Artificial Key to the Lysianassoidea Reported from the Southern California Bight, SCAMIT, Edition 14

Dean Pasko, **Rev 6Oct2023**
(Modified from D.Cadien 14 February 2007)

INFRAORDER LYSIANASSIDA

SUPERFAMILY LYSIANASSOIDEA

FAMILY LYSIANASSIDAE
Subfamily Lysianassinae
- *Aruga holmesi* JL Barnard 1955
- *Aruga oculata* Holmes 1908
- *Dissiminassa dissimilis* (Stout 1913)
- *Macronassa macromera* (Shoemaker 1916)
- *Macronassa pariter* (JL Barnard 1969)
- ***Shoemakerella* cubensis** (Stebbing 1897)
- Socarnes *hartmani* Hurley 1963
- *Socarnoides illudens* Hurley 1963

FAMILY OPISIDAE
- *Opisa tridentata* Hurley 1963

FAMILY URISTIDAE
- *Abyssorchomene* sp
- *Anonyx lilljeborgi* Boeck 1871
- *Thrombasia tracalero* JL Barnard 1966

FAMILY TRYPHOSIDAE
- *Hippomedon coecus* (Holmes 1908)
- *Hippomedon columbianus* Jarrett & Bousfield 1982
- *Hippomedon subrobustus* Hurley 1963
- *Hippomedon tenax* JL Barnard 1966
- *Hippomedon zetesimus* Hurley 1963
- *Hippomedon* sp A Diener 1990 §
- *Lepidepecreum garthi* Hurley 1963
- *Lepidepecreum gurjanovae* Hurley 1963
- *Lepidepecreum magdalenensis* (Shoemaker 1942)
- *Lepidepecreum serraculum* Dalkey 1998
- *Orchomene anaquelus* JL Barnard 1964
- *Orchomene limodes* Meador & Present 1985
- *Orchomene obtusa* (GO Sars 1891)
- *Orchomenella decipiens* Hurley 1963
- *Orchomenella holmesi* (Hurley 1963)
- *Orchomenella pacifica* Gurjanova 1938
- *Orchomenella pinguis* (Boeck 1861)
- *Rimakoroga rima* (JL Barnard 1964)
- *Schisturella cocula* JL Barnard 1966
- *Schisturella dorotheae* (Hurley 1963)
- Tryphosinae *incertae sedis entalladurus* (J. L. Barnard 1963)

SUPERFAMILY ARISTIOIDEA

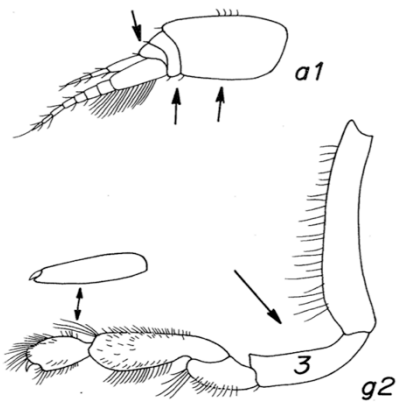
FAMILY ACIDOSTOMATIDAE
- *Acidostoma hancocki* Hurley 1963

FAMILY ARISTIIDAE
- *Aristias* sp A SCAMIT 1985 §

FAMILY CONICOSTOMATIDAE
- *Ocosingo borlus* J. L. Barnard 1964

FAMILY PACHYNIDAE
- *Pachychelium fucaensis* Lowry and Stoddart 2012
- *Pachynus barnardi* Hurley 1963
- *Prachynella epa* Lowry and Stoddart 2012
- *Prachynella lodo* JL Barnard 1964
- *Prachynella oculata* Lowry and Stoddart 2012

***Bolded** taxa not listed in SCAMIT Ed 14*



From: Barnard and Karaman. (1991).

Characteristics of Lysianassoids: Thickened Ant 1; Gn2 with mitten-shaped articles 6-7 and elongated ischium (article 3)

1. Gnathopod 1 chelate or subchelate 2
– Gnathopod 1 simple, or dactyl vestigial 33
2. Gnathopod 1 propod attached ventrally to carpus, closure of dactyl-to-palm gaping ..... *Opisa tridentata*
– Gnathopod 1 propod attached dorsally or terminally to carpus, dactyl closure not gaping 3
3. Gnathopod 1 propod attached dorsally to carpus 4
– Gnathopod 1 propod attached terminally to carpus 8
4. Gnathopod 1 subchelate, palm nearly transverse, posterodistal corner anteriorly produced ..... *Pachychelium fucaensis*
– Gnathopod 1 chelate 5
5. Gnathopod 1 with fixed finger linear, curved up at tip ..... *Pachynus barnardi*
– Gnathopod 1 with fixed finger curved downward distally ..... (***Prachynella***)…6
6. Gnathopod 2 palm large, transverse, dactyl located anterodistally on palm; gnathopod 1 palm strongly downturned, nearly 90° relative to hind margin ..... *Prachynella epa*
– Gnathopod 2 palm small, obtuse, dactyl located mid-palm; gnathopod 1 palm gently downturned at obtuse angle relative to hind margin 7
7. Pereonite 5 with acutely produced posterodorsal margin; gnathopod 1 with stout fixed finger (length:breadth = 1.2) ..... *Prachynella lodo*
– Pereonite 5 with rounded projection along posterodorsal margin; gnathopod 1 with more slender fixed finger (length:breadth = 1.8) ..... *Prachynella oculata*
8. Coxa 1 reduced (~50% of coxa 2) or vestigial, partially or completely covered by coxa 2 9
– Coxa 1 not reduced, subequal and roughly parallel to coxa 2, sides parallel or distally expanded 11
9. Coxa 1 wider than basis, and shortened and rounded; epimeron 3 quadrate ..... *Aristias* sp A
– Coxa 1 tapering distally; epimeron 3 with tooth or hook 10
10. Flagella of antennae 1 and 2 with >15 articles; uropod 3, article 2 ≤1/4 of article 1 ..... *Schisturella cocula*
– Flagella of antennae 1 and 2 with ≤10 articles; uropod 3, article 2 ≥1/3 of article 1 ..... *Schisturella dorotheae*
11. Urosomite 1 with a single dorsally directed tooth ..... Tryphosinae *incertae sedis entalladurus*
– Urosomite 1 without dorsally directed tooth 12
12. Eyelobe bluntly mammiliform (distally rounded, dorsal and ventral margins convex); pereonites 1–7 and pleonites 1–2 with a slight but distinct distodorsal hump on each segment ..... *Abyssorchomene* sp[i]
– These characters not combined: eyelobe obtusely to acutely produced (dorsal and/or ventral margin(s) slightly to moderately concave); pereonites and pleonites smoothly rounded, without dorsoposterior hump 13
13. **[Note triplet]** Epimeron 3 rounded ..... *Orchomene obtusa*
– Epimeron 3 with posterodistal tooth 14
– Epimeron subquadrate 25

14. Gnathopod 1, dactyl long (≥1/2 of propodus), propod not rectangular in shape, typically oblique ..... (***Hippomedon***)…18
– Gnathopod 1, dactyl short (≤1/3 of propodus), propod often rectangular in shape, typically transverse or very nearly so 15
15. Pereopods 3 & 4 with tone or two hickened, hooked spines along posterodistal margin of propodus (near base of dactyl) 16
– Pereopods 3 & 4 without thickened, hooked spines 17
16. Pereopods 3 & 4 with single, thickened, hooked spine along propodus posterodistal margin near base of dactyl ..... *Anonyx lilljeborgia*[ii]
– Pereopods 3 & 4 with two (one large and one small) thickened, hooked spines along propodus posterodistal margin ..... *Orchomenella pacifica*
17. Eyes present; uropod 2 inner ramus lacking dorsal incision; uropod 3 inner ramus shorter than outer, falling short of or reaching only to distal end of article 1 of outer ramus ..... *Orchomenella decipiens*
– Blind; uropod 2 inner ramus incised dorsally, incision bearing long spine; uropod 3 inner ramus reaching to or beyond distal end of first article of outer ramus ..... *Thrombasia tracalero*
18. Epimeron 3 with basal notch 19
– Epimeron 3 without basal notch 21
19. Gnathopod 2 palm long, concave, dactyl much shorter than palm, inserted anterodistally on propodus ..... *Hippomedon columbianus*[iii]
– Gnathopod 2 palm short, dactyl about equal to palm, dactyl inserted at mid-point of propod terminus 20
20. Gnathopod 1, palm short, quadrate, nearly transverse ..... *Hippomedon coecus*
– Gnathopod 1, palm distinctly oblique..... *Hippomedon* sp A
21. Gnathopod 2, palm long, dactyl much shorter than palm, inserted anterodistally on propodus ..... *Hippomedon tenax*
– Gnathopod 2, palm short, dactyl about equal to palm, dactyl inserted at mid-point of propod terminus 22
22. Gnathopod 1, palm almost transverse; accessory flagellum with first article 3x longer than distal article(s) ..... *Hippomedon coecus*
– Gnathopod 1, palm distinctly oblique; accessory flagellum with all articles subequal..... 23
23 Uropod 2, peduncle with one apical spine and rami naked or with at most one spine..... *Hippomedon zetesimus*
– Uropod 2, peduncle and rami spinose 24
24. Pereopod 4, article 5, with posterior margin with 3 strong spines ..... *Hippomedon subrobustus*
– Pereopod 4, article 5, with posterior margin without strong spines ..... *Hippomedon* sp A (immature)
25. Epimeron 3 posterior margin minutely serrate 26
– Epimeron 3 posterior margin smooth 27
26. Gnathopod 1 transverse; coxae 5 & 6 bearing posteroventral lobe; telson split cleft less than 50% ..... *Orchomenella pinguis*
– Gnathopod 1 oblique (weakly so in female; moderately in subadult male, strongly so in adult male); coxae 5 & 6 lacking posteroventral lobes; telson cleft ≥50% ..... *Rimakoroga rima*[iv]
27. Urosomite 1 carinate..... 28
– Urosomite 1 bearing at most a low rounded hump..... …32

28. Telson cleft to less than 50% of total length; antenna 1 not carinate ..... *Orchomenella holmesi*
– Telson cleft to beyond 50%; antenna 1 carinate ..... (***Lepidepecreum***)….29
29. Pigmented eyes absent; coxa 3 with distinct transverse shelf; all pereonites dorsally keeled ..... *Lepidepecreum garthi*
– Pigmented eyes present; coxa 3 without distinct shelf; pereonites and urosomites variously dorsally keeled ..... ….30
30. Gnathopod 2 subchelate; only urosomite 1 dorsally keeled; pleonite 3 subrectangular, posterodistal corner squared ..... *Lepidepecreum gurjanovae*
– Gnathopod 2 chelate 31
31. Pleonite 1 produced into posterodorsal tooth; telson with multiple pairs of dorsal spines ..... *Lepidepecreum serraculum*
– Pleonite 1 not produced into posterodorsal tooth; telson with one pair of dorsal spines ..... *Lepidepecreum magdalenensis*
32. **[Note triplet]** Gnathopod 1 propodus small, rectangular, transverse; carpus of pereopods 6 & 7 elongated (longer than merus, slightly shorter than propodus); flagellum of antennae 1 & 2 with 11–14 articles..... *Orchomene limodes*
– Gnathopod 1 propodus small, rectangular, transverse; carpus of pereopods 6 & 7 short (subequal to merus, ½ to 2/3 the length of propodus); flagellum of antenna 1 with less than 11 articles, antenna 2 with 6 articles ..... *Orchomene anaquelus*
– Gnathopod 1 propodus large, strongly oblique in male or robust and weakly oblique in female and immature male; carpus of pereopods 6 & 7 short (subequal to merus, ½ to 2/3 the length of propodus); flagellum of antenna 1 with less than 11 articles, antenna 2 with 8+ articles ..... *Rimakoroga rima*[iv]
33. Mouthparts formed into a conical bundle..... 34
– Mouthparts formed into a quadrate bundle 36
34 Telson cleft at least 40%; body smooth..... 35
– Telson entire; urosomites strongly produced dorsally..... *Ocosingo borlus*
35. Uropod 2 inner ramus incised; epimeron 3 rounded ..... *Socarnoides illudens*
– Uropod 2 inner ramus not incised; epimeron 3 with distal tooth ..... *Acidostoma hancocki*
36. Telson cleft more than 50% of length; each subacute lobe bearing single terminal spine..... ..... *Socarnes hartmani*
– Telson entire or emarginate 37
37. Uropod 3 outer ramus uniarticulate 38
– Uropod 3 outer ramus biarticulate at tip..... 40
38. Eyelobe truncate, slightly crenulate; basis of pereopods 5–7 with serrated hind margin; epimeron 3 rounded..... *Macronassa macromera*
– Eyelobe obtuse, margin smooth; basis of pereopods 5–6 with smooth hind margin, peropod 7 basis weakly crenulate; epimeron 3 lower posterior margin quadrate 39
39. Gnathopod 2 chelate (dactyl closing against distally produced propodus); inner plate of maxilliped with 5+ long, strong distal spines..... *Macronassa pariter*
– Gnathopod 2 subchelate, palm transverse; inner plate of maxilliped with 3 short, stout distal spines among several short setae ..... *Shoemakerella cubensis*

40. Article 3 of mandibular palp short, approximately one-half or less than article 2; epistome produced, bulbous, extending to or beyond upper lip ..... *Dissiminassa dissimilis*[v]

– Article 3 of mandibular palp long, subequal to article 2; epistome produced, not bulbous, projecting above upper lip due to concave base just above upper lip ..... (***Aruga***)……41[v]

41. Epimeron 3 proximally excavate, lower posterior margin quadrate .....*Aruga oculata*

– Epimeron 3 lower posterior margin rounded..... *Aruga holmesi*

Endnotes

[i] *Abyssorchomene* is a deepwater genus, generally occurring at depths >500m. Two specimens of *Abyssorchomene* were collected during Bight'18 samples (both >750m) but neither could be assigned to species. In his review of the NEP lysianssoids (Cadien 2015), Don listed three species as reportedly occurring in the area: *A. abyssorum* (Stebbing 1888), *A. distinctus* (Birstein and Vinogradov 1960) and *A. gerulicorbis* (Shulenberger and J. L. Barnard 1976), in addition to several other unspeciated forms reported by France (1974) from San Clemente Basin. More recently, Hendrycks and De Broyer 2022 redescribe *A. abyssorum* and provide detailed descriptions of several other species, but make no reference to the France (1974) material. Consequently, there remains uncertainty as to how to differentiate the roughly 5+/- species possible in the SCB until additional material is collected and reviewed.

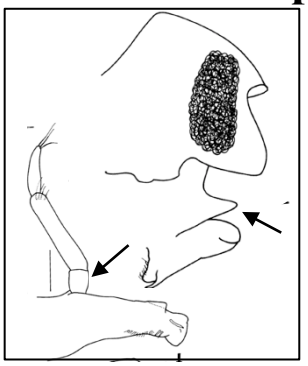
[ii] There may be some confusion in SCB identifications surrounding *A. lilljeborgi* and *L. carinatus*, and SCAMIT has synonomized the two with Edition 14. The original description *A. carinatus* (Holmes 1908) is brief and may not have adequately distinguished that species from *A. lilljeborgi* Boeck 1871, which has an even more brief description. Even more confusing, a portion of Holmes' 1908 description of *A. carinatus* (as *Lakota carinata*) is synonymized with *A. lilljeborgi* Boeck 1871, while the remainder is descriptive of *A. carinatus*. In addition, SCAMIT and others list Hurley's (1963) description of *A. carinatus* as a synonym of *A. lilljeborgi*, even though Hurley illustrates and describes both species. I have examined the figures in Holmes (1908) and tried to interpret a limited translation from Boeck 1871. According to my interpretation of Hurley's illustrations and comments, the following characters could distinguish the two species: *A. carinatus* = Epimeron 3 with thick posterodistal hook; uropod 2 inner ramus with incision along dorsal margin; *A lilljeborgi* = Epimeron 3 acutely produced posterodistally; uropod 2 inner ramus lacking incision along dorsal margin. My hope is that consideration of these characters might help clarify whether or not they should indeed be separate.

[iii] The key character for *H. coecus* has been changed from the keys in Jarrett and Bousfield (1982) and Diener (1990), both of which include this species in the group of *Hippomedon* with a notch (or sinus) above the tooth on epimeron 3. The original designation Holmes 1908 (as *Tryphosa coeca*) clearly shows the third epimeron without a notch (or sinus) above the distal tooth, and no notch is mentioned in the description. The absence of a sinus was carried forward by Hurley (1963). However, Jarrett and Bousfield 1982 (repeated by Diener 1990) suggest that a notch is present, just "rudimentary". Clearly there is some discrepancy as to what is the accurate description and the species is distinguished twice herein. Additionally, although Holmes describes gnathopod 1 as oblique, the illustration shows a relatively short, weakly oblique, and distally quadrate palm.

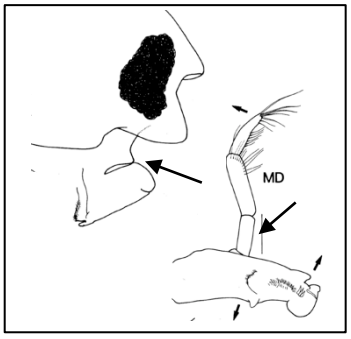
[iv] *Rimakoraga rima* is described as having the third pleonal epimeron as "minutely serrate" (JL Barnard 1964, Page 95); however, in my personal experience the third epimeron of a large male specimen was smooth, even under a compound microscope. Consequently, I have added a second instance of *R. rima* in the key to account for specimens with a smooth epimeron 3.

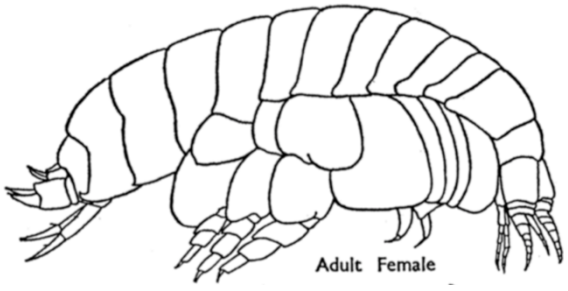
[v] The differences in the epistome character are shown in the following figures and Chapman (2007), Plate 286O vs. R.

Example Lysanassoids

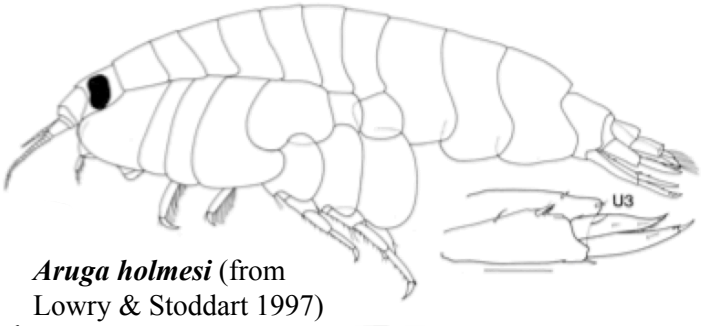


Dissiminassa (left) vs Aruga (right) mandibular palp & epistome (modified from Lowry and Stoddart 1997).

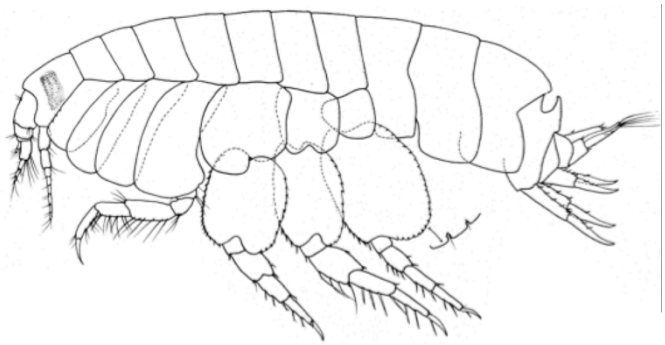




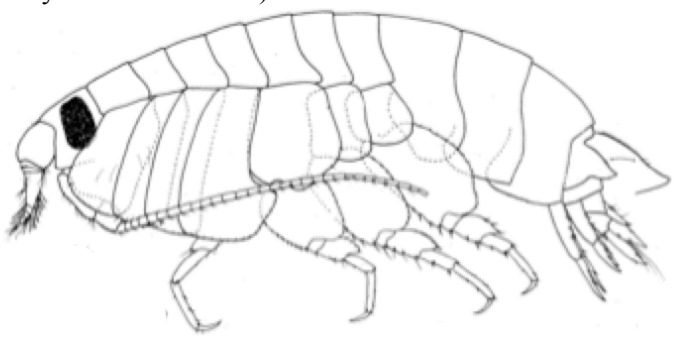
Acidostoma hancocki *(from* Hurley1963)



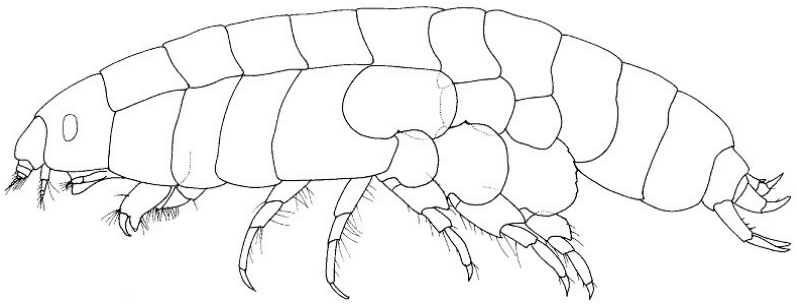
Aruga holmesi (from Lowry & Stoddart 1997)



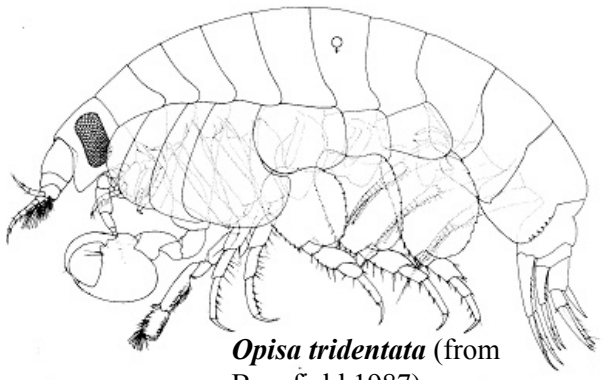
Tryphosinae incertae sedis entalladurus (from JL Barnard 1963)



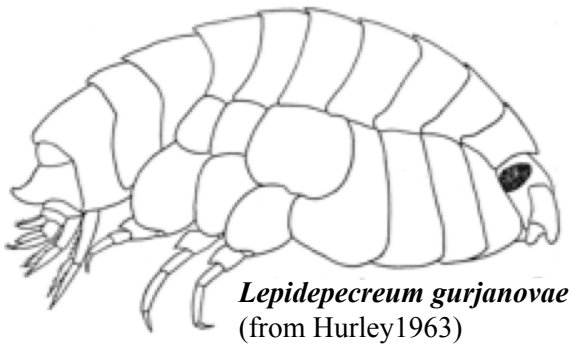
Lepidepecreum magdalenensis (from JL Barnard 1964



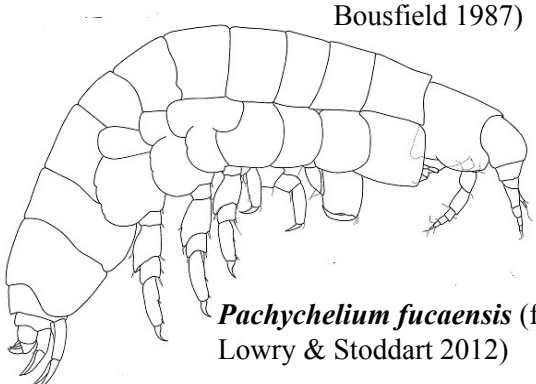
Prachynella lodo (from Lowry & Stoddart 2012)



Opisa tridentata (from Bousfield 1987)



Lepidepecreum gurjanovae (from Hurley1963)



Pachychelium fucaensis (from Lowry & Stoddart 2012)

Examples of Gnathopod 1

From: Barnard and Karaman. (1991)

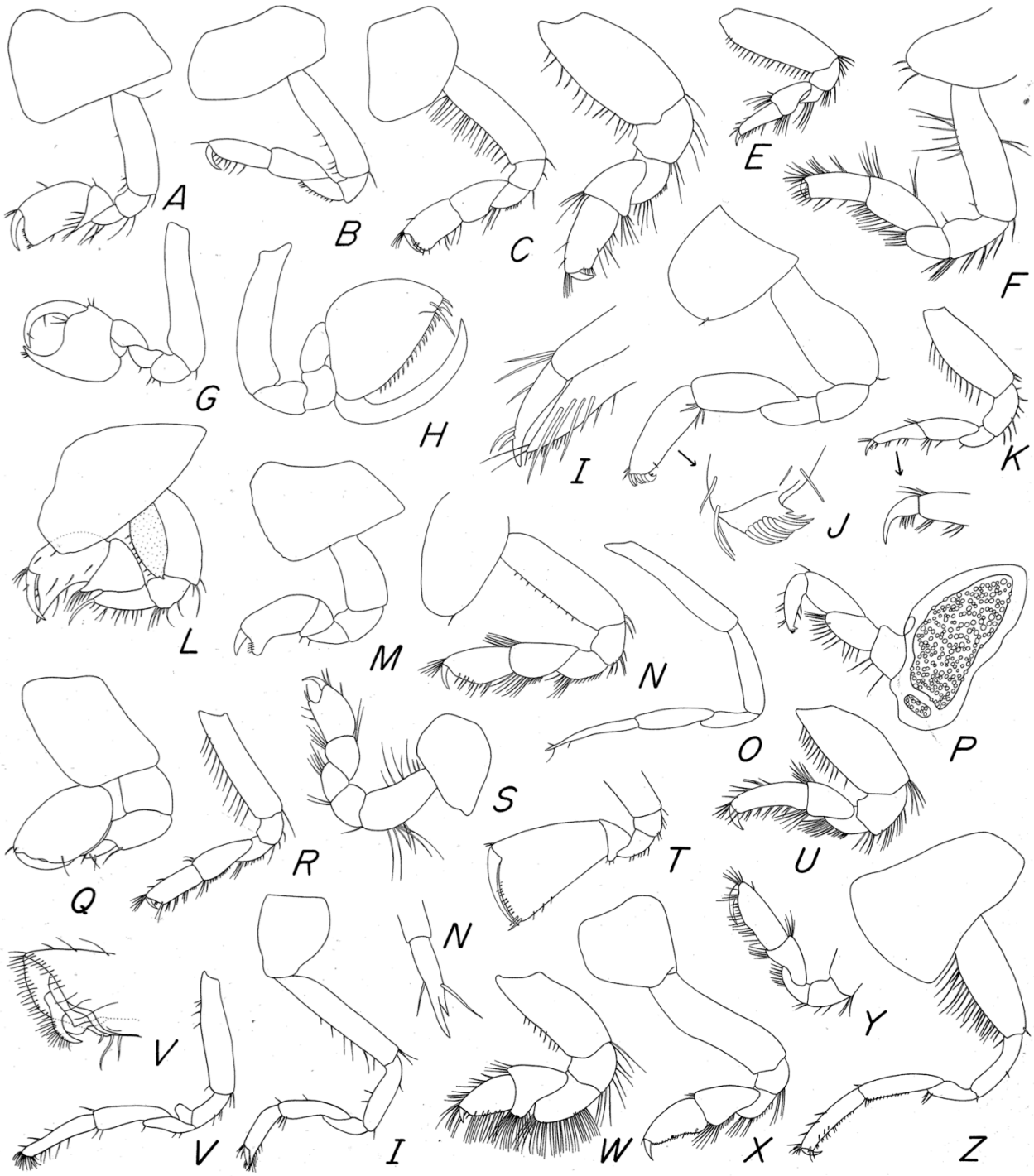


Fig.92. Lysianassidae, gnathopod 1. A, *Koroga megalops*; B, *Paracentromedon crenulatus*; C, *Schisturella abyssi*; D, *Orchomene batei*; F, *Valettiopsis dentatus*; G, *Opisa eschrichti*; H, *Trischizostoma nicaeense*; I, *Euonyx chelatus*; J, *Paracallisomopsis beljaevi*; K, *Ichnopus spinicornis*; L, *Sophrosyne robertsoni*; M, *Gainella chelata*; N, *Ambasiopsis tumicornis*; O, *Kerguelenia borealis*; P, *Eucallisoma glandulosa*; Q, *Pachychelium davidis*; R, *Tryphosella sarsi*; S, *Valettia coheres*; T, *Cheirimedon latimanus*; U, *Menigrates obtusifrons*; V, *Scopelocheirus crenatus*; W, *Nannonyx goesi*; X, *Aristias neglectus*; Y, *Uristes umbonatus*; Z, *Pseudorchomene coatsi*.

Examples of Gnathopod 2

From: Barnard and Karaman. (1991).

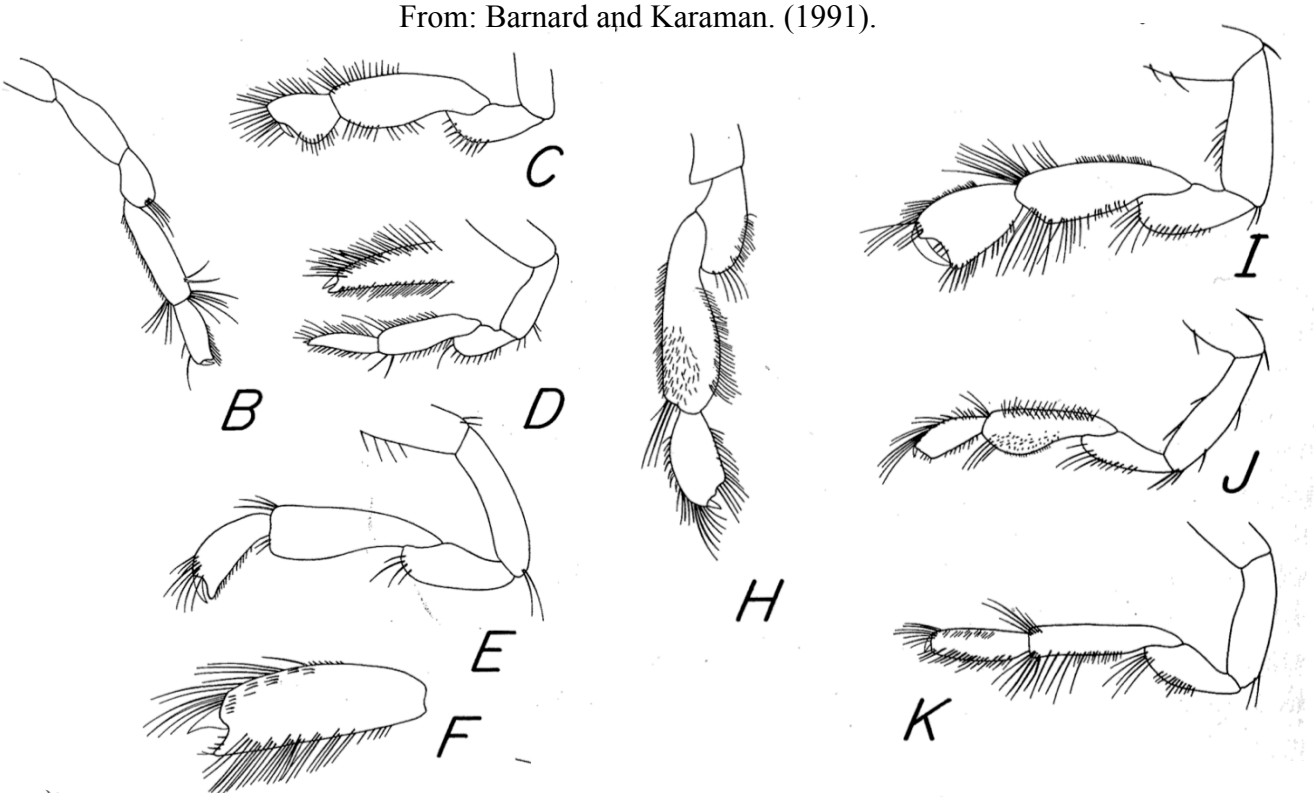


Fig.93. Lysianassidae. A, *Eurythenes gryllus*; B, *Hirondellea brevicaudata*; C, *Trischizostoma nicaeense*; D, *Gainella chelata*; E, *Lepidepecreum longicorne*; F, *Scopelocheirus crenatus*; G, *Ocosingo borlus*; H, *Hippomedon denticulatus*; I, *Anonyx debruynii*; J, *Lysianassa plumosa*; K, *Tryphosites longipes*.

Examples of Uropods, Pereopods, and Telsons

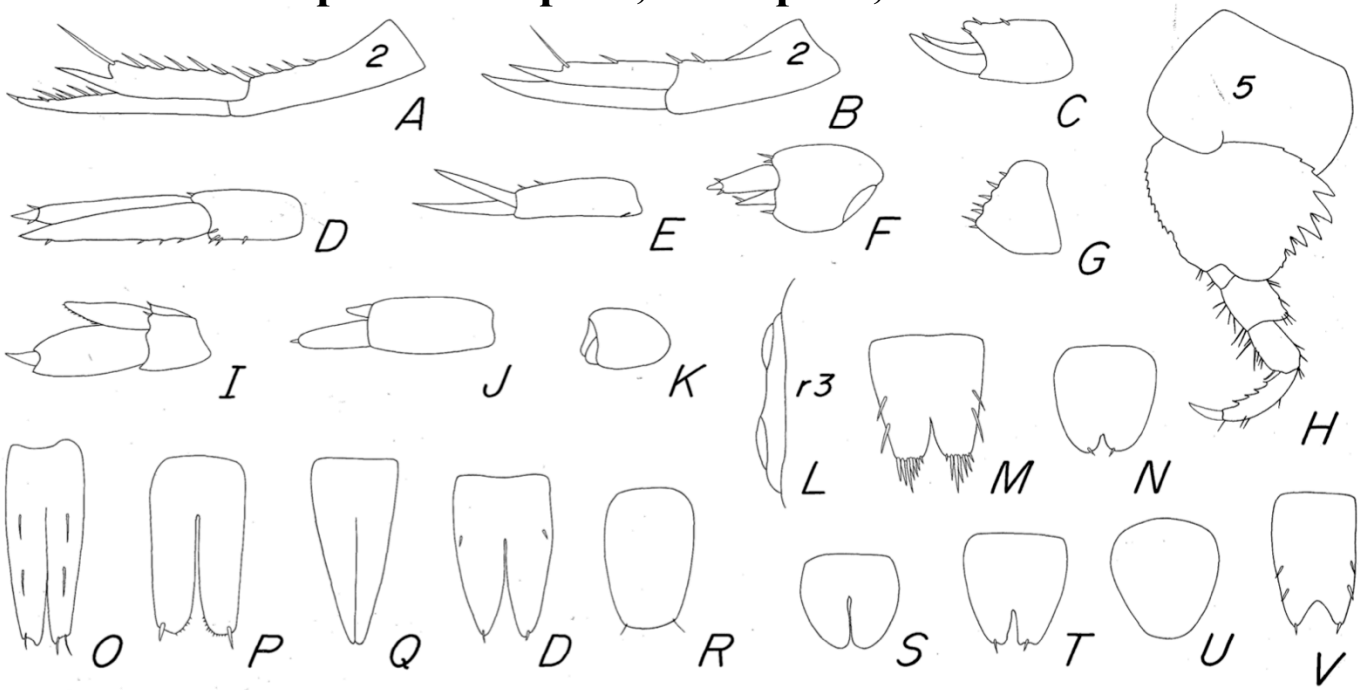


Fig.95. Lysianassidae. A, *Tryphosites longipes*; B, *Gronella groenlandica*; C, *Lysianopsis alba*; D, *Hippomedon denticulatus*; E, *Lysianassa plumosa*; F, *Nannonyx goesi*; G, *Acontiostoma marionis*; H, *Glycerina tenuicornis*; I, *Aristias tumidus*; J, *Lepidepecreella ctenophora*; K, *Stomacontion pepinii*; L, *Danaella mimonectes*; M, *Paratryphosites abysissi*; N, *Boeckosimus edwardsi*; O, *Opisa eschrichti*; P, *Ichnopus spinicornis*; Q, *Eurythenes gryllus*; R, *Arugella heterodonta*; S, *Acidostoma obesum*; T, *Boeckosimus nornani*; U, *Trischizostoma nicaeense*; V, *Orchomene batei*.