

**Key to the Species of Caprellidae Reported in the Southern California Bight
According to SCAMIT Edition 14ⁱ**

D. Pasko & C.A. Phillips 26-Nov-2018; Rev 3-Dec-2023
(modified from Cadien April 2015, Benedict 1978, Laubitz 1970)

FAMILY CAPRELLIDAE

SUBFAMILY CAPRELLINAE

***Abyssicaprella* sp LA1** Cadien 2014§

Aciconula acanthosoma Chess 1989

Caprella alaskana Mayer 1903

Caprella anomala Mayer 1903

Caprella brevirostris Mayer 1903

Caprella californica Cmplx

Caprella drepanochir Mayer 1890

Caprella equilibra Say 1818

Caprella ferrea Mayer 1903

Caprella gorgonia Laubitz & Lewbel
1974

Caprella gracilior Mayer 1903

Caprella greenleyi McCain

Caprella incisa Mayer 1903

Caprella irregularis Mayer 1890

Caprella kennerlyi Stimpson 1864

Caprella laeviuscula Mayer 1903

Caprella mendax Mayer 1903

Caprella mutica Schurin 1935

Caprella natalensis Mayer 1903

Caprella penantis Leach 1814

Caprella pilidigita Laubitz 1970

Caprella pilipalma Dougherty and
Steinberg 1953

Caprella pustulata Laubitz 1970

Caprella rudiuscula Laubitz 1970

Caprella scauroides Mayer 1903

Caprella simia Mayer 1903

Caprella striata Mayer 1903

Caprella unguina Mayer 1903

Caprella verrucosa Boeck 1872

Caprella sp E Benedict 1978§

Deutella californica Mayer 1890

Deutella venenosa Mayer 1890

Mayerella acanthopoda B. R.
Benedict 1977

Mayerella banksia Laubitz 1970

Paracaprella cf alata Pasko 2014

***Paracaprella* sp SD1** Pasko 2000§

Pseudoliropus vanus Laubitz 1970

Tritella laevis Mayer 1903

Tritella pilimana Mayer 1890

Tritella tenuissima Dougherty and
Steinberg 1952

“*Tritellopsis*” sp A of Benedict 1978§

“*Urilops*” sp B of Benedict 1978§

SUBFAMILY PARACERCROPINAE

Cercops compactus Laubitz 1970:

Paracercops setifer Vassilenko 1972

SUBFAMILY PHTISICINAE

***Hemiproto* sp A** Benedict 1978§

Perotripus brevis (La Follette 1915)

Phtisica marina Slabber 1769

Bolded taxa reported in SCAMIT Ed. 14

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Key to SCB Caprellidaeⁱ

1. Gills on pereonite II; mandibular molar absent 2ⁱⁱ
 - Gills absent from pereonite II; mandibular molar present Caprellinae
2. Pereopod 3 one-segmented; abdomen five segmented Paracercopinaeⁱⁱⁱ
 - Pereopod 3 of three or more segments, abdomen minute Phtisicinae

Key to Paracercopinaeⁱⁱ

1. With two pairs of uropods *Cercops compactus*
 - With only a single pair of uropods *Paracercops setifer*

Key to Phtisicinae

1. Pereopods 3 and 5 three-segmented, pereopod 4 one-segmented; gills oval
..... *Perotripus brevis*
 - Pereopod 3 and 4 six-segmented, pereopod 5 five segmented 2
2. Abdomen with two (female) or three (male) pair long two segmented appendages; typically in embayments *Phtisica marina*
 - Abdomen with one (female) or two (male) pair short one segmented appendages; typically in off-shore environments *Hemiproto* sp A

Key to Caprellinae

1. Rudimentary pereopods present on pereonites III & IV 2
 - No rudimentary pereopods present on pereonites III & IV.. *Caprella* spp... [See Generic Key]
2. Head with dorsal spine(s) or tubercle (female *Deutella*) 13
 - Head dorsally smooth, without spines 3
3. Pereopods 3 and 4 one-segmented 4
 - Pereopods 3 and 4 two-segmented 9^{iv}
4. Pereopod 5 with six segments; antenna 2 with or without swimming setae 7
 - Pereopod 5 one- or two-segmented; antenna 2 without swimming setae 5
5. Pereopod 5 two-segmented 6
 - Pereopod 5 one-segmented *Liropus minisculus*^v
6. Mandibular molar present; antenna 1, article 1 with large dorsal bump/process; antenna 2, article 1 with ventral bump/process; gnathopod 2 with single proximal grasping spine
..... “*Urilops*” sp B^{vi}
 - Mandibular molar absent (or very small); antennae 1 and 2, articles 1 without large processes; gnathopod 2 with pair of proximal grasping spines *Pseudoliropus vanus*^{vi}

7. Antenna 2 without swimming setae; male G2 palmar margin straight with medial tooth, not setose; Pereopod 5 inserted at mid-length of pereonite V *Tritella tenuissima*
- Antenna 2 with swimming setae, male G2 palmar margin concave and with proximal tooth, setose; Pereopod 5 inserted posteriorly on pereonite V (deep water) 8
8. Lateral spines on pereonites II–IV directed laterally; peduncular articles of antenna 2 slender, elongate with long setae; eye frequently without pigment *Tritella pilimana*
- Lateral spines on pereonites II–IV directed anteriorly; peduncular articles of antenna 2 stout with short setae; eyes typically pigmented (shallow water) *Tritella laevis*
9. Pereopod 5 with 2 or 3 articles 10
- Pereopod 5 with 5–6 articles 11
10. Pereopod 5 with two articles (second article represented by fusion of articles 2 & 3 such that article 2 is twice as long as one); mandibular palp with short basal article; typically in embayments *Mayerella acanthopoda*
- Pereopod 5 with three sub-equal articles; mandibular palp with long basal article; typically in off-shore environments *Mayerella banksia*
11. Pereopod 5 with five articles; mandibular palp with three articles; abdomen of male with one pair appendages and a pair of raised knobs, female with one pair of appendages *Abyssicaprella* sp LA1^{vii}
- Pereopod 5 with six articles, similar to pereopods 6 & 7; mandibular palp reduced to single seta 12
12. Anterolateral tooth on pereonite II; male gnathopod 2 with two invaginations along palm, proximal largest; male abdomen with pair of setose appendages, female with smooth lobes *Paracaprella* sp SD1^{viii}
- Anterolateral tooth on pereonites II & III; male gnathopod 2 with a single invagination along palm (though grasping spine is mounted on small protuberance creating an indentation in palm); male abdomen without(?) pair of setose appendages *Paracaprella cf alata*
13. Head with multiple dorsal spines; pereonites covered with dorsal and lateral spines; pereopod 5 reduced, more delicate than pereopods 6 and 7, comprised of six flexible articles, dactyl absent or represented by a small knob; female antenna 1 flagellum with ten articles; antenna 2 exceeding peduncle of antenna 1; male abdomen with pair of truncate lobes bearing small spines, female abdomen with pair of lobes bearing small setae *Aciconula acanthosoma*
- Head with single mid-dorsal spine; pereopod 5 reduced, smaller with dactyl 14
14. Dorsal projections present from head to pereonite IV; pereopods 3 and 4 one segmented; female antenna 1 flagellum with seven articles; body and gnathopods maculated with dark brown on cream base; lacking antero-lateral tubercle on pereonite I; gnathopod 2 propodus twice the length of basis, palm concave with small proximal rectangular projection *Deutella venenosa*
- Dorsal projections restricted to head through pereonite II; pereopods 3 and 4 two segmented; female antenna 1 flagellum with twelve articles; body not pigmented; antero-lateral tubercle present on pereonite I; gnathopod 2 propodus shorter than basis, palm linear with large concavity in medial part *Deutella californica*

Key to Species of *Caprella* (Caprellinae)

1. Single ventral process (“spine”) present between insertions of second gnathopods, check carefully as the process may be small 2^{ix}
 - Ventral process absent from between insertions of second gnathopods 8
2. Anteriorly directed head spine present 3
 - Head spine absent 5
3. Head spine relatively short, robust; body tubercles large and numerous; male gnathopod 2 about twice as long as broad *Caprella verrucosa*^x
 - Head spine, long, slender; body without numerous large tubercles; male gnathopod 2 propodus four times longer than broad 4
4. Head spine typically bent forward, with slightly concave ventral margin; pereonite V with one mid-dorsal spine *Caprella californica* CMPLX^{xi}
 - Head spine typically straight though pointing forward; pereonite V with two mid-dorsal spines *Caprella scauroides*
5. Male gnathopod 2 dactyl without setae; gnathopod 2 basal spines present 6
 - Male gnathopod 2 dactyl setose in adults, propod with prominent distal, flat projection; gnathopod 2 basal spines absent *Caprella pilidigita*^{xii}
6. Spines at the base of gnathopod 2 large and anteriorly directed; pereonites III and IV with antero-lateral spines and lateral projects above gills; pereonite V also frequently with pair of dorsolateral projections *Caprella equilibra*
 - Spines at the base of gnathopod 2 small; pereonites III–IV without antero-lateral spines or lateral projection above gills; pereonite V without prominent lateral projections 7
7. Gnathopod 2 with grasping spine, palm with short setae *Caprella mendax*
 - Gnathopod 2 grasping spine absent, palm with long setae *Caprella* sp E Benedict 1978^{xiii}
8. Head with one or more dorsal spines or tubercles 9
 - Head smooth, without spine or tubercle 21
9. Head with a single spine or tubercle or knob 10
 - Head with paired spines, tubercles, or knobs 18
10. Head spine anteriorly directed and triangular (thin or robust) 11
 - Head spine dorsally projecting and represented by spine or rounded knob 17
11. Pereonites with obvious tubercles, knobs, spines, or bumps 12
 - Pereonites lacking obvious tubercles, knobs, spines, or bumps, or those structures small and few 13
12. Antenna 1 peduncular articles covered with fine setae; gnathopod 2 propodus very large, basis with prominent antero-lateral ridge; body tubercles relatively small *Caprella incisa*
 - Antenna 1 peduncular articles naked or nearly so; gnathopod 2 propodus not exceedingly large, basis with small or no antero-lateral ridge; body tubercles relatively large *Caprella verrucosa*

13. Head spine delicate, generally small, emanating dorsally from mid-point of head (above or posterior to eyes); male gnathopod 2 inserted in posterior half of pereonite II (at or beyond mid-point); pereonites smooth or with small paired dorsal tubercles on pereonite V only
..... *Caprella simia*
- Head spine often short and thick, emanating from at or near anterior margin of head; male gnathopod 2 inserted in anterior half of pereonite II (at or in front of mid-point); pereonites smooth or with small paired dorsal tubercles on pereonites.....14
14. Pereonite I shorter than cephalon; pereonite V subequal to or longer than pereonites VI & VII combined; gnathopod 2 propodus setose and basis with thin, anterolateral ridge; antenna 1 peduncular segments very weakly setose, or setae absent; with anterolateral processes on pereonite III and extending above gills of pereonites III & IV in mature specimens
..... *Caprella penantis*
- Pereonite I subequal to or longer than cephalon; pereonite V subequal to or shorter than pereonites VI & VII combined; gnathopod 2 setose or not.....15
15. Head spine very small; pereopods 5–7 with setae only, thickened grasping spine(s) absent; male gnathopod 2 with distal projection, poison spine, and proximal grasping spine.....
..... *Caprella brevirostris*
- Head spine obvious; pereopods 5–7 with thickened grasping spine(s) and setae; male gnathopod 2 with distal projection and poison spine16
16. Antenna 1 peduncular articles setose; body spines present or absent but lateral spines absent from pereonites III–V *Caprella natalensis*
- Antenna 1 peduncular articles without setae; body with micro-tuberculations; anterolateral projections present on pereonites III & IV and over gills, and anteroventrally on pereonite V, and over attachment of pereopods of pereonites V–VII..... *Caprella gorgonia*
17. Propodus of gnathopod 2 with prominent poison spine distally on palm; male gnathopod 2 and much of body covered in fine setae; body tubercles generally large and obvious
..... *Caprella pustulata*
- Propodus of gnathopod 2 without poison spine; male gnathopod 2 palmar margin with long setae; body tubercles generally small and not very obvious *Caprella pilipalma*
18. Paired, tapered spines on head.....19
- Paired, blunt tubercles on head.....20
19. Flagellum of antenna 1 longer than peduncle; gills on pereonites III and IV elongated; male antenna 1 peduncle slender, without setae *Caprella anomala*
- Flagellum of antenna 1 shorter than peduncle; gills on pereonite III broadly oval, more elongated on pereonite IV; male antenna 1 peduncle robust, finely setose.....
..... *Caprella kennerlyi*
20. Posterior pereonites with large dorsal spines present; antenna 1 peduncular article 2 nearly twice as long as article 1; male gnathopod 2 poison spine not grossly enlarged (subequal to triangular palmar projection)..... *Caprella ferrea*
- Posterior pereonites with few small, rounded, dorsal tubercles; antenna 1 peduncular article 2 subequal to article 1; male gnathopod 2 poison spine grossly enlarged.....
..... *Caprella rudiuscula*

21. Cephalon, pereonites I & II, and gnathopod 2 without setae (setae sparse or absent); lateral border of pereonites III & IV lacking lateral projects/spines22
- Cephalon, pereonites I & II, and gnathopod 2 strongly setose; dorsum and lateral border of pereonites III & IV with lateral projects and/or dorsal spines..... *Caprella mutica*
22. Body smooth, without spination or processes; cephalon distinctly rounded anterodistally; eyes reduced or seemingly absent; pereopods 5–7 with multiple pairs of grasping spines.....
..... *Caprella unguina*
- The above characters not combined: eyes distinct; pereopods 5–7 with single pair of grasping spines; body spines present or absent.....23
23. Pereopods 5–7 with propodus narrow, elongate, without defined palm, grasping spine located in middle of propodus; male gnathopod 2 basis longer than propodus; pereonites V with small dorsal tubercles in subadult and adult males *Caprella gracilior*
- Pereopods 5–7 with propodus defined by palm and proximally positioned grasping spine(s); male gnathopod 2 basis not longer than propodus24
24. Antenna 1 peduncular articles compact, short and broad, often setose; flagellum of antennae 1 and 2 one segmented; body very compact..... *Caprella greenleyi*
- Antenna 1 peduncular articles normally proportioned (elongated), setose or not; flagellum of antennae multi-segmented; body generally not compact25
25. At least some pereonites with dorsal spination or low processes (anterolateral processes present or absent)26
- Pereonites dorsally smooth, anterolateral processes often present on pereonites III and IV in subadult and adult specimens28
26. Pereonites V and VI with pair of tall, erect dorsolateral spines; propodus of male gnathopod 2 with antero-dorsal projections; male pereonite I up to three times longer than cephalon (subequal to cephalon in females) *Caprella irregularis*
- Pereonites V and VI with low bumps or strong spination; propodus of male gnathopod 2 without antero-dorsal projections; male pereonite I not more than twice as long as cephalon27
27. Flagellum of antenna 1 longer than peduncle; in male, antenna 2 subequal to antenna 1 peduncle; body never strongly tuberculate; anterolateral projections absent from pereonites III and IV *Caprella striata*
- Flagellum of antenna 1 shorter than peduncle; in male, antenna 2 shorter than articles 1 plus 2 of antenna 1 peduncle; body with few to many dorsal tubercles; pereonites III and IV with anterolateral projections *Caprella alaskana*
28. Gills generally round; male gnathopod 2 setose, poison spine located distally on palm; female gnathopod 2 inserted near middle of pereonite II..... *Caprella drepanochir*
- Gills generally elongated; male gnathopod 2 with few to no setae, enlarged poison spine located towards middle of palm; female gnathopod 2 inserted towards anterior end of pereonite II *Caprella laeviuscula*

ENDNOTES

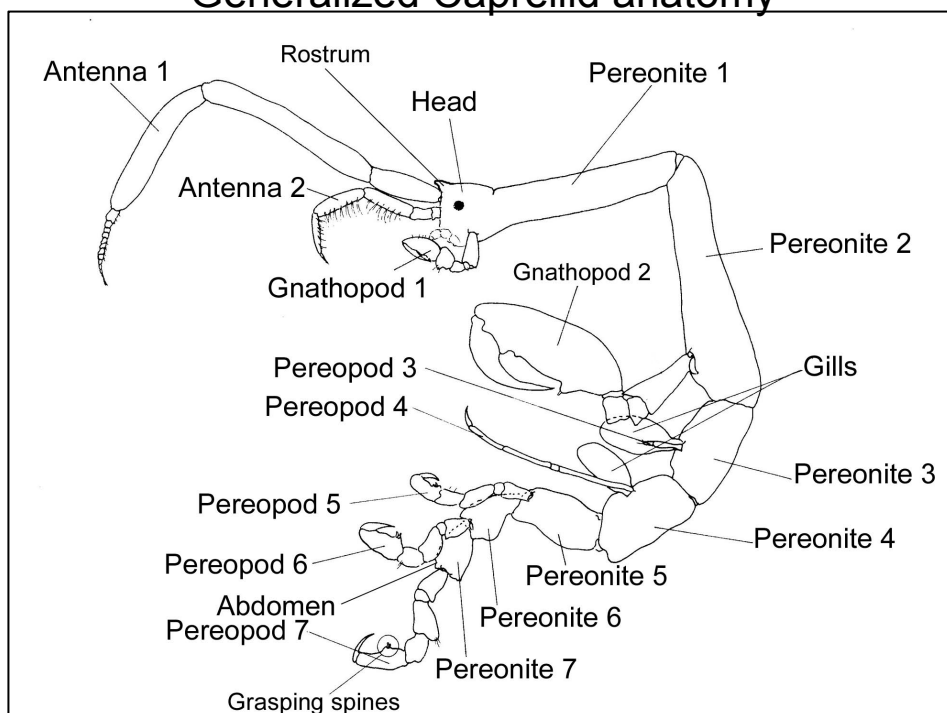
- ⁱ This key includes described species, SCAMIT provisional species, most species (provisional and described) included in Benedict (1978), and most species included in Laubitz (1970) in an attempt to cover most of the caprellid taxa that could be found in the coastal waters of the Southern California Bight (SCB). It is not comprehensive, but is intended to help start the development of a regional key to SCB caprellid amphipods. Please submit suggested changes to D. Pasko (deanpasko@yahoo.com) and/or Tony Phillips (cumacea@yahoo.com). *Caprella* sp LA1 Haney 200?§ - off Palos Verdes: 23m has been excluded because there is no descriptive information available. If you encounter specimens not conforming to the species included herein, please see the key and comments in Cadien (2015), which includes species from the northeastern Pacific, the Gulf of California, and western Mexico all of which have been excluded from this limited key.
- ⁱⁱ The genus *Pseudoliropus* in the Caprellinae is reputed to lack a molar. The description was based on very limited material, and may be in error. The genus lacks gills on pereonite 2, and otherwise more closely resembles Caprellinae than Phtiscinae.
- ⁱⁱⁱ Members of this subfamily have not been reported in the SCB, SCAMIT Ed 11.
- ^{iv} In the redescription of *Deutella venenosa* Guerra-Garcia (2003) found only single articles on pereopods 3 and 4, making this a variable character. To avoid this pitfall within the key, *Aciconula* and *Deutella* are the only genera with appendages on pereopods 3 and 4 that also have head spines. *Deutella* can be separated from *Aciconula* by non-spination on the dorsal and lateral aspects of the pereopods and differences in pereopod 5.
- ^v A fragile bodied, but similar provisional species listed in Benedict (1978), should also be considered: “*Tritellopsis*” sp A Benedict 1978§. Both species have a single pereopod 5 article, but differ strongly in antennal configuration, with *Tritellopsis* having antenna 1 longer than pereonites I–III (almost ½ body length); where as *Liropus* has antenna 1 only slightly longer than pereonites I & II. In both antennae 1 and 2 the peduncular articles are much longer in *Tritellopsis* than in *Liropus*. The gnathopod 2 propod is also very different in *Tritellopsis* sp A and *L. minusculus*. These distinctions apply to both males and females.
- ^{vi} “*Urilops*” is a provisional genus erected by Bruce Benedict (Benedict 1978) for a provisional species he encountered in Bureau of Land Management samples of southern California in the late 1970s. The species is similar to another species briefly described from a single immature female specimen, *Pseudoliropsus vanus* Laubitz 1970. According to Benedict (1978) the two can be separated by the characters presented above.
- ^{vii} *Abyssicaprella* sp B Benedict 1978 is not considered because descriptive information to distinguish the two provisional species was not available.
- ^{viii} *Paracaprella* sp SD1 (off shore) and *Paracaprella cf alata* (Newport Bay) may in fact be the same species, the differences used to distinguish the two taxa may represent different stages of development or natural variability in morphology. Both taxa are included to help shed light onto the potential problem.
- ^{ix} Although described without a ventral spine between insertions of second gnathopods, I have observed ventral spine in mature, gravid female *Caprella penantis* (OCSD Station 12, 13-Aug-2020).
- ^x *Caprella verrucosa* is presented twice in the key because although Laubitz (1970) and Benedict (1978) placed it among the group of *Caprella* without a ventral process/spine between the second set of gnathopods, specimens in the SCB consistently have a ventral process between the insertions of gnathopods 2 with the body.
- ^{xi} The key generally follows Takeuchi and Oyamada (2013) for discriminating among *C. californica* and *C. scauroides*; however, some confusion remains about the validity of these species and SCAMIT has decided to attach “Cmplx” to *C. californica* for the SCB specimens. Users of the key are directed to Takeuchi and Oyamada (2013) for a detailed review and discussion of the taxonomic confusion among the species *C. californica*, *C. scauroides*, and *C. scaura*.

- xii Mature male *C. pilidigita* have dense lateral setae on the dactyl of gnathopod 2 that may not be present in less mature males and females
- xiii From Benedict (1978): "The grasping spines here are actually more proximal than medial, but not proximal to degree of *Caprella* sp D. Ovigerous female Gn2 essentially identical to male, lacks distal tooth and poison tooth. No adult male on hand, only subadult - this may be *C. pilipalma* of Dougherty & Steinberg (1953) but they did not mention ventral spine - *C. pilipalma* is also described as having dorsally directed, thin cephalic spine and minute body tuberculations."

CITED REFERENCES

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- Laubitz, Diana R. 1970. Studies on the Caprellidae (Crustacea, Amphipoda) of the American North Pacific. National Museums of Canada, National Museum of Natural Sciences, Publications in Biological Oceanography 1: 1-89.
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Generalized Caprellid anatomy



From: YJ Díaz, JM Guerra-García, A Martínez. (2005) Caprellids (Crustacea: Amphipoda: Caprellidae) from shallow waters of the Caribbean coast of Venezuela. Org. Divers. Evol. 5, Electr. Suppl. 10: 1 – 25). Lateral view of a generalized caprellid (modified from McCain 1968).]

Generalized Caprellid anatomy

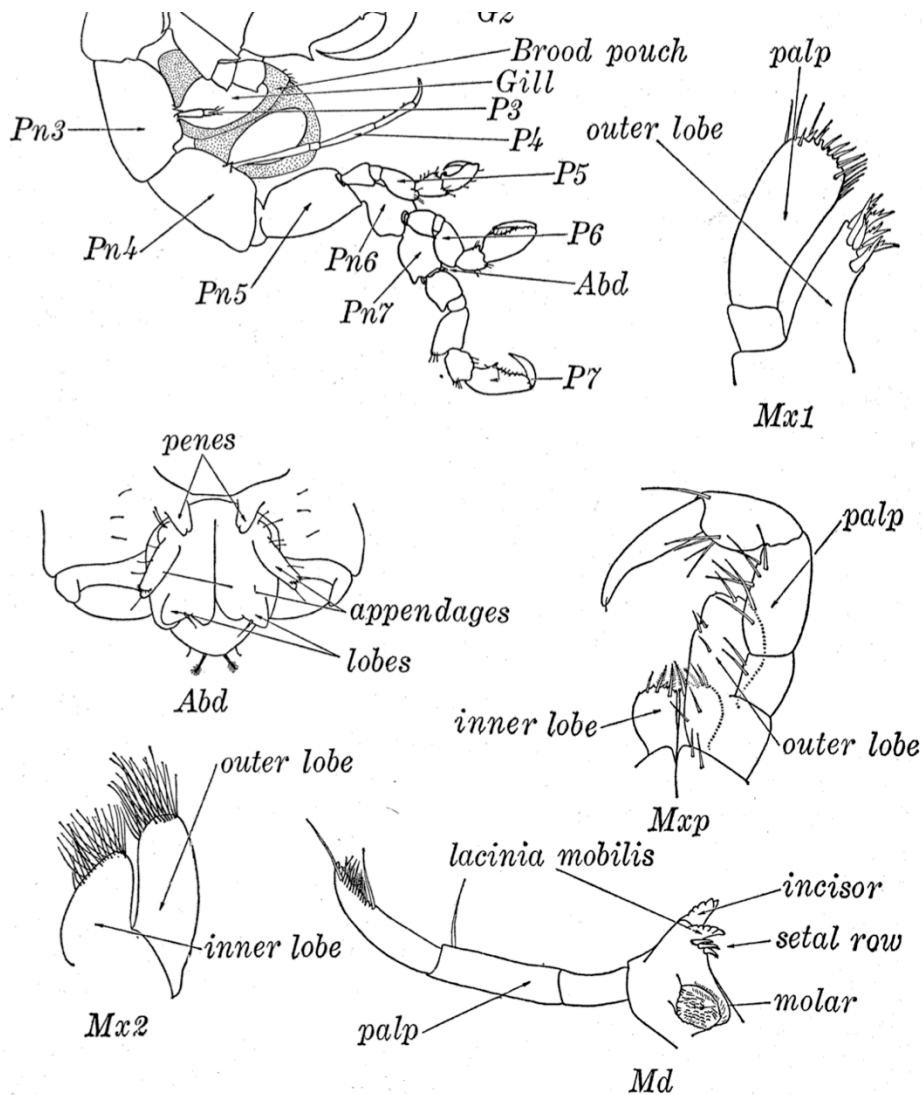
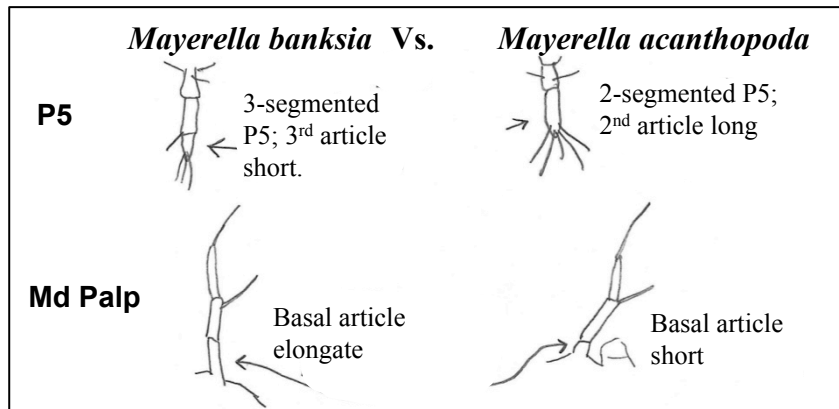
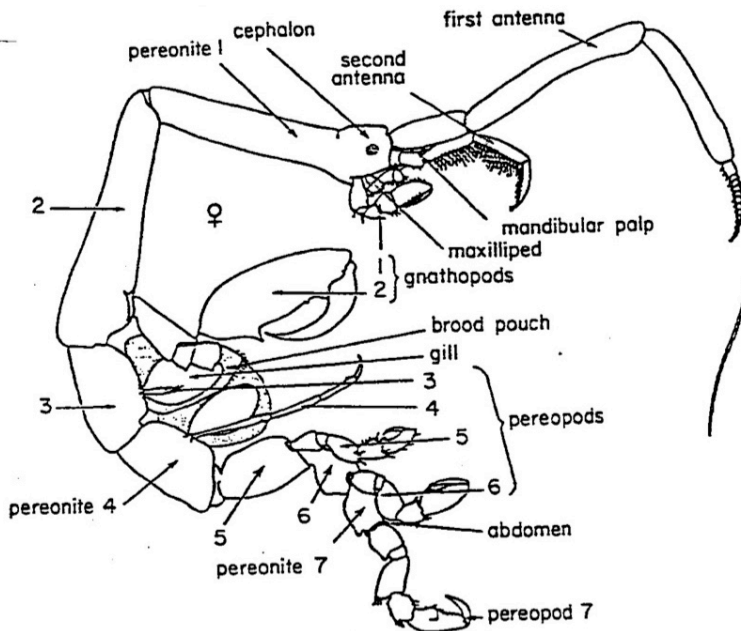


FIGURE 1.—Generalized caprellid: *A* (antenna), *Abd* (abdomen), *G* (gnathopod), *Md* (mandible), *Mx* (maxilla), *Mxp* (maxilliped), *P* (pereopod), *Pn* (pereonite).

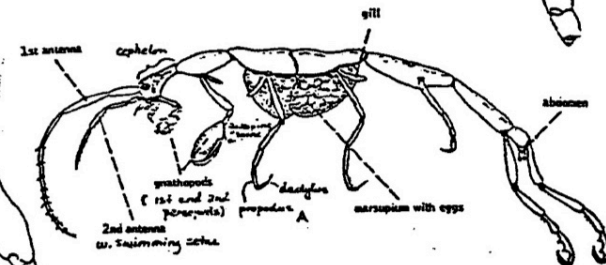
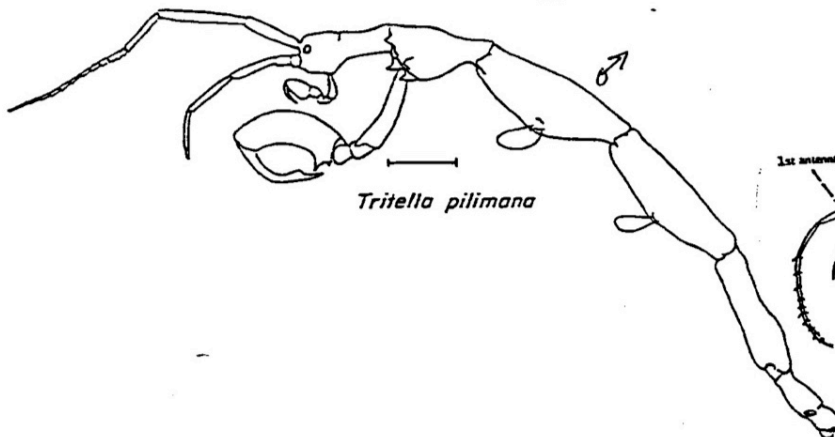
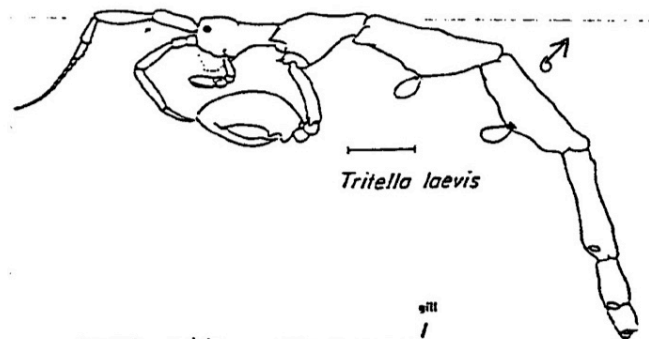
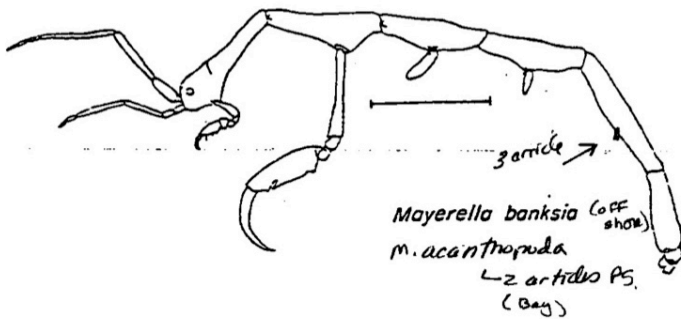
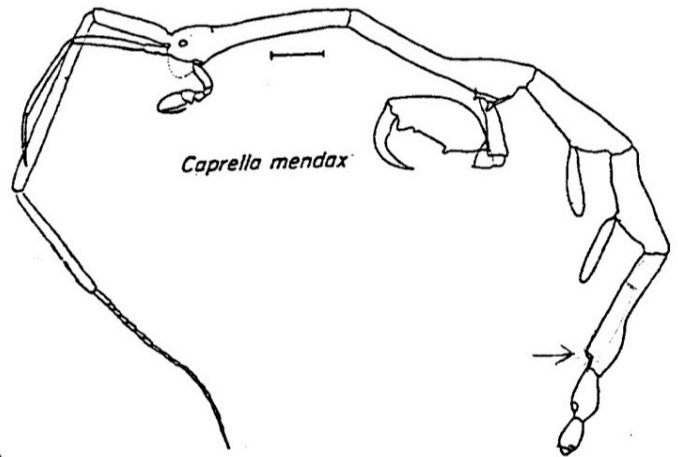
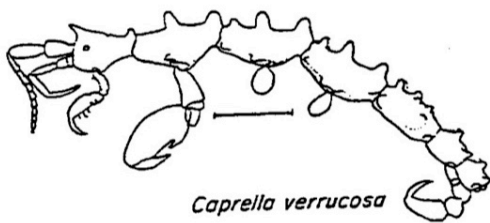
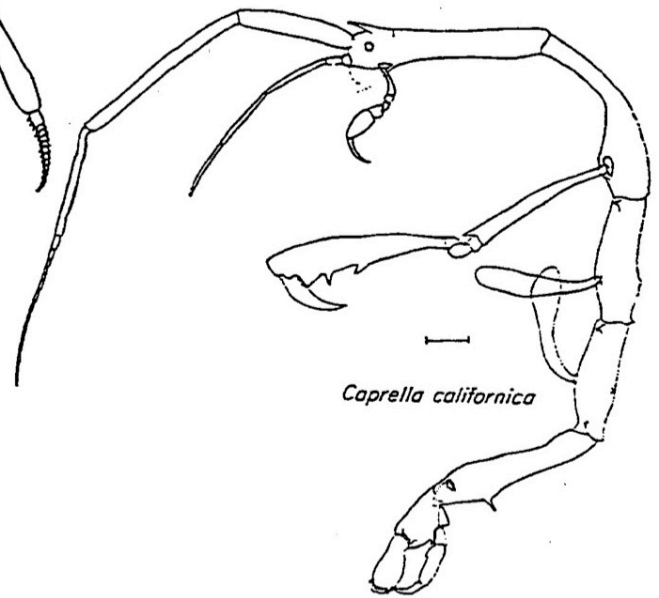
From McCain 1968. The Caprellidae (Crustacea: Amphipoda) of the Western North Atlantic. United States National Museum Bulletin 278: 1-147.



Common SCB Caprellids



Generalized caprellid



Hemiproto sp.A