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Agenda

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Agenda Item No(s): 4.3

Title **A GUIDE TO IDENTIFICATION OF FISHES CAUGHT ALONG WITH THE ANTARCTIC KRILL**

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Published or accepted for publication elsewhere? Yes  No

If published, give details

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## ABSTRACT

A field key to early life stages of Antarctic fish caught along with the Antarctic krill is produced. The key includes 8 families and 28 species mainly from the Atlantic sector of the Southern Ocean and uses distinguished characters which permit rapid field identification. In some cases, however, it is impossible to discriminate among species of the same family by remarkable characters. A species key is not shown for such resemble species and a brief summary of the main morphological features of species and genera is provided.

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## SUMMARY OF FINDINGS AS RELATED TO NOMINATED AGENDA ITEMS

### *Agenda Item Finding*

4.3 We are producing a practical field key to juvenile fish caught along with the Antarctic Scientific krill. To our knowledge more than 40 species of fish have been found as by-catch. Observation However, the number of dominant fish species found in the krill catch never exceeds 20 species. An useful and practical identification key to these dominant species maybe facilitate the quantitative assessment of fish in the krill catch.

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A guide to identification of fishes caught along with  
the Antarctic krill

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<sup>2)</sup>National Research Institute of Far Seas Fisheries

## ABSTRACT

A field key to early life stages of Antarctic fish caught along with the Antarctic krill is produced. The key includes 10 families and 28 species mainly from the Atlantic sector of the Southern Ocean and uses distinguished characters which permit rapid field identification. In some cases, however, it is impossible to discriminate among species of the same family by remarkable characters. A species key is not shown for such resemble species and a brief summary of the main morphological features of species and genera is provided.

## INTRODUCTION

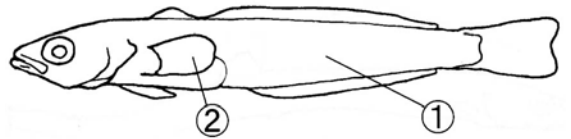
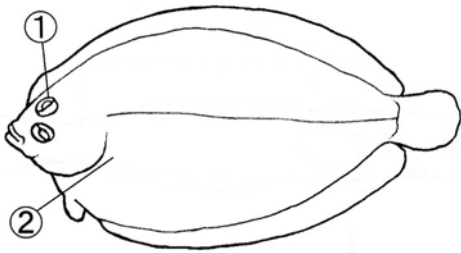
CCAMLR has proposed monitoring the by-catch of juvenile fish during krill fishing as a mean of assessing the effect on the fish stock. And recently, the CCAMLR Scientific Committee noted an urgent requirement for further information on the by-catch larval and juvenile fish in the krill fishery. This paper is prepared for the scientific observers on board the krill fishing vessels as a reference guide to early life stages of by-catch fishes. A field key in this paper does not cover every life stage of all fish species found in the krill catch. However, most of the dominant species as by-catch should be included.

# Key to families

START

- ① Body not bilaterally symmetrical, eye sinistral.
- ② Pectoral fin absent.

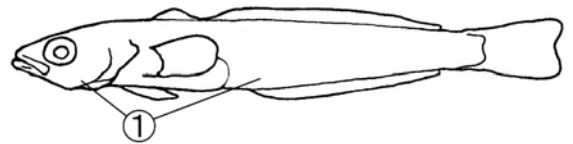
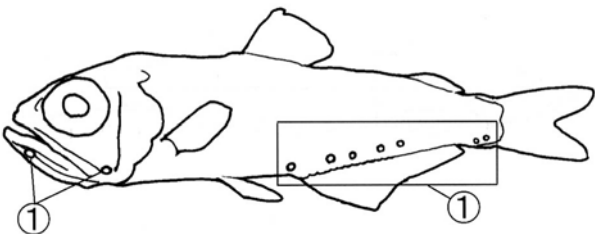
- ① Body bilateral.
- ② Pectoral fin present.



BOTHIDAE

- ① Photophores present on lower jaw or ventral side of body.

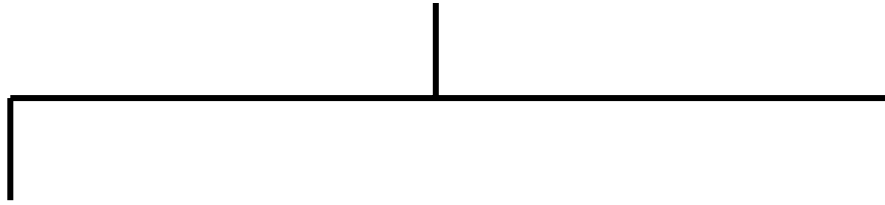
- ① Photophore absent.



MYCTOPHIDAE

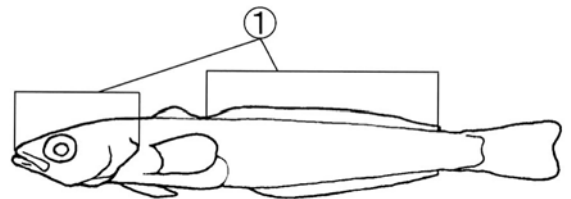
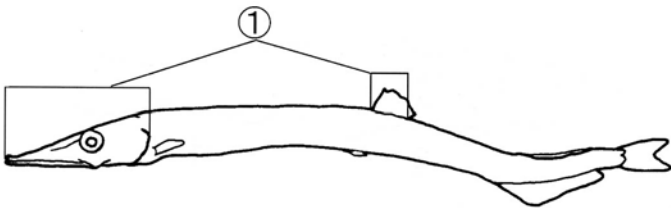
A

A



① A single dorsal fin, its base shorter than head length.

① A single or two dorsal fins. Base length of posterior one (if two dorsal fins) longer than head length.

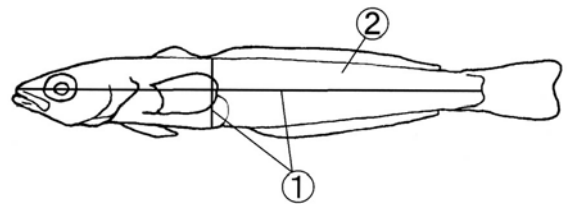
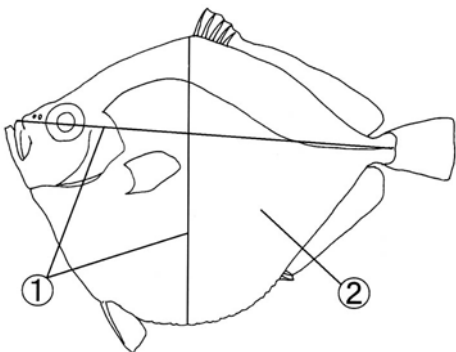


PARALEPIDIDAE



① Body depth more than 65% SL.  
② Skin thick, covered with cycloid scales and partly tubercles.

① Body depth less than 50% SL.  
② Skin not thick, without tubercles.



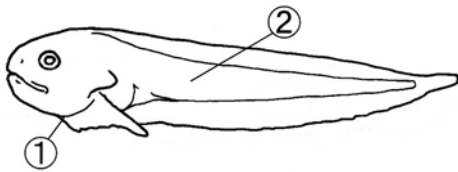
OREOSOMATIDAE



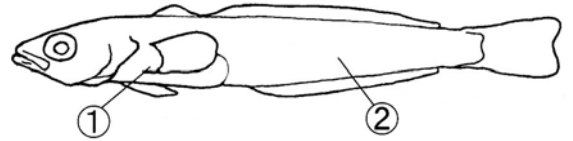
B

B

- ① Pectoral fin base long, reaching ventral side of body.
- ② Body covered with gelatinous tissue.



- ① Pectoral fin base not reaching ventral side of body.
- ② Body not covered gelatinous tissue.



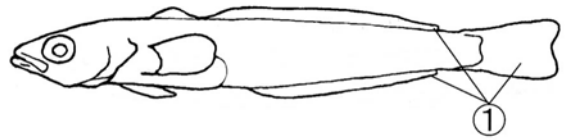
LIPARIDAE

- ① Dorsal, caudal and anal fins continuous.



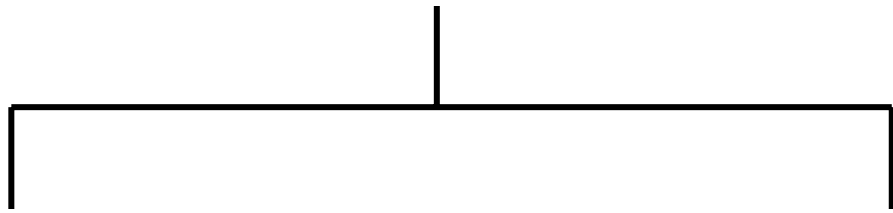
MURAENOLEPIDIDAE

- ① Dorsal, caudal and anal fins not continuous (fin membrane sometimes continuous but base of fin rays clearly separated).



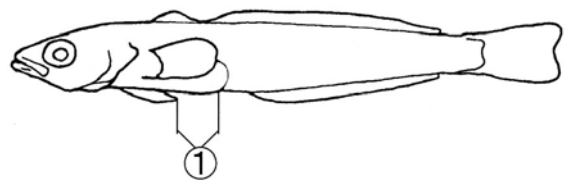
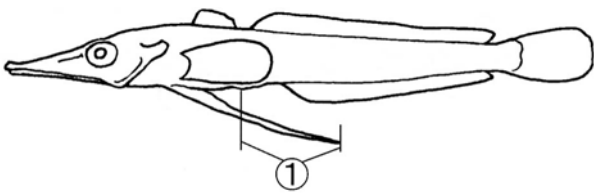
C

C



①Pelvic fins reaching behind anus  
(sometimes not in larval stage).

①Pelvic fins not reaching anus.

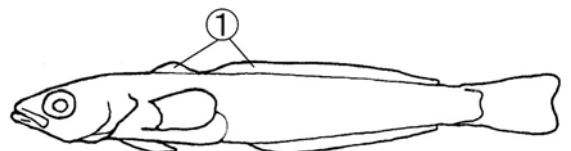
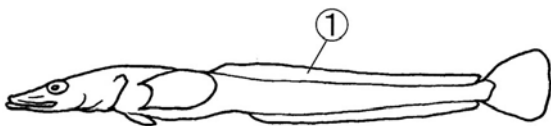


CHANNICHTHYIDAE



①A single dorsal fin.

①Two dorsal fins (at least first dorsal fin anlage present).

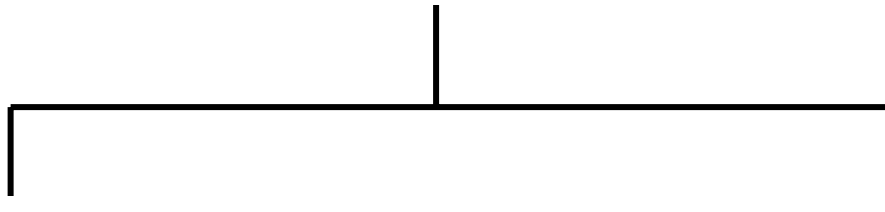


BATHYDRACONIDAE



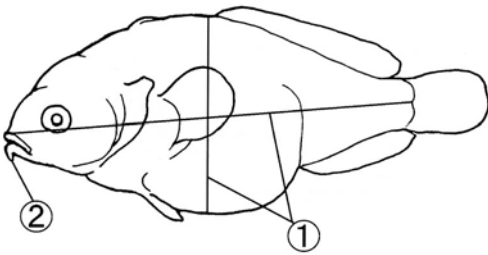
D

D

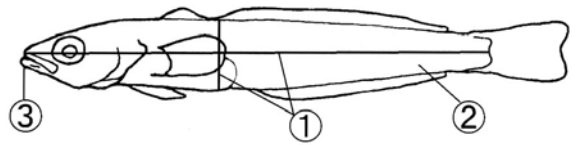


- ① Body depth more than 25% SL.
- ② Small knob or short barbel present at symphysis of lower jaw.

- ① Body elongate, its depth less than 25% SL.
- ② Small knob and barbel absent.



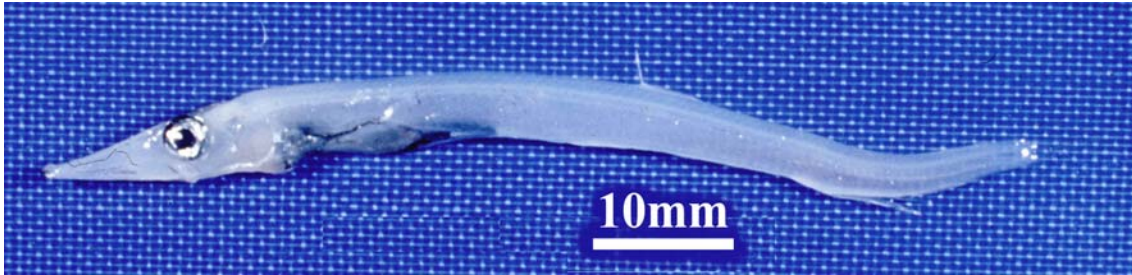
ARTEDIDRACONIDAE



NOTOTHENIIDAE



## PARALEPIDIDAE



*Notolepis coatsi* Dollo

English name: Antarctic jonasfish

CCAMLR code: NTO

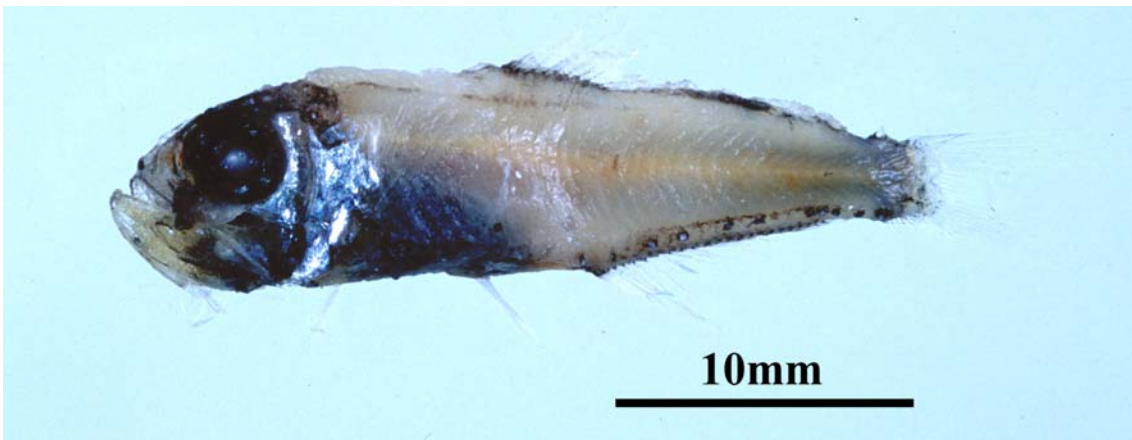
## MYCTOPHIDAE



*Krefftichthys anderssoni* (Lönnerberg) (fixed specimen)

English name: none

CCAMLR code: KRA



*Protomyctophum tenisoni* (Norman)

English name: none

CCAMLR code: PRE

## MURAENOLEPIDIDAE



*Muraenolepis microps* Lönnberg (top: fixed specimen)

English name: Smalleye moray cod

CCAMLR code: MOY

## OREOSOMATIDAE

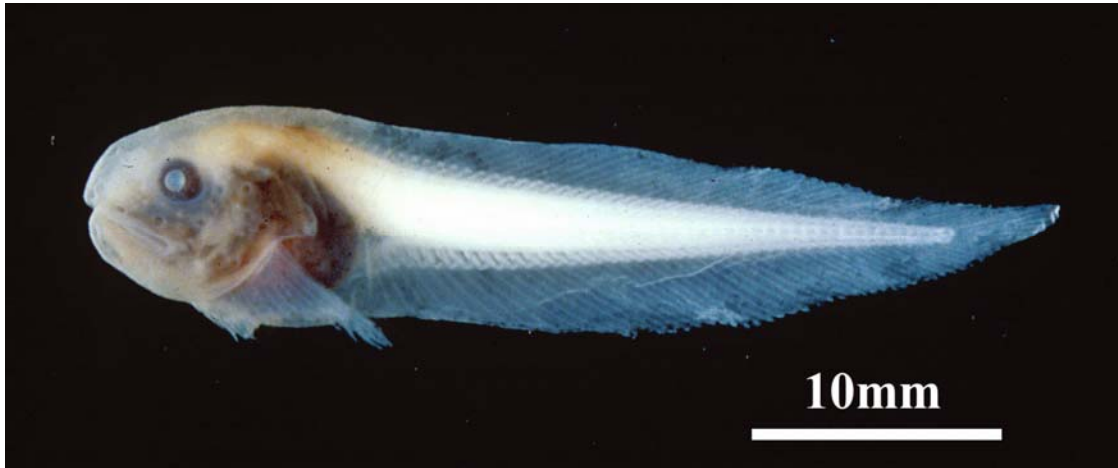


*Pseudocyttus maculatus* Gilchrist (fixed specimen)

English name: Smooth oreo dory

CCAMLR code: SSO

## LIPARIDAE



*Edentoliparis terraenovae* (Regan) = (*Paraliparis terraenovae*)

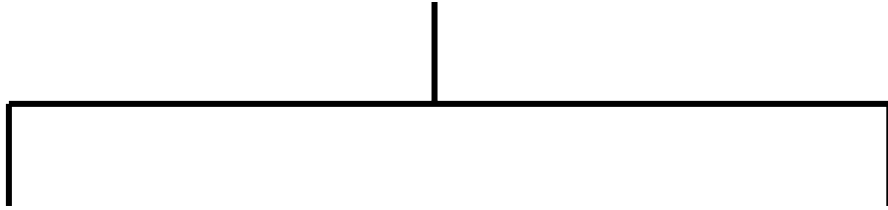
(fixed specimen)

English name: none

CCAMLR code: PIV

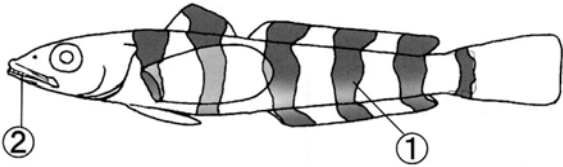
**NOTOTHENIIDAE**  
**Key to species**

START

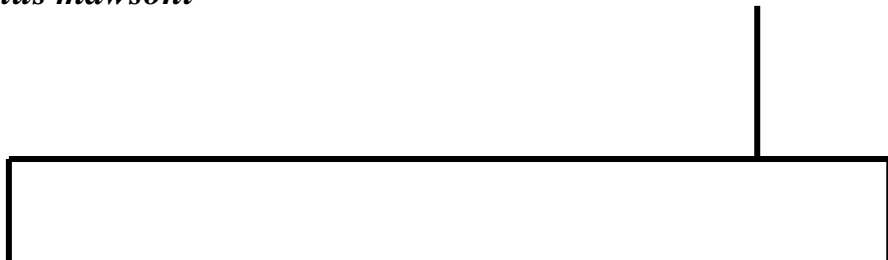
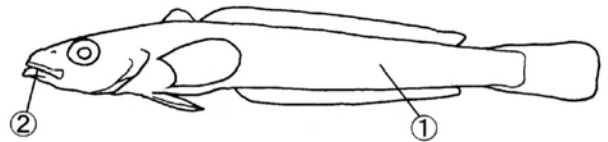


- ① Body pale with six dark crossbars.
- ② Canine teeth on both jaws.

- ① No clear crossbars on body (except *Lepidonotothen squamifrons* having a single dark band around caudal peduncle).
- ② Teeth small, conical or villiform, not canine.

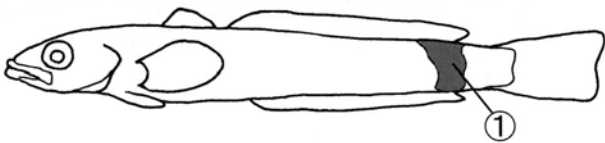


*Dissostichus mawsoni*

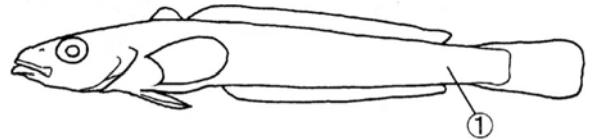


- ① A single dark band around caudal peduncle.

- ① No clear crossbars on body.

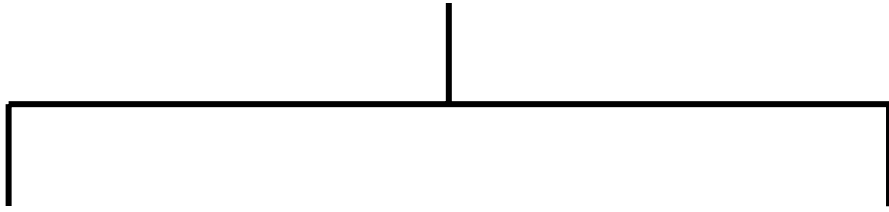


*Lepidonotothen squamifrons*



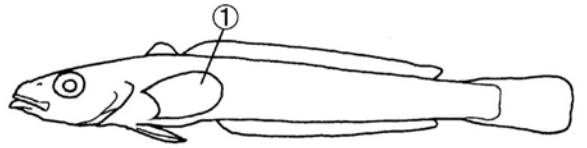
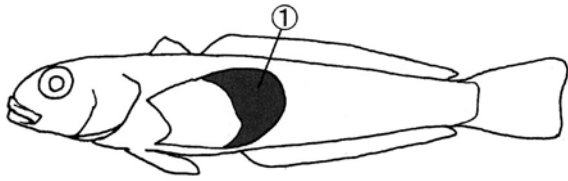
↓  
A

A



① A large dark blotch on distal third of pectoral fin.

① No dark blotch on pectoral fin.

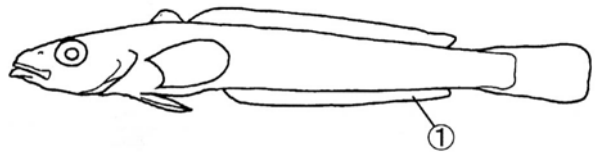
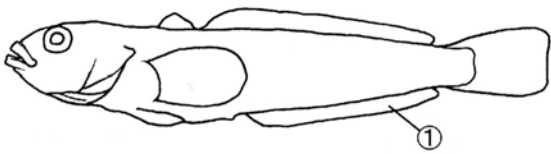


*Notothenia coriiceps*



① Anal fin ray less than 30.

① Anal fin ray more than 31.

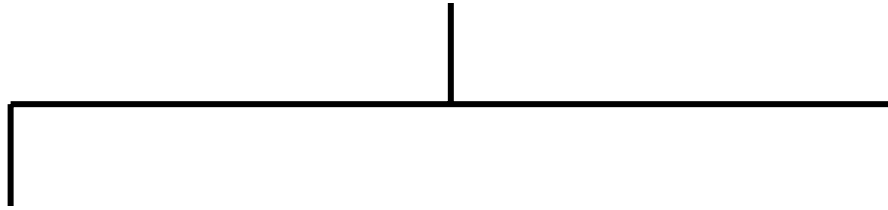


*Notothenia rossii*



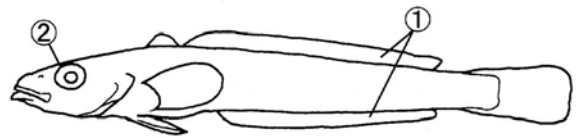
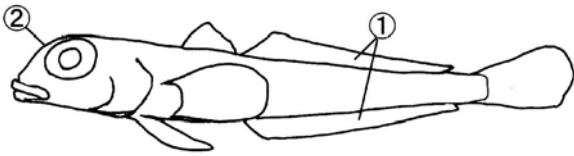
B

B

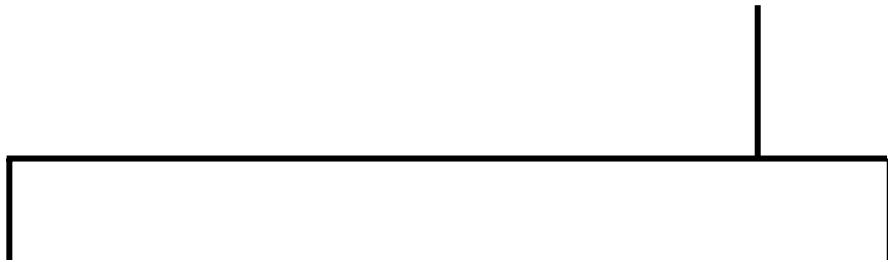


- ① Second dorsal and anal fin rays less than 34.
- ② Head profile steep.

- ① Second dorsal and anal fin rays more than 34.
- ② Head profile not steep.

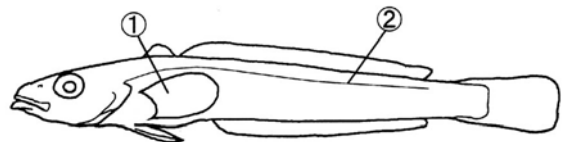
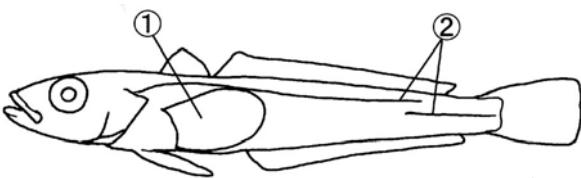


*Gobionotothen gibberifrons*



- ① Pectoral fin rays more than 27.
- ② Two lateral line with tubular scales.

- ① Pectoral fin rays less than 27.
- ② A single or no lateral line with tubular scales.

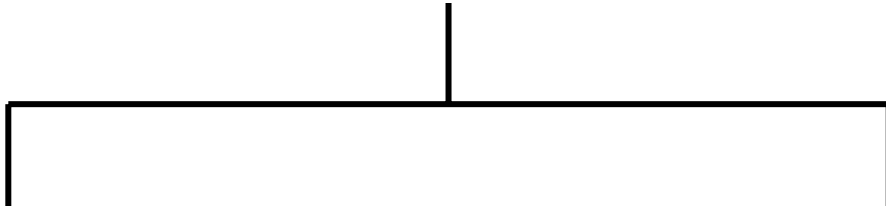


*Trematomus eulepidotus*



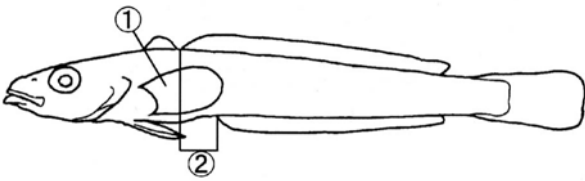
C

C

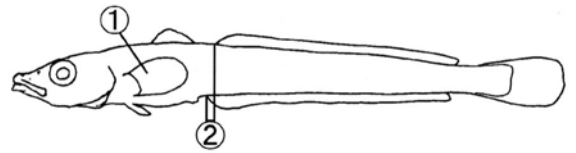


- ① Pectoral fin rays more than 23.
- ② Origin of anal fin behind vertical through origin of 2nd dorsal fin.

- ① Pectoral fin rays less than 21.
- ② Origin of anal fin a little in front of vertical through origin of 2nd dorsal fin.



*Lepidonotothen larseni*



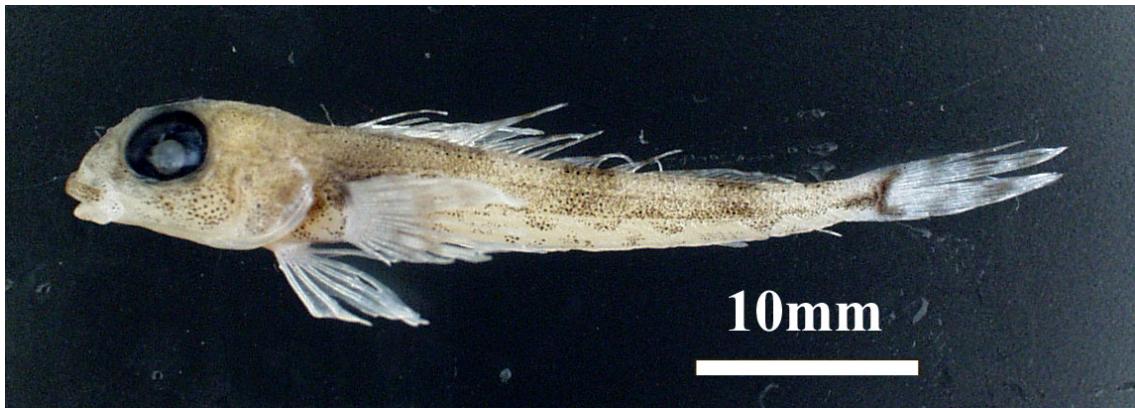
*Pleuragramm antarcticum*



## NOTOTHENIIDAE



*Dissostichus mawsoni* Norman  
English name: Antarctic toothfish  
CCAMLR code: TOA



*Gobionotothen gibberifrons* (Lönnberg) (fixed specimen)  
English name: Humped rockcod  
CCAMLR code: NOG



*Lepidonotothen larseni* (Lönnberg)  
English name: Painted rockcod  
CCAMLR code: NOL





*Lepidonotothen squamifrons* (Günther) = (*Lepidonotothen kempfi*)

English name: Grey rockcod

CCAMLR code: NOS



*Notothenia coriiceps* Richardson

English name: Antarctic toothfish

CCAMLR code: TOA



*Notothenia rossii* Richardson (fixed specimen)

English name: Marbled rockcod

CCAMLR code: NOR



***Pleuragramma antarcticum* Boulenger**

English name: Antarctic silverfish

CCAMLR code: ANS

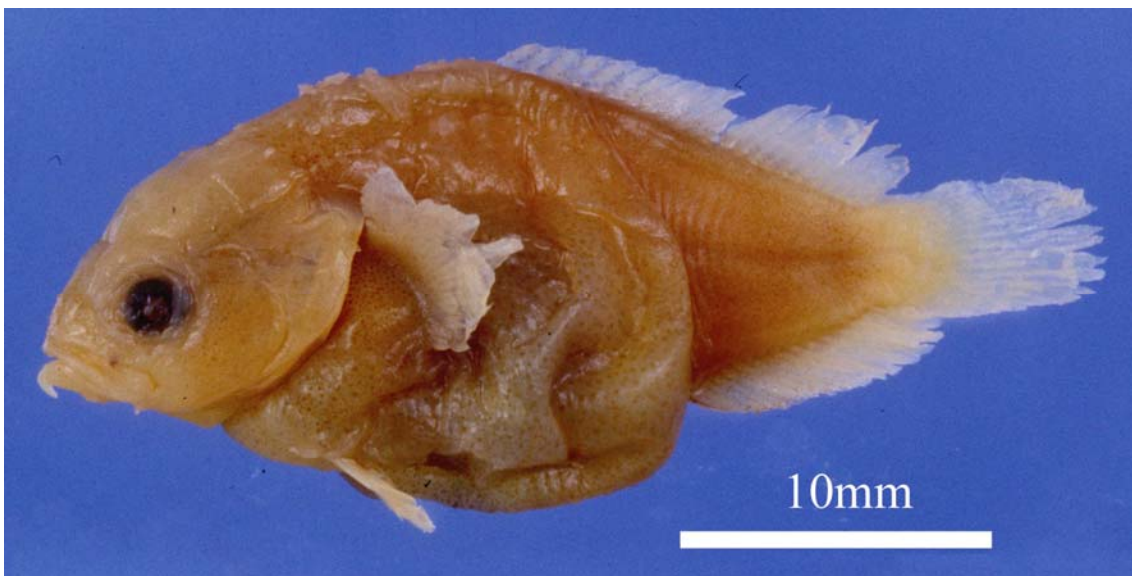
## ARTEDIDRACONIDAE



*Artedidraco* sp.

English name: Plunderfish

CCAMLR code: ART



*Pogonophryne* sp. (fixed specimen)

English name: Plunderfish

CCAMLR code: POG

**BATHYDRACONIDAE**



***Racovitzia glacialis* Dollo** (bottom, fixed specimen)

English name: none

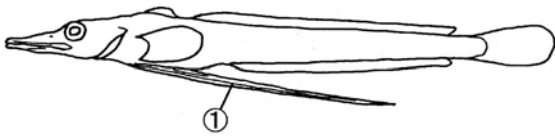
CCAMLR code: RGG

# CHANNICHTHYIDAE

## Key to species

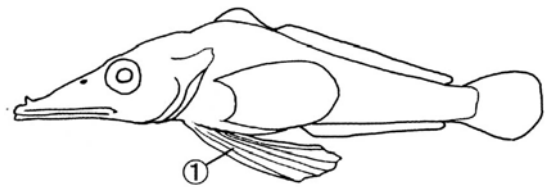
START

①Pelvic fins well elongated.



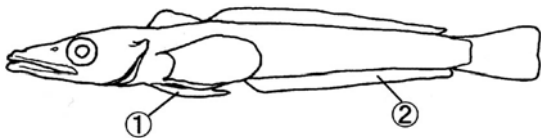
B

①Pelvic fins not elongated.



①Pelvic fin normal in shape, its membrane pale.

②Anal fin rays more than 35.



*Champtocephalus gunnari*

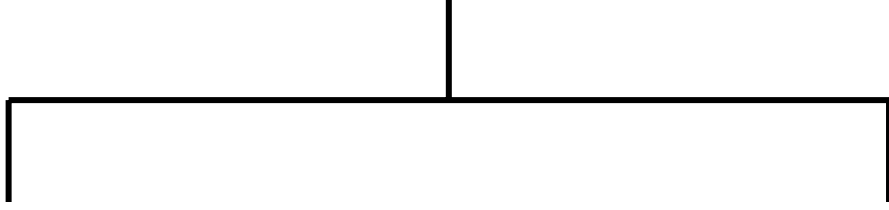
①Pelvic fin fan-shaped, its membrane dark.

②Anal fin rays less than 31.

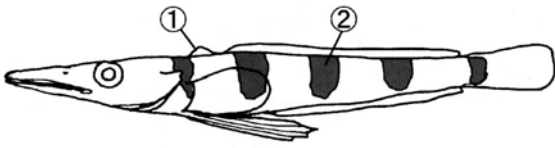


A

A

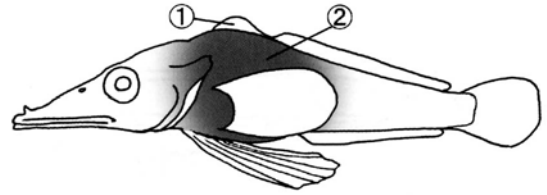


- ① First dorsal fin rays less than 3.
- ② Body pale with 5 dark crossbars.



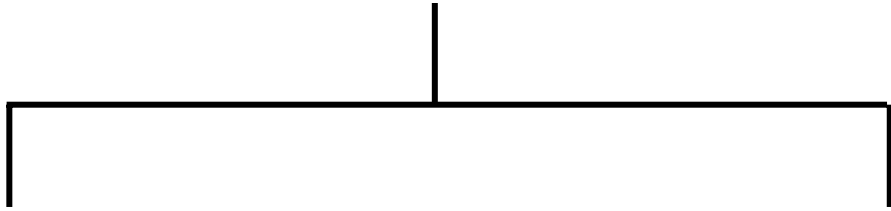
*Dacodraco hunteri*

- ① First dorsal fin rays more than 8.
- ② Body sometimes dark, no clear dark crossbars.

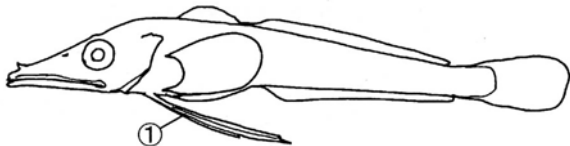


*Neopagetopsis ionah*  
*Pseudochaenichthys georgianus*  
*Pagetopsis macropterus*

B

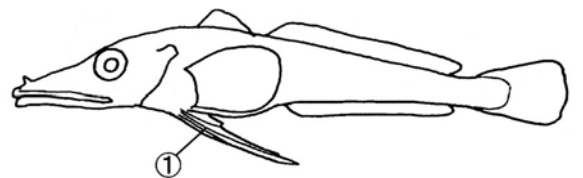


- ① Total pelvic fin rays 5 (1 spine + 4 soft rays).



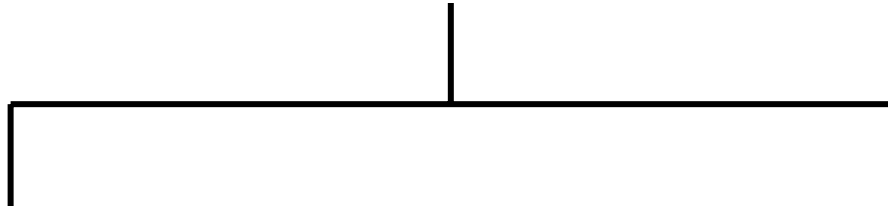
*Chaenodraco wilsoni*

- ① Total pelvic fin rays 6 (1 spine + 5 soft rays)



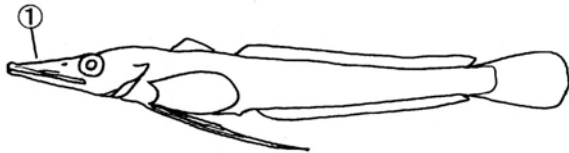
C

C



①No rostral spine.

①Rostral spine present (sometimes undeveloped and recognized as a small knob).



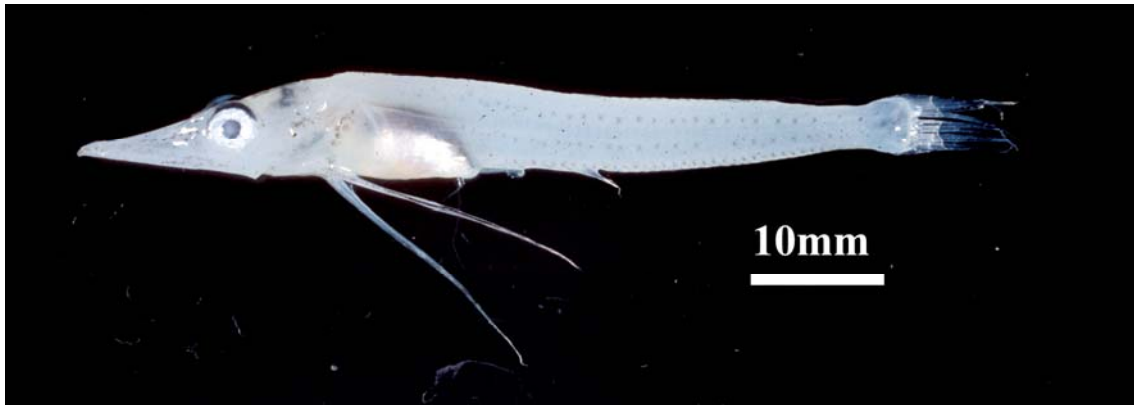
*Chaenocephalus aceratus*  
*Chionodraco myersi*



*Chionodraco hamatus*  
*Chionodraco rastrospinosus*



## CHANNICHTHIDAE



*Chaenocephalu aceratus* (Lönnberg)

English name: Blackfin icefish

CCAMLR code: SSI



*Chaenodraco wilsoni* Regan

English name: Spiny icefish

CCAMLR code: WIC

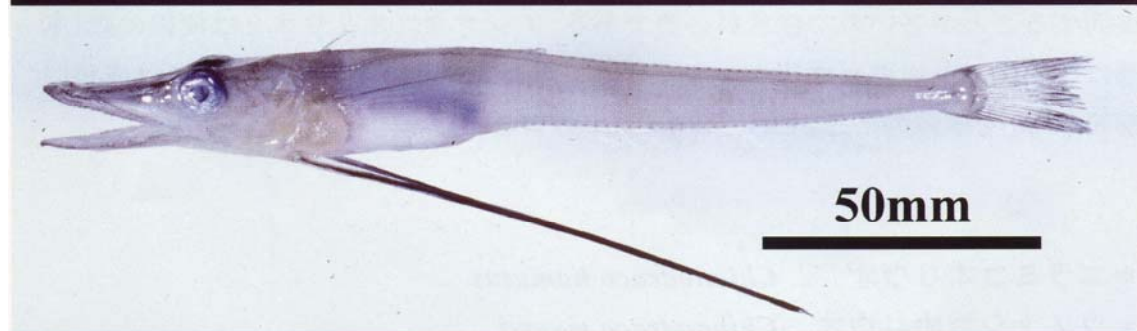




***Champsocephalus gunnari* Lönnberg**

English name: Mackerel icefish

CCAMLR code: ANI



***Cryodraco antarcticus* Dollo**

English name: Long-fingered icefish

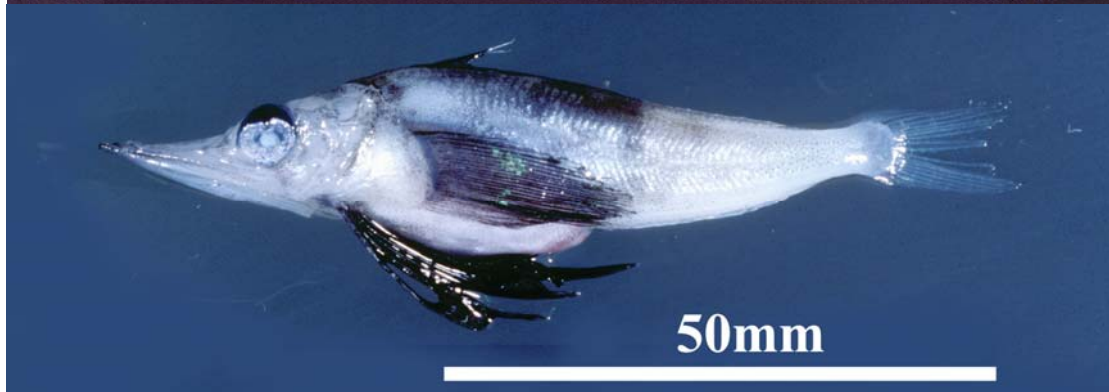
CCAMLR code: FIC



*Dacodraco hunteri* Waite (fixed specimen)

English name: none

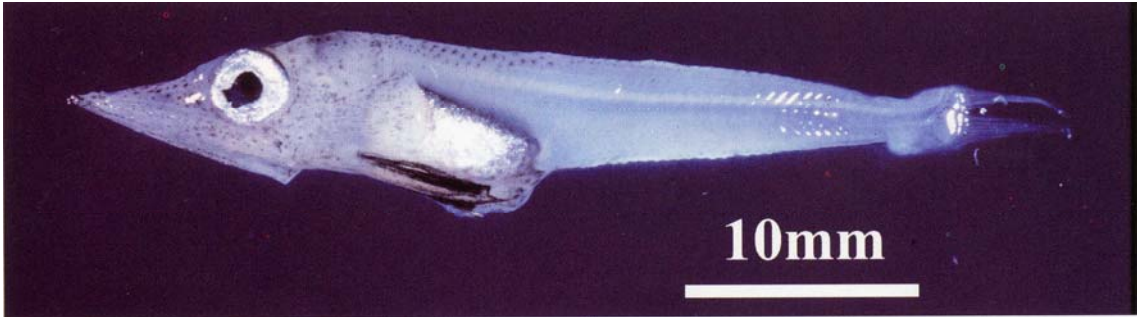
CCAMLR code: DAH



*Neopagetopsis ionah* Nybelin (top, fixed specimen)

English name: Crocodile icefish

CCAMLR code: JIC

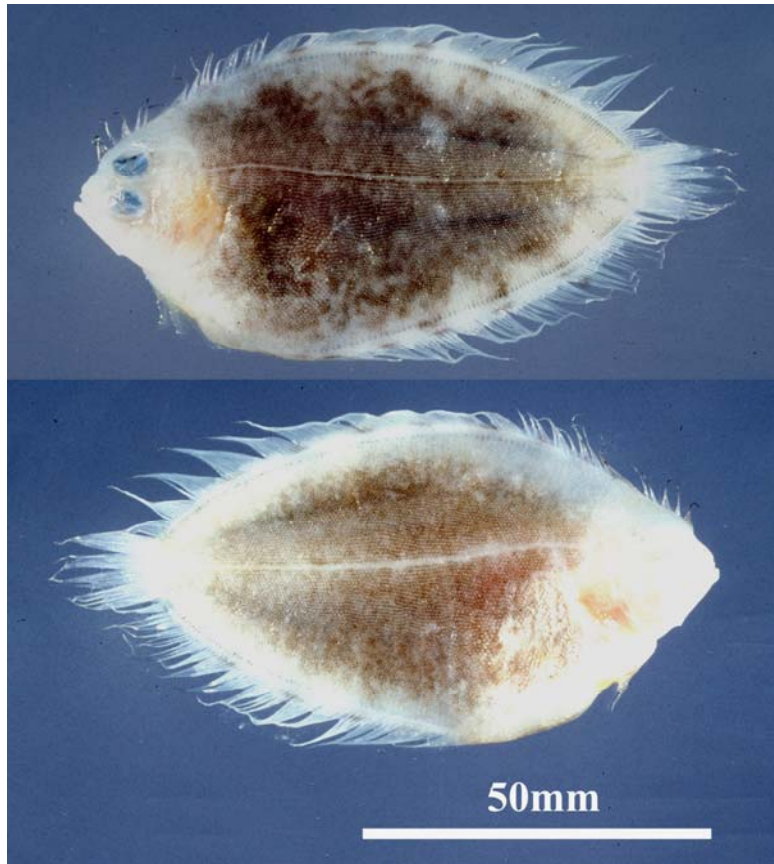


*Pseudochaenichthys georgianus* Norman

English name: South Georgia icefish

CCAMLR code: SGI

## BOTHIDAE



***Mancopsetta maculata maculata* (Günther)**

(top, ocular side; bottom, blind side)

English name: Antarctic armless flounder

CCAMLR code: MMM

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