

Diagnostic Features : Teeth small, in a moderate band in premaxillae, outer series slightly enlarged; mandibular teeth in 2 or 3 irregular rows. Inner gill rakers on first arch 14 or 15 total. First dorsal with 2 spines and 8 to 10 rays, second spinous ray finely serrated; pectoral fin rays i21 to i22; pelvic fin rays 8 or 9 (usually 8). Measurements in percentages of head length: snout length 25 to 28; preoral length 11 to 14.5; orbit diameter 25 to 28; interorbital space 22 to 25; orbit to angle of preopercle 40 to 43; upper jaw 39 to 43; barbel length 20 to 28; length of outer gill slit 20 to 26; greatest body depth 78 to 89; length of pectoral fin 43 to 56. Scales rather large, covered with short, slender, conical spinules, many with broadened bases, in widely divergent V rows or quincunx order; scale rows below midbase first dorsal fin 5 to 6.5, below origin of second dorsal fin 6.5 to 7.5; lateral-line scales over a distance equal to predorsal length 38 to 43. Snout with a black margin along leading edge, extending posteriorly onto suborbital shelf, over supranarial ridges, and dorsal rim of orbits; first dorsal with a prominent black blotch across middle to lower portions

Geographical Distribution : Indian Ocean (Fig. 695)

Habitat and Biology : Benthopelagic; reported from 296 to 1 019 m but probably most common in 350 to 700 m depth.

Size : To about 42 cm total length

Interest to Fisheries : A widespread species in the Indian Ocean, but no catch statistics are available.

Literature : Alcock (in Wood-Mason & Alcock, 1891); Alcock (1899); Brauer (1906); Gilbert & Hubbs (1920); Weber & de Beaufort (1929).

Remarks : *Ventrifossa petersoni* is closely related to three other species with a black-blotched first dorsal fin: *V. nigrodorsalis*, *V. rhipidodorsalis*, and *V. longebarbata*. See the description of the first species for comparisons.

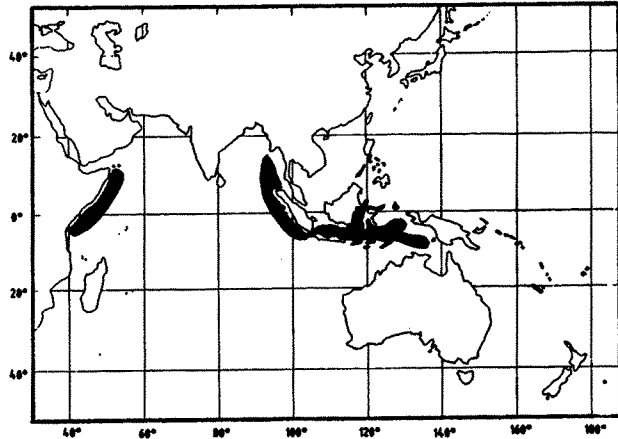


Fig. 695

2.5.3

Subfamily MACROUROIDINAE

Family Macrouroidinae Smith & Radcliffe, 1912, *Proc.U.S.Natl.Mus.*, 43:139

Synonyms : None.

Diagnostic Features : Orbit tiny, about 10% of head length, placed forward of small, inferior mouth; no chin barbel; first gill slit not restricted by membranous folds of skin, outer gill rakers long, slender; branchiostegal rays 7. Anus immediately before anal fin. A single, long, low dorsal fin beginning behind massive swollen head and continuous to end of straplike tail; anal fin long, poorly developed; pelvic fins either rudimentary with 5 rays or absent. No light organ. Swimbladder regressed.

Habitat, Distribution and Biology : The two species in this subfamily are both benthic- to bathypelagic, and widely distributed in temperate and tropical waters of the Pacific, Atlantic, and Indian Oceans. Although most specimens have been captured by bottom trawls, enough representatives have been taken in midwater nets to suggest that the species range vertically over considerable distances (to 5 300 m depth).

Size : To about 40 cm total length.

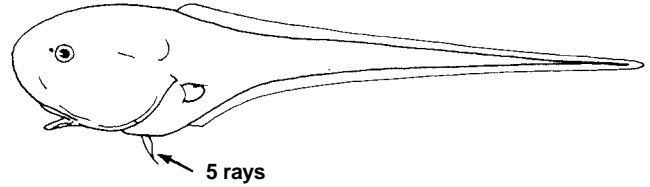
Interest to Fisheries : None at present.

Literature : Smith & Radcliffe, in Radcliffe (1912); Gilbert & Hubbs (1916); Okamura (1970a); Marshall (1973).

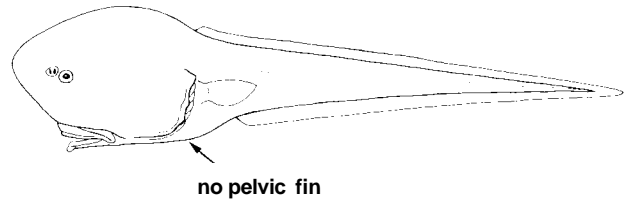
Remarks : This group has been treated as a separate family by others (see Smith & Radcliffe, in Radcliffe, 1912; Okamura, 1970a, b).

Key to Genera :

- 1a. Pelvic fin with 5 rays *Squalogadus modificatus*
 Gilbert & Hubbs(1916)
 (Fig. 696)
- 1b. Pelvic fins absent *Macrouroides inflaticeps*
 Smith & Radcliffe (1912)
 (Fig. 697)



Squalogadus modificatus Fig. 696



Macrouroides inflaticeps Fig. 697

2.5.4

Subfamily TRACHYRINCINAE

Synonyms : None.

Diagnostic Features : Snout long, pointed, dorsoventrally flattened; mouth inferior but wide, premaxillae with short pedicels, slightly protractile. Barbel short or absent. A prominent fossa in post-temporal region. Small teeth in bands in both jaws. Branchiostegal rays 7. First gill slit unrestricted. Gill rakers on first arch numerous, slender but rather short. Two dorsal fins, the first short (second ray segmented), the second long, beginning immediately behind the first, with rays well developed, better so than those of anal fin. Scales stout, coarsely spinulated, scutelike, or platelike; a row of keeled scutes along dorsal and anal fins. Swimbladder with 2 or 3 retia mirabilia; no drumming muscles. Abdominal vertebrae 14 (not checked for all species). Anus immediately before anal fin. No light organs.

Habitat, Distribution and Biology : Apparently worldwide in temperate waters, although not recorded in the western and central North Pacific; present in tropical eastern Pacific. Benthopelagic in about 400 to 2 500 m depth. The biology of *Trachyrincus scabrus* in the Mediterranean has been fairly extensively studied (Motais, 1960), but little is known of other species of the subfamily.

Size : To more than 55 cm total length

Interest to Fisheries : *Trachyrincus scabrus* is apparently fairly common in deep waters of the western Mediterranean, but its economic importance in that region is not known. The other species of the subfamily are too uncommon or found too deep to be of much interest to fishery.

Literature : Günther (1887); Koefoed (1927); Motais (1960); Marshall (1973); Sazonov (1981)

Remarks : Two genera known, one (*Idiophorhynchus* Sazonov, 1981) having been described recently from a single species from off New Zealand. Five species of *Trachyrincus* are generally recognized.

Key to Genera :

- 1a. Barbel absent. Pelvic fin rays 3 or 4. Body squamation consists of 4 longitudinal rows of large keeled scutes on each side: 1 dorsolaterally, 2 ventrolaterally, and 1 midlaterally, the intervening areas with small scales or naked. Bony ridges of head smooth or weakly spined; head scales weakly or not spinulated (Fig. 698) ***Idiolorhynchus***
- 1b. Barbel small but present. Pelvic fin rays 6 or 7. Body squamation with 2 longitudinal rows of enlarged keeled scutes on each side: 1 dorsolaterally, 1 ventrolaterally, the intervening areas with small coarsely spinulated scales. Bony ridges on head mostly coarsely scaled (Fig. 699) ***Trachyrincus***

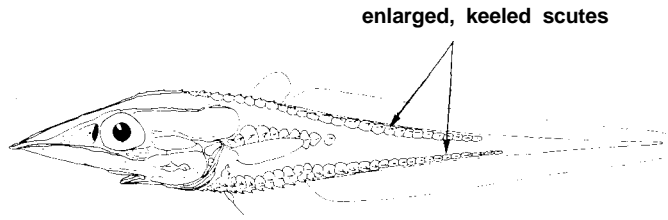
***Idiolorhynchus***

Fig. 698

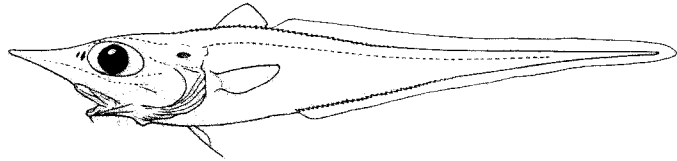
***Trachyrincus***

Fig. 699

List of Species

- Idiolorhynchus andriashevi*** Sazonov, 1981
Trachyrincus helolepis Gilbert, 1892
Trachyrincus longirostris Günther, 1878
Trachyrincus murrayi Günther, 1887
Trachyrincus scabrus (Rafinesque, 1810)
Trachyrincus villegai Pequeño, 1971

<i>Trachyrincus</i> Giorna, 1809	MACROUR Trac
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Genus with Reference : ***Trachyrincus*** Giorna, 1809, *Mem. Acad. Imper. Sci. Turin*, (1805-1808): 179 (type species ***Lepidoleprus trachyrincus*** Risso, 1810) (As with another of Giorna's genera [***Coelorrinchus***], a question still remains as to the designation of the type species; W. N. Eschmeyer, in a forthcoming book on the genera of fishes, will treat this problem in detail.)

Synonyms : ***Oxycephas*** Rafinesque, 1810; ***Lepidoleprus*** Risso, 1810; ***Lepidosoma*** Swainson, 1839.

Diagnostic Features : As for subfamily, but in addition: barbel small but present; pelvic fin rays 6 or 7; two longitudinal rows of enlarged keeled scutes on each side: 1 dorsolaterally, 1 ventrolaterally, the intervening areas with small coarsely spinulated scales; bony ridges on head mostly coarsely scaled.

Habitat, Distribution and Biology : Mediterranean; North Atlantic from Labrador east to the Irish slope, south to Cape Verde Islands; southeastern Atlantic (Namibia and South Africa); New Zealand area; eastern South Pacific from Panama south to central Chile. Benthopelagic in 403 to 1 978 m depth.

Size : To more than 85 cm total length.

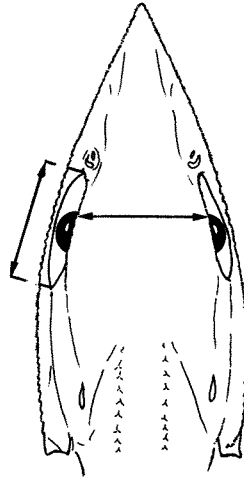
Interest to Fisheries : Only ***T. scabrus*** is of definite interest to fisheries

Literature : Giorna (1809); Günther (1887); Karrer (1973a. b); Marshall (1973); McCann & McKnight (1980)

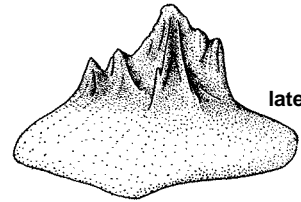
Remarks : Often misspelled ***Trachyrhynchus*** and ***Trachyrinchus***; the first following Günther's (1887) unjustified emendation. The original orthography should be retained.

Key to Species

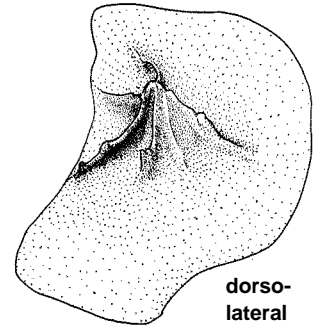
- 1a. Scales rather deciduous; none (apparently) on belly *T. murray*
- 1b. Scales adherent; belly fully scaled
 - 2a. Snout rather short, ventral length about equal to length of premaxillary. Head broad, interorbital width usually greater than orbit diameter. Keels of dorsal and ventral scutes irregularly multidentate at all sizes; none smooth and bladellike (Fig. 700) *T. villegai*
 - 2b. Snout moderate to long; ventral length about equal to or longer than premaxillary length. Head moderate, interorbital width about equal to or less than orbit diameter. Dorsal and ventral scutes with a single smooth, sharp, recurved, bladellike keel or keels variously multidentate (Figs 701b, 702b)



a. top of head



lateral view



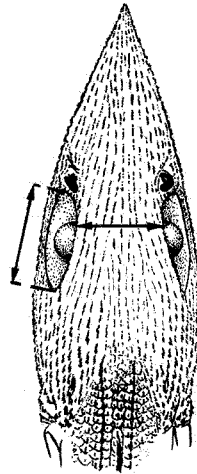
dorso-lateral view

b. dorsal scute

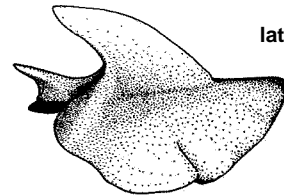
T. villegai

Fig. 700

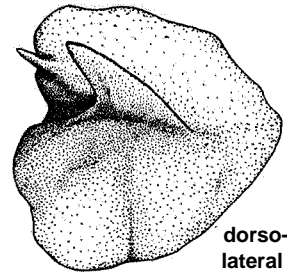
- 3a. Orbit more than 1.7 times into snout, much greater than interorbital width. Scute keels generally smoothly bladellike, without multidentate tips in small individuals (<30 cm), becoming increasingly more multidentate with size (Fig. 701) *T. scabrus*



a. top of head



lateral view



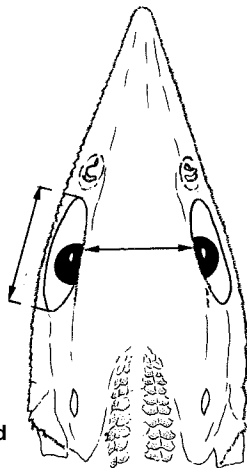
dorso-lateral view

b, dorsal scute

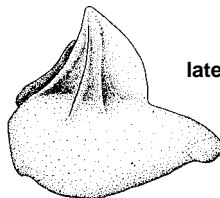
T. scabrus

Fig. 701

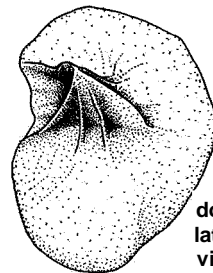
- 3b. Orbit about 1.7 times into snout length, about equal to interorbital width. Scute keels smoothly blade-like or almost entirely multidentate at all sizes
- 4a. Scute keels almost entirely multidentate at all sizes (Fig. 702) *T. helolepis*
- 4b. Scute keels generally smoothly edged blades *T. longirostris*



a. top of head



lateral view



dorso-lateral view

b. dorsal scute

T. helolepis

Fig. 702

Trachyrincus helolepis Gilbert, 1892

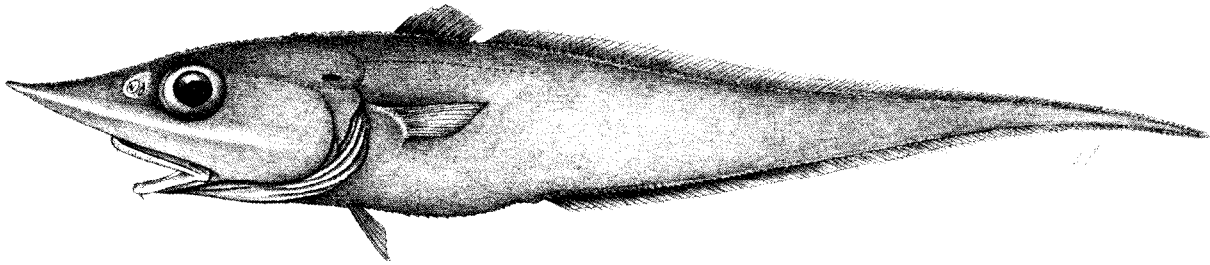
Fig. 703

MACROUR Trac 2

Scientific Name with Reference : *Trachyrincus helolepis* Gilbert, 1892, Proc. U.S Natl. Mus., 14:562 to 563 (Galapagos, 0° 29'00"S. 89° 54'30"W, 717 m).

Synonyms : None.

FAO Names : En - Armourhead grenadier



(after Garman, 1899)

Fig. 703

Diagnostic Features : Snout rather narrow and long, length 41 to 45% of head length, preoral length 34 to 38%; interorbital space 26 to 32%, about equal to orbit diameter; length of upper jaw 27 to 30%. Outer gill rakers on first arch 21 to 26 total, 16 to 18 on lower limb; outer series on second arch 15 to 17 total. First dorsal fin with 11 to 12 rays; pectoral fin with 21 to 24 rays; pelvic fin with 6 or 7 rays. Row of enlarged scutelike scales along base of anal fin does not extend forward of anus; scutelike scales along dorsal and anal fins usually with a single, sharply pointed keel, if more than one point, the largest point much larger than the others on a scute; scales moderately embedded, the margins well defined; scale rows over distance equal to predorsal length 62 to 65. **Colour**: a uniform medium brown.

Geographical Distribution : Galapagos and Chile (to 32° 17'S) (Fig. 704).

Habitat and Biology : Benthopelagic in 580 to 960 m depth.

Size : To at least 46 cm total length.

Interest to Fisheries : Apparently taken occasionally by trawlers off Chile.

Literature : Gilbert (1892); Garman (1899).

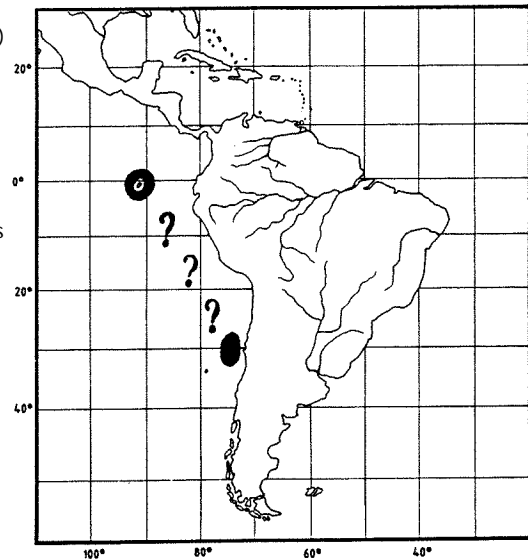


Fig. 704

Trachyrincus scabrus (Rafinesque, 1810)

Fig. 705

MACROUR Trac 1

Scientific Name with Reference : *Oxycephas scabrus* Rafinesque, 1810, *Indice Ittiol. Sicil.*: 13, pl. 1 (fig. 1-2).

Synonyms : *Trachyrincus anonyma* Giorna, 1809; *Lepidoleprus trachyrincus* Risso, 1810; *Trachyrhynchus trachyrhynchus* -- Günther, 1887; *Macrorus trachyrhynchus* -- Vaillant, 1888.

FAO Names : En - Roughsnout grenadier.

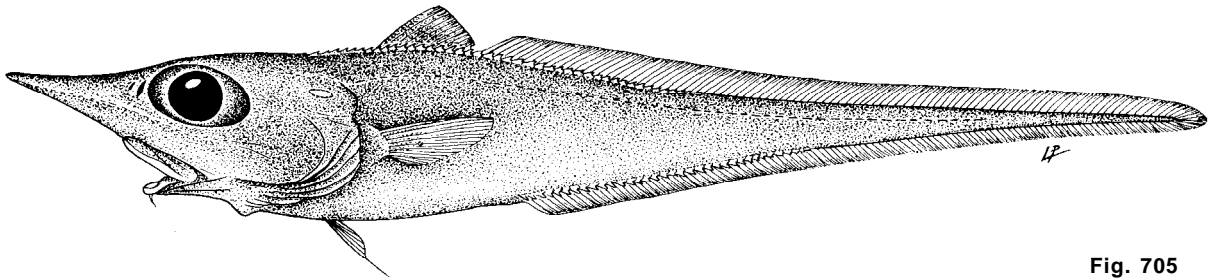


Fig. 705

Diagnostic Features : Dorsal scute row with more than 20 scutes behind vertical through anus; ventral scute row with no scute before anus; scute keels generally smoothly bladelike, without multicuspid tips in small individuals (<30 cm), becoming increasingly more multicuspid with size. Scales adherent; belly fully scaled. Orbit more than 1.7 times into snout length, much greater than interorbital width. Ventral length of snout much greater than length of premaxillary.

Geographical Distribution : Mediterranean and eastern North Atlantic, from Irish slope to Cape Verde Islands (Fig. 706).

Habitat and Biology : Benthopelagic in 395 to 1 495 m depth. Primarily a pelagic feeder. Geistodoerfer (1978a) recorded a predominance of pelagic copepods in the stomachs of specimens taken off northwest Africa, with lesser quantities of mysids, shrimps, cephalopods, and fish. Polychaetes and gastropods composed a minor part of the diet.

Size : To about 50 cm total length.

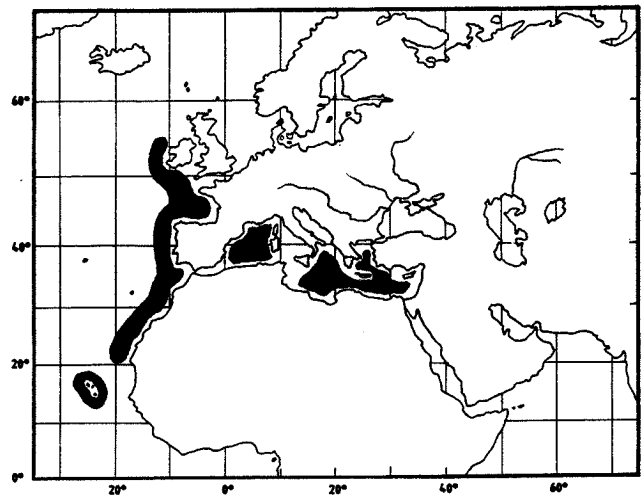
Interest to Fisheries : Taken as bycatch by offshore bottom trawlers throughout its range. Mostly reduced to fishmeal and oil.

Local Names : POLAND : Coarse-nosed grenadier.

Fig. 706

Literature : Günther (1887); Farran (1924); Koefoed (1927); Marshall (1973); Marshall & Merrett (1977).

Remarks : The name *Trachyrincus anonyma*, given for the species by Giorna (1809) in his original description of the genus, was not used as a binominal and can thus be ignored. The species name *scabrus* Rafinesque, 1810, predates *trachyrincus* Risso, 1810, by a few months. The closely related *T. murrayi* is generally found further north and west, and extends all the way to the coasts of the Americas off Labrador.



Trachyrincus villegai Pequeño, 1971

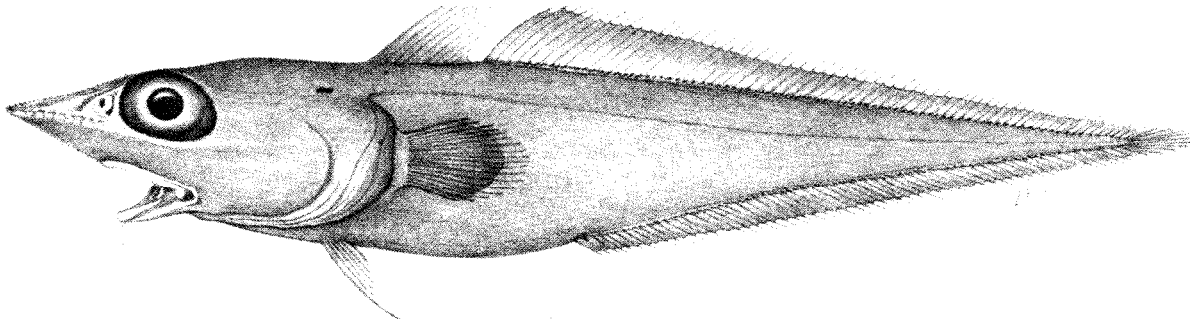
Fig. 707

MACROUR Trac 3

Scientific Name with Reference : *Trachyrincus villegai* Pequeño, 1971, Bol. Mus. Nac. Hist. Nat. Chile, 32: 277-279, fig. 4; (Chile, 25° 19'00"S, 70° 33'05"W, 320-324 m).

Synonyms : None.

FAO Names : En - Grey grenadier



(after Pequeño, 1971)

Fig. 707

Diagnostic Features : Snout broad in juveniles, becoming narrower and relatively longer in adults, its length 30 to 41% of head length, preoral length 23 to 33% of head length; interorbital space broad, 28 to 36% of head length, about equal to or (usually) more than orbit diameter; length of upper jaw 30 to 35% of head length. First dorsal with 10 or 11 rays; pectoral fin with 19 to 24 rays; pelvic fin with 6 or 7 rays. Row of enlarged scutelike scales along base of anal fin does not extend forward of anus; scutelike scales bluntly pointed and denticulate, the largest point only slightly larger than the others on a scute, scales deeply embedded and covered with thick skin, the margins obscured; scale rows over a distance equal to predorsal length 54 to 59. Outer gill rakers on first arch 21 to 24 total, 16 to 18 on lower limb; outer series on second arch 14 to 16 total. Colour greyish.

Geographical Distribution : Northern Peru to central Chile (to at least 30° S) (Fig. 708).

Habitat and Biology : Benthopelagic in 250 to 980 m depth

Size : To at least 44 cm total length.

Interest to Fisheries : Apparently taken occasionally by trawlers off Peru and Chile.

Literature : Pequeño (1971); Chirichigno (1978).

Remarks : *Trachyrincus villegai* is readily distinguished from its only eastern Pacific counterpart, *T. helolepis* by its grey to greyish brown colour (cf. uniformly brownish) its broader, blunter snout (viewed dorsally at all stages), and its coarser squamation.

