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

Dean Pasko, 29-Feb-2016, Rev 3-Dec-2023
(Adopted from D.Cadien 2004, Conlan 1990, 1995)

FAMILY ISCHYROCERIDAE

Subfamily Ischyrocerinae

Bonnierella californica JL Barnard 1966
Bonnierella palenquia JL Barnard 1967
Ericthonius brasiliensis (Dana 1853)
Ericthonius rubricornis (Stimpson 1853)
***Ericthonius* sp A SCAMIT 2012 §**
Ericthonius sp SD1 Pasko 1999 §
Ischyrocerus anguipes Krøyer 1838
Ischyrocerus pelagops J. L. Barnard 1962
***Ischyrocerus* sp A** J. L. Barnard 1969
Ischyrocerus sp B J. L. Barnard 1969
Jassa carltoni Conlan 1990
Jassa marmorata Holmes 1905
Jassa myersi *Conlan 1990*
Jassa morinoi Conlan 1990
Jassa shawi Conlan 1990
Jassa slatteryi Conlan 1990
Jassa staudei Conlan 1990
Microjassa barnardi Conlan 1995
Microjassa macrocoxa Shoemaker 1942
Microjassa bousfieldi Conlan 1995
Microjassa litotes J. L. Barnard 1954
Neoischyrocerus claustris (J. L. Barnard 1969)
Notopoma sp A SCAMIT 2012 §
Ruffojassa angularis (Shoemaker 1942)
Ventojassa ventosa (J. L. Barnad 1962)

Bolded taxa not reported by SCAMIT

Key to SCB Ischyroceridae

1. Uropod 3 uniramus (or with vestigial inner ramus present); telson bearing pads of recurved cusps dorsally 2
– Uropod 3 biramus; telson without pads of recurved cusps 6
2. Rostrum absent; antenna 1 peduncle unmodified ..... (*Ericthonius*) ... *3*
– Rostrum acutely produced beyond ocular lobes, antenna 1, article 1 modified into flattened semi-circular plate ..... *Notopoma* sp A[i]
3. Eyes unpigmented 4
Eyes pigmented, often red or black 5
4. Uropod 3 uniramus; recurved denticles of telson along dorsolateral margin; coxa 1 produced, wider than deep (male and female); male coxa 2, ventral margin straight; female coxa 2 "stepped" (i.e., anteriorly produced and posteriorly excavate) ..... *Erichthonius* sp SD1
– Uropod 3 with vestigial inner ramus; telson with short, small patches of recurved denticles positioned dorsally ..... *Ericthonius* sp A
5. Eyes dark (brown or black); male gnathopod 2 with bifid apical tooth on carpus; female coxa 5 with rounded posterior lobe, posterior margin not sloping backwards; shallow sublittoral to bays and harbors ..... *Ericthonius brasiliensis*
– Eyes reddish; male gnathopod 2 with simple apical tooth on carpus; female coxa 5 with obtuse posterior lobe, posterior margin sloping; shallow to deep coastal waters ..... *Ericthonius rubricornis*
6. Gnathopod 1, article 5 (carpus) much longer than article 6 (propodus); telson laterally toothed ..... *Ventojassa ventosa*

– Gnathopod 1, article 5 as long as or shorter than article 6; telson not laterally toothed 7

7. Accessory flagellum a small scale; uropod 1 peduncle with plumose setae, both uropod 1 & 2 peduncles strongly setose laterally; epistome acutely produced ..... *Ruffojassa angularis*

– Accessory flagellum 2+ segmented; uropod 1 peduncle without plumose setae, uropod 1 & 2 peduncles spinose, with zero to few setae 8

8. Article 2 of pereopods 5-7 narrow, rectolinear; article 4 of maxilliped palp clawlike and larger than article 3; from deep water (>1000m).....*Bonierella sp*[ii]

– Article 2 of pereopods 5-7 broadly expanded; article 4 of maxilliped palp blunt to conical, shorter than article 3 9

9. Coxae 5 and 6 subequal in size; coxa 1 approximately one-half as deep as coxa 2; lateral cephalic lobe extended with eye at least partially enclosed in extended lobe..... .....(*Microjassa*)….10[iii]

– Coxa 5 much longer than 6; coxa 1 typically three-quarters as deep as coxa 2 16

10. Uropod 1 without ventral peduncular spinose process (in male and female); coxae 2-4 grossly enlarged .....*Microjassa macrocoxa*

– Uropod 1 with ventral peduncular spinose process; coxae 2-4 normal, not enlarged.....11

11. Gnathopod 2 larger than and different from gnathopod 1; pereopods 2-5 without brood plates; sternite 7 with penial papillae (*adult males*) 12

– Gnathopod 2 subequal to gnathopod 1; female pereopods 2-5 with developing or fully formed brood plates; sternite 7 without penial papillae (*females and immature males*) 14

12. [Adult males] Gnathopod 2 basis inserted proximal to center of coxa, basis anterodistally spinose or setose, dactyl outer (anterior) margin bare, inner (posterior) margin minutely setose .....*Microjassa littoides*

– Gnathopod 2 basis inserted distal to center of coxa, anterodistal portion of basis without spines (though minute setae may be present), dactyl outer (anterior) setose, inner (posterior) margin with few to many setae 13

13. Gnathopod 1, palm straight or shallowly concave; gnathopod 2, propodus, anterior margin bearing row of spine-like setae..... *Microjassa barnardi*

– Gnathopod 1, palm convex. Gnathopod 2, propodus, anterior margin without row of spine-like setae .....*Microjassa bousfieldi*

14. [Females, immature males] Telson twice as long as wide; gnathopod 2 palm distinctly sinuous to slightly excavate, coxa 2 distally flat; coxa 1 bluntly rounded distally .. *Microjassa barnardi*

– Telson as long as wide.....15

15. Gnathopod 2 palm distinctly sinuous to slightly excavate, coxa 2 anterior and posterior margins slightly convex; coxa 1 truncate distally .....*Microjassa bousfieldi*

– Gnathopod 2 palm very slightly sinuous to convex, coxa 2 anterior margin convex, posterior margin straight; coxa 1 bluntly rounded.....*Microjassa littoides*

16. Outer ramus of uropod 3 with basally immersed hooked terminal spine and disto-laterally with 2–4 large recurved cusps 17

– Outer ramus of uropod 3 immersed spine, if present, never hooked and disto-lateral margin with 0–7+ small to medium, perpendicular denticles..... (*Ischyrocerus*)……24[iv]

17. Urosomite 1 with dorsal pair of erect setae; disto-dorsal margin of uropod 3 peduncle with a series (4+) of stout spines; uropod 3 inner ramus broad, distally blunt with terminal spine ....(*Jassa*)……18[v]
– Urosomite 1 lacking dorsal setae; disto-dorsal margin of uropod 3 peduncle with a single or a pair of stout spines; uropod 3 inner ramus narrowed distally .....*Neoischyrocerus claustris*
18. Gnathopod 2, basis without setae or if present, microscopic .....*Jassa shawi*
– Gn2 basis anterolateral margin with row of setae along length 19
19. Gnathopod 1 carpus without setae at anterodistal junction of propodus.....*Jassa staudei*
– Gnathopod 1, carpus with one or more setae at the anterodistal junction of the propodus, often slightly medial or lateral, sometimes minute.....20
20. Uropod 1, ventral peduncular spinous process vestigial .....*Jassa myersi*
– Uropod 1, ventral peduncular spinous process at least 1-1/4 to 1-1/2 the length of the shortest ramus 21
21. Gnathopod 1 carpus with minute seta(e) at the anterodistal junction of the propodus, often slightly lateral; thumb of large thumbed male with defining setae, but without defining spines . .....*Jassa marmorata*
– Gnathopod 1 carpus with seta(e) at the anterodistal junction of the propodus long, slightly medial or dorsal; thumb of adult males with or without defining spines 22
22. Tip of telson bearing 2+ plumose apical setae in addition to the usual pairs of distolateral setae; large thumbed male gnathopod 2 with defining spines produced on a ledge..... .....*Jassa morinoi*
– Tip of telson without apical setae, with the usual setae at each lateral cusp only; large thumbed male gnathopod 2, posterior margin of the propodus without defining spines, or if spines are present, they are not on a ledge ..... 23[vi]
23. Antenna 2 of large thumbed male, posterodistal margin of peduncular segment 5 and flagellum segment 1 bearing plumose setae; gnathopod 2, thumb tip acute; defining spines absent (although present in small thumbed adults); gnathopod 2 of female, palmar angle not close to the defining spines; spines tightly clustered; gnathopod I of large male or female, palm straight or slightly concave.....*Jassa slatteryi*
– Antenna 2 of large thumbed male, setae simple or microscopically pectinate; gnathopod 2, thumb tip angled posteriorly; gnathopod 2 of female, palmar angle close to the defining spines; spines sequential; gnathopod 1 of large male or female, palm evenly convex .....*Jassa carltoni*
24. [**NOTE 3 choices**] Eye very small, occupying less than one-quarter of eyelobe; denticles of outer ramus in two rows ..... *Ischyrocerus* sp A
– Eye large, occupying over one-half of eyelobe; outer; uropod 3 outer ramus typically with single row of three large denticles (occasionally as many as 5) ..... *Ischyrocerus anguipes*
– Eye large, occupying over one-half of eyelobe; uropod 3 outer ramus with a single row of five or more small to medium sized denticles 25
25. Outer ramus of uropod 3 with 8–10 small denticles; dactyls of female gnathopods not serrated along inner margin..... *Ischyrocerus pelagops*
– Outer ramus of uropod 3 with 6–8 small denticles; dactyls of female gnathopods serrated along inner margin .....*Ischyrocerus* sp B

ENDNOTES

[i] *Notopoma* sp B Cadien (Cadien 1994) is known from a single collection from surfgrass roots intertidally along Point Loma, CA. The specimen was forwarded to Jim Thomas in Florida for review and incorporation into a revision of the Cerapus group.

[ii] A deepwater (>1000m) genus found in the San Diego Trough and off Baja California. Included here to accommodate changing environmental conditions: *Bonnierella californica* JL Barnard 1966 and *Bonnierella palenquia* JL Barnard 1967

[iii] Southern California species without immersed, recurved spine distally on uropod 3 outer ramus. The included couplets were adopted from Conlan, K.E. 1995. Thumbing doesn't always make the genus: revision of *Microjassa* Stebbing (Crustacea: Amphipoda: Ischyroceridae). *Bulletin of Marine Science* 57, no. 2: 333-77.

[iv] Cadien (2004) provides a detailed discussion of the genus *Ischyrocerus*. In general, he suggests that the taxonomy is in such a state of confusion that a key cannot be reliably constructed. There are three species listed under *Ischyrocerus* in SCAMIT Ed 14 (Cadien, Barwick, Haggin 2021), though others might also occur in the SCB. The three include: *I. anguipes* (with three – four large denticles on the outer ramus of uropod 3), *I. pelagops* (with 8–9 small serrations/denticles on uropod 3 outer ramus), and *Ischyrocerus* sp B (with from four to seven very small denticles in on the outer ramus of uropod 3). *I. pelagops* was described by J.L. Barnard (1962), and *Ischyrocerus* sp B was characterized by J.L. Barnard (1969); however, a review of the two brief descriptions provides little to distinguish between them. The characters listed in Couplet 25 were gleaned from the illustrations and scanty text describing both taxa. However, there is a fourth species in southern California. *Ischyrocerus* sp A J.L. Barnard 1969 is an intertidal species distinguished from the others by having very small eyes and three large denticles on uropod 3 outer ramus occurring in two parallel rows. Care should be taken when dealing with specimens that fall into this portion of the key, and a careful reading of the *Ischyrocerus* section of Cadien (2004) is strongly recommended. One provisional species listed in SCAMIT Edition 13, *Ischyrocerus* sp C Paquette is now listed as a synonym of *Microjassa litotes*.

[v] The included couplets were copied with little modification from Conlan, K.E. (1990).

[vi] These characters are take from Conlan (1990); however, I have observed specimens conforming to mature male *J. slatteryi* with 2 plumouse setae emenating from the ventral margin at the tip of the telson. In all other respects the specimens conformed to male *J. slatteryi*.

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Barnard, JL. 1969a. Gammaridean Amphipoda of the rocky intertidal of California: Monterey Bay to La Jolla. United States National Museum, Bulletin, no. 258: 1-230.

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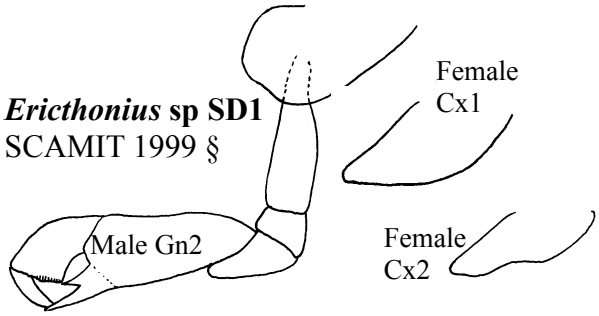
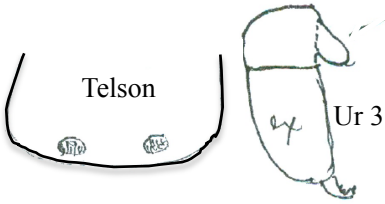
Conlan, K. E. (1995). Thumbing doesn't always make the genus: revision of Microjassa Stebbing (Crustacea: Amphipoda: Ischyroceridae). Bulletin of Marine Science 57(2): 333-377.

Representative Figures for *Ericthonius* spp

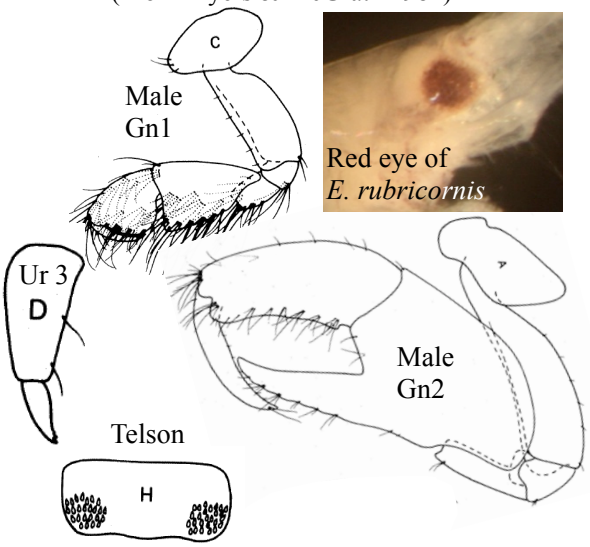
***Ericthonius* sp SD1**
SCAMIT 1999 §



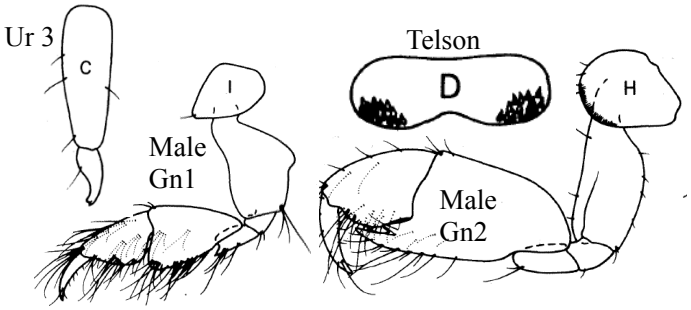
***Ericthonius* sp A**
SCAMIT 2012 §



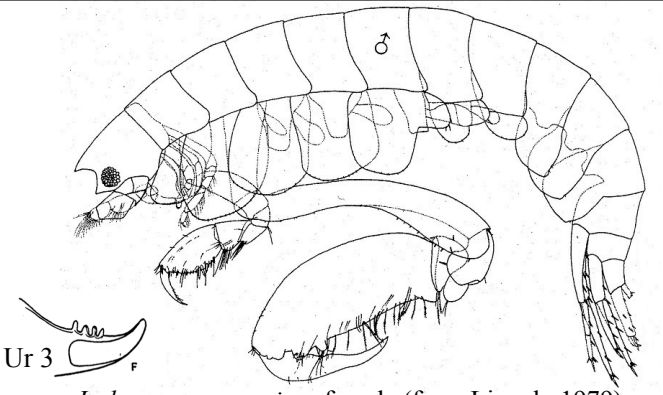
Ericthonius rubricornis (Stimpson 1853)
(From Myers & McGrath 1984)



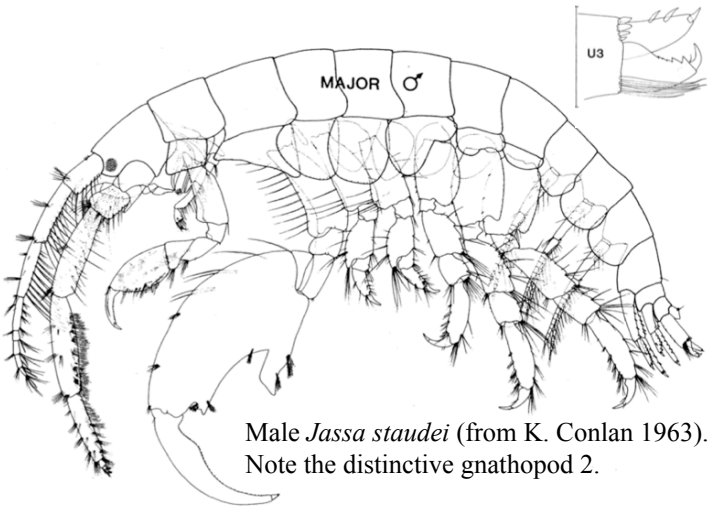
Ericthonius brasiliensis (Dana 1853)
(From Myers & McGrath 1984)



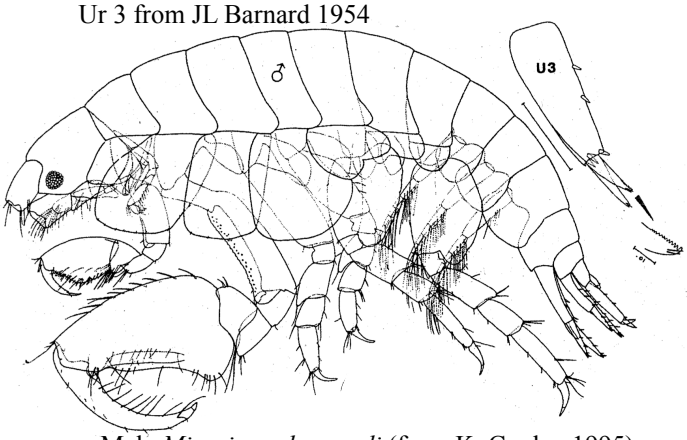
Representative Ischyroceridae



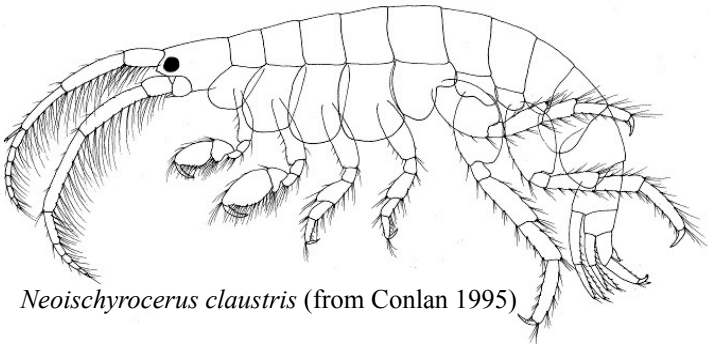
Ischyrocerus anguipes female (from Lincoln 1979);
Ur 3 from JL Barnard 1954



Male *Jassa staudei* (from K. Conlan 1963).
Note the distinctive gnathopod 2.

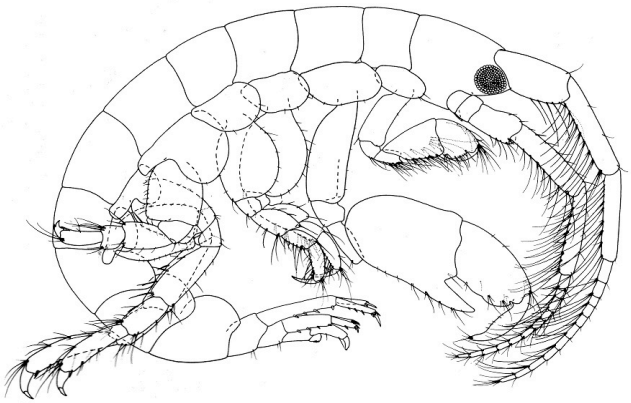


Male *Microjassa barnardi* (from K. Conlan 1995).

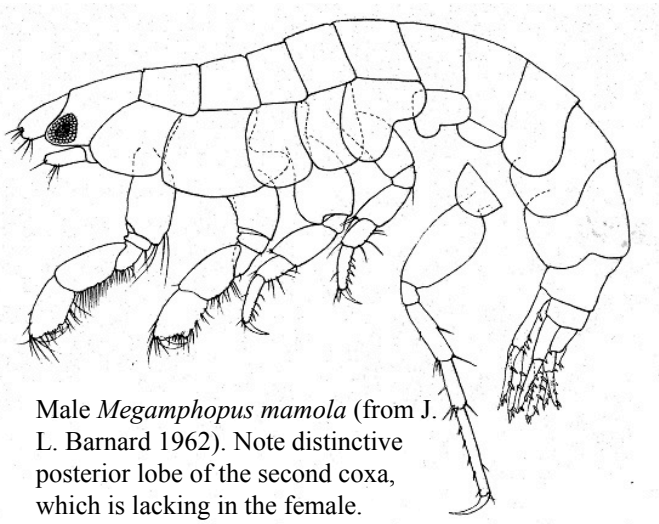


Neoischyrocerus claustris (from Conlan 1995)

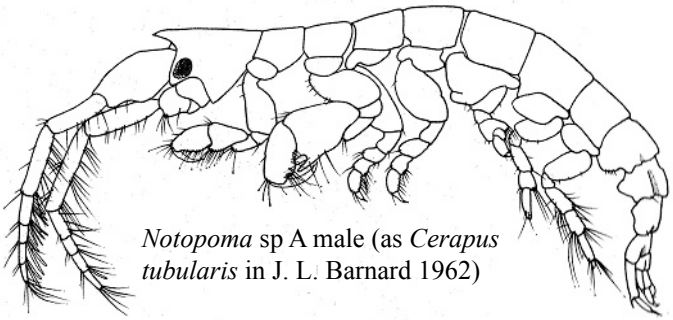
Representative Ischyroceridae



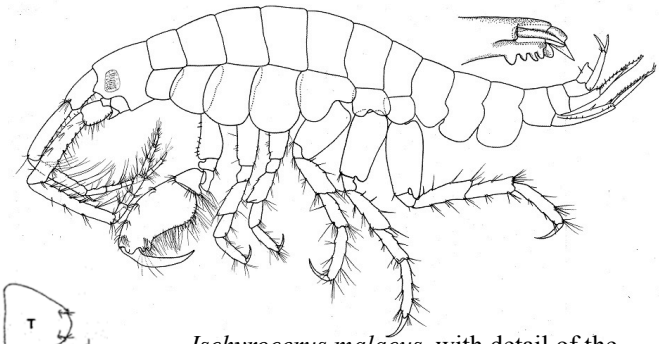
Ericthonius rubricornis male (from Myers & McGrath 1984)



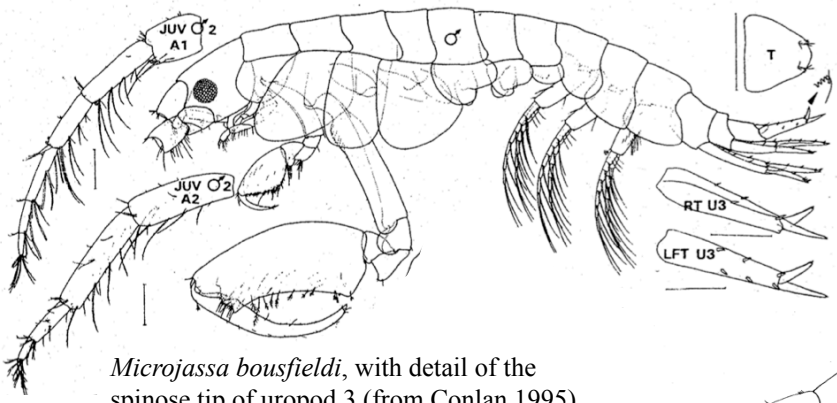
Male *Megamphopus mamola* (from J. L. Barnard 1962). Note distinctive posterior lobe of the second coxa, which is lacking in the female.



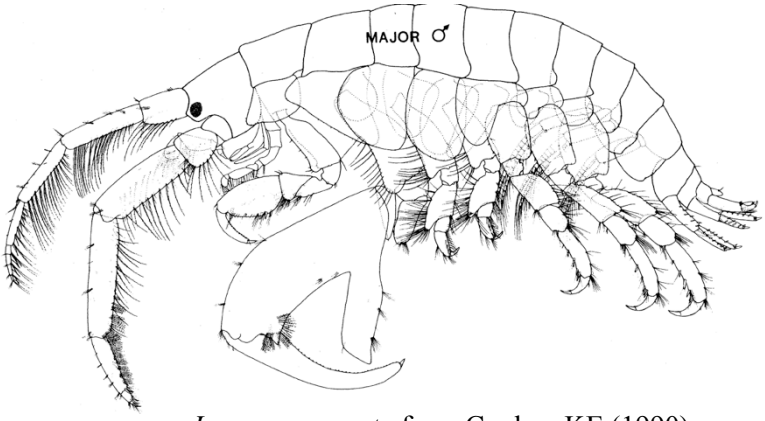
Notopoma sp A male (as *Cerapus tubularis* in J. L. Barnard 1962)



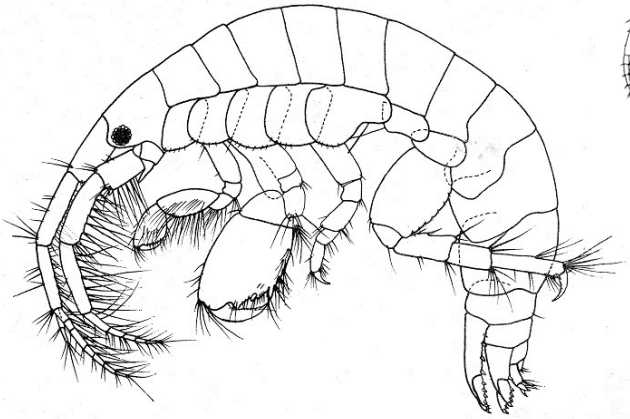
Ischyrocerus malacus, with detail of the spinose tip of uropod 3 (from J. L. Barnard 1964)



Microjassa bousfieldi, with detail of the spinose tip of uropod 3 (from Conlan 1995)



Jassa marmorata from Conlan, KE (1990)



Ventojassa ventosa (from J. L. Barnard 1962)