SOUTH AFRICAN PARASITIC COPEPODA

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(With 35 figures)

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Contents

Introduction

A comprehensive account of South African parasitic Copepoda was published by the late K. H. Barnard in 1955 (Barnard 1955*a*). In this paper the majority of the species known up to that date were described and figured. Many other papers including Bannister & Grindley (1966), Barnard (1948, 1955*b*, 1957), Calman (1908), Ho (1972), Kensley (1970), Paterson (1958), and Stebbing (1900, 1905) also describe parasitic Copepoda from the South African region.

Since 1955 many more species have been added to the collections of the

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South African Museum. The authors and various ichthyologists on the staff of the South African Museum including Dr P. A. Hulley, Mr S. Kannemeyer, Dr M.-L. Penrith, Mr M. Penrith, and Dr F. Talbot collected many of the specimens. Dr D. Eccles collected a large number of specimens from fish caught by anglers, commercial line boats, and trawlers between 1951 and 1953 while he was at the University of Cape Town. Many specimens from game fish and sharks were obtained during the long-line game-fish survey carried out by the South African Museum under the direction of Dr F. H. Talbot in 1960 and 1961. A large collection of specimens of the genus *Pennella* were collected from various species of whales by Dr P. Best. The largest contribution, however, was made by Dr Mary-Lou Hanson Pritchard of the University of Nebraska during six months of collecting in 1961. Dr Pritchard visited South Africa to collect Trematoda parasitic on fishes but agreed also to collect parasitic Copepoda for the second author. Her intensive and meticulous collecting brought many new records and several new species to light.

This study was initiated by the second author but the preparation of this paper has been almost entirely the work of the first author. Preliminary drawings for this work were prepared by Mr M. Leiserowitz but the final drawings are the work of the first author. That a further study of South African parasitic Copepoda was required is clearly evidenced by the description here of no less than fourteen species new to science.

A catalogue of all the species of parasitic Copepoda in the South African Museum is provided, giving details of the material, localities, hosts, catalogue numbers, and type material. Full descriptions and figures are given of species new to science and descriptions are also given of species recorded for the first time from South Africa, and of species that were previously inadequately described.

The nomenclature of the parts of parasitic Copepoda and in particular of their mouthparts has given rise to much confusion in the past. The studies of Bocquet & Stock (1963) and Lewis (1969) have done much to clarify the situation and their recommendations are followed in this work.

Order NOTODELPHYOIDA

Family **Notodelphyidae**

Gunenotophorus blaizei n. sp.

(Fig. 1*a–j*)

Description

♀. Head bent ventrally, with lateral margins somewhat ventrally produced. Thorax (2nd to 4th segments) strongly inflated, containing eggs. Abdomen 4-segmented, terminal segment slightly dorsally flexed and spinose, caudal rami dorsally curved, apically blunt. 1st antenna with segmentation obscure, apex curved, distally covered with fine, short bristles. 2nd antenna 3-segmented, 2 basal segments broad, terminal segment tapering, with stout apical hook.

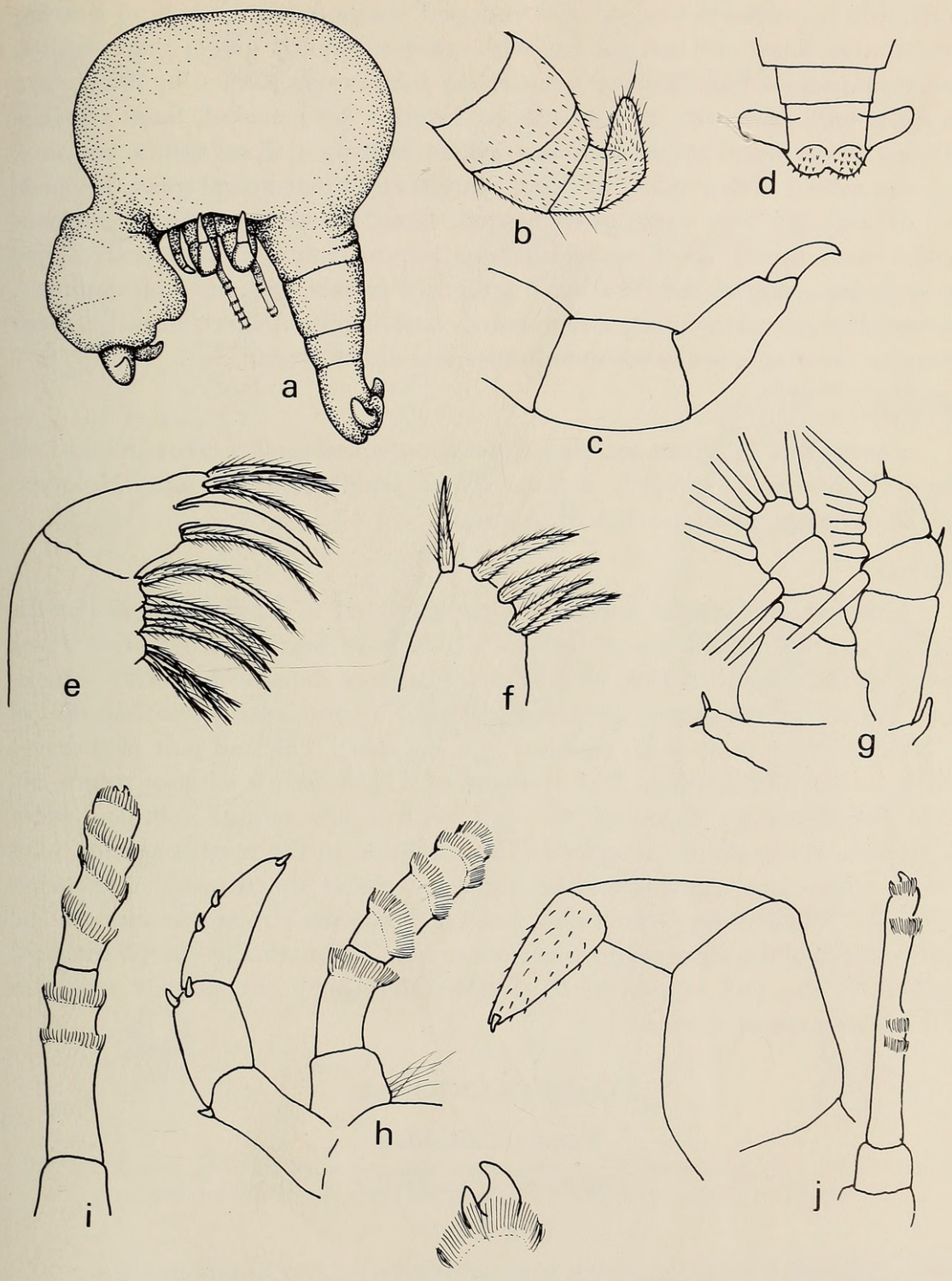

Fig. 1. *Gunenotophorus blaizei* n. sp. *a*. ovigerous ♀ in lateral view; *b*. 1st antenna; *c*. 2nd antenna; *d*. urosome; *e*. apex of 2nd maxilla; *f*. apex of maxilliped; *g*. 1st thoracic leg; *h*. 2nd thoracic leg, with apex of endopod further enlarged; *i*. endopod of 3rd thoracic leg; *j*. 4th thoracic leg.

Mouthparts agreeing with *G. globularis*.i 1st pair thoraric legs biramous, closely applied to mouthparts, exopod and endopod 3-segmented, both rami bearing long plumed setae. 2nd thoraric legs with endopod slightly longer than exopod, endopod 4-segmented, bearing 5 encircling membranes formed by fused setae on distal half, apex with minute pincer. Exopod 3-segmented, basal segment bearing single distal spine, median segment bearing 2 distal spines, terminal segment armed with 2 spines on outer margin and single apical spine. Exopods of 3rd and 4th legs stout, 3-segmented, flexed dorsally, terminal segment armed with apical spine and numerous minute spinules. Endopod of 3rd thoracic leg 4-segmented, bearing 6 setiferous membranes and apical pincer. Endopod of 4th thoracic leg 2-segmented, basal segment short, distal segment elongate, bearing 4 setiferous membranes and apical pincer.

Material

2 ovigerous ♀♀, from ascidian *Gynandrocarpa unilateralis*, taken in 62 m off Cape St Blaize, N×W½W, 8 km. Total length 1,5–1,8 mm. Holotype S.A.M. A13049, paratype S.A.M. A13041.

Remarks

Although the present species is closely related to *G. globularis* Buchholz, and *G. giganteus* Schellenberg, both of which have been recorded from *Pyura stolonifera* from South Africa, several characteristics demand a specific separation. The size of the largest specimen (1,8 mm) is considerably less than that of *G. globularis* (3–5 mm) or *G. giganteus* (7,2–8,4 mm). The 2nd pair of thoracic legs show some differences. The endopod of *G. globularis* is without spines, or, as in Schellenberg's figure 38 of 1922, with a few minute spinules, while *G. giganteus* is completely unarmed. The condition in the present species, with 1 or 2 spines per segment on the outer margin of the exopod, approaches *G. spinipes* Schellenberg, which also, however, possesses strong spination on the inner margin of the distal segment of the exopod. The markedly-curved terminal segment of the 2nd exopod of *G. curvipes* (Illg 1958) immediately separates it from the present species.

Order CALIGOIDA

Family **Caligidae**

Caligus cf. *affinis* Heller

(Fig. 2*a–g*)

Caligus affinis: Brian, 1934: 193, fig. 15; 1939: 178, fig. 1.

Description

♀. Carapace obviously less than half total length. Genital segment flask-shaped, slightly longer than carapace, posterior lobes not very prominent. Abdomen 2-segmented, slightly shorter than genital segment, proximal segment about 3 times length of distal segment. Sternal furca small, arms crescentic.

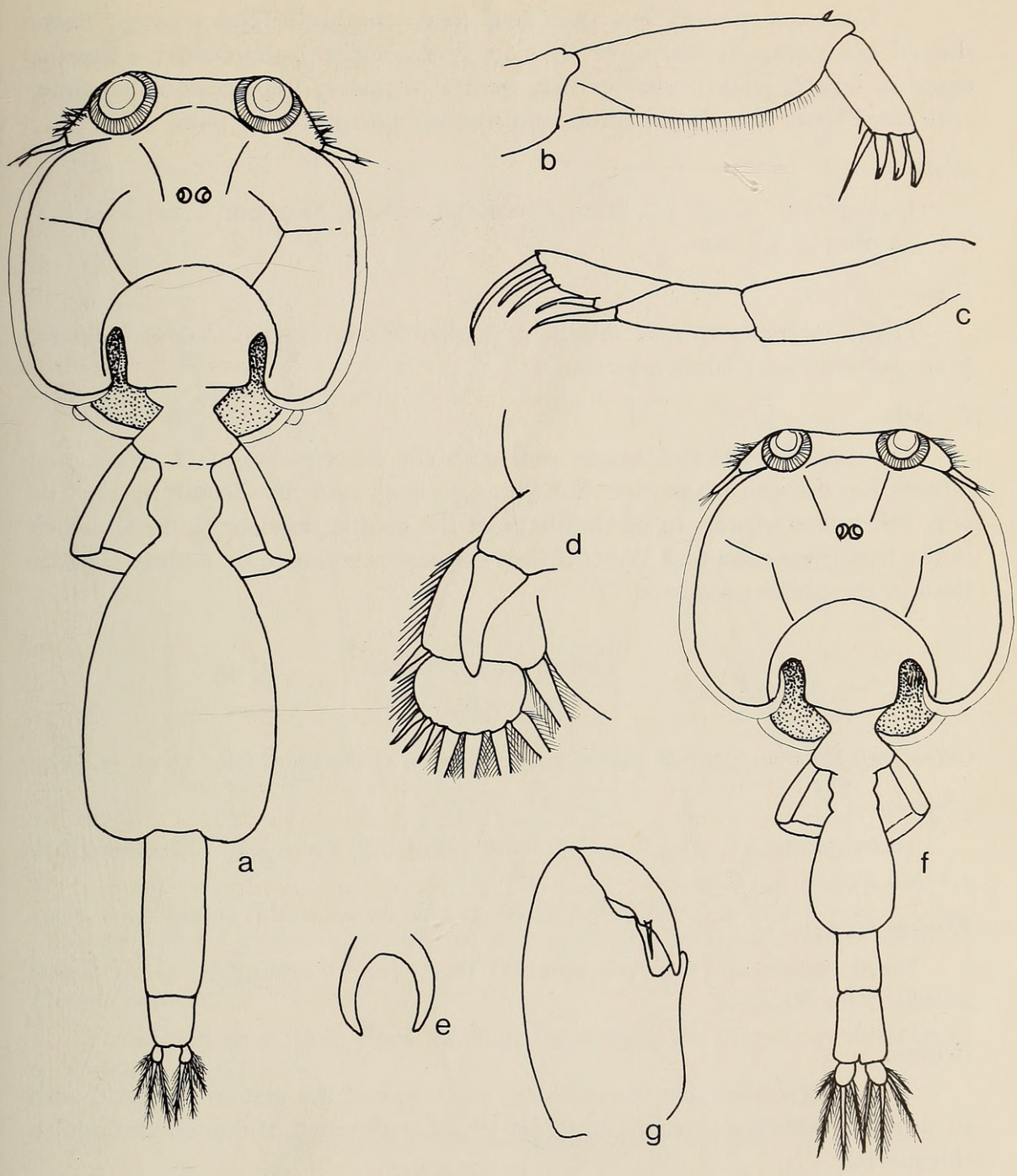

Fig. 2. *Caligus* cf. *affinis* Heller. *a*. female in dorsal view; *b*. 1st thoracic leg, ♀; *c*. 4th thoracic leg ♀; *d*. 3rd thoracic leg, ♀; *e*. sternal furca; *f*. male in dorsal view; *g*. maxilliped, ♂.

Terminal segment of 1st thoracic leg bearing 3 strong spines, single large simple seta, one minute seta on posterior margin. Penultimate segment with tiny scale-like spine on anterior margin. Spine of exopod of 3rd thoracic leg slightly curved. 4th thoracic leg 3-segmented, terminal segment bearing 4 spines, ultimate spine about twice length of the others, penultimate segment bearing distal spine. Terminal segment of 1st maxilla a simple hooked spine.

♂. Carapace slightly less than half total length. Genital segment flask-shaped but relatively narrower than in ♀. Abdomen 2-segmented, segments equal in length, slightly shorter than genital segment. Maxilliped subchelate, with large blunt thumb-like spine, and second blunt spine on 'palm'.

Material

1 ovigerous + 1♀, 1♂, from *Pomatomus saltator*, Durban. Total length ♀ 4,2–4,4 mm, ♂ 3,0 mm.

Previous records

From *Sphyraena* sp., at mouth of Congo River. From *Umbrina cirrhosa*, from Adriatic and Mediterranean.

Remarks

The present material agrees well with the descriptions of *C. affinis*, and falls within the size range given for ♀♀ (3,30–5,45 mm) by Brian (1934). The only difference appears to be the shape of the genital segment in the ♀, which in the Mediterranean and West African specimens seems to be slightly broader than in the present material.

Caligus aesopus Wilson

(Fig. 3*d–f*)

Caligus aesopus Wilson, 1940: 72. Hewitt, 1963: 71, figs 4, 5. Yamaguti, 1963: 49, pl. 53, fig. 3.

Material

10 ovigerous ♀♀, 25 ♀♀, 4 ♂♂, from yellowtail, False Bay. Total length ♀ 4,2–5,0 mm, ♂ 3,9 mm.

Previous records

From scombrid (? *Seriola peruana*) from Juan Fernandez. From *Seriola grandis*, New Zealand.

Remarks

The 4-segmented 4th thoracic leg, the shape of the genital segment, with its angular posterior corners, and the single segmented abdomen distinguish this species.

Caligus confusus Pillai

(Fig. 3*a–c*)

Caligus confusus Pillai, 1961: 104, fig. 10. Kirtisinghe, 1964: 68, figs 70–71.
Caligus alalongae (*non* Krøyer), Yamaguti, 1954: 379, pl. 2, fig. 19, pl. 3, fig. 21.
Caligus constrictus (*non* Heller), Wilson, 1937: 25, pl. 3, fig. 3.

Material

1 ovigerous ♀, 2 ♂♂, from gill chamber of *Caranx djedaba*, Durban. Total length ♀ 4,0 mm.

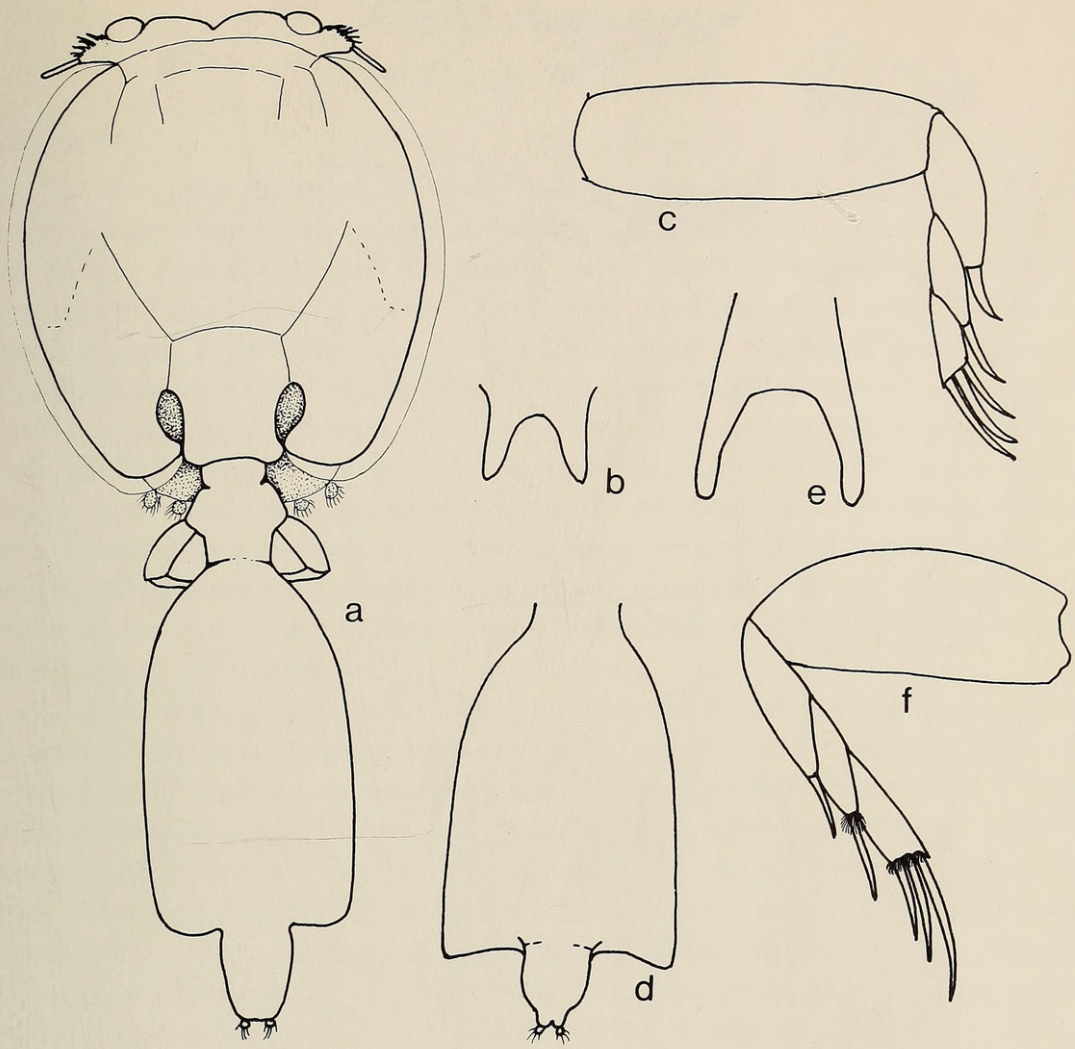

Fig. 3. *Caligus confusus* Pillai. *a*. female in dorsal view; *b*. sternal furca; *c*. 4th thoracic leg, ♀. *Caligus aesopus* Wilson. *d*. genital segment and abdomen, ♀; *e*. sternal furca; *f*. 4th thoracic leg, ♀.

Previous records

From carangids taken from Panang, Galapagos, on *Elagatis* sp. and *Caranx* sp. Celebes, south India.

Caligus coryphaenae Steenstrup & Lütken

(Fig. 4*a–f*)

Caligus coryphaenae Lewis, 1967: 101, figs 37–39. Pillai, 1962*a*: 514, fig. 1.

Material

6 ovigerous ♀♀ from *Thynnus obesus*, off Cape Point. 1 ovigerous ♀, 3 ♂♂ from *Euthynnus pelamis*, off Cape Point. Total length ♀ 7,2–8,5 mm, ♂ 5,4 mm. Colour when alive, salmon pink, genital segment and abdomen yellowish.

Previous records

See Lewis (1967: 102)

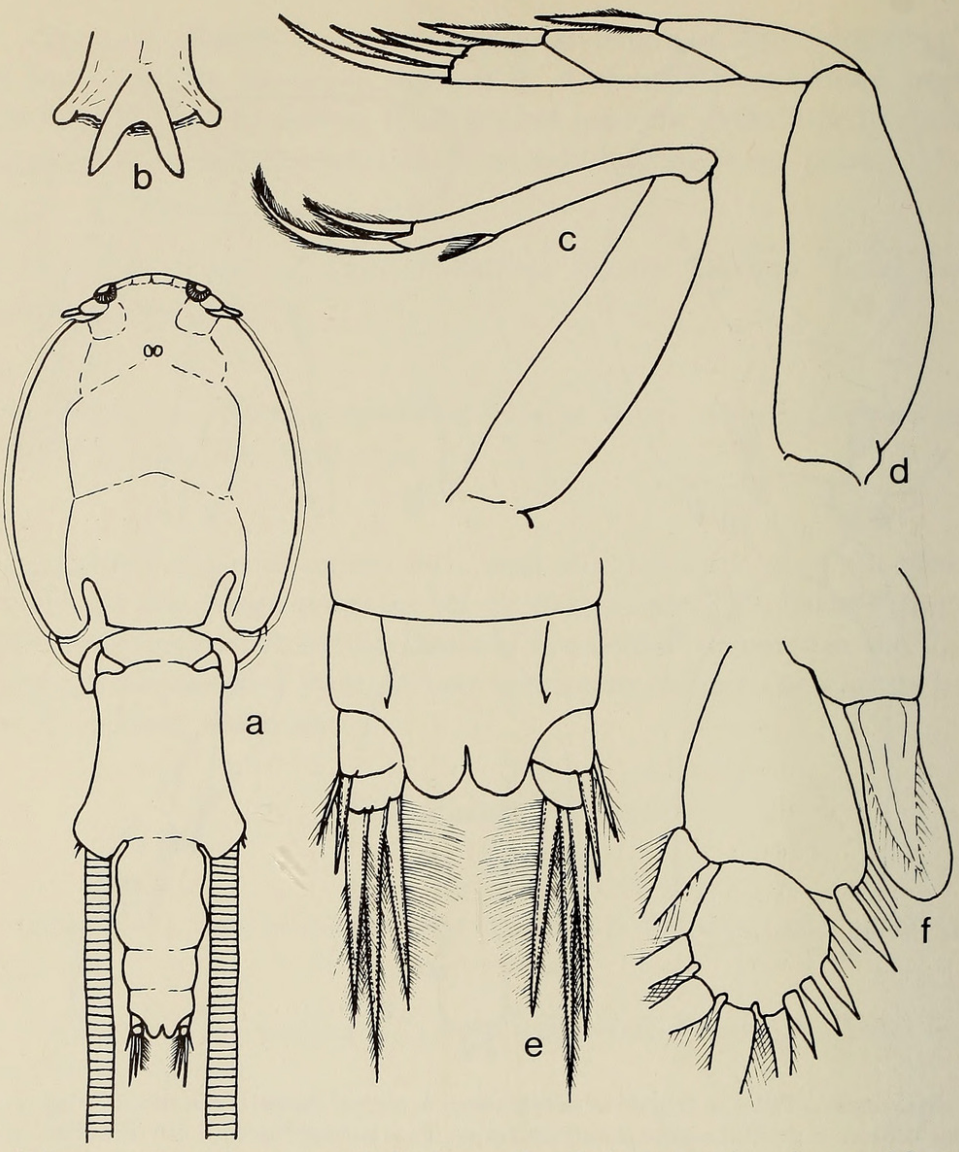

Fig. 4. *Caligus coryphaenae* Steenstrup & Lütken. *a*. female in dorsal view; *b*. sternal furca; *c*. 2nd maxilla, ♀; *d*. 4th thoracic leg, ♀; *e*. distal segment of abdomen, ♀; *f*. 3rd thoracic leg.

Remarks

Three important characters by which this species may be distinguished were given by Pillai (1962*a*). These are the sternal furca arms which are apically pointed and divergent, the basal hook of the exopod of the 3rd thoracic leg, which is straight or outcurved, and the ultimate claw of the 4th thoracic leg which is obviously longer than the penultimate one. As the present material agrees on all these points, it is placed in this species.

Caligus mortis Kensley

Caligus mortis Kensley, 1970: 167, figs 1, 2.

Material

10 ovigerous ♀♀, taken from intertidal fish from Torra Bay, S.W.A., Möwe Bay, S.W.A., Swakopmund, S.W.A., and Saldanha Bay, Cape. Host species include *Clinus superciliosus*, *Blennius cornutus* and *Chorisochismus dentex*.

Caligus penrithi n. sp.

(Figs 5*a*, *b*, 6*a–m*, 7*a–d*)

Description

♀. Carapace broadest posteriorly, less than half total length, cephalic region longer than thoracic area. Lunules tiny. Margin with narrow membranous fringe. Posterior sinuses relatively wide. Thoracic region extending well beyond postero-lateral borders. Eyes tiny, contiguous, in anterior half of cephalic area. Free thoracic segment about $\frac{1}{3}$ length of genital segment. Latter slightly broader than long, rectangular, antero-lateral corners more rounded than postero-lateral corners. Abdomen conical, 2-segmented, slightly shorter than genital segment. 1st antenna 2-segmented, basal segment only slightly longer than distal segment, bearing about 12 plumose setae. Terminal segment with 12 distal simple setae. 2nd antenna 3-segmented, basal segment short and broad, middle segment longer and broad, terminal segment tapering, with setule at base of strong falcate process. Mandible indistinctly 3-partite, with 12 subapical denticulations.

Postantennal process a simple spine-like structure. 1st maxilla consisting of broad basal area bearing tiny lobe with 3 setae, and triangular spine-like process. 2nd maxilla 2-segmented, basal segment slightly more than $\frac{1}{2}$ length of distal segment, twice as broad. Distal segment with membranous scale-like process slightly beyond midpoint, 2 distal spines, curved, inner slightly longer than outer, bearing 4 spinules and setiferous fringe, outer spine bearing setiferous fringe only. Maxilliped 2-segmented, basal segment broad, tapering, terminal segment short, bearing strong falciform process, single seta present at distal end of segment. Sternal furca having divergent arms, latter apically truncate, straight-sided. 1st thoracic leg biramous, endopod reduced to tiny process bearing single short spine, on protopodite. Latter consisting of single segment with single proximal plumed seta, shorter than 1st exopod segment. Latter three times longer than wide, with spine at outer distal angle, inner margin bearing fringe of setae. Terminal segment $\frac{1}{2}$ length of 1st segment twice longer than wide, bearing 3 curved distal spines, and 3 stout plumose setae on inner margin. 2nd thoracic leg biramous, both rami 3-segmented. Protopodite 2-segmented, 1st segment less than $\frac{1}{2}$ length of 2nd segment, bearing single plumose seta on inner margin. 2nd segment only slightly longer than wide, with membranous fringe of setae and single stronger seta on inner margin. Basal segment of exopod equal in length to 2 distal segments together, bearing serrate spine at outer distal angle, plumose seta at inner distal angle. Middle segment short, also bearing serrate spine at outer distal angle, plumose seta at inner distal angle. Terminal segment longer than 2nd, bearing 2 simple spines on outer distal margin, 6 plumose setae on distal and inner margin, seta adjacent to spines shortest. Basal segment of endopod bearing single plumose seta on inner margin. 2nd segment longer than basal or terminal segments, with 2 distal plumose setae on inner margin, and pad of closely

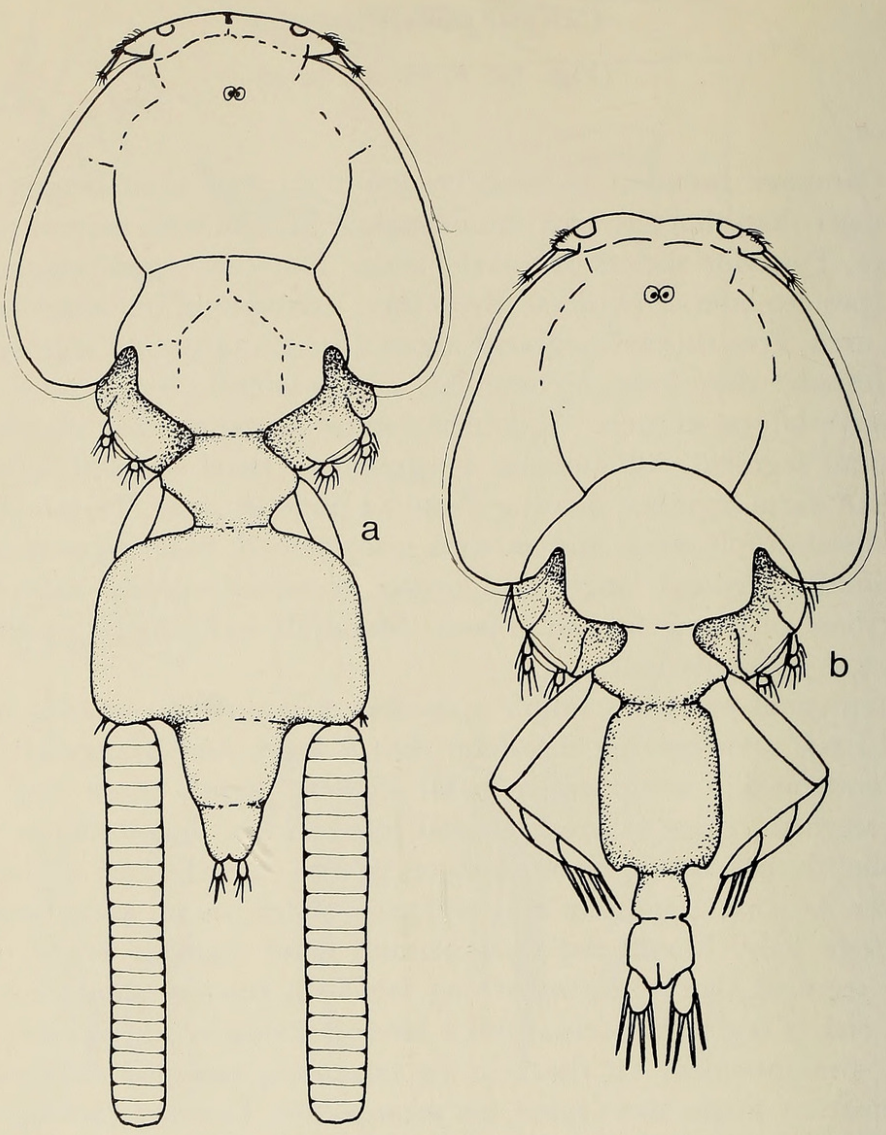

Fig. 5. *Caligus penrithi* n. sp. *a.* female in dorsal view; *b.* male in dorsal view.

packed setules around outer margin. Terminal segment with similar smaller pad and 6 plumose setae. 3rd thoracic leg biramous. Protopodite expanded, 2 rami somewhat separated. Exopod 2-segmented, basal segment with distal plumose seta on inner angle and smaller spine at outer distal angle, outer margin fringed with setae. Terminal segment bearing 4 plumose setae and 3 short spines. Hook-like bipartite process arising at base of exopod with fine membranous margin distally. Endopod 3-segmented, basal segment very narrow, with single plumose seta, 2nd and 3rd segments subequal, 2nd segment with 2, 3rd segment with 4 plumose setae. 4th thoracic leg uniramous, 4-segmented, basal segment equal in length to 3 distal segments together, 2nd and 3rd segments each with single fringed spine, terminal segment with 3 slightly curved fringed spines, apex of segment acute. 5th thoracic leg situated at postero-lateral corner of genital segment, consisting of single tiny segment

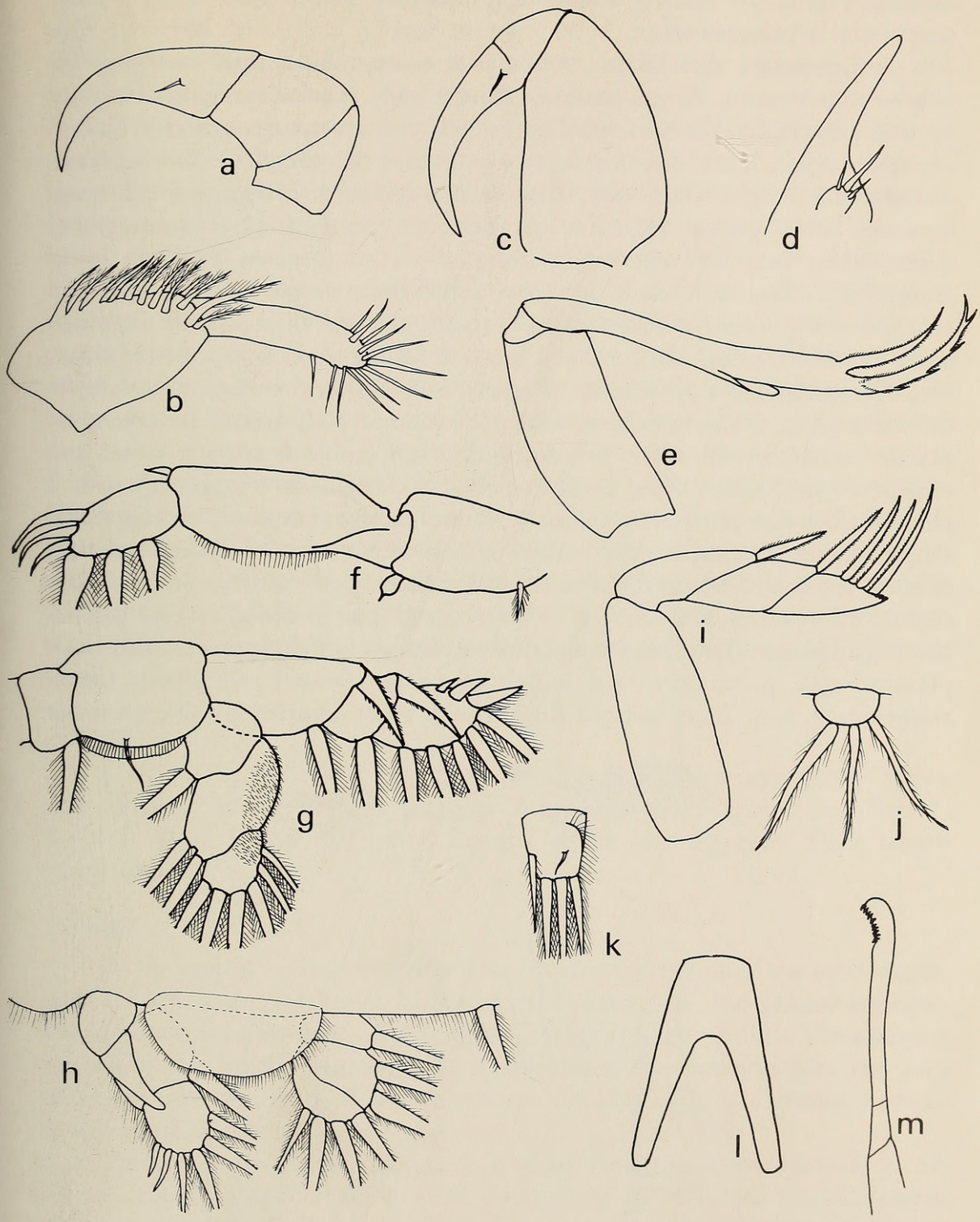

Fig. 6. *Caligus penrithi* n. sp. ♀. *a*. 2nd antenna; *b*. 1st antenna; *c*. maxilliped; *d*. 1st maxilla; *e*. 2nd maxilla; *f*. 1st thoracic leg; *g*. 2nd thoracic leg; *h*. 3rd thoracic leg; *i*. 4th thoracic leg; *j*. 5th thoracic leg; *k*. caudal ramus; *l*. sternal furca; *m*. mandible.

bearing 3 plumose setae. Caudal ramus slightly longer than wide, with 1 simple and 4 plumose setae.

♂. Carapace ½ total length, widest posteriorly, lunules small, margin with narrow membranous fringe, posterior sinuses wide. Thoracic region extending beyond postero-lateral borders. Eyes small, contiguous, in anterior half of cephalic region. Free thoracic segment about ½ length of genital segment. Latter twice longer than wide. Abdomen 2-segmented, segments subequal, narrower than genital segment. 1st antenna 2-segmented, basal segment shorter than terminal segment, bearing about 16 plumose setae on outer margin. Terminal segment with 2 long and 8 short simple setae distally. 2nd antenna 3-segmented, basal segment broad, shorter than middle segment, latter broad, tapering, with 2 distal grooved bulges. Terminal segment short, with short simple seta proximally, plus 2 stout hook-like processes, one elongate the other short. Postantennal process a simple narrowly triangular spine. 1st maxilla a narrow spine-like process, with basal lobule bearing 3 setae. 2nd maxilla as in ♀. Maxilliped 2-segmented, basal segment very broad, with 2 pointed tooth-like processes proximally. Terminal segment short, bearing distal simple seta, and strong slightly curved process which meets tooth-like processes of basal segment. Sternal furca with arms relatively shorter than in ♀, basally slightly curved. 1st thoracic leg biramous, endopod reduced to tiny process bearing 2 terminal spinules. Protopodite consisting of single segment, with small plumose seta proximally, ⅔rd length of basal segment of exopod. Latter 2-segmented, with inner margin fringed with setae, and small spine on outer

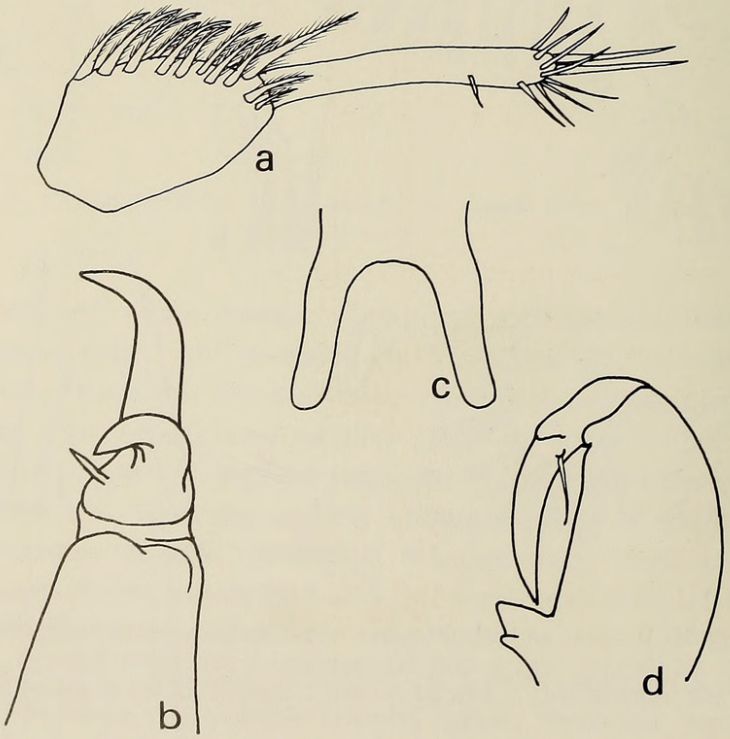

Fig. 7. *Caligus penrithi* n. sp. ♂. *a.* 1st antenna; *b.* 2nd antenna; *c.* sternal furca; *d.* maxilliped.

distal angle. Terminal segment slightly less than ½ length of basal segment, with 3 curved spines and 3 large plumose setae. 2nd thoracic leg biramous, protopodite 2-segmented, basal segment short, with single plumose seta. 2nd segment with inner margin fringed with setae, and single setae at outer distal angle. Exopod 3-segmented, basal segment equal in length to 2 distal segments together, with strong serrate spine at outer distal angle, and plumose seta at inner distal angle. Middle segment ½ length of terminal segment, carrying single serrate spine, and single plumose seta. Terminal segment with 2 short spines on outer margin, and 6 large plumose setae. Endopod 3-segmented, 1st and 3rd segments subequal, middle segment longer. Basal segment bearing single plumose seta, middle segment with 2 plumose setae and pad of closely packed spinules. Terminal segment with similar pad, plus 6 plumose setae. 3rd thoracic leg biramous, protopodite expanded, bearing setal fringe. Exopod 2-segmented, with bipartite spine-like process at base, basal segment with single plumose seta, terminal segment with 4 plumose setae and 3 small spines. Endopod 2-segmented, basal segment narrow, with single plumose seta, terminal segment with 6 plumose setae and margin of fine hairs. 4th thoracic leg 4-segmented, basal segment slightly longer than 3 distal segments together. 2nd and 3rd segments each with single fringed spine, terminal segment with 3 slightly curved fringed spines, terminal one longest, apex of segment acute. Caudal ramus longer than wide, with 1 small and 4 large plumose setae.

Material

5 ovigerous + 1 ♀♀, 8 ♂♂, from *Chilodactylus fasciatus*, from Möwe Bay, S.W.A. Holotype and allotype S.A.M. A13050, paratypes S.A.M. A13051. Total length ♀ 4,5 mm. Length of egg sacs 2,5 mm. Total length ♂ 3,0 mm.

Remarks

Of the species of *Caligus* having the carapace less than half the total length, and a 2-segmented abdomen about equal in length to the genital segment, the present species most closely resembles *C. robustus* Bassett-Smith. The elongate nature of the genital segment and abdomen of the latter species are very different, however, from *C. penrithi*, with its roughly quadrate genital segment and conical abdomen.

There is some resemblance to *C. djedabae* Rangnekar, particularly in the shape of the carapace and genital segment of the female. The abdomen, however, consists of a single segment, albeit conical, and is relatively shorter than in *C. penrithi*. Other differences also exist in the shape of the sternal furca and the 4th thoracic legs of the ♀.

The species is named for Dr M.-L. and Mr M. J. Penrith of the State Museum, Windhoek, who caught the fish host of this species.

Lepeophtheirus lalandei n. sp.

(Figs 8*a*, *b*, 9*a–l*, 10*a–d*)

Description

♀. Carapace about ½ total length, obviously longer than wide, sides almost parallel, with moderately wide membranous fringe. Cephalic region longer than thoracic region, with contiguous eyes at about midpoint. Posterior sinuses narrow. Thoracic region extending slightly beyond postero-lateral borders. Free thoracic segment about ⅓ length of genital segment, wider than long. Genital segment longer than wide, with well-developed posterior lobes, 5th legs just visible beneath these. Abdomen slightly shorter than genital segment, unsegmented, twice longer than wide. 1st antenna 2-segmented, basal segment broadly tapering, bearing about 13 plumose setae on anterior margin, terminal segment shorter than basal segment, with about 12 distal setae. 2nd antenna 3-segmented, basal segment narrow, 2nd segment broad, stout, terminal segment more slender, with simple seta below curved hooked apex, strong spine at base. Postantennal process a small simple slightly curved spine. 1st maxilla bifid, arms short and rounded. 2nd maxilla 2-segmented, basal segment slightly shorter but stouter than terminal segment, latter bearing a rounded scale at midpoint, terminally with 2 curved fringed spines, unequal in length, Mandible slender, with 12 distal denticulations, apically curved. Maxilliped 2-segmented, basal segment stout, terminal segment about ⅕ length of basal segment, with terminal strongly falcate process, and single seta at base. Sternal furca very small, arms stout, stubby. 1st thoracic leg biramous, endopod reduced to tiny process on protopodite. Latter broad, about same length as 1st exopod segment. Exopod 2-segmented, basal segment twice longer than broad, inner margin fringed with setae, and bearing single short spine at outer distal angle. Terminal segment slightly more than ½ length of basal segment, roughly rectangular, bearing 3 large plumose setae on inner margin, 1 short plumose seta at inner distal angle, and 3 short fringed spines, inner 2 each having an accessory spinule at midpoint. 2nd thoracic leg biramous. Protopodite 2-segmented, basal segment about ¼ length of 2nd segment, with single plumose seta on inner margin. 2nd segment with setal fringe on inner margin. Exopod 3-segmented, basal segment equal in length to 2 distal segments together, with 1 plumose seta on inner margin, and strong fringed spine on outer distal angle. 2nd segment similarly armed. Terminal segment with 6 plumose setae and 2 fringed spines. Endopod 3-segmented, middle segment longer than 1st or 3rd. 1st and 2nd segments each with single plumose seta on inner margin, terminal segment with 6 plumose setae. 3rd thoracic legs biramous, protopodite broad and expanded. Exo- and endopod close together. Exopod 2-segmented, basal segment with single plumose seta at outer and inner distal corners. Terminal segment with 3 simple setae, and 4 plumose setae. A broad membranous process at base of exopod, bearing spine on median edge. Endopod 2-segmented, basal segment narrow, with single plumose seta, terminal segment with 5

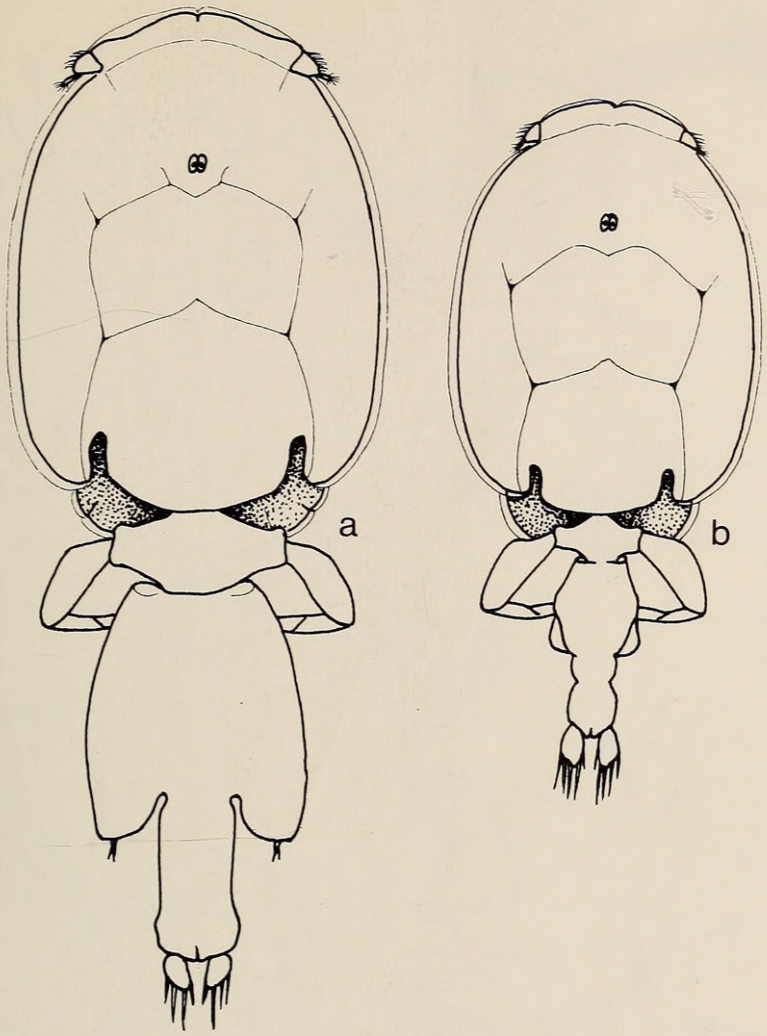

Fig. 8. *Lepeophtheirus lalandei* n. sp. *a*. female in dorsal view; *b*. male in dorsal view.

plumose setae. 4th thoracic leg uniramous, 4-segmented, basal segment stout, about twice longer than wide, at least 2–3 times wider than other segments. 2nd segment shorter than 3rd, anterior margin elongated, and joint therefore diagonal, apex of elongation bearing tiny spine and semicircular flange. 3rd segment bearing apically a strong fringed spine with semicircular flange, posterior margin with small spine near apex. Terminal segment bearing 3 strong curved fringed spines, decreasing in size towards anterior margin. Posterior margin bearing 2 small spines at distal end. 3rd and 4th segments both bearing fringe of short fused setae on entire length of anterior margins. 5th thoracic legs situated on ventral surface of genital segment, roughly fig-shaped, bearing apical spine, and 3 plumose setae.

♂. Carapace more than $\frac{1}{2}$ entire length, longer than wide, free thoracic segment wider than long, about $\frac{1}{3}$ length of genital segment. Latter only slightly longer than wide, with flattened flap posteriorly, corresponding to lobes in ♀.

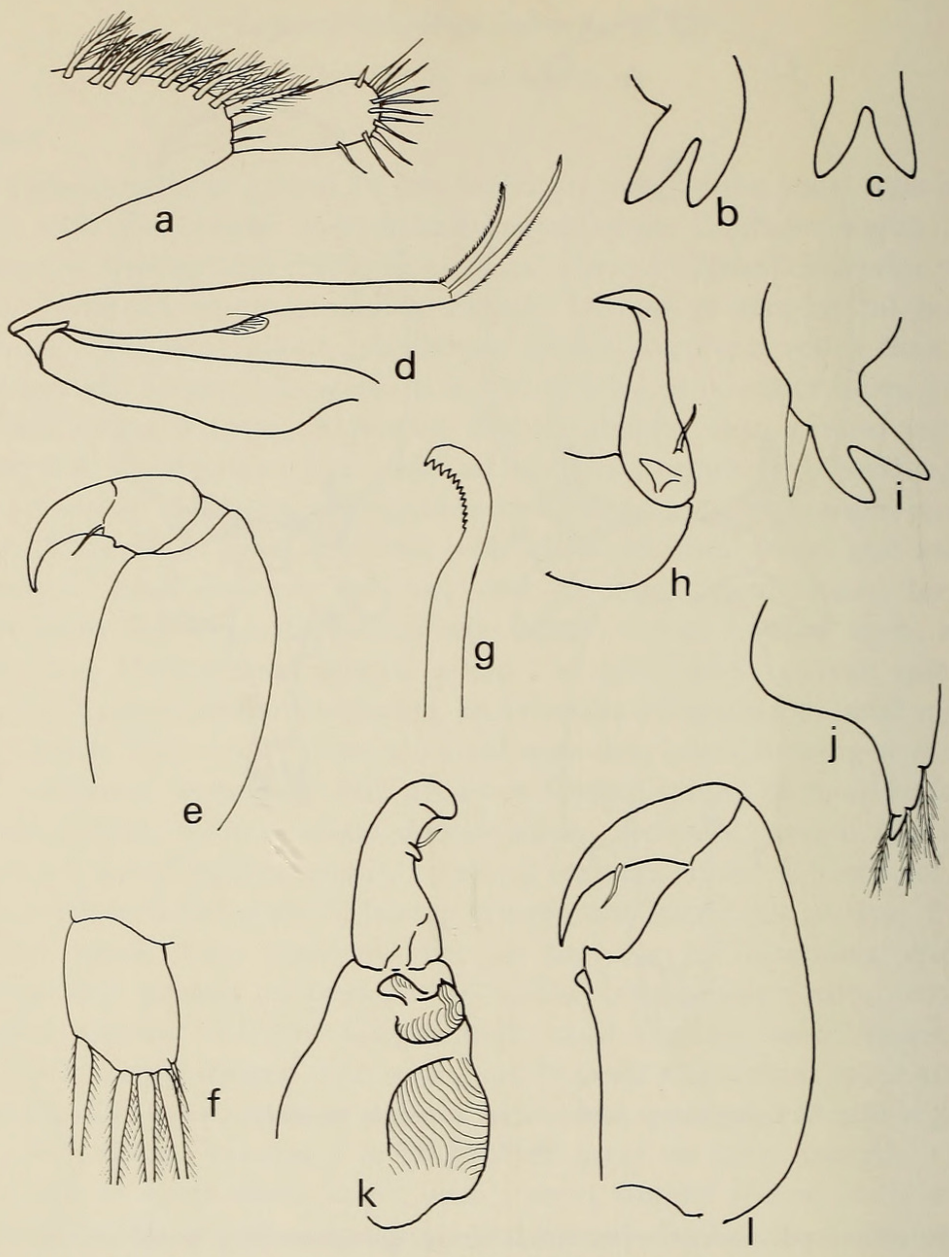

Fig. 9. *Lepeophtheirus lalandei* n. sp. *a*. 1st antenna, ♀; *b*. 1st maxilla, ♀; *c*. sternal furca; *d*. 2nd maxilla, ♀; *e*. maxilliped, ♀; *f*. caudal ramus; *g*. mandible; *h*. 2nd antenna, ♀; *i*. 1st maxilla, ♂; *j*. 5th thoracic leg, ♀; *k*. 2nd antenna, ♂; *l*. maxilliped, ♂.

Abdomen 2-segmented, 1st segment shorter than 2nd. Caudal rami broadly oval, bearing 4 elongate plumose setae. 1st antenna 2-segmented, basal segment slightly longer than terminal segment, with about 12 plumose setae on anterior margin. Terminal segment bearing about 13 simple distal setae. 2nd antenna 2-segmented, apically bearing a curved hook with simple seta, basal segment bearing large proximal ridged area, separated from distal ridged cushion, latter bearing 2 blunt spines, inner one twice length of outer. 1st maxilla bifid, also bearing accessory spine on inner margin. 2nd maxilla as in ♀. Maxilliped subchelate, with short bifid spine on basal segment almost meeting tip of apical

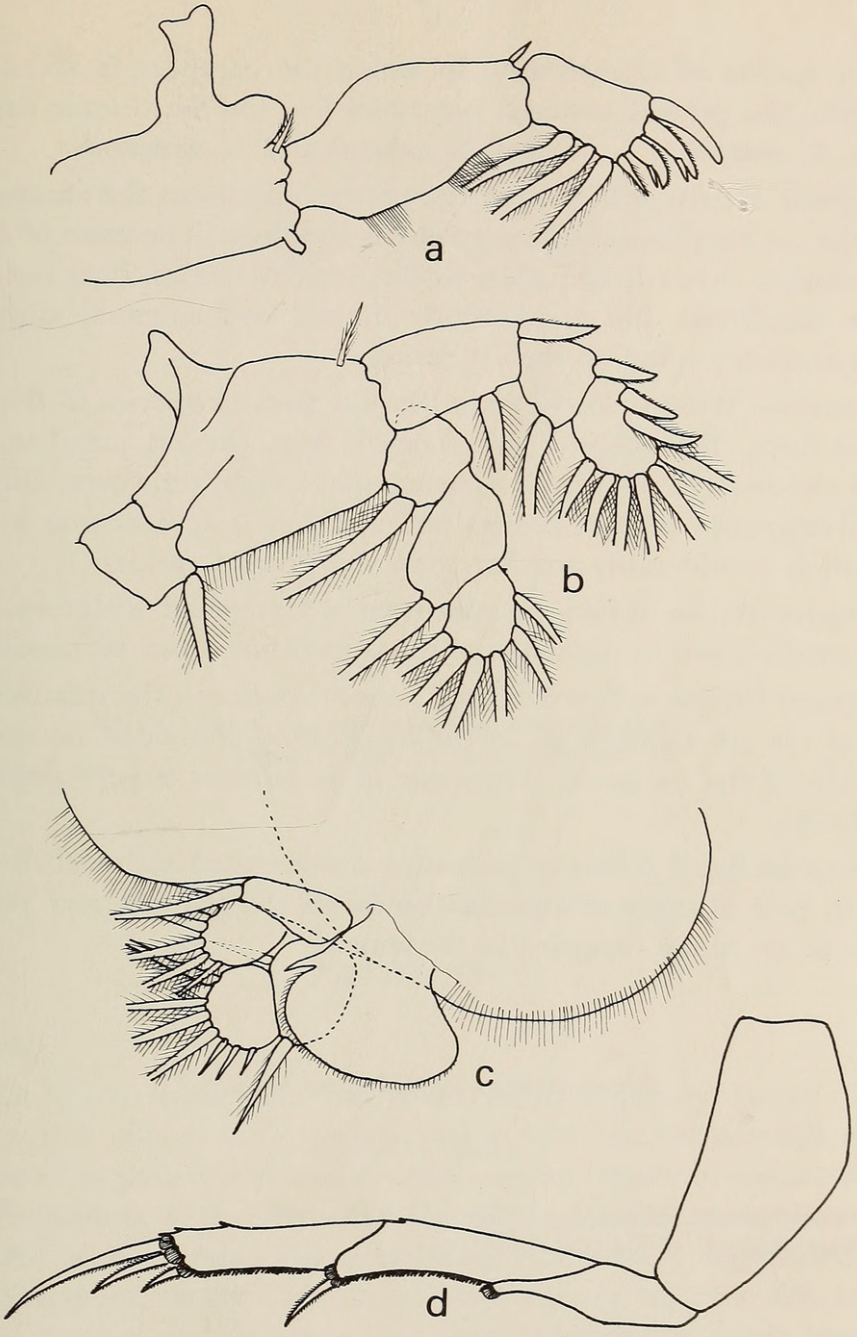

Fig. 10. *Lepeophtheirus lalandei* n. sp. ♀. *a*. 1st thoracic leg; *b*. 2nd thoracic leg; *c*. 3rd thoracic leg; *d*. 4th thoracic leg.

hook. 1st to 5th thoracic legs as in ♀. Caudal ramus longer than wide, with 1 small and 4 large plumose setae.

Material

7 ♀♀, 1♂, from *Seriola lalandi*, taken at Vema Seamount. Holotype and allotype S.A.M. A13052, paratypes S.A.M. A13053. ♀ total length 10,3 mm, carapace length 5,2 mm. ♂ total length 6,4 mm, carapace length 4,0 mm.

Remarks

Of the species of *Lepeophtheirus* in which the carapace is about half the entire length, the present material resembles five species to some degree, viz. *L. argentus*, *L. constrictus*, *L. longipes*, *L. salmonis* and *L. thompsoni*.

L. argentus Hewitt differs from the present species in the carapace shape of the ♀, the 1st maxilla and the segmented abdomen. The male of *L. argentus* has an abdomen much longer than in the present species, does not possess a subchelate maxilliped, has a differently shaped 2nd antenna, and does not possess an accessory spine on the 1st maxilla.

L. constrictus Wilson closely resembles the present species in the shape of the sternal furca, the 4th and 5th thoracic legs, the 1st maxillae, and the undivided abdomen in the female. The carapace shape, however, differs, while the genital segment does not possess posterior lobes. *L. constrictus* at 6,6 mm total length is considerably smaller than the present species.

L. longipes Wilson differs in possessing a segmented abdomen, which is relatively smaller, and in the shape of the sternal furca and 1st maxilla.

L. salmonis Wilson differs from the present species in the relatively shorter segments of the 4th thoracic leg in the female, the undivided 1st maxilla and in the shape of the carapace. The male of *L. salmonis* is very similar to the present species.

L. thompsoni Baird differs in possessing a segmented abdomen, a relatively smaller 4th pair of thoracic legs, in the shape of the furca and 1st maxilla, and in the shape of the carapace in the female.

Lepeophtheirus longispinosus Wilson

(Fig. 11*a*, *b*)

Lepeophtheirus longispinosus Wilson, 1908: 604, pl. 52. Yamaguti, 1963: 74, pl. 99, fig. 5.
(*non Lepeophtheirus* sp. of Barnard, 1955*a*: 252)

Material

3 ovigerous ♀♀ from *Carcharinus leucas*. Total length 2,9–3,0 mm.

Previous records

On *Sphyrna zygaena* from N. America.

Remarks

The character of the 1st maxilla and the furca makes this species easily recognizable. The former is slender, elongate, armed with a slender spine at the base. The furcal arms are widely divergent, apically spatulate, and bear a slender secondary branch on the inner margin.

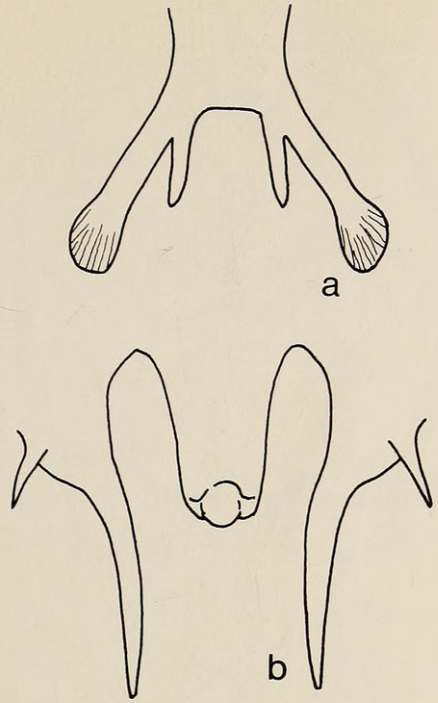

Fig. 11. *Lepeophtheirus longispinosus* Wilson. *a*. sternal furca; *b*. oral cone and 1st maxilla.

Lepeophtheirus natalensis n. sp.

(Figs 12, 13*a–k*)

Description

♀. Carapace more than half total length, slightly longer than wide, cephalic region longer than thoracic area, with narrow membranous fringe. Eyes situated at posterior end of cephalic region. Posterior sinuses moderately wide. Free thoracic segment about $\frac{1}{3}$ length of genital segment. Latter roughly rectangular, with rounded posterior lobes. Abdomen unsegmented, $\frac{1}{3}$ length of genital segment, longer than broad, with narrow posterior slit. 1st antenna with basal segment slightly longer than terminal segment, former bearing about 19 plumose setae, latter with 12 simple setae distally. 2nd antenna 3-segmented, middle segment bearing striated rounded process, terminal segment bearing simple seta, and tapering hook-like process. Postantennal process a simple stout hook. 1st maxilla flanking oral cone, consisting of simple stout posteriorly-directed hook. 2nd maxilla 3-segmented, 2 distal segments slender, 2nd bearing 2 fringed spines, terminal segment bearing single elongate fringed spine. Maxilliped 2-segmented, basal segment stout, 5 times longer than terminal segment, bearing strongly-curved apical process. Branches of sternal furca slender, divergent, apically rounded. 1st thoracic leg biramous, endopod reduced to tiny process on protopodite. Latter shorter than 1st segment of exopod, with

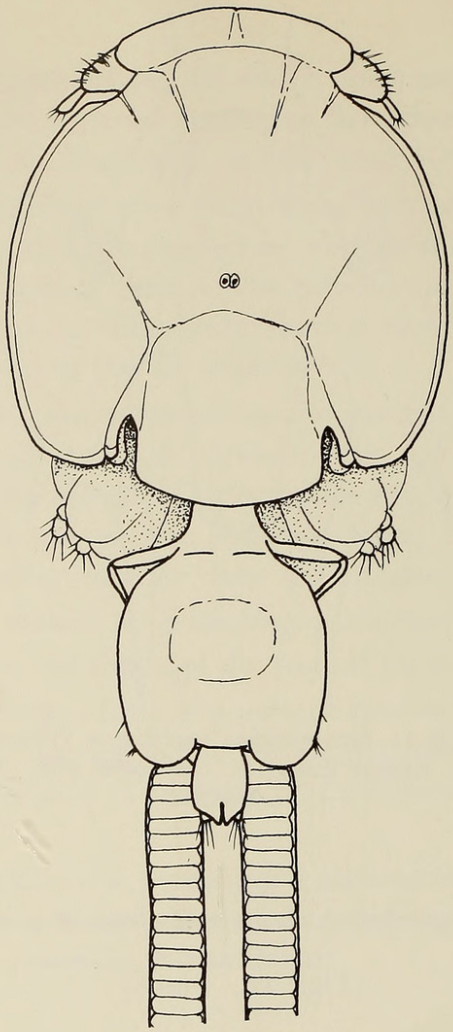

Fig. 12. *Lepeophtheirus natalensis* n. sp.
Female in dorsal view.

short plumose seta at outer distal angle, and at midpoint of posterior margin. Endopod 2-segmented, basal segment bearing fringe of setae on posterior margin, and tiny spine at outer distal angle. Terminal segment bearing 3 large plumose setae on posterior margin, and 1 small simple spine and 3 serrate spines distally, inner 2 each with accessory spinule. 2nd thoracic leg biramous. Protopodite 2-segmented, basal segment $\frac{1}{3}$ length of 2nd segment, with single plumose seta. 2nd segment with setal fringe on posterior margin, and simple spine at outer distal angle. Exopod 3-segmented, basal segment slightly longer than 2 distal segments together, bearing strong fringed spine at outer distal angle, single plumose seta at inner distal angle. 2nd segment similarly armed. Terminal segment with 6 large plumose setae, and 2 short spines. 3rd thoracic leg biramous, protopodite expanded, exopod 2-segmented, basal segment small, bearing single plumose seta, terminal segment with 6 plumose setae and single short spine. Strong bipartite hooked and striated process at base of exopod. Endopod 2-segmented, basal segment narrow, with single plumose seta,

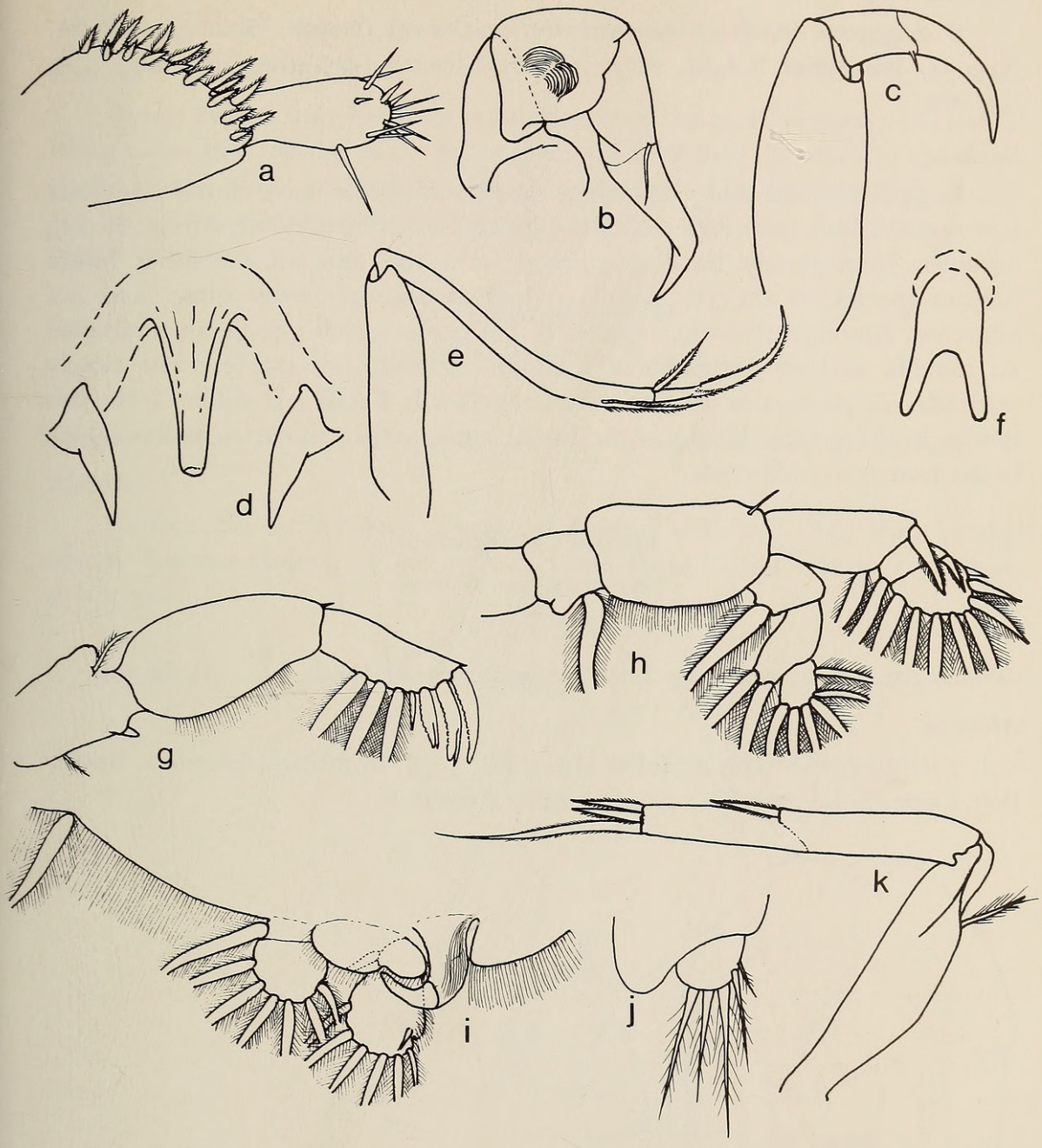

Fig. 13. *Lepeophtheirus natalensis* n. sp. ♀. *a*. 1st antenna; *b*. 2nd antenna; *c*. maxilliped; *d*. oral cone and 1st maxillae; *e*. 2nd maxilla; *f*. sternal furca; *g*. 1st thoracic leg; *h*. 2nd thoracic leg; *i*. 3rd thoracic leg; *j*. caudal ramus; *k*. 4th thoracic leg.

terminal segment with 6 plumose setae. 4th thoracic leg uniramous, 3-segmented, basal segment slightly shorter than 2 distal segments together, with single distal plumose seta. Middle segment bearing distal fringed spine. Terminal segment bearing distally 1 long and 2 short fringed spines. 5th thoracic legs reduced to 3 setae on each side of genital segment. Caudal rami very short, rounded, bearing plumose setae.

Material

6 ovigerous ♀♀ from *Carcharinus leucas*, from Natal. Holotype S.A.M. A13054, paratypes S.A.M. A13055. Total length (excluding egg sacs) 5,1–5,2 mm.

Remarks

In general shape and proportions the present species most closely resembles *L. insignis* Wilson, of the species of the genus known from South Africa. It can, however, immediately be distinguished from this and all the other South African species by the 1st maxilla, which is a simple stout spine, and not bifurcate. Amongst the other species of the genus which possess an undivided 1st maxilla and an abdomen of a single segment, this species most closely resembles *L. parviventris* Wilson, from the North Pacific. It differs from this species in the greater length of the furcal arms, and in the 1st maxillae which in the former are bifurcate.

Family **Cecropidae**

Cecrops exiguus Wilson

(Fig. 14*a*, *b*)

Cecrops exiguus Wilson, 1923: 1, figs 1–15. Yamaguti, 1963: 89. Shiino, 1965: 381, figs 1–4.

Material

7 ovigerous ♀♀ with attached ♂♂, 9 ♀♀, 3 ♂♂, from *Mola lanceolata*, Bantry Bay, Cape. Total length ♀ 10,0–13,5 mm, ♂ 6,0 mm.

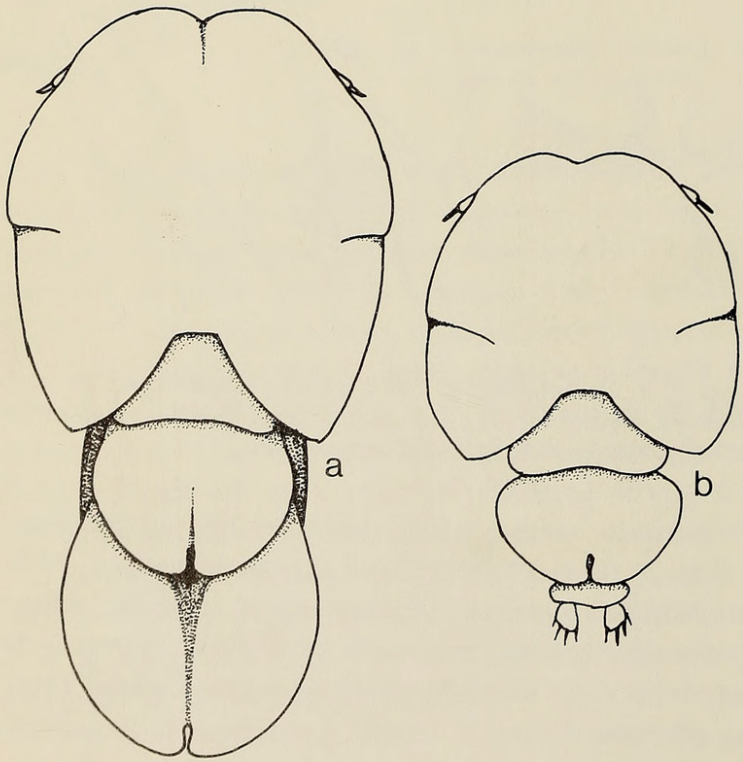

Fig. 14. *Cecrops exiguus* Wilson.
a. female in dorsal view;
b. male in dorsal view.

Previous records

From shark taken off Florida. From *Mola mola*, Japan.

Remarks

Cecrops exiguus may be easily separated from the more common *C. latreillei* being about half the size of the latter species. Differences also exist in the shape of the dorsal plates of both the male and female. The females of *C. exiguus* are pale-ochrous yellow with olive-green ovisacs, while the males are a pale creamy colour.

Family **Euryphoridae**

Elytrophora hemiptera Wilson

(Fig. 15*a–d*)

Elytrophora hemiptera Wilson, 1921: 4, pl. 2, figs 13–19. Yamaguti, 1963: 103, pl. 123, fig. 2.

Material

1 ♀ from yellowfin tunny, *Thunnus albacares*, Table Bay. 13♂♂ from bluefin tunny, *Thunnus thynnus*, 48 km west of Cape Point. Total length ♀ 7,8 mm, ♂ 6,1 mm.

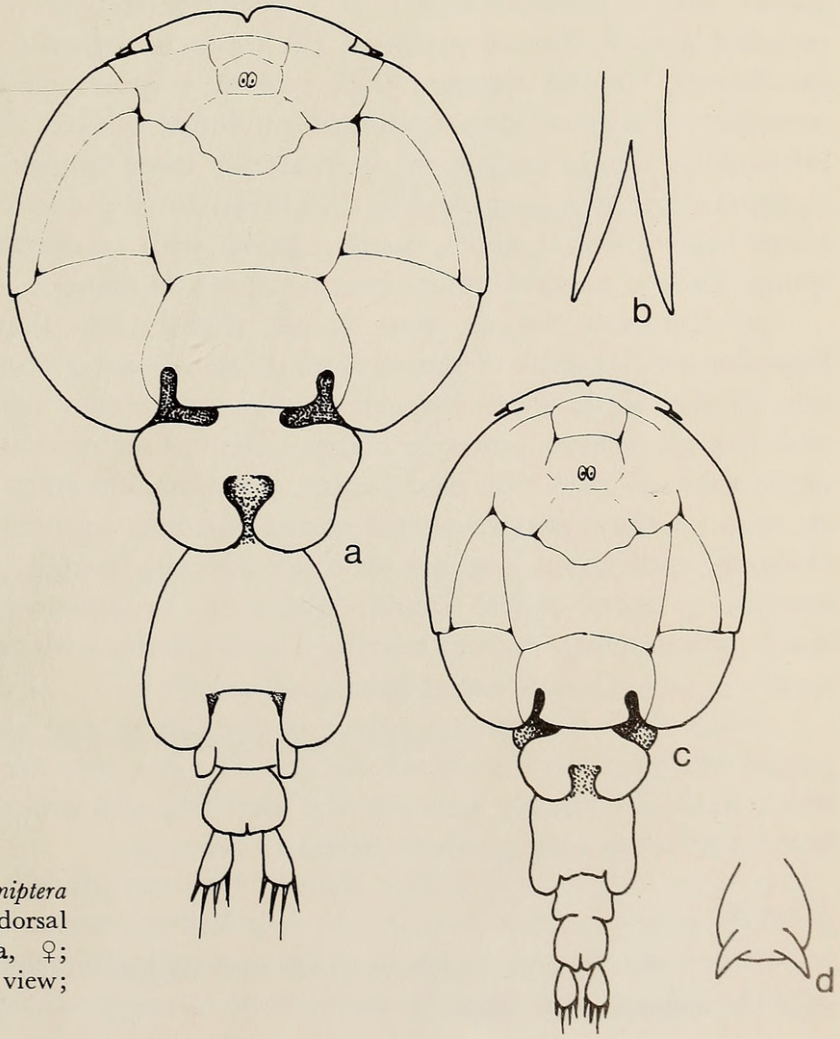

Fig. 15. *Elytrophora hemiptera* Wilson. *a*. female in dorsal view; *b*. sternal furca, ♀; *c*. male in dorsal view; *d*. sternal furca, ♂.

Previous records

From *Thunnus thynnus*, *Thunnus albacares*, *Isurus glaucus*, Japan.

Remarks

The status of the male specimens is not absolutely certain. They are to some extent intermediate in form between *E. hemiptera* Wilson from Japan and *E. atlantica* Wilson from the North Atlantic. The status of this parasite may be of interest in relation to the status and movements of their hosts in this area. Their colour when alive is light yellowish with fine reticular brown markings giving a general appearance of light brown.

Gloiopotes watsoni Kirtisinghe

Gloiopotes watsoni Kirtisinghe, 1934: 167. Cressey, 1967*a*: 7, figs 38–39.
Gloiopotes auriculatus Barnard, 1957: 11, fig. 8.

Description

♀. Carapace longer than broad, half total length. Postero-median lobe of thorax with 2 anterior and 1 or 2 posterior spines on each postero-lateral rounded corner. Dorsal plates of 4th thoracic segment completely separate, ear-shaped. Genital segment with row of 3 spines on either side of dorsal convexity. Posterior lobes spinulose on inner surface, usually in single row proximally. Ovate projection on posterior lobes spinose on inner and outer margins. Abdomen 2-segmented, distal segment about twice length of proximal. Latter with 4 dorsal spines, distal segment with 10 dorsal spines, 8–10 lateral spines. Caudal rami elongate, bearing about 11 spines.

♂. Carapace longer than broad, slightly less than half total length. Posterior median lobe of thorax with 2 lateral and 2 posterior spines on each side. Dorsal plates of 4th thoracic segment completely separate, subtriangular, with 3–5 spines near posterior margin. Genital segment as broad as long, with single spine on each side near centre, single smaller spine laterally, 3–4 spines on each rounded postero-lateral corner. Genital segment projections slender, elongate, with about 4 spines on inner (dorsal) margin, 7 on outer (ventral) margin. 3 strong apical spines. Abdomen 2-segmented, proximal segment half length of distal. Former bearing 2 spines, latter with variable arrangement, usually 4 or 5. Caudal rami as in ♀.

When fresh the general colour of the thorax and abdomen is blue with purple markings on the dorsal surface. The egg sacs are salmon pink. They occur most abundantly between the anal fins and around the anus of their host where they may produce extensive wounds.

Material

Numerous ♀♀ and ♂♂, from black and striped marlin (*Makaira indica* and *Makaira audax*), from Cape.

Family **Pandaridae**

Echthrogaleus torpedinis Wilson

(Fig. 16)

Echthrogaleus torpedinis Wilson, 1907: 371, pl. 21. Yamaguti, 1963: 120, pl. 137, fig. 2. Cressey, 1967*b*: 58, figs 291–294.

Material

3 ovigerous ♀♀, from *Torpedo* sp., taken west of Slangkop, Cape. Total length ♀ 11,4–13,2 mm.

Previous records

From *Tetranarce occidentalis*, east coast of U.S.A.

Remarks

No differences can be found between the present material and the description given by Cressey (1967).

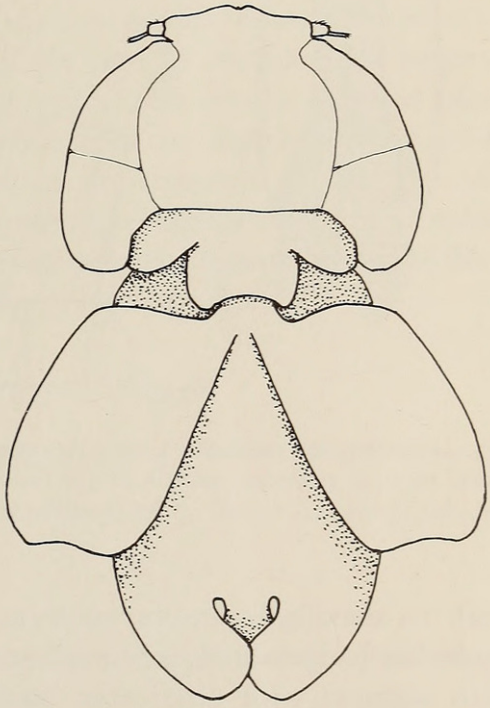

Fig. 16. *Echthrogaleus torpedinis* Wilson. Female in dorsal view.

Family **Anthosomatidae**

Lernanthropodes natalensis n. sp.

(Fig. 17*a–h*)

Description

Cephalothorax slightly ventrally flexed, widest posteriorly, rectangular in lateral view. Trunk narrow, cylindrical, about same width as cephalothorax. 1st antenna 7-segmented, bearing several setae. 2nd antenna with uncinate strongly chitinised apical segment, basal segment broadly tapering. Mouth tube

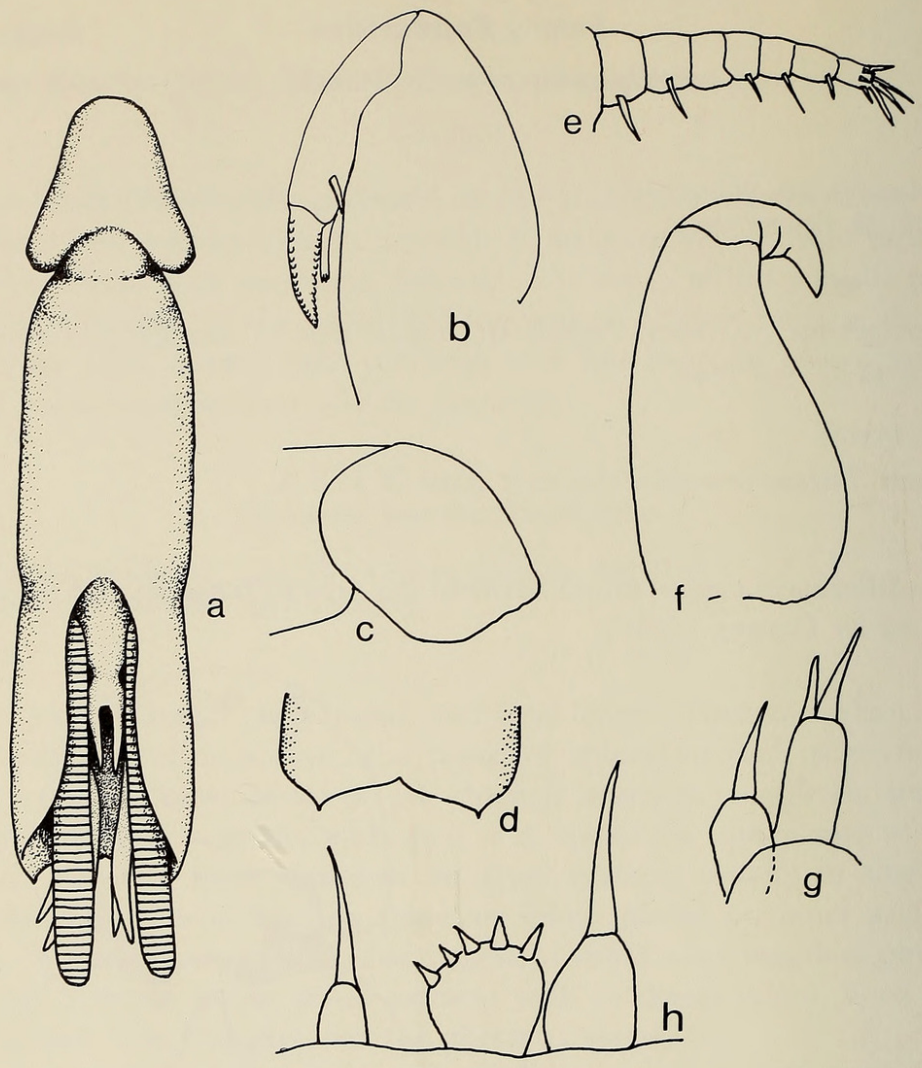

Fig. 17. *Lernanthropodes natalensis* n. sp. *a.* female in dorsal view; *b.* 2nd maxilla; *c.* cephalothorax in lateral view; *d.* posterior margin of 3rd thoracic leg 'sheath'; *e.* 1st antenna; *f.* 2nd antenna; *g.* 1st maxilla; *h.* 2nd thoracic leg.

conical. 1st maxilla biramous, each ramus of single segment tipped with setae. 2nd maxilla 3-segmented, terminal segment armed with 2 rows of short spines, median segment with distal seta, basal seta broad. Maxilliped 2-segmented, terminal segment hook-shaped. 1st and 2nd thoracic legs biramous, rami each of one segment, outer segment broader than inner, armed with 5 short spines, inner ramus tipped with single seta, papilla external to exopod bearing single seta. 3rd thoracic legs almost as long as trunk, fused to form broad lamella completely ensheathing genital segment and abdomen ventrally, leaving narrow gap dorsally. Lamella with single point posteriorly on each side. 4th legs inside sheath formed by 3rd legs, biramous, rami fused only at base, lamellar, protruding beyond sheath. Genital segment spindle-shaped. Abdomen slightly shorter than genital segment, with pair of lamellar caudal rami.

Material

1 ovigerous ♀, from *Chorinemus tol*, Durban. Holotype S.A.M. A13034. Total length 3,5 mm. Egg sac length 1,7 mm.

Remarks

Three species of the genus *Lernanthropodes* have been described, viz. *L. cucullus* (Bere 1936) and *L. chorinemi* and *L. trachinoti* (Pillai 1962*a*). *L. cucullus* has the sheath formed by the 3rd thoracic legs completely enclosing the genital segment and abdomen, and 4th thoracic legs, none of which are ventrally visible. The posterior margin of this sheath is divided into 2 lobes on either side, unlike the present species, which has only a slight median indication of subdivision.

L. trachinoti, taken from *Trachinotus blochii* from India, also has the posterior margin of the sheath divided into 2 lobes on either side, while the cephalothorax is rectangular, rather than triangular as in the present material.

L. chorinemi, recorded from *Chorinemus lysan* from India, closely resembles the present species, but several differences make a specific separation seem desirable. *L. chorinemi*, with a total length of 8,2 mm, is considerably larger than the ovigerous female of *L. natalensis* (3,5 mm). The evenly rounded posterior margin of the sheath in Pillai's species differs from the slightly bilobed condition in *L. natalensis*. Several differences exist in the structure of the appendages. The 1st antenna of *L. chorinemi* has 4 segments, as against the 7 of *L. natalensis*, while the 2nd antenna of the Indian species possesses 3 small spines at the base of the terminal segment, not found in the present species.

Lernanthropus corniger Yamaguti

(Fig. 18*a*, *b*)

Lernanthropus corniger Yamaguti, 1954: 387, pl. 4, figs 35–39, pl. 5, figs 40–41; 1963: 148, pl. 161, fig. 1. Pillai, 1963: 660, fig. 3.

Material

11 ovigerous + 10 ♀♀, total length (from 'horns' to end of dorsal plate) 3,4–3,7 mm. From *Caranx djedaba*, Durban.

Previous records

On *Megalaspis* sp., from Macassar, and on *Megalaspis cordyla* from Trivandrum, India.

Remarks

No differences can be detected between the present material and Yamaguti's descriptions and figures. The ventro-lateral extensions of the head forming the prominent 'horns', and the 3 ventral lamellae of the 3rd legs, make this species unmistakable.

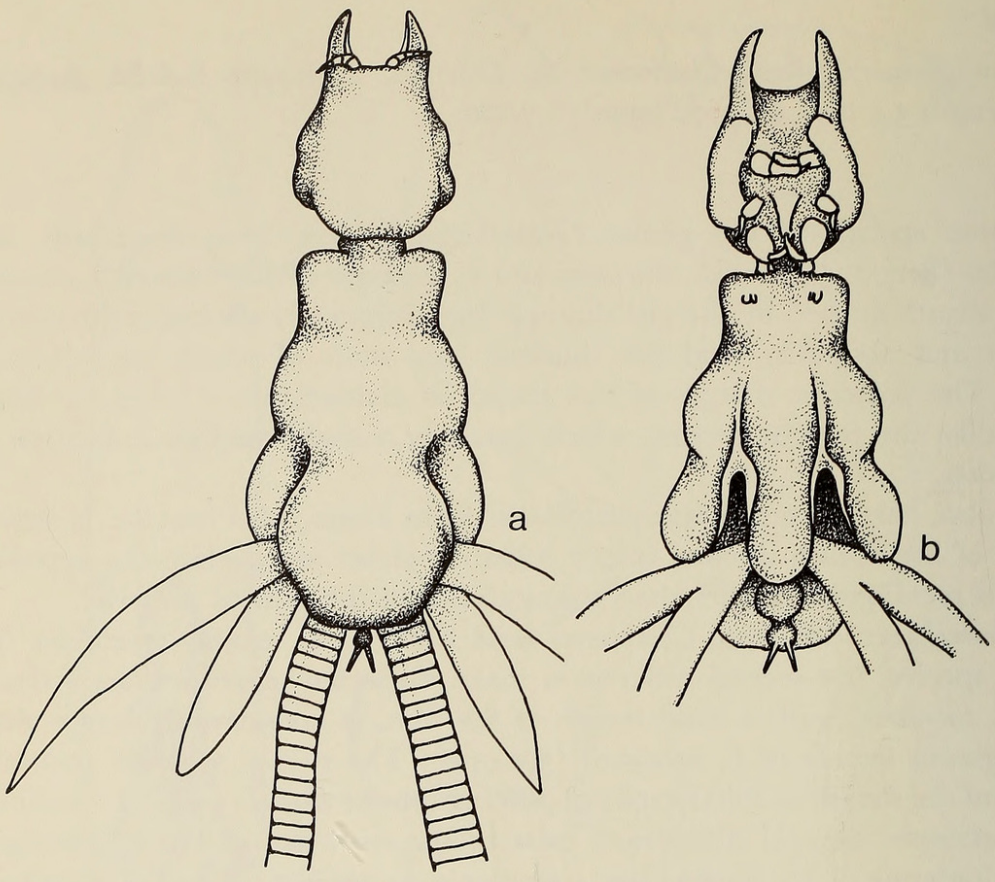

Fig. 18. *Lernanthropus corniger* Yamaguti. *a*. female in dorsal view; *b*. female in ventral view.

Lernanthropus ecclesi n. sp.

(Figs 19*a–c*, 20*a–l*)

Description

♀. Body somewhat cylindrical, head separated by constriction from rest of body, slightly less than $\frac{1}{4}$ total length. Dorsal plate situated posteriorly, slightly wider than rest of body, posterior margin variable, evenly rounded to very slightly bilobed. 1st antenna and bases of 2nd antenna dorsally visible. 1st antenna 7-segmented, terminal segment shortest, with 4 blunt spines. 2nd antenna 2-segmented, basal segment curved, tapering, terminal segment shorter, strongly falcate. 1st maxilla 3-segmented, terminal segment conical, basal segment with 2 broad spines distally. 2nd maxilla 3-segmented, terminal segment with 2 rows of blunt teeth and blunt spine on inner margin, middle segment with single distal spine. Maxilliped 2-segmented, basal segment broad, terminal segment shorter, tapering distally with falcate striated process and short blunt spine. 1st thoracic leg biramous, exopod of 1 segment, bearing 5 blunt distal spines, endopod of 1 segment, bearing elongate blunt distal spine. Tiny papilla-like process at base of endopod. 2nd thoracic leg biramous, exopod of 1 segment, bearing 4 short distal spines, tiny papilla bearing single

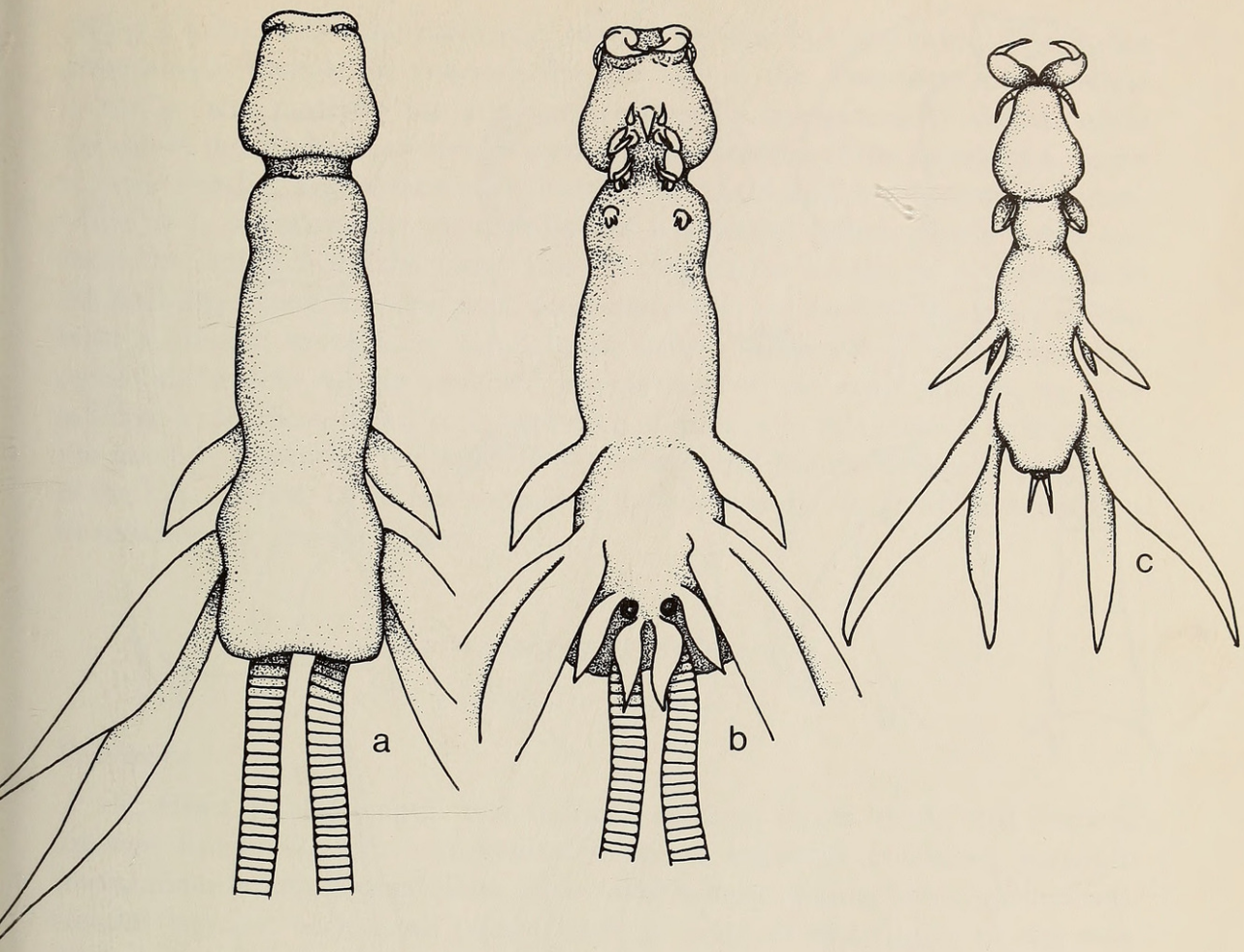

Fig. 19. *Lernanthropus ecclesi* n. sp. *a.* female in dorsal view; *b.* female in ventral view; *c.* male in dorsal view.

seta at base of exopod. Endopod of 1 segment, bearing single terminal spine. 3rd legs lamellar, uniramous, much shorter than 4th legs. Latter biramous, inner ramus slightly longer than outer, both lamellar with long tapering apex. 5th leg of single lamella, not dorsally visible. Caudal rami similar in form to 5th legs.

♂. Slightly more than ½ length of ♀, body slender. 1st antenna dorsally visible, structure as in ♀. 2nd antenna 2-segmented, basal segment broadly tapering, with tiny spine on inner face near base, terminal segment short, with strong striated falcate distal process, and short blunt spine at midpoint. Mandible slender, apex with 7 denticles. 1st and 2nd maxilli and maxilliped as in ♀. 1st thoracic leg biramous, exopod of 1 segment, with 5 short distal spines. Endopod 1-segmented, with slender bristled seta, 2nd thoracic leg biramous, exopod distally expanded, bearing 3 submarginal spines, endopod shorter than exopod, armed with short bristles and terminal fringed seta. 3rd thoracic leg biramous, outer ramus about twice length of inner. 4th legs biramous, rami subequal, lamellar. 5th legs absent. Caudal rami short, slender.

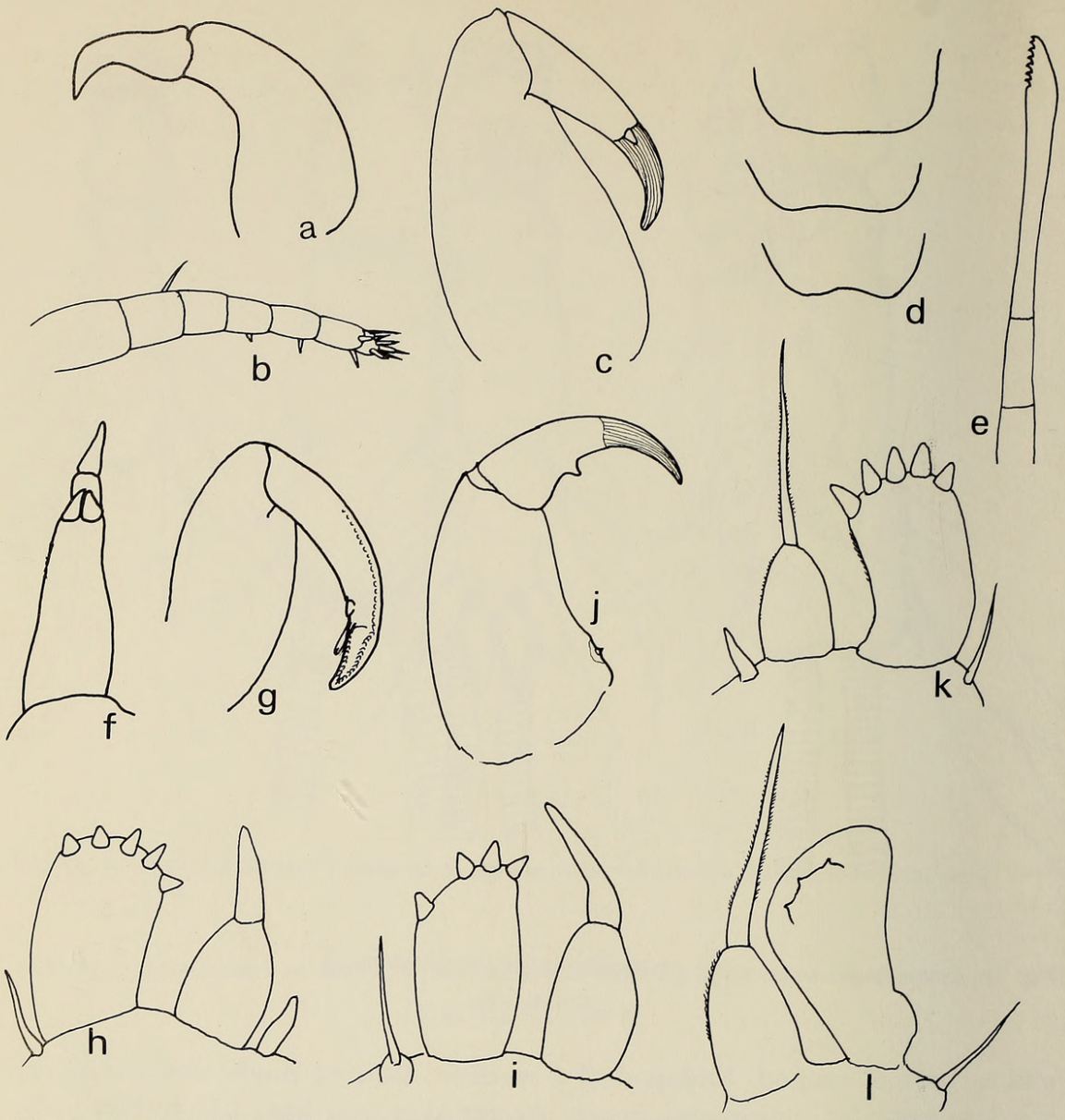

Fig. 20. *Lernanthropus ecclesi* n. sp. *a.* 2nd antenna, ♀; *b.* 1st antenna, ♀; *c.* maxilliped, ♀; *d.* 3 variations in the posterior margin of the dorsal plate, ♀; *e.* mandible; *f.* 1st maxilla; *g.* 2nd maxilla; *h.* 1st thoracic leg, ♀; *i.* 2nd thoracic leg, ♀; *j.* 2nd antenna, ♂; *k.* 1st thoracic leg, ♂; *l.* 2nd thoracic leg, ♂.

Material

9 ovigerous + 2 ♀♀, 5 with attached ♂♂ + 2 ♂♂, from yellowtail, *Seriola lalandi*, Kalk Bay. Holotype and allotype S.A.M. A13021, paratypes S.A.M. A13057. Total length ♀ 7,8 mm, ♂ 3,4 mm.

Remarks

Wilson (1932) described *Lernanthropus paenulatus* taken from *Seriola lalandi* from Woods Hole, U.S.A. Undoubtedly, the present material, taken from the same host, is closely related to Wilson's species, but some differences do exist. The female of *L. paenulatus*, at 9,5 mm, is somewhat larger than *L. ecclesi*

(6,9–7,3 mm), while the male (2,5 mm) is smaller (3,0–3,3 mm). The dorsal plate almost completely conceals the 4th legs in the American species while in the present material the 4th legs are dorsally conspicuously visible, while the tips of the 5th legs can also be seen. The 1st maxilla of the female of *L. ecclesi* is more slender, and armed with a single terminal and 2 subterminal spines, while in *L. paenulatus* the 1st maxilla has 2 terminal spines, plus another one third the length from the base. The 2nd leg of the female of *L. ecclesi* lacks the heel-like structure found in *L. paenulatus* while the male of the latter species lacks a spinose exopod, as found in *L. ecclesi*. These subtle differences may reflect differences within separate populations of the same species, or may indicate a specific separation. It would be of interest in this respect, to ascertain the amount of contact between the American and South African populations of the host species. Until more material becomes available, it would seem best to separate the present species.

Lernanthropus sarbae n. sp.

(Figs 21*a–c*, 22*a–i*)

Description

♀. Head $\frac{1}{4}$ total length. 2nd thoracic segment forms 'neck'. 3rd thoracic segment fused with 4th and genital segment, segments indicated by slight lateral indentations. Dorsal plate forms large almost circular shield posteriorly. Genital segment with small lateral knob at point of attachment of egg sacs. Abdomen small, rounded. 1st antenna dorsally visible, indistinctly 7-segmented, with 8 or 9 terminal setae. 2nd antenna 2-segmented, basal segment about twice length of terminal segment, broadly tapering, terminal segment short, with stout striated apical process. 1st maxilla bilobed, inner lobe short, with single terminal spine, outer lobe elongate, with 2 terminal spines. 2nd maxilla 3-segmented, terminal segment short, armed with numerous spines, median segment slender, with single distal spine. Maxilliped 2-segmented, basal segment with tiny spine on inner surface, distal segment short, with hooked terminal process. 1st leg biramous, exopod consisting of single segment with 5 strong terminal spines, endopod of single segment and distal bristled spine, short setose process at base. 2nd leg biramous, exopod of single segment with 4 distal spines, endopod of single segment. 3rd legs lamellar, curved ventrally. 4th legs consisting of 2 elongate slender processes, fused basally for short distance. 5th leg consisting of tiny digitiform process. Caudal rami short, tapering.

♂. Slightly shorter than ♀, head about $\frac{1}{3}$ total length. 1st antenna as in ♀. 2nd antenna 2-segmented, basal segment broadly tapering, with 2 blunt processes on inner surface near base. Distal segment short, with strong striated falcate process terminally, and short spine on inner margin. 1st and 2nd maxilli as in ♀. Maxilliped 2-segmented, basal segment broad, with tiny spine

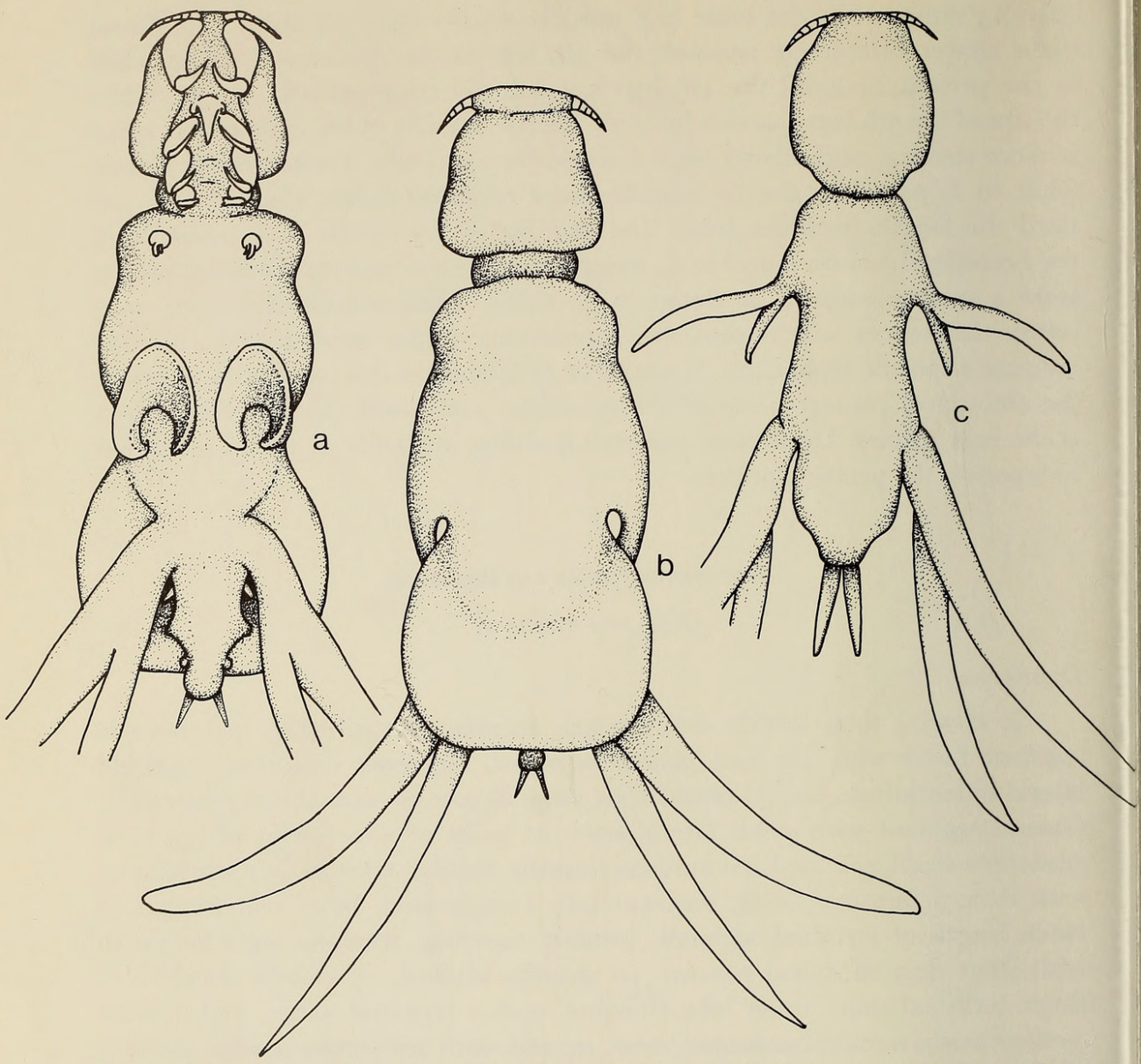

Fig. 21. *Lernanthropus sarbae* n. sp. *a*. female in ventral view; *b*. female in dorsal view; *c*. male in dorsal view.

on inner margin, terminal segment short, with curved striated distal process, with short spine on inner margin. 1st thoracic leg as in ♀. 2nd thoracic leg biramous, exopod somewhat expanded, endopod of single tapering bristled segment, bearing short terminal seta. 3rd thoracic leg situated laterally, biramous, inner ramus shorter than outer. 4th legs as in ♀. Caudal rami elongate, almost equal in length to genital segment and abdomen.

Material

1 ovigerous + 1 ♀, 1 ♂, from *Rhabdosargus sarba*, Durban. Holotype and allotype S.A.M. A13020, paratype S.A.M. A13056. Total length ♀ 3,0 mm, ♂ 2,1 mm.

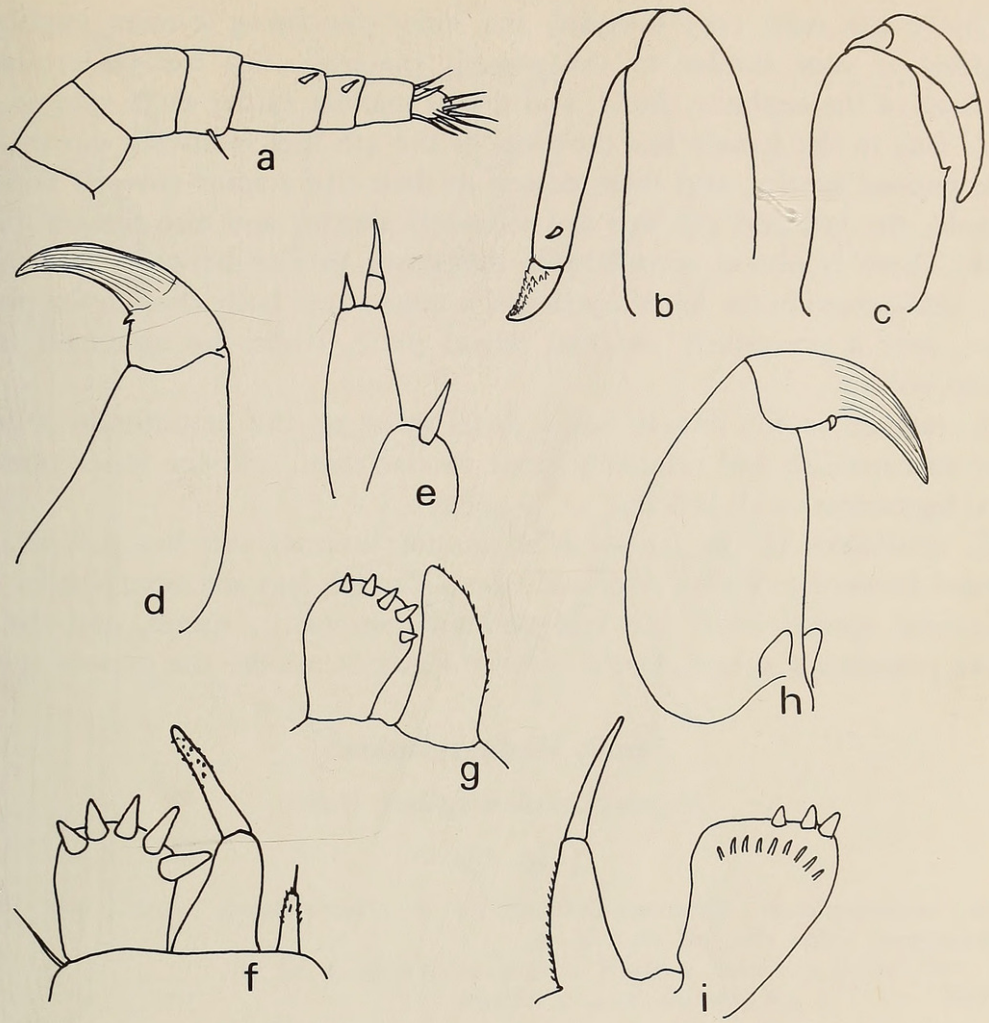

Fig. 22. *Lernanthropus sarbae* n. sp. *a.* 1st antenna, ♀; *b.* 2nd maxilla, ♀; *c.* maxilliped, ♀; *d.* 2nd antenna, ♀; *e.* 1st maxilla, ♀; *f.* 1st thoracic leg, ♀; *g.* 2nd thoracic leg, ♀; *h.* 2nd antenna, ♂; *i.* 2nd thoracic leg, ♂.

Remarks

The present species falls into the group characterized in the female by the possession of a large almost circular extension of the dorsal plate, the curved lamellar 3rd legs, and very elongate rami of the 4th legs, which are fused basally for a short distance. This group includes *L. amplitergum* Pearse, *L. kroyeri* Van Beneden, *L. giganteus* Krøyer, *L. chrysophrys* Shishido, *L. latis* Yamaguti, *L. eddiwarneri* Delamare-Deboutteville & Nunés-Ruivo, *L. rathbuni* Wilson, and *L. opisthopteri* Pillai.

L. amplitergum differs from the present species in the possession of a posteriorly notched dorsal plate in the female, while the 3rd legs of the male have both rami of equal length. *L. kroyeri* possesses a more rounded cephalothorax than the present species, and the rami of the 4th legs in both the female and male relatively shorter. *L. giganteus* in the female possesses dorso-lateral extensions of the dorsal plate, above the bases of the 3rd legs. The 3rd legs of the

male have the rami very unequal, the inner one being a mere papilla. *L. chrysophrys* is very similar to the present material, but has postero-lateral extensions of the cephalic shield, and a 2nd maxilla rather more spinose.

L. latis in the female has the rami of the 4th legs relatively shorter than in the present species, and these possess at their tips a spine-covered knob. In the male, the 3rd and 4th legs are relatively shorter and also possess spinose apices. There is also a considerable difference in size between the species.

L. eddiwarneri in the female possesses a more squat body than in the present species, and a posteriorly notched dorsal plate, while the abdomen is not dorsally visible.

L. rathbuni in the female has a distal spine on the penultimate segment of the 2nd maxilla and relatively stout caudal rami, and the inner ramus of the 1st legs armed with bristles.

L. opisthopteri in the female is a squatter animal and has the carapace extended forward to form 2 rounded lobes. The 4th legs are more slender than the present species while the 2nd antenna possesses 3 spines, and the 2nd maxilla possesses 2 spines on the middle segment, unlike the present species.

Family **Eudactylinidae**

Kroyeria carchariaeglauci Hesse

(Fig. 23*a–c*)

Kroyeria carchariaeglauca: Delamare-Debouteville & Nunés-Ruivo, 1953: 209, fig. 4 Yamaguti, 1963: 162, pl. 187, fig. 2.

Material

15 ovigerous ♀♀ + 4 ♂♂ from *Prionace glauca*, False Bay.
Total length ♀ 6,3 mm, ♂ 5,5 mm.

Previous records

From *Prionace glauca* W. Pacific, Mediterranean, N.E. America, and from *Carcharias milberti* and *Galeus glaucus*, Martha's Vineyard, N.E. America.

Remarks

The present material agrees well with the above descriptions and figures; the only detectable difference is that the abdomen is not obviously segmented.

Nemesis lamna Risso

(Fig. 24)

Nemesis lamna: Wilson, 1932: 461, pl. 32. Yamaguti, 1963: 167.

Description

♀. Body elongate, cephalothorax longer than broad, with lateral indentations. 4 free thoracic segments more or less of equal length and breadth, with deep gaps between them. Genital segment broader than long, about one-fifth

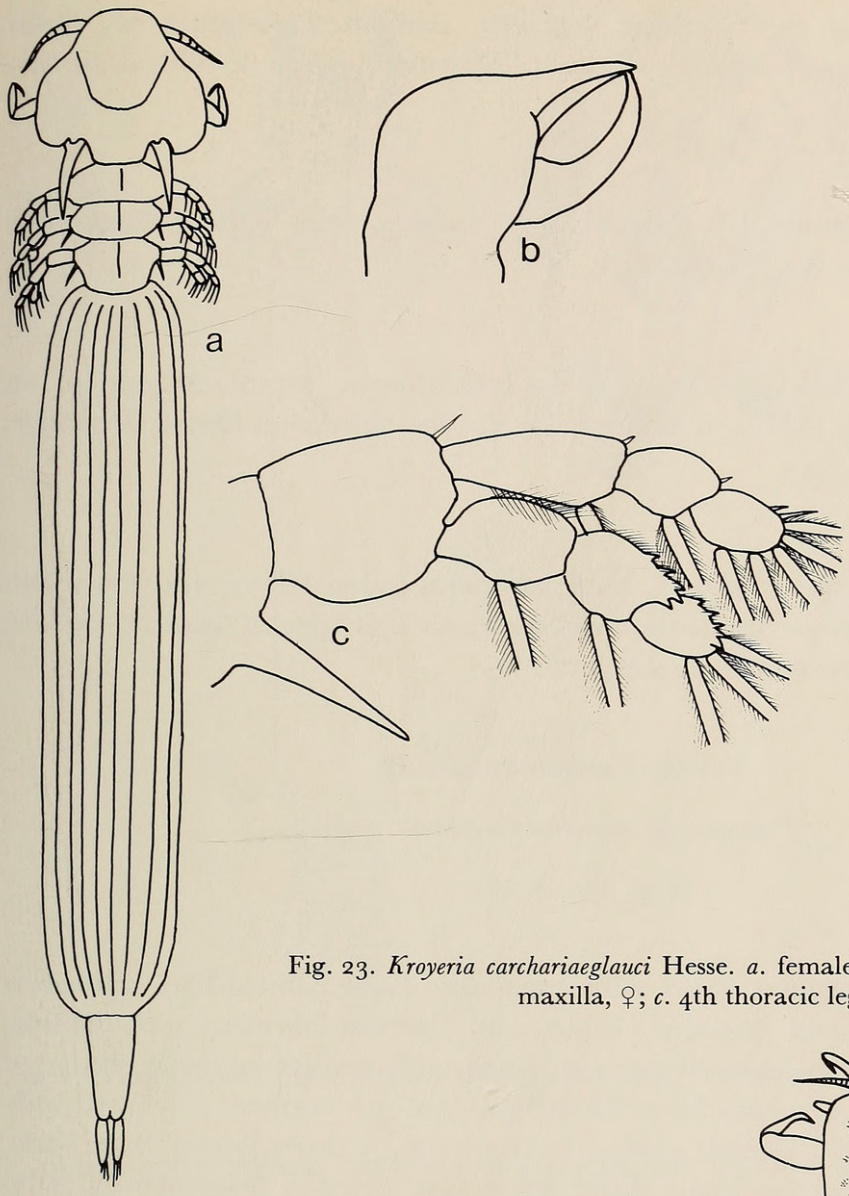

Fig. 23. *Kroyeria carchariaeglauci* Hesse. *a*. female in dorsal view; *b*. 2nd maxilla, ♀; *c*. 4th thoracic leg, ♀.

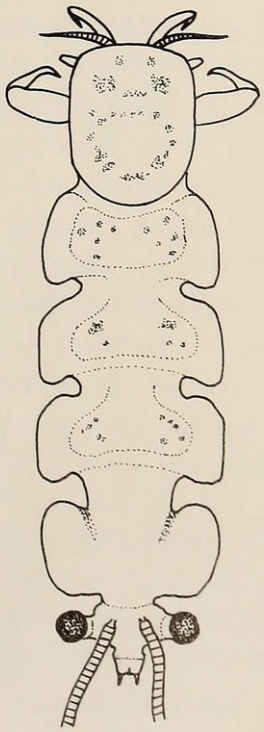

Fig. 24. *Nemesis lamna* Risso. Female in dorsal view.

length of preceding free thoracic segment. Abdomen 2-segmented, distal segment longer than proximal segment. Spermatophores spherical, almost black.

Material

Numerous ovigerous ♀♀, length up to 11 mm, from gills of *Carcharodon carcharias* from False Bay, Cape.

Previous records

From Mediterranean, eastern U.S.A., California, Japan, Argentina, on sharks of the genera *Alopias*, *Carcharias*, *Carcharodon*, *Cetorhinus*, *Isurus*, *Odontaspis*, and *Oxyrhina*.

Remarks

The greater length, the very obvious lateral indentations, and the width of the 5th free segment immediately distinguish this species from *N. pallida*, the other species recorded from this area.

Family **Pseudocycnidae**

Pseudocycnoides rugosa n. sp.

(Figs 25*a*, *b*, 26*a–i*)

Description

1st thoracic segment fused with carapace. Latter shield-like, anteriorly narrowed, 1st antenna dorsally visible. 2nd thoracic segment well-defined, 3rd and 4th segments less-well defined, fused with genital segment. 2nd, 3rd and 4th segments each with blunt lateral process. 5th segment indicated only by single lateral seta. Genital segment cylindrical, 5 times longer than wide. Abdomen short, bearing blunt distal spine. 1st antenna 9-segmented, with large blunt spine on 3rd segment. 2nd antenna 3-segmented, terminal segment strongly hooked, bearing proximally a small hook, and single strong median spine. Oral tube conical, flanked by 1st maxillae. Latter 2-segmented, terminal segment spine-like, base rounded. 2nd maxilla exterior to 1st maxilla, 3-segmented, basal segment broad, twice thickness of median segment, latter distally curved, terminal segment short, serrate. Maxilliped 2-segmented, basal segment very broad, roughly oval, outer surface rugose, bearing fleshy rugose process anteriorly, terminal segment slender, strongly hooked, folding against inner surface of fleshy process of basal segment. 2nd thoracic segment with dorso-lateral rounded fleshy process, ventral to which, a large rounded lobe, somewhat rugose, bearing tiny lobe medially. Latter bears 2 single segments representing biramous leg. Outer ramus of latter bearing 2 short terminal spines, inner bearing 2 curved spines. 3rd thoracic segment similar to 2nd, but rudimentary leg uniramous, bearing strong terminal spine, plus

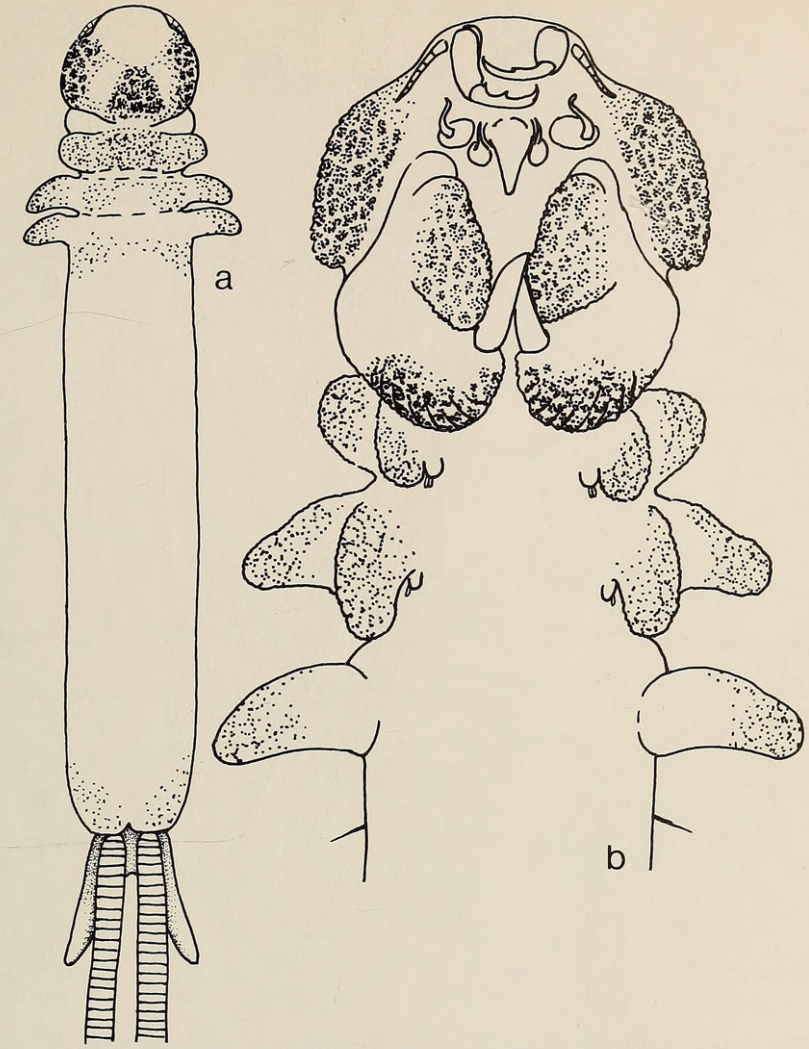

Fig. 25. *Pseudocycnoides rugosa* n. sp. ♀. *a*. female in dorsa view; *b*. anterior region of female in ventral view.

2 more slender spines. No trace of 4th legs, 4th thoracic segment marked by dorso-lateral process.

Material

4 ovigerous ♀♀ from *Scomberomorus maculatus* gills, Durban. Holotype S.A.M. A13058, paratypes S.A.M. A13059. Total length ranging from 5,5 mm to 6,0 mm. Colour red when fresh.

Remarks

The following characteristics of the female place the present material in the genus *Pseudocycnoides*: Head fused with 1st thoracic segment, 2nd thoracic segment free, 3rd and 4th segments fused with genital segment, marked by lateral digitiform processes, basal segment of maxilliped with large fleshy process, 1st thoracic legs very reduced, biramous, 2nd legs uniramous, 3rd legs lacking. Two species of this genus have been described, viz. *P. scomberomori* (Yamaguti 1939), and *P. armata* (Bassett-Smith 1898).

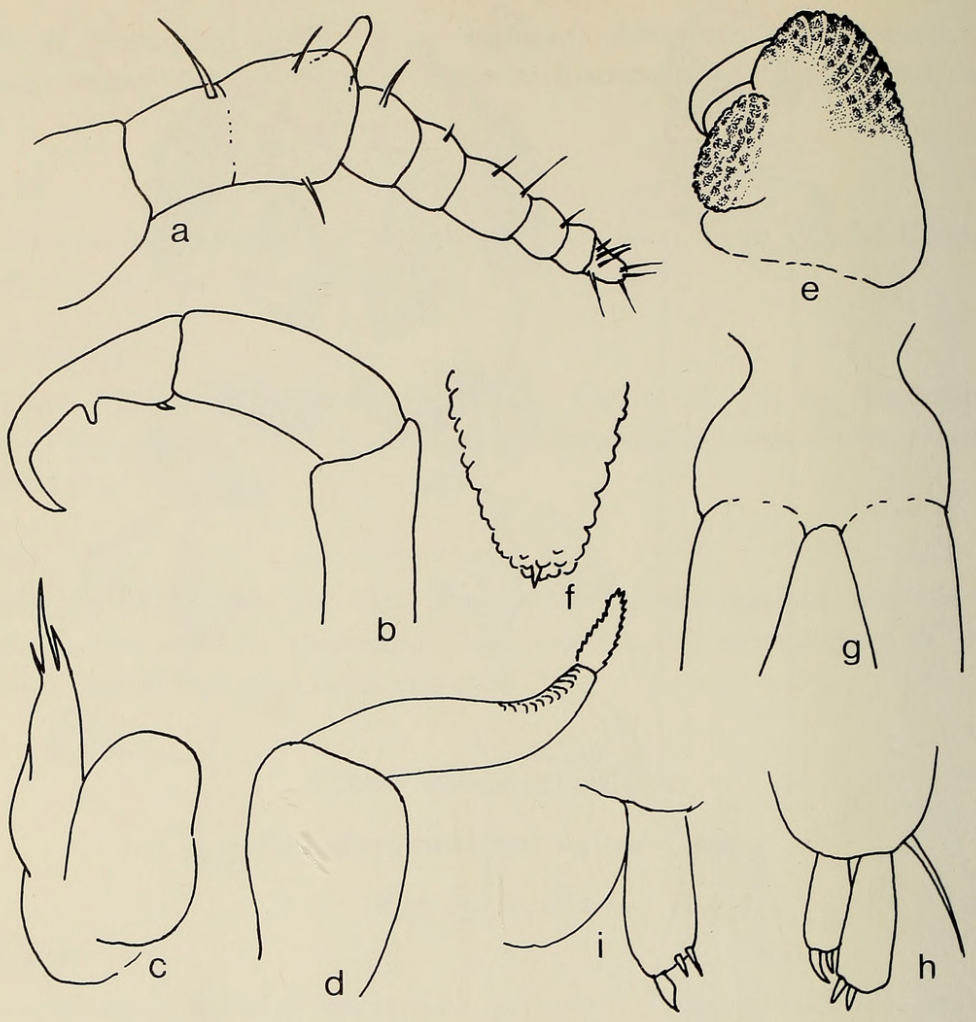

Fig. 26. *Pseudocycnoides rugosa* n. sp. ♀. *a.* 1st antenna; *b.* 2nd antenna; *c.* 1st maxilla; *d.* 2nd maxilla; *e.* maxilliped; *f.* apex of caudal ramus; *g.* abdomen; *h.* 1st thoracic leg; *i.* 2nd thoracic leg.

P. armatus possesses a 6–7 segmented 1st antenna which lacks a proximal process, whereas the present species has an 8–9 segmented 1st antenna with proximal process. The former species possesses a slightly rugose maxilliped, with a tooth on the inner margin of the terminal segment, and a small fleshy process on the basal segment. The present species has a very rugose maxilliped, lacks the tooth on the terminal segment, and has a much larger fleshy process.

Family **Lernaeoceridae**

Lernaeeniscus gonostomae n. sp.

(Fig. 27*a–h*)

Description

Head with 2 lateral unbranched horns, each with bulbous base, tapering, curved, apically pointed. Proboscis large, cylindrical, springing from bases of horns, dorsally with 1st and 2nd antennae, distally narrowed. 1st antenna

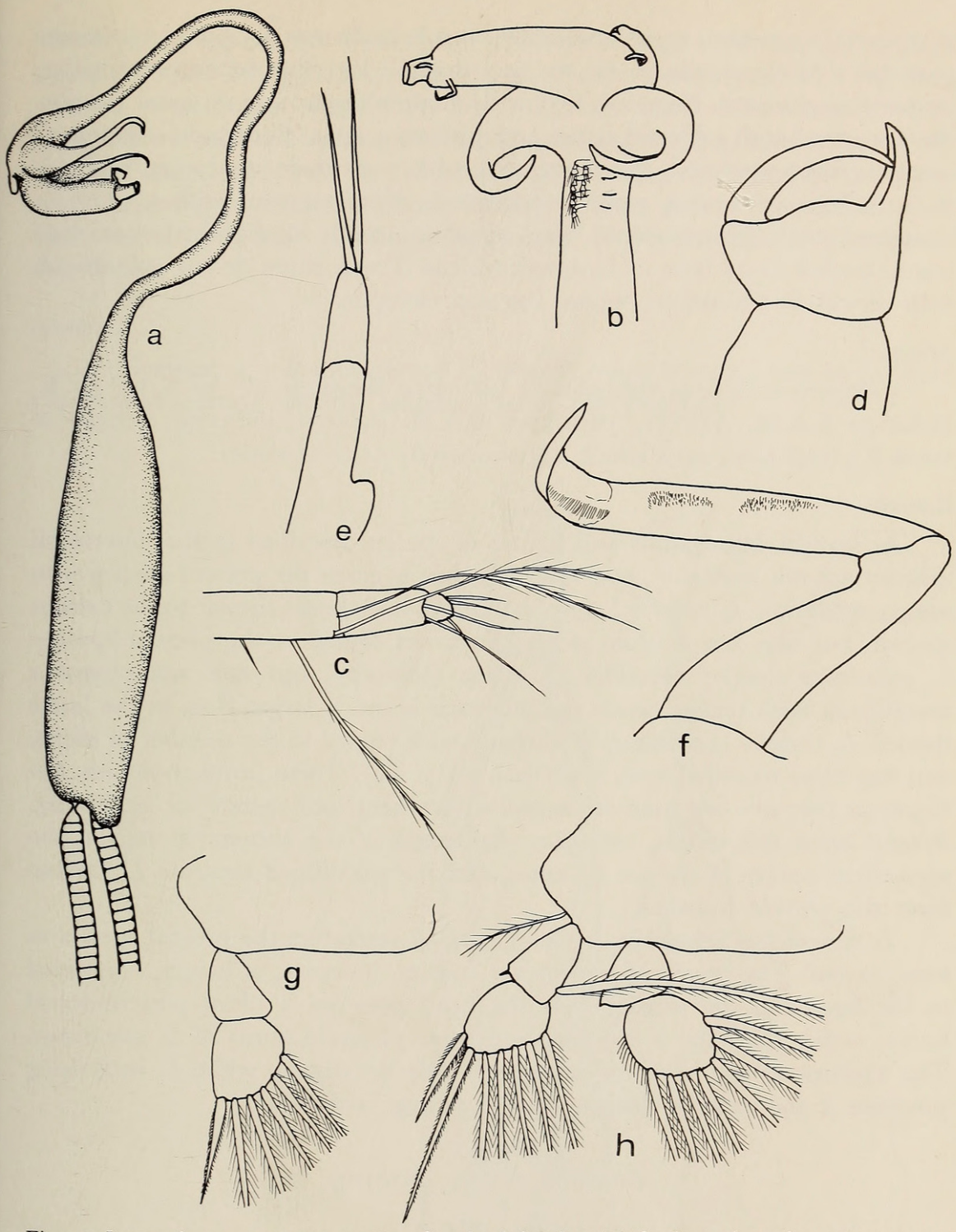

Fig. 27. *Lernaeeniscus gonostomae* n. sp. ♀. *a*. female; *b*. head region further enlarged; *c*. 1st antenna; *d*. 2nd antenna; *e*. 1st maxilla; *f*. 2nd maxilla; *g*. 3rd thoracic leg; *h*. 1st thoracic leg.

indistinctly segmented, bearing several elongate plumose setae, 2 of which longer than appendage itself. 2nd antenna 2-segmented, apically strongly chelate. 1st maxilla simple, 2-segmented, with 2 terminal setae. 2nd maxilla indistinctly 3-segmented, terminally with flattened hook bearing fine striations on inner surface. Median segment with 2 patches of very fine setae. 4 pairs

of thoracic legs present on ventral surface just below horns. 1st 2 pairs biramous, posterior 3 pairs uniramous. 1st and 2nd thoracic legs with broad protopodite, exopod 2-segmented, basal segment with single plumose seta on inner margin, distal segment with 2 fringed spines and 5 plumose setae. Endopod 2-segmented basal segment unarmed, distal segment with 7 plumose setae. 3rd and 4th thoracic legs uniramous, rami 2-segmented, distal segment with 5 plumose setae and single fringed spine. Neck equal in length ro slightly longer than trunk, buried to its base in host, cylindrical. Trunk more or less cylindrical, with very short abdominal region. Egg sacs elongate.

Material

3 ovigerous ♀♀ from mesopelagic *Gonostoma elongatum*, 26° 30′ S, 33° 40′ E. Holotype S.A.M. A11751, paratypes S.A.M. A13031, A13173. Length of trunk 8,5–10,8 mm; neck length approximately 11,0–14,0 mm.

Remarks

As several descriptions and figures of species described in the nineteenth century are not available, new specific status is given the present species with some trepidation. *L. cerberus* Leigh-Sharpe possesses horns similar to the present species, but also has a blunt dorsal horn not found in the present species. *L. gonostomae* closely resembles *L. spratta* (Sowerby) but does not possess a moniliform neck region, while the proboscis is much larger than in the latter species. *L. radiatus* (Le Sueur) is variable with regard to the number of horns, and has been recorded with 2 (Wilson 1917: 60). These horns, however, are blunt, as they are not used for actual attachment, but merely for anchoring. Several other differences, including the length of the abdominal region, the segmented nature of the 1st antenna, and the maxilliped separate *L. radiatus* from the present material.

L. anchoviellae Sebastian & George, 1964, resembles the present species to some extent. The 'neck' of the former species, however, is longer, compared to the length of the trunk, while the head possesses 2 blunt postero-dorsal horns, rather than the 2 tapering and more elongate horns of *L. gonostomae*. The abdominal region of the latter is hardly developed, while *L. anchoviellae* possesses a moderately elongate and tapering 'abdomen'.

Peniculisa furcata (Krøyer)

(Fig. 28*a–e*)

Peniculisa furcata: Leigh-Sharpe, 1934: 28, fig. 26. Shiino, 1956: 602. Yamaguti, 1963: 203, pl. 224, fig. 3.

Description

Body elongate, cephalothorax oval, irregular band of black pigment stretching from cephalothorax, through trunk, into posterior processes. 2nd antenna stout, bearing strongly curved hook shielded by disc-like expansion.

Maxilliped 3-segmented. Four pairs of thoracic legs present, first 3 pairs dorsally visible, 4th pair at proximal end of genital segment. Each leg very reduced, consisting of single short lobe folded on itself with minute hook at apex. Genital segment bearing 2 elongate parallel processes, at least two-thirds length of trunk. Abdomen very short with rounded posterior processes. Caudal rami consisting of minute laminae bearing 4 short setae. Trunk with short lobe ventrally, at base of elongate processes. Egg sacs originate just below short lobes.

Material

6 ovigerous + 1 non-ovigerous ♀♀, length range from 2,1 mm to 3,0 mm. On *Paramonacanthus barnardi*, Inhaca Island, Moçambique.

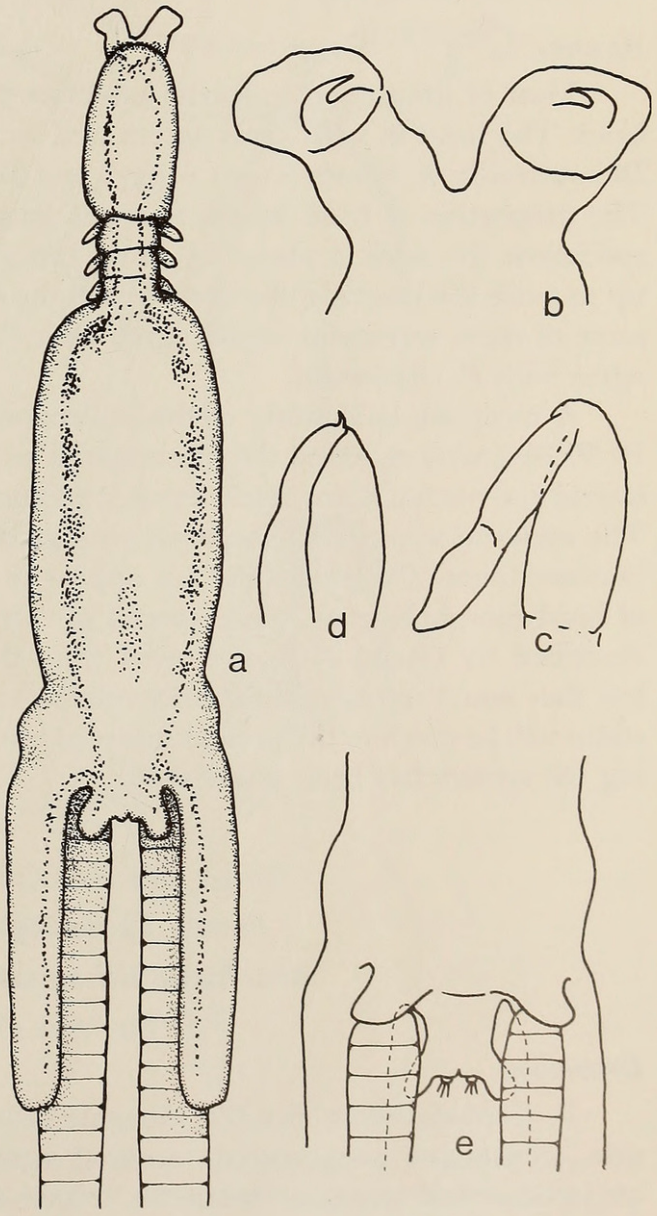

Fig. 28. *Peniculisa furcata* (Krøyer). *a.* female in dorsal view; *b.* 2nd antenna, ♀; *c.* maxilliped, ♀; *d.* 1st thoracic leg, ♀; *e.* genital segment and abdomen in ventral view, ♀.

Previous records

On *Ostracion punctatus*, from Indonesia. On *Holacanthus* sp., from Indian Ocean. On *Tetrodon* sp., from Ceylon.

Remarks

The present material differs from descriptions of *P. furcata* only in the possession of the short ventral lobes and the tiny hook at the base of the legs.

Family **Pennellidae**

Pennella sp.

Material

Numerous ♀♀, from Sei, Fin, and Sperm whales from Donkergat Whaling Station, Saldanha Bay.

Remarks

Most of the present material possesses 3 horns, of varying length, on the head. The head in most cases agrees well with the figures given by Delamare-Deboutteville & Nunés-Ruivo (1953) and Barnard (1955*a*) for *P. crassicornis*. The proportion of head length to trunk length is also very variable. In some specimens the neck is about $1\frac{1}{2}$ times the trunk length, while in others it is up to twice the length of the neck. Using the characters given by Wilson (1917) some of these specimens would agree with *P. balaenopterae*, while others would agree with *P. crassicornis*.

A morphometric study of this collection was made in collaboration with Dr P. Best, who collected the specimens. The total length and the lengths of the lateral and nuchal horns, neck, trunk, abdomen, and egg strings were measured. The material appeared to separate into groups but with considerable overlap between them. The groups did not appear to be related either to the variations of head morphology or to the species of their host. Type specimens of species described by Quido were borrowed from the Paris museum for comparison but they could not be satisfactorily related to the present material. No specific status will be given to the present material until a reliable method of distinguishing the species has been established.

Order LERNAEOPODOIDA

Family **Lernaeopodidae**

Brachiella lithognathae n. sp.

(Fig. 29*a–g*)

Description

♀. Cephalothorax slender, elongate, with slight bulge at base on either side. 1st antenna 4-segmented, terminal segment bearing 3 spines and a blunt projection. 2nd antenna biramous, outer ramus overhangs inner, apically

rounded and slightly roughened. Inner ramus 2-segmented, apically bearing rounded lobe armed with minute spines, and cluster of 6 large spines. 1st maxilla distally with 2 lobes each bearing stout seta. Palp short, bearing 2 stout seta. Mandible with 6 teeth. Maxilliped apically with strong claw and strong subapical claw, spinose pad on basal segment. 2nd maxillae stout, about one-quarter length of cephalothorax, separate, fused at tips. Trunk roughly rectangular, genital process a rounded papilla. 2 small posterior processes present.

♂. Cephalothorax with carapace much shorter than trunk, latter broadly rounded, 2nd maxilla and maxilliped large, prehensile. Length 0,6 mm.

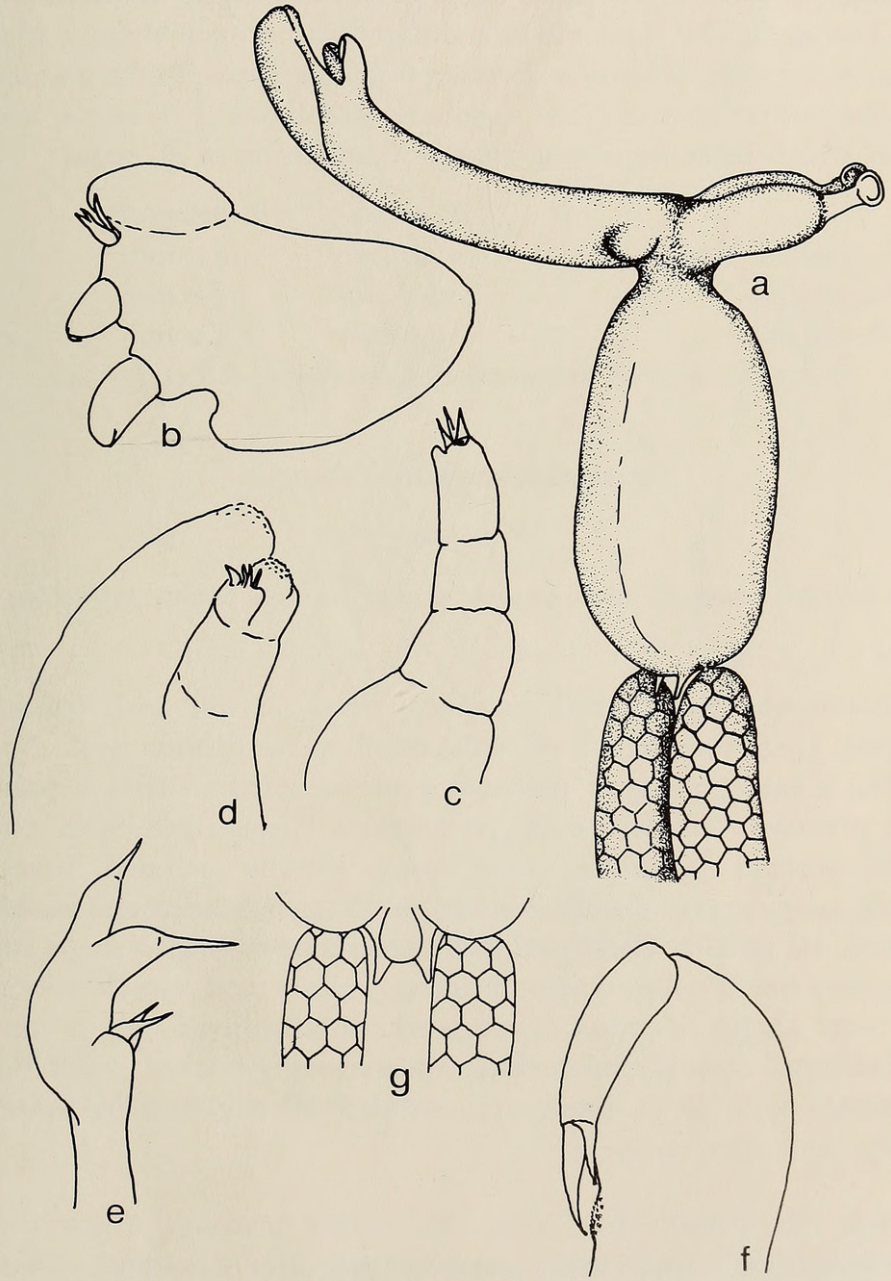

Fig. 29. *Brachiella lithognathae* n. sp. *a*. female; *b*. male; *c*. 1st antenna, ♀; *d*. 2nd antenna, ♀; *e*. 1st maxilla, ♀; *f*. maxilliped, ♀; *g*. posterior genital segment in ventral view, ♀.

Material

2 ovigerous ♀♀ from *Lithognathus lithognathus*, Milnerton, Cape. 3 ovigerous ♀♀ from *Lithognathus aureti*, Rocky Point, S.W.A. Holotype and allotype S.A.M. A13030, paratypes S.A.M. A13060, A11792.

Remarks

Of the species of *Brachiella* possessing a relatively elongate cephalothorax and 2 tiny posterior processes on the trunk, the present species most closely resembles *B. exigua* Brian, recorded from *Pagellus erythrius* from the Mediterranean, from *Dentex vulgaris* from Mauritania, and from *Merluccius* sp. from the Dry Tortugas. The most obvious differences between these 2 species lies in the size, as the table illustrates. Further differences exist in the 2nd antennae, which in the present species is not as spinose distally as in *B. exigua*, and in the maxilliped which lacks the strong subapical spination of *B. exigua*.

	B. exigua	*B. lithognathae*
cephalothorax ..	1,90 mm	4,0 mm
trunk	1,47 mm	3,0 mm
egg sacs	1,90 mm	5,2 mm

Dimensions for *B. exigua* taken from Nunés-Ruivo (1954).

Lernaeopoda etmopteri Yamaguti

(Fig. 30*a–f*)

Lernaeopoda etmopteri Yamaguti, 1939: 549, pl. 44, figs 104–106. Shiino, 1956: 275, figs 4, 5.

Description

Cephalothorax with dorsal carapace, short, in line with trunk. Latter pear-shaped, $3\frac{1}{2}$–4 times length of cephalothorax. No distinct neck. No genital process, but 2 sausage-shaped posterior processes present, with a pair of tiny spiniform processes between them. 1st antenna 4-segmented, with 4 terminal setae. 2nd antenna biramous, outer ramus distally rounded, inner ramus indistinctly 2-segmented, distally bilobed, both lobes bearing spines. Mandible with 7 teeth. 1st maxilla distally trilobed, each lobe ending in single stout seta, palp some way below trilobed apex, bearing 3 spines. 2nd maxilla very elongate slender, twice length of trunk, corrugated, distally fused only at tips, bulla small. Maxilliped strongly subchelate, apex strongly hooked, inner margin of basal segment with large finely spinose pad distally, smaller spinose pad proximally, and short spine.

Material

2 ovigerous ♀♀ (one with posterior processes detached) from shark, *Etmopterus* sp., taken west of Cape Point, in 450 metres. Length of cephalothorax + trunk 12,6 mm, 8,0 mm. Length of 2nd maxilla 22,0 mm, 8,0 mm.

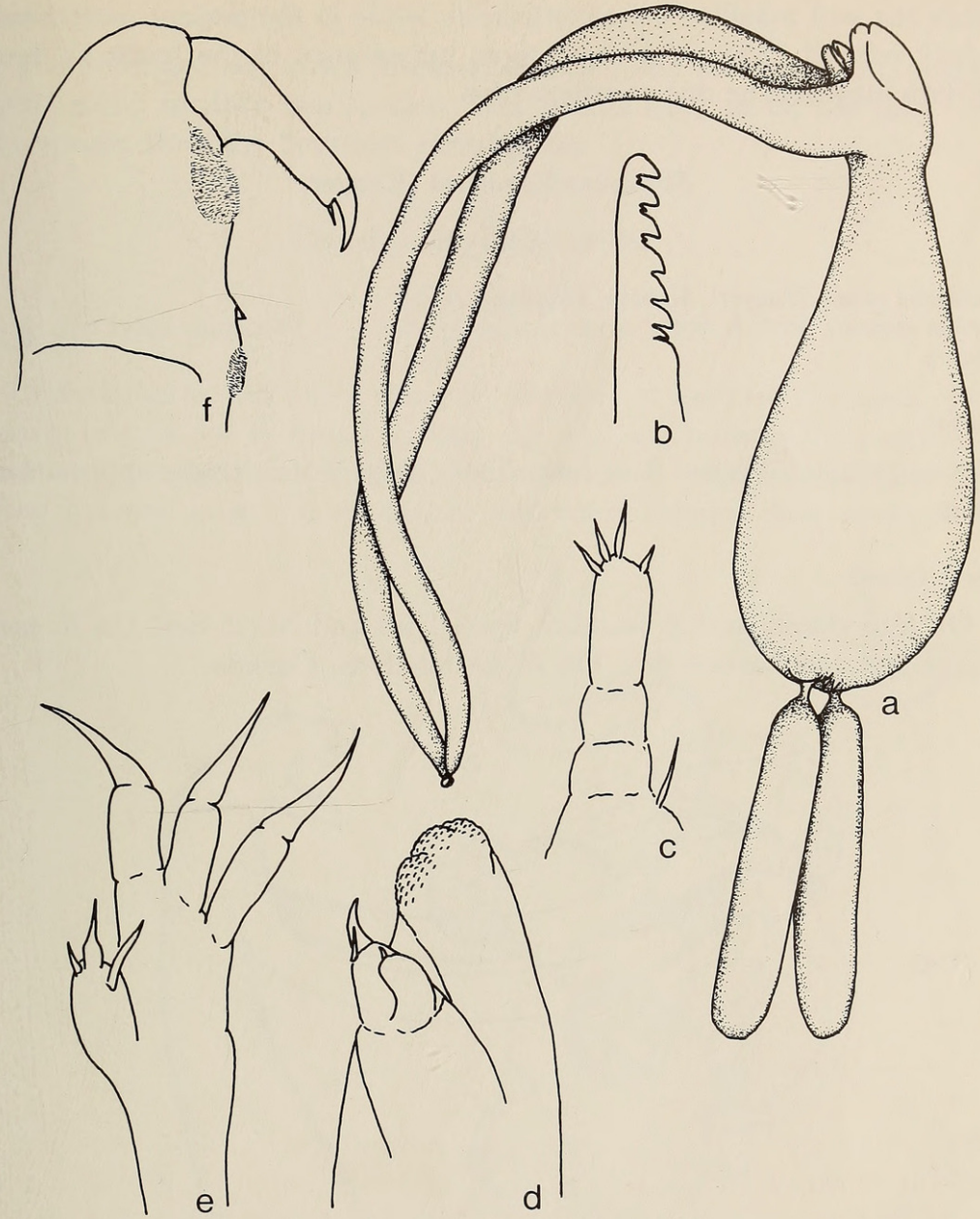

Fig. 30. *Lernaeopoda etmopteri* Yamaguti. *a.* female; *b.* mandibular apex; *c.* 1st antenna, ♀; *d.* 2nd antenna, ♀; *e.* 1st maxilla, ♀; *f.* maxilliped, ♀.

Previous records

On *Etmopterus lucifer*, from Japan.

Remarks

The present material agrees well with both Yamaguti's and Shiino's descriptions, especially with regard to the appendages. Slight differences do exist. The 2nd maxilla of the present material is far more elongate than that figured by Shiino. The Japanese material, however, is described as wrinkled;

possibly the 2nd maxillae were contracted, while in the present material they are fully relaxed. The somewhat lobose appearance of the trunk as figured by Shiino may also be due to contraction.

Schistobrachia ramosa (Krøyer)

(Fig. 31)

Schistobrachia ramosa (Krøyer), Kabata, 1964: 99.
Charopinus ramosus: Scott & Scott, 1913: 191, pl. 55, figs 6, 7. Yamaguti, 1963: 253, pl. 272, fig. 3.

Material

3 ovigerous ♀♀ from *Raia batis*, Table Bay. Total length approximately 9,0 mm.

Previous records

On *Raia clavata* and *R. maculata*, from Irish and North Sea. On *R. radiata* from Iceland and Barents Sea. On *R. scabrata* from Canada.

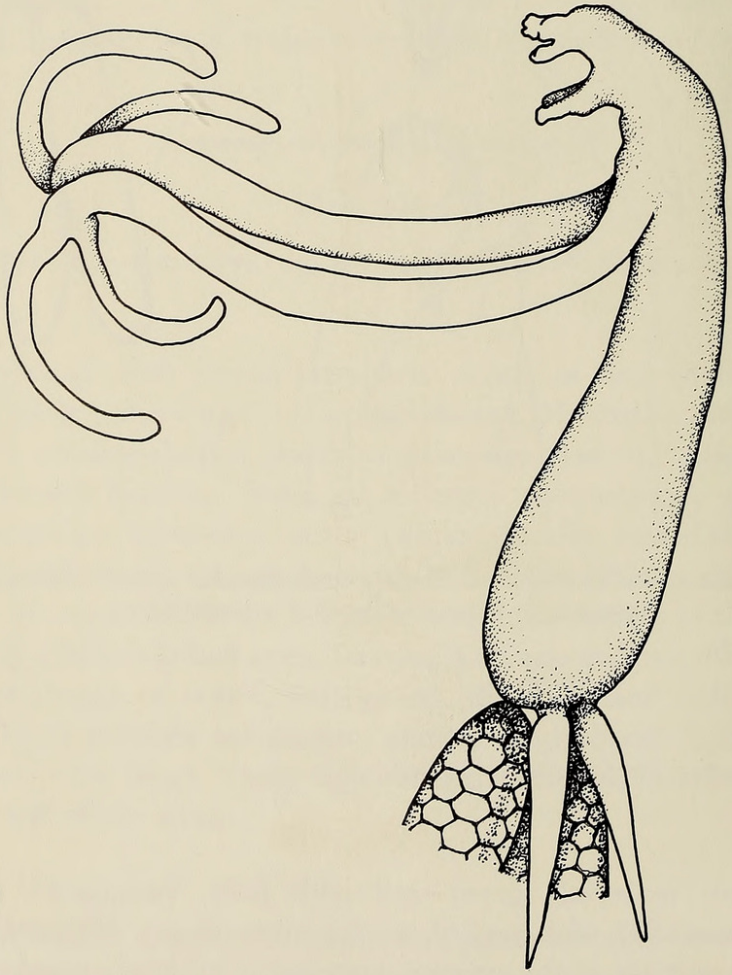

Fig. 31. *Schistobrachia ramosa* (Krøyer). Female.

Remarks

The 2nd maxillae, which are distally fused, and each split into 2 slender 'fingers' easily identify this species. This would seem to be the first record of the species from the Southern Hemisphere.

Clavellisa cf. *ilishae* Pillai

(Fig. 32*a–f*)

Description

Cephalothorax extremely elongate, slender, of uniform thickness. Trunk regularly oval, twice as broad as long. 1st antenna indistinctly 3-segmented, armed with 7 setae. 2nd antenna biramous, outer ramus broadly rounded, bearing 3 setae, inner ramus shorter and more slender than outer, with 4

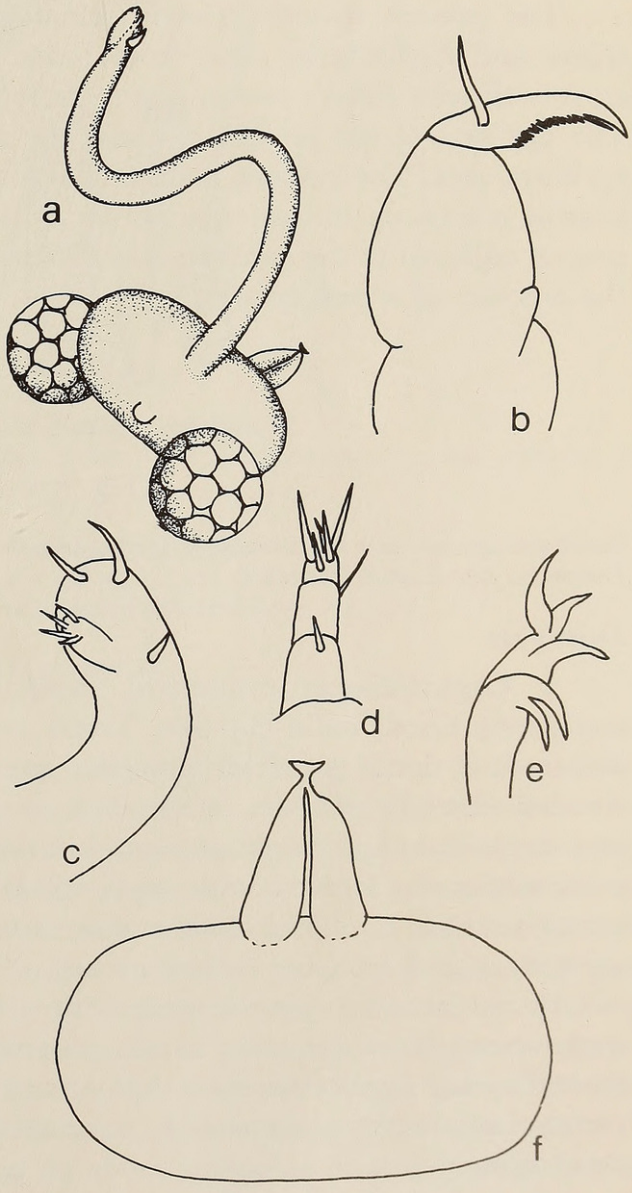

Fig. 32. *Clavellisa* cf. *ilishae* Pillai. *a*. female; *b*. maxilliped, ♀; *c*. 2nd antenna, ♀; *d*. 1st antenna, ♀; *e*. 1st maxilla, ♀; *f*. trunk and 2nd maxillae, ♀.

apical setae. 1st maxilla with 3 terminal curved spines, palp with 2 curved spines. 2nd maxillae springing from trunk, some distance from base of 'neck', separate, but apically fused into bulla. Maxilliped 2-segmented, terminal segment curved, with strong apical hook and numerous short spines on inner margin, bearing one strong seta. Egg sacs globular, with small prominence between them, representing fused anal laminae.

Material

3 ovigerous ♀♀ from gills of *Sardinops ocellata*, False Bay.

Dimensions: breadth of trunk ..	1,0 mm	0,8 mm	0,8 mm
egg sacs	0,4 mm	0,3 mm	0,3 mm
cephalothorax length	2,0 mm	2,5 mm	1,5 mm

Remarks

The present material closely resembles *C. ilishae* described from *Ilisha filigera* and *Euplatygaster indica* from India. The dimensions and appendages agree well with Pillai's description (1962:79), while a few differences do exist. The egg sacs of the present material are spherical, while *C. ilishae* possesses pyriform sacs. The present material also lacks the 2 pairs of tubercles, each bearing a seta, on the anterior border of the trunk, as well as the cylindrical process adjacent to the anal laminae. These differences hardly seem to warrant the erection of a new species.

Clavellopsis appendiculata Kirtisinghe

(Fig. 33*a–c*)

Clavellopsis appendiculata Kirtisinghe, 1950: 84, figs 40–43. Pillai, 1968*b*: 129, figs 7, 8.
Isobranchia appendiculata Heegaard, 1947: 239, figs 1–4. Yamaguti, 1963: 260, pl. 287, fig. 1.

Description

♀. Cephalothorax cylindrical, elongate, dorsally flexed. 2nd maxillae completely fused, bulla cup-like. Trunk pear-shaped, slightly dorso-ventrally flattened. 2 dorsal posterior processes situated laterally, 2 ventral processes situated closer to midline. 1st antenna 4-segmented, bearing 3 terminal setae and single short spine. 2nd antenna biramous, outer ramus apically rounded, inner ramus of 1 segment with single apical spine. Maxilliped subchelate, with strong terminal hook-like claw, and serrated region on inner basal area. Basal segment with short spine on inner margin.

♂. 1st antenna 3-segmented, with 3 terminal setae and 1 short spine. 2nd antenna biramous, inner ramus 4-segmented, terminal segment with large curved spine, smaller accessory spine, and row of tiny curved spines. Outer ramus indistinctly 3-segmented, terminal segment rounded, bearing single short spine.

Material

2 ovigerous ♀♀, 1 ♂ from *Chirocentrus dorab*, Durban. ♀ length cephalothorax 2,0 mm, length trunk + posterior processes 3,6 mm.

Previous records

From *Chirocentrus dorab*, Iranian Gulf.

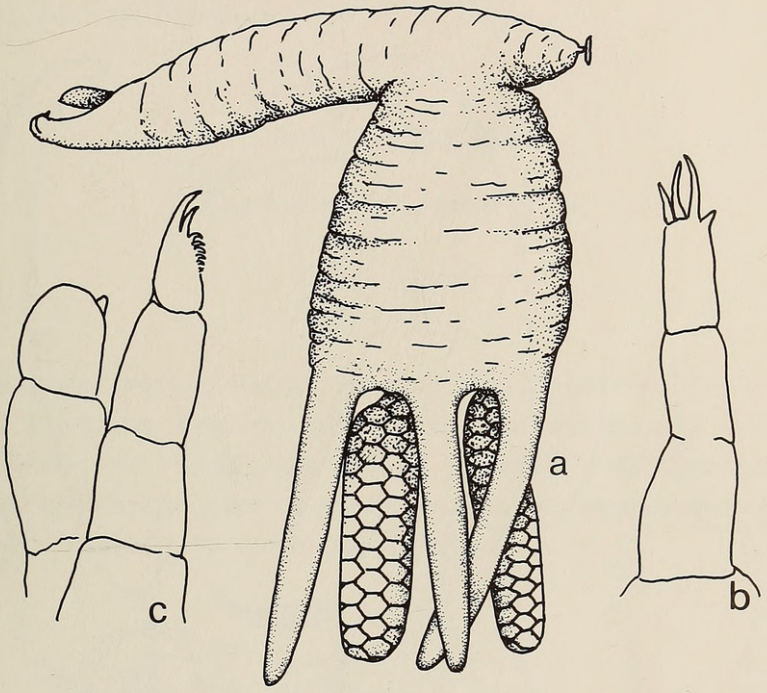

Fig. 33. *Clavellopsis appendiculata* Kirtisinghe. *a*. female; *b*. 1st antenna, ♂; *c*. 2nd antenna, ♂.

Family **Naobranchiidae**

Naobranchia pritchardae n. sp.

(Fig. 34*a–c*)

Description

Cephalothorax elongate, slender, only slightly longer than distance from base of cephalothorax to tip of egg sacs. Head demarked by slight constriction. 1st antenna indistinctly 3-segmented with stout apical spine. 2nd antenna bilobed, each ramus consisting of single segment with distal spine. Maxilliped 2-segmented, terminal segment a strong curved hook with accessory spine and tiny spine near base. Buccal cone flanked by rounded striated process. Egg sacs lateral, trunk broad, each side with 3 slender elongate processes embracing egg sacs, 1 dorsal pair, 1 ventro-lateral pair, 1 ventral pair. Egg sacs extend both anterior and posterior to oviduct. Abdomen with single pair of slender caudal rami, enclosed in membranous sac, which also encloses egg sacs and trunk processes. Abdomen situated at about midpoint of length of egg sacs,

deep notch between latter. 2nd maxillae form 2 basally fused bands, on ventral surface of trunk.

Material

2 ovigerous ♀♀, from *Pomadasys operculare*, Durban. Holotype, S.A.M. A13042, paratypes S.A.M. A13063. Total length 4,0 mm, cephalothorax length 2,0 mm.

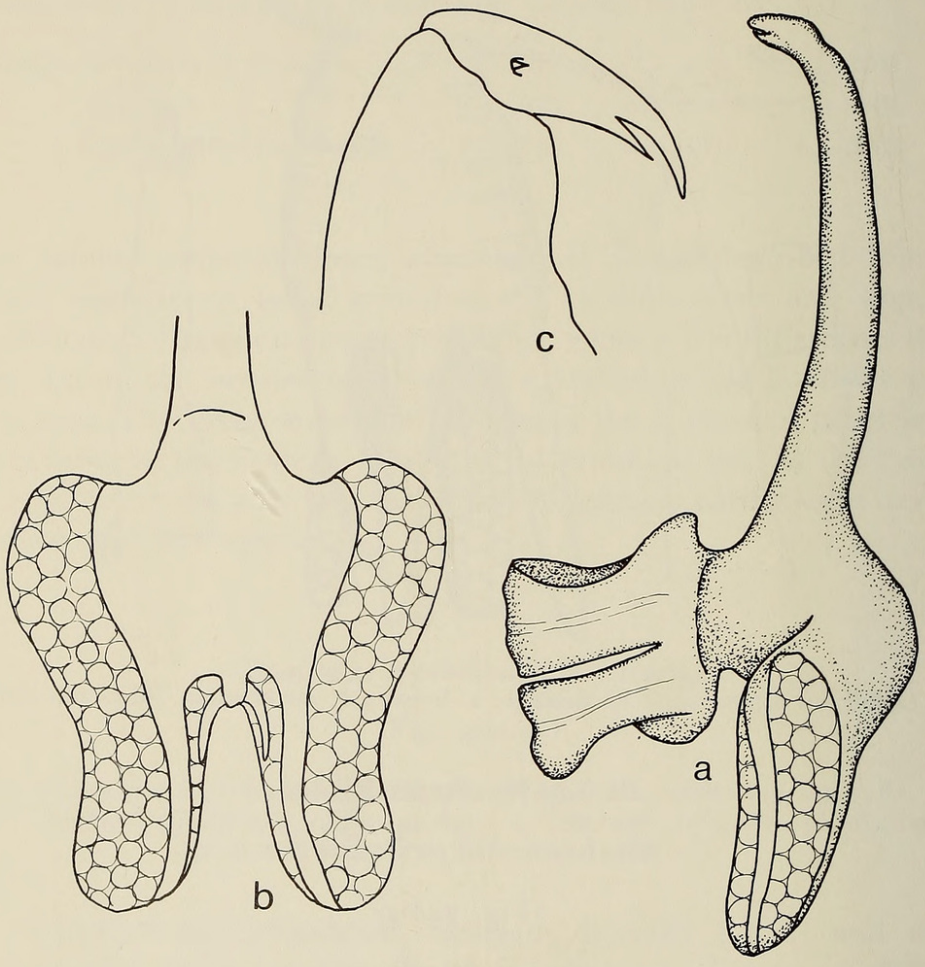

Fig. 34. *Naobranchia pritchardae* n. sp. *a*. female in lateral view; *b*. dorsal view of trunk, ♀; *c*. maxilliped, ♀.

Remarks

Of the 15 known species of the genus *Naobranchia*, the present material most closely resembles three species described by Nunés-Ruivo, in 1963, viz. *N. pagelli*, *N. sargi* and *N. smaridis*. These three species from West Africa, as with the present species, possess 3 pairs of processes on the trunk. *N. pagelli*, does not possess a posterior notch between the egg sacs, and is about twice the length of the present species. Neither *N. sargi* nor *N. smaridis* was an ovigerous specimen, and the presence or absence of a posterior notch can thus not be

determined. Neither possesses the strong 'shoulders' of *N. pritchardae*, while both are somewhat larger than the latter. They also differ in general proportions. *N. smaridis* has a cephalothorax about twice the length of the trunk, *N. sargi* $1\frac{1}{2}$ times the length of the trunk, while in the present species the cephalothorax is less than $1\frac{1}{2}$ times the length of the trunk.

The species is named for Dr Mary-Lou Pritchard of the University of Nebraska, who collected it, along with numerous other parasitic copepods, for the South African Museum.

Family **Sphyriidae**

Lophoura elongata n. sp.

(Fig. 35*a–d*)

Description

Cephalothorax very elongate, narrow. Neck shorter than cephalothorax, but of same thickness, bearing lobed and knobbed process distally. Genital segment flask-shaped, bearing posteriorly a median raised process flanked by oviduct openings. Single pair of processes bearing numerous sausage-shaped lobes attached medially to oviducal openings.

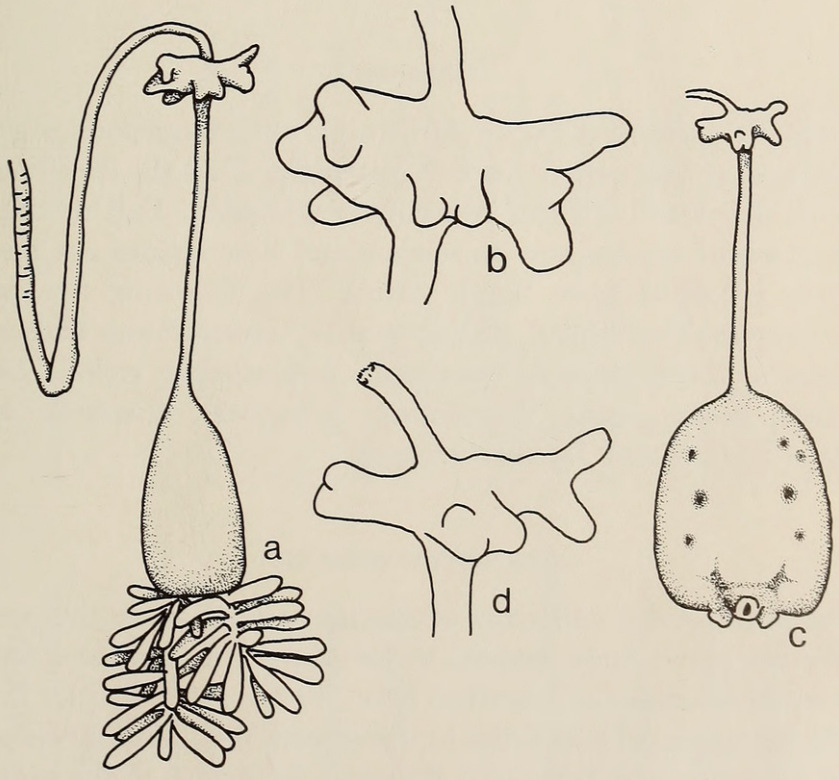

Fig. 35. *Lophoura elongata* n. sp. *a*. female, specimen A; *b*. lobed process further enlarged; *c*. female, specimen B; *d*. lobed process further enlarged.

Material

2 ♀♀ from *Synaphobranchus bathybius*, off Cape Point. Cephalothorax apex missing in both cases. Holotype S.A.M. A11802, paratype S.A.M. A13064.

	Specimen A	*Specimen B*
remains of cephalothorax	47,0 mm	—
length of neck ..	23,0 mm	22,0 mm
length of trunk ..	15,0 mm	25,0 mm

Remarks

Of the seven species of *Lophoura* mentioned and figured by Yamaguti (1963) the cephalothorax is never more than 10 times longer than wide. In this character the present material differs markedly, having the cephalothorax at least 30 times longer than wide. In the structure of the knobbed process situated at the distal end of the 'neck', the present material resembles *L. tripartita* and, to a lesser extent, *L. edwardsi* in some of the variations figured by Nunés-Ruivo (1954: fig. 5). The knobbed process of *L. tripartita* is spikier and more branched than the present material (Wilson 1935: fig. 75). *L. magna* (Szidat 1971) possesses a relatively short cephalothorax, although the neck and trunk resemble *L. elongata*. *L. laticervix* (Hewitt 1964) has a short, stout neck, while the knobbed process at the base of the cephalothorax resembles the present material to some extent.

Summary

A systematic account of South African parasitic Copepoda is given which supplements and revises earlier work. A catalogue of all the species of parasitic Copepoda in the South African Museum is provided. Full descriptions and figures are given of species new to science and descriptions are also given of species newly recorded from South Africa. The following new species are described: *Gunenotophorus blaizei*, *Caligus penrithi*, *Lepeophtheirus lalandei*, *Lepeophtheirus natalensis*, *Lernanthropodes natalensis*, *Lernanthropus ecclesi*, *Lernanthropus sarbae*, *Pseudocycnoides rugosa*, *Lernaeeniscus gonostomae*, *Brachiella lithognathae*, *Naobranchia pritchardae* and *Lophoura elongata*.

Acknowledgements

We thank the many collectors of specimens who made the present work possible. We are particularly grateful to Dr Mary-Lou Hanson Pritchard who collected most of the material described here. We are grateful to Dr P. A. Hulley for checking the names of host fishes in this paper. We thank the South African Council for Scientific and Industrial Research for grants to the second author enabling the employment of Mr Leiserowitz who prepared preliminary drawings of the material.

Species	Material	Locality	Host	Cat. No.	Type Material
Subclass **COPEPODA**					
Order HARPACTACOIDA					
Balaenophilus unisetus Aurivillius	numerous	Durban	Sei Whale	A11058	
Order CYCLOPOIDA					
Suborder POECILOSTOMA					
Family **Chondracanthidae**					
Acanthochondria lepidionis Barnard	1 ovig. ♀, 1♂	Off Cape Point	*Lepidion capense*	A13025	Holotype & allotype
	6 ♀♀	Off Cape Point	*Lepidion capense*	A8522	Paratypes
Chondracanthus barnardi Ho	5 ovig. + 4♀♀	Agulhas Bank	*Lophius piscatorius*	A7607	Syntypes
	sev. ovig.♀♀	Table Bay	*Lophius piscatorius*	A13009	
Chondracanthus colligens Barnard	3 ovig.♀♀ 8♂♂	Off west coast	*Genypterus capensis*	A12591	Syntypes
Chondracanthus merlucci (Holten)	sev. ♀♀ & ♂♂	Table Bay	*Merluccius capensis*	A1592	
	3 ovig. ♀♀, 3♂♂	61 km WSW Danger Point	*Merluccius* sp.	A13005	
	4 ovig. ♀♀, 3♂♂	Table Bay	*Merluccius* sp.	A13006	
	1 ovig. ♀, 1♂	Table Bay	*Merluccius* sp.	A11790	
Chondracanthus neali Leigh-Sharpe	1 ovig. ♀	Table Bay	*Malacocephalus laevis*	A13007	
	15 ovig.+4♀♀	Off west coast	*Malacocephalus laevis*	A13008	
	2 ovig. ♀♀, 3♂♂	32° 15′S, 16° 30′E	*Malacocephalus laevis*	A13045	
Chondracanthus tuberculatus Nordman	1 ovig. ♀, 1♂	Table Bay	*Congiopodus torvus*	A7612	
	3 ovig.+2♀♀, 2♂♂	Table Bay	*Congiopodus torvus*	A7612	
Cucumaricola notabilis Paterson	1♀, 1♂	Blouberg	*Cucumaria frauenfeldi*	A13037	Holotype & allotype
	1♀, 3♂♂	Blouberg	*Cucumaria frauenfeldi*	A13038	Paratypes
Lernentoma triglae de Blainville	1 ovig. ♀	Table Bay	*Trigla capensis*	A13022	
	2 ovig. ♀♀	Table Bay	*Trigla capensis*	A13023	
	1♀	Table Bay	*Trigla capensis*	A13047	
Medesicaste penetrans Heller	1 ovig. ♀, 1♂	False Bay	*Trigla capensis*	A1596	
	1 ovig. ♀	Table Bay	*Trigla capensis*	A13024	
	1♀	Table Bay	*Trigla capensis*	A13046	
Strabax monstrosus Nordman	1 ovig. ♀, 1♂	Port St. Johns	*Scorpaenodes guamensis*	A7608	

Species	Material	Locality	Host	Cat. No.	Type Material
Suborder SIPHONOSTOMA					
Family **Cancerillidae**					
Cancerilla tubulata Dalyell	1 ovig. ♀	Lüderitzbucht	*Amphipholis squamata*	A12713	
Family **Clausiidae**					
Entobius euelpis Barnard	1 ovig. ♀	?	Polychaete	A5977	Holotype
Order NOTODELPHYOIDA					
Family **Notodelphyidae**					
Dorypygus pulex Thorell	2♀♀	St. James	*Pyura stolonifera*	A2096	
	1♀	Port Elizabeth	Ascidian	A13039	
Gunenotophorus globularis Costa	1♀	St. James	*Pyura stolonifera*	A1578	
	8♀♀	St. James	*Pyura stolonifera*	A1579	
	3♀♀	St. James	*Pyura stolonifera*	A2097	
**Gunenotophorus blaizei* n. sp.	1 ovig. ♀	Cape St. Blaize	*Gynandrocarpa unilateralis*	A13049	Holotype
	1 ovig. ♀	Cape St. Blaize	*Gynandrocarpa unilateralis*	A13041	Paratype
Notodelphys allmani Thorell	4 ovig. ♀♀	Still Bay, Cape	Ascidian	A7604	
	2 ovig. ♀♀, 2♂♂	Port Elizabeth	Ascidian	A13040	
Order CALIGOIDA					
Family **Caligidae**					
**Caligus aesopus* Wilson	10 ovig.+25♀♀, 4♂♂	False Bay	*Seriola lalandi*	A12994	
**Caligus* cf. *affinis* Heller	1 ovig.+1♀, 1♂	Durban	*Pomatomus saltator*	A12996	
Caligus arii Bassett-Smith	3♀♀	Chinde, P. E. A.	*Arius acutirostris*	A8518	
**Caligus confusus* Pillai	1 ovig.+2♀♀	Durban	*Caranx djedabae*	A12995	
**Caligus coryphaenae* Steenstrup & Lütken	6 ovig. ♀♀	Cape Town	*Thunnus obesus*	A11808	
	ovig. ♀, 3♂♂	Cape Town	*Euthynnus pelamis*	A11753	
Caligus engraulidis Barnard	1 ovig. ♀	Algoa Bay	*Anchoviella holodon*	A8520	Holotype
Caligus hottentotus Barnard	1 ovig. ♀, 1♂	Table Bay	*Pachymetopon blochii*	A11780	Syntypes
Caligus lalandei Barnard	1 ovig.+3♀♀, 1♂	Kalk Bay	*Seriola lalandi*	A8517	Syntypes
Caligus mortis Kensley	1 ovig. ♀	Rocky Pt, S.W.A.	?	A12708	Holotype
	1♀	Torra Bay, S.W.A.	?	A12709	Paratype
	1 ovig. ♀	Möwe Bay, S.W.A.	*Chorisochismus dentex*	A12991	
	1♀	Möwe Bay, S.W.A.	*Blennius cornutus*	A12992	
	2 ovig. ♀♀	Möwe Bay, S.W.A.	*Clinus superciliosus*	A12993	
	1 ovig.+2♀♀	Swakopmund, S.W.A.	*Blennius cornutus*	A12990	
	2 ovig. ♀♀	Saldanha Bay	*Clinus superciliosus*	A11814	

Species	Material	Locality	Host	Cat. No.	Type Material
**Caligus penrithi* n. sp.	4 ovig.+1♀♀, 7♂♂	Möwe Bay, S.W.A.	*Chilodactylus fasciatus*	A13051	Paratypes
	1 ovig. ♀, 1♂	Möwe Bay, S.W.A.	*Chilodactylus fasciatus*	A13050	Holotype & allotype
Caligus tetrodontis Barnard	2 ovig. ♀♀, 4♂♂	Algoa Bay	*Amblyrhynchotes hypselogeneion*	A3778	Syntypes
	2 juv. ♀♀				
Lepeophtheirus brachyurus Heller	1♀	Durban	*Amblyrhynchotes hypselogeneion*	A1604	
Lepeophtheirus insignis Wilson	7 ovig.+6♀♀	West of Cape Town	*Mola mola*	A11812	
	1♀, 1♂	Table Bay	*Mola mola*	A4789	
	2 ovig. ♀♀, 2♂♂	Sea Point	*Mola lanceolata*	A13168	
	1♀	Table Bay	*Mola mola*	A11761	
	8 ovig.+8♀♀, 2♂♂	Port Elizabeth	*Mola mola*	A11760	
**Lepeophtheirus lalandei* n. sp.	1♀+1♂	Vema Seamount	*Seriola lalandi*	A13052	Holotype & allotype
	6♀♀	Vema Seamount	*Seriola lalandi*	A13053	Paratypes
Lepeophtheirus lichiae Barnard	4 ovig.+8♀♀	Natal	*Hypacanthus amia*	A7619	Syntypes
**Lepeophtheirus longispinosus* Wilson	3 ovig. ♀♀	?	*Carcharhinus leucas*	A12989	
**Lepeophtheirus natalensis* n. sp.	1 ovig. ♀	Natal	*Carcharhinus leucas*	A13054	Holotype
	11 ovig. ♀♀	Natal	*Carcharhinus leucas*	A13055	Paratypes
Lepeophtheirus plotosi Barnard	1 ovig. ♀	East London	*Plotosus anguillaris*	A8519	Holotype
Family **Cecropidae**					
**Cecrops exiguus* Wilson	7 ovig.+9♀♀, 10♂♂	Bantry Bay, Cape	*Mola lanceolata*	A11810	
	8♀♀, 8♂♂	Sea Point, Cape	*Mola lanceolata*	A13166	
Cecrops latreillei Leach	1♀, 1♂	Cape	*Mola mola*	A1580	
	7♀♀	Cape	*Mola mola*	A1581	
	5♀♀	Table Bay	*Mola mola*	A11757	
	2♀♀	Table Bay	*Mola mola*	A11754	
Orthagoriscicola muricatus (Krøyer)	sev. ♀♀ & ♂♂	Table Bay	*Mola mola*	A11768	
	sev. ♀♀ & ♂♂	Table Bay	*Mola mola*	A1585	
	sev. ♀♀ & ♂♂	Table Bay	*Mola mola*	A1584	
	sev. ♀♀ & ♂♂	Table Bay	*Mola mola*	A1582	
	sev. ♀♀ & ♂♂	Port Elizabeth	*Mola mola*	A11767	
	sev. ♀♀ & ♂♂	Cape Columbine	*Mola mola*	A12986	
Philorthagoriscus serratus (Krøyer)	1♀	Table Bay	*Mola mola*	A7603	
	3♀♀				
	5 ovig.+2♀♀	Sea Point	*Mola lanceolata*	A13167	

Species	Material	Locality	Host	Cat. No.	Type Material
Family **Euryphoridae**					
Alebion carchariae (Krøyer)	1 ovig. ♀	West of Slangkop	*Carcharodon carcharias*	A11770	
	2♀♀	Off Cape Point	*Carcharhinus obscurus*	A11769	
	3 ovig.+4♀♀	Durban	*Odontaspis* sp.	A12972	
	1♀	Ifaifa, Natal	Shark	A12973	
**Elytrophora hemiptera* Wilson	5♀♀, 8♂♂	West of Cape Point	*Thunnus thynnus*	A11809	
	1 ovig.+1♀	Table Bay	*Thunnus albacora*	A11793	
Gloiopotes watsoni Kirtisinghe	4 ovig. ♀♀, 2♂♂	Mossel Bay	*Makaira audax*	A11795	
	4♀♀, 3♂♂	Mossel Bay	*Makaira indica*	A11796	
	sev. ♀♀ & ♂♂	S.W. of Cape Point	*Makaira audax*	A11756	
	sev. ♀♀ & ♂♂	S.W. of Cape Point	*Makaira audax*	A11758	
	sev. ♀♀ & ♂♂	Off Cape Point	*Makaira indica*	A12975	
	sev. ♀♀ & ♂♂	Off Slangkop	*Makaira indica*	A11799	
	sev. ♀♀ & ♂♂	Off Slangkop	*Makaira audax*	A11797	
	4 ovig. ♀♀, 4♂♂	Off Cape Point	*Makaira audax*	A13172	
	sev. ♀♀ & ♂♂	Off Cape Point	*Makaira indica*	A11798	
Family **Pandaridae**					
Achtheinus dentatus Wilson	3 ♀♀	Buffels Bay, Cape	?	A1588	
	4 ♀♀, 1♂	False Bay	*Mustelus* sp.	A7618	
	sev. ♀♀ & ♂♂	33° 55′S, 25° 46′E	Shark	A1587	
	sev. ♀♀ & ♂♂	Algoa Bay	Shark	A4245	
	sev. ♀♀ & ♂♂	Table Bay	*Carcharodon carcharias*	1365	
	1♀	West coast	*Squalus blainvillei*	A12978	
	sev. ♀♀ & ♂♂	False Bay	*Mustellus canis*	A12979	
	sev. ♀♀ & ♂♂	Strand, Cape	*Sphyrna zygaena*	A12980	
	sev. ♀♀ & ♂♂	Orange River mouth	*Haploblepharus edwardsi*	A12981	
	sev. ♀♀ & ♂♂	False Bay	*Squalus acanthias*	A12982	
Achtheinus dentatus Wilson	sev. ♀♀ & ♂♂	Langebaan, Cape	*Mustelus canis*	A12983	
	sev. ♀♀ & ♂♂	Table Bay	*Haploblepharus edwardsi*	A12984	
Achtheinus cf. *pinguis* Wilson	4 ♀♀	Table Bay	*Pliotrema warreni*	1366	
Dinematura latifolia Steenstrup & Lütken	3 ovig. ♀♀	?	*Prionace glauca*	A11781	
	4 ♀♀	S.W. of Cape Town	*Mola mola*	A12836	
	1♀	West of Cape Point	*Isurus glaucus*	A8532	
	4 ♀♀	?	*Isurus* sp.	A12974	
	sev. ♀♀ & ♂♂	Off Cape Point	*Isurus glaucus*	A11766	
	sev. ♀♀ & ♂♂	Off Cape Point	?	A11804	

Species	Material	Locality	Host	Cat. No.	Type Material
Echthrogaleus coleoptratus (Guérin)	1 ovig. ♀	False Bay	*Prionace glauca*	A8523	
	1♀	Off Slangkop	*Prionace glauca*	A12987	
**Echthrogaleus torpedinis* Wilson	1 ovig. ♀	Off Cape Columbine	*Torpedo nobiliana*	A12988	
	3 ovig. ♀♀	West of Slangkop	*Torpedo* sp.	A12215	
Nesippus alatus Wilson	sev. ovig. ♀♀	Durban	*Carcharodon carcharias*	A12969	
	sev. ♀♀ & ♂♂	?	*Sphyrna zygaena*	A12970	
	sev. ovig. ♀♀	False Bay	*Carcharodon carcharias*	A13171	
Pandarus bicolor Leach	2 ovig.+1♀♀	Durban	*Carcharinus* sp.	A11786	
	3 ovig.+1♀♀ 7♂♂	Three Anchor Bay	?	A1601	
	11 ovig.+3♀♀, 5♂♂	Table Bay	*Odontaspis* sp.	A3104	
	6 ovig.+1♀♀	False Bay	*Galeorhinus galeus*	A7614	
	9 ovig.+2♀♀	Sea Point	Dogfish	A2995	
Pandarus cranchii Leach	10 ovig.+1♀♀	Natal	*Sphyrna zygaena*	A7616	
	14 ovig.+9♀♀	Durban	*Stegostoma* sp.	A7615	
	1♀	Natal	?	A1591	
Pandarus smithi Rathbun	6 ovig.+5♀♀	Milnerton	*Rhincodon typus*	A12997	
	5 ovig.+2♀♀	Milnerton	*Rhincodon typus*	A12998	
	2♀♀	Off Slangkop	*Prionace glauca*	A12999	
	1 ovig.+2♀♀	West of Slangkop	*Carcharodon carcharias*	A11764	
	16 ovig. ♀♀	Off Slangkop	*Isurus oxyrhynchus*	A13000	
	8 ovig.+4♀♀	Durban	*Odontaspis* sp.	A11785	
	7 ovig.+4♀♀	?	*Isurus* sp.	A11762	
	Sev. ♀♀ & ♂♂	Off Cape Point	*Carcharinus obscurus*	A11763	
	2 ♀♀	Table Bay	*Odontaspis* sp.	13536	
	1 ovig. ♀	?	*Scoliodon palasorrah*	A7617	
Perissopus dentatus Steenstrup & Lütken	3 ovig. ♀♀	Durban	*Scoliodon* sp.	A12971	
Family **Trebiidae**					
Trebius caudatus Krøyer	13 ♀♀	Table Bay	Skate	A1589	
	1♀	34° 23′S, 18° 40′E	Skate	A11752	
Family **Anthosomatidae**					
Anthosoma crassum (Abildgaard)	sev. ♀♀ & ♂♂	Table Bay	*Odontaspis* sp.	A7605	
	sev. ♀♀ & ♂♂	?	*Isurus* sp.	A11759	
	sev. ♀♀ & ♂♂	Durban	*Isurus* sp.	A12976	
	sev. ♀♀ & ♂♂	Off Cape Point	*Isurus* sp.	A11801	
	sev. ♀♀ & ♂♂	Off Slangkop	*Isurus oxyrhynchus*	A12977	

Species	Material	Locality	Host	Cat. No.	Type Material
	sev. ♀♀ & ♂♂	West of Cape Point	*Isurus glaucus*	A8531	
	sev. ♀♀ & ♂♂	Durban	*Carcharodon carcharias*	A11787	
	sev. ♀♀ & ♂♂	False Bay	*Carcharodon carcharias*	A13169	
**Lernanthropodes natalensis* n. sp.	1 ovig. ♀	Durban	*Chorinemus tol*	A13034	Holotype
**Lernanthropus corniger* Yamaguti	1 ovig.+5♀♀	Durban	*Caranx djedaba*	A13016	
	3 ovig.+5♀♀	Durban	*Caranx djedaba*	A13017	
	2 ovig. ♀♀	Durban	*Caranx djedaba*	A13018	
	5 ovig. ♀♀	Durban	*Caranx djedaba*	A13019	
**Lernanthropus ecclesi* n. sp.	1 ovig. ♀, 1♂	False Bay	*Seriola lalandi*	A13021	Holotype & allotype
	8 ovig.+2♀♀, 6♂♂	False Bay	*Seriola lalandi*	A13057	Paratypes
**Lernanthropus sarbae* n. sp.	1 ovig. ♀, 1♂	Durban	*Rhabdosargus sarba*	A13056	Holotype & allotype
	1♀	Durban	*Rhabdosargus sarba*	A13056	Paratype
Family **Dichelesthiidae**					
Hatschekia acuta Barnard	15 ♀♀	Fish Hoek, Cape	*Brama raii*	A8521	Syntypes
	12 ♀♀	Off west coast	*Brama raii*	A13004	
	2 ♀♀	32° 15′S, 16° 30′E	*Brama raii*	A13044	
Family **Eudactylinidae**					
**Kroyeria carchariaeglauci* Hesse	26 ovig.+13♀♀	Fish Hoek, Cape	*Prionace glauca*	A13001	
**Nemesis lamna* Risso	sev. ovig. ♀♀	False Bay	*Carcharodon carcharias*	A13170	
Nemesis pallida Wilson	1 ovig. ♀	Fish Hoek, Cape	*Prionace glauca*	A13002	
	sev. ♀♀ & ♂♂	Table Bay	*Alopias vulpes*	A2590	
	sev. ♀♀ & ♂♂	Off west coast	*Alopias vulpes*	A3093	
Family **Pseudocycnidae**					
**Pseudocycnoides rugosa* n. sp.	1 ovig. ♀	Durban	*Scomberomorus maculatus*	A13058	Holotype
	3 ovig. ♀♀	Durban	*Scomberomorus maculatus*	A13059	Paratypes
Family **Lernaeidae**					
Cardiodectes medusaeus (Wilson)	4 ovig. ♀♀	N.E. of Cape Point	Myctophid	A1594	
	2 ovig. ♀♀	Off Cape Point	Myctophid	A1602	
	1 ovig. ♀	Off Cape Point	*Gonichthyes coccoi*	A1603	
	1 ovig. ♀	Off Cape Point	? *Scopelus* sp.	A1595	
	9 ovig. ♀♀	N.W. of Slangkop	Myctophids	A11813	
	1 ovig. ♀	33° 10′S, 17° 20′E	*Lampanyctodes hectoris*	A13035	
	1 ovig. ♀	West of Slangkop	*Lampanyctodes hectoris*	A13036	
**Lernaeeniscus gonostomae* n. sp.	1 ovig. ♀	26° 30′S, 33° 40′E	*Gonostoma elongatum*	A11751	Holotype
	1 ovig. ♀	26° 30′S, 33° 40′E	*Gonostoma elongatum*	A13173	Paratype
	1♀	28° 12′S, 33° 24′E	*Gonostoma elongatum*	A13031	Paratype
**Peniculisa furcata* (Krøyer)	6 ovig.+1♀♀	Inhaca Island	*Paramonacanthus barnardi*	A13011	

Species	Material	Locality	Host	Cat. No.	Type Material
Family **Pennellidae**					
Pennella balaenopterae Koren & Danielssen	1♀	False Bay	*Balaenoptera physalus*	A7596	
	2 ovig. ♀♀	Saldanha Bay	Whale	A5982	
Pennella crassicornis Steenstrup & Lütken	3♀♀	Table Bay	*Balaenoptera acutorostrata*	A3101	
Pennella filosa (Linnaeus)	2 ovig. ♀♀	False Bay	*Thynnus albacores*	A13043	
	3 ovig. ♀♀	Table Bay	*Mola mola*	A7595	
Pennella orthagorisci Wright	3 ovig. ♀♀	Off Cape Point	*Makaira indica*	A11788	
Pennella sp.	many ♀♀	Saldanha Bay	*Phyester catodon, Balaenoptera borealis, Balaenoptera physalus*		
Order LERNAEOPODOIDA					
Family **Lernaeopodidae**					
Brachiella supplicans Barnard	7 ovig. ♀♀, 1♂	Table Bay	*Genypterus capensis*	A12592	Syntypes
	1♀, 2♂♂	Table Bay	*Genypterus capensis*	A13048	
**Brachiella lithognathae* n. sp.	1 ovig. ♀, 1♂	Rocky Pt, S.W.A.	*Lithognathus aureti*	A13030	Holotype & allotype
	2 ovig. ♀♀	Rocky Pt, S.W.A.	*Lithognathus aureti*	A13060	Paratypes
	2 ovig. ♀♀	Table Bay	*Lithognathus lithognathus*	A11792	Paratypes
Charopinus dubius Scott	2 ovig. ♀♀	Table Bay	*Raja* sp.	A13012	
	2 ovig. ♀♀	Off west coast	*Raja caudaspinosa*	A13013	
	1 ovig. ♀, 1♂	Off west coast	*Raja leopardus*	A13014	
**Lernaeopoda etmopterae* Yamaguti	1♀	Off Cape Point	*Etmopterus* sp.	A12108	
	1♀	Off Cape Point	*Etmopterus* sp.	A13061	
**Clavellisa* cf. *ilishae* Pillai	1 ovig. ♀	False Bay	*Sardinops ocellata*	A13032	
	3 ovig. ♀♀	False Bay	*Sardinops ocellata*	A13062	
Clavellodes pagelli (Krøyer)	25 ovig. ♀♀	?	*Lithognathus lithognathus*	A7610	
**Clavellopsis appendiculata* Kirtisinghe	2 ovig. ♀♀, 1♂	Durban	*Chirocentrus dorab*	A13033	
Clavellopsis fallax (Heller)	5 ovig. ♀♀, 2♂♂	?	*Lithognathus lithognathus*	A7610	
	7 ovig. ♀♀	East London	*Pagrus nasutus*	A8525	
Clavellopsis hostilis (Heller)	1 ovig. ♀	Natal	*Sciaena robinsoni*	A8527	
**Clavellopsis sargi* (Kurz)	18 ovig.+6♀♀	West coast	*Pachymetopon blochii*	A13026	
	14 ovig.+2♀♀	False Bay	*Argyrozona argyrozona*	A13027	
	2 ovig. ♀♀	False Bay	*Chrysoblephus laticeps*	A13028	
	15 ovig. ♀♀	Table Bay	*Pachymetopon blochii*	A13029	
Eubrachiella sublobulata Barnard	8 ovig. ♀♀, 2♂♂	Table Bay	*Congiopodus torvus*	A7611	Syntypes

Species	Material	Locality	Host	Cat. No.	Type Material
Lerneopoda galei Krøyer	1 ovig. ♀	False Bay	*Mustelus laevis*	A7613	
Parabrachiella australis Wilson	1 ovig. ♀, 1♂	?	*Merluccius capensis*	A8524	
	1 ovig. ♀	Table Bay	*Merluccius capensis*	A11791	
Naobranchia pritchardae n. sp.	1 ovig. ♀	Durban	*Pomadasys operculare*	A13042	Holotype
	1 ovig. ♀	Durban	*Pomadasys operculare*	A13063	Paratype
Family **Spyriidae**					
**Lophoura elongata* n. sp.	1♀	Off Cape Point	*Synaphobranchus bathybius*	A11802	Holotype
	1♀	Off Cape Point	*Synaphobranchus bathybius*	A13064	Paratype
**Schistobrachia ramosa* (Krøyer)	3 ovig. ♀♀	Table Bay	*Raja doutrei*	A13015	
Sphyrion laevigatum Guérin-Meneville	1 ovig. ♀	Off Cape Point	?	A2094	
	2 ovig. ♀♀	Table Bay	*Genypterus capensis*	A7606	
	1♀	Off Cape Point	*Macrurus* sp.	A3105	
	1♀	Table Bay	?	A1593	
	1♀	Off Cape Point	*Coelorhynchus fasciatus*	A2093	
	1 ovig. ♀	West of Cape Point	*Genypterus capensis*	A11807	
	1♀	West of Cape Town	*Genypterus capensis*	A12107	
	1 ovig. ♀	?	*Genypterus capensis*	A12570	
	5♀♀	West of Slangkop	*Genypterus capensis*	A12213	
	1 ovig. ♀	Off Cape Town	*Genypterus capensis*	A13003	
Sphyrion lumpi (Krøyer)	1♀	Off Cape Point	*Antimora* sp.	A4242	
	8♀♀	Off Cape Point	*Cottunculus* sp.	A1598	
		St. Helena Bay	From seal stomach	A8530	
Subclass **Branchiura**					
Order ARGULOIDA					
Family **Argulidae**					
Argulus belones van Kamper	4♀♀	Natal	*Scomberomorus commersoni*	A8529	
Argulus multipocula Barnard	1 ovig. ♀	Richards Bay, Natal	?	A13065	Holotype
Chonopeltis inermis Thiele	3 juv.	Okavango, S.W.A.	*Synodontis melanostictus*	A8528	
Dolops ranarum (Stuhlmann)	3♀♀, 6♂♂	Hartebeespoort Dam, Transvaal	*Tilapia mossambica*	A11776	
	2♀♀	Matopa Dam, Bulawayo	*Huro salmonoides*	A11777	

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