

**Albatrossia** Jordan & Evermann, 1898

MACROUR Alb

**Genus with Reference** : *Albatrossia* Jordan & Evermann, 1898, Bull.U.S.Natl.Mus., 47(3):2573 [type species *Macrurus pectoralis* Gilbert, 1892, by original designation].

**Synonyms** : *Dolloa* Jordan, 1900

This genus includes a single species

**Albatrossia pectoralis** (Gilbert, 1892)

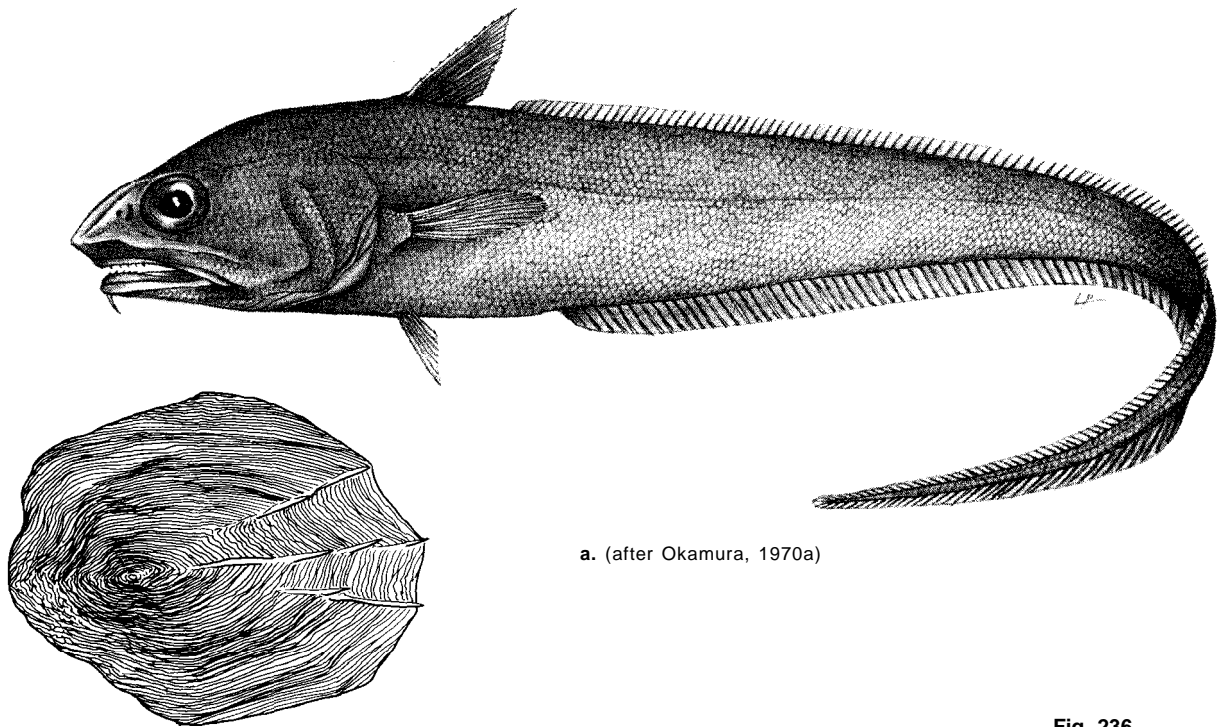
Fig. 236

MACROUR Alb 1

**Scientific Name with Reference** : *Macrurus (Malacocephalus) pectoralis* Gilbert, 1892, Proc.U.S.Natl. Mus., (1891)14:563 [off Oregon in 1 253-1 604 m].

**Synonyms** : *Macrurus (Nematonurus) magnus* Gill & Townsend, 1897; *Cotyphaenoides (Nematonurus) pectoralis*-Gilbert & Hubbs, 1916; *Coryphaenoides pectoralis* - Taranetz, 1937; *Nematonurus pectoralis* - Andriashev, 1937; *Chalinura pectoralis* - Rass, 1963; *Dolloa pectoralis* Jordan, 1900.

**FAO Names** : En - Giant grenadier



a. (after Okamura, 1970a)

b. scale

Fig. 236

**Diagnostic Features** : A macrourine with 6 branchiostegal rays. Snout low, slightly protruding beyond the large mouth, without a spinous terminal scute; upper jaw about 40 to 45% of head length, extends beyond vertical through hind edge of orbit; premaxillary teeth in long narrow band, the outer teeth large; mandibular teeth in 1 to 3 irregular series. Large otolith (sagitta) long, somewhat comb-like in shape. First dorsal fin with 2 spinous rays and 7 to 9 segmented rays, second spinous ray weakly serrated; pelvic with 6 to 8 rays, usually 7. Anus at anal fin origin. Scales small, elongated, with moderate-sized median ridge, unarmed or with few weak spinules, and 0 to 5 much lower, non-spinulated ridges laterally on exposed field. Swimbladder small, 2 retia mirabilia. Abdominal vertebrae 13 to 15.

**Geographical Distribution** : North Pacific from northern Japan to the Okhotsk and Bering seas, east to the Gulf of Alaska, south to northern Baja California (Fig. 237).

**Habitat and Biology** : A species of temperate to subarctic seas in about 140 to 1 200 m depth. Off northern Japan it occurs in waters of 0 to 2°C. Novikov (1970) gives the most detailed information on the general biology of the species. The young are apparently bathypelagic to some degree and descend to the bottom at a size of about 50 to 60cm. Spawning takes place over a prolonged period, but is most vigorous in autumn and winter. Food preferences vary with locality, but cephalopods, fish, and shrimp predominate. Ctenophores are another important food item; echinoderms, worms, crabs, and amphipods play a lesser role in the diet of the species.

**Size** : To more than 150 cm total length.

**Interest to Fisheries** : Considered by Soviet investigators to be a valuable food fish, but the water-logged flesh makes it unappealing for direct consumption. The eggs and liver contain up to 50% vitamin-rich fats. Catches by the Soviets in the Bering Sea in 1962-1965 amounted to as much as 4 to 6 t per haul. *Albatrossia pectoralis* is found in commercially exploitable quantities in most areas where it occurs, but aside from the Soviet fisheries for the species in the Bering and Okhotsk seas in the sixties, it has not been targeted for exploitation. It, however, remains a significant part of the bycatch for more desirable species in those areas. Caught incidentally in the Japanese longline fishery. The Japanese-US longline survey of the North Pacific population reported a 37% increase in the relative population numbers from 1985 to 1986.

**Local Names** : CANADA: Pectoral rat-tail; JAPAN: Munedara; USA: Giant grenadier.

**Literature** : Novikov (1970); Okamura (1970); Iwamoto & Stein (1974); Amaoka *et. al.* (1983).

**Remarks** : The highly distinctive otolith, the rather peculiar squamation, the reduced swimbladder, and the two retia mirabilia and gas glands, in combination, distinguish this genus from related genera.

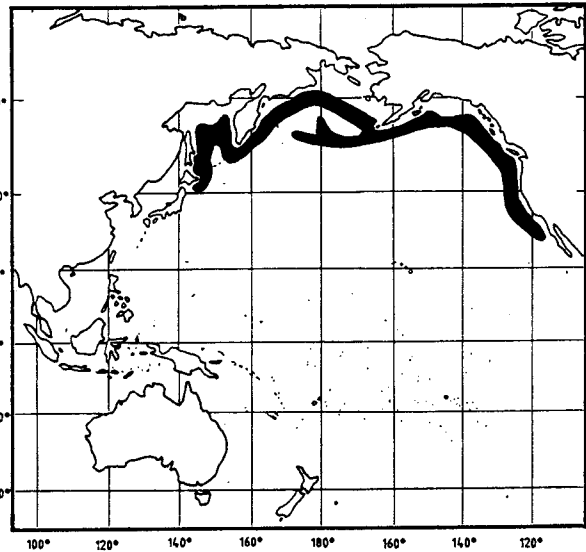


Fig. 237

**Coelorinchus** Giorna, 1810

**MACROUR** Coel

**Genus with Reference** : *Coelorinchus* Giorna, 1809, Mem.Accad.Sci.Torino, 16: 179 (type species *Lepidoleprus coelorhincus* Risso, 1810 by subsequent designation of Goode & Bean, 1896.

**Synonyms** : *Coccolus* Bonaparte, 1846; *Paramacurus* Bleeker, 1874; *Abysicola* Goode & Bean, 1896; *Quincuncia* Gilbert & Hubbs, 1920; *Garichthys* Whitley, 1934, *Mahia* McCann & McKnight, 1980.

**Diagnostic Features** : A macrourine with 6 branchiostegal rays. Outer gill slit greatly restricted; no gill rakers on outer side of first arch; a stout suborbital ridge consisting of enlarged strengthened scales running from snout tip to near posteroventral angle of preopercle -the ridge consisting of three sections (nasal, infraorbital, and preopercular) usually closely adjoined, but often with distinct separations between sections; nasal portion forming anterolateral margin of snout (lateral nasal ridge) supported to various degrees by extensions of median and lateral processes of nasal bone; snout variously developed, from short and blunt to elongated and sharply pointed; mouth inferior, upper jaw usually about 20% to 35% of head length; ridges of head usually rather strong, stout, scutelike, and spiny. Second spinous ray of first dorsal fin usually rounded and smooth along leading edge, but infrequently with a few weak teeth distally; pelvic fins almost always with 7 rays (but normally 6 in *C. sexradiatus*). Ventral light organ variously developed; in some, the organ is small and short, scarcely noticeable as a blackish extension of the perianal region; in most others, it extends anteriorly a considerable distance, almost to the isthmus in some, to pelvic fin bases or on abdomen in others; anterior and posterior ends usually expanded and forming a naked fossa, but in some species, the light organ is completely covered with scales and externally visible only as a dark midventral streak.

Anus usually immediately before or close to anal fin origin, about midway to pelvic bases in one species. Scales of body covered with spinules which range from short, slender, conical, in a random or quincunx order to broad, coarse, keel-like spinules in discrete ridgelike rows. Abdominal vertebrae 11 to 12. Swimbladder oval to strongly bilobed anteriorly; retia mirabilia usually 4, but in one species as many as 11.

**Habitat Distribution and Biology** : Worldwide in tropical to temperate seas, a few species found near the Antarctic Convergence; benthopelagic in 33 to 2 220 m, but most in depths between 150 and 800 m.

**Size**: To 75 cm, but most species less than 30 cm.

**Interest to Fisheries** : Most members of this genus are found in relatively shallow waters of the continental slope, making them susceptible to capture by commercial trawlers. Several species are taken as bycatch of trawls and utilized for fish meal or fish paste. A few larger species are of possible commercial interest.

**Literature** : Gilbert & Hubbs (1920); Okamura (1970a, b); Marshall & Iwamoto (in Marshall, 1973); Iwamoto (1978).

**Remarks** : More than 76 species are currently recognized, many more still undescribed, including nine that the author has examined in Soviet collections from the Indian Ocean. It seems likely that more than 100 species will be recognized after collections have been thoroughly studied. The key to species given by Gilbert & Hubbs (1920:425 to 432) serves to adequately identify the 51 species then known.

### Key to Species of *Coelorinchus*

Because of the size of the genus (76 species recognized here), it was found convenient to treat the members in four separate groups based primarily on the development of the ventral light organ, a feature common to all members of the genus, but variously developed in each. This allowed reducing the size of each key to more manageable (although still large) units. The four groups are artificial and the inclusion of a species within a certain group is not meant to imply a close relationship to other members of that group. Similarly, the proximity of one species to another in a key does not imply a close relationship of the two, although this may often be the case because of shared characters.

The light organ always lies along the median ventral line in front of the anus. It varies markedly in size and internal complexity, but for its use here, only the length and size of the externally visible portions are considered, although the internal development is usually reflected in the external appearance.

In the first group, the light organ is short and present only as a small sac in the belly wall, often not externally apparent. In the other three groups, the organ is larger and extends farther forward, to as much as the chest just behind the isthmus in some. It is manifested in these groups as a blackish streak, a narrow blackish cleft, as one or two narrow to broad fossae, as elongated lens-shaped swellings, or as alterations or combinations of these. In some species, the fossa is naked and readily apparent, whereas in others the fossa is overlain with scales that obscure its presence.

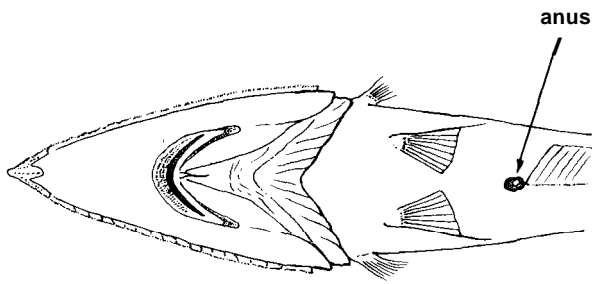
Assigning a specimen to one of the four groups will usually not be much of a problem, but it will on occasion. The abdominal area is often damaged in macrourids making interpretation of the shape and extent of the light organ difficult. In some species the organ is more visible externally than in others because of the lack of scale covering or because of its size, shape and colour. The greatest difficulty will be encountered in assigning certain species to either Group I or Group II. *Coelorinchus braueri*, *C. japonicus*, *C. smithi* and *C. spinifer* are keyed out in both groups for this reason. *C. tokiensis* would also have been keyed out twice if the light organ character were the only consideration, but that species has a prominent banded pattern, which excludes it from Group I.

As a general rule, all specimens should be run through the key choosing each part of a couplet that best fits the characters observed. When a species is finally chosen, the specimen should be compared with the illustrations and description (if available). If the specimen does not agree well with the figure and description, the key should be backtracked to a couplet that posed a problem of choice, and the alternative track run through until a "best fit" is obtained. This may mean returning all the way back to the choice of a group. As many species are yet to be described and variation among each species could be considerable, a final identification may not be possible. Young specimens are particularly problematic in that they often show developmental differences in the characters used here.

The genus as a whole is currently being studied by Dr Osamu Okamura. Information and figures from his two main works (1970a, b) on Japanese Macrouridae have been especially useful in developing these keys.

**Guide to Groups of Species :**

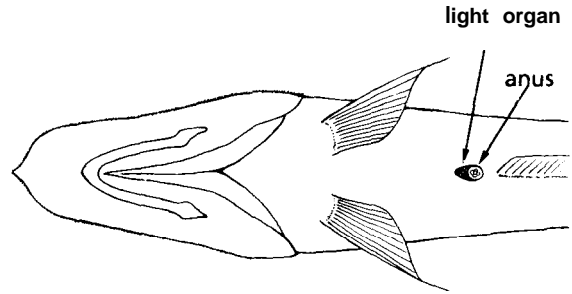
**Group I** (page 115) : Little or no external evidence of light organ; black oval or crescentic naked area, if present, shorter than posterior nostril; no prominent markings on body (e.g., saddlemarks, stripes, bands, pectoral blotches, vermiculations, etc.) except in *C.kaiyomaru* and *C.quadricristatus*. Examples:



underside

***C. gilberti***  
(after Okamura, 1970b)

Fig. 238

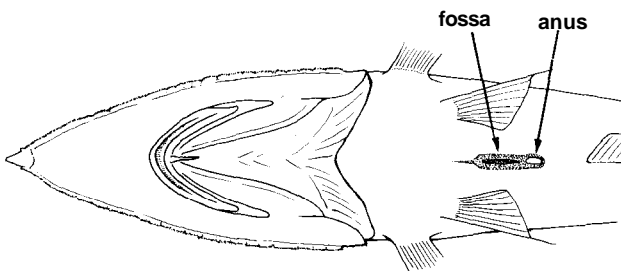


underside

***C. aconcagua***  
(after Iwamoto, 1978)

Fig. 239

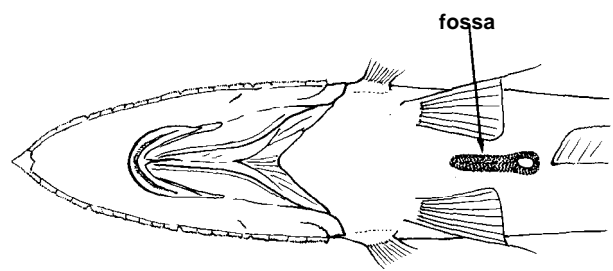
**Group II** (page 123): A distinct blackish fossa on belly (obscured by scale covering in some species); fossa narrow and cleft-like in some, broad and lens-like or teardrop-shaped in others, usually with a short connection to periproct (region surrounding anal and urogenital openings); anterior end of fossa fails to extend forward of line connecting pelvic fin bases. Examples:



underside

***C. smithi***  
(after Okamura, 1970b)

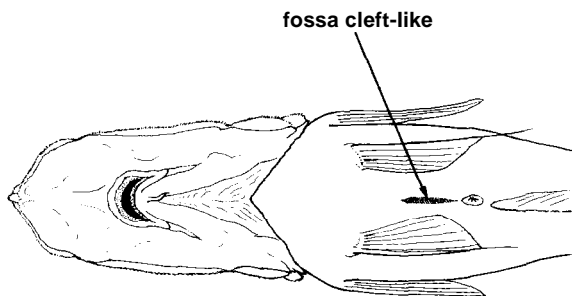
Fig. 240



underside

***C. asteroides***  
(after Okamura, 1970b)

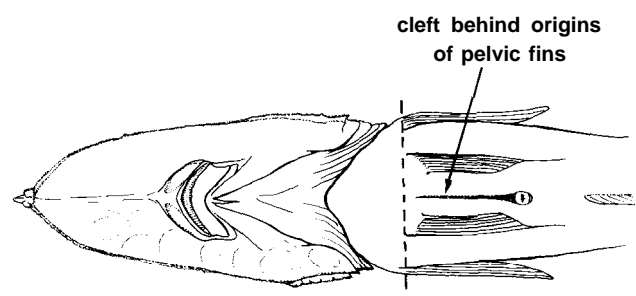
Fig. 241



underside

***C. fasciatus***

Fig. 242

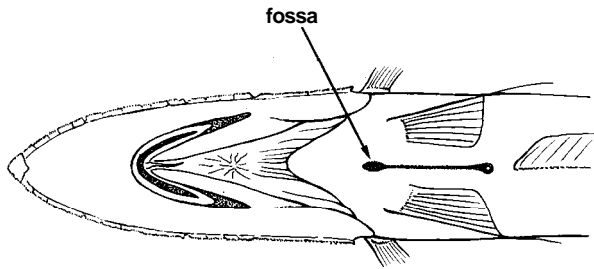


underside

***C. innotabilis***

Fig. 243

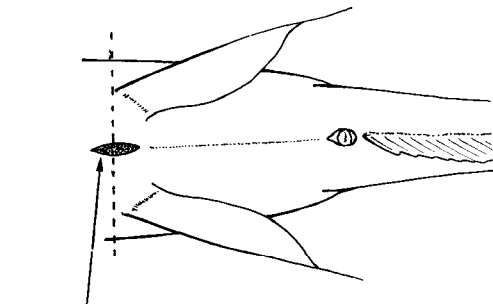
**Group III** (page 130): Black fossa of light organ large, single, and far removed from anus, with little external evidence of a connection between the two; anterior end of fossa distinctly in advance of a line between pelvic fin bases; anus (usually) immediately before anal fin origin or separated from origin by 1 to 3 scale rows. Examples:



underside

***C. jordani***  
(after Okamura, 1970b)

Fig. 244

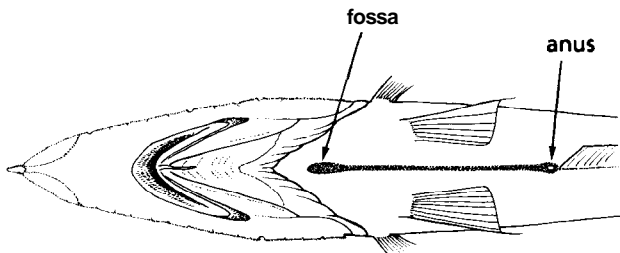


fossa extends forward  
of pelvic fin origins

underside

Fig. 245

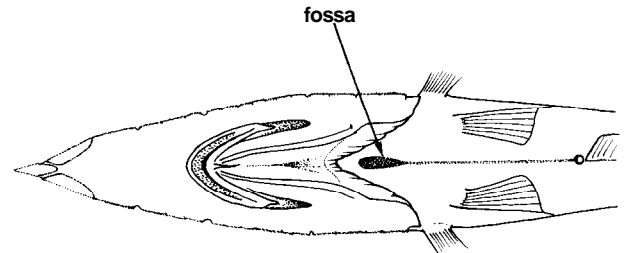
**Group IV** (page 133): Light organ externally evident as a broad blackish strip extending from the periproct to just behind the isthmus, the strip dilated at each end; anus immediately before anal fin. Examples:



underside

***C. multispinulosus***  
(after Okamura, 1970b)

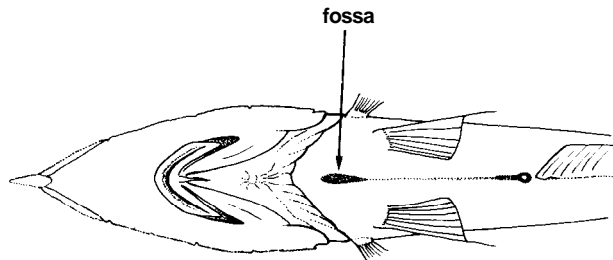
Fig. 246



underside

***C. longissimus***  
(after Okamura, 1970b)

Fig. 247



underside

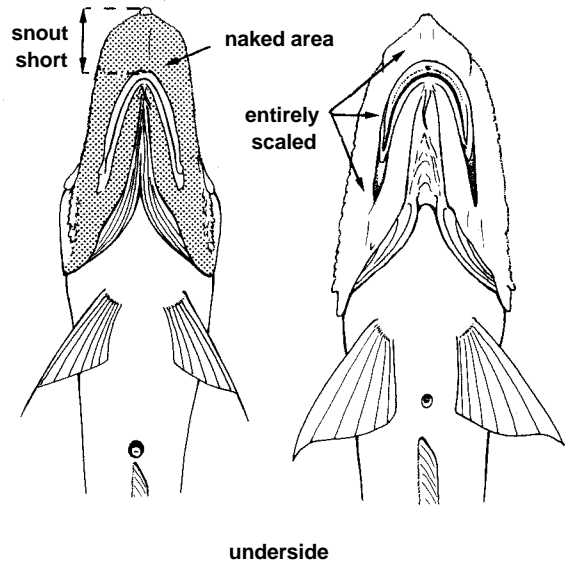
***C. hubbsi***  
(after Okamura, 1970b)

Fig. 248

Species within Groups :

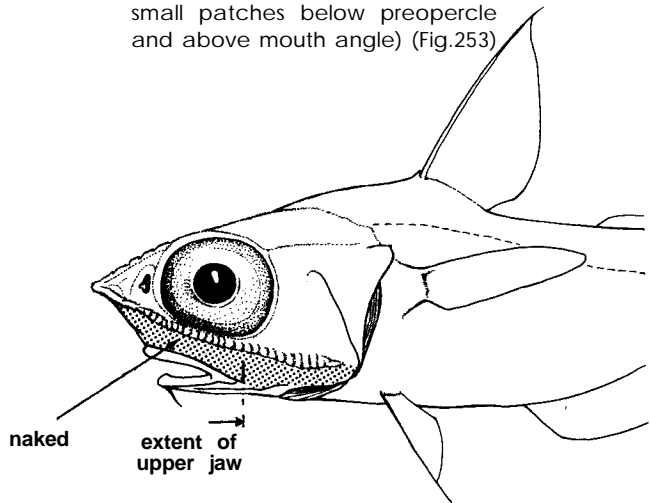
GROUP I :

- 1a. Snout short and blunt
  - 2a. Underside of head naked (Fig. 249a) ..... **C. aconcagua** (Fig. 250)
  - 2b. Underside of head scaled (Fig. 249b)
  - 3a. Mouth large, upper jaw extends to posterior 1/3 of orbit ..... **C. matamua** (Fig. 251)
  - 3b. Mouth small, upper jaw extends to below midorbit at most ..... **C. abditilux** (Fig. 252)

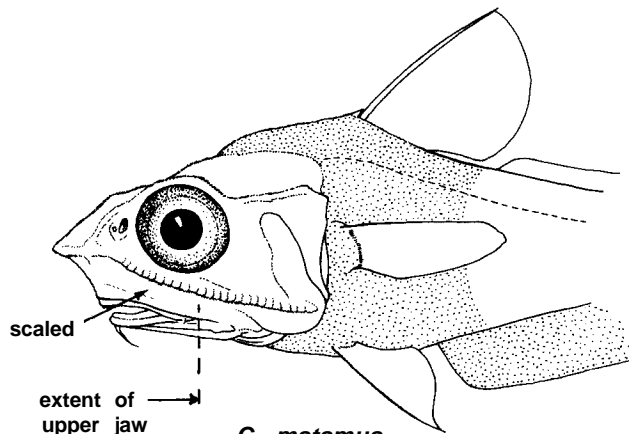


a. **C. aconcagua** (after Iwamoto, 1978)      b. **C. matamua** (after Iwamoto, in Smith & Heemstra, 1986)      Fig. 249

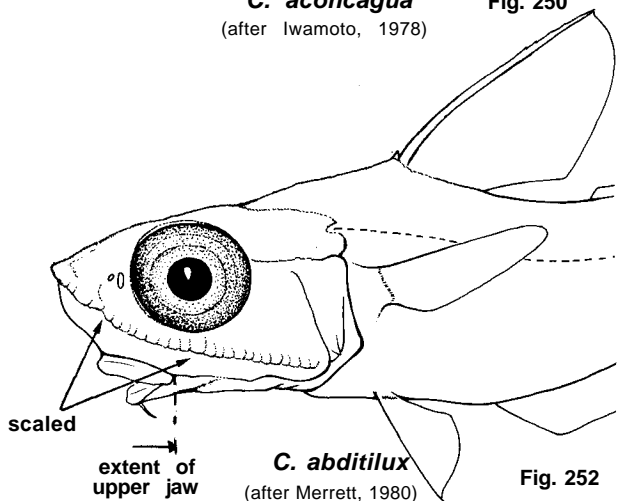
- 1b. Snout long and sharply pointed
  - 4a. Underside of head essentially entirely naked (sometimes with small patches below preopercle and above mouth angle) (Fig. 253)



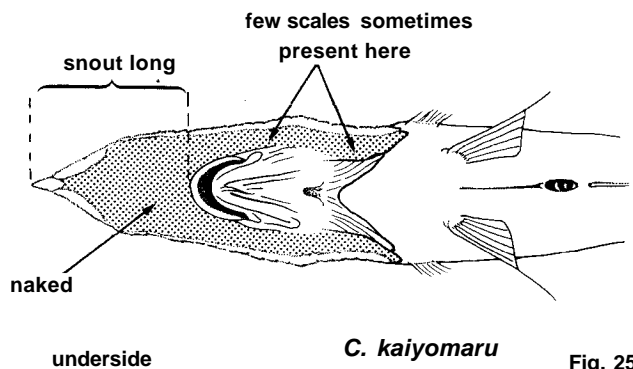
**C. aconcagua** (after Iwamoto, 1978)      Fig. 250



**C. matamua** (after Iwamoto, in Smith & Heemstra, 1986)      Fig. 251



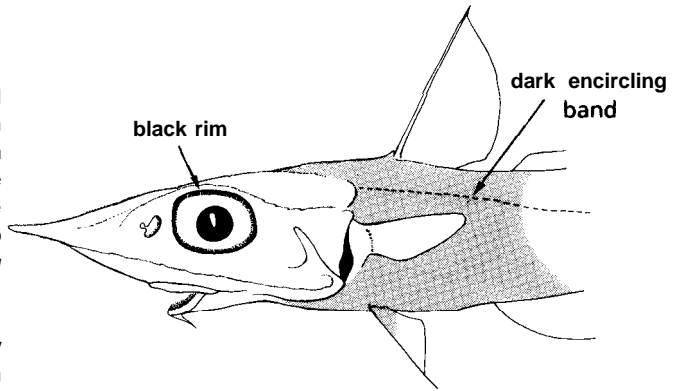
**C. abditilux** (after Merrett, 1980)      Fig. 252



**C. kaiyomaru** (after Arai & Iwamoto, 1979)      Fig. 253

5a. Orbit marked with distinct black rim

6a. Trunk completely encircled by a broad dark band; body scales with median spinule row scarcely if at all larger than the slightly divergent lateral rows, the rows immediately adjacent to the median row complete and extending to scale margin (Fig.255a) ..... **C. kaiyomaru** (Fig. 254)

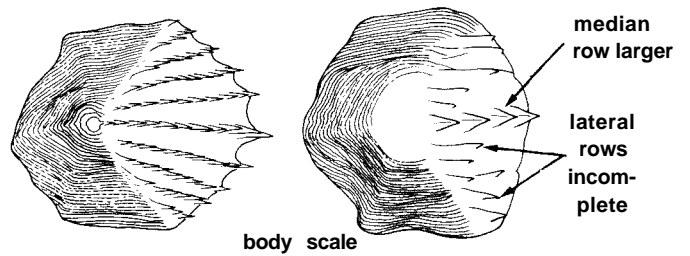


**C. kaiyomaru** (after Arai & Iwamoto, 1979) **Fig. 254**

6b. Trunk not encircled by a dark band; body scales with median spinule row much larger than the parallel lateral rows, the two or more rows adjacent to the median row foreshortened, not reaching scale margin (Fig. 255b) ..... **C. labiatus** (Fig. 256)

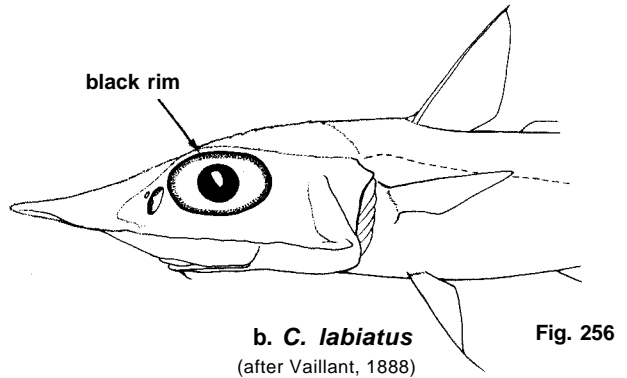
5b. Orbit without a blackish rim

7a. Scales atop head with spinules mostly in a single comblike row (Fig.257a); orbit diameter distinctly greater than postorbital length; orbit 1.7 to 1.8 times in snout length; scale rows below second dorsal fin origin 5.5 to 7 ..... **C. gilberti** (Fig. 258)

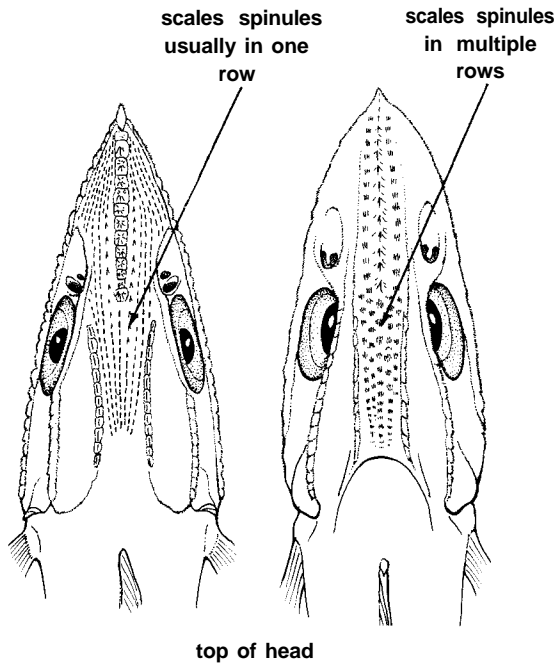


**a. C. kaiyomaru** (after Arai & Iwamoto, 1979) **b. C. labiatus** (after Vaillant, 1888) **Fig. 255**

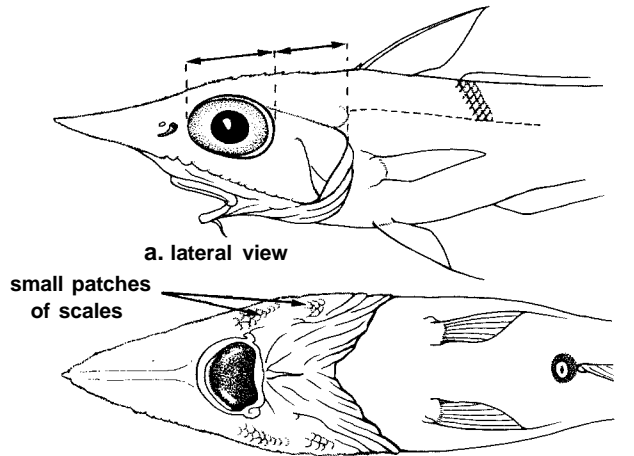
7b. Scales atop head with spinules in multiple rows or scattered (Fig. 257b); orbit diameter variable, from less than to greater than postorbital length of head; orbit 0.9 to 2.0 or more times in snout length; scale rows below second dorsal fin origin 3.5 to 6



**b. C. labiatus** (after Vaillant, 1888) **Fig. 256**



**a. C. japonicus** (after Okamura, 1970b) **b. C. weberi** (after Gilbert & Hubbs, 1920) **Fig. 257**



**a. lateral view** **b. underside** **C. gilberti** (after Okamura, 1970b) **Fig. 258**

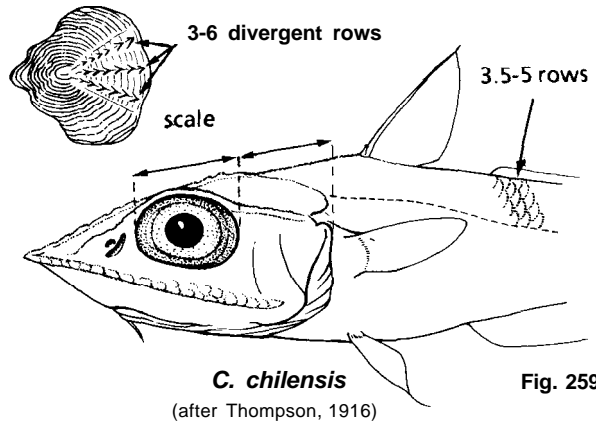
8a. Orbit diameter greater (1.03 to 1.39) than postorbital length of head; spinules on body scales in 3 to 6 divergent rows ..... **C. chilensis** (Fig. 259)

8b. Orbit diameter equal to or (usually) shorter than postorbital length of head; spinules on body scales in 3 to 12 parallel or divergent rows

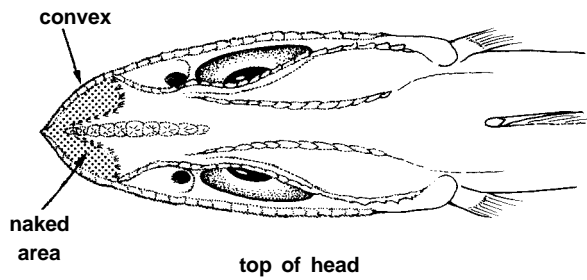
9a. Snout without an acuminate tip, its sides very convex; broad, naked areas dorsally behind anterolateral margins of snout (Fig.260); orbit 1.15 to 1.4 times in snout length

10a. Orbit 1.15 times in snout length; 4 to 7 parallel spinule rows on dorsal body scales ..... **C. acantholepis** (Fig. 261)

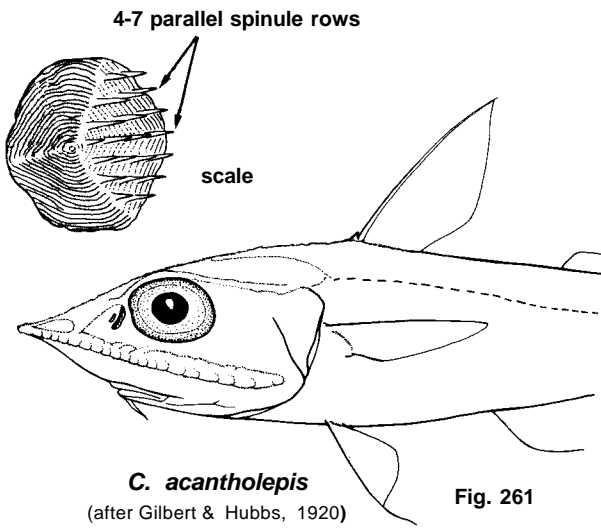
10b. Orbit about 1.4 times in snout length; 7 to 10 slightly divergent spinule rows on body scales ..... **C. carinifer** (Fig. 262)



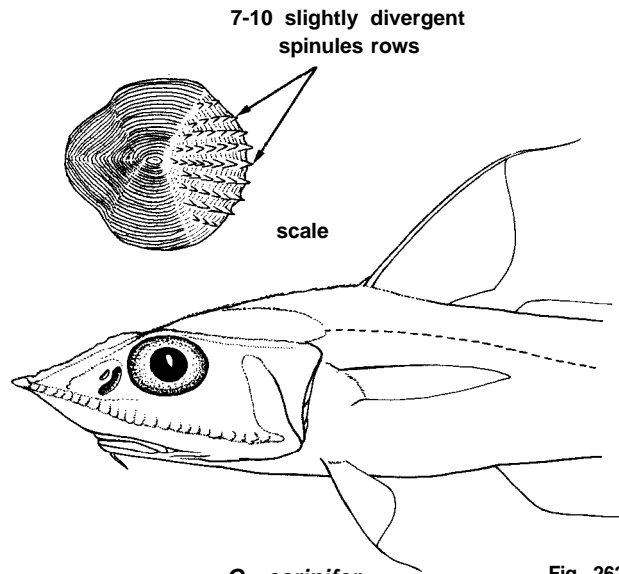
**C. chilensis** (after Thompson, 1916) **Fig. 259**



**C. acantholepis** (after Gilbert & Hubbs, 1920) **Fig. 260**



**C. acantholepis** (after Gilbert & Hubbs, 1920) **Fig. 261**



**C. carinifer** (after Gilbert & Hubbs, 1920) **Fig. 262**



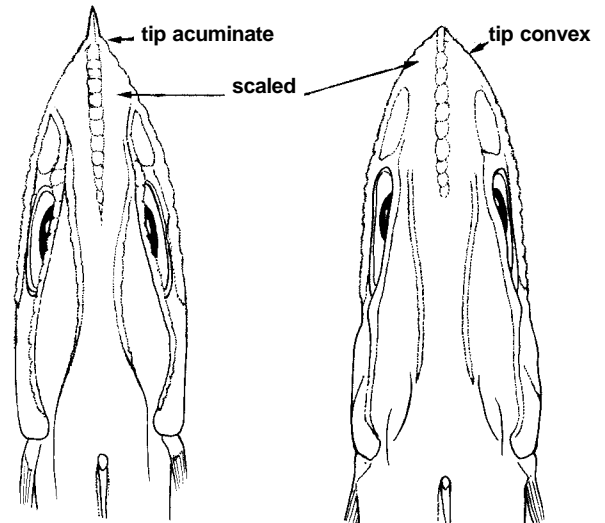
9b. Snout with its tip more or less acuminate, its sides mildly convex to nearly straight; areas dorsally behind anterolateral margins of snout mostly scaled (?naked in *C. doryssus*) (Fig.263); orbit 1.2 to 2.1 times in snout length\*

11a. Orbit 1.2 to 1.7 times in snout length; body scales bearing 6 to 11 ridges of relatively small, weak spinules, the median spinule row very slightly larger than lateral rows ..... *C. radcliffei* (Fig. 264)

11 b. Orbit 1.7 or more times in snout length; body scales bearing 3 to 13 ridges of strong spinules, the median spinule row slightly, to much larger than lateral rows

12a. Spinules on body scales (Fig.265 a,b) very strong, stout, 3-edged, each formed like a slightly folded triangular blade with the back of the fold forming an anteriorly facing keel (resulting in the "grooved" appearance described by Gilbert and Hubbs, 1920), the spinules tightly imbricate on each row and set at an angle of about 60 to 70 degrees from the horizontal; spinules in 5 to 8 parallel to slightly divergent rows, the median row much larger than lateral ones..... *C. occa* (Fig. 266)

12b. Spinules on body scales strong but not "grooved" and widened at base, the spinules set at an angle of about 45 degrees from the horizontal; spinules in 3 to 13 parallel rows, the median row slightly to much stronger than the lateral ones

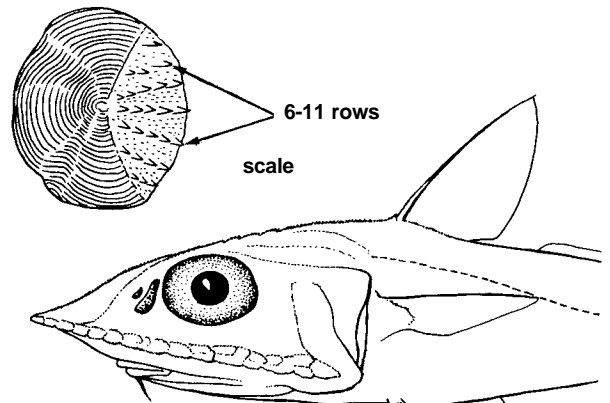


top of head (range of variation in shape)

*C. radcliffei*

(after Gilbert & Hubbs, 1920)

Fig. 263



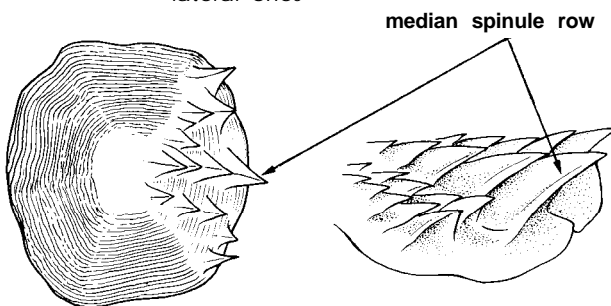
scale

6-11 rows

*C. radcliffei*

(after Gilbert & Hubbs, 1920)

Fig. 264



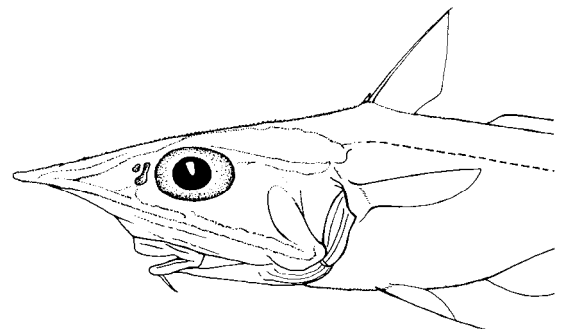
a. dorsal view

body scale

b. dorso-lateral view

*C. occa*

Fig. 265



*C. occa*

(after Parr, 1946)

Fig. 266

\*

*C. innotabilis* and *C. karrerae* of Group II would fall in here if the light organ character was misinterpreted but these two species are easily distinguished by the many (10 to 13) rows of very small spinules on body scales; the median row of each scale not enlarged, and area behind anterolateral margins dorsally naked

13a. Orbit about 1.7 times in snout length; 3 to 5 spinule rows on body scales ...**C. aratum** (Fig. 267)

13b. Orbit 1.9 or more times in snout length; 3 to 13 spinule rows on body scales

14a. Long spine of first dorsal fin about equal to postrostral length of head; 5 to 7 spinule rows on body scales, median ridge only slightly larger than adjacent rows ..... **C. weberi** (Fig. 268)

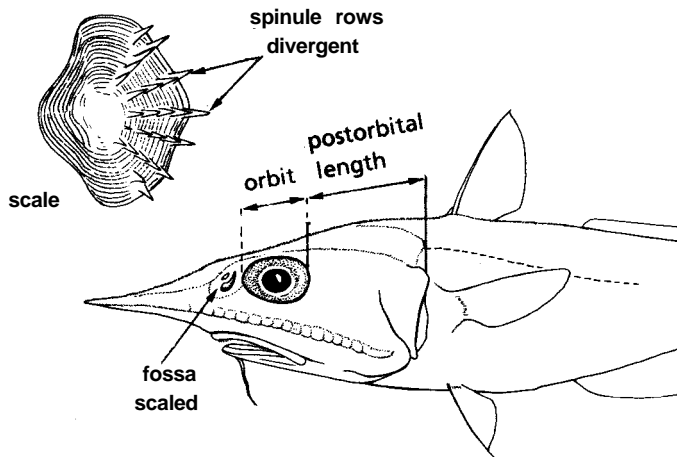
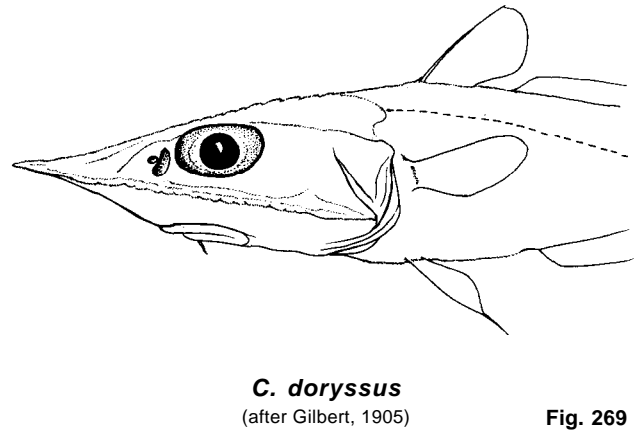
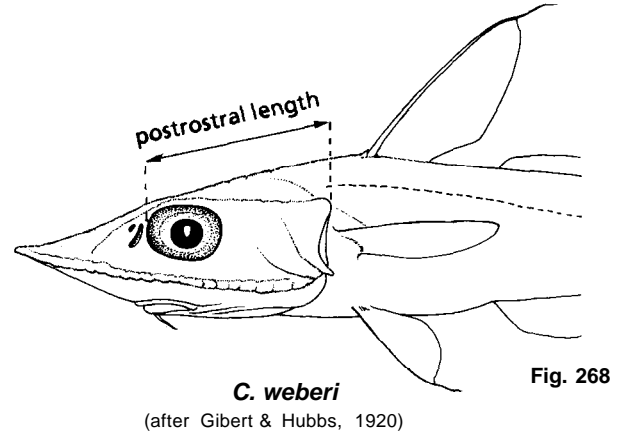
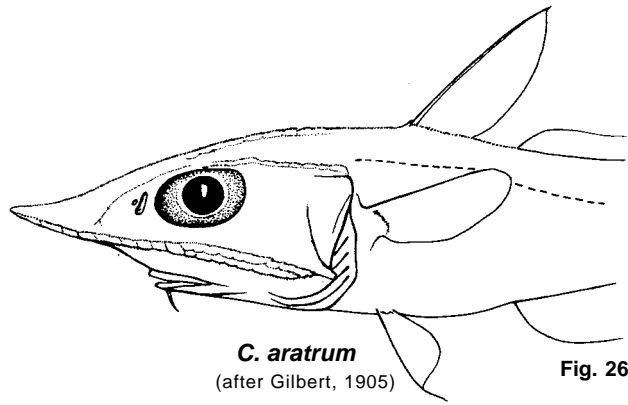
14b. Long spine of first dorsal fin decidedly less than postrostral length of head; 3 to 13 spinule rows on body scales; median ridge much stronger than adjacent ones .....**C. doryssus** (Fig. 269)

4b. Underside of head uniformly scaled

15a. Snout equal to or more than twice the length of orbit diameter

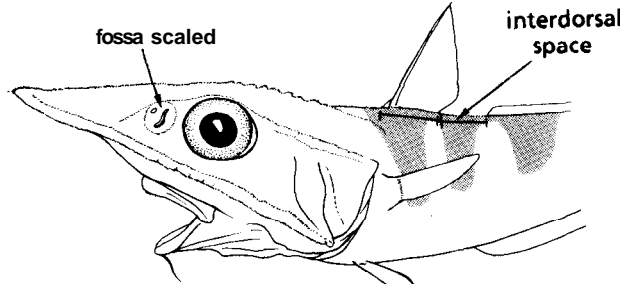
16a. Orbit 1.4 to 1.5 times in postorbital length of head; barbel long, about 2/3 of orbit diameter; nasal fossa scaled; spinules of body scales in widely divergent rows .... **C. macrorhynchus** (Fig. 270)

16b. Orbit 1.2 to 1.3 times in postorbital length; barbel less than 1/2 of orbit diameter; nasal fossa naked; spinules on body scaler in parallel to slightly divergent rows



**C. macrorhynchus** (after Radcliffe, 1912) Fig. 270

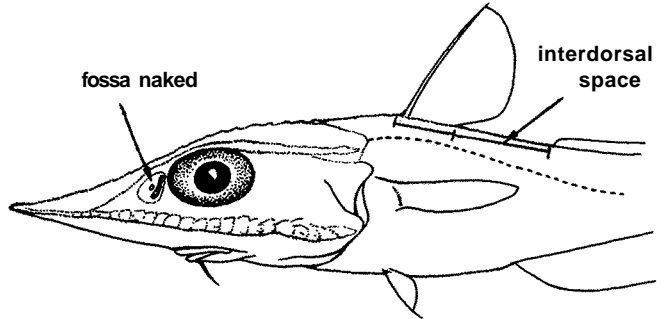
17a. Interspace between dorsal fins less than base of first dorsal; 1 to 7 spinous keels on scales of interorbital space; spinules on body scales in 3 to 7 parallel rows ..... **C. quadricristatus** (Fig. 271)



**C. quadricristatus** (after Alcock, 1899) Fig. 271

17b. Interspace between dorsal fins greater than base of first dorsal; a single spinous keel on scales of interorbital space; spinules on body scales in 1 to 5 parallel or somewhat divergent rows

18a. Spinules on body scales in 3 to 5 parallel rows; barbel about 2.6 times in orbit diameter; interspace between dorsal fins about 1.4 times the base of first dorsal fin..... **C. sparsilepis** (Fig. 272)

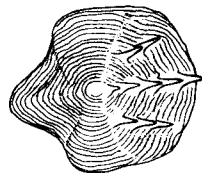


**C. sparsilepis** (after Okamura & Kitajima, 1984) Fig. 272

18b. Spinules on body scales in 1 to 3 somewhat divergent rows; barbel about 6 times in orbit diameter; interspace between dorsal fins about 1.1 times the base of first dorsal fin..... **C. spinifer** (fig. 273)

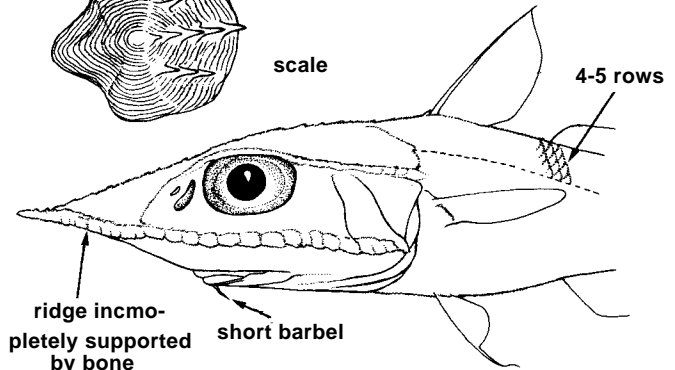
15b. Snout less than twice the orbit diameter

19a. Second spinous ray of first dorsal fin prolonged, its length much greater than postrostral length of head; scales over interorbital space with scattered isolated blade-like spinules, not arranged into keel-like rows..... **C. braueri** (Fig. 274)



scale

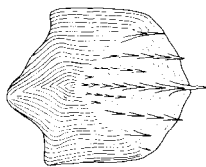
19b. Second spinous ray of first dorsal fin shorter than postrostral length of head; scales over interorbital space with spinules arranged in distinct, usually keel-like rows



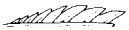
**C. spinifer**

(after Gilbert & Hubbs, 1920)

Fig. 273

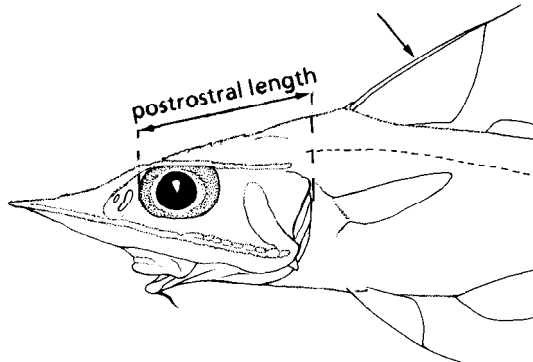


dorsal view



lateral view

scale



**C. braueri**

(after Trunov, 1983)

Fig. 274

20a. Most scales between occipital ridges with spinules arranged in a single keel-like row

21a. Spinules on body scales in 3 to 6 parallel rows ..... **C. parallelus** (Fig. 275)

21b. Spinules on body scales in 1 to 7 widely to somewhat divergent rows

22a. Snout relatively short and broad, about 1.3 times the orbit diameter; spinules on body scales in 5 to 7 widely divergent rows ..... **C. platorhynchus** (Fig. 276)

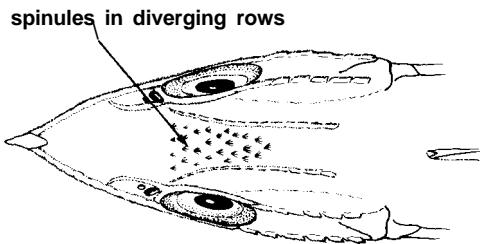
22b. Snout long and sharp, slightly less than twice the orbit diameter; spinules on body scales in 1 to 6 divergent, to somewhat divergent rows

23a. Anterolateral margin of snout completely supported by bone; scale rows below origin of second dorsal fin 5.5 to 7.5; barbel 2.1 to 3.9 times in orbit diameter ..... **C. japonicus** (Fig. 277)

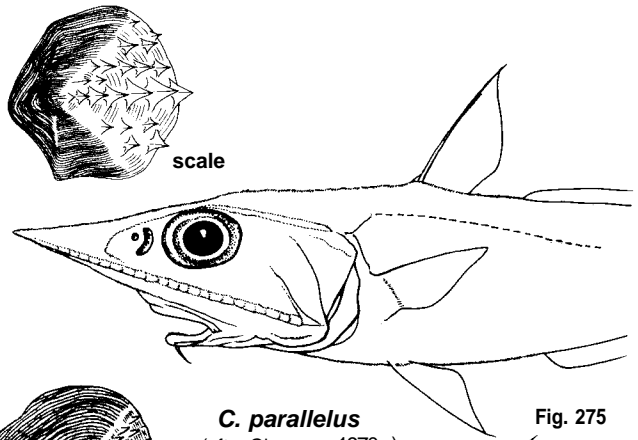
23b. Anterolateral margin of snout incompletely supported by bone; scale rows below origin of second dorsal fin 4.5; barbel about 6 times in orbit diameter ..... **C. spinifer** (Fig. 273)

20b. Scales between occipital ridges with spinules arranged in 2 to 7 diverging rows (Fig. 278)

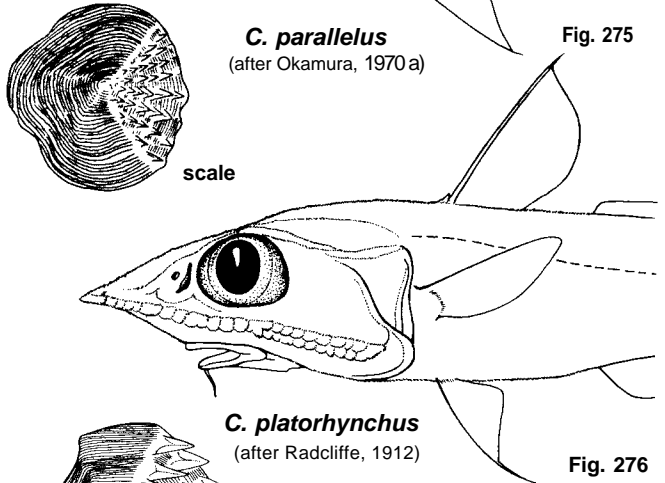
24a. Anterolateral margin of snout completely supported by bone; snout length 1.5 to 1.9 times the orbit diameter; interspace between dorsal fins 1.3 to 2.0 times the base of first dorsal ..... **C. smithi** (Fig. 279)



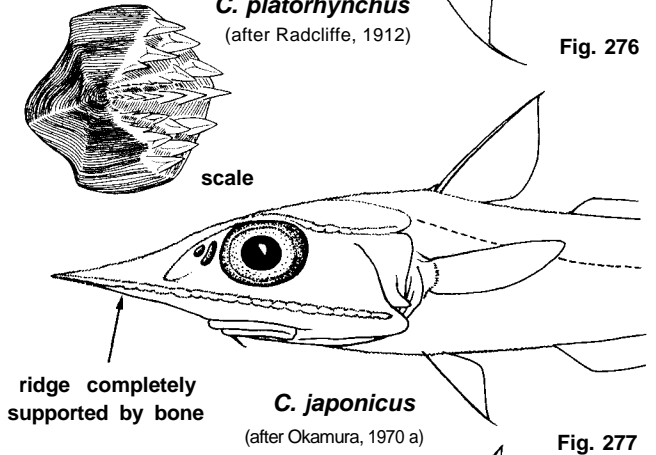
top of head (after Okamura, 1970 a) Fig. 278



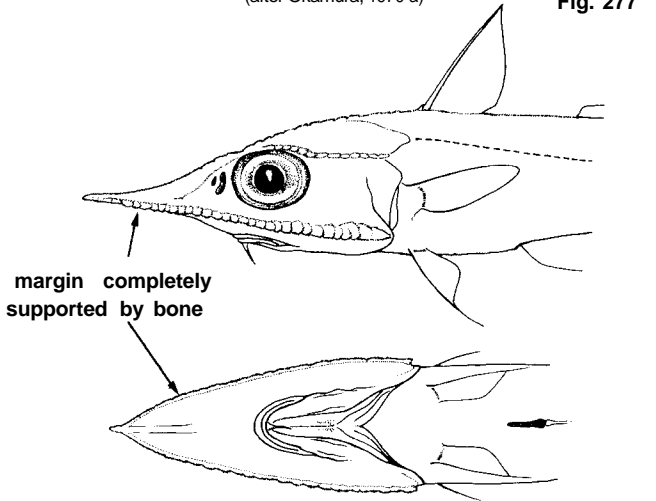
**C. parallelus** (after Okamura, 1970 a) Fig. 275



**C. platorhynchus** (after Radcliffe, 1912) Fig. 276



ridge completely supported by bone **C. japonicus** (after Okamura, 1970 a) Fig. 277



underside **C. smithi** (after Okamura, 1970 a) Fig. 279

**24b.** Anterolateral margin of snout incompletely supported by bone; snout length 1.28 to 1.8 times the orbit diameter; interspace between dorsal fins 1.1 to 2.0 times the base of first dorsal

**25a.** Scales below second dorsal fin origin 6 to 7.5; orbit 1 to 1.2 times into postorbital length; spinules on body scales in parallel rows ..... ***C. acanthiger*** (Fig. 280)

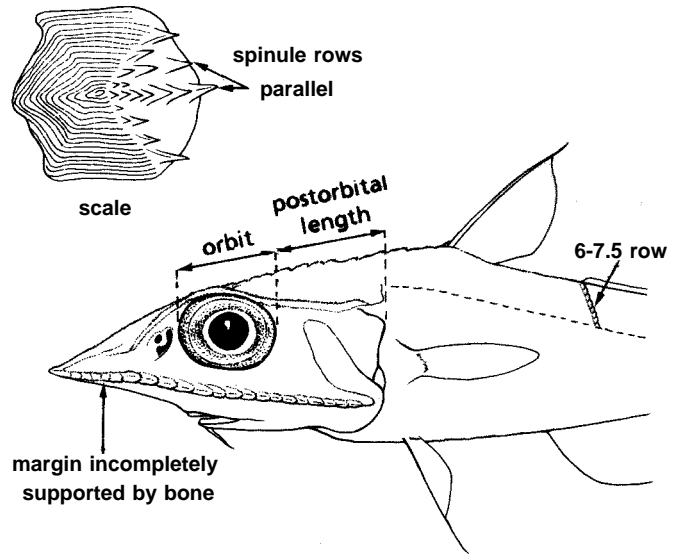
**25 b.** Scales below second dorsal fin origin 5 to 5.5; orbit 1.15 to 1.5 times into post-orbital length; spinules on body scales in parallel or divergent rows

**26a.** Interspace between dorsal fins 2.0 times the base of first dorsal; snout 1.8 times the orbit diameter ..... ***C. kermadecus*** (Fig. 281)

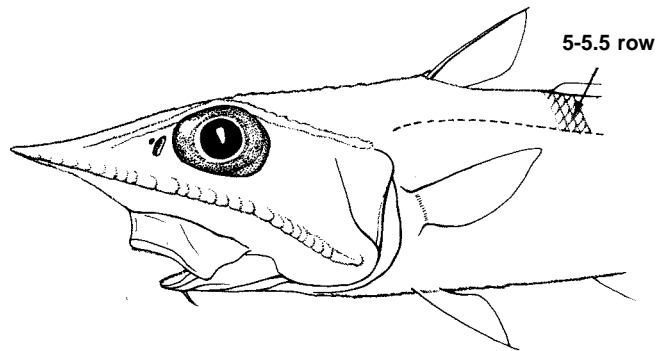
**26b.** Interspace between dorsal fins 1.1 to 1.2 times the base of first dorsal; snout 1.3 to 1.7 times the orbit diameter

**27a.** Orbit diameter enters post-orbital length of head 1.4 to 1.5 times ..... ***C. divergens*** (Fig. 282)

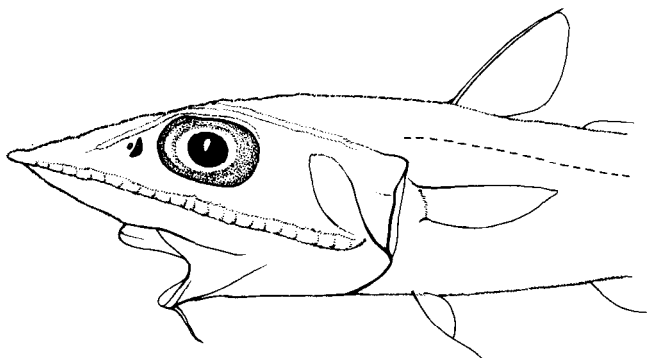
**27b.** Orbit diameter enters post-orbital length of head 1.15 to 1.3 times . . . ***C. commutabilis*** (Fig. 283)



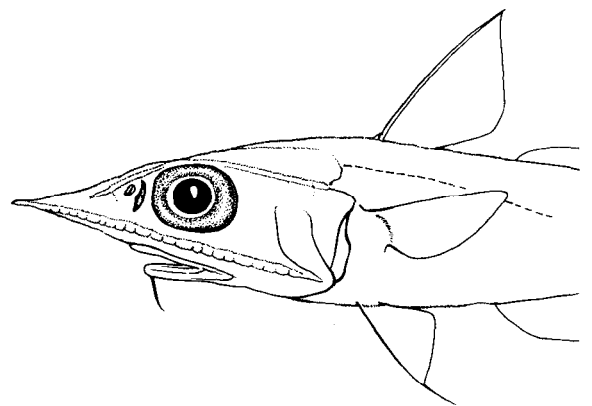
***C. acanthiger*** (after Iwamoto in Smith & Heemstra, 1986) **Fig. 280**



***C. kermadecus*** (after Günther, 1887) **Fig. 281**



***C. divergens*** (after Okamura & Kitajima, 1984) **Fig. 282**



***C. commutabilis*** (after Radcliffe, 1912) **Fig. 283**