

A New Genus and Species of Parasitic Copepod (Pandaridae) from a Unique New Shark¹

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ABSTRACT: *Dinemoleus indepressus* gen. nov., sp. nov. is a new pandarid copepod parasitic on the recently discovered unique shark referred to as "Megamouth." The parasite is intermediate to the genera *Demoleus* and *Dinemoura*. It differs from members of *Dinemoura* in having two-segmented rami on legs 2 and 3 rather than three-segmented rami. It is distinguished from *Demoleus*, as the new genus has lamelliform fourth legs.

ON 15 NOVEMBER 1976, a large adult male shark was captured approximately 26 miles northeast of Kahuka Point, Oahu, Hawaii. Examination of this shark indicated that it was new to science. Its taxonomic status is being investigated by Leighton Taylor and Paul Struhsaker. A single parasitic copepod was found on the body surface near the first dorsal fin. The copepod was sent to the first author for identification by its collector, Leighton Taylor. Examination of the parasite indicated that it represents the new genus and species described below.

Preliminary reports refer to the host shark as "Megamouth." When its scientific name becomes available, subsequent records of this copepod should be updated.

Dinemoleus, gen. nov.

Pandaridae. Frontal plate separate. Thoracic segments 2 to 4 free. Dorsal thoracic plates on segment 4. Genital segment large. Abdomen two-segmented. Caudal rami broad. Oral area with adhesion pads. Second maxilla with a patch of long setules at base of terminal claw. Maxilliped claw small. Legs 1 to 4 biramose. Rami of legs 1 to 3 two-segmented. Leg 4 lamelliform, rami one-segmented. Male unknown.

Remarks

The new genus appears to be intermediate between *Dinemoura* Latreille and *Demoleus* Heller. The names of these two genera have been combined to form the name of the new genus. If one were to key *Dinemoleus* by using the key to pandarid genera provided by Cressey (1967, p. 5), the new genus would key out to *Dinemoura*. But *Dinemoleus* differs from *Dinemoura*, since the rami of legs 2 and 3 of *Dinemoura* are three-segmented, while they are only two-segmented in *Dinemoleus*. Further, the adhesion pad of the first antenna of *Dinemoura* is double when present but single in *Dinemoleus*. The new genus resembles *Demoleus* because it possesses an adhesion pad between the bases of the maxillipeds. Previously, this character separated *Demoleus* from all other pandarid genera. *Dinemoleus* differs from *Demoleus* by the lamelliform fourth leg of the new genus. The new genus is a member of group II of the Pandaridae as defined by Cressey (1967).

Dinemoleus indepressus sp. nov.

Figures 1-18

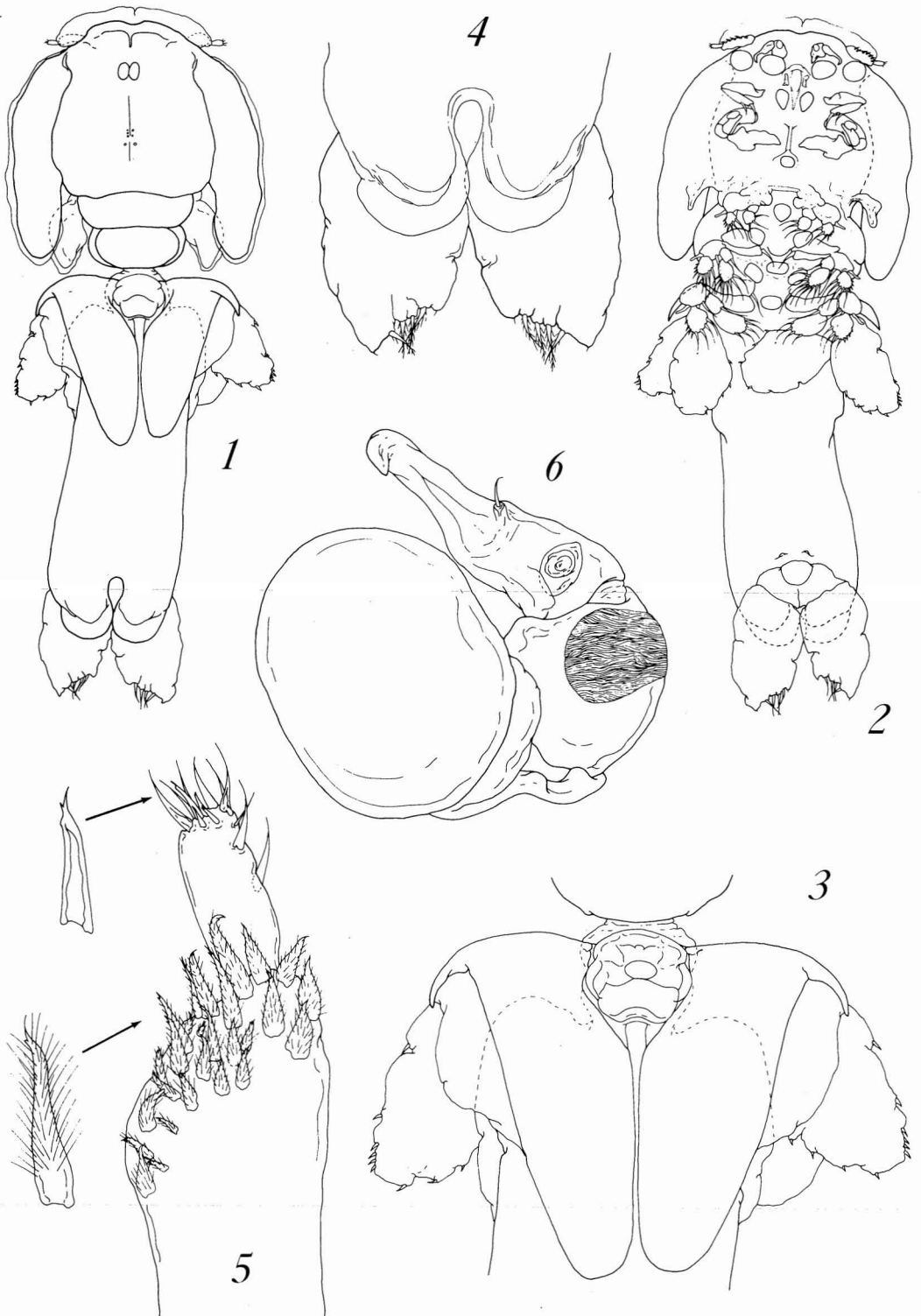
Material Examined

Holotype ♀ (USNM 170353). Collected from the body surface near the first dorsal fin of a new species of shark ("Megamouth") caught off Kahuka Point, Oahu, Hawaii,

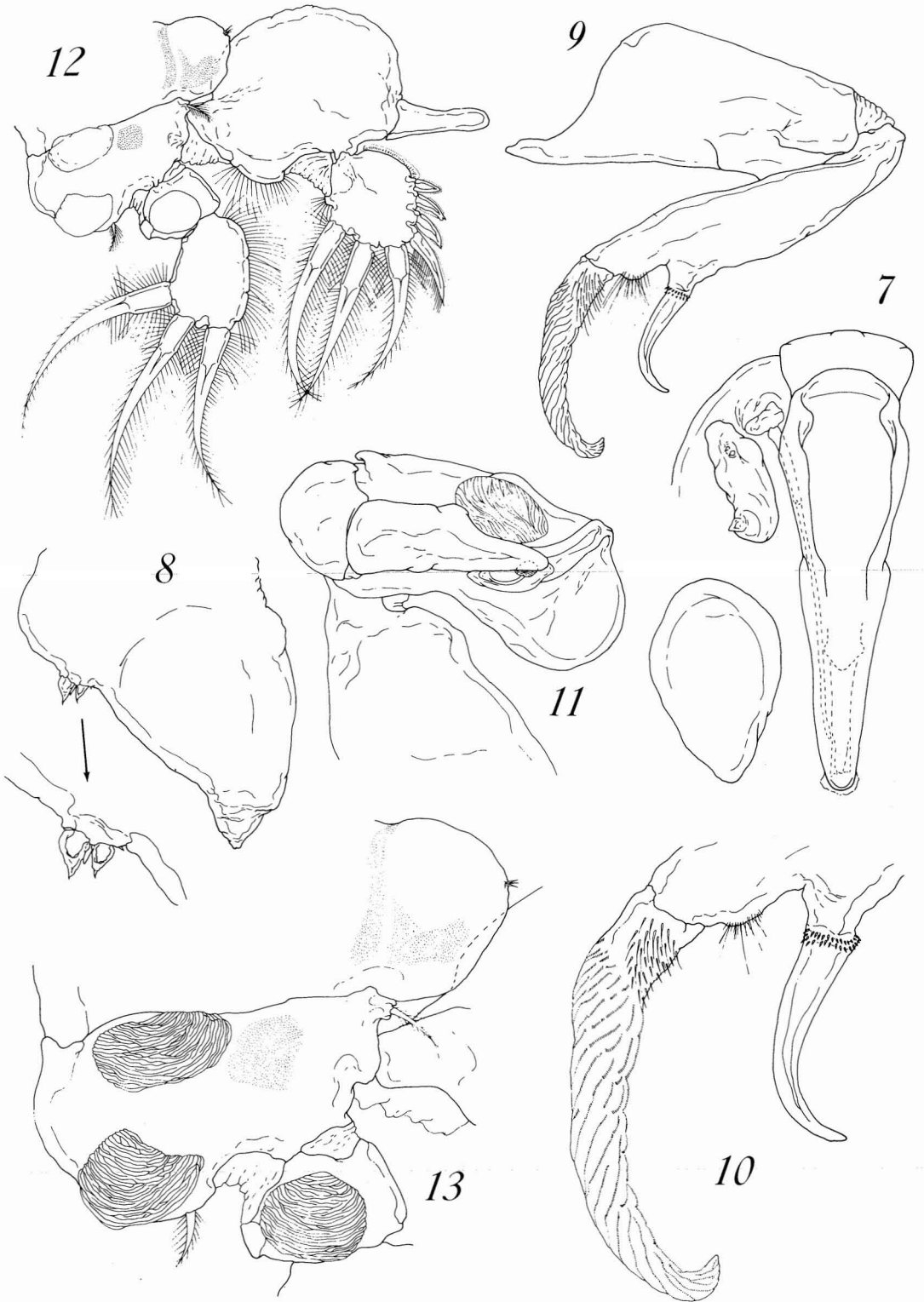
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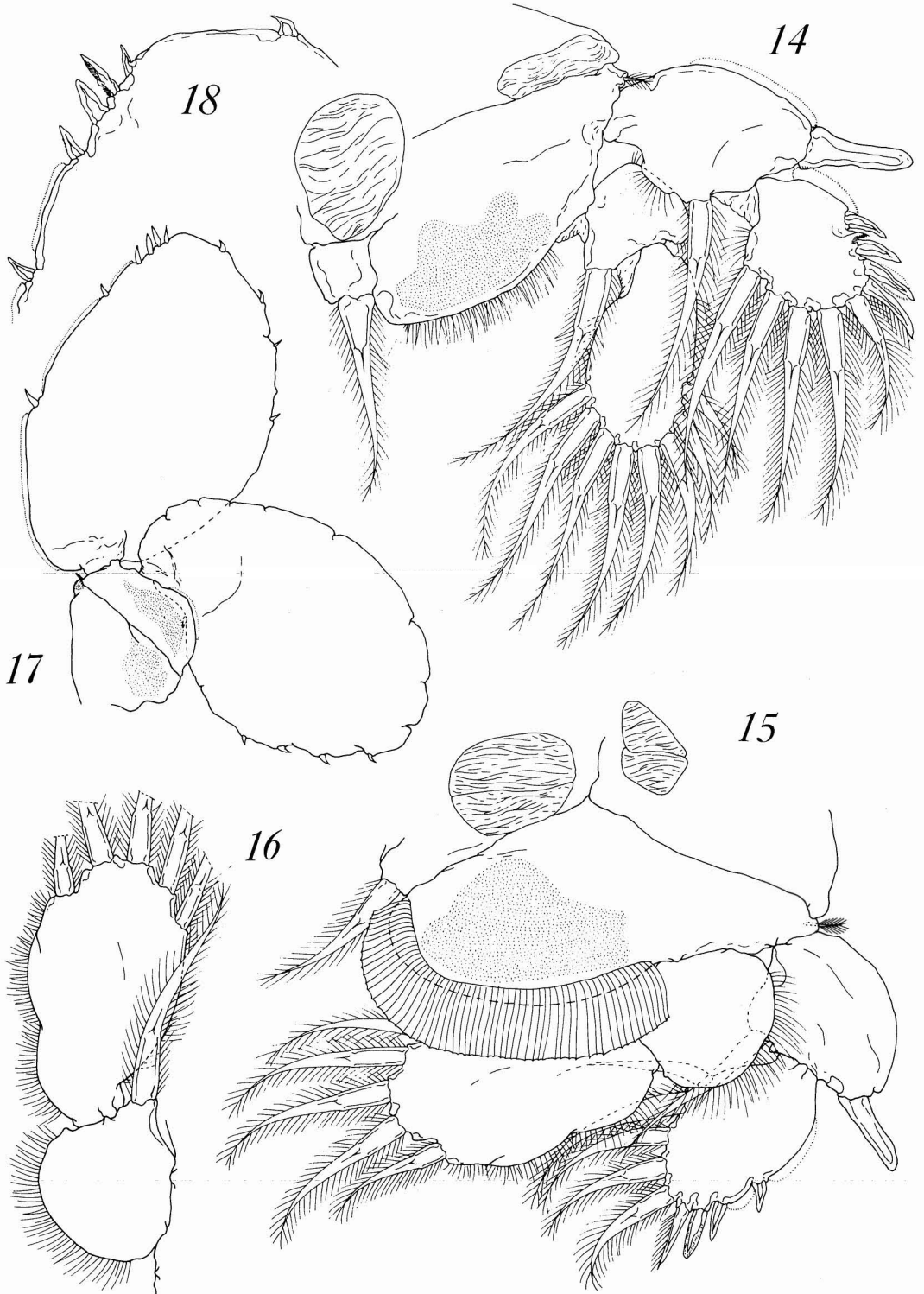
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FIGURES 1-6. *Dinemoleus indepressus* sp. nov. 1. Dorsal. 2. Ventral. 3. Fourth thoracic segment, dorsal. 4. Tip of genital segment and caudal rami. 5. First antenna. 6. Second antenna.



FIGURES 7-13. *Dinemoleus indepensus* sp. nov. 7. Mouth tube. 8. First maxilla. 9. Second maxilla. 10. Tip of second maxilla. 11. Maxilliped. 12. Leg 1. 13. Basal part of leg 1.



FIGURES 14–18. *Dinemoleus indepensus* sp. nov. 14. Leg 2. 15. Leg 3. 16. Endopod of leg 3. 17. Leg 4. 18. Distal edge of leg 4 exopod.

15 November 1976. The parasite was collected by Leighton Taylor.

Description of Female

Body form as in Figures 1 and 2. Total length 17.55 mm. Greatest width 6.60 mm (measured at widest part of cephalon). Cephalon comprising about one-third total body length (6.6 mm) and about as wide as long. Thoracic segments 2–4 free. Dorsal plates of thoracic segment 4 cover anterior third of genital segment. Shieldlike area between bases of dorsal plates (Figure 3). Origin of fourth thoracic segment narrowed and probably provides principal area of flexion of body. Genital segment almost half total body length (7.80 mm) and 3.23 mm at widest part. Posterior corners of genital segment produced as rounded lobes (Figure 4). Abdomen two-segmented; first segment small and bordered laterally as well as distally by second segment (see Figure 2); both segments together measure 1.2 mm long and 2.3 mm wide. Caudal rami (see Figure 4) lamelliform; about twice as long as wide (3.00 × 1.58 mm) and armed with four short, plumose, terminal setae.

First antenna (Figure 5) two-segmented; first segment with 27 short, stout, plumose setae, second segment with 13 naked, short setae, some with bifid tips (see insert to Figure 5). Second antenna (Figure 6) with a large adhesion pad at base; terminal segment in form of a recurved, heavily sclerotized claw. Oral area (Figure 7) with prominent adhesion pad lateral to tip of mouth tube; first maxilla and mandible lateral to base. Mandible of usual siphonostomatoid type (lancetlike) with 11 small teeth at tip. First maxilla (Figure 8) with three short, stout setae near base and terminating to a blunt tip; entire appendage somewhat lobate. Second maxilla (Figure 9) two-segmented; each segment elongate, with last segment armed with a subterminal recurved spine bearing a ring of spinules at base, a terminal process armed with a patch of long spinules on base and numerous short rows of spinules arranged spirally, and a patch of long setules between bases of the subterminal spine and terminal process (Figure 10). Maxilliped

(Figure 11) stout with a short, heavily sclerotized claw opposed by an adhesion pad and a process bearing a small adhesion area on second segment; tip of claw fits between large adhesion pad and process.

Legs 1 to 4 biramose; rami of legs 1 to 3 two-segmented, rami of leg 4 one-segmented and lamelliform. Adhesion pads and patches of spinules on coxopods and basipods of legs as illustrated. Leg 1 (Figure 12) coxopod and basipod as in Figure 13: exopod first segment with clublike spine on outer distal corner, second segment with an outer lateral fringe, three short, fringed lateral spines, one longer terminal spine fringed on outer edge and plumose on inner, and three inner plumose setae; endopod first segment with an adhesion pad, second segment with three terminal, plumose setae. Leg 2 (Figure 14) exopod as in leg 1 except for presence of a fringe on outer edge of first segment and five setae on last segment; endopod first segment with an inner seta, last segment with eight setae. Leg 3 (Figure 15) exopod similar to that of legs 1 and 2 except last segment spines less prominent; endopod (Figure 16) last segment with five setae. Leg 4 (Figure 17) rami lamelliform, each bearing a number of short spines or setae as indicated in the figure. Detail of outer edge of exopod in Figure 18. No evidence of legs 5 or 6 could be found on the single specimen available.

No egg string present.

Male

Unknown.

Remarks

It is not surprising that this new parasitic copepod represents a new genus and species considering the unique nature of the host. Copepods of the closely related genus *Dinemoura* are reported from sharks of the families Lamnidae, Cetorhinidae, Squalidae, Carcharhinidae, and Alopiidae. Copepods of *Demoleus* have been reported from sharks of the families Hexanchidae and Squalidae. Members of both copepod genera have been reported from the Pacific. The species name, *indeprensis*, is Latin for "undiscovered."

ACKNOWLEDGMENTS

We are indebted to Leighton Taylor and Paul Struhsaker for allowing us to study this interesting parasite.

LITERATURE CITED

CRESSEY, R. F. 1967. Revision of the family Pandaridae (Copepoda: Caligoida). Proc. U.S. Nat. Mus. 121(3570):1-133.