

NOTES ON DECAPOD AND EUPHAUSIID CRUSTACEANS, CONTINENTAL MARGIN, WESTERN ATLANTIC, GEORGES BANK TO WESTERN FLORIDA, USA

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ABSTRACT

Twenty-six species of decapod crustaceans in 16 families and 1 species of euphausiid are reported from the outer continental shelf, submarine canyons, and nearby slope of the eastern and southeastern United States. Station data are given for all collections made with the aid of submersible and surface vessels. Bathymetric and geographic distributions are summarized for six species (*Lithodes maja*, *Munida forceps*, *M. longipes*, *Chacellus filiformis*, *Dissodactylus juvenilis*, *Euchirograpsus americanus*) whose ranges are extended. Comparative descriptive notes are given for other forms that have uncertain identities and need further study (*Alpheus* cf. *amblyonyx*, sp. near *Ligur*, *Munidopsis* cf. *transtridens*).

Records of decapod crustaceans from the outer continental shelf, submarine canyons, and nearby slope off the eastern United States have accumulated in my files to the point that it seems appropriate to publish them with notes on the samples taken in that habitat. Specimens were collected with the aid of deep and shallow water submersibles and surface vessels operated cooperatively by the Lamont-Doherty Geological Laboratory, Columbia University, Palisades, NY, with sponsors listed hereinafter, and between Rutgers University, Center for Coastal and Environmental Studies, and Department of Horticulture and Forestry, New Brunswick, NJ; the Northeast Fisheries Center, National Marine Fisheries Service (NMFS), NOAA, Woods Hole, MA; and the Southeast Fisheries Center Laboratories, NMFS, NOAA, at Panama City, FL, and Pascagoula, MS (Able et al. 1982, 1987; Grimes et al. 1980a, 1986; and Lamont-Doherty records). Vessels (see Table 1) and their sponsoring institutions were DSRV *Alvin*, Woods Hole Oceanographic Institution, Woods Hole, MA; RV *JSL I* and *JSL II*, Harbor Branch Oceanographic Institution, Inc., Fort Pierce, FL; RV *Cape Henlopen*, University of Delaware, Lewes, DE; RV *Eastward*, Duke University, Beaufort, NC; RV *Endeavor*, University of Rhode Island, Kingston, RI; RV *Gyre*, Texas A&M University, Galveston, TX. The specimens have been deposited in the crustacean collection

of the United States National Museum of Natural History (USNM).

Bathymetric and geographic distributions of many decapod crustacean species from the North American continental shelf in the western Atlantic were reviewed by Squires (1965), Williams and Wigley (1977), Wenner (1982), and Williams (1984). Wenner and Boesch (1979) and Wenner and Windsor (1979) included a deeper dwelling component in their treatments of epibenthic decapods collected from the continental shelf and slope. Collections by workers from the contributing institutions listed above include 26 species of decapod crustaceans in 16 families, some unidentified fragments, and 1 species of euphausiid listed in Table 1. Named localities are listed from north to south (see Figures 1 and 2); successive visits are arranged chronologically, and species present in each collection are inventoried alphabetically.

Species whose reported bathymetric or geographic ranges are extended by presence in these collections are discussed below. Some of the forms have uncertain identities that may be clarified after more thorough study of samples from the outer shelf-upper slope environment.

SUPERFAMILY ALPHEOIDEA

Family Alpheidae

Alpheus cf. *amblyonyx* Chace 1972. Three lots of specimens key out to *A. amblyonyx* (see Chace 1972), but they differ in several respects from it.

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TABLE 1.—Records of decapod crustaceans from submarine canyons, outer listed from north to south, successive visits are arranged chronologically, and in footnote. * = Bathymetric or geographic range extension.

Locality	Depth (m)	Cruise/station	Date
----- Lamont-Doherty -----			
Lydonia Canyon			
40°21'N, 67°41'W	700-790	Gyre	8 June 1982
40°22'N, 67°41'W	462	Alvin 1269	18 Sept. 1982
40°21.69'N, 67°39.97'W	906	Alvin 1270	19 Sept. 1982
Oceanographer Canyon			
40°23.7'N, 68°07.8'W	415-680	Eastward 35982	15 May 1979
40°16.3'N, 68°07.2'W	660-1,424	Eastward 35991	19 May 1979
Slope Area III between Hydrographer and Veatch Canyons			
39°50'N, 69°25'W	500-2,000	Endeavor	21 Oct. 1981
Slope Area II between Toms and Meys Canyons			
39°13.05'N, 72°30.93'W	174	JSL I 1081	1 Aug. 1981
39°12.64'N, 72°30.87'W	200	JSL I 1081	1 Aug. 1981
39°11.06'N, 72°33.66'W	219	JSL I 1082	1 Aug. 1981
Hendrickson Canyon			
39°03.52'N, 72°28.45'W	1,420-1,425	Alvin 1118	19 July 1981
Baltimore Canyon			
38°09.6'N, 73°49.2'W	155-160	Eastward 35940	2 May 1979
38°07.9'N, 73°48.8'W	185-190	Eastward 35938	2 May 1979
38°08.5'N, 73°49.9'W	280-570	Eastward 35944	2 May 1979
38°09.6'N, 73°49.2'W	155-160	Eastward 35940	2 May 1979
38°08.7'N, 73°49.3'W	148-174	Eastward 35939	2 May 1979
38°11.7'N, 73°52.8'W	150-245	Eastward 35942	2 May 1979
38°03.6'N, 73°46.2'W	910-925	Eastward 35946	3 May 1979
38°07.6'N, 73°46.8'W	152-163	Eastward 35947	3 May 1979
38°06'N, 73°50'W	200-800	Eastward 35979	7 May 1979
38°04.93'N, 73°47.79'W	1,024	Alvin 1109	11 July 1979
38°08'N, 73°50.7'W	600-700	B10-1	28 May 1981
34°04'N, 73°46'W	1,000-1,200	Cape Henlopen CM02	13 June 1981
38°09'N, 73°51'W	171-381	JSL I 1083	2 Aug. 1981
38°09.99'N, 73°51.86'W	381	JSL I 1083	2 Aug. 1981
38°11'N, 73°51'W	165	JSL I 1088	4 Aug. 1981
38°11'N, 73°51'W	165-244	JSL I 1088	4 Aug. 1981
38°10.1'N, 73°52.2'W	225	JSL I 1084	4 Aug. 1981

continental shelf and upper slope off the eastern United States. Named localities are species inventoried in each collection are listed alphabetically. Family abbreviations

Species	N, Sex	Notes, family ¹
----- Lamont-Doherty -----		
<i>Munida valida</i> Smith	1♂	Dredge, Ga
<i>Pagurus politus</i> (Smith)	1♂	Pag
* <i>Munidopsis</i> cf. <i>transtridens</i> Pequegnat and Pequegnat	1♂	Ga
<i>Pandalus propinquus</i> G. O. Sars	1♀	Pan
<i>Panadulus propinquus</i>	1♂, 3♀	Day dredge, Pan
<i>Metacrangon jacqueti agassizii</i> (Smith)	1♂	Dredge, Cr
<i>Nematocarcinus ensifer</i> (Smith)	1 spec.	Camera, N
<i>Euprognatha rastellifera</i> Stimpson	1♀ ovig.	M
* <i>Euchirograpsus americanus</i>	1♀	Gr
<i>Eumunida picta</i> Smith	1♀	Ch
<i>Munida iris iris</i> A. Milne Edwards	1♂ (parasitized)	Ga
* <i>Munidopsis</i> cf. <i>transtridens</i>	1♂	Ga
<i>Cancer borealis</i> Stimpson	1 juv.	Can
* <i>Euchirograpsus americanus</i> A. Milne Edwards	1♂, 3♀	Gr
<i>Euprognatha rastellifera</i>	1♂	Day dredge, M
<i>Cancer borealis</i>	1♀	Day dredge, Ca
<i>Euprognatha rastellifera</i>	1♂	Day dredge, M
* <i>Munida longipes</i> A. Milne Edwards	1♂, 2♀ ovig.	Day dredge, Ga
<i>Pagurus politus</i> (Smith)	1♀	Day dredge, Pa
* <i>Chacellus filiformis</i> Guinot	1♂	Day dredge, Go
<i>Euprognatha rastellifera</i>	1♂	Day dredge, M
<i>Munida iris iris</i>	3♂, 3♀	Day dredge, Ga
<i>Plesionika edwardsii</i> (Brandt)	1♀ ovig.	Day dredge, Pan
<i>Cancer borealis</i>	2 juv.	Day dredge, Ca
<i>Cancer irroratus</i> Say	1♂	Day dredge, Ca
<i>Euprognatha rastellifera</i>	1♂	Day dredge, M
<i>Cancer borealis</i>	1♂	Day dredge, Ca
<i>Sergestes arcticus</i>	1♀	Day dredge, S
<i>Collodes robustus</i> Smith	1♀ ovig.	Day dredge, M
<i>Eumunida picta</i>	4 juv., 1♂, 5♀	Camera sled, Ch
<i>Lebbeus polaris</i> (Sabine)	1♀	Camera sled, H
* <i>Munidopsis</i> cf. <i>transtridens</i>	1♂	Airplane wreck, Ga
<i>Sergestes arcticus</i> Krøyer, euphausiid and copepods	9♀	Bongo net, S
<i>Sergestes arcticus</i>	1♀	Bongo net, S
<i>Bathynectes longispina</i> Stimpson	1♂	Po
* <i>Lithodes maja</i> (Linnaeus)	1♀	L
<i>Cancer irroratus</i>	1♂	Ca
<i>Munida iris iris</i>	1♂	Ga
<i>Munida iris iris</i>	1♂	Ga
<i>Pagurus politus</i>	1♂	Pag

TABLE 1.—Continued.

Locality	Depth (m)	Cruise/ station	Date
38°09.51'N, 73°51.25'W	338	JSL I 1089	5 Aug. 1981
38°11'N, 73°51'W	402	JSL I 1090	5 Aug. 1981
38°02'N, 73°45'W	200-1,400	Gyre	26 May 1982
Norfolk Canyon			
37°03'N, 74°37'W	215	JSL I 1093	7 Aug. 1981
----- Rutgers -----			
Lydonia Canyon			
40°27.25'N, 67°42.30'W	160-178	JSL I 1070	23 July 1981
Veatch Canyon			
40°03'20"N, 69°45'23"W	124-126	JSL I 1074	25 July 1981
40°03'00"N, 69°45'25"W	123-128	JSL I 1075	26 July 1981
39°59'51"N, 69°35'00"W	213-244	JSL I 1076	26 July 1981
40°00.91'N, 70°50.79'W	243-304	JSL II 901	29 July 1984
40°01.29'N, 70°50.63'W			
40°03.24'N, 71°05.01'W	193-209	JSL II 902	29 July 1984
40°02.96'N, 70°20.84'W	181-195	JSL II 909	2 Aug. 1984
40°12.73'N, 70°19.77'W	103-104	JSL II 910	2 Aug. 1984
40°12.51'N, 70°20.22'W	103-104	JSL II 910	2 Aug. 1984
40°02.79'N, 70°11.95'W	183-337	JSL II 911	3 Aug. 1984
40°03.23'N, 70°12.01'W	213-327	JSL II 912	3 Aug. 1984
Off eastern Florida			
28°43'N, 80°02'W	137	JSL I 1565	1 Oct. 1984
28°42.5'N, 80°02.8'W	98-114	JSL I 1566	2 Oct. 1984
Off western Florida			
27°51.2'N, 84°53.7'W	250-260	JSL I 1673	24 Sept. 1985
27°56.2'N, 84°43.9'W	167-175	JSL I 1676	26 Sept. 1985

¹A, Alpheidae; Cal, Calappidae; Can, Cancridae; Ch, Chirostylidae; Cr, Crangonidae; Ga, M. Majidae; N, Nematocarcinidae; Pag, Paguridae; Pan, Pandalidae; Pi, Pinnotheridae; Po,

Species	N, Sex	Notes, family ¹
<i>Rochinia crassa</i> A. Milne Edwards	1♂	M
<i>Pandalus propinquus</i>	2♀	Pan
<i>Sergestes arcticus</i>	3♂	Camera, S
<i>Bathynectes longispina</i>	1 juv.	Po
----- Rutgers -----		
* <i>Munida forceps</i> A. Milne Edwards	1♂	Bot. t. 11.2°C, Ga
<i>Munida iris iris</i>	1♂, 4♀ ovig.	Bot. t. 11.4°C, Ga
<i>Pagurus politus</i>	1♂	Bot. t. 11.4°C, Pag
<i>Acanthocarpus alexandri</i> Stimpson	2♀	Bot. t. 11.5°C, Ca
* <i>Chacellus filiformis</i>	3♂ (1 juv.) 4♀ (1 juv., 3 ovig.)	Bot. t. 11.2°C, Go Bot. t. 12.2°C, Ga
* <i>Munida forceps</i>	1♂, 1♀ ovig.	Bot. t. 12.2°C, Ga
<i>Munida iris iris</i>	1♂	
* <i>Alpheus cf. amblyonyx</i> Chace	1♂	H
* <i>Alpheus cf. amblyonyx</i>	1 juv.	H
<i>Munida iris iris</i>	1♂	Ga
* <i>Munida forceps</i>	1♂	Ga
*Goneplacid? crab		Go
* <i>Chacellus filiformis</i>	1♂, 1♀	Go
* <i>Munida forceps</i>	2♂	Ga
* <i>Munida forceps</i>	1♂	Ga
<i>Meganyctiphanes norvegica</i> (M. Sars)	1	E
* <i>Munida forceps</i>	1 juv., 1♀ ovig.	Ga
* <i>Chacellus filiformis?</i>	Frag. of chela	Go
<i>Meganyctiphanes novvegica</i>	45	E
<i>Meganyctiphanes novvegica</i>	2	E
<i>Meganyctiphanes novvegica</i>	8	E
<i>Alpheus cf. amblyonyx</i>	2♂, 1♀, 1 juv.	Tilefish burrow, A
<i>Munida forceps</i>	2♀	Tilefish burrow, Ga
Crab (xanthid or goneplacid frags.)	1	Tilefish burrow, Ga
* <i>Alpheus cf. amblyonyx</i>	1♀	Tilefish burrow, Ga 12.1°C, A
<i>Munida forceps</i>	1	Tilefish burrow, Ga
*Near <i>Ligur Sarato</i>	2♂, 1♀	Tilefish burrow, Hi
* <i>Munida forceps</i>	1♂, 2♀ ovig. 1 juv.	Tilefish burrow, Ga
* <i>Dissodactylus juvenilis</i> Bouvier	1♀ ovig.	With <i>Clypeaster</i> <i>ravenellii</i> A. Agassiz, 13.8°C, Pi

Galatheiidae: Go, Goneplacidae; Gr, Grapsidae; E, Euphausiidae; H, Hippolytidae; L, Lithodidae; Portunidae; S, Sergestidae.

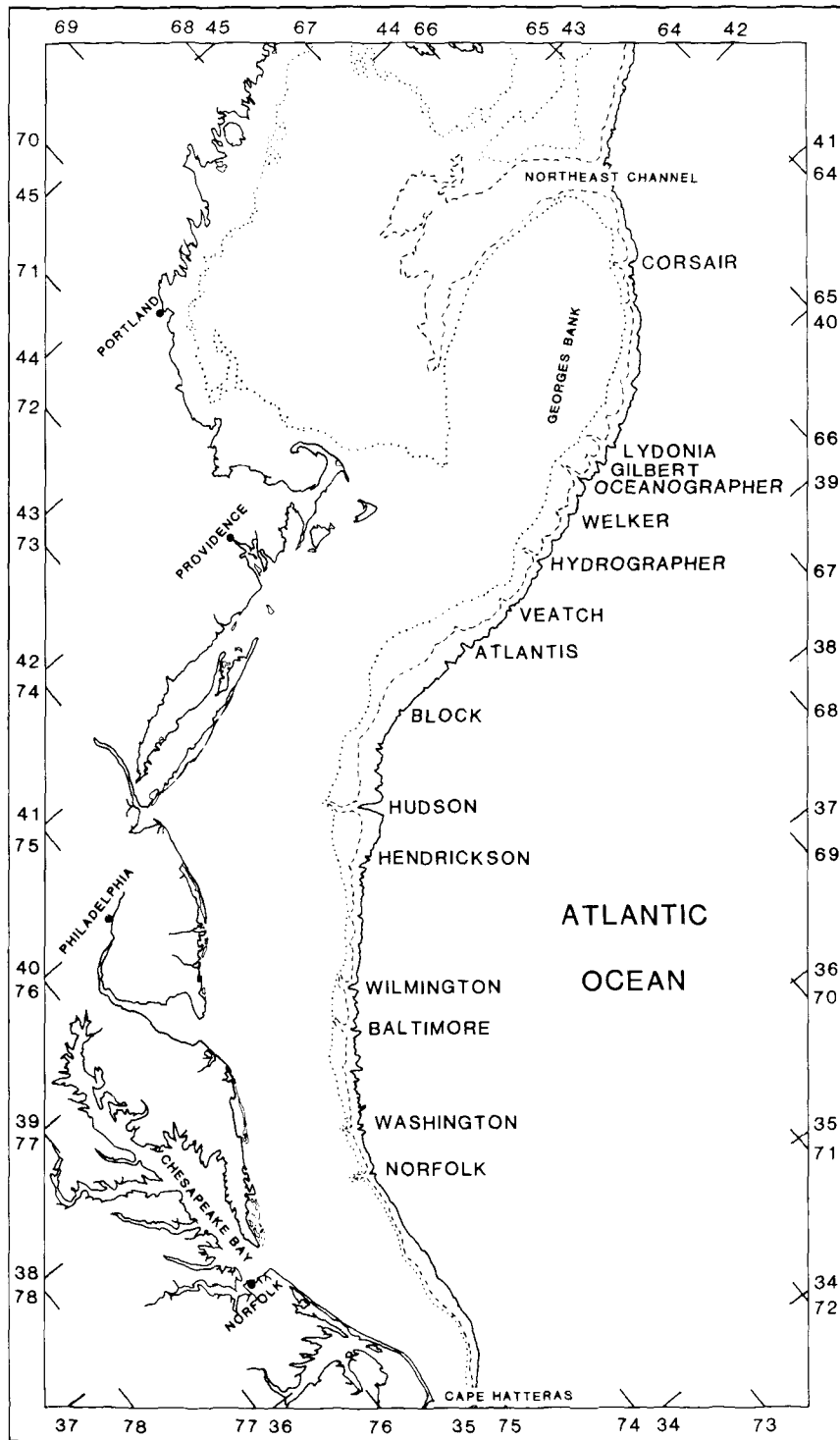


FIGURE 1.—East coast of United States showing continental shelf, slope and submarine canyon areas from which species listed in Table 1 were collected. Base map adapted from Uchupi (1965) and Veatch and Smith (1939). Contours in m: dotted = 100, dashed = 200, solid = 1,000.

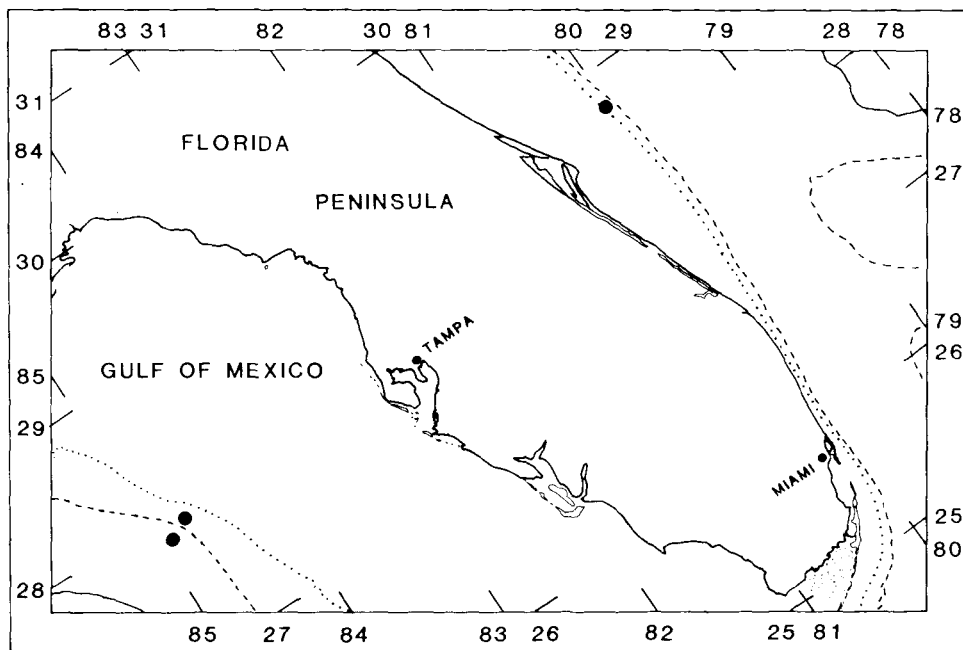


FIGURE 2.—Florida peninsula including continental platform showing slope localities from which species listed in Table 1 were collected. Base map adapted from Uchupi (1965). Contours in m: dotted = 100, dashed = 200, solid = 1,000.

Some of the more obvious differences for the Veatch Canyon material are: Rostrum relatively shorter in relation to basal antennal article. Dorsal spines of telson more distally positioned, anterior pair at about midlength of telson but subject to some variation. Antennal scale with distal spine exceeding antennular peduncle. Major chela of mature male missing, but juvenile with fingers bent mesad; dactyl moderately arched in profile and greatly overreaching fixed finger, somewhat twisted, compressed proximally and dorsally producing thin dorsal margin, external surface somewhat concave, occlusive surface lacking plunger but broadened and strongly calcified distally, fitted to obliquely flattened occlusive surface of fixed finger lacking socket but provided with small stout tooth on mesial surface; palm with obsolescent dorsal and ventral notches.

In the Florida material, the differences are: Chela relatively stout, fingers stout and thick, dactyl opening and closing in oblique plane, tip rounded, bearing short plunger fitting into shallow socket on occlusive surface of fixed finger, latter with 2 short spines on mesial surface; palm with shallow notch on dorsal margin and slight

offset on ventral margin, outer surface smooth but base of dactyl flanked by distodorsal groove and longer mesial groove. Second pleopod of male with appendix masculina exceeding appendix interna. Uropodal exopod with lateral margin ending in single sharp tooth and rather long, uncolored movable spine; endopod lacking distal spines but bearing subterminal tuft of setae on dorsal surface.

Alpheus amblyonyx is distributed from Quintana Roo (type locality, Bahía de la Ascensión), Yucatan Peninsula, Mexico, to Puerto Rico, Saint Thomas and Dominica; sublittoral (Chace 1972).

Family Hippolytidae

Three small shrimps, two males and one female from JSL 1673 in the Gulf of Mexico off Florida, represent an undescribed species resembling members of the genus *Ligur* Sarato, 1885 from the western Mediterranean and Indo-Pacific region (see Holthuis 1947, 1955). The specimens were associated with burrow systems of the blue-line tilefish, *Caulolatilus microps* Goode and Bean.

SUPERFAMILY PAGUROIDEA

Family Lithodidae

Lithodes maja (Linnaeus 1758). Southern limit extended from Sandy Hook, NJ (see Williams 1984) to Baltimore Canyon.

SUPERFAMILY GALATHEOIDEA

Family Galatheidae

Munida forceps A. Milne Edwards 1880. Geographic range extended from south of Norfolk Canyon, 36°43.2'N, 74°38.0'W, 252 m (Wenner 1952), to Veatch and Lydonia Canyons off southern New England, 103-337 m.

The distinctive color pattern of this species was described on 14 October 1981 from specimens preserved in formalin 25 July 1981. Carapace (Fig. 3), salmon color with lavender submesial spots on gastric region and interrupted U-shaped bands of same color in nested series on mesogastric region, posterior to cephalic groove, and arching across posterior and posterolateral parts. Oblique red lines on lateral wall of carapace below suture, most prominent band along anterior edge, continued dorsally anterior to antennal peduncle and ending on lateral side of supraocular spine. Median band of same intensity on epistome and labium. Paler oblique lateral band on basal antennular article. Some flecks of red on merus of chelipeds and cross banding on fingers of some individuals.

Munida longipes A. Milne Edwards 1880. Northern limit extended from off Cape Lookout, NC (Williams 1984) to Baltimore Canyon.

Munidopsis cf. *transtridens* Pequegnat and Pequegnat 1971. *Munidopsis transtridens* is known only from the holotype female taken in the southeastern Gulf of Mexico at 1,280 m. The specimens reported here from Baltimore, Hendrickson, and Lydonia Canyons off New Jersey and southern New England, 906-1,425 m, are all males. They resemble *M. transtridens* but differ from it in rostral characters (both longer and shorter, variably narrower or broader, in degree of lateral convexity) and in having chelae strikingly larger than the slender ones of the holotype. Although these differences may be attributable to sexual dimorphism, provisional identification seems best until more material is available for study.

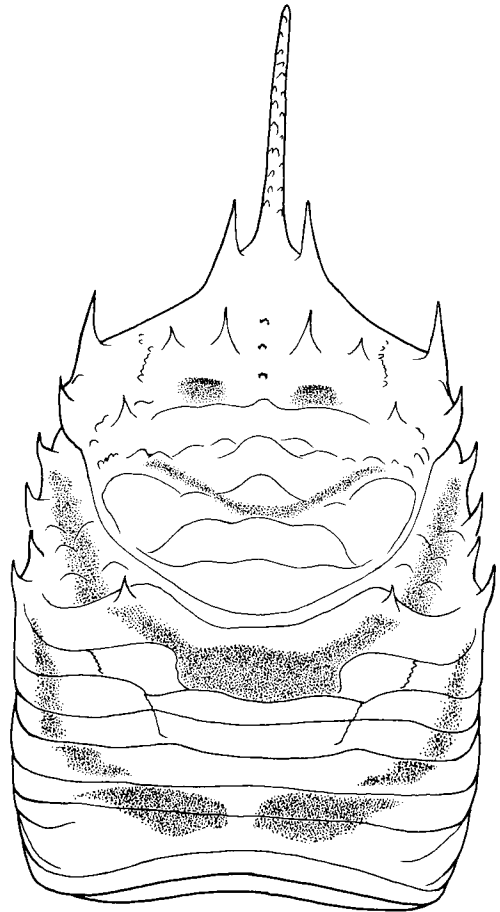


FIGURE 3.—*Munida forceps*, male. Dorsal view of carapace, diagrammatic representation of lavender bands on salmon ground color, carapace length 17.7 mm to base of supraocular spine.

SUPERFAMILY XANTHOIDEA

Family Goneplacidae

Chacellus filiformis Guinot 1969. Geographic range extended from the northern Gulf of Mexico east of the Mississippi River Delta and off the east coast of Florida, 328-400 m (Guinot 1969), to Baltimore and Lydonia Canyons, 160-244 m.

Goneplacid crabs were driven out of secondary burrows in walls of larger burrows constructed by tilefish, *Lopholatilus chamaeleonticeps* Goode and Bean, with rotenone. The poison did not kill the crabs but caused them to emerge from the burrow systems enough that they could be collected by

"slurp gun". These burrow systems in Pleistocene clay, referred to by Warne et al. (1978) and Cooper and Uzmann (1980) as "Pueblo Villages", shelter a number of invertebrate and vertebrate species (Able et al. 1982; Bowman 1986; Grimes et al. 1980a, 1980b, 1986). Goneplacids are rare in collections made from surface vessels probably because trawls or grabs cannot efficiently sample the burrow systems in which these crabs have been observed. Galatheids from shallower burrows are more open to capture by conventional means (Churchill B. Grimes²).

To the brief color description quoted from Chace by Guinot (1969), the following can be added from notes made 14 October 1981 on mature males, females, and juveniles that were preserved in formalin 25 July 1981, and personal communication from Churchill Grimes (fn. 2). Carapace dorsally spotted with red on off-white background. Same type of spots on pterygostomian, subocular, epistomial, and subbranchial areas, on external maxillipeds, and on merus, carpus, and propodus of chelipeds (dorsally, laterally, and mesially). Spots tending to coalesce along front of carapace and on chelae. Red color more diffuse on dorsal or exposed surfaces of walking legs, becoming more distinct and intense with increasing size. Fingers of chelae black. Dactyls of walking legs white except for darkened tips, but setae pinkish. There is some variation in pattern on individual crabs.

There is variation also in the length of the male first pleopod, both in the USNM series of specimens studied by Guinot (1969) and in the new material reported here. In some specimens of the latter, this appendage exceeds or at least reaches the distal edge of the telson, whereas it is shorter in specimens previously reported from localities further south. In the latter, the third abdominal segment is more angled laterally than in specimens from the north. Thus, there seem to be some differences between the northern and southern populations.

SUPERFAMILY GRAPSIDOIDEA

Family Grapsidae

Euchirograpsus americanus A. Milne Edwards 1880. Geographic range extended north from off

²Churchill B. Grimes, Southeast Fisheries Center Panama City Laboratory, National Marine Fisheries Service, NOAA, 3500 Delwood Beach Road, Panama City, FL 32407-7499, pers. commun. February 1982.

Oregon Inlet, NC (Williams 1984) to Oceanographer Canyon at the edge of Georges Bank and nearby continental slope at 155-200 m.

SUPERFAMILY PINNOTHEROIDEA

Family Pinnotheridae

Dissodactylus juvenilis Bouvier 1917. The ovigerous female from the Gulf of Mexico off western Florida, though similar in general features to *D. juvenilis*, is very large for that species. In a recent review of the genus *Dissodactylus*, Griffith (1987) reported *D. juvenilis* from north of Yucatan and the Mississippi Delta. Members of the genus are found in association with clypeastroid echinoids (Schmitt et al. 1973), as was this specimen in a sample that included *Clypeaster ravenelii* A. Agassizi.

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