sides, but may be used for positioning when the seal is swimming slowly. Both fore and hind flippers are haired on both surfaces. The sexes are generally about equal in size (except in elephant seals, where males are much larger) and they may breed solitarily or colonially. The young are suckled for 10 days to 6 weeks. There are no supraorbital processes on the skull and no grooves on the upper incisors.

Species occurring in the Southern Ocean :

Hydrurga leptonyx (Blainville, 1820)	PHOC Hydr 1
Leptonychotes weddellii (Lesson, 1826)	PHOC Lept 1
Lobodon carcinophagus (Hombron & Jacquinot, 1842)	PHOC Lob 1
Mirounga leonina (Linnaeus, 1758)	PHOC Mir 1
Ommatophoca rossii Gray, 1844	PHOC Omm 1

KEY TO FIELD IDENTIFICATION OF ADULT SEALS

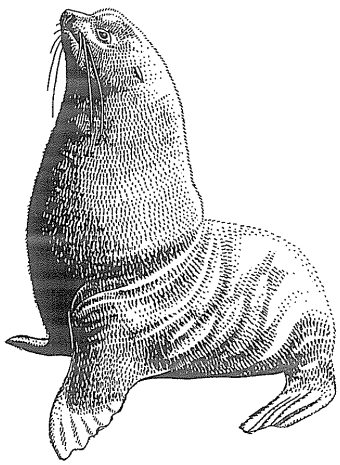


teeth in upper jaw

1a. Colour grey, weathering to brown; no spotting or patterned markings; pup fur black

2a. Hind flippers capable of being turned forward and used in terrestrial locomotion in walking or running movements

3. Claws reduced on foreflippers and small on outer digits of hind flippers, large on inner 3 digits; underside of hind flippers hairless; hind digits with cartilaginous extensions, united proximally. Coat of guard hairs and underfur. Long neck. Small external ears over 1.5 cm long. Testes in scrotum. Teeth not lobed. Adult size 2 m, 100 kg (Fig.1) ..... Antarctic fur seal (Arctocephalus gazella)



Antarctic fur seal Fig.1

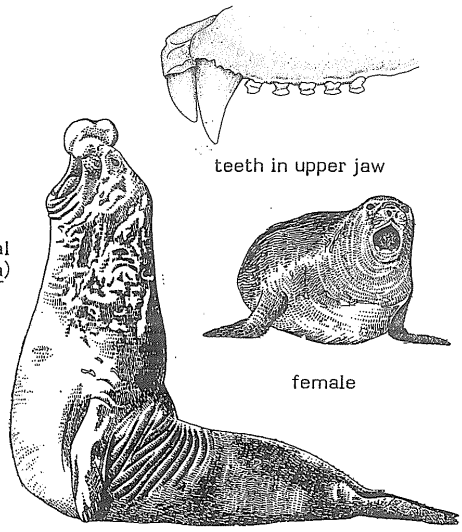
2b. Hind flippers not capable of being turned forward; not used in terrestrial locomotion; movements relatively slow

4. Large claws on foreflippers. Coarse single hair coat. No obvious neck. Teeth not lobed. Size to 2.8 m, 900 kg (female); 4.5 m, 4 000 kg (male) (Fig.2) ..... Southern elephant seal (Mirounga leonina)

1b. Colour pattern of spots, blotches or stripes (may be inconspicuous when faded); pup fur greyish-brown or with patterned markings

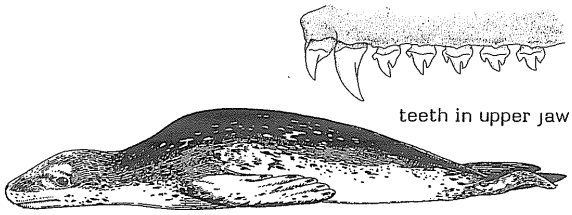
5a. Profile lithe and streamlined with flanks tailing off

6a. Very large head and thorax; distinct neck. Dark and light spots overall



Southern elephant seal Fig.2

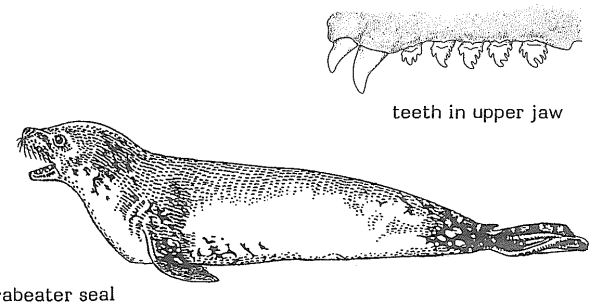
7. Colour silver grey with a very dark dorsal band; foreflippers large, silvery with black markings. Upper edge of mouth with broad grey band - reptilian appearance to head. Molars 3-lobed, sharp, recurved, canines pointed. Adults 3.6 m, 450 kg (exceptionally 500 kg) (Fig.3) ..... Leopard seal (Hydrurga leptonyx)



Leopard seal Fig.3

6b. Head of moderate size; neck not very distinct; coat mainly silver grey or cream with reticulated markings particularly on shoulders and near tail; snout upturned. Often scarred with parallel stripes

8. Markings light circles surrounded by darker markings and spots; flippers dark. When disturbed, raises head as if 'pointing'. Molar teeth 4- or 5-lobed, blunt, canines blunt. Adults to 2.5 m, 225 kg (Fig.4) ..... Crabeater seal (Lobodon carcinophagus)



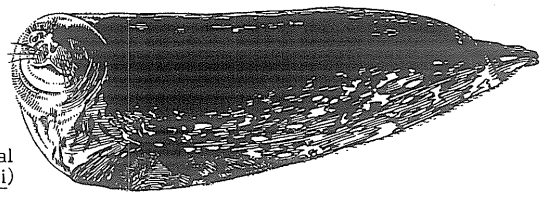
Crabeater seal Fig.4

5b. Profile plump, barrel-shaped

teeth in upper jaw

9a. Colour very dark dorsally, lighter ventrally, large spots or splashes of white, grey and black overall

10. Flippers dark. Rolls when disturbed. Upper incisors procumbent, blunt; incisors and canines often greatly worn; molars with a central prominent cone, and a smaller one behind. Adults to 3 m, 500 kg (Fig.5) .....Weddell seal (Leptonychotes weddellii)

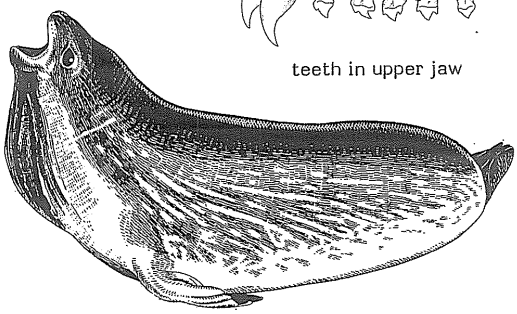


Weddell seal Fig.5

9b. Colour very dark dorsally, lighter ventrally. Little spotting or oblique fleckings on sides. Dark streaks or bands on throat and chest

11. Flippers dark. Head short and broad, eyes protruding. When disturbed, raises head near vertical, inflates neck and 'trilling' vocalization. Teeth very small, sharp, pointed, recurved (Fig.6) .....Ross seal (Ommatophoca rossii)

teeth in upper jaw



Ross seal Fig.6

OTAR Arct 1

1985

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : OTARIIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Arctocephalus gazella (Peters, 1875)

OTHER SCIENTIFIC NAMES STILL IN USE : None

0 0.98 m

VERNACULAR NAMES :

FAO/CCAMLR : En - Antarctic fur seal (Kerguelen fur seal)
Fr - Otarie de Kerguelen
Ru - Yuzhnyi morskoi kotik
Sp - Lobo fino antártico

NATIONAL :

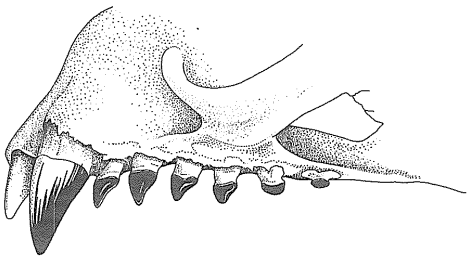
DISTINCTIVE CHARACTERS :

Profile: snout pointed; head small, neck long (but very thick in adult males); foreflippers large and "shoulders" placed further back than in true seals; hind flippers elongated and turned forward, so that the animal can walk or gallop on all four flippers.

Colour: coat composed of an outer layer of relatively stout guard hairs, some black with white tips, others predominantly white; beneath the guard hairs a layer of very fine dark fawn underfur. When seen from more than a couple of metres, the general colour appears grizzled dark grey-brown on back; throat and breast in females and juvenile males creamy, but in adult males a dense grizzled mane containing large numbers of white-tipped guard hairs covers throat and shoulders; belly in both sexes dark ginger. All classes become browner after a long stay ashore. Yearlings are silvery grey above, creamy below; pups very dark brown to black with grey-brown belly. In all fur seals the exposed skin of the flippers is intensely black.

A pale form occurs (about 0.01% of the population) which lacks pigment in the guard hairs, this resulting in white or honey-coloured appearance (all ages, both sexes, but large animals generally darker). Exposed skin mid- to chocolate-brown. Eyes normally pigmented.

Close-up: conspicuous external scroll-like ears, up to 6 cm in males, 4.5 cm in females. Snout elongate with a pointed tip; whiskers very long, 35 cm (but up to 48 cm) in adult bulls; teeth: conspicuous canines but reduced cheek teeth, often worn on inner surfaces and heavily stained dark brown. Five rudimentary nails on foreflippers, but well developed (2.5 cm) nails on middle three toes of hind flippers. In males, a black, wrinkled scrotum. Pelage seen close to shows dual structure.

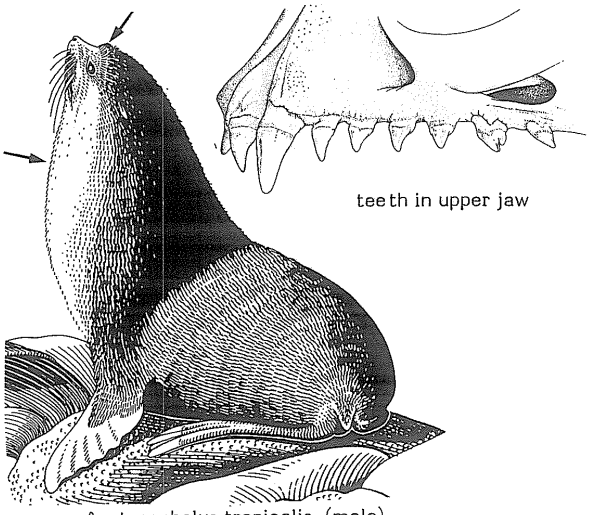


teeth in upper jaw

Pups bleat and females respond with a long haunting call on breeding beaches. Breeding bulls bark, grunt and produce a peculiar, whimper-like sound which may be represented "uh-uh-uh", or occasionally: "uh-chff - uh-chff -uh-chff". This generally conveys some threat and should not be taken to indicate fear.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

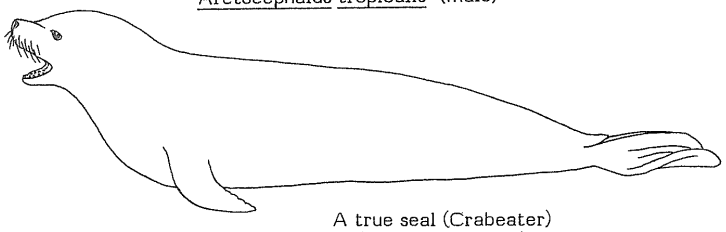
Arctocephalus tropicalis (Gray, 1872) (sub-Antarctic fur seal): this species, which breeds on islands (including Gough, Marion, Crozet, St. Paul, Amsterdam) to the north of the Antarctic Convergence, is occasionally found amongst breeding colonies of Antarctic fur seals. All specimens identified so far have been males which can be recognized by their nicotine-yellow chest and/or prominent tuft of hair (crest) on top of the head. This crest is lacking in females and juvenile males, and it may prove very difficult to distinguish these classes from Antarctic fur seals. However, the latter have relatively longer flippers. The cheek teeth of sub-Antarctic fur seals are stout and sharply pointed. Hybridization is known to occur between these two species.



teeth in upper jaw

Arctocephalus tropicalis (male)

True seals (Family Phocidae): hind flippers extended behind body when lying still; when moving on land they crawl on their belly, the hind flippers never playing any part in locomotion. In the sea, they swim with hind flippers, keeping the fore-flippers close to sides except when manoeuvering. Coat short, often with patterned markings. Snout blunt or rounded, never pointed. No external ear flaps.



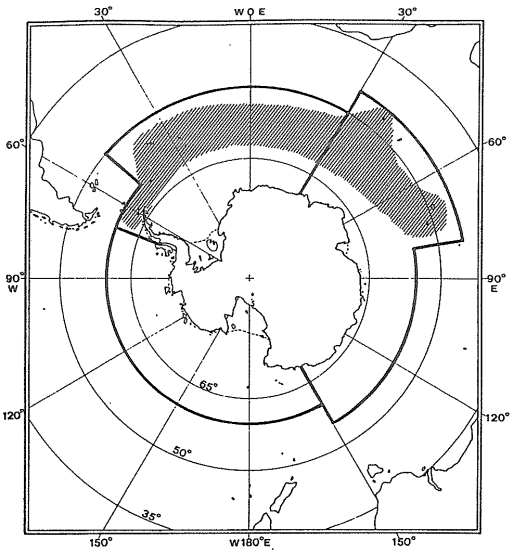
A true seal (Crabeater)
(Family Phocidae)

SIZE :

Adults: There is a very great discrepancy in size between males and females. Males: length 175 to 200 cm (average 184), weight 125 to 200 kg. Females: length 113 to 145 cm (average 128), weight 25 to 50 kg. Newborn: length 60 cm, weight 5.5 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Found breeding on islands south of the Antarctic Convergence and north of about 65°S. The major breeding population concentrates at South Georgia; smaller groups occur at the South Sandwich Island, South Orkney Islands, South Shetland and Bouvet and Marion Island (this is north of the Antarctic Convergence, and here A. gazella overlaps the range of A. tropicalis), Heard and Macdonald Islands and Kerguelen Islands. It possibly once bred at Macquarie Island. Juvenile males and old, spent bulls spread out southward from the breeding islands in summer and occur in large numbers on southern island groups. During winter, only adult bulls are found ashore (at breeding beaches) while the whereabouts of other classes are not known. There is no evidence to indicate directional migration to winter feeding grounds. Generally, fur seals avoid pack ice, but occasionally adult males are seen on floes.



Breeding: fur seals form large aggregations on land in late November-December, preferring rocky coasts. Bulls defend territories containing 5 to 15 females from other bulls and are very aggressive at this time. Non-breeding males occupy areas peripheral to the breeding beach. Pups are born in November-December; the lactation period is about 4 months; pups moult and are weaned in April.

Feeding: during the breeding season, lactating females feed almost exclusively on Antarctic krill, Euphausia superba. Juveniles take krill, but also fish and squid. Young (non-breeding) bulls kill, but generally do not eat, penguins. The diet in winter is not known.

Locomotion: on land fur seals can walk by putting their weight mainly on the fore-flippers, the hind flippers serving only to keep the pelvis (held horizontally) clear of the ground; they also gallop in a series of bounds, the thrust coming from the hind flippers. They move very agilely over rough ground, as fast as a man can run for short distances. On ice or compacted snow they may hitch themselves along with the fore-flippers, the hind flippers trailing like in a true seal. In water they swim with sweeps of the fore-flippers. When swimming fast, "porpoise" - leaping clear of the water and re-entering smoothly occurs. At play in coastal waters they adopt a variety of positions at the surface - head up or down, hind flippers fanned, fore-flipper raised, etc.

When disturbed, fur seals are very aggressive in the breeding season, particularly males (but females can also inflict severe wounds); "whimpering" may precede an attack from a bull.

EXPLOITATION :

Severely reduced by fur hunters from about 1778 onward. The last commercial sealing (at South Georgia) took place in 1907 when the stock was probably reduced to a few tens of animals located at the extreme northwest part of the island. A recovery was noted from the 1930's onward, the current stock (1984) being estimated at about 1.2 million individuals. Protected by the Convention for the Conservation of Antarctic Seals and by local legislation in South Georgia, Bouvet and elsewhere.

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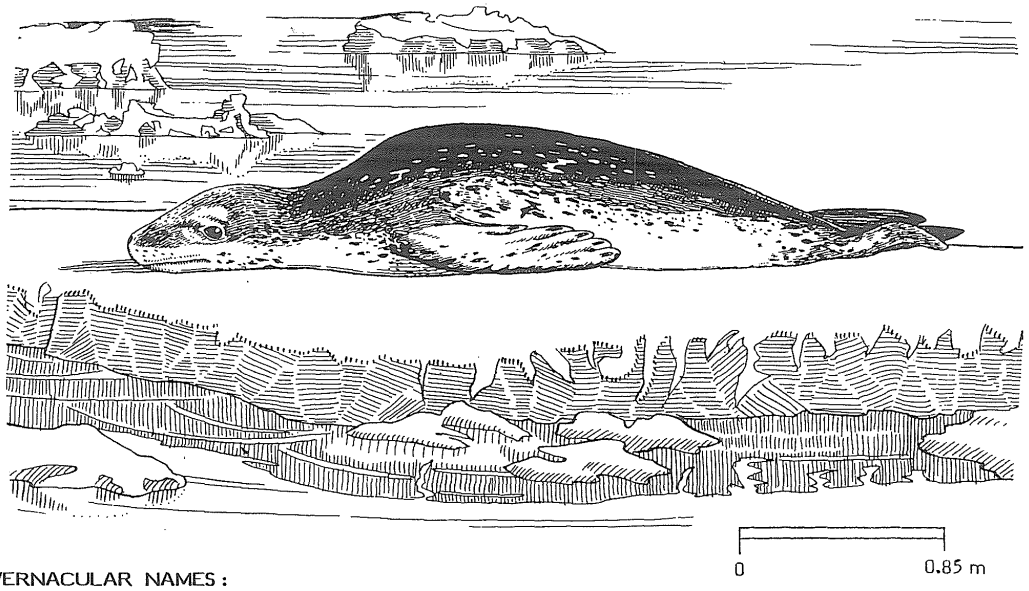
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHOCIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Hydrurga leptonyx (Blainville, 1820)

OTHER SCIENTIFIC NAMES STILL IN USE : Ogmorhinus leptonyx (rare)



VERNACULAR NAMES :

FAO/CCAMLR : En - Leopard seal (Sea leopard)
Fr - Leopard de mer
Ru - Tyulen-leopard
Sp - Foca leopardo

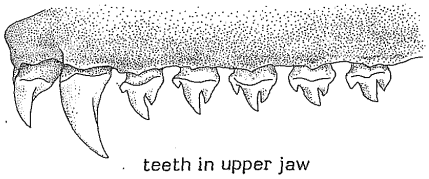
NATIONAL :

DISTINCTIVE CHARACTERS :

Profile: large, very long and slender, with a humped outline caused by the large thorax; a disproportionately large reptile-like head with a long snout, a marked constriction at neck and flanks tailing off. Build more like the Crabeater seal than other species, but distinctive.

Colour: usually very dark (black or dark grey) dorsally, silver ventrally. Liberally spotted or flecked with small, light and dark grey spots on back and black spots on belly; a relatively sharp demarcation along sides. Foreflippers light with dark spots, hind flippers dark. Head with a broad silver band along upper lip. Pup: patterned similarly to adult (unlike other species), the fur thicker and softer than in adult. Moults in January or February.

Close-up: very large, sharply pointed incisors and canines; gape huge, showing large 3-cusped, recurved cheek teeth. Cheek teeth interlock to form strainer when jaws are closed, as in the Crabeater seal. Foreflippers very long in relation to body length. Underwater sound a pulsed narrow band, about 300 cps, of an unmistakable haunting quality once heard. Occasionally vocalizes and throbs in the throat on land.



teeth in upper jaw

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

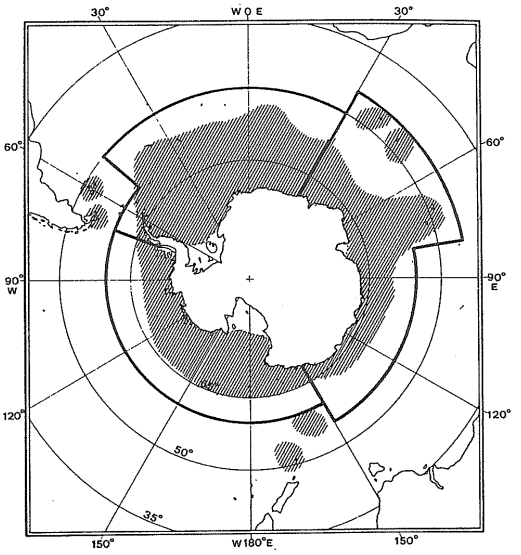
Other seals of the family Phocidae: back not humped in profile; head smaller and not reptile-like, snout shorter; cheek teeth either with 4 or 5 cusps (Lobodon carcinophagus), or simple with only 1 or 2 cusps (other species); foreflippers shorter; different colour patterns.

Arctocephalus gazella (Antarctic fur seal): foreflippers long and oar-like, walk with both fore and hind flippers, body clear of ground; head with pointed muzzle and scroll-like ear flaps. Very dense 2-layered fur coat. Adults to 200 cm (male), 145 cm (female).

SIZE :

Adults: length to 360 cm (males slightly smaller), weight about 370 kg, but exceptionally to 500 kg.
Newborn: length 150 cm, weight 35 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :



The most widely distributed of all Antarctic seals - from continental shores to sub-Antarctic islands and found in all densities of pack ice from open to closed. The main population parallels the Crabeater seal distribution. During winter it migrates north (most sightings in sub-Antarctic occur in winter or spring) and is occasionally reported from Patagonia, South Africa, southern Australia, Tasmania and New Zealand. Usually solitary.

Breeding: peak of births occur in November-December (but young pups are seen from September to January). Females with pups stay on floes and males are seen cruising in water at this time, but interactions with females have not been observed. Mating takes place at the end of the lactation period, probably 4 to 6 weeks later.

In the water it often holds the head raised above the surface and shoves back when submerging head first, like a porpoise, if stationary in water, it sometimes submerges tail first. Follows small boats with evident curiosity. When disturbed, it will raise the head in a deliberate direct gaze, the flippers pressed to the sides. Its actions are slow and deliberate; it performs sinuous lateral movements like the Crabeater, but makes little use of its foreflippers. Easily frightened and not known to attack men on land or in water.

Feeding: eats a wide variety of food species. Often seen chasing and eating penguins at rookery landing places, and the faeces may contain penguin feathers. However, only a small proportion of the population feeds at penguin rookeries. The Leopard seal is an important predator of young Crabeater seals (up to the end of first year of their life); as Crabeaters grow, they become more successful in avoiding Leopards but nevertheless, 63% of adult Crabeaters bear scars of Leopard teeth. Krill, strained through the teeth like in the Crabeater seal, amount to about 50% of their diet; birds, seals and carrion make up about 34%, 15% are fish and squid, and other invertebrates make up the remainder.

EXPLOITATION :

No recorded substantial exploitation. Permissible catch of 12 000 individuals a year under the Convention for the Conservation of Antarctic Seals, about 5.4% of the calculated stock of 222 000 individuals.

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1985

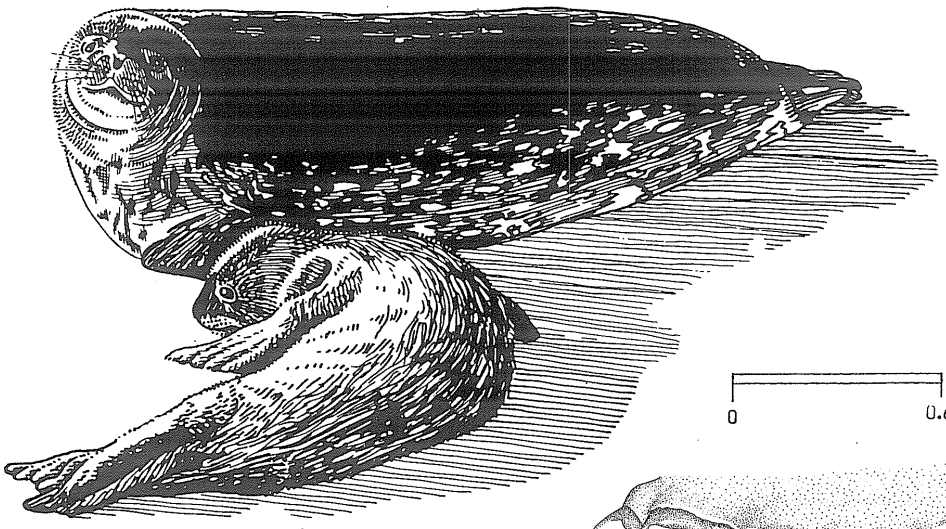
FAO SPECIES IDENTIFICATION SHEETS

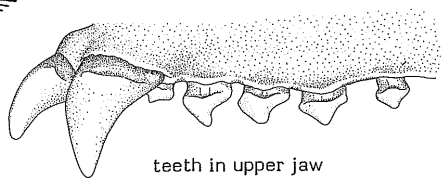
FAMILY : PHOCIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Leptonychotes weddellii (Lesson, 1826)

OTHER SCIENTIFIC NAMES STILL IN USE : None





teeth in upper jaw

VERNACULAR NAMES :

FAO/CCAMLR : En - Weddell seal
Fr - Phoque de Weddell
Ru - Tyulen ueddella (Weddella)
Sp - Foca de Weddell

NATIONAL :

DISTINCTIVE CHARACTERS :

Profile: large, heavy, 'barrel-shaped', head relatively small, with a moderately short and rather wide snout, and no distinct neck.

Colour: background very dark brown, lighter ventrally, mottled with large darker and lighter patches, those on the belly silvery-white. Immediately after moulting (December-March) the colour appears as gun-metal to steely blue. Some individuals are lighter generally, but never bleach to the whiteness of the Crabeater seal. The dark areas of the premoult coat fade to a rusty brown. Pups are soft grey, grey-brown or golden, often with indistinct darker mottling.

Close-up: posterior corners of mouth turn up, giving a benign appearance; whiskers often strongly curled when dry. Teeth blunt; upper incisors procumbent for ice-sawing and, together with canines, often greatly worn; cheek teeth with a central prominent cusp and a smaller one behind. Foreflippers small in relation to body length; in a fat animal it is difficult for both flippers to touch the ground at the same time. Voice: on land it is generally voiceless, but may make hooting noises or a dull glottal 'clopping' or gulping sound in the throat while opening and closing its mouth. The underwater repertoire consists of a broad array of calls from low-pitched buzzes to pulsed trills and whistles, but these calls are seldom readily audible to man on the ice surface.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Ommatophoca rossii (Ross seal): general shape similar, but snout extremely short and eyes larger and protruding; teeth very small, canines not procumbent, hind flippers much longer; a mask-like light and dark pattern about eyes; often dark stripes on throat and chest; little spotting or oblique fleckings on sides. When disturbed, raises head near to vertical, "inflates" neck and utters "trilling" sounds. Size smaller, to 217 cm (female), 207 cm (male).

Lobodon carcinophagus (Crabeater seal): profile lithe and streamlined, flanks tailing off; head larger, snout elongate, slightly up-turned, cheek teeth with 4 or 5 blunt lobes; coat mainly silver grey or cream with reticulated markings (light circles surrounded by darker markings and spots), or indistinct. Adults to 250 cm.

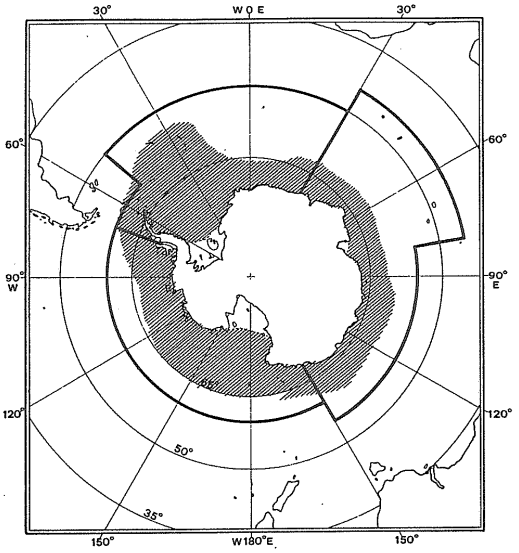
Hydrurga leptonyx (Leopard seal): body very long and slender, with humped outline and marked constriction at neck; head very large and reptile-like; canines larger and sharply pointed; cheek teeth with 3 sharp, recurved cusps; foreflippers large. Colour silvery grey with a very dark dorsal band, liberally flecked with small spots. Size larger, to 360 cm.

Mirounga leonina (Southern elephant seal): huge, bulky seal, characteristic proboscis in adult males and transverse wrinkles over snout of females and juvenile males; coarse hair coat. Incisors 2/1 (2/2 in all other southern phocids), canines massive, cheek teeth not cusped and small in relation to jaw; large claws on foreflippers. No pattern of spotting (but often pale scars in females). Adults to 450 cm (male), 280 cm (female).

Arctocephalus gazella (Antarctic fur seal): foreflippers long and oar-like, walk with both fore and hind flippers, body clear of ground; head with pointed muzzle and scroll-like ear flaps. Very dense 2-layered fur coat. Adults to 200 cm (male), 145 cm (female).

SIZE :

Adults: length to 320 cm, but usually around 260 cm, weight to 500 kg. Females generally larger than males. Newborn: length 120 cm, weight 25 kg.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumpolar and coastal around the Antarctic but occasional wanderers are found as far north as Uruguay, New Zealand and South Australia. Breeds on continental ice shelves and on coasts and islands of the Antarctic Peninsula, the South Shetland Islands and South Orkney Islands. A small relict breeding population (about 100 individuals) exists around Larsen Harbour, South Georgia.

Characteristically a seal of the inshore fast ice and coasts, but found singly in pack-ice, occassionally in association with Crabeater seals. It hauls out on beaches during the summer, usually singly or in scattered groups, occasionally in close aggregations of up to 100 individuals.

Breeding: from September to mid-November. Colonies may number several hundreds, often aggregated along pressure cracks and tide cracks in fast ice. The seals can keep breathing holes open in the ice by sawing it with their canines and incisors but they prefer naturally open water for breeding. Several females may share a breathing hole, giving birth on the ice around it. Mothers actively defend their young and mothers with young are more widely spaced than seals at other times of the year. Breeding males spend most of their time in water where they defend aquatic territories against other males. Mating takes place underwater, probably around the time of weaning, some six weeks after birth.

In water, the Weddell seal floats vertically in leads with the head pointing upward or level. It submerges by sinking tail-first without showing its back. Under ice it "hangs" in a curved posture, tail down. On land it travels slowly by small "humping" movements with both foreflippers pressed to the sides; the head usually slides along the ice on the chin (but it occasionally moves by lateral movements like the Crabeater seal). When wishing to turn, it usually rolls over until facing in the right direction. If disturbed, it may raise a foreflipper in "salute". Often claps its jaws while making dull glottal "clops".

Feeding: feeds mainly on fish (about 60%) together with some cephalopods and various crustacea such as the larger shrimps and amphipods. Both sluggish benthic and active pelagic fish are eaten. A Weddell seal was seen to bring in a large nototheniid fish, Dissostichus mawsoni, about 1.5 m long and estimated to weigh 31 kg and consume it entirely within 3 hours. It has the ability to dive deeply and does not usually stay under water for more than 15 minutes, but the longest observed dive extended over 73 minutes. Dives of 300 to 400 m are common and it seems that some favoured food fishes are most often caught at these depths.

EXPLOITATION :

The only recorded substantial commercial exploitation of this species occurred in 1892 and 1893 when whaling ships took several thousand seals, probably including some Weddells. Subsequently it was much used by Antarctic expeditions as a source of meat for sledge dogs and men, but this practice is now largely abandoned. Should sealing begin in the Antarctic, the permissible catch limit is set at 5 000 individuals a year (about 0.7% of the estimated total population of 732 000) and with a limited open season.

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1985

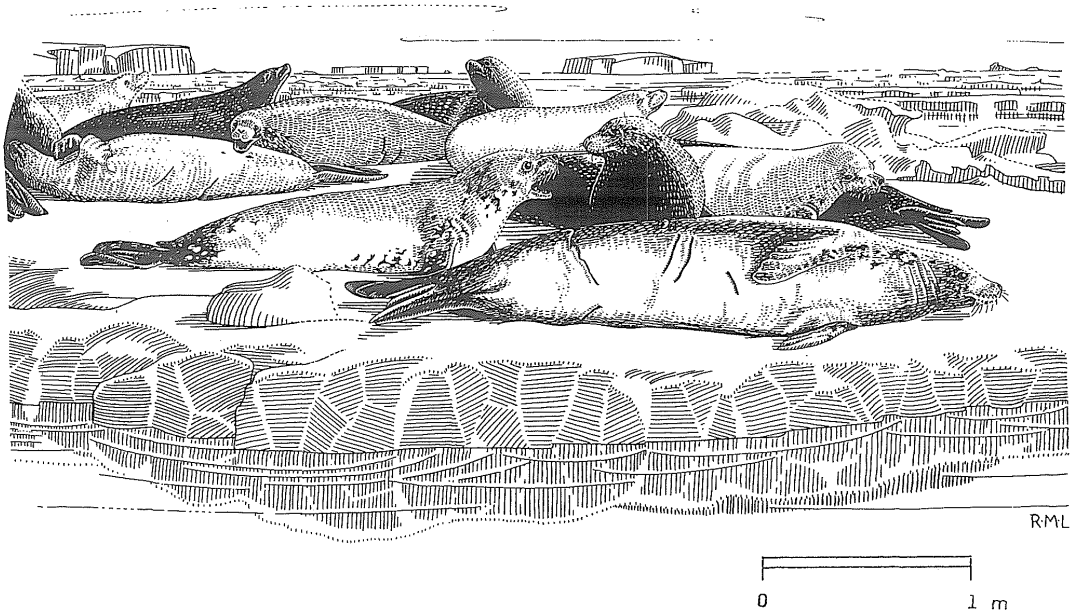
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHOCIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Lobodon carcinophagus (Hombron & Jacquinot, 1842)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Crabeater seal
Fr - Phoque crabier
Ru - Tyulen-kraboed
Sp - Foca cangrejera

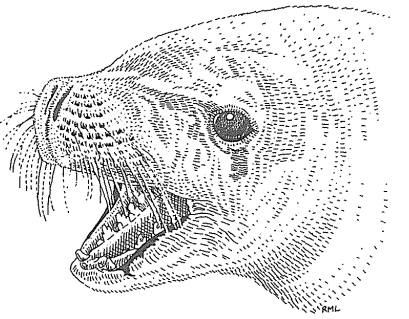
NATIONAL :

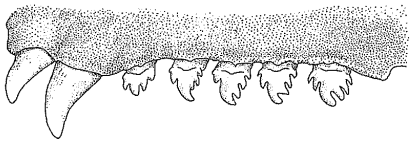
DISTINCTIVE CHARACTERS :

Profile: relatively slim, lithe and streamlined; snout elongated, slightly tip-tilted or pig-like. Raises head and "points" when disturbed.

Colour: background mainly silvery grey (newly moulted) to golden or creamy white (faded); sometimes brown; back darker than belly. Older animals become progressively paler, even when freshly moulted. Reticulated (net-like) chocolate brown markings and fleckings on shoulders, sides and flanks shading into predominantly dark hind and foreflippers and head. The pattern is strongest on flanks behind foreflippers and around hind end of body, and most conspicuous on young animals. Coat often conspicuously scarred with typically obique, parallel scars, mainly on sides and flanks in 63% of adults. These scars result from Leopard seal attacks on animals when young. Pups are light greyish brown with dark hind flippers and indistinct spots on body.

Close-up: line of mouth level, with no up-turn at corners as in the Weddell seal; whiskers straight or moderately curved, short. Canines and incisors moderate but sharp-pointed; cheek teeth extraordinarily elaborate with 4 or 5 recurved, lobe-like cusps forming a sieve-like structure for straining food. Fore-flippers moderate, about 1/5 of body length. Faeces usually bright pink from pigments derived from food remains (krill). Sound production: out of water sounds are few and simple. When disturbed, much hissing and blowing through the nose, but no musical sounds. Underwater sounds a deep monosyllabic call, almost like a groan.





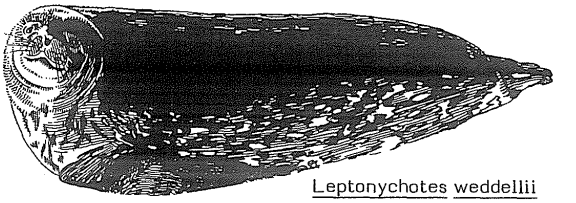
teeth in upper jaw

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Hydrurga leptonyx (Leopard seal): body very long and slender, with humped outline and marked constriction at neck; head very large and reptile-like; canines larger and sharply pointed; cheek teeth with 3 sharp recurved cusps; foreflippers large. Colour silvery grey with a very dark dorsal band, liberally flecked with small spots. Size larger, to 360 cm.

Hydrurga leptonyx

Leptonychotes weddellii (Weddell seal) and Ommatophoca rossii (Ross seal): Body plump and barrel-shaped without a distinct neck; head small, snout short; teeth much smaller, those on cheek uni- or at most bicuspidate; canines procumbent in L. weddellii; colour very dark dorsally with large patches (L. weddellii); and spots and streaks (O. rossii) on body; a mask-like light and dark pattern about eyes in O. rossii.



Leptonychotes weddellii

Mirounga leonina (Southern elephant seal): huge, bulky seal, characteristic proboscis in adult males and transverse wrinkles over snout of females and juvenile males; coarse hair coat. Incisors 2/1 (2/2 in all other southern phocids), canines massive, cheek teeth not cusped and small in relation to jaw; large claws on foreflippers. No pattern of spotting (but often pale scars in females). Adults to 450 cm (male), 280 cm (female).

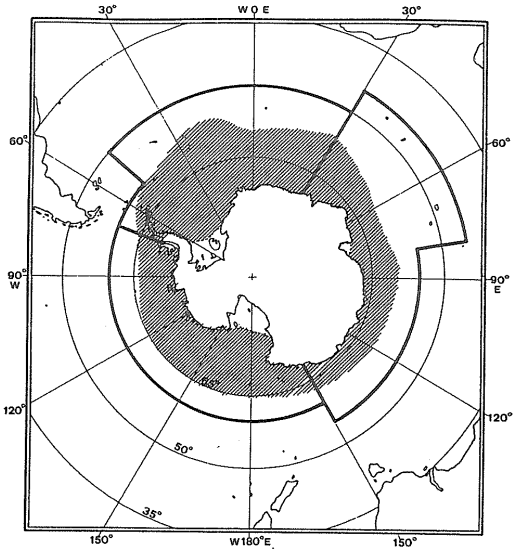
Arctocephalus gazella (Antarctic fur seal): foreflippers long and oar-like, walk with both fore and hind flippers, body clear of ground; head with pointed muzzle and scroll-like ear flaps. Very dense 2-layered fur coat. Adults to 200 cm (male), 145 cm (female).

SIZE:

Adults: length 260 cm, weight to 225 kg. The largest females may slightly exceed the largest males in size. Newborn: length 120 cm, weight 20 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Virtually confined to the Antarctic pack ice. During summer, Crabeater seals retreat to the area of residual pack (about 4 million km^2), but they are occasionally seen hauled out on glacier ice or less commonly on shore on Antarctic beaches. However, occasional specimens have been recorded as stragglers from New Zealand, Tasmania and southern Australia. The most northerly records are from Rio de la Plata and the tip of South Africa. Occasionally found as mummified carcasses far inland and at considerable altitudes on the Antarctic Continent.



Breeding: the pupping season is highly synchronized, with a peak in early to mid-October. The basic social unit is the mother/pup pair, joined by an adult male to form a triad which persists till the pup is weaned at about 4 weeks. Males are very aggressive and defend an area with a radius of about 50 m around the female from other males. Family groups are separated by about 1 to 2 km, but despite this wide spacing, there is frequent competition for reproductive rights and most adult males are scarred from intraspecific encounters. Females are also very aggressive to the male and violently reject him until near the end of the lactation period when they become less resistant. Copulation has not been observed, but is believed to take place on ice.

If disturbed, the Crabeater seal raises its head as if "pointing" but remains belly down; closer disturbance results in open mouth display and hissing and snorting. When turning rapidly, it occasionally rolls like the Weddell seal or pivots like the Elephant seal. If pressed, it travels rapidly over ice with lateral swimming undulations and alternate strokes of the foreflippers, but can keep moving with the foreflippers pressed back against the body like the Weddell seal, or spread in unison like the Elephant seal.

Feeding: a specialist feeder, over 90% of the diet being Antarctic krill, Euphausia superba with only trivial amounts of fish, squid and other invertebrates. There is no indication of special diving adaptations, so food is probably obtained near the surface, presumably at night. Highly ornate teeth function as strainers for separating water from krill in the mouth.

The Crabeater seal is a key species in the Southern Ocean and now the major consumer of krill, having overtaken baleen whales following the reduction of the latter by commercial whaling. Growth rates of Crabeater seals accelerated so that in the 1960's they matured earlier, at 2.5 years as compared with 4 years before 1950. This is believed to be the result of lessening competition for the common food base, krill, after reduction of the whale stocks. However, the age at maturity increased again in the 1970's as competition for krill increased as a result of growing stocks of krill consumers.

EXPLOITATION :

There is no certain history of substantial commercial exploitation, though some Crabeaters were taken by the Norwegian sealing expedition in 1964. Occasionally used as a source of sledge-dog food by Antarctic expeditions. Permissible catch of 175 000 individuals per year under the Convention for the Conservation of Antarctic Seals, but there is little likelihood of economic exploitation.

ABUNDANCE :

The most abundant seal in the world, with a population probably numbering between 15 and 40 million (more than equal to all other seals put together).

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1985

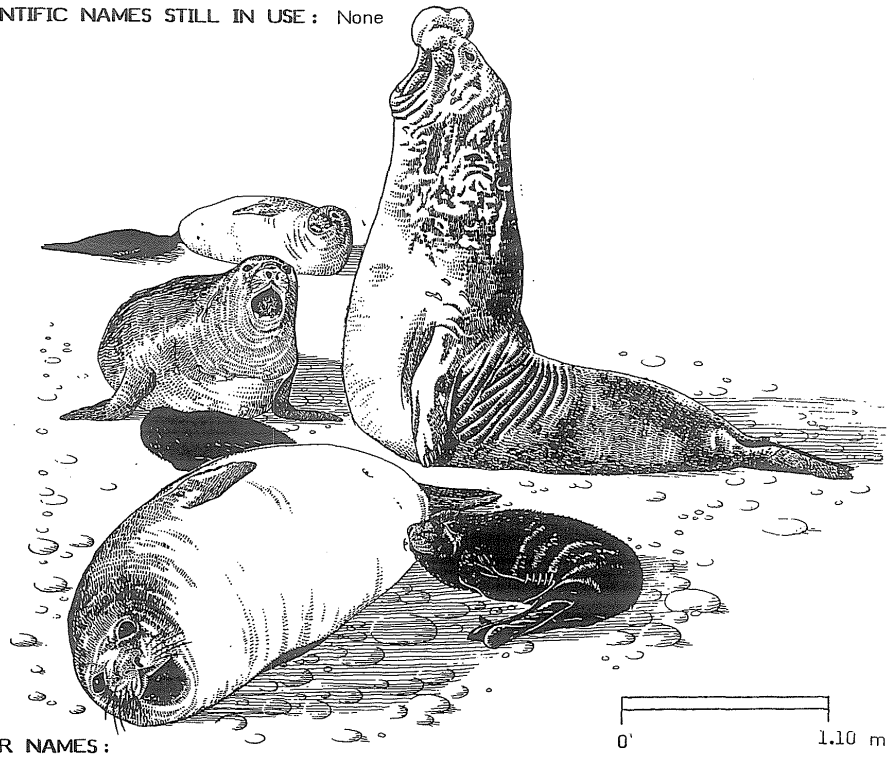
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHOCIDAE

FISHING AREAS 48,58,88 (Southern Ocean)

Mirounga leonina (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

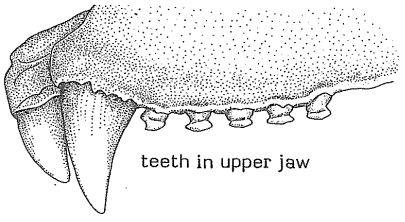
FAO/CCAMLR : En - Southern elephant seal (Sea elephant)
Fr - Eléphant de mer austral
Ru - Yuzhnyi morskoi slon
Sp - *Elefante marino del sur*

NATIONAL :

DISTINCTIVE CHARACTERS :

Profile: very heavy build, neck inconspicuous, chest large. Males over three years are clearly larger than females; adult males with a characteristic inflatable, erectile proboscis that enlarges during the breading season; females and younger males have a more pointed snout than other Antarctic seals.

Colour: dark grey, sometimes with a darker vertebral stripe, lighter ventrally, fading to various shades of brown, but considerable variation occurs from almost yellow to almost black. No superimposed pattern of spots or other markings, but adult males with scars about neck and chest, and females with a lighter yoke around neck from bites during mating. Pups with black neonatal woolly fur, fading to a very dark brown; a prenatal moult of this fur occurs in about 3% of individuals. Yearlings medium grey, lighter ventrally, with yellowish staining. Adults moult in summer to autumn, the females from January onward, and the males in March-April, but this is subject to considerable variation.

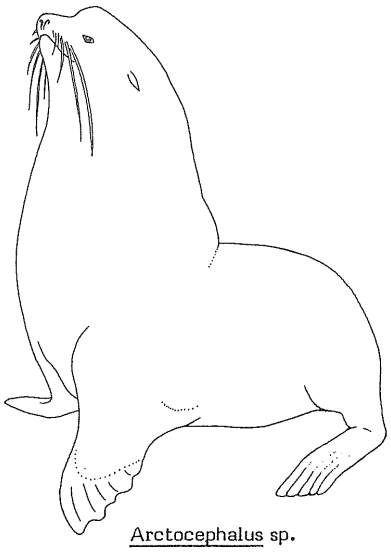

teeth in upper jaw

Close-up: 2 upper and 1 lower incisors on each side; canines massive, especially in males, cheek teeth simple and small in relation to the size of jaws. Foreflippers relatively small (less than one fourth of body length), with large nails (to about 5 x 1 cm); hair stiff, short and sparse. When moulting, the hair and superficial layer of the skin come away in large sheets.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other seals of the family Phocidae: snout less pointed, not capable of great enlargement in males; 2 upper and 2 lower incisors on each side (2 upper and 1 lower in M. leonina); female slightly larger than male. Usually with colour markings on body. Furthermore, the behaviour patterns of these species are rather distinctive.

Fur seals (Arctocephalus sp.): very much smaller; foreflippers oar-like and long (more than one fourth of body length); hind flippers capable of being turned forward, so as to walk with both fore and hind flippers, keeping the body clear of the ground. Head with a pointed muzzle and scroll-like ear flaps. A very dense, two-layered coat.



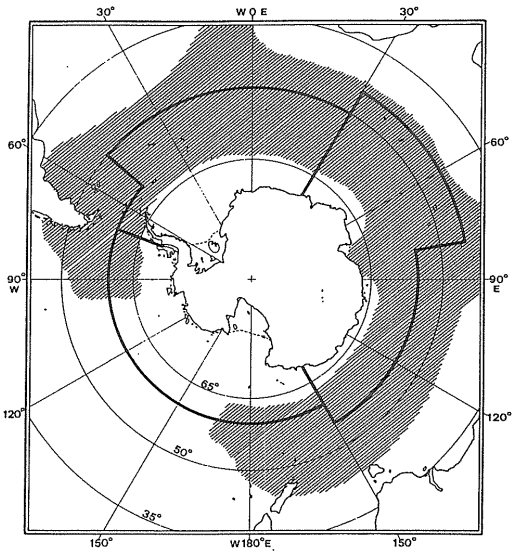
Arctocephalus sp.

SIZE :

Adults: males: length 420 to 450 cm, weight 3 000 to 4 000 kg; females: length 260 to 280 cm, weight 400 to 900 kg. Newborn: length 127 cm, weight 40 to 46 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Nearly circumpolar in Antarctic waters, large males reaching the continental shores. Typically an animal of sub-Antarctic oceanic islands, notably South Georgia, Kerguelen and Macquarie Islands, with occasional individuals coming from Australia and South Africa (furthest north Angola). Breeds on the South American mainland in Chubut, reaching Uruguay.



Southern sea elephants have virtually never been observed in the open sea, not even around South Georgia where the stock numbers about 300 000 individuals; in inshore waters they are often seen with the head and flippers floating clear of water; they submerge tail-first, and active swimming is by means of the hind flippers. Rarely seen in pack ice, and then only solitarily. On land, they crawl in clumsy, lumping motion, with the foreflippers spread out to lift the body, then thrusting the pelvis to straighten out, like a looper caterpillar; they move in short bursts of activity with frequent halts, and stop by falling onto the chest; to turn, they often arch their tail and head upward and pivot on belly, swivelling with the aid of a foreflipper. They flip sand, and shingle, onto (and over) their back with the foreflippers as a reaction to heat and dryness, also when disturbed or frustrated.

Breeding: they form dense aggregations on land (primarily on sub-Antarctic islands) in September-November; dominant and subordinant males maintain position amongst herds of up to 4 000 breeding cows by means of challenging roars, threat displays (rearing up on hinder third of body) and fights; cows pup about a week after arrival; the lactation period is about 3 weeks, followed by mating on land just before the dispersal of the harem and return to the sea. The gestation period is around 350 days. In South Georgia, females sexually mature at 3 years (rarely at 1, 2 or 4 years) and males at 4 years (but they are not socially mature before 6 years). On Macquarie Island maturity is reached later.

Feeding: little is known, but they are believed to feed mainly on fish in inshore waters and on cephalopods elsewhere (probably about 75% cephalopods and 25% fish). Young Elephant seals also take amphipods.

The Southern elephant seals are generally aggressive to each other (and to man) during the breeding season, but during moulting they will lie about in heaps, remaining inactive for 30 to 40 days, often in muddy wallows.

EXPLOITATION :

Extensively hunted in the past for blubber oil. The peak of hunting activities occurred in the nineteenth century, but continued (as a rationally managed operation) at South Georgia until 1964. Hunting there was restricted to 6 000 bulls of over 3.5 m each year. The average oil yield was about 330 kg/seal, and it was used like whale oil in the manufacture of edible fats. The current stock consists of about 700 000 individuals. Protected under the Convention for the Conservation of Antarctic Seals.

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1985

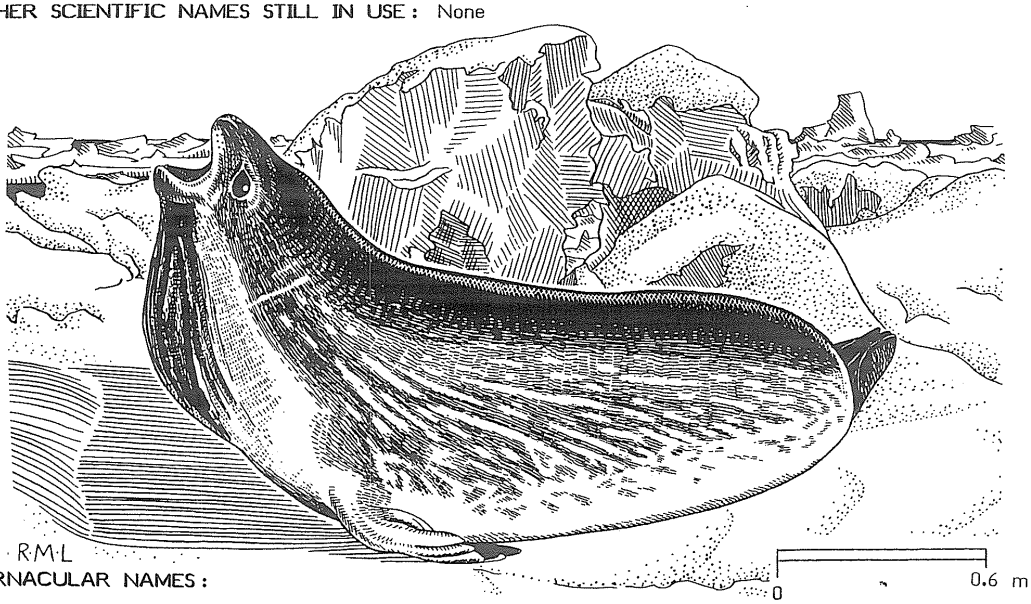
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : PHOCIDAE

FISHING AREAS 48,58,88
(Southern Ocean)

Ommatophoca rossii Gray, 1844

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO/CCAMLR : En - Ross seal
Fr - Phoque de Ross
Ru - Tyulen Rossa
Sp - Foca de Ross

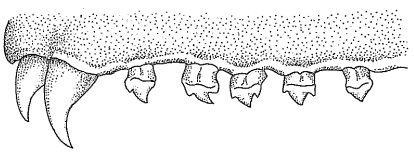
NATIONAL :

DISTINCTIVE CHARACTERS :

Profile: plump and rather shapeless; at a distance superficially like the Weddell seal and may be confused with it. Head short and wide; can be withdrawn into rolls of fat about neck; no external appearance of neck, however. Raises its head vertically, with chest enlarged and back arched when disturbed.

Colour: dark grey to chestnut dorsally with little spotting and a sharp line of demarcation from the silvery white underside. A light and dark pattern about eyes gives the head a mask-like appearance; often broad dark stripes from chin to chest, and on sides of head; spotted or obliquely striped on sides and flanks. Fore and hind flippers dark. Most adults have small pale scars on neck and shoulders. Pups have a dark brown fur (not white, as described sometimes).

Close-up: an extraordinarily short snout set in a wide head. Teeth: small sharp canines and very small cheek teeth (in contrast to other Antarctic phocids). Mouth relatively small, eyes large and protruding. Foreflippers with claws reduced and terminal joints greatly elongated, but flippers not proportionately longer than in the Crabeater seal. Hind flipper digits elongated with cartilaginous extensions; these flippers may reach 22% of the body length (greatest for any phocid). Voice: can produce pulsed musical sounds underwater but characteristically utters an unpulsed moan of varying frequency, or similar "buzzing". In the air, it inflates the windpipe and soft palate and with the mouth wide open makes unique trilling, cooing, chugging sounds.



teeth in upper jaw

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Leptonychotes weddellii (Weddell seal): general shape similar, but corners of mouth up-turned, long, curved whiskers, procumbent upper incisors (ice-sawing); hind flippers shorter, and conspicuous large spots on splashes of white, grey and black overall. Rolls when disturbed. Size larger, to 320 cm.

Lobodon carcinophagus (Crabeater seal): profile lithe and streamlined, flanks tailing off; head larger, snout elongate, slightly up-turned, cheek teeth with 4 or 5 blunt lobes; coat mainly silver grey or cream with reticulated markings (light circles surrounded by darker markings and spots), or indistinct. Adults to 250 cm.

Hydrurga leptonyx (Leopard seal): body very long and slender, with humped outline and marked constriction at neck; head very large and reptile-like; canines larger and sharply pointed; cheek teeth with 3 sharp, recurved cusps; foreflippers large. Colour silvery grey with a very dark dorsal band, liberally flecked with small spots. Size larger, to 360 cm.

Mirounga leonina (Southern elephant seal): huge, bulky seal, characteristic proboscis in adult males and transverse wrinkles over snout of females and juvenile males; coarse hair coat. Incisors 2/1 (2/2 in all other southern phocids), canines massive, cheek teeth not cusped and small in relation to jaw; large claws on foreflippers. No pattern of spotting (but often pale scars in females). Adults to 450 cm (male), 280 cm (female).

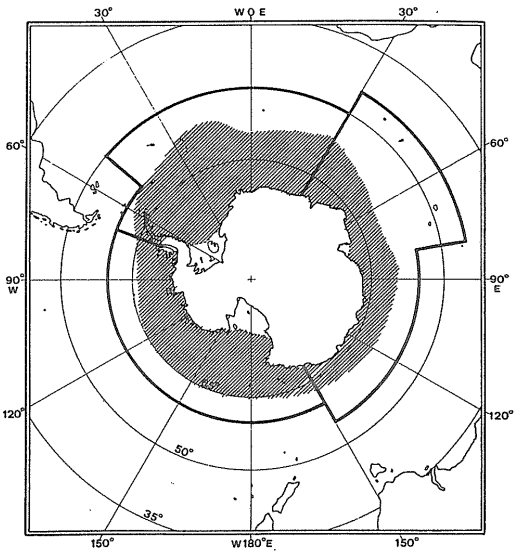
Arctocephalus gazella (Antarctic fur seal): foreflippers long and oar-like, walk with both fore and hind flippers, body clear of ground; head with pointed muzzle and scroll-like ear flaps. Very dense 2-layered fur coat. Adults to 200 cm (male), 145 cm (female).

SIZE :

Adults: males: length to 2.07 m*, weight 177 kg; females: length to 2.17 m*, weight to 169 kg (the smallest of Antarctic phocids). Newborn: length 105 to 120 cm, weight 16.5 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Circumpolar around the Antarctic but there is evidence that it is much more abundant in some areas, such as the King Haakon VII Sea, than in others. It may be more abundant near Cape Adare than further south in the Ross Sea. Usually found in heavy pack ice, 6 to 8 oktas, preferring smaller smooth floes; occasionally on fast ice. Usually solitary, but rarely in groups of up to 5 on a single floe. It has a placid disposition and can be easily approached.



Breeding: births peak in the first half of November and mating is deduced to take place after the beginning of February. Lactation period 4 to 6 weeks (deduced).

It usually travels slowly over ice, "humping" like the Weddell seal with its head raised. But it can move fast, thrashing the hind flippers from side to side, with the foreflippers pressed against the body.

Feeding: believed to feed largely on squid (about 57 to 64%) and fish (about 22 to 34%). The rather weak jaws and teeth are caracteristic of squid feeders.

EXPLOITATION :

No exploitation is known. Protected under the Convention for the Conservation of Antarctic Seals. Population estimated at 220 000 to 650 000 individuals.

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*Curvilinear lengths

INDEX OF SCIENTIFIC AND VERNACULAR FAMILY AND SPECIES NAMES

EXPLANATION OF THE SYSTEM

Type faces used:

Italics	:	Valid scientific names (genera and species)
	:	Synonyms (preceded by an asterisk)
ROMAN (caps)	:	Family Names
Roman	:	International (FAO) species names
	:	Local names

B

D

E

L

M

N

O

P

R

S

T

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V

W

X

Y

Z

ADDENDUM TO INDEX OF SCIENTIFIC AND VERNACULAR FAMILY AND SPECIES NAMES

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