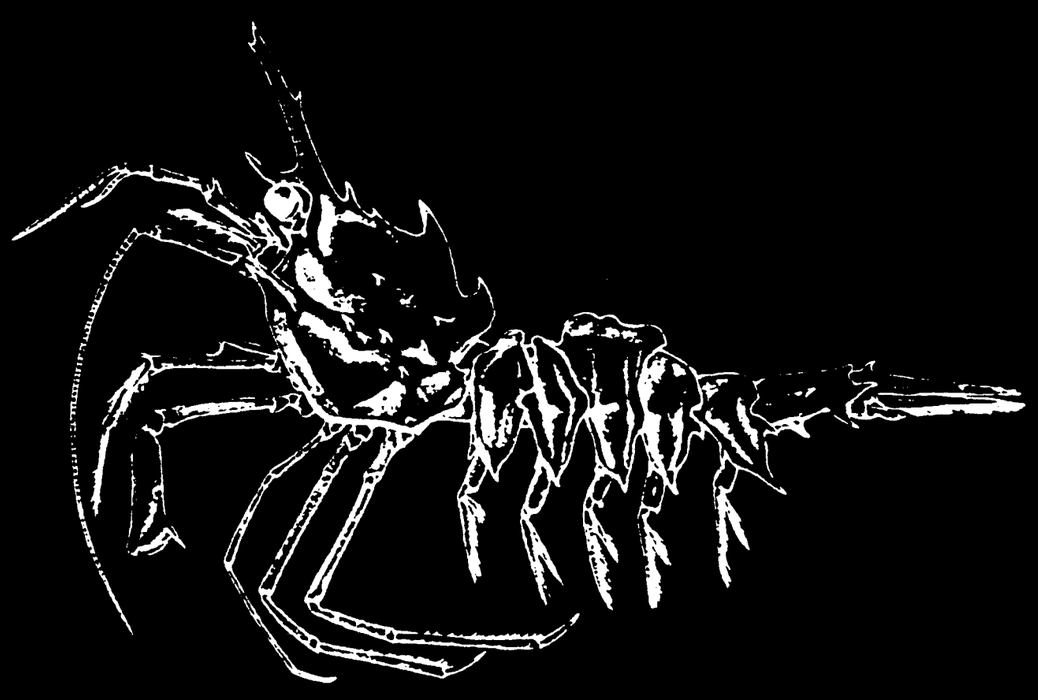
Southern California Association of Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

November, 1994

Vol. 13, No.7

NEXT MEETING:	SCBPP Non-polychaete Problem Species
GUEST SPEAKER:	none
DATE:	December 19, 1994
TIME:	9:30am - 3:30pm
LOCATION:	MEC (Marine Ecological Consultants) 2423 Impala Dr. Carlsbad, CA 92004 (see enclosed map)



Paracrangon echinata
(from Butler 1980)

DECEMBER 19 MEETING

The December meeting will be the third Monday of the month at MEC. This meeting will be for non-polychaete SCBPP problem specimens, especially nemerteans, which seem to have caused the most problems so far. Also, Dr. Mary Wicksten of Texas A & M University will be a guest at the meeting. Please bring any questions you may have for her on decapods.

FUNDS FOR THIS PUBLICATION PROVIDED, IN PART, BY THE
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CHRISTMAS PARTY

Due to so many conflicts amongst members' busy Yuletide calendars the date of the SCAMIT Christmas Party has been changed to **December 17th**. We regret to make this change so late, but it was either this or no visit from Santa "John" Claus and we've all been *so good* this year. The time will still be from 6-9pm (or so). SCAMIT will be providing a Honeybaked ham along with refreshments. Along with your laughter please plan to bring a pot-luck dish and coordinate your menu selection with either Don Cadien or Cheryl Brantley at (310) 830-2400 ext.403.

NEW ADDRESS

SCAMIT member, R. Eugene Ruff, who recently relocated to Washington state from southern California, has a new address and phone number.

R. Eugene Ruff
1179 Meridian South Suite 401
Puyallup, WA 98373
(206) 770-7007

NEW PUBLICATIONS

The journal *Amphipacifica* is now three issues into it's inaugural year. The publishers have managed to hold the line, and subscription costs for the second volume will remain the same as for the first.

In addition to a very detailed discussion of amphipod classification by Bousfield & Shih the latest issue contains description of three new taxa from central Californian waters. These may also occur in the Southern California Bight, but have not yet been recorded there. The three taxa are the amphipods *Photis typhlops*, *Photis linearmanus*, and *Gammaropsis ocellata* all of Conlan, 1994. Two of these taxa were taken in the Phase I Santa Maria Basin project where *Photis typhlops* was just called "blind Photis", and *Gammaropsis ocellata* was identified as the closely related *Gammaropsis barnardi*. *Photis linearmanus* was taken at a single station in Phase II of the Santa Maria Basin monitoring. Conlan's descriptions were published to establish the names prior to her inclusion of these species in the amphipod section of the Taxonomic Atlas of the Santa Maria Basin and Western Santa Barbara Channel. This has yet to be published.

Taxonomic Atlas

Three volumes in this continuing series have already been published by the Santa Barbara Museum of Natural History. The latest, The Porifera (Vol. 2) [Green & Bakus 1994] was issued at the end of October. Information on the series, and on how to subscribe or purchase individual volumes is attached.

Coral Monograph

The first large scale monograph of the corals of the north Pacific since Durham and Barnard (1952) has just been published (Cairns 1994). In it Steven Cairns has completely reexamined the coral fauna of both the western north Pacific and the eastern north Pacific together in one volume. Each fauna is treated separately. He lists 25 species from the temperate northeastern Pacific (and another 102 species from the temperate northwestern Pacific). He provides descriptions of all taxa, a key to the species, and a wealth of SEM illustrations, many as stereo pairs affording 3D views of the corallites. [John Ljubenkov has a relatively easy way to see 3D stereo pairs without special optics. All one does is to either cross or defocus your eyes and allow

your brain to do the merging of the images which produces the effect. Although it is a bit of a strain on the eyes, the result is worth it.] This is bound to remain the standard north Pacific coral work for a long while; perhaps another 40 years. Anyone who works with coral identification or taxonomy will find this new synthesis of information on the corals of our area indispensable. Demand for this work will probably outstrip supply. Get a copy, it should be available either from the author, or through the U. S. Government Printing Office.

OLD LITERATURE

No matter how hard one tries to keep up with the literature some things always escape. In my most recent dive into the sea of published information I came across one of these escapees. Either I was not the only one to miss this, or it has been rejected by other workers in subsequent publications. Bouchet and Ortea (1983), in a paper describing a new species of *Hopkinsia* from the south Pacific, transferred *Okenia plana* Baba 1960 to the genus *Hopkinsia*. Although this species has only been taken sporadically in the Southern California Bight, it is a member of our fauna. Both genera are goniodoridid nudibranchs and have similar radulae.

For those who have been wondering where the change from *Hinnites* to *Crassadoma* took place it was in Bernard 1986 (see the bibliography for the full citation)

MINUTES FROM NOVEMBER 21

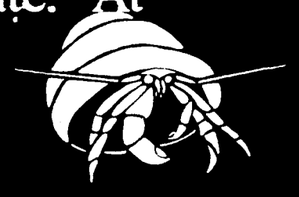
This meeting was spent examining specimens of the problematic *Polydora* genus. A new updated version of Leslie Harris' *Polydora* table was generated and is included in this newsletter. Larry Lovell showed members the main character distinctions between closely related species, especially those that we are likely to encounter in our SCBPP samples.

Probably the most useful characteristic in distinguishing between species of *Polydora* is the shape of the spines in the modified 5th setiger. It must be kept in mind that these major spines are in use, and therefore, subject to wear. They also rub against one another and get worn that way too. It is sometimes necessary to look at the spines in the 5th setiger from different angles to be able to see the shapes more clearly. Something else to keep in mind is that not all authors have been consistent in their use of terms to describe the spines of the modified 5th setiger.

Another character that has often been overlooked in the examination of polydorid species is the presence or absence of superior and inferior capillary setae on the modified 5th setiger. This character state has been added to the *Polydora* table.

Two shallow water species that are likely to be confused are *Polydora nuchalis* and *Polydora ligni*, which was synonymized with *Polydora cornuta* Bosc 1802, by Blake and Maciolek (1987). Blake and Maciolek consider *P. ligni* to be a junior synonym of *P. cornuta*. This synonymy had not been taken into account by SCAMIT members previously. The main difference between *P. cornuta* and *P. ligni* is the shape of the spines in the modified 5th setiger. *Polydora cornuta* has a small secondary tooth on the spine and *Polydora nuchalis* does not.

Polydora socialis is sometimes confused with *Polydora neocardalia* and *Polydora cardalia*. Light (1978) describes *Polydora cardalia* as being a much larger species and having packets of needlelike spines in the posterior notopodia. These spines are lacking in *P. socialis* and *P. neocardalia*. *P. socialis* and *P. neocardalia* are much harder to separate. At



the SCAMIT meeting Larry stained specimens of *P. socialis* and a specimen of *P. neocardalia* with methyl green to see if there was any noticeable difference. The specimens of *P. socialis* had dark banding on the dorsal side of the posterior half of the body. *P. neocardalia* had none of this. However, this was only one specimen, so staining should not be used as a definite way to differentiate between these species, yet. More work needs to be done and types need to be reexamined to determine if *P. socialis* and *P. neocardalia* are two distinct species. The two cannot be distinguished based on Hartman's original description (1961).

Larry also made the comment that the juvenile dorsal pigment spots that have been described as being retained in adult *Polydora socialis* become fainter as the specimen ages in alcohol. The presence or absence of these pigment spots is, therefore, not a reliable characteristic to base accurate identification on.

Two other species that may be confused are *Polydora limicola* and *Polydora narica*. Both have distinct dark pigment along the sides of their prostomium and bars, or spots, of pigment on their palps. The major difference between these two is the placement of the secondary tooth or accessory sheath on the spines of the modified 5th setigers. While *Polydora limicola* has more of a small tooth located on the concave side of the major spine, *Polydora narica* has the tooth on neither the concave nor convex side. Light's original description (1969) of *Polydora narica* has a very good illustration of the placement of the secondary tooth. Also, *Polydora narica* was described from Monterey, while *Polydora limicola* is reported locally in southern California.

Larry also showed members an odd polydorid from Solana Beach that he has recently seen. It was found at 13 and 17 meters depth. Those of us working on SCBPP samples may also encounter this animal. A brief description follows.

- incised prostomium
- eyes present or absent
- caruncle extends to setiger 3
- palps are thick with blunt tips and heavy papillar fringe
- notosetae is absent on the first setiger
- major spines of 5th setiger are falcate with a subdistal boss or thickening
- superior fascicle of capillary setae on the 5th setiger is absent
- plumose companion setae is present along with the major spines of the 5th setiger
- 5th setiger is broader in shape than other polydorid species
- neuropodial hooks begin on setiger 7 and have a constriction on their shaft
- branchiae begin on setiger 7
- pygidium is a flaring disk that is open dorsally
- juveniles have dark pigment spots between the parapodia and the pygidium has pigment around the flange with some papillae
- juveniles also have large eyespots; two on one side and one on the other
- very small juveniles may have paired dorso-lateral spots at the base of the notopodia

It was thought by members at the meeting that this may be *Polydora cirrosa* Rioja, 1943. Light (1978) reported as a footnote that *P. cirrosa* had been collected off Oceanside. Rioja's original description was not available at the meeting to make a comparison, so this will be done in the near future and reported in the SCAMIT newsletter.

THE PAPER CHASE

Several members have responded to the archival paper supply problem discussed in the September newsletter. Since there seem to be a number of solutions to this problem being used by one or another of our members we have decided to try and serve as a clearing house for information on the performance and availability of archival labeling materials. Please take a little time and fill in the attached questionnaire concerning your experience with the material you are presently using for wet specimen archival (and other materials you have tried in the past), and then send it to SCAMIT. Once we receive information from most (or all) of the membership we will report back the results in the newsletter.

EMPLOYMENT OPPORTUNITY

MBC Applied Environmental Sciences in Costa Mesa currently has a few positions available for qualified scientists and toxicologists. Please refer to the attached flyer for further information.

KEY TO CALIFORNIA SHRIMP FAMILIES

Don Cadien, CSDLAC

Developments over the past few years have rendered the key to families of natantian shrimp in Word and Charwat 1976 incomplete. Families not represented in that key have been taken from southern California waters at both shallow and deep stations. These records have been collected and ranges collated recently (Wicksten & Hendrickx 1992). Combined with the elevation of taxa previously considered subfamilies to full family status within the Penaeoidea this has resulted in 15 family level shrimp taxa being represented in the Southern California Bight; only 8 of these are keyed in Word and Charwat. The later family key of Butler (1980) also lacks several of the families reported to occur in the Bight. The following key, which stems from modification of keys produced by others (Chace 1972, Burukovskii 1974, and Dall et al 1990), offers more complete coverage of the southern California fauna. It will hopefully serve until the upcoming monograph on the decapods of California is completed and released. The classification used is that of Schram (1986).

Keys to the majority of these families are already available, and some do not yet require additions to include taxa recently added to the California fauna. The Hippolytidae have recently been covered by Wicksten (1990), as have the Palaemonidae (1989). Other families such as the Alphaeidae and Pandalidae have keys in need of updating. I will be attempting to produce these as time permits. In at least one case (Processidae) a family is represented locally by but a single species (*Ambidexter panamensis*), and requires no key beyond that provided here.

Where possible a second set of keys designed for use in the field with live animals will also be produced. Character states used in laboratory keys are often not visible in the field, or are only visible on the largest specimens. Shrimp laboratory and field keys will probably be as different as those produced by Haig (1977) and Wicksten (1977) for laboratory and field identification of hermit crabs.

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SCAMIT OFFICERS:
If you need any other information concerning SCAMIT please feel free to contact any of the officers.

President	Ron Velarde	(619)692-4903
Vice-President	Don Cadien	(310)830-2400 ext. 403
Secretary	Cheryl Brantley	(310)830-2400 ext. 403
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Position: Responsible for the development of proposals and job costing; implementation of toxicity testing programs; direction of personnel; interfacing with clients and marketing.

Please send current resumes, examples of publications, and 3 references by 1 January 1995.

Personnel
MBC Applied Environmental Sciences
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Jean Hudson
UCLA Institute of Archaeology

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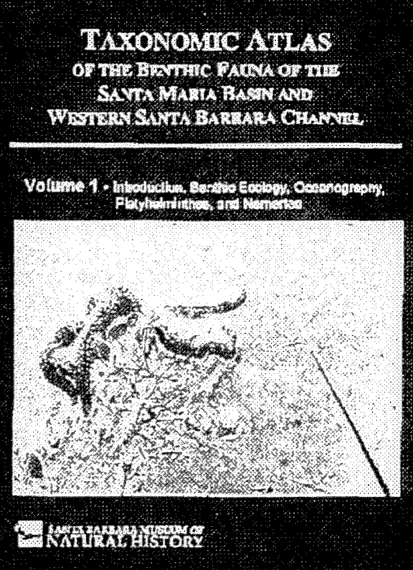

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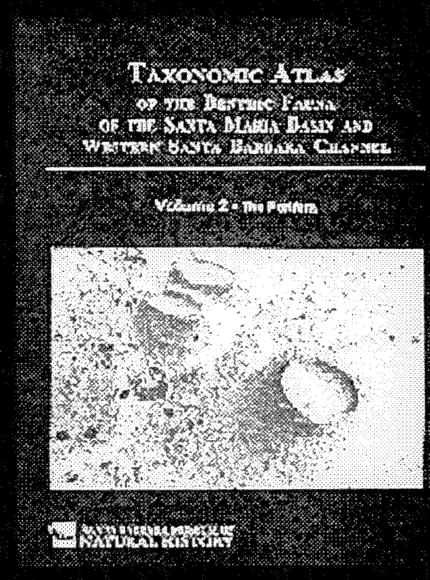

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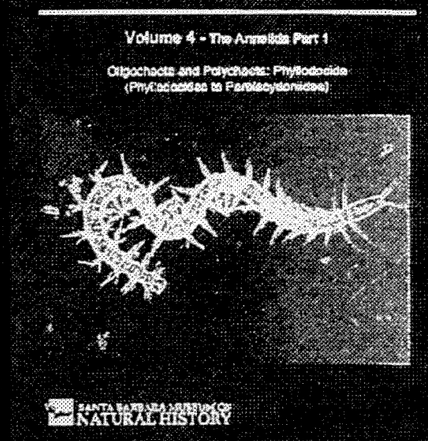

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For further information contact:

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Experience With Paper_____

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KEY TO SHRIMP FAMILIES RECORDED IN CALIFORNIA WATERS

D. B. Cadien, CSDLAC - 7 Dec 1994

(Modified from Chace 1972, Burukovskii 1974 & Dall et al 1990)

1. Third pereopods chelate. Pleura of second abdominal segment not overlapping that of first segment. Abdomen without a sharp curve [Suborder Dendrobranchiata] 2
   Third pereopods not chelate. Pleura of second abdominal segment overlapping that of first segment. Abdomen usually sharply curved . . . . . [Suborder Eukyphida] 6

2. Pereopods 4 and 5 well developed. Gills numerous . . . [Superfamily Penaeoidea] 3
   Pereopods 4 and 5 reduced or absent. Gills few (<9) . . . . . Sergestidae

3. Antennular flagellae originate distally on the third 3rd segment, sub-equal in length; 5th pereopod lacking epipod 4
   Upper antennular flagellum markedly shorter than the lower and originates near the base of the 3rd segment: 5th pereopod bearing epipod . . . . . Aristaeidae

4. Cervical sulcus reaching less than two-thirds the distance from the hepatic spine to the top of the carapace; postorbital spine absent; 4th pereopod lacks epipod 5
   Cervical sulcus reaching the top of the carapace; postorbital spine present; 4th pereopod with an epipod . . . . . Solenoceridae

5. Third to 5th pleopods each with 2 rami; prosartema (eye brush) present; exopods on 2nd and 3rd maxillipeds . . . . . Penaeidae
   Third to 5th pleopods each with 1 ramus; prosartema absent; no exopods on 2nd & 3rd maxillipeds . . . . . Sicyonidae

6. Pereopod 1 subchelate 7
   Pereopod 1 chelate or simple (non-chelate) 8

7. Carpus of pereopod 2 unsegmented . . . . . Crangonidae
   Carpus of pereopod 2 multisegmented . . . . . Glyphocrangonidae

8. Pereopods 1 and 2 chelate; fingers with pectinate cutting edges . . . . . Pasiphaeidae
   Pereopods 1 and/or 2 chelate; fingers without pectinate cutting edges 9

9. Carpus of pereopod 2 unsegmented. Pereopod 1 with well-developed chela 10
   Carpus of pereopod 2 multisegmented, **OR** pereopod 1 nonchelate 11

10. Pereopods with exopods . . . . . Oplophoridae
    Pereopods without exopods . . . . . Palaemonidae

11. At least 1 of the pereopod 1 chelae well developed 12
    Pereopod 1 chelae very small or absent . . . . . Pandalidae

12. Rostrum edentate or dentate, but without subdistal tooth 13
    Rostrum with distal notch covered with bristles and forming subdistal dorsal tooth . . . . . Processidae

13. Eyes borne on extremely long stalks, reaching nearly to end of antennular peduncle, and several times longer than the eye diameter . . . . . Ogyrididae
Eyestalks not unusually long, not or only slightly exceeding eye diameter 14

14. Eyes usually partially or entirely covered by carapace, incapable of free lateral movement; if not, rostrum lacking or represented by single spine . . . . . Alphaeidae
Eyes exposed and freely movable; rostrum well developed, toothed . . . Hippolytidae

KEY TO THE ALPHAEIDAE OF CALIFORNIA

D. B. Cadien CSDLAC - Dec 7 1994
(modified from Wicksten 1984)

1. Triangular movable plate articulated at posterolateral angle of sixth abdominal somite lateral to base of uropod 2
   No triangular movable plate articulated at posterolateral angle of sixth abdominal somite lateral to base of uropod 9

2. Rostrum prominent, orbital hoods armed with spines ..... *Alphaeopsis equidactylus*
   Rostrum absent, front without spines ..... *Betaeus* 3

3. Dactyls of walking legs slender and simple 4
   Dactyls of walking legs stout and bifid 6

4. Chelae of first legs with fingers longer than palm. Large male with gaping fingers of chelipeds ..... *Betaeus longidactylus*
   Chelae of first legs with fingers not longer than palm. Large male with heavier, stouter chelae, but without gaping fingers 5

5. Blade of antennal scale broad distally. Fixed finger of first cheliped decreasing in width evenly to sharp curved tip ..... *Betaeus harrimani*
   Blade of antennal scale narrow distally. Fixed finger of first cheliped truncate before sharp curved tip ..... *Betaeus ensenadensis*

6. Front curved, not emarginate. Commensal with sea urchins (*Strongylocentrotus* spp) ..... *Betaeus macginitieae*
   Front emarginate. Commensal with abalone, or free-living 7

7. Emargination of front shallow. Telson with posterolateral spines small or missing. Commensal with abalones (*Haliotis* spp) ..... *Betaeus harfordi*
   Emargination of front deep. Telson with posterolateral spines well developed 8

8. Peduncle of first antenna less than 0.5x carapace length. Merus of cheliped with lower inner ridge with long bristles, upper ridge ending in sharp tooth; chela with fingers subequal to palm; chela 3 times as long as wide ..... *Betaeus gracilis*
   Peduncle of first antenna subequal to carapace length. Merus of cheliped with lower inner ridge usually tuberculate, upper ridge with tuft of hair, chela with fingers longer than palm; chela twice as long as wide ..... *Betaeus setosus*

9. Eyes partially or fully exposed dorsally 10
   Eyes fully covered by carapace dorsally 12

10. Eyes fully exposed dorsally, rostrum shorter than eyestalks ..... *Automate* 11
    Eyes partially exposed dorsally, rostrum much longer than eyestalks .... *Salmoneus sp A*

11. Propodus of 3rd pereopod bearing spines on the posterior margin . . . . . *Automate dolichognatha*
Propodus of 3rd pereopod setose, but lacking spines on posterior margin *Automate sp A*

12. Pereopods without epipods. Dactyls of pereopods 3-5 bifid . . . . . *Synalpheus lockingtoni*
Pereopods with epipods. Dactyls of pereopods 3-5 simple . . . . . *Alpheus* 13

13. Dactyl of major chela closing horizontally. Merus of third pereopod with prominent inferior spine . . . . . *Alpheus clamator*
Dactyl of major chela closing vertically. Merus of third pereopod lacks prominent inferior spine 14

14. Orbital hoods with spines. Minor chela with prominent spine posterior to movable finger, movable finger flattened (lamellate) . . . . . *Alpheus bellimanus*
Orbital hoods without spines. Minor chela without prominent spine posterior to movable finger, movable finger not flattened . . . . . *Alpheus californiensis*

KEY TO THE PANDALIDAE OF CALIFORNIA

D. B. Cadien CSDLAC - 7 Dec 1994

(modified from Burukovskii 1974, Wicksten 1978, and Butler 1980)

1. Rostrum articulated to front of carapace ..... *Pantomus affinis*
   Rostrum not articulated, integral to carapace 2

2. Third maxilliped with an exopod ..... *Plesionika* 3
   Third maxilliped without an exopod 5

3. Second legs markedly unequal in length ..... *Plesionika mexicana*
   Second legs equal or subequal in length 4

4. Rostrum with 2-8 dorsal spines; with a slight upcurve in the distal ten percent of it's length ..... *Plesionika sanctaecatalinae*
   Rostrum with 11+ dorsal spines; proximally straight, then angled upwards for the distal 50-70% of it's length ..... *Plesionika sp* (nr. *trispinus*)

5. Discoid widening of inner margin of ischium of 1st leg prominent ..... *Pandalopsis ampla*
   Discoid widening of inner margin of ischium of 1st leg absent ..... *Pandalus* 6

6. Third abdominal segment carinated dorsally, carina forms a lobe in the posterior margin of the segment ..... *Pandalus jordani*
   Third abdominal segment not carinated dorsally 7

7. Dorsal spines confined to anterior half of carapace 8
   Dorsal spines extend to posterior half of carapace ..... *Pandalus danae*

8. Sixth abdominal somite length ≥2X width ..... *Pandalus tridens*
   Sixth abdominal somite length <2X width ..... *Pandalus platyceros*