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TAXONOMIC GUIDE TO THE POLYCHAETES OF THE NORTHERN GULF OF MEXICO

Volume II

Prepared by

Joan M. Uebelacker and Paul G. Johnson
Editors

Barry A. Vittor
Program Manager

Barry A. Vittor & Associates, Inc.
8100 Cottage Hill Road
Mobile, Alabama 36609

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Richard E. Defenbaugh
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CHAPTER 5

Jerry M. Gathof

FAMILY **APISTOBRANCHIDAE** Mesnil and Caullery, 1898

INTRODUCTION

Apistobranchids are elongate, spioniform polychaetes with an inflated anterior region, usually dorsoventrally flattened, and a cylindrical posterior region. The prostomium is rounded or pointed anteriorly and fused to the buccal segment. Eyes and prostomial appendages are absent. Two prominent nuchal folds extend from the prostomium over the dorsum of setiger 1. One pair of deciduous palps are attached dorsally at the juncture of the prostomium and setiger 1. The first setiger is uniramous; remaining setigers may be uni- or biramous with the notopodia represented only by acicula in the notocirri. The body is divided into three regions. Setigers 1-7 have simple neurosetae in rows, small interramal cirri, and fimbriated subpodal flanges; notopodia occur on some setigers. Setigers 8-11 lack interramal cirri but have small bundles of simple neurosetae, fimbriated subpodal flanges, and may have slender notopodia. The remaining setigers have cylindrical neuropodia with few neurosetae and long slender notopodia with internal acicula. Branchiae are absent but the interramal cirri and notopodia are heavily ciliated and may function in a respiratory capacity. The pygidium has 2-4 anal cirri. The proboscis is eversible and unarmed.

Apistobranchids are closely related to the Spionidae in having grooved tentacular palps and the buccal segment fused to the prostomium, and to the Orbiniidae in having fimbriated postsetal lobes and interramal cirri. One genus and three species were recognized by Fauchald (1977a:22), although Pettibone (1982:22) recognized only two species. The single species described herein may be new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

Species of Apistobranchus were separated by Hartman (1965:144) based on the presence of ventral cirri on setiger 1, the degree of fimbriation of the subpodal lobes on setigers 5 and 6, and the presence of interramal cirri on posterior setigers.

Specimens of this family are often incomplete and easily damaged upon fixation. The setae fracture and splinter easily, which has led to some confusion in earlier works.

BIOLOGICAL NOTES

Apistobranchids feed from loosely constructed burrows which they may leave (Fauchald, 1977a:22). The large, grooved palps indicate a surface deposit-feeding strategy similar to the spionids. Little information has been reported on reproductive behavior in apistobranchids.

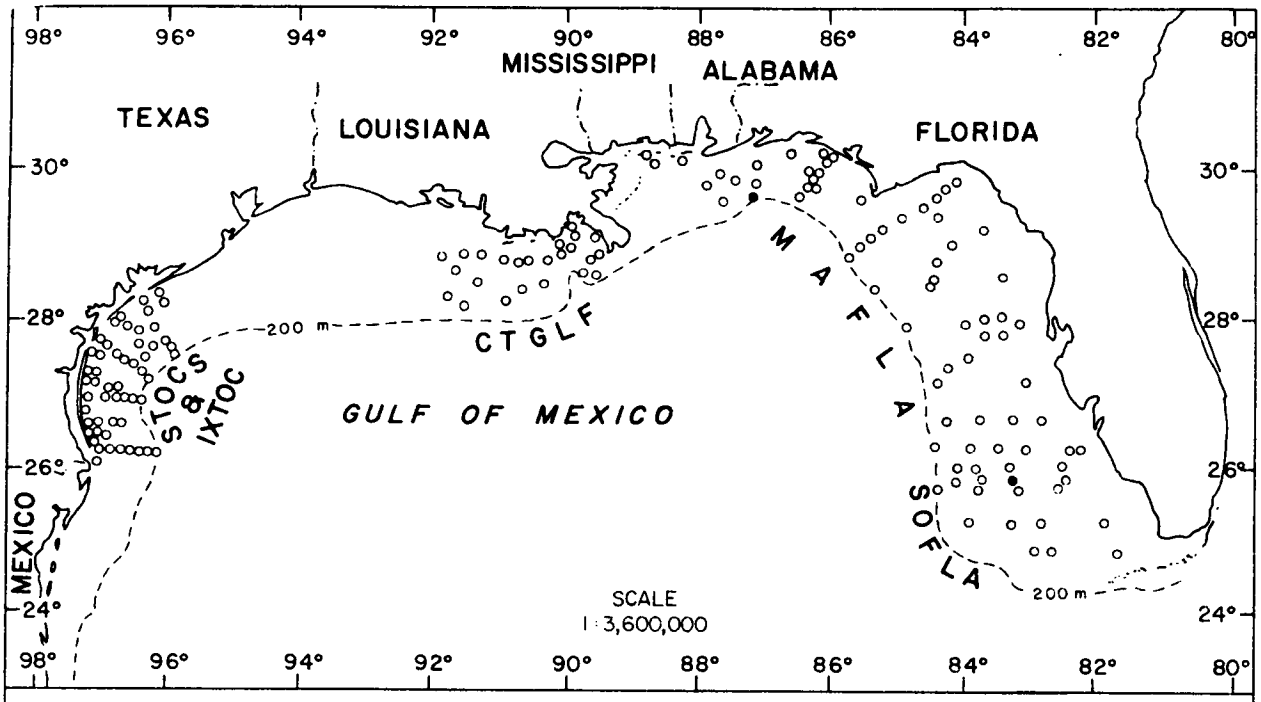

Figure 5-1. Distribution of Apistobranchus sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

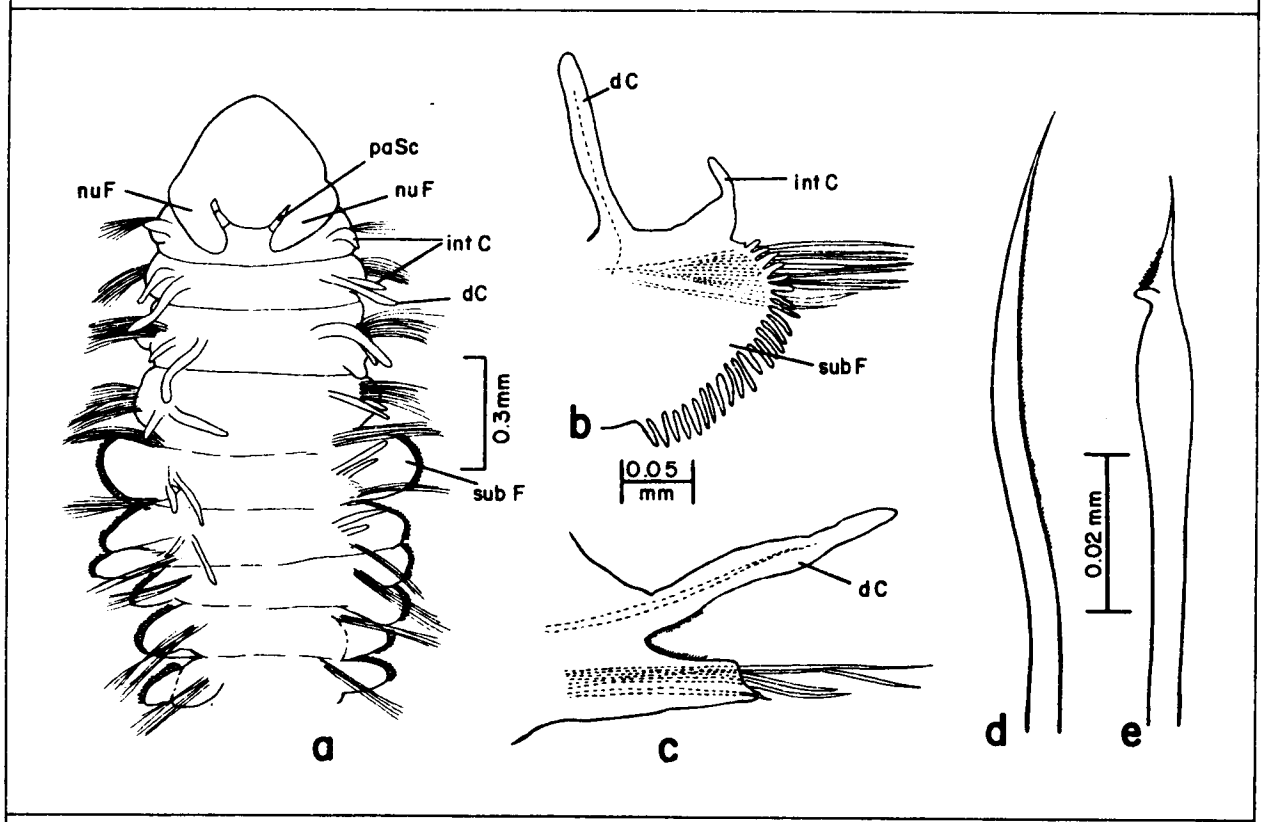

Figure 5-2. Apistobranchus sp. A: a, anterior end, dorsal view; b, parapodium from setiger 6, anterior view; c, same, from setiger 18; d, simple neuroseta; e, neuroaciculum.

Genus Apistobranchus Levinsen, 1883

TYPE SPECIES: Aricia tullbergi Théel, 1879.
REFERENCES:
Pettibone, 1963:295.
Hartman, 1965:143.
Banse, 1972a:218.
Fauchald, 1977a:22.
Hobson and Banse, 1981:34.
DIAGNOSIS: Prostomium rounded or pointed anteriorly, wider posteriorly, with two nuchal folds extending over dorsum of setiger 1. One pair of large, grooved palps present at posterior margin of prostomium. Body divided into anterior, transitional, and posterior regions based on parapodial characteristics. Interramal cirri present from setiger 1. Notopodia present in anterior and posterior body regions. Subpodal fringed lobes present in anterior and transitional regions. Notopodia and neuropodia of posterior region cylindrical. Setae simple, curved, capillary. Pygidium terminal with two anal cirri.

Apistobranchus sp. A
Figures 5-1, 2a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16C-4/81 (1 spec., USNM 89496), 16E-7/81 (3 spec., USNM 89497); MAFLA 2645E-2/78 (2 spec., USNM 89495).
DESCRIPTION:
Length, 6+ mm; width, to 0.8 mm. Body long, broad anteriorly, cylindrical posteriorly; all specimens incomplete with up to 26 setigers. Prostomium pointed anteriorly (Figure 5-2a). Grooved palps (missing from specimens examined) inserted medial to nuchal folds. Setiger 1 with neurosetae and interramal cirri; without ventral cirri and notocirri. Setigers 2-4 with neurosetae, ventral cirri, interramal cirri, and notocirri having slender internal acicula. Setigers 5 and 6 with dorsal cirri, interramal cirri, neurosetae, ventral cirri, and subpodal fimbriated flanges (Figure 5-2b). Setigers 7-10 with neurosetae and subpodal fimbriated flanges; interramal cirri and notosetae absent. Remaining setigers with cylindrical neuropodia containing few setae, and long dorsal cirri extending to setal tips posteriorly (Figure 5-2c); ventral cirri and ventral papillae absent posteriorly. Neurosetae simple, curved, minutely serrate along the concave margin (Figure 5-2d). Neuroacicula with subterminal tooth and pointed tip (Figure 5-2e).
REMARKS: The BLM-OCS specimens of Apistobranchus sp. A were badly damaged and fragmented. They could possibly be A. tullbergi but appear to differ from the latter in lacking ventral cirri on setiger 1, in having subpodal lobes with a long marginal fringe, and in lacking posterior ventral papillae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off western Florida (Figure 5-1); 54-106 m; coarse to fine sand.

CHAPTER 6

Paul G. Johnson

FAMILY SPIONIDAE Grube, 1850

INTRODUCTION

Spionids are a highly diversified group of small- to moderate-sized (0.5 to 100 mm) polychaetes exhibiting little distinction between body regions, except as delineated by changes in the appearance or development of parapodia, branchiae, or setae. The prostomium is distinct and extremely variable in shape, often extending back dorsally across the first two or three segments as a raised ridge or caruncle. One to several pairs of eyes, when present, are variously arranged upon the prostomium. True prostomial tentacles and antennae are totally lacking, but a small occipital cirrus may be present. Underlying and surrounding the prostomium laterally is a U-shaped peristomium which may extend upwards posteriorly to form distinct lateral peristomial "wings." A pair of characteristically grooved, contractile tentacular palps are located on either side of the prostomium at the posterior margin of the peristomium. Nuchal organs in the form of sensory grooves are often present. The eversible pharynx is unarmed and typically sac-like. Branchiae are usually present and vary in number, shape, location, and degree of fusion with the notopodia. Parapodia are biramous, without acicula, and best developed anteriorly. On some segments there may be transverse dorsal crests, or thin membranes forming a series of interramal pouches between successive neuropodia. All spionids possess simple, characteristically limbate setae anteriorly and unidentate to multidentate hooks posteriorly. The latter may be hooded. Specialized spines or sabre setae may also be present on certain segments or body regions. The pygidium is highly variable in shape, forming an expanded cushion or cup, or tapering abruptly and possessing a pair of long to short cirriform appendages.

The Spionidae have probably received the most study of all polychaete families, and therefore are one of the best understood taxonomically. Historically, reviews of major taxa have been made by Soderstrom (1920) and Hannerz (1956). Foster (1971) provided the most complete review of Gulf of Mexico spionids. A detailed description of general spionid morphology and taxonomy may be found in Light (1978b), which also provides a series of excellent keys and figures including some of the species found in the Gulf of Mexico. Other works providing additional information on species reported herein include Hartman (1951a), Pettibone (1963), Blake (1971), and Blake and Kudenov (1978).

According to Fauchald (1977a), 28 genera and 275 species are recognized for the family worldwide, whereas Pettibone (1982) recognized 32 genera and 320 species. Twenty-six species, including 16 genera, were reported by Foster (1971) in her detailed study of the spionid fauna of the Gulf of Mexico and Caribbean. She estimated, however, that this figure probably represented less than a third of the number actually present. Twenty-nine species of spionid polychaetes, representing 13 genera, are described from the present study. Of these, 11 are newly recorded from the northern Gulf of Mexico and five species may be new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

Main characters used in the separation of spionid genera are the shape of the prostomium, modification and occurrence of specialized setae on certain setigers, point of origin and segmental arrangement of branchiae when present, and the presence of hooked setae in the notopodia of middle and posterior segments.

Diagnostic characters of species vary widely both between and within genera. Great care must be taken in assigning specific names to damaged or preserved specimens due to the frequent loss of taxonomically important structures, especially the branchiae and posterior segments. No attempt should be made to identify species of certain genera (e.g., Prionospio, Scolelepis, Polydora) based on incomplete material unless the investigator is familiar with the spionid fauna of the area and has previously established consistent, alternative diagnostic characters for separation of these species.

Special microscopic techniques used in the identification of spionids generally follow those described in the Materials and Methods section of this series. Light (1978b) also provided an excellent discussion on this topic.

Body Regions.

These are generally poorly defined except where changes in the setae, shape of the parapodia, and development of the branchiae may be delineated. The degree of fusion of the first setiger to the peristomium often results in the former being overlooked, which will cause a great deal of confusion in establishing accurate segment counts for other diagnostic characters. Pigmentation, especially on the anterior region, may also be a good character in some species, even in preserved material.

Prostomium.

The prostomium is well-developed and often elongated anteriorly and posteriorly to form a prominent ridge overlying the peristomium and often extending back through the first two or three segments as a raised caruncle. Shape of the prostomium is extremely variable but may be used as a generic or specific character in some groups. In Boccardia, Polydora, and Carazziella, for example, it may vary from entire to weakly or strongly incised anteriorly (Figures 6-10a, 12a, 20a), while the genera Dispio (Figure 6-24a) and Scolelepis (Figure 6-26a) possess a characteristically pointed prostomium. The genus Spiophanes exhibits the widest variation in prostomial shape, from anteriorly rounded in S. wigleyi (Figure 6-4a) to bell-shaped in S. missionensis (Figure 6-8a). In S. bombyx (Figure 6-2a) the prostomium possesses lateral projections called "frontal horns," giving the head a characteristic T-shape. In Laonice (Figure 6-58a) it is expanded anteriorly and bears a well-developed, characteristic occipital antenna posteriorly. Eyes are also well-developed and fairly constant in shape and location for this species. In general, however, since the number of eyes and their location are quite variable even within a given species and tend to fade with age, they should not be relied upon as a diagnostic character.

Peristomium.

In spionids the peristomium wraps around the prostomium laterally. Posteriorly it may be expanded upwards on either side of the prostomium

to form prominent peristomial "wings." The proboscis is eversible, unarmed, and usually sac-like. In most cases the proboscis is of little taxonomic value, but in Paraprionospio pinnata (Figure 6-36f) its distinctly bilobed shape is diagnostic. All spionids possess a pair of extensile, often coiled, grooved tentacular palps located on either side of the prostomium (Figure 6-18a). The palps are deciduous and usually missing in preserved material and thus of little taxonomic use. Variously developed dorsal sensory or nuchal organs may be found in most genera. They are usually present as parallel (Figure 6-2a) or U-shaped (Figure 6-54a) grooves or depressions extending posteriorly from the prostomium through a variable number of segments, as in some species of Spiophanes. In other species these structures may be present as intersegmental bands or as patches on either side of the prostomium.

Branchiae.

The segmental arrangement and shape of the branchiae is of primary importance in identifications. Branchiae may be completely lacking (e.g., Spiophanes) or restricted to a few anterior setigers (e.g., Apoprionospio, Prionospio, and Paraprionospio). In Pygospio, Polydora, Boccardia and Pseudopolydora, the branchiae are found only posterior to certain segments, whereas in Laonice and Aonides, the branchiae are found over a number of anterior and median segments but are absent posteriorly. The branchiae may vary in shape from strap-like (Figure 6-14a), cirriform or filiform (Figure 6-46a), to pinnate (Figure 6-36a), or a combination thereof for certain species (Figure 6-38a). The point of origin and degree of fusion of the branchiae with the notopodial lamellae is also of taxonomic importance, especially at the generic level. In addition, digitate accessory branchiae may be present on the posterior surfaces of certain notopodia, as in Dispio (Figure 6-24c). The branchiae tend to be deciduous, often necessitating closer examination for other less obvious characters.

Parapodia.

The parapodia are typically biramous throughout. Acicula are absent. The notopodia of setiger 1 may be reduced or entirely absent depending on the degree of fusion with the peristomium. Anterior notopodial structures, especially the postsetal lamellae, are typically well-developed and may be partially united with the branchiae. On middle to posterior setigers these structures are usually small, but in some species they may form prominent transverse dorsal membranes (Figures 6-38a, 40a), interconnecting the notopodial lamellae. Neuropodia are usually small and pad-like, and are of little importance taxonomically, but in certain species the postsetal lamellae may be expanded and prolonged on a few anterior segments. In some species of Spiophanes and Laonice (Figure 6-58c), a thin membrane connects successive neuropodia, forming a series of genital pouches on certain segments.

Setae.

All spionids possess simple limbate or capillary setae in both rami of the anterior segments and throughout the notopodia of middle and posterior segments. Hooked setae are always present in the neuropodia of middle and posterior segments and may be present in the notopodia in some genera. The setiger of origin, presence of a hood, and number and arrangement of apical teeth are generally consistent and are important taxonomic characters at both the generic and specific levels. Also of

importance is the occurrence of specialized setae, often found restricted to certain segments. These vary in shape and position from the stout recurved neuropodial spines of setiger 1 in Spiophanes (Figure 6-2a,b, e), to the highly modified major spines of setiger 4 or 5 in Polydora and related genera (Figures 6-14c-e; 18a,b,d; 20d). Often accompanying these modified spines are companion setae, which are typically lanceolate (Figure 6-20d) or brush-tipped (i.e., penicillate; Figure 6-14b). Although sometimes difficult to find, these setae are of specific importance in some genera. Other specialized setal forms occurring in Polydora and related genera include stout, modified boathook setae, or clusters of needle-like spines restricted to the notopodia of posterior segments. Another form of specialized seta is the stout, curved sabre seta (Figures 6-4g, 38d, 40b, 52c) found in the neuropodia of certain middle and posterior segments in a variety of genera (e.g., Malacoceros, Prionospio, Streblospio, and Spiophanes). The segment on which they originate is often of specific importance.

Pygidium.

The pygidium exhibits a variety of forms in spionids and may be of value in the determination of species. It may be small, or developed into terminal lobes (Figure 6-18f), or expanded into a cup-like structure, notched dorsally, with or without lateral lappets. In many species the pygidium simply tapers posteriorly into one or more anal cirri (Figures 6-40c, 48e). The anal opening may be dorsal, ventral, or terminal in position.

BIOLOGICAL NOTES

Spionids are one of the most diversified and commonly found families of polychaetes in the shallow waters of the Gulf of Mexico, but are also well-represented in deeper waters. The family is worldwide in distribution, and many species are cosmopolitan. In soft-bottom habitats they are often the most abundant as well, with one or two species dominating the benthic infaunal community. Scolelepis, Malacoceros, and Dispio are typically sand dwellers, inhabiting intertidal sand beaches or subtidal sand flats (Day, 1967; Foster, 1971; Fauchald and Jumars, 1979). Paraprionospio, Prionospio and Apoprionospio seem to prefer a muddier substrate. Some species of the genus Polydora are especially adapted for boring into hard substrates of shell or dead coral, using the heavy spines of their modified fifth setiger for this purpose (Hartman, 1941a; Day, 1967). Polydora websteri is well-known along the United States Atlantic and Gulf coasts as an "oyster pest" for its habit of drilling into the surface layer of live shells and forming a "mud blister" as a burrow (Foster, 1971:27). Although heavy infestations of these worms may erode and eventually lead to the death of an oyster, they do not feed on the oyster flesh. Mortalities attributed to Polydora infestations are therefore probably few and restricted to older individuals.

Typically, spionids are suspension and/or deposit feeders inhabiting permanent or temporary mucus-lined burrows or tubes. They feed by extending their long peristomial palps out over the sediment surface in search of food. Detrital and sediment particles picked up on the palps are transported and sorted along a ciliated groove to the mouth. The degree of selectivity in particle size, density, or content may allow a

number of sympatric species to co-exist, possibly allowing for the high diversity of spionids in some shallow soft-bottom environs. Certain species of Polydora, inhabiting hard substrates above the sediment surface, have been observed to use their peristomial palps in a whipping motion to catch plankton and suspended detrital particles (Fauchald and Jumars, 1979).

Sexes are separate and sometimes morphologically distinguishable, as in Pygospio. Most spionids lay large eggs usually enclosed in a tough egg-capsule or within a protective jelly-like egg mass attached to the substrate. When eggs are released directly into the water column, planktonic development may be wholly or partially planktotrophic, or entirely lecithotrophic, in which case the larvae do not ingest any food, but rather are nourished by the yolk in the egg until metamorphosis (Foster, 1971). In other cases the eggs are protected or brooded during development, either attached to the wall of the female's tube (e.g., Polydora) or in specialized brood pouches along the body (e.g., Spiophanes, Laonice and Streblospio) (Day, 1967). Some spionids may reproduce asexually by fragmentation followed by regeneration of fragments into new individuals (Pettibone, 1982).

SPECIES OF SPIONIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

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Key to the Genera of Spionidae from the Gulf of Mexico BLM-OCS Programs

1a. Branchiae absent; setiger 1 with 1-2 large, curved neuropodial spines in addition to capillary setae (Figure 6-2a,b,e). . . . . **Spiophanes**, p. 6-7

1b. Branchiae present; setiger 1 without large neuropodial spines. . 2

2a. Setiger 5 modified (Figure 6-18a,b), with specialized setae (Figures 6-12c,d; 14b-e; 20d) 3

2b. Setiger 5 not modified, without specialized setae 7

3a. Branchiae beginning on setiger 2. 4

3b. Branchiae beginning on setigers 6-12. 5

4a. Major spines of setiger 5 of one kind, simple, falcate (Figure 6-10d); with smaller companion setae (Figure 6-10e). . . . . .**Boccardiella**, p. 6-17

4b. Major spines of setiger 5 of two kinds, with expanded ends bearing cusps or bristles (Figure 6-12c), and simple, falcate spines (Figure 6-12d); companion setae absent. . . . . **Boccardia**, p. 6-19

5a. Setiger 5 slightly to moderately modified; major spines of two kinds, simple and acicular or falcate and pennoned; both kinds usually arranged in V- or J-shaped row; hooded hooks with secondary tooth closely applied to main fang . . . . . **Pseudopolydora***

5b. Setiger 5 greatly modified, with major spines of one or two kinds in a curved row, not J- or V-shaped; hooded hooks with prominent angle between teeth. 6

6a. Spines of setiger 5 of one kind, variously shaped (Figures 6-14c,d; 18d; 22c); companion setae present or absent. . . . . .**Polydora**, p. 6-20

6b. Spines of setiger 5 of two kinds, simple and falcate, and with expanded ends; one or both kinds usually with bristles. . . . . **Carazziella***

7a. Prostomium distally pointed, conical (Figures 6-24a, 26a, 30a) 8

7b. Prostomium not distally pointed, with distal lateral or frontal horns (Figure 6-34a), broadly rounded (Figures 6-36a, 52a, 58a), or incised on anterior margin. 10

8a. Branchiae beginning on setiger 1; accessory branchiae present (Figure 6-24c). . . . . .**Dispio**, p. 6-32

8b. Branchiae beginning on setiger 2; accessory branchiae absent. . 9

9a. Branchiae fused to dorsal lamellae at least basally (Figures 6-26c, 28b), continuing to end of body. . . . . .**Scolelepis**, p. 6-33

9b. Branchiae completely free from dorsal lamellae (Figures 6-30b, 32b), present on variable number of anterior setigers, absent posteriorly. . . . . .**Aonides**, p. 6-39

10a. Prostomium with lateral or frontal horns (Figure 6-34a). . . . 11

10b. Prostomium without lateral or frontal horns. 12

11a. Branchiae beginning on setiger 1. . . . . **Malacoceros**, p. 6-43
11b. Branchiae beginning on setiger 2. . . . . **Rhynchospio***

12a. Branchiae present on anterior third of body (first 25 setigers), absent posteriorly. 13
12b. Branchiae present over most of body length. 17

13a. Branchiae beginning on setiger 1. 14
13b. Branchiae beginning on setiger 2 (**Prionospio**) 15

14a. Three pairs of pinnate branchiae (Figure 6-36b); with dorsal ridge across setiger 1 (Figure 6-36a). . . . . **Paraprionospio**, p. 6-44
14b. One pair of cirriform branchiae; with dorsal collar across setiger 2. . . . . .**Streblospio***

15a. First pair of branchiae pinnate (Figure 6-38a). . . . . **Prionospio (Prionospio)**, p. 6-47
15b. First pair of branchiae cirriform 16

16a. Four or more pairs of branchiae, all cirriform (Figures 6-44a, 46a, 48a). . . . . .**Prionospio (Minuspio)**, p. 6-53
16b. Four pairs of branchiae, first three pairs cirriform, fourth pair pinnate (Figure 6-50a). . . . .**Prionospio (Apoprionospio)**, p. 6-59

17a. Branchiae beginning on setiger 1 (Figure 6-54a). . . **Spio**, p. 6-63
17b. Branchiae beginning on setiger 2 (Figure 6-56a). 18

18a. Prostomium narrow, entire or incised on anterior margin (Figure 6-56a); branchiae fused basally to notopodial lamellae (Figure 6-56d), at least on anterior segments. . . . . .**Microspio**, p. 6-65
18b. Prostomium broad, bluntly rounded or square on anterior margin (Figure 6-58a); branchiae free from notopodial lamellae (Figure 6-58b). . . . . **Laonice**, p. 6-67

*Genera not recorded in BLM-OCS collections, but previously reported from the Gulf of Mexico.

Genus **Spiophanes** Grube, 1860

TYPE SPECIES: Spiophanes kroeyeri Grube, 1860a.
REFERENCES:
Foster, 1971:40.
Fauchald, 1977a:25.
Blake and Kudenov, 1978:224.
DIAGNOSIS: Prostomium anteriorly broad, rounded or expanded laterally, with or without frontal horns or occipital tentacle. Eyes present or absent. Peristomium variously developed, with or without paired sensory grooves. Branchiae entirely absent. Parapodia more dorsally arranged on setigers 1-4 than on subsequent segments, with well-developed dorsal and ventral lamellae. Interramal thread glands bearing supernumerary bacillary setae generally present in setigers 5-14; neuropodial postsetal lamellae generally small in this region. Interramal pouches and/or dorsal transverse ridges often present posterior to setiger 15. One or two large, stout, recurved spines in neuropodia of setiger 1. All

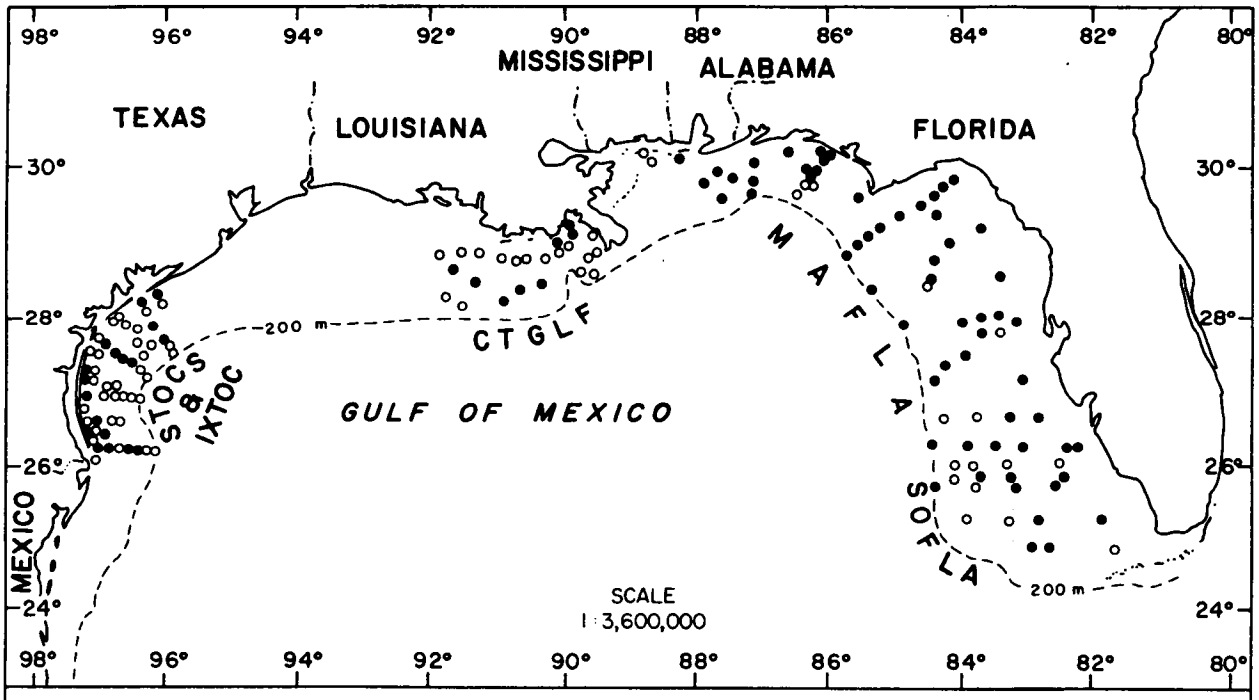

Figure 6-1. Distribution of Spiophanes bombyx on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

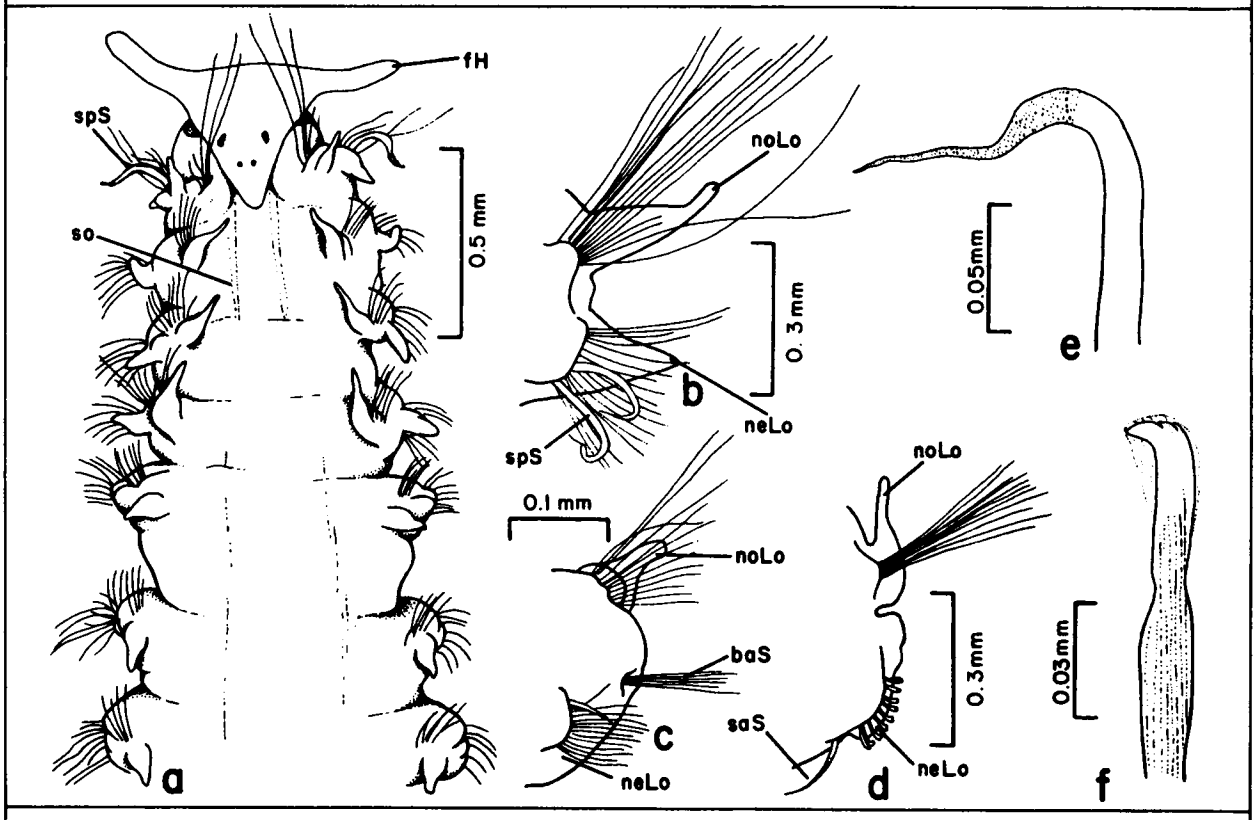

Figure 6-2. Spiophanes bombyx: a, anterior end, dorsal view; b, parapodium from setiger 1; c, same, from setiger 6; d, same, from posterior setiger; e, recurved seta from setiger 1; f, hooded hook, lateral view (Figures b,c,d from Foster 1971, figs. 68, 69, 71).

notosetae capillary. Anterior neurosetae capillary, replaced by hooks about setiger 15. Hooks bi-, tri-, or multidentate, with or without hoods. Ventral neuropodial sabre setae generally occurring on middle and posterior setigers. Pygidium with two or more anal cirri.

Key to the Gulf of Mexico BLM-OCS Species of Spiophanes

1a. Prostomium oval (Figure 6-4a) or bell-shaped (Figures 6-6a, 8a), without prominent lateral projections (frontal horns). 2

1b. Prostomium triangular, with prominent frontal horns (Figure 6-2a) . . . . . .**Spiophanes bombyx**, p. 6-9

2a. Neuropodial hooks hooded (Figure 6-4f), apical tooth entire; prostomium oval, often with middorsal pigment spot (Figure 6-4a). . . . . .**Spiophanes wigleyi**, p. 6-11

2b. Neuropodial hooks not hooded (Figure 6-6f), apical tooth bifid; prostomium bell-shaped, without pigment spot (Figure 6-6a) . . . 3

3a. Eyes absent (Figure 6-6a); stout, recurved ventral setae in neuropodia of setigers 5-9 (Figure 6-6d); capillary neurosetae of some middle and posterior setigers subdistally inflated (Figure 6-6e) . . . . . .**Spiophanes sp. A**, p. 6-13

3b. Eyes present (Figure 6-8a); stout, recurved ventral setae absent; capillary neurosetae of middle and posterior setigers not subdistally inflated . . . . . .**Spiophanes missionensis**, p. 6-15

Spiophanes bombyx (Claparède, 1870b)
Figures 6-1, 2a-f

Spiophanes bombyx--Hartman, 1945:31; 1951a:85; 1969:181.
Spiophanes bombyx--Foster, 1971:40, figs. 66-75.
Spiophanes bombyx--Light, 1978b:60, figs. 60A,B, 61A-I.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16C-8/81 (2 spec., USNM 90643), 28C-8/81 (1 spec., USNM 90642); MAFLA 2422C-7/76 (1 spec.), 2423H-7/76 (1 spec.), 2423J-7/76 (4 spec., USNM 90645), 2423-7/76 (4 spec., USNM 55977), 2424H-7/76 (3 spec.); CTGLF 02-5/78 (4 spec., USNM 90640); STOCS 4/IV-5 W/76 (1 spec., USNM 90644); IXTOC S50-4 11/79 (1 spec., USNM 90641).
DESCRIPTION:
Length, to 10 mm (previously reported to 25 mm, with 73 setigers); width, to 1.5 mm. Body depressed anteriorly, tapering slightly posteriorly; complete specimens with up to 52 setigers. Prostomium triangular with pronounced frontal horns (Figure 6-2a); widest anteriorly, tapering to posterior edge of setiger 1. Two pairs of eyes, anterior pair larger and farther apart. Dorsal sensory grooves parallel, extending back to setiger 3. Occipital antenna absent. Parapodial lamellae of first four setigers (Figure 6-2a,b) longer than on subsequent setigers. Parapodia following setiger 4 glandular, with small, cushion-like neuropodial lamellae and clavate notopodial lamellae (Figure 6-2c). Supernumerary, bacillary setae emerging from interramal openings on setigers 5-14 (Figure 6-2c). Notopodial lamellae of posterior setigers

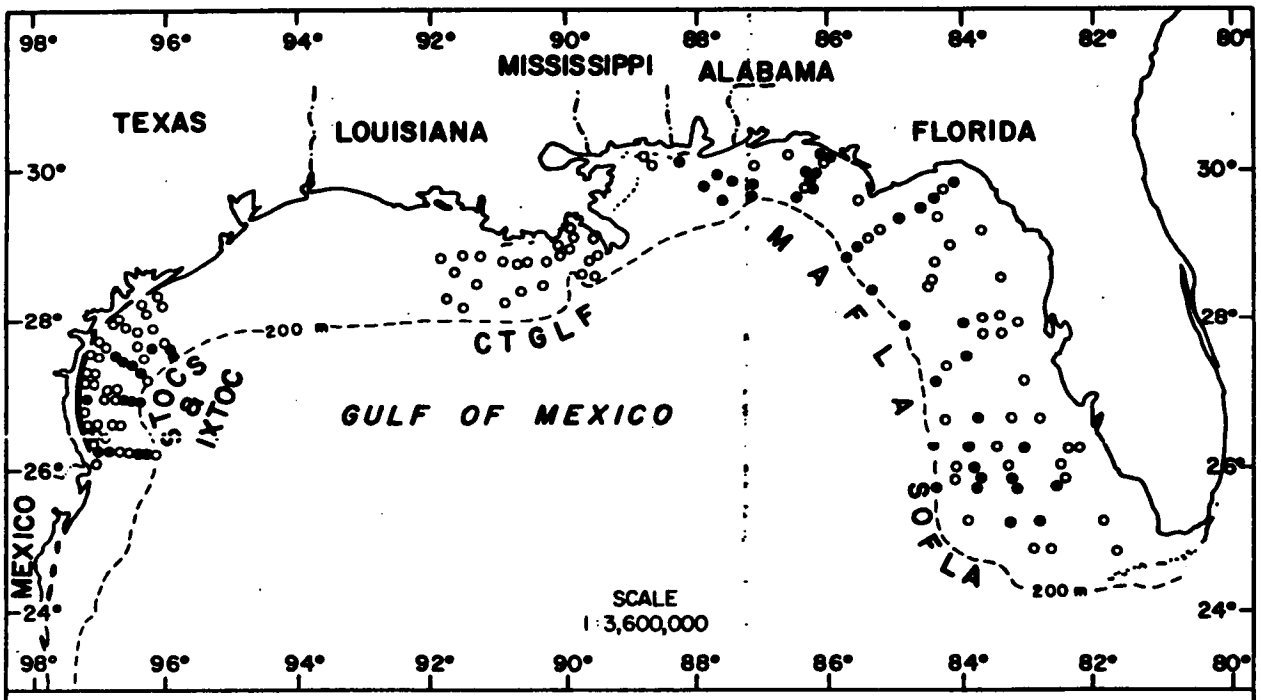

Figure 6-3. Distribution of Spiophanes wigleyi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

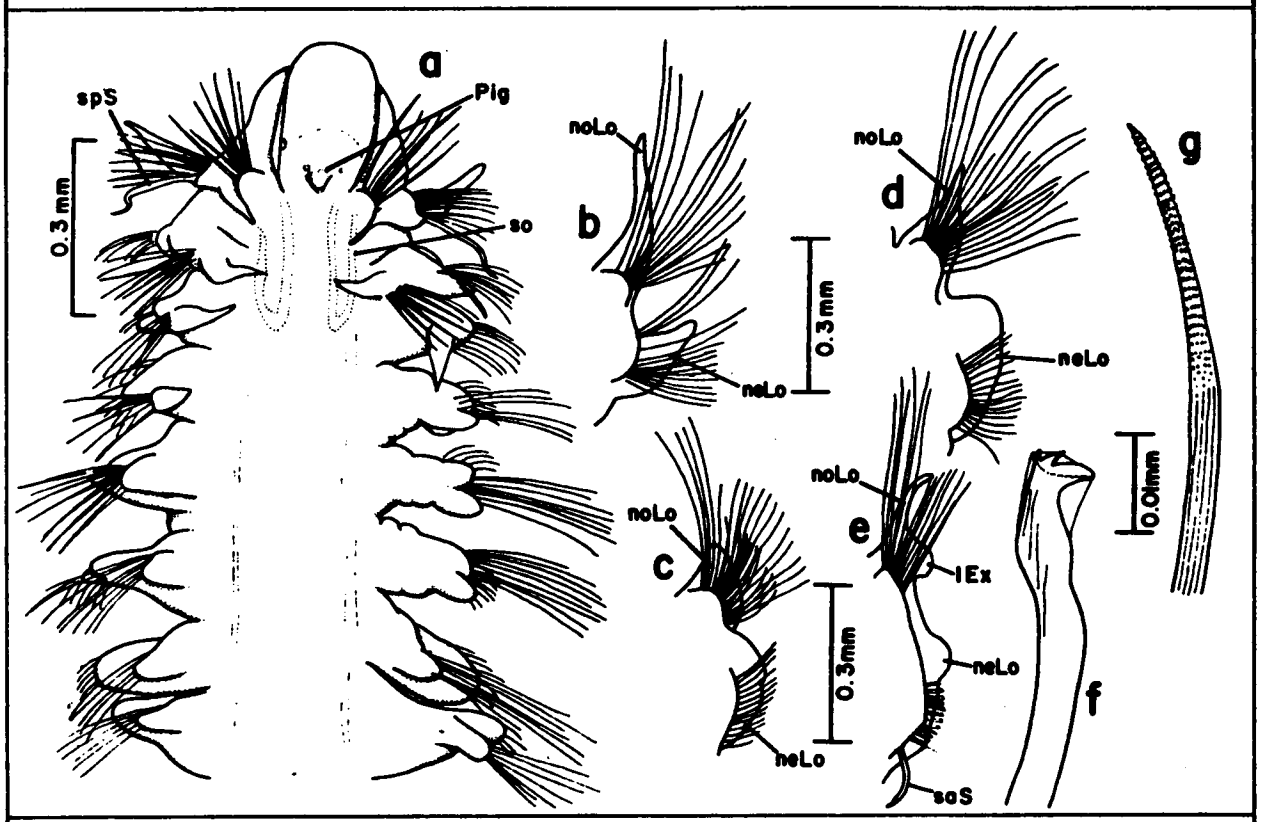

Figure 6-4. Spiophanes wigleyi: a, anterior end, dorsal view; b, parapodium from setiger 2; c, same, from setiger 4; d, same, from setiger 9; e, same, from setiger 18; f, hooded hook; g, sabre seta (Figures b-e from Foster 1971, figs. 77-79, 81).

becoming more attenuated (Figure 6-2d). One or two stout recurved setae (Figure 6-2b,e) present in neuropodia of setiger 1. Capillary setae of setiger 1 longer and more anteriorly directed than on following setigers. Neurosetae of setigers 5-14 bilimbate; stouter and more curved than notosetae. Bi- to tridentate hooded hooks (Figure 6-2f) replacing capillary neurosetae from setiger 15; hood more conspicuous in frontal view. One or two curved sabre setae in inferior position accompanying hooded hooks (Figure 6-2d). Pygidium often pigmented, bearing two forward-directed anal cirri.
REMARKS: The apical tooth of the hooded hook is sometimes difficult to see and is usually absent on posterior setigers.
PREVIOUSLY REPORTED HABITAT: Intertidal to 119 m, reportedly preferring sandy sediments.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread throughout northern Gulf (Figure 6-1); 4.5-189 m; coarse to very fine sand, clayey silty sand to clay and silt.
DISTRIBUTION: Cosmopolitan.

Spiophanes wigleyi Pettibone, 1962
Figures 6-3, 4a-g

Spiophanes wigleyi Pettibone, 1962:83, figs. 5, 6.
Spiophanes wigleyi--Hartman, 1965:147.
Spiophanes wigleyi--Foster, 1971:43, figs. 76-85.
Spiophanes wigleyi--Blake and Kudenov, 1978:224, fig. 26a-c.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5B-8/81 (3 spec., USNM 90647), 12C-11/80 (5 spec., USNM 90646); MAFLA 2211C-11/77 (1 spec., USNM 90648), 2212G-9/77 (1 spec.), 2313J-8/76 (1 spec.), 2533A-6/75 (1 spec.), 2534-6/75 (4 spec., USNM 55978), 2536G-9/77 (1 spec.); STOCS HR1-3 6/76 (3 spec., USNM 90649).
DESCRIPTION:
Length, to 10 mm (previously reported to 10.5 mm, with 40 setigers); width, to 1.4 mm. Complete specimens with up to 60 setigers. Prostomium anteriorly rounded, posteriorly elevated, without frontal horns or occipital antenna (Figure 6-4a). Prominent reddish-brown pigment spot usually present on elevated portion of prostomium, just posterior to eyes; and also on midventrum of setiger 3. Two pairs of eyes; anterior pair crescent-shaped, conspicuous; posterior pair rounded, often subdermal. Dorsal sensory grooves straight to recurved, extending back to setiger 3. First four setigers well-developed; notopodial lamellae basally broad, distally tapered; neuropodial lamellae triangular (Figure 6-4b). Notopodial lamellae of setiger 1 thinner, more acuminate than those of setigers 2-4; those of setigers 4-8 (Figure 6-4c) shorter, thicker, lacking tapered tips. Neuropodial lamellae of setigers 4-8 small, pad-like. Notopodial lamellae of setigers 9-15 similar to those of setiger 4 but distally tapered; neuropodial lamellae more prominent, pad-like (Figure 6-4d). Thread glands with projecting bacillary setae, usually present in setigers 5-14. Lateral expansions on basal portion of notopodial lamellae appearing on setigers 14-18 (Figure 6-4e). Transverse ciliated ridges conspicuous across dorsum after setigers 16-18, often highlighted by reddish-brown pigmented band. Interramal pouches absent. Neuropodial hooded hooks tridentate (Figure 6-4f),

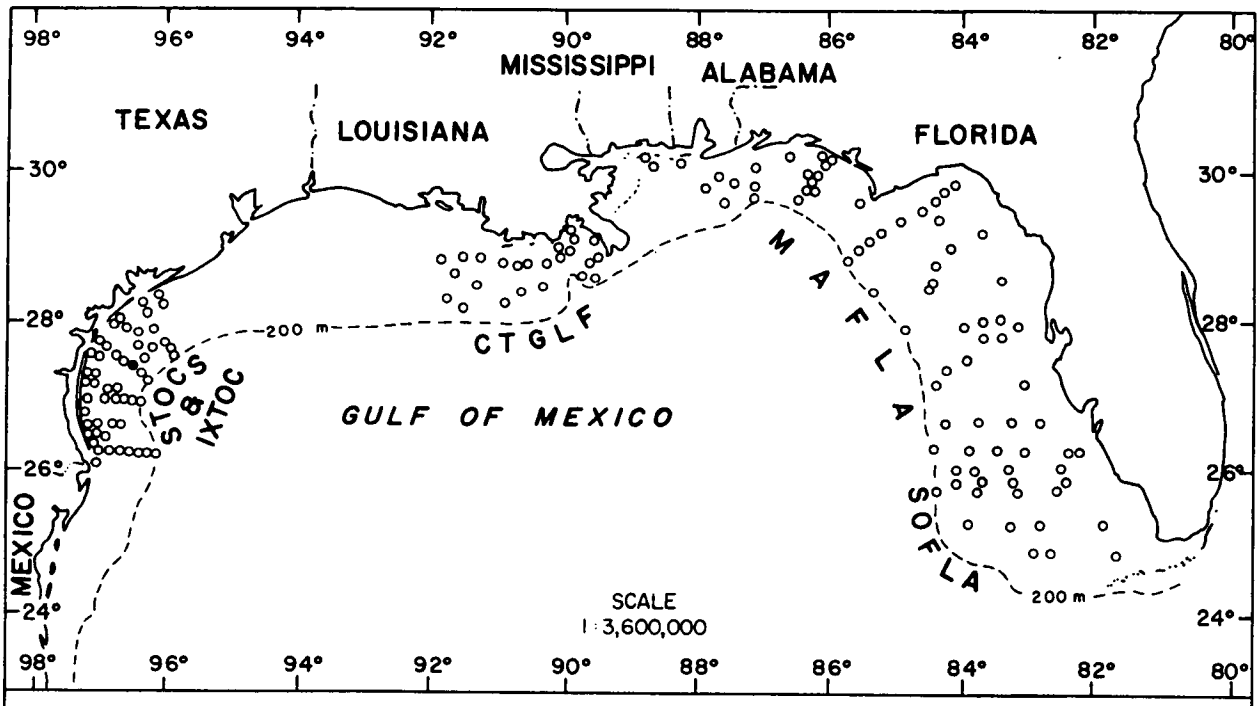

Figure 6-5. Distribution of Spiophanes sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

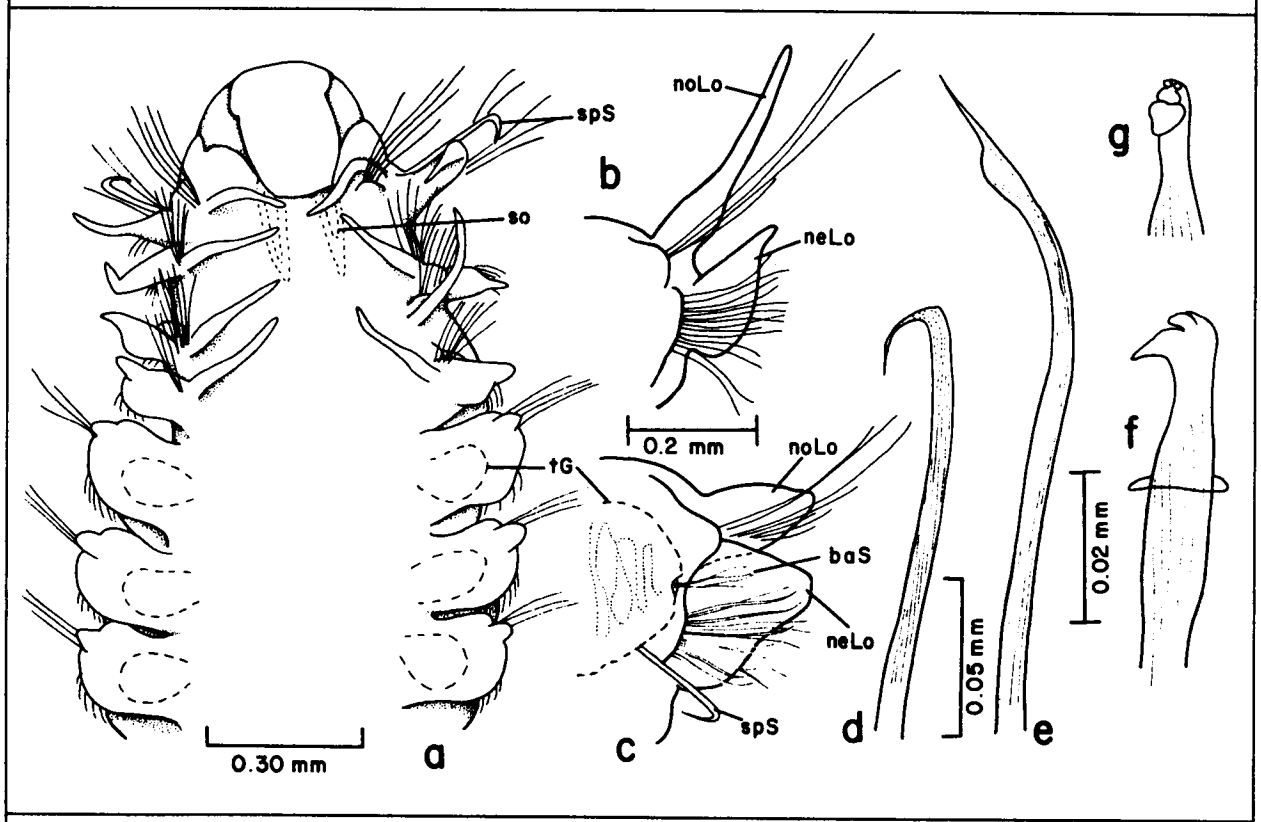

Figure 6-6. Spiophanes sp. A: a, anterior end, dorsal view; b, parapodium from setiger 2; c, same, from setiger 7; d, stout recurved spine from setiger 7; e, neuroseta from setiger 10; f, hooded hook, lateral view; g, same, frontal view.

replacing granulated, uni- to bilimbate capillary setae beginning on setiger 15. Ventral sabre setae large with distal granulations (Figure 6-4g), numbering 1-2 per parapodium from setiger 15. Pygidium with 4-6 anal cirri.
REMARKS: Hooded hooks appear bidentate under low power, but are clearly tridentate when observed under the oil immersion objective.
PREVIOUSLY REPORTED HABITAT: Intertidal to 444 m, fine to coarse sand and gravel; tubes thin and membranous, covered with sand and debris.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 6-3); 10-189 m; coarse to very fine sand, silty fine sand, clayey sand, sandy silt, clayey silt, silty clay.
DISTRIBUTION: Australia, New England to Gulf of Mexico.

Spiophanes sp. A
Figures 6-5, 6a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS 5/II-5 S/76 (1 spec., USNM 90650).
DESCRIPTION:
Length, 4.0+ mm; width, 1.2 mm. Only specimen incomplete with 17 setigers. Prostomium bell-shaped (Figure 6-6a); eyes and occipital antenna absent. Dorsal sensory grooves parallel, inconspicuous, extending to setiger 2. Parapodia of first four setigers crowded, directed forward, with long, cirriform, postsetal notopodial lobes and flattened, triangular neuropodial lamellae (Figure 6-6b). Parapodia of setigers 5-14 more widely spaced, massive, directed laterally with digitiform notopodial lamellae and globular to ovate neuropodial lamellae (Figure 6-6c). Notopodial lamellae becoming more attenuated, and neuropodial lamellae more cushion-shaped and ventrally arranged on posterior setigers. Thread glands with projecting bacillary setae, present in setigers 5-14 (Figure 6-6a,c). Interramal pouches and dorsal transverse ridges absent. Single, stout, recurved spines present in neuropodia of setigers 1 and 5-9 (Figure 6-6a,c,d). Capillary notosetae of setigers 1-4 longer and more anteriorly directed than those of subsequent segments. Neurosetae straight, bilimbate in anterior region, becoming strongly curved on middle setigers; tips gradually swelling subdistally on setigers 8-10 (Figure 6-6e), swelling becoming quite pronounced prior to their replacement by hooks in setiger 15. Hooks lacking hoods; quadridentate (Figure 6-6f), apical tooth bifid (Figure 6-6g); numbering 3-5 per fascicle, accompanied by one or two curved, ventral sabre setae. Pygidium unknown.
REMARKS: Spiophanes sp. A resembles S. wigleyi and S. missionensis in lacking an occipital antenna and frontal horns, but differs from both in the shape of the prostomium and presence of eyes. The occurrence of stout, recurved, spine-like setae in the neuropodia of setigers 5-9 (usually restricted to setiger 1) and the nature of the neuropodial capillary setae of middle setigers distinguishes this specimen from all previously reported species of the genus.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off southern Texas (Figure 6-5); 78 m; clayey silt.

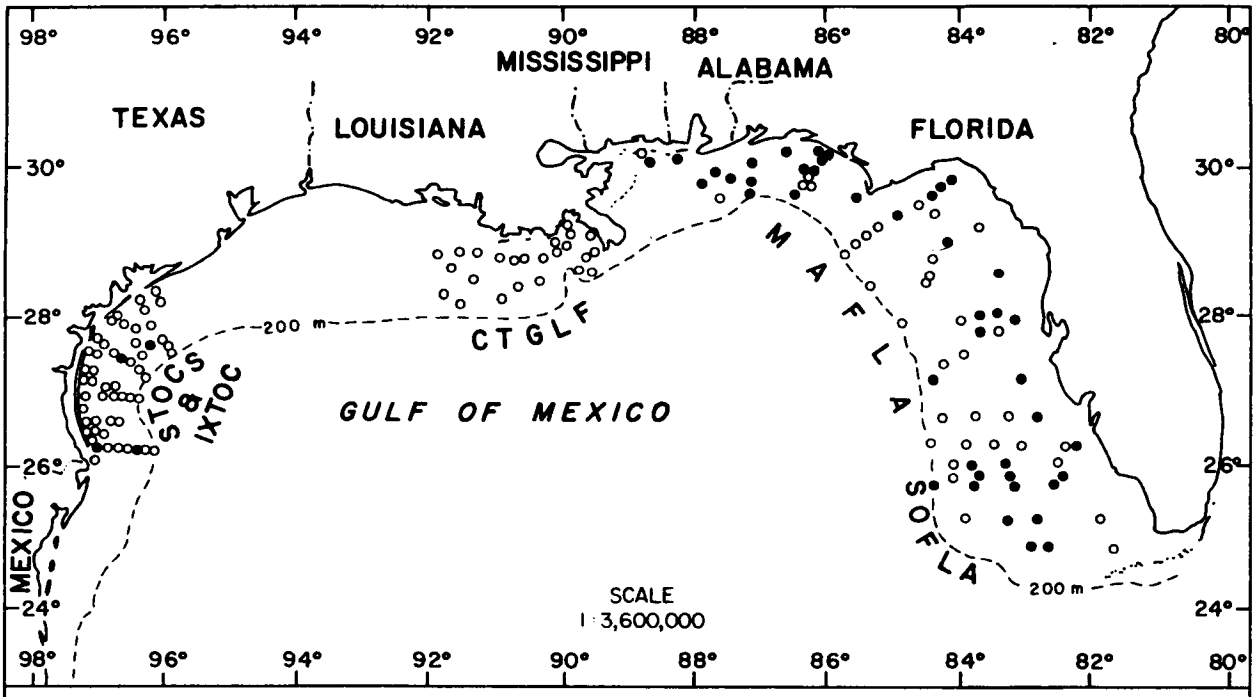

Figure 6-7. Distribution of Spiophanes missionensis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

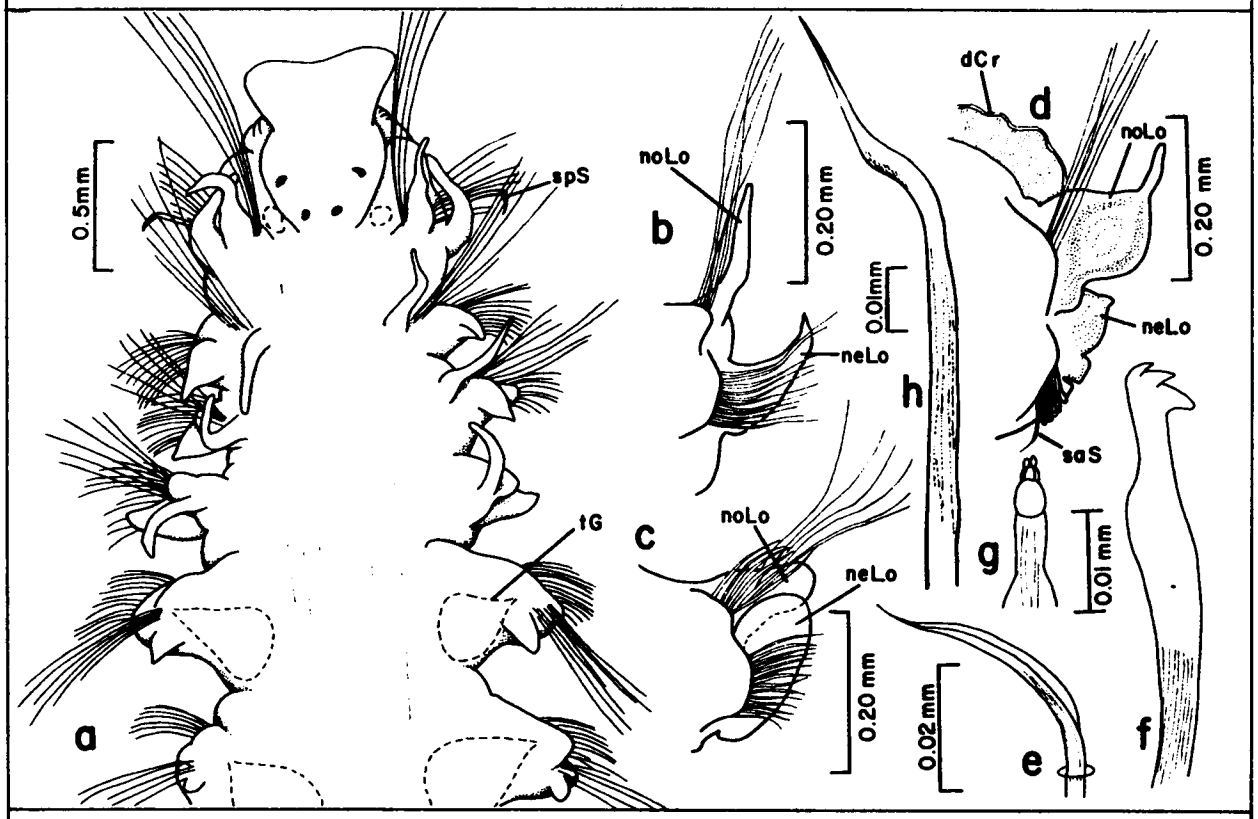

Figure 6-8. Spiophanes missionensis: a, anterior end, dorsal view; b, parapodium from setiger 2; c, same, from setiger 7; d, same, from setiger 21; e, neuroseta from setiger 8; f, hooded hook, lateral view; g, same, frontal view; h, notoseta from far posterior setiger.

Spiophanes missionensis Hartman, 1941
Figures 6-7, 8a-h

Spiophanes missionensis Hartman, 1941a:296, pl. 46, figs. 17-21; 1969:185, figs. 1-4.
Spiophanes missionensis--Light, 1978b:55, 57, 59.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8B-5/81 (4 spec., USNM 90652), 28-11/80 (2 spec., USNM 90653); MAFLA 2208E-8/77 (1 spec.), 2209D-7/76 (1 spec.), 2209H-11/77 (1 spec.), 2211D-7/76 (1 spec.), 2423-7/76 (1 spec., USNM 55967), 2423F-7/76 (1 spec., USNM 90651), 2423H-7/76 (1 spec.), 2423J-7/76 (1 spec.), 2642G-6/75 (1 spec.); STOCS 2/II-1 4/76 (1 spec., USNM 90655), 4/IV-1 F/76 (1 spec., USNM 90656), 6/IV-2 F/76 (2 spec., USNM 90654), HR4-2 5/76 (1 spec., USNM 90657).
DESCRIPTION:
Length, to 6.0 mm (previously reported to 15 mm, with 110 segments); width, to 0.7 mm. Complete specimens with up to 43 setigers. Prostomium bell-shaped (Figure 6-8a), anteriorly depressed into two frontal lobes, but not expanded into lateral horns. Eyes oval, diffuse, red in color; anterior pair farther apart and more variable in shape than posterior pair. Palps extremely long, extending back to setiger 24. Dorsal sensory grooves and occipital antenna absent. First four parapodia well-developed (Figure 6-8b), with cirriform notopodial lamellae; first two more dorsally positioned than following two. Neuropodial lamellae cirriform on setiger 1, flattened and triangular on setigers 2-4. Parapodia of setigers 5-14 inflated, with digitiform notopodial lamellae and cushion-like neuropodial lamellae (Figure 6-8c). Notopodial lamellae becoming more attenuated on setigers 17-21 (Figure 6-8d), connected across dorsum by transverse, ciliated crest. Capillary setae of first four setigers longer and more forward-directed than those of following setigers. Limbate neurosetae of middle setigers strongly curved and distally tapered (Figure 6-8e), replaced by quadridentate hooks (Figure 6-8f) without hoods beginning on setiger 15. Hooks with distal tooth bifid (Figure 6-8g). One to two inferior sabre setae accompanying hooks. Notosetae of far posterior setigers replaced by single, stout spines (Figure 6-8h) with abruptly tapering tips. Pygidium with two anal cirri and midventral papillae.
REMARKS: Specimens of Spiophanes missionensis were previously referred to as S. berkeleyorum in BLM-OCS collections. They differ from the latter species in lacking a distinct occipital cirrus on the prostomium, in having the first two rather than the first four setigers with dorsally placed notopodial lobes, and in having two rather than 6-12 digitiform anal cirri.
PREVIOUSLY REPORTED HABITAT: Intertidal to 300 m, in sand or muddy sand; inhabiting well-constructed sand tubes vertically positioned in intertidal sand flats.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records off Florida, fewer off Texas (Figure 6-7); 10-189 m; coarse to very fine sand, silty very fine sand, clayey sand, sandy silt, clayey silt, silty clay.
DISTRIBUTION: Central California, Gulf of Mexico.

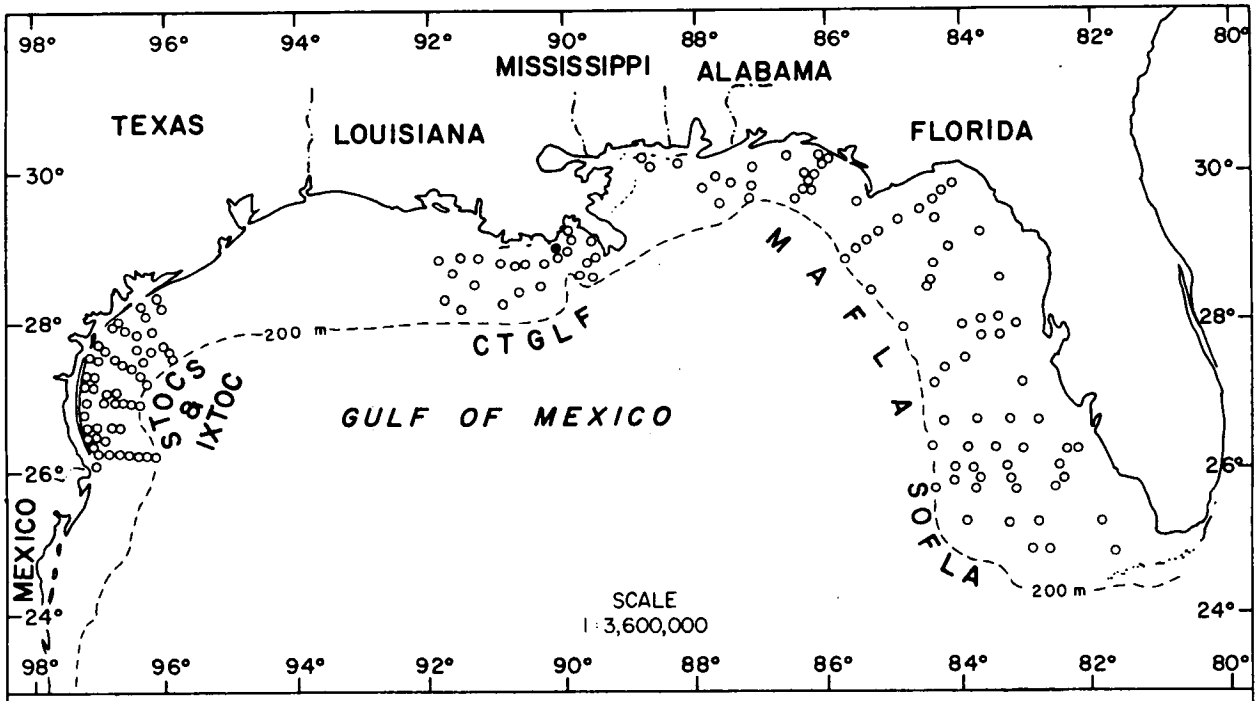

Figure 6-9. Distribution of Boccardiella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

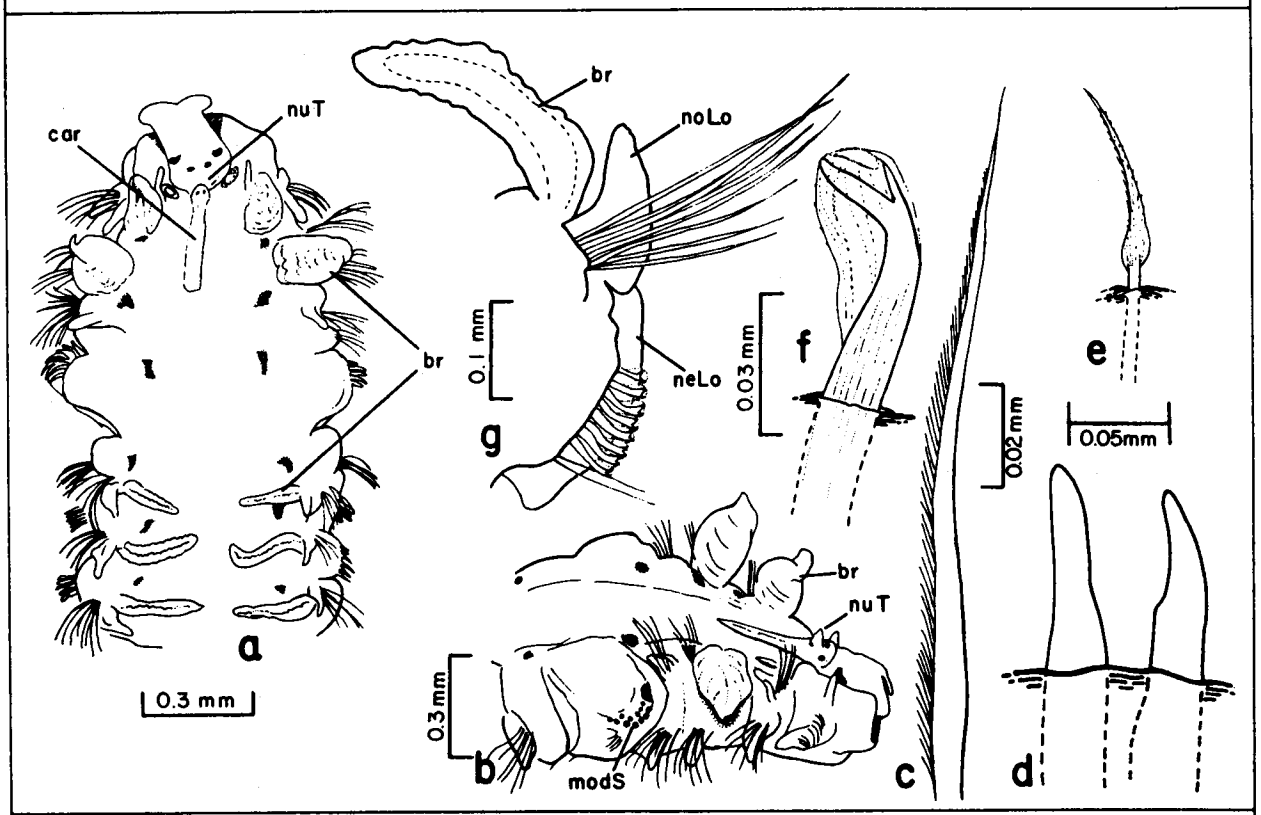

Figure 6-10. Boccardiella sp. A: a, anterior end, dorsal view; b, same, lateral view; c, notoseta from posterior row of setiger 3; d, modified spines of setiger 5; e, pennoned companion seta; f, hooded hook; g, parapodium from setiger 12.

Genus **Boccardiella** Blake and Kudenov, 1978

TYPE SPECIES: Polydora hamata Webster, 1879.
REFERENCE:
Blake and Kudenov, 1978:264.
DIAGNOSIS: Prostomium anteriorly rounded, entire or incised, extending posteriorly as a caruncle; eyes and nuchal tentacle present or absent. Setiger 1 with or without notosetae. Setiger 5 highly modified with one kind of major spine in a single row, accompanied by smaller companion setae; capillary notosetae present. Neuropodial hooded hooks bidentate, with acute angle between teeth, without constriction or manubrium on shaft; first present from setiger 7. Posterior notopodial spines present or absent. Branchiae present starting on setiger 2, present or absent from setiger 5, present thereafter for variable number of segments. Pygidium disc-like or reduced to small lobes or lappets, with or without small cirri or papillae.
REMARKS: Species formerly referred to Boccardia, based on the presence of branchiae anterior to setiger 5 and possessing only one kind of major spine on setiger 5, were transferred to the genus Boccardiella Blake and Kudenov, 1978. Distinctions between these species groups and further information on species are discussed by Blake and Woodwick (1971, 1976), and Read (1975).

Boccardiella sp. A
Figures 6-9, 10a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
CTGLF 02-5/78 (1 spec., USNM 90658).
DESCRIPTION:
Length, 3.0+ mm; width, 1.0 mm. Body moderate in size, roughly rounded to quadrangular in cross-section; incomplete with 12 setigers. Small pigment flecks on dorsum behind gills and dorsal cirri of anterior segments (Figure 6-10a). Prostomium anteriorly bilobed, broad to anterior margin of setiger 1, then inflated before narrowing to a thin, ill-defined caruncle extending to posterior margin of setiger 3 (Figure 6-10b). Two pairs of eyes, anterior pair reniform, larger and farther apart than more rounded posterior pair. Small, rounded nuchal tentacle present at level of setiger 1, with two small pigment spots on posterior side (Figure 6-10a,b). Peristomium well-developed, anteriorly enveloping prostomium, clearly separated ventrally from setiger 1. Setiger 1 well-developed with digitate notopodial lamellae and auricular neuropodial lamellae similar in size and shape to those of subsequent anterior setigers; notosetae absent. Branchiae of setigers 2-3(4?) rounded, greatly inflated with terminal protuberances; strap-like from setiger 6 on (Figure 6-10a); not overlapping dorsum. Setae of anterior four setigers in two rows; anterior row long, slightly limbate; posterior row shorter with broad, distinctly hair-like limbation (Figure 6-10c); setal arrangement similar in notopodia following setiger 5. Setiger 5 greatly modified, constricted posteriorly, projecting anterolaterally; with anterior row of 8-10 major spines (Figure 6-10d) alternating with subdistally expanded, tapering, companion setae (Figure 6-10e). Bidentate hooded hooks beginning on setiger 7, with apical tooth thinner than and oblique in relation to main fang (Figure 6-10f). Surface of hood

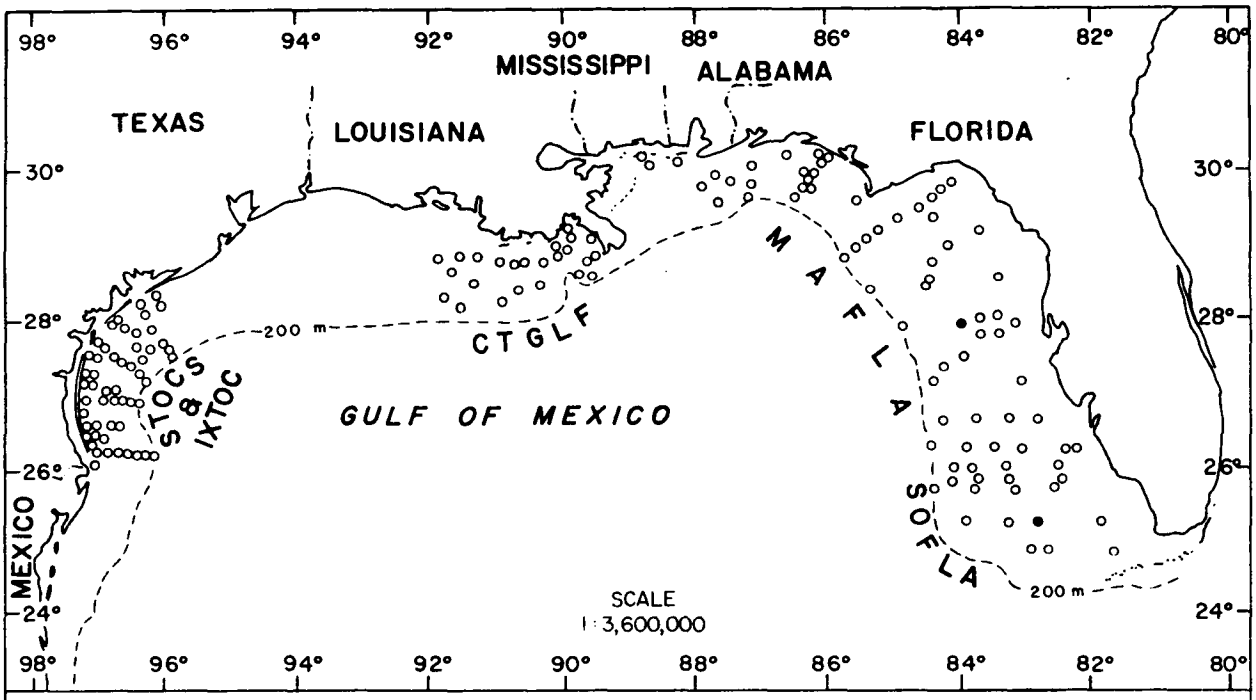

Figure 6-11. Distribution of Boccardia sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

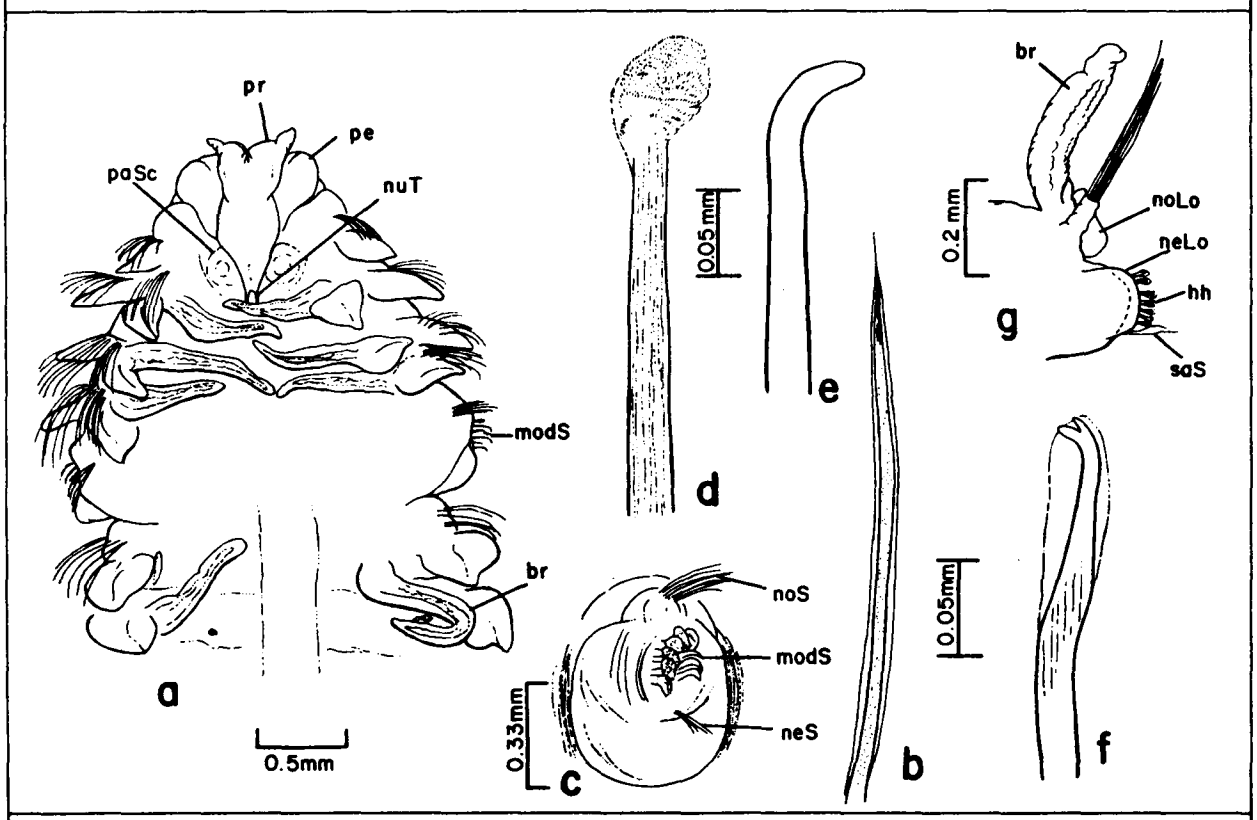

Figure 6-12. Boccardia sp. A: a, anterior end, dorsal view; b, bilimbate seta from setiger 3; c, setiger 5, lateral view; d, bristle-top spine from setiger 5; e, falcate spine from setiger 5; f, hooded hook; g, parapodium from setiger 20.

fimbriated, appearing striated, with serrated marginal distal opening. Hooks appearing in rows, numbering 6-8 per fascicle, accompanied by 1-3 inferior, fine capillary setae on middle setigers (Figure 6-10g). Pygidium and posterior region not observed.
REMARKS: Arrangement and shape of the anterior branchiae are unique for this species, and readily separate it from previously described species of Boccardiella.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off Louisiana (Figure 6-9); 12 m; sand-clay-silt.

Genus Boccardia Carazzi, 1895, emended

TYPE SPECIES: Polydora (Leucodore) polybranchia Haswell, 1885.
REFERENCES:
Fauchald, 1977a:24.
Light, 1978b:133.
Blake and Kudenov, 1978:235.
DIAGNOSIS: Prostomium anteriorly rounded, entire or incised, extending posteriorly as a caruncle; eyes and occipital tentacle present or absent. Setiger 1 with or without notosetae. Setiger 5 highly modified, with two kinds of major spines; without parapodial lamellae, with or without dorsal capillary setae. Bidentate hooded hooks first present from setigers 7-12, with prominent angle between teeth, without constriction or manubrium on shaft. Posterior notopodial spines present or absent. Branchiae present on setigers 2-4, absent from setiger 5, present thereafter from setiger 6 or 7 for variable number of segments. Pygidium disc-like, with or without separate lobes, or reduced to small lobes or lappets.
REMARKS: The genus Boccardia has recently been restricted by Blake and Kudenov, 1978, to include those species having branchiae beginning anterior to setiger 5 and two kinds of major spines on setiger 5. The generic diagnosis above, as previously defined by Blake and Kudenov (1978:235), has been expanded to include species with hooded hooks starting posterior to setiger 7 or 8 so that the following undescribed species may be referred to Boccardia.

Boccardia sp. A
Figures 6-11, 12a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22E-4/81 (1 spec., USNM 90660); MAFLA 2211K-8/78 (1 spec., USNM 90659).
DESCRIPTION:
Length, 6.4+ mm; width, to 2.25 mm. Body wide, dorsoventrally compressed anteriorly; both specimens incomplete with up to 24 setigers. Prostomium deeply cleft anteriorly (Figure 6-12a), somewhat V-shaped, extending posteriorly as a raised caruncle with a minute, rounded nuchal tentacle at its terminus. Eyes and pigmentation absent. Peristomium broadly inflated anteriorly to either side of prostomium, not fused with setiger 1. Palps cirriform, reaching back beyond setiger 5. Setiger 1 well-developed with foliaceous noto- and neuropodial lamellae as large as those of subsequent setigers; notosetae prominent. Strap-like

branchiae present on setigers 2, 3, 4, 6 and following setigers, overlapping on dorsum anteriorly. Setae of first four setigers bilimbate with granular shaft (Figure 6-12b), limbations less prominent to absent in following setigers. Setiger 5 large, nearly twice as long as preceding setigers, rounded with two laterally projecting rows of specialized setae (Figure 6-12c). Anterior row with 6-7 distally expanded, bristle-tipped spines (Figure 6-12d); posterior row with 2-5 simple, falcate spines (Figure 6-12e). Companion setae absent; dorsal superior fascicle of capillary setae and a ventral inferior tuft of fine capillary setae present (Figure 6-12c). Bidentate hooded hooks first present on setiger 12, completely replacing capillary setae by setiger 14; apical tooth nearly parallel with main fang (Figure 6-12f); shaft not constricted. Hooded hooks accompanied by 1-3 inferior, fine capillary setae on median setigers (Figure 6-12g). Pygidium and posterior region not observed.
REMARKS: Specimens conform in all diagnostic aspects to Boccardia except that the hooded hooks first appear on setiger 12 instead of setiger 7 or 8, as presently defined for the genus (Light, 1978b; Blake and Kudenov, 1978). The subgenus Paraboccardia was previously erected by Rainer (1973) for a group of New Zealand species in which the hooded hooks are first present on setiger 8 instead of 7. It was placed into synonymy with Boccardia by Blake and Kudenov (1978) because of the marginal importance distribution of hooks has in defining genera. For this reason, specimens described above are included in the genus Boccardia, as expanded herein to include those species having hooded hooks beginning on setigers 7-12.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two records off Florida (Figure 6-11); 43-53 m; coarse to fine sand.

Genus **Polydora** Bosc, 1802, emended

TYPE SPECIES: Polydora cornuta Bosc, 1802.
REFERENCES:
Blake, 1971:2.
Foster, 1971:18.
Fauchald, 1977a:24.
Blake and Kudenov, 1978:245.
DIAGNOSIS: Prostomium entire or incised anteriorly, extending posteriorly as a caruncle; eyes and occipital tentacle present or absent. Setiger 1 with or without notosetae. Setiger 5 greatly modified with one kind of major spine arranged in a curved row and usually accompanied by slender companion setae; dorsal group of geniculate or capillary setae may be present. Posterior notopodial spines present or absent. Neuropodial bidentate hooded hooks with conspicuous angle between teeth, with or without constriction on shaft, beginning on setigers 7-17. Branchiae beginning posterior to setiger 5. Pygidium variably developed, cup-like or divided into lobes.

Key to the Gulf of Mexico BLM-OCS Species of Polydora

1a. Hooded hooks with constriction on shaft (Figures 6-14f, 16e); notosetae absent on setiger 1. 2
1b. Hooded hooks without constriction on shaft (Figures 6-18e, 20d); notosetae present on setiger 1 3

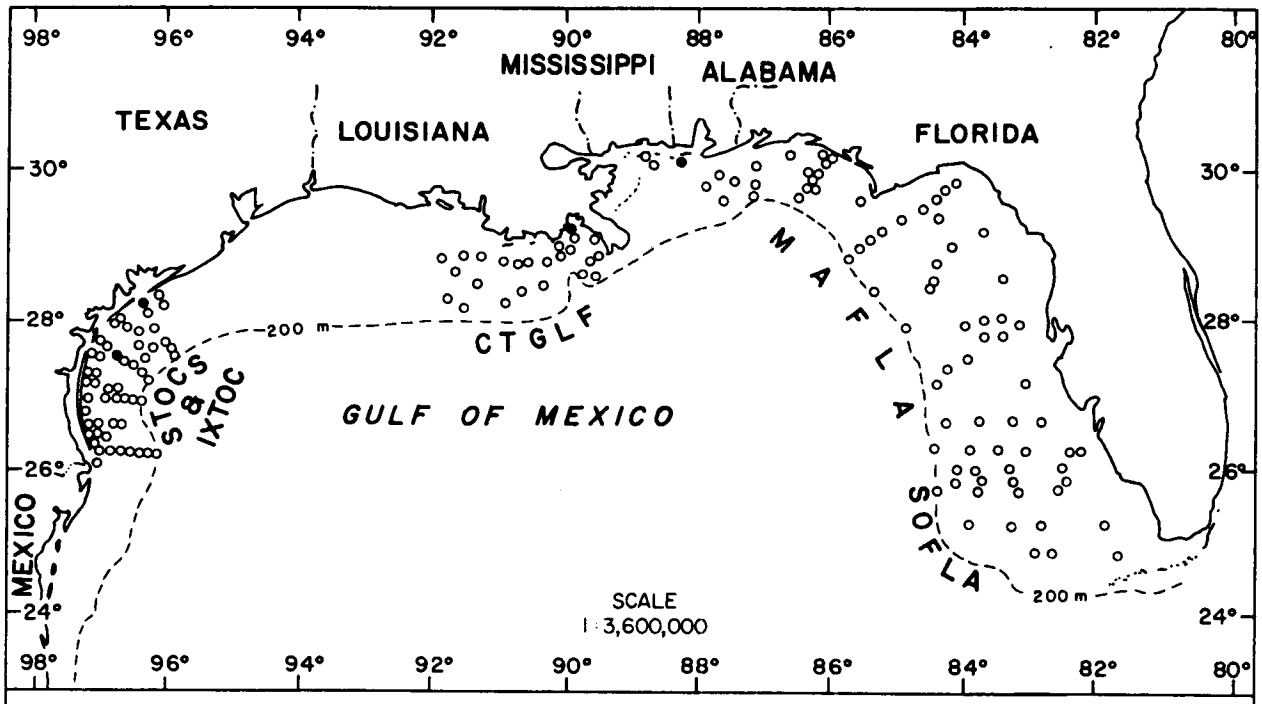

Figure 6-13. Distribution of Polydora ligni on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

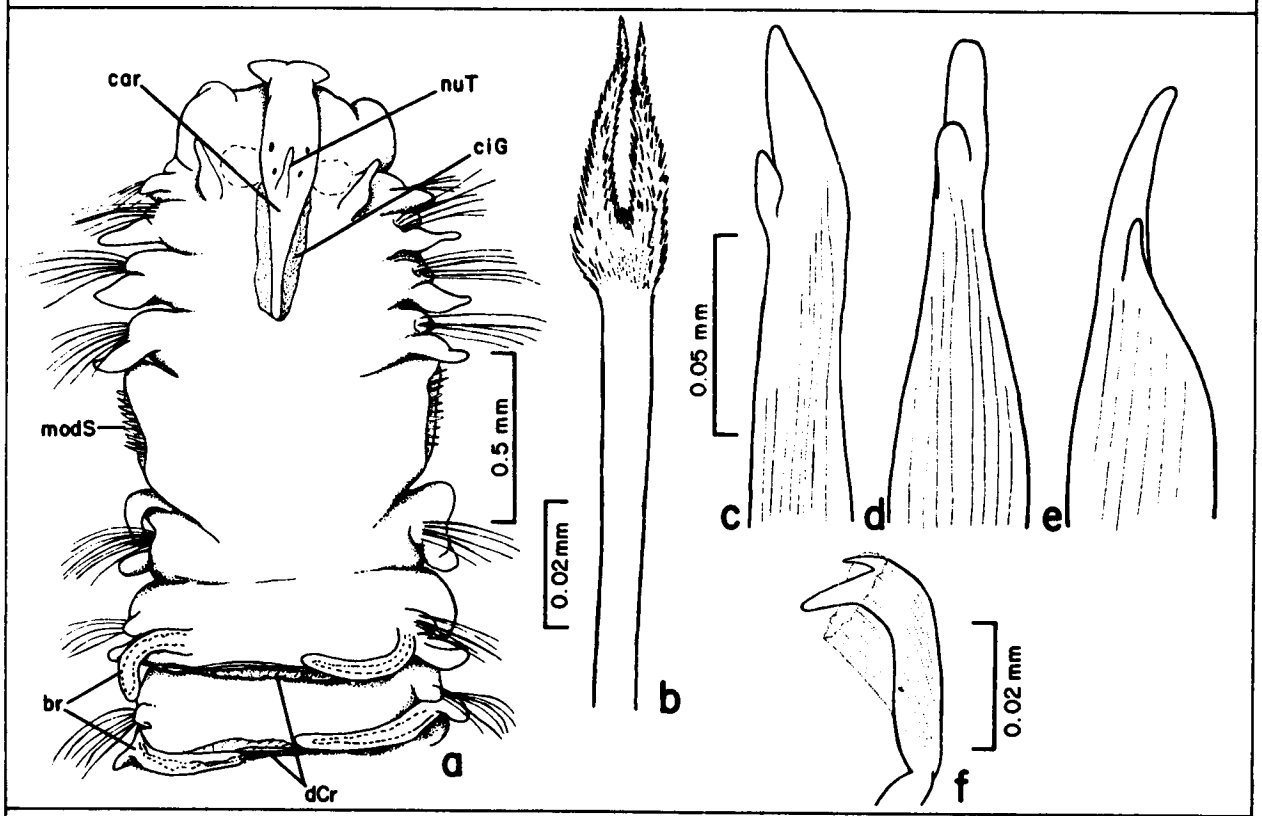

Figure 6-14. Polydora ligni: a, anterior end, dorsal view; b, bifid companion seta from setiger 5; c-e, heavy spines from setiger 5; f, hooded hook.

2a. Nuchal tentacle present (Figure 6-14a); modified spines of setiger 5 falcate with distinct lateral tooth (Figure 6-14c-e); companion setae bifid, feathery in appearance (Figure 6-14b). . . . . .Polydora ligni, p. 6-22

2b. Nuchal tentacle absent; modified spines of setiger 5 falcate with small lateral flange (Figure 6-16c,d); companion setae pennoned (Figure 6-16b) . . . . . Polydora cf. aggregata, p. 6-24

3a. Modified spines of setiger 5 with bushy tops (Figure 6-18d); companion setae fine, capillary. . . . Polydora caulleryi, p. 6-26

3b. Modified spines of setiger 5 without bushy tops (small hairs may be present in depression formed by lateral flange) (Figures 6-22d, 24c); companion setae pennoned, not capillary. 4

4a. Modified spines of setiger 5 without lateral flange (Figure 6-20d); branchiae usually beginning on setiger 8 (7 or 9); eyes present. . . . . .Polydora socialis, p. 6-28

4b. Modified spines of setiger 5 with small subdistal hairs projecting from depression formed by lateral flange; branchiae beginning posterior to setiger 8; eyes absent. . . . Polydora sp. A, p. 6-30

Polydora ligni Webster, 1879
Figures 6-13, 14a-f

Polydora ligni Webster, 1879:119, pl. 5, figs. 45-47.
Polydora ligni--Hartman, 1951a:82.
Polydora ligni--Blake, 1969b:4, figs. 1-4; 1971:5, figs. 1, 2.
Polydora ligni--Foster, 1971:22, figs. 13-21.
Polydora ligni--Light, 1978b:175.
Polydora ligni--Blake and Kudenov, 1978:258, fig. 43h-j.
Polydora ligni--Kudenov, 1982:571, fig. 1.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 7D-5/74 (1 spec.); CTGLF 21C-1/79 (1 spec., USNM 90661); STOCS 4/I-4 5/76 (1 spec., USNM 90663), 4/II-1 W/76 (1 spec., USNM 90662).
DESCRIPTION:
Length, 13.0+ mm (previously reported to 32 mm); width, to 1.3 mm. Body moderate in size, slender; all specimens incomplete with up to 34 setigers; color pale white in alcohol. Prostomium distinctly bifid, flaring laterally in some specimens (Figure 6-14a), continuing posteriorly through setiger 3 as a thin caruncle bordered on either side by a ciliated groove. Nuchal tentacle cirriform to digitiform, present on caruncle at level of setiger 1. Eyes, when present, black, numbering two pairs, arranged as a trapezoid. Palps extremely long, extending back to at least setiger 17. Setiger 1 well-developed with pronounced parapodial lobes, notosetae absent. Notopodial lamellae of setigers 2-4 auricular; those of setigers 6-12 cirriform, becoming smaller posteriorly. Setiger 5 twice length of adjacent setigers; setae arranged in long crescent of 10-11 heavy spines alternating with feathery bifid companion setae (Figure 6-14b). Heavy spines falcate with distinct lateral tooth; shape variable depending on position, degree of wear (age?) and orientation of spine (Figure 6-14c-e). All notosetae, and neurosetae anterior to setiger 6, as capillary setae. Bidentate hooded

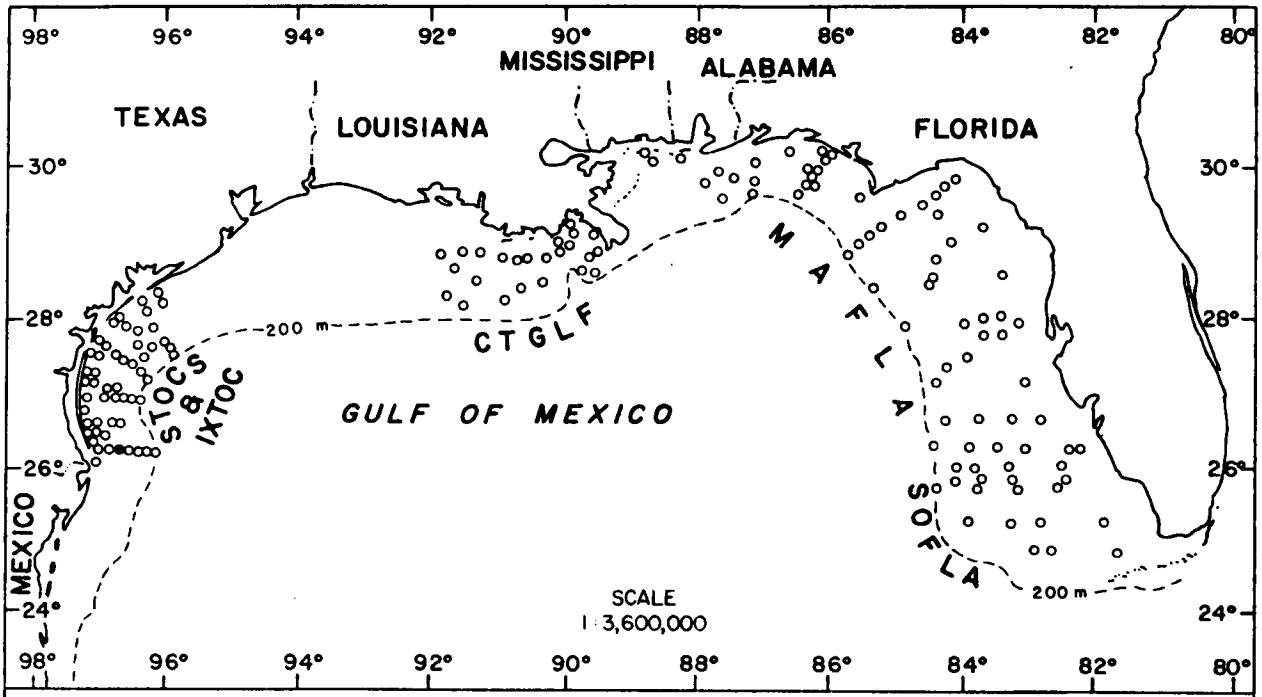

Figure 6-15. Distribution of Polydora cf. aggregata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

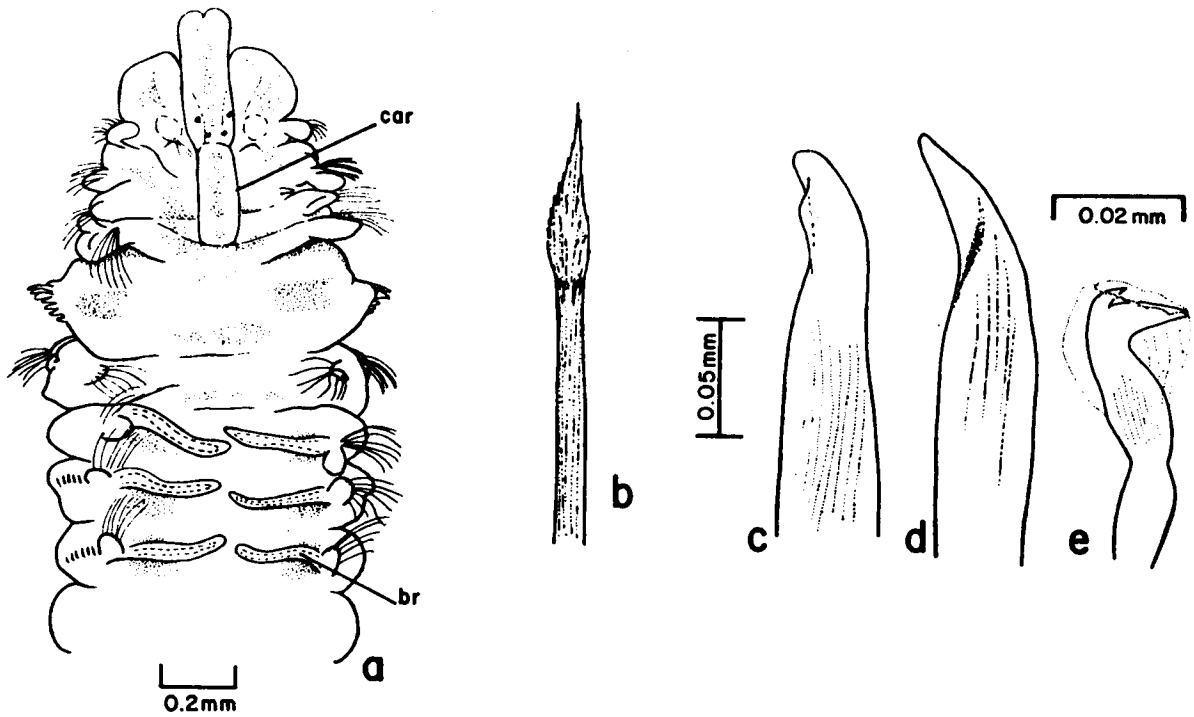

Figure 6-16. Polydora cf. aggregata: a, anterior end, dorsal view; b, pennoned companion setae from setiger 5; c,d, falcate spines from setiger 5; e, hooded hook.

hooks starting on setiger 7; main fang at 70-90° angle with shaft, the latter strongly constricted (Figure 6-14f); hood short, distinctly striated. Branchiae long and thin, beginning on setiger 7, continuing to near end of body. Dorsal, intersegmental crests sometimes present on branchial segments (Figure 6-14a). Pygidium not observed.
REMARKS: A subdistal, lateral flange accessory to the subdistal tooth, as described and discussed by Kudenov (1982), was not apparent on Gulf of Mexico specimens examined herein. Although considered a "systematically important feature" by Kudenov, its absence in the above material was not considered significant enough to warrant designation of a new species in this work.
PREVIOUSLY REPORTED HABITAT: Polydora ligni is a euryhaline, typically shallow water species more commonly encountered in the estuarine and nearshore areas of the Gulf of Mexico. It constructs thin mud tubes in a variety of sediment types, among tunicates, and on shell and other hard surfaces. It may form "mud blisters" between the mantle and shell of oysters. Heavy infestations have been known to destroy oyster beds by accumulation and subsequent decomposition of mucus and trapped materials on the shell, smothering the oysters (Nelson and Strauber, 1940).
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered, nearshore near river outlets (Figure 6-13); 10-36 m; clayey sand, silty clay, sand-silt-clay.
DISTRIBUTION: Northern Europe; North Atlantic from New England to Florida, Gulf of Mexico, Caribbean Sea; North Pacific from Canada to Mexico; Victoria, Australia.

Polydora cf. **aggregata** Blake, 1969
Figures 6-15, 16a-e

Polydora aggregata Blake 1969b:16, figs. 12-15 (description of larvae); 1971:8, figs. 4-6.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS 5/IV-S No date (1 spec., USNM 90664).
DESCRIPTION:
Length, 3.5+ mm (previously reported to 8 mm, with 35-40 segments); width, 0.8 mm. Body small, incomplete with 27 setigers; with distinct brown pigment pattern on prostomium, peristomium, and first 6-10 setigers (Figure 6-16a). Prostomium anteriorly incised, extending posteriorly as a broad, raised caruncle to anterior margin of setiger 4. Eyes small, round, black, numbering two pairs, arranged in trapezoid. Palps missing. Nuchal tentacle absent. Peristomium broad, inflated laterally and ventrally. Setiger 1 with well-developed neuropodia; notopodia reduced to small, indistinct lobes without notosetae. Setigers 2-4 with bluntly rounded, progressively larger notopodial lobes; neuropodial lobes small throughout. Long and short limbate setae present in both rami. Setiger 5 much larger than adjacent segments, with curved row of heavy spines alternating with pennoned companion setae (Figure 6-16b). Heavy spines falcate, with small lateral flange (Figure 6-16c,d), varying in degree of prominence. Bidentate hooded hooks starting on setiger 7; both teeth strong, at acute angle to shaft; shaft distinctly constricted (Figure 6-16e). Branchiae beginning on setiger 7, strap-like, overlapping on dorsum (Figure 6-16a). Pygidium and posterior region missing.

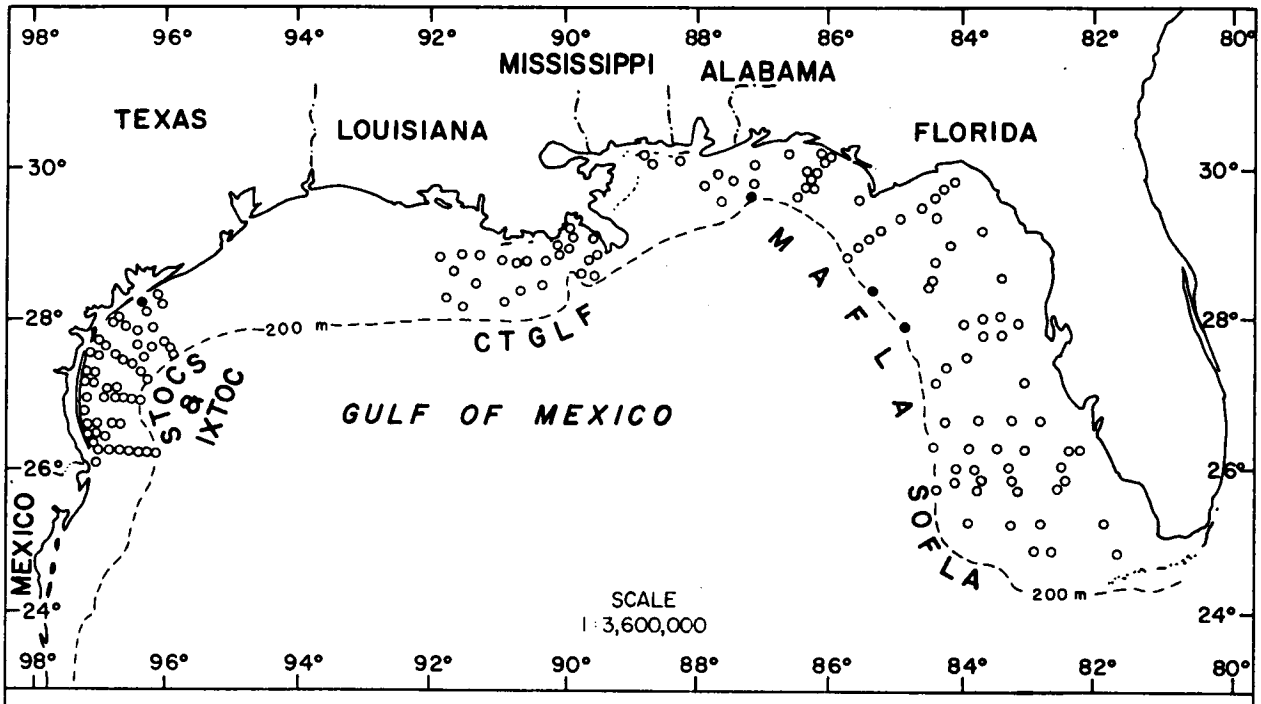

Figure 6-17. Distribution of Polydora caulleryi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

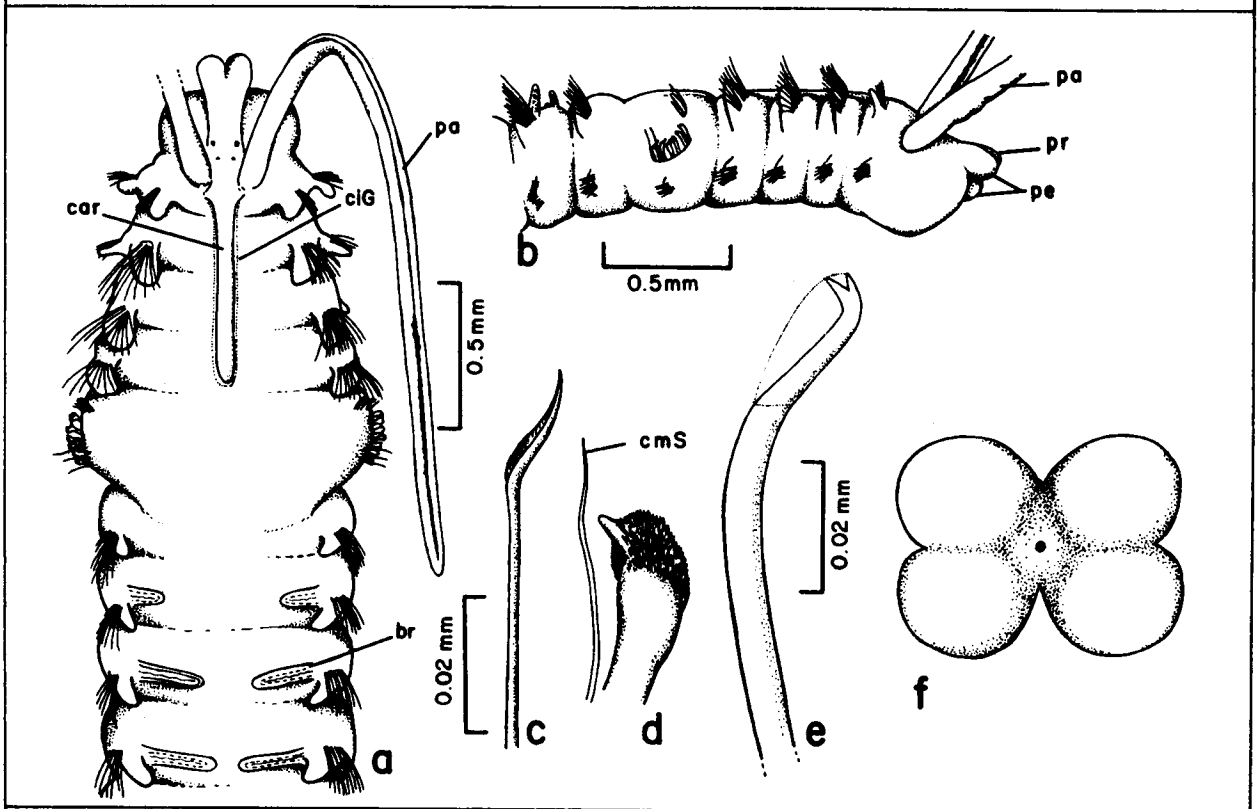

Figure 6-18. Polydora caulleryi: a, anterior end, dorsal view; b, same, lateral view; c, limbate seta; d, bushy-topped heavy spine and companion seta from setiger 5; e, hooded hook; f, pygidium, posterior view (No Scale) (Figures a-c,e,f from Blake 1971, figs. 8a,b,e,f,j).

REMARKS: The single BLM-OCS specimen closely resembles the description of Polydora aggregata given by Blake (1971:8), in pigmentation, nature of the first and fifth setigers, and the heavy spines and hooded hooks; however, no clear, ciliated groove bordering the caruncle could be found and the caruncle extends past setiger 2. Until more specimens can be examined and compared with type material, a tentative record of this species' occurrence in the Gulf of Mexico must suffice.
PREVIOUSLY REPORTED HABITAT: Occurring in dense mats on and between rocks, exposed at low tide, among holdfasts of Chondrus crispus.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off southern Texas (Figure 6-15); 37 m; silt-clay-sand.
DISTRIBUTION: Maine, ?Gulf of Mexico.

Polydora caulleryi Mesnil, 1897a
Figures 6-17, 18a-f

Polydora caulleryi--Hartman, 1951a:83; 1965:149, pl. 28, figs. b-d.
Polydora caulleryi--Pettibone, 1954:282, fig. 321-q.
Polydora caulleryi--Blake, 1969b:52, fig. 38; 1971:11, fig. 8.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2212E-6/76 (1 spec., USNM 90667), 2313K-11/77 (1 spec., USNM 90666), 2645-11/77 (1 spec., USNM 55895), 2645E-2/78 (1 spec., USNM 90665); STOCS 4/I-5 F/76 (3 spec., USNM 90668).
DESCRIPTION:
Length, 5.0+ mm (previously reported to 50 mm, with over 150 segments); width, to 0.5 mm (previously reported to 2.2 mm). Body moderate in size; all specimens incomplete with up to 24 setigers. Prostomium (Figure 6-18a) anteriorly incised, bilobed, extending posteriorly as a thin caruncle through setiger 3 or 4. Eyes, when present, variable in shape, numbering two pairs, in trapezoidal arrangement. Palps missing. Setigers 1-4 with distinct parapodial lobes (Figure 6-18b). Notosetae present on setiger 1 as slender capillary setae; following setae limbate. Neurosetae of setigers 1-4 and 6 as long, slender capillaries. Setiger 5 large, muscular, overlapping setiger 6; with dorsal group of limbate setae (Figure 6-18c), anteriorly elevated semicircle of bushy-topped modified spines (Figure 6-18d) and slender capillary companion setae, and ventral group of curved capillary setae. Bidentate hooded hooks beginning on setiger 7. Hooks (Figure 6-18e) recurved with no constriction on shaft, main fang at nearly right angles to shaft with a smaller secondary tooth above. Branchiae beginning on setiger 7 as small digitiform lobes, becoming strap-like by setiger 11, reportedly absent from last third of body. Pygidium missing, previously described as consisting of four equal lobes (Figure 6-18f).
REMARKS: The capillary setae of far posterior segments are reportedly replaced by a curved row of stout, sharply pointed spines (Blake, 1971:11). These were not seen in the fragmented material examined. A west coast species, Polydora brachycephala Hartman, 1936a, is reportedly almost indistinguishable from P. caulleryi on the basis of adult characters (Light, 1978b:185). This resulted in its synonymy by Pettibone (1954:280), which has been variously followed by several authors. Light (1978b), however, elected to maintain the species status for P. brachycephala due to substantial differences in larval pigmentation (as noted

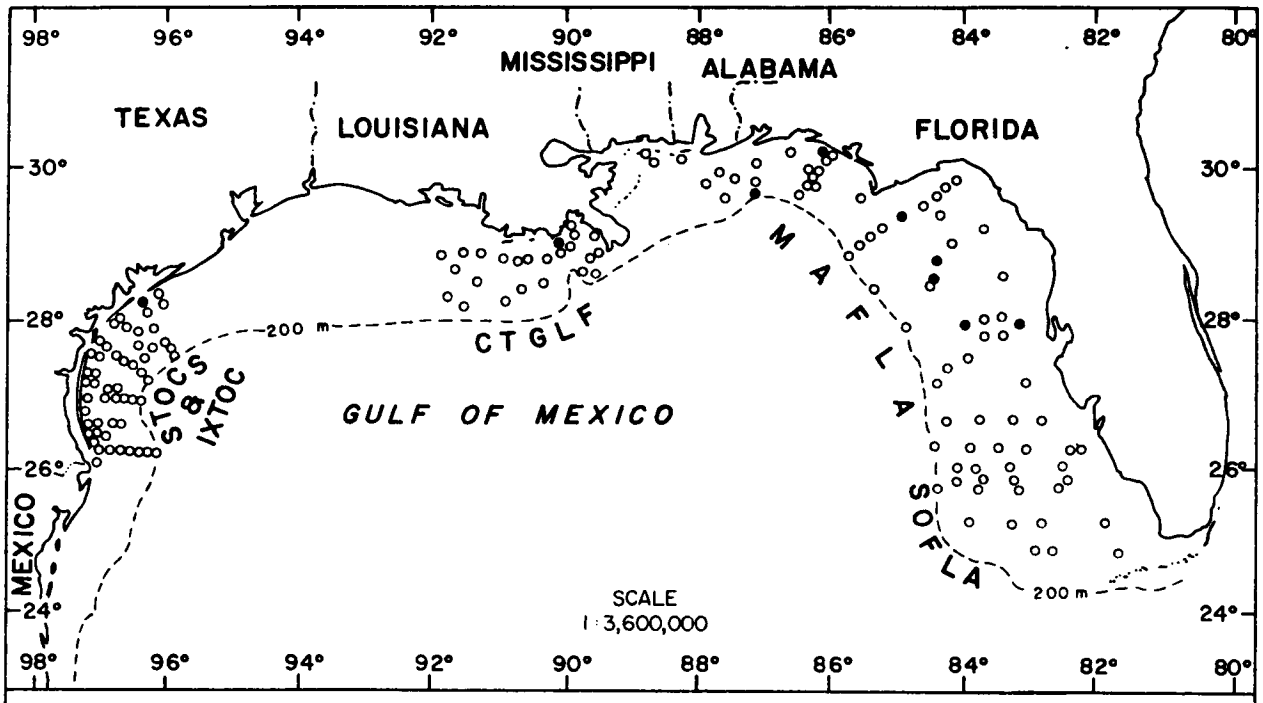

Figure 6-19. Distribution of Polydora socialis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

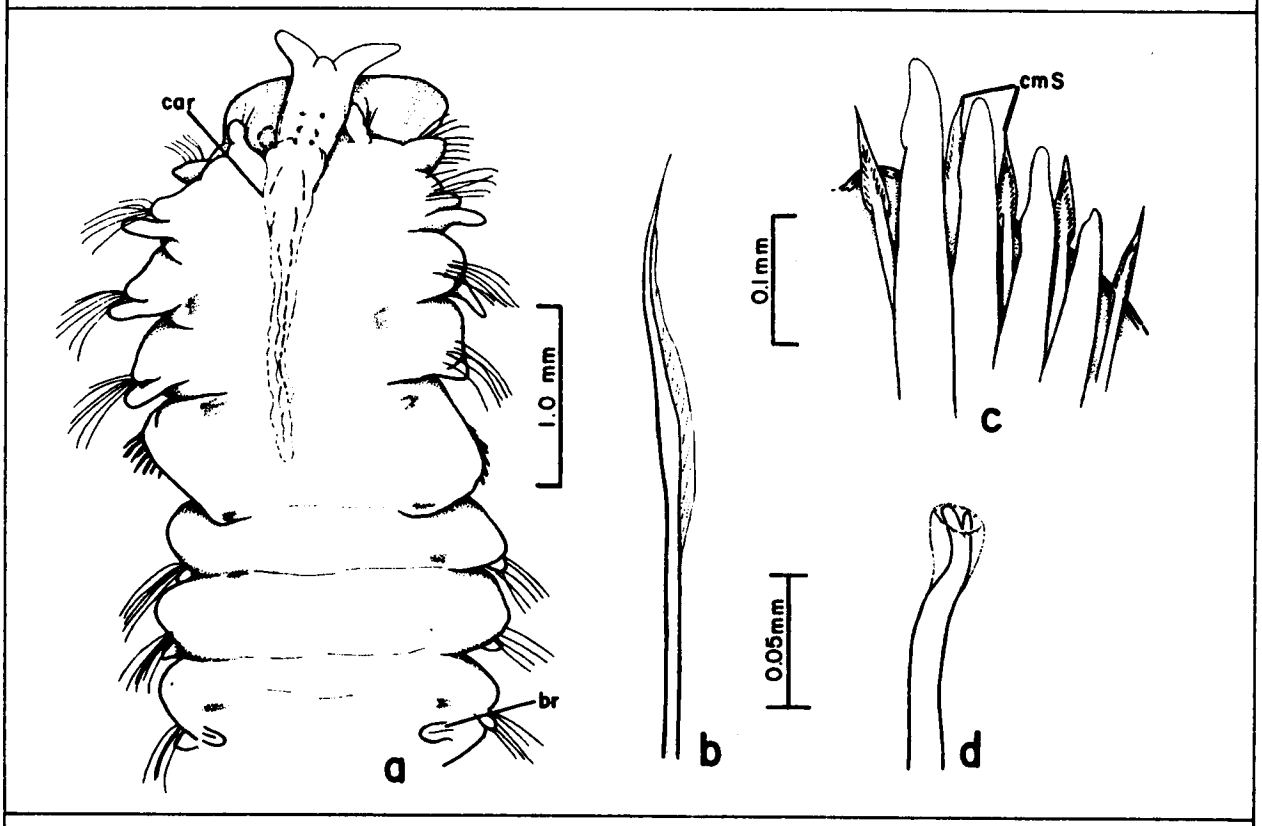

Figure 6-20. Polydora socialis: a, anterior end, dorsal view; b, limbate seta; c, heavy spines and pennoned companion setae of setiger 5; d, hooded hook.

by Dr. J. A. Blake) and length of the caruncle between east and west coast populations. Specimens examined herein were identified as P. caulleryi based on published descriptions and occurrence, and no attempt has been made to confirm or dispute the synonymy of these two closely related species.
PREVIOUSLY REPORTED HABITAT: Low intertidal to continental shelf depths of 200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: One shallow record off Texas, deep water off Florida (Figure 6-17); 10-189 m; coarse to very fine sand, silty very fine sand, clayey sandy silt, clayey sand.
DISTRIBUTION: Europe, New England, Gulf of Mexico, Alaska, California.

Polydora socialis (Schmarda, 1861)
Figures 6-19, 20a-d

Leucodora socialis Schmarda, 1861:64, figs. a-c, pl. 26, fig. 209.
?Polydora gracilis Verrill, 1880:174.
Polydora socialis plena--Berkeley and Berkeley, 1936:468; 1952:22.
Polydora socialis--Hartman, 1941a:310, pl. 48, figs. 41, 42; 1945:33; 1951a:83; 1969:147, 2 figs.
Polydora socialis--Blake, 1969a:816, fig. 5; 1969b:24, figs. 19-22; 1971:20, figs. 13, 14.
Polydora plena--Foster, 1971:24, figs. 22-29.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207K-11/77 (2 spec.), 2211D-11/77 (1 spec.), 2211D-2/78 (1 spec.), 2211E-2/78 (1 spec.), 2315A-11/77 (1 spec., USNM 90673), 2316F-7/76 (1 spec.), 2423G-6/76 (1 spec.), 2528G-6/75 (1 spec.), 2528E-11/77 (2 spec., USNM 90672), 2645-2/78 (1 spec., USNM 55972); CTGLF 02-5/78 (1 spec., USNM 90669); STOCS 4/I-2 S/76 (1 spec., USNM 90670), 4/I-1 W/76 (3 spec., USNM 90671).
Supplementary Material:
Mexico--Sonora, off Chaya, 31°12'N, 113°38'W, 60 ft., Nov. 1967, J. A. Blake ID. (1 spec., USNM 58494).
DESCRIPTION:
Length, 15+ mm (previously reported to 55 mm, with over 400 segments); width, to 0.75 mm. Body moderate in size, pale white in alcohol, with small flecks of pigmentation on posterodorsal margins of anterior segments. All specimens incomplete with up to 50 setigers. Prostomium distinctly bifid with prominent lateral lobes and sometimes small medial lobe within notch (Figure 6-20a). Caruncle extending posteriorly as a sinuous crest through setigers 3-6. Eyes variably shaped, fused or absent, usually numbering three pairs. Palps missing. Peristomium laterally expanded. Setiger 1 with capillary setae in both rami; dorsal lamellae digitiform. Neuropodial lamellae rounded through setiger 4, smaller on setiger 6 and thereafter. Anterior setae distinctly limbate (Figure 6-20b), arranged in short anterior and long posterior double rows. Setiger 5 large, twice length of adjacent setigers. Setae of setiger 5 including a group of dorsal geniculate setae, a semicircular row of heavy modified spines alternating with smaller pennoned companion setae (Figure 6-20c), and a ventral group of limbate setae. Heavy spines slightly falcate with subterminal expansion, without distinct lateral flange. Hooded hooks beginning on setiger 7; shafts not

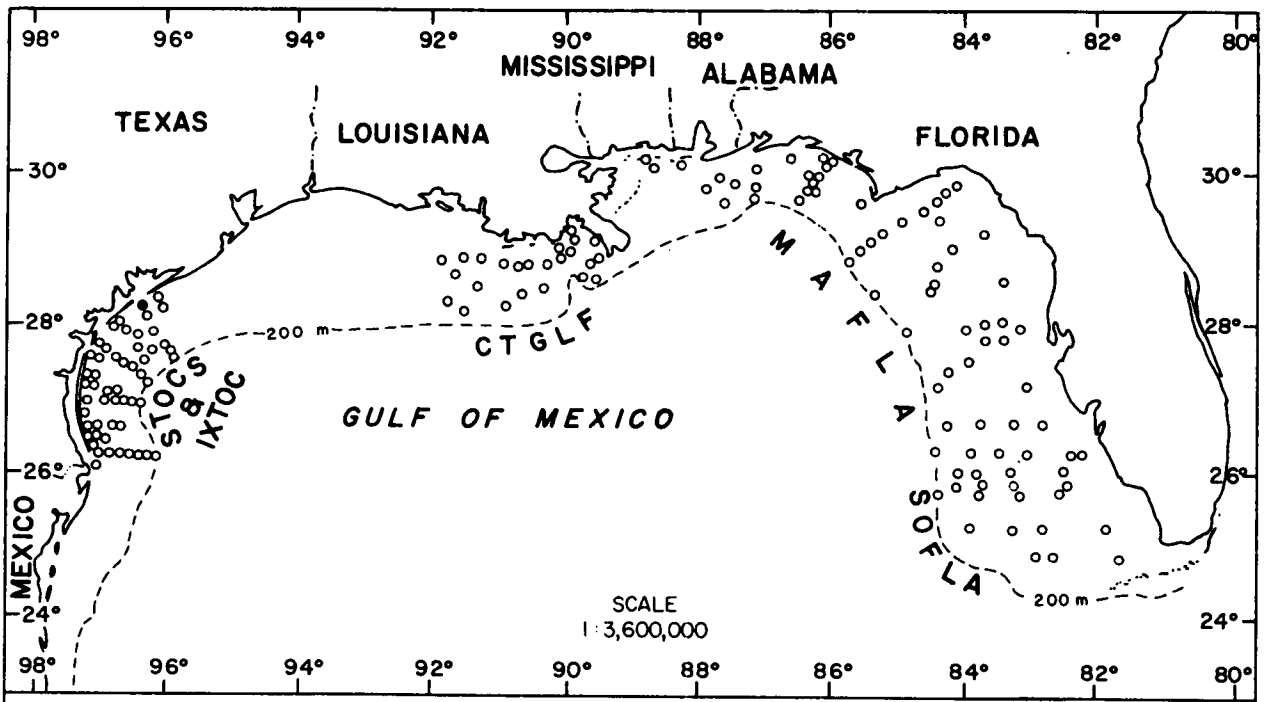

Figure 6-21. Distribution of Polydora sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

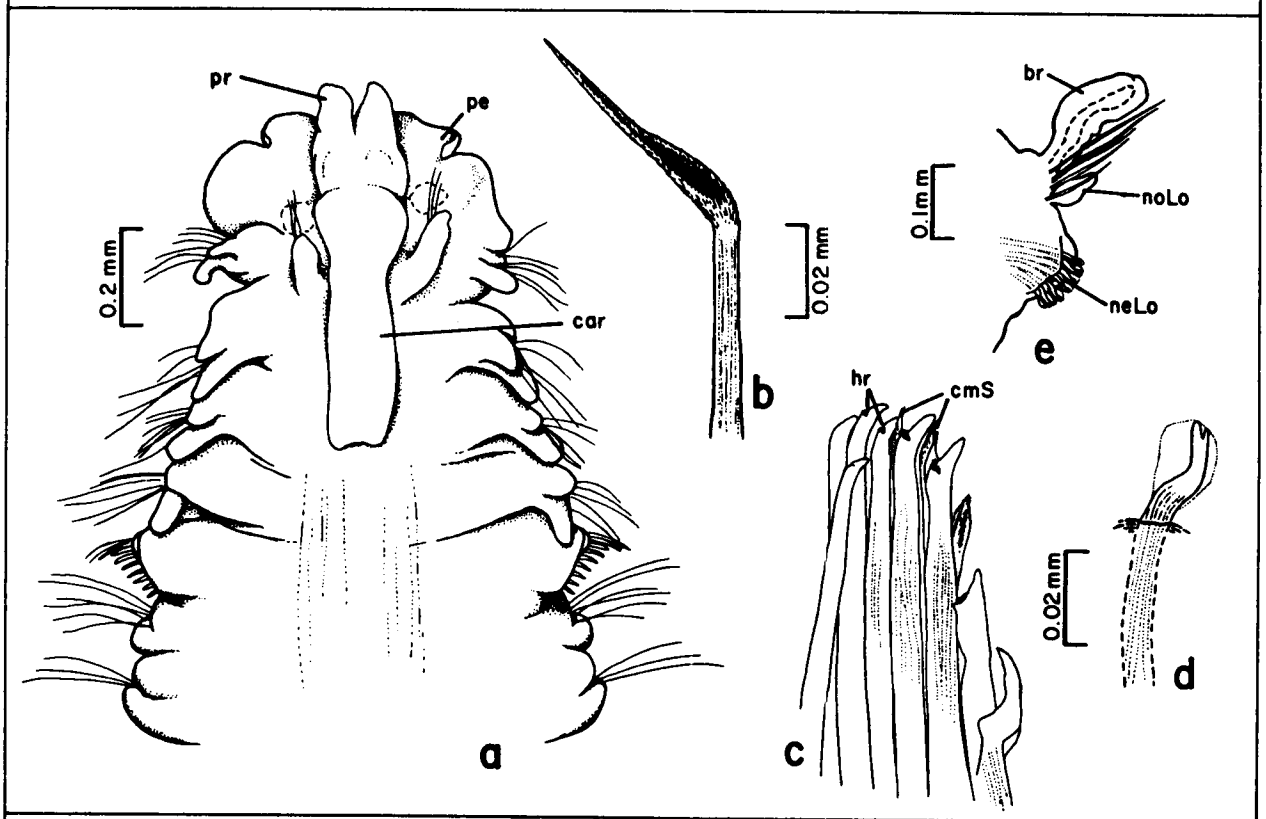

Figure 6-22. Polydora sp. A: a, anterior end, dorsal view; b, dorsal geniculate seta from setiger 5; c, heavy spines and pennoned companion setae from same; d, hooded hook; e, parapodium from middle setiger.

constricted; main fang at oblique angle to shaft; apical tooth pronounced on anterior setigers (Figure 6-20d), diminishing in size and decreasing in angle on posterior setigers. Branchiae beginning on setiger 8 (7-9) as small digitiform lobes, rapidly increasing in size and continuing to near posterior end of body. Pygidium not observed, but previously described as having one large ventral lobe fused with two smaller dorsal lobes separated by a narrow dorsal gap.
REMARKS: Specimens agree in all aspects with recent descriptions of Polydora socialis by Blake (1971:20) and Light (1978b:179). These references also provide synonymies and discuss associations with closely related species.
PREVIOUSLY REPORTED HABITAT: Forms silt tubes in a variety of substrates, primarily sandy silt (Reish, 1968); also found boring in living and dead shells.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered occurrences, primarily off Florida (Figure 6-19); 10-106 m; coarse to very fine sand, silty fine sand, clayey sand, sandy clayey silt.
DISTRIBUTION: East and west coasts of North America, Gulf of Mexico, Chile, Falkland Islands.

Polydora sp. A
Figures 6-21, 22a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS 4/I-5 S/76 (1 spec., USNM 90678).
DESCRIPTION:
Length, 3.0+ mm; width, 0.5 mm. Body small, incomplete with 18 setigers. Color white in alcohol. Prostomium distally bifid, extending posteriorly as a broad caruncle to anterior margin of setiger 4 (Figure 6-22a). Eyespots and nuchal tentacle absent. Peristomium large, inflated on lateral and anterior margins. Palps missing. Setiger 1 well-developed with digitiform lamellae and capillary setae in both rami; parapodia more dorsal and anteriorly directed than on following setigers. Setigers 2-4 also with digitiform lamellae. Setiger 5 not appreciably larger than adjacent segments, but distinctly modified with three groups of setae: dorsal cluster of six geniculate setae (Figure 6-22b); semicircular row of eight heavy, distally falcate spines alternating with smaller, pennoned companion setae (Figure 6-22c); and small ventral fascicle of winged neurosetae. Fine hairs may be present in depressions formed by flange on convex side of falcate spines (Figure 6-22c). Bidentate hooded hooks beginning on setiger 6, completely replacing capillary neurosetae; apical tooth more slender and oblique in relation to main fang (Figure 6-22d); shafts without constriction. Hooks appearing in rows, 6-8 per neuropodium; ventral capillary setae not observed. Branchiae starting on setiger 9 as small lobes, becoming larger and strap-like by setiger 11 (Figure 6-22e). Pygidium and posterior region not observed.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off Texas (Figure 6-21); 10 m; clayey sand.

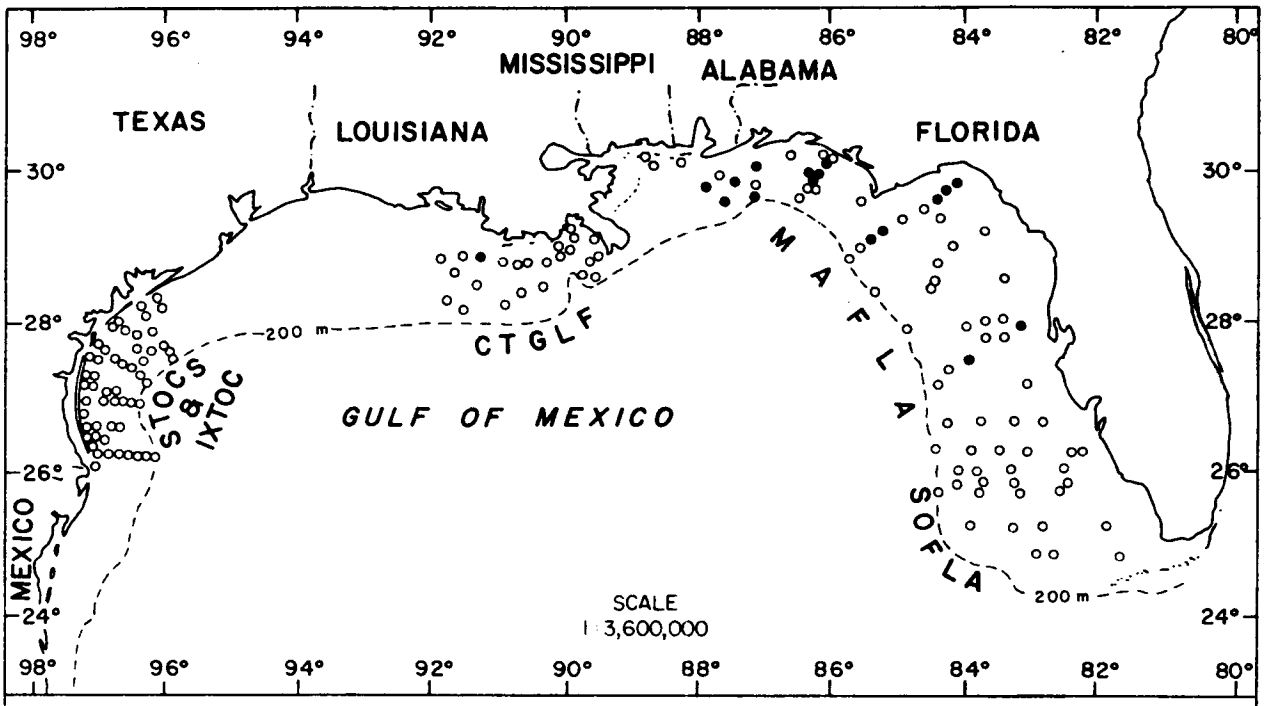

Figure 6-23. Distribution of Dispio uncinata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

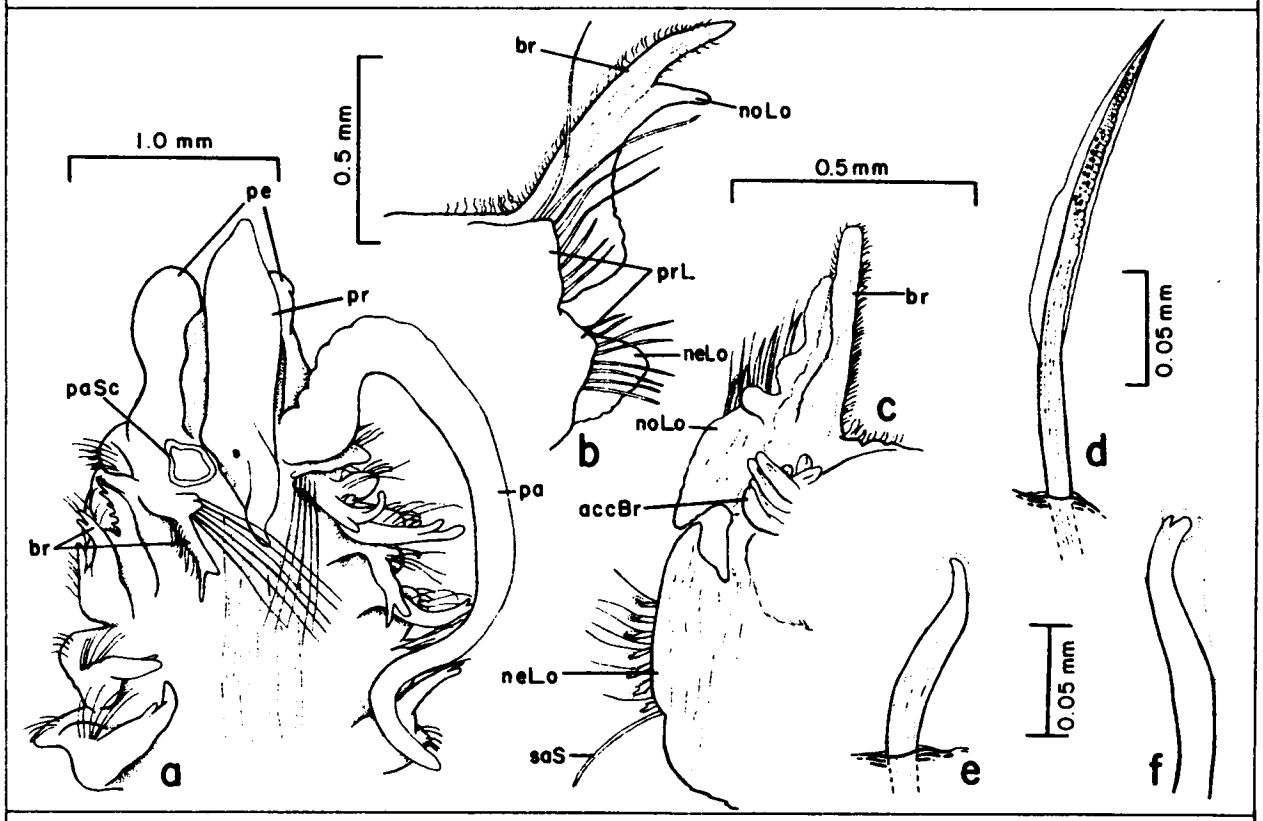

Figure 6-24. Dispio uncinata: a, anterior end, dorsal view; b, parapodium from setiger 2, anterior view; c, same, from setiger 40, posterior view; d, limbate seta from anterior setiger; e, unidentate hooded hook; f, bidentate hooded hook.

Genus **Dispio** Hartman, 1951

TYPE SPECIES: Dispio uncinata Hartman, 1951a.
REFERENCES:
Foster, 1971:73.
Fauchald, 1977a:24.
DIAGNOSIS: Prostomium fusiform, anteriorly pointed to bluntly rounded. Branchiae almost completely fused with dorsal lamellae; beginning on setiger 1, continuing to near end of body. Accessory branchiae present as short digitate lobes on posterior surface of notopodia on some segments. All anterior setae capillary; neuropodial hooded hooks present on middle and posterior setigers. Pygidium with midventral collar and two pairs of anal cirri.

Dispio uncinata Hartman, 1951
Figures 6-23, 24a-f

Spio setosa--Behre, 1950:13 [Not Verrill, 1873].
Dispio uncinata Hartman, 1951a:87, pl. 22, figs. 1-5, pl. 23, figs. 1-4; 1969:105, figs. 1-4.
Dispio uncinata--Foster, 1971:73, figs. 161-174.
Dispio uncinata--Day, 1973:70.
Dispio uncinata--Light, 1977:78; 1978b:113, figs. 113A-C, 115A-I.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207E-11/77 (2 spec.), 2424F-7/76 (2 spec.), 2424H-7/76 (1 spec.), 2530E-6/75 (3 spec.), 2531D-6/75 (2 spec.), 2531G-6/75 (3 spec.), 2533A-6/75 (12 spec.), 2533C-1/76 (4 spec.), 2642G-7/75 (2 spec.), 2856-9/77 (1 spec., USNM 55890); CTGLF 19-9/78 (1 spec., USNM 90679).
DESCRIPTION:
Length, 20.4+ mm (previously reported to 62 mm, with 114 setigers); width, to 2.0 mm (previously reported to 2.5 mm). All specimens incomplete with up to 50+ setigers. Prostomium spindle-shaped, tapered anteriorly, extending posteriorly onto setiger 2 as a sinuous caruncle (Figure 6-24a). Rust-colored pigmentation may be present on posterior and lateral margins of prostomium. Eyes deeply set and inconspicuous when present, numbering up to two pairs. Peristomium bilobed anteriorly, elevated and separated laterally from prostomium by shallow furrows. Branchiae well-developed from setiger 1, continuing to near end of body; fused over majority of their length with equally well-developed notopodial postsetal lamellae (Figure 6-24b). Accessory branchiae present as small, digitate lobes on posterior surface of notopodia (Figure 6-24c); lobes inconspicuous and few in number beginning on setigers 18-28, becoming larger and more numerous (6-8) posteriorly. Dorsal and ventral postsetal lamellae well-developed throughout body, sometimes appearing serrate on variable number of anterior setigers (1-8) due to variously developed marginal lobes (Figure 6-24b). On subsequent segments, parapodial lamellae becoming entire, thin, flattened, and laterally elongate, so that noto- and neuropodial lobes may overlap laterally (Figure 6-24c). Notosetae of setiger 1 capillary, extremely long, forming cage-like structure behind prostomium (Figure 6-24a). Notosetae much shorter from setiger 2, limbate, with distinctly reticulated and granular shafts (Figure 6-24d). Anterior neurosetae in two rows; setae

of anterior row similar to notosetae, setae of posterior row longer, thinner, more narrowly limbate with fewer granulations; sabre-like setae projecting from inferiormost position of setal fascicle. Predominantly unidentate hooded hooks (Figure 6-24e) replacing anterior row of neurosetae from setigers 20-30; accompanied by long, slender companion setae and 1-2 ventral sabre setae. Bidentate hooded hooks (Figure 6-24f) may be present in some parapodia of certain individuals. Single hood extending beyond slightly curved tip of hook. Pygidium missing; reported by Foster (1971:75, figs. 172-174) as bearing a midventral flap or collar of varying width, and four lateral cirri, two inserted ventrolaterally close together on either side.
REMARKS: Variability in the number of serrations on anterior parapodial lamellae, the number of setigers on which serrations occur, and the presence of bidentate hooded hooks falls within the range discussed by Foster (1971:76) for Gulf and Caribbean specimens.
PREVIOUSLY REPORTED HABITAT: Intertidal to about 6 m; clean sand, sand with shell.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records off northwestern Florida and one off Louisiana (Figure 6-23); 6-106 m; coarse to very fine sand, silty fine sand.
DISTRIBUTION: North Atlantic, Massachusetts to Florida; Gulf of Mexico; Caribbean; Central America, both sides of the Isthmus of Panama, California.

Genus Scolelepis Blainville, 1828

TYPE SPECIES: Lumbricus squamatus O. F. Müller, 1806.
REFERENCES:
Pettibone, 1963:91.
Foster, 1971:59.
Fauchald, 1977a:25.
Light, 1978b:98.
Blake and Kudenov, 1978:175.
DIAGNOSIS: Prostomium anteriorly pointed, rarely blunt, extending posteriorly as a caruncle. Occipital tentacle present or absent. Branchiae beginning on setiger 2, partially fused to notopodial postsetal lamellae, continuing to near posterior end. Neuropodial postsetal lobes notched or separate at least on posterior setigers. Anterior setae capillary, usually arranged in two rows. Neuropodial hooded hooks present on posterior setigers, notopodial hooks present or absent. Hooks uni-, bi-, tri-, or multidentate. Pygidium with oval disc or multilobed appendages.
REMARKS: Historically, species of Scolelepis have been divided into two groups, those with a distinct notch in the ventral lamellae and possessing hooded hooks in the posterior notopodia (subgenus Scolelepis), and those with the ventral lamellae entire and lacking notopodial hooded hooks (subgenus Nerinides). Light (1978b), however, noted that these characters are not consistent for certain species and thus made no provision for separation of subgenera. Light's classification is followed herein. The other references listed above provide more detailed accounts of historical changes and other species to be found in the genus.

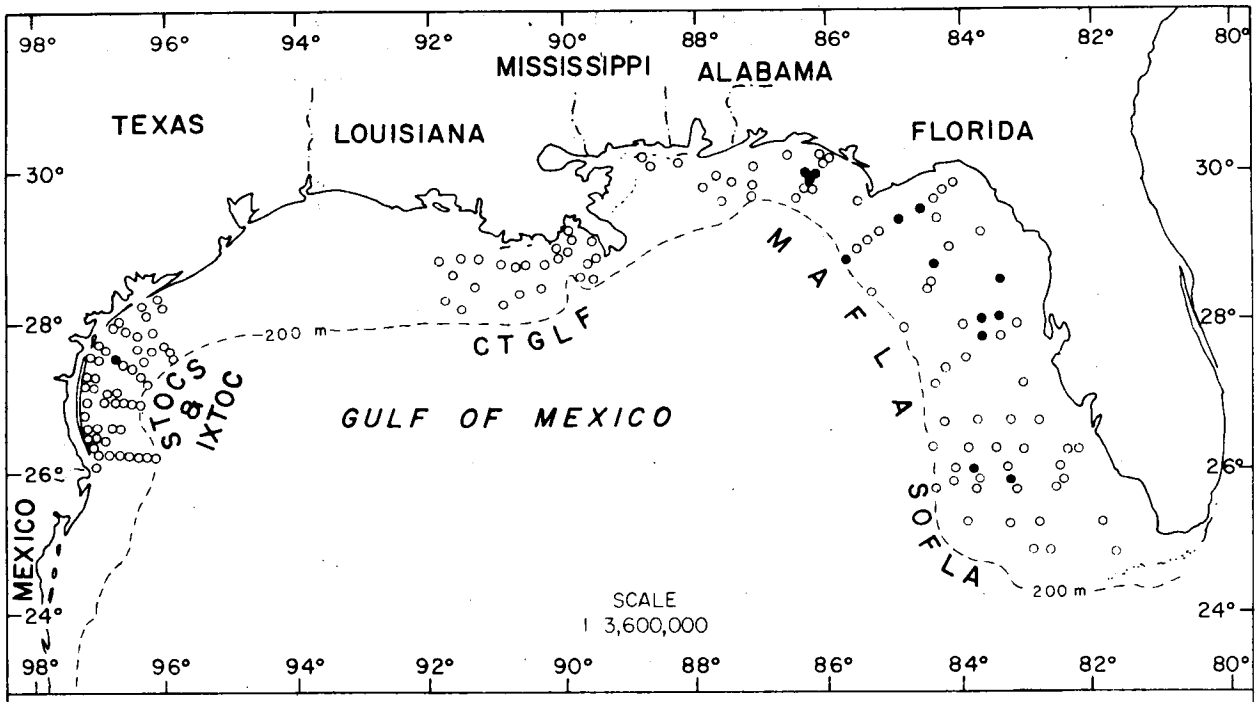

Figure 6-25. Distribution of Scolelepis texana on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

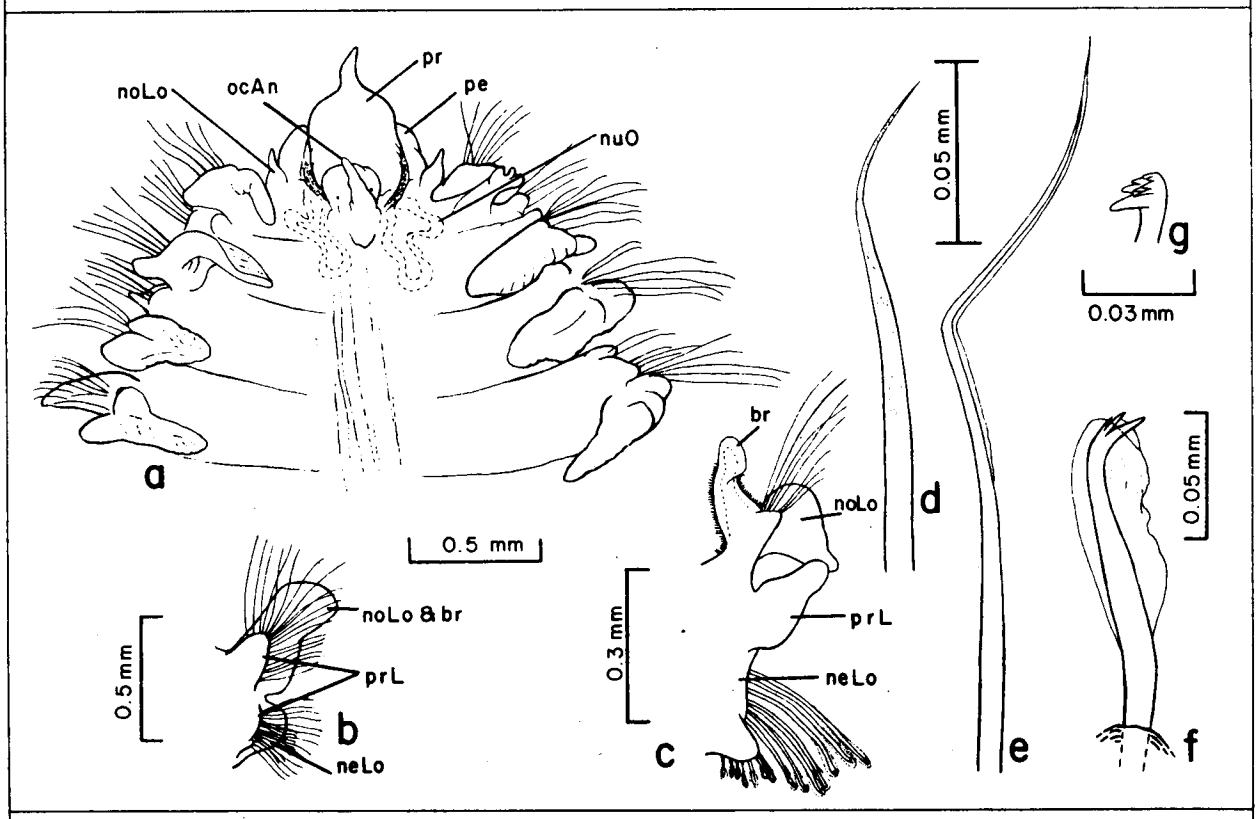

Figure 6-26. Scolelepis texana: a, anterior end, dorsal view; b, parapodium from setiger 8; c, same, from posterior setiger; d, short anterior neuroseta; e, long, limbate anterior neuroseta; f, hooded hook, lateral view; g, enlargement of same (Figures b-e, g redrawn from Foster 1971, figs. 133, 135, 137, 138, 140).

Key to the Gulf of Mexico BLM-OCS Species of Scolelepis

1a. Occipital antenna present (Figure 6-26a); notosetae absent on setiger 1; hooded hooks multidentate (Figure 6-26g). . . . . Scolelepis texana, p. 6-35

1b. Occipital antenna absent (Figure 6-28a); notosetae present on setiger 1; hooded hooks bi- to tridentate (Figure 6-28g,h). . . . . Scolelepis squamata, p. 6-37

Scolelepis texana Foster, 1971
Figures 6-25, 26a-g

Scolelepis texana--Foster, 1971:63, figs. 132-142.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12A-4/81 (2 spec., USNM 90684), 16C/E-8/81 (2 spec., USNM 90683); MAFLA 2208G-8/77 (1 spec.), 2209I-8/77 (1 spec.), 2210E-6/76 (1 spec.), 2210G-6/76 (1 spec.), 2210J-7/76 (2 spec.), 2316K-7/76 (1 spec.), 2422H-6/76 (1 spec.), 2422J-6/76 (5 spec., USNM 90681), 2423J-7/76 (1 spec.), 2427B-9/77 (1 spec.), 2531G-6/76 (3 spec., USNM 90682), 2531G-9/77 (1 spec., USNM 90685), 2532C-1/76 (1 spec., USNM 90680), 2852E-9/77 (1 spec., USNM 90686); IXTOC S50-4 11/79 (1 spec., USNM 90687).
DESCRIPTION:
Length, 4.4+ mm (previously reported to 8.66 mm); width, to 0.72 mm. Body dorsoventrally flattened and large anteriorly, evenly tapering posteriorly. Largest specimen incomplete with 27 setigers. Prostomium acutely pointed anteriorly, extending posteriorly through setiger 21, forming raised lobe at level of setiger 1. Occipital antenna prominent (Figure 6-26a). Two pairs of eyes, posterior pair often subdermal and difficult to detect. Nuchal organs roughly U-shaped, extending on either side of prostomiun onto setiger 3. Peristomium well-developed, without lateral wings. First setiger without notosetae, notopodial lamellae prominent, digitiform to clavate in shape, neuropodial lamellae auricular. Notopodial lamellae from setiger 2 strap-like, distally rounded and completely fused to branchiae through first 20-30 setigers (Figure 6-26b). Presetal notopodial lamellae prominent on first 10-15 setigers. Neuropodial lamellae initially rounded; small rounded presetal lamellae also present. Neuropodial lamellae becoming separated into long dorsal lobe and smaller ventral lobe by setiger 28. Notopodial lamellae becoming free from branchiae on posterior setigers (Figure 6-26c), fused only basally. Neuropodial lamellae becoming more prominently separated and enlarged dorsally and ventrally. Anterior setae all slender, capillary; arranged in two rows in both noto- and neuropodia. Setae of anterior row short, granulated (Figure 6-26d) with no sign of limbation; setae of posterior row long, thinly limbate (Figure 6-26e). Neuropodial hooded hooks multidentate with small main fang and 2-3 rows of minute teeth, appearing tri- to quadridentate in lateral view; hood prominent (Figure 6-26f,g). Hooks first appearing on setiger 15 (12-21), numbering 6-7 per fascicle, becoming more numerous (15-17) and elongate on posterior setigers. Pygidium not observed.
REMARKS: Specimens examined herein agree in all respects with Foster's (1971:63) description of S. texana.
PREVIOUSLY REPORTED HABITAT: Intertidal beach sand.

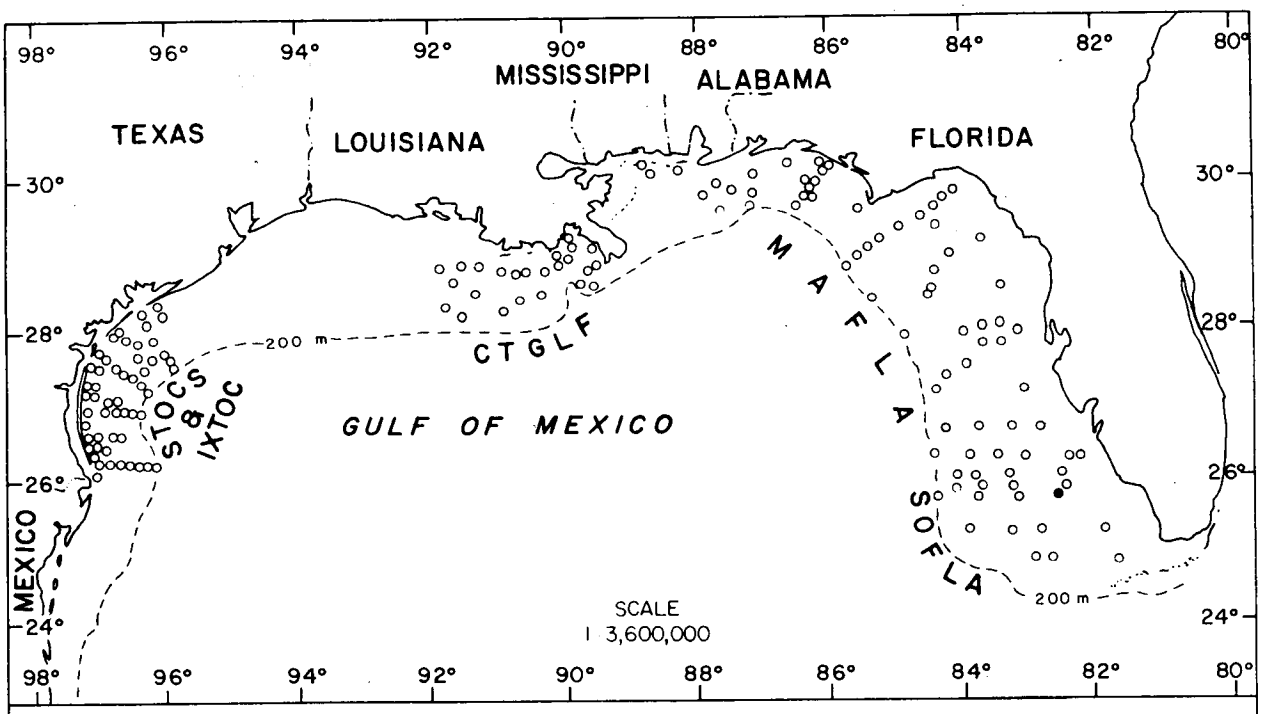

Figure 6-27. Distribution of Scolelepis squamata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

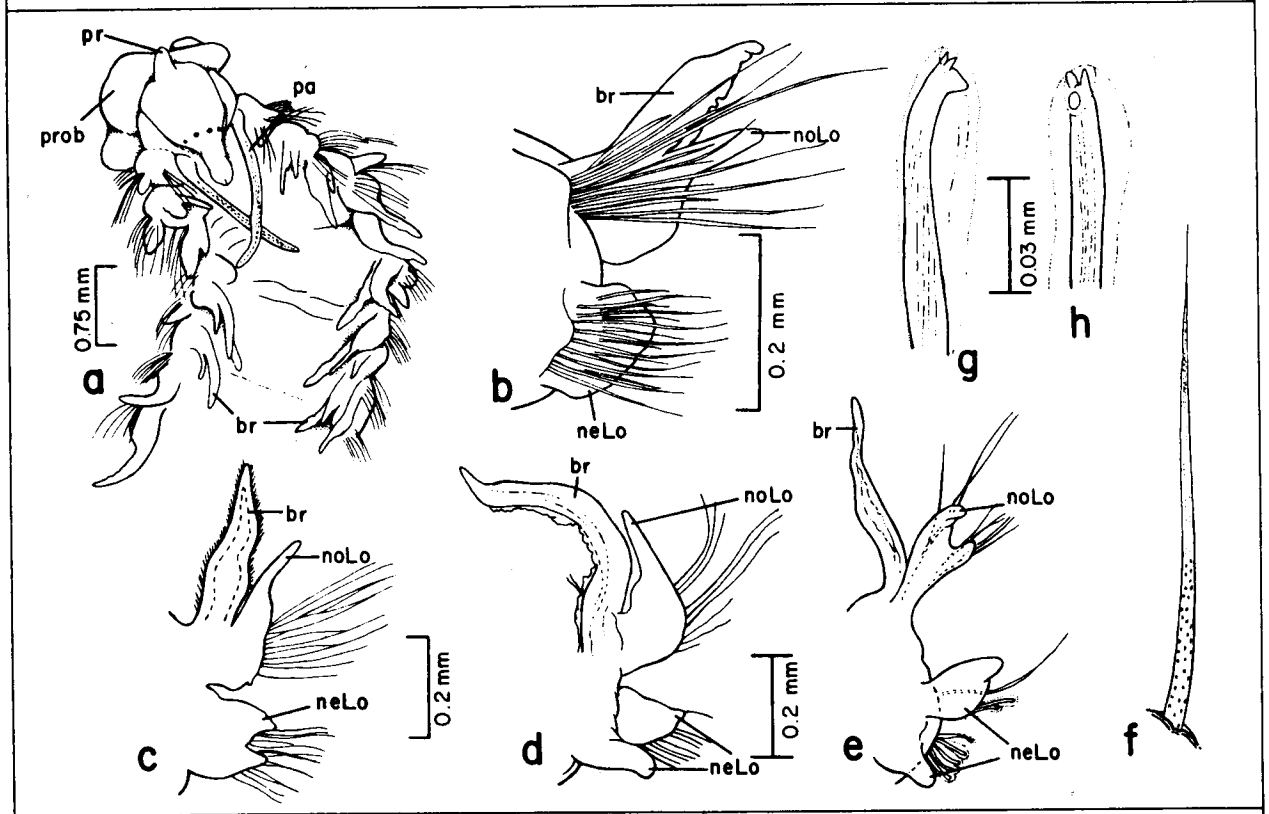

Figure 6-28. Scolelepis squamata: a, anterior end, dorsal view; b, parapodium from setiger 5; c, same, from setiger 14; d, same, from setiger 25; e, same, from setiger 28; f, anterior capillary neuroseta from setiger 14; g, hooded nook, oblique lateral view; h, same, frontal view.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and one off Texas (Figure 6-25); 19-175 m; coarse to fine sand, silty fine to very fine sand, clayey sandy silt, silty clay.
DISTRIBUTION: Gulf of Mexico.

Scolelepis squamata (O. F. Müller, 1806)
Figures 6-27, 28a-h

Nerine agilis--Hartman, 1945:31; 1951a:81.
Scolelepis squamata--Pettibone, 1963:92.
Scolelepis squamata--Foster, 1971:59, figs. 118-131.
Scolelepis squamata--Light, 1978b:105.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2960E-11/77 (1 spec.), 2960G-2/78 (1 spec.).
Supplementary Material:
Gulf of Mexico--Dauphin Island, Alabama, Sea Lab beach, Oct. 1973 (1 spec.); west end of Dauphin Isl., Gulf beach, Aug. 1974, J. Haddox coll., P. G. Johnson ID. (4 spec., USNM 55974).
DESCRIPTION:
Length, 8.8+ mm (previously reported to 47 mm, with 18 setigers); width, to 1.0 mm. Body widest anteriorly, tapering gradually posteriorly; rectangular in cross-section. All specimens incomplete with up to 32 setigers. Prostomium wide anteriorly, tapering abruptly toward distal end, narrow and elevated posteriorly into an attached caruncle extending onto setiger 2 (Figure 6-28a). Two pairs of eyes, arranged either trapezoidally or in a straight line at level of setiger 1. Peristomium moderately developed, separate from setiger 1; without lateral wings. Proboscis massive, forming two ventrally directed lobes when fully everted. Palps cirriform, inserted at point of constriction of prostomium, extending back to setiger 5 (Figure 6-28a). Setiger 1 well-developed with digitiform noto- and neuropodial lamellae; notosetae present. Notopodial lamellae long, auricular in shape throughout anterior setigers (Figure 6-28b-d), becoming distally bilobed beginning on setigers 25-28 (Figure 6-28e). Branchiae long, strap-like, fused at least basally to dorsal lamellae; overlapping on dorsum of middle setigers. Neuropodial lamellae rounded anteriorly (Figure 6-28b), becoming slightly notched by setiger 15 (Figure 6-28c); separated into rounded dorsal lobe and cirriform ventral lobe by setigers 22-25 (Figure 6-28d), lobes becoming more widely separated on subsequent setigers (Figure 6-28e). Anterior capillary setae arranged in two rows in both noto- and neuropodia (Figure 6-28b). Shafts granulated (Figure 6-28f). Neuropodial hooks bi- to tridentate (Figure 6-28g,h); first appearing on setigers 21-26; two distal teeth sometimes difficult to see in lateral view. One or two capillary neurosetae present in superior position of each fascicle bearing hooded hooks. Posterior segments and pygidium not observed.
REMARKS: BLM-OCS specimens of S. squamata generally conform to descriptions given by Foster (1971:59) and Light (1978b:105). The predominant occurrence of tridentate, rather than bi- or unidentate hooks in these small specimens may result from less wear in younger individuals. However, this sequence could, in part, also be explained by differences in juvenile setae. The supplementary material examined, being larger

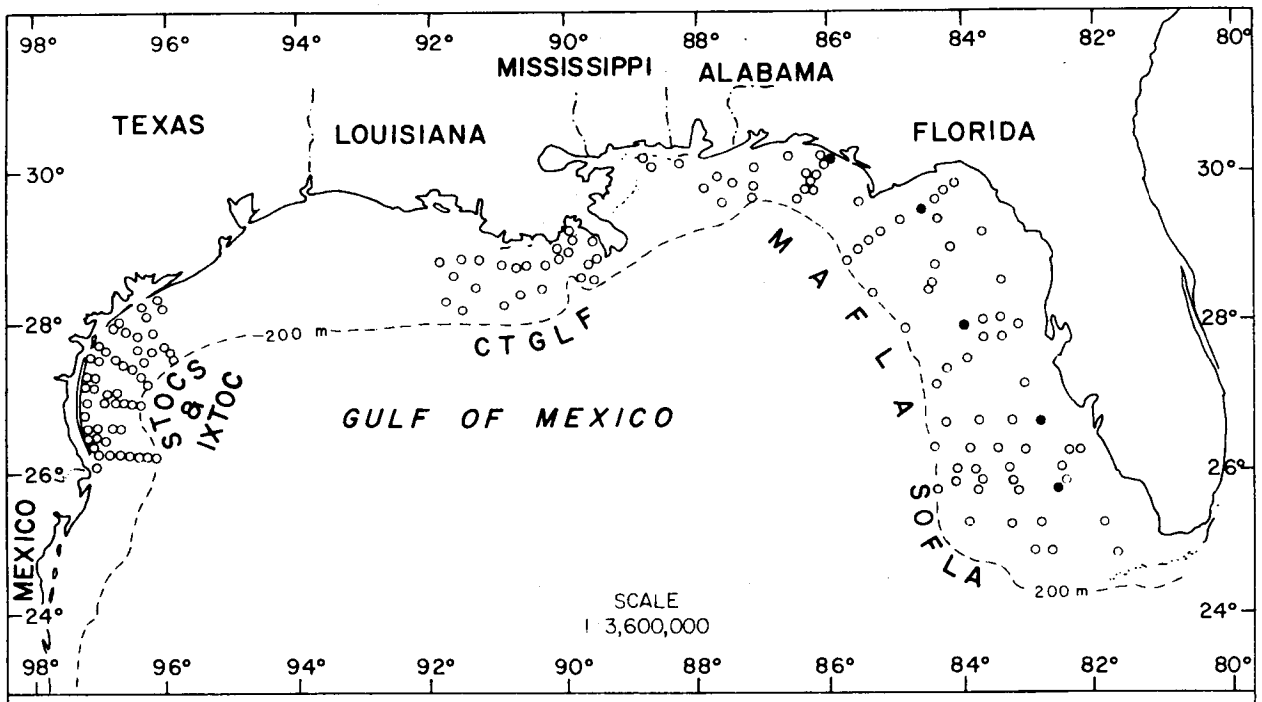

Figure 6-29. Distribution of Aonides mayaguezensis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

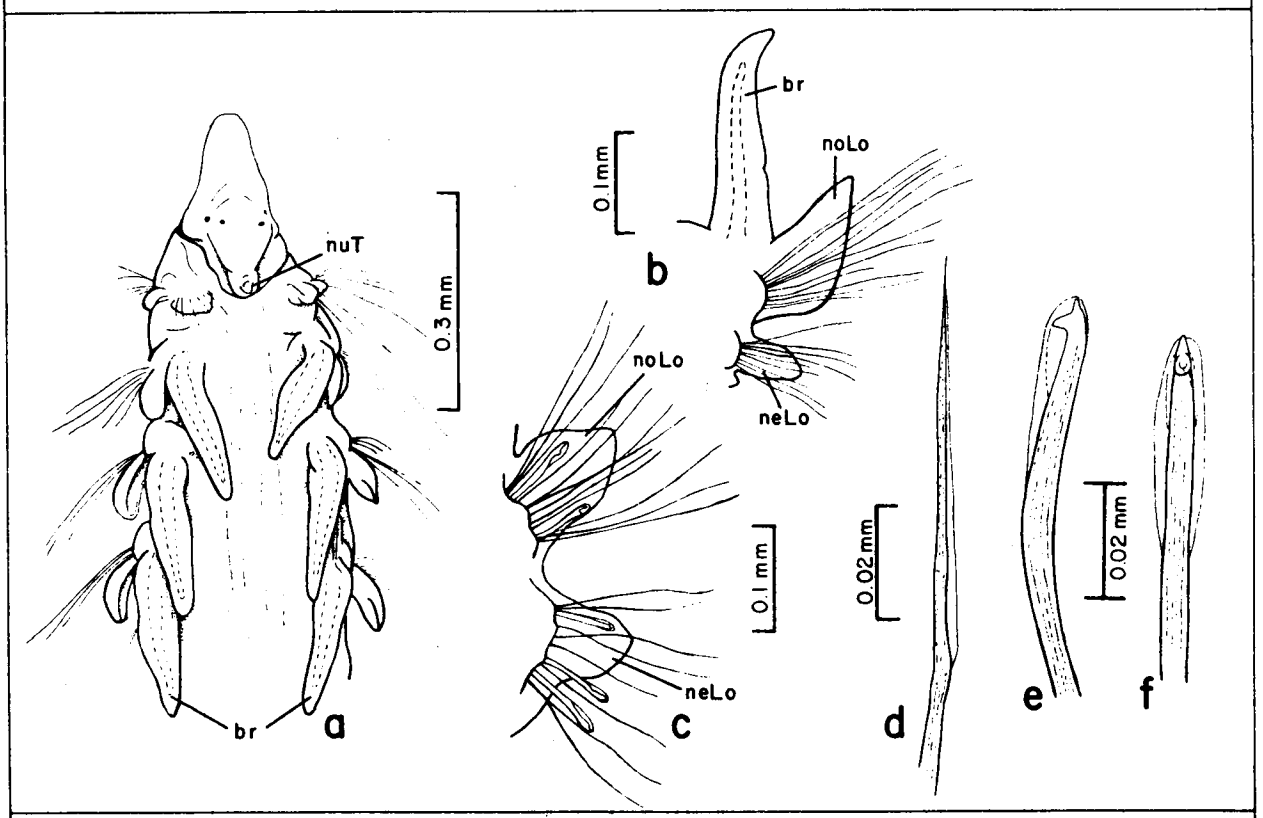

Figure 6-30. Aonides mayaguezensis: a, anterior end, dorsal view; b, parapodium from setiger 10; c, same, from setiger 26; d, anterior limbate seta; e, hooded hook, lateral view; f, same, frontal view (Figures a-c from Foster 1971, figs. 143, 147, 148).

(adult) specimens, more closely corresponds to previous descriptions of this species.
PREVIOUSLY REPORTED HABITAT: Commonly found in intertidal beach sand where it constructs small vertical burrows; also found in well-sorted sand sediments up to 25 m (Wolff, 1973:126).
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off southern Florida (Figure 6-27); 27 m; fine sand.
DISTRIBUTION: North Atlantic, New England to Florida, Gulf of Mexico, Scotland to South Africa, Mozambique, Mediterranean, northwestern Pacific, Canada to southern California, Central America, both sides of the Isthmus of Panama.

Genus **Aonides** Claparède, 1864

TYPE SPECIES: Nerine oxycephala (Sars, 1862).
REFERENCES:
Foster, 1971:65.
Fauchald, 1977a:23.
DIAGNOSIS: Prostomium conical, anteriorly pointed, tapered posteriorly. Peristomium poorly developed. Branchiae all cirriform, clearly separated from dorsal lamellae; beginning on setiger 2 and limited to anterior end. All anterior setae limbate; hooded hooks bi- or tridentate, present in both noto- and neuropodia posteriorly. Pygidium with anal cirri.

Key to the Gulf of Mexico BLM-OCS Species of Aonides

1a. Hooded hooks bidentate (Figure 6-30e,f) with single tooth above main fang; branchiae numbering 15-16 pairs. . . . . **Aonides mayaguezensis**, p. 6-39

1b. Hooded hooks tridentate (Figure 6-32e,f) with two equal teeth above main fang; branchiae numbering 6-8 pairs. . . . . **Aonides paucibranchiata**, p. 6-41

Aonides mayaguezensis Foster, 1969
Figures 6-29, 30a-f

Aonides mayaguezensis Foster, 1969:393, figs. 22-33; 1971:66, figs. 143-154.
Aonides sp.--Day 1973:72.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2-11/80 (2 spec., USNM 90693); MAFLA 2211D-8/77 (1 spec., USNM 90691), 2422F-7/76 (1 spec., USNM 90692), 2529-6/76 (7 spec., USNM 55889), 2960G-2/77 (4 spec., USNM 90690; 1 spec.).
DESCRIPTION:
Length, 20+ mm (previously reported to 6.6 mm, with 37 setigers); width, to 1.0 mm. All specimens incomplete with up to 43 setigers. Prostomium (Figure 6-30a) conical, anteriorly pointed, abruptly tapered posteriorly to about level of setiger 1. Occipital antenna (nuchal tentacle) digitiform, usually present on posterior half of prostomium. Two pairs of

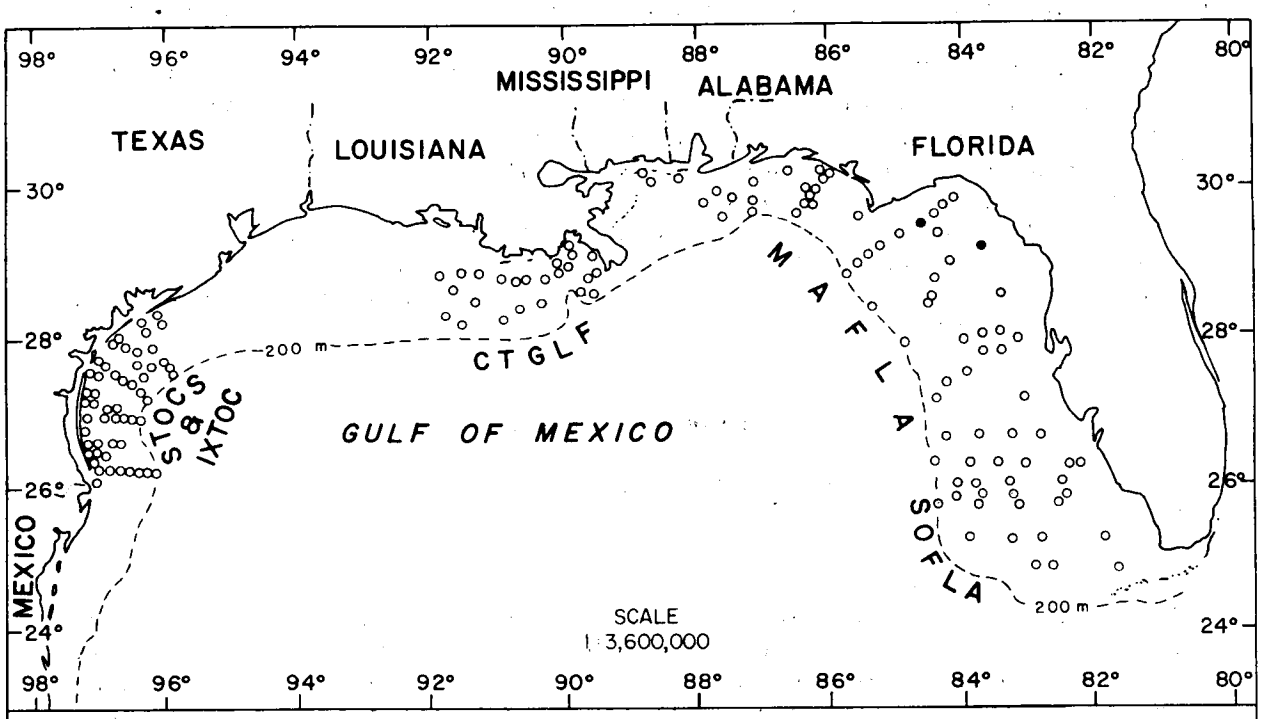

Figure 6-31. Distribution of Aonides paucibranchiata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

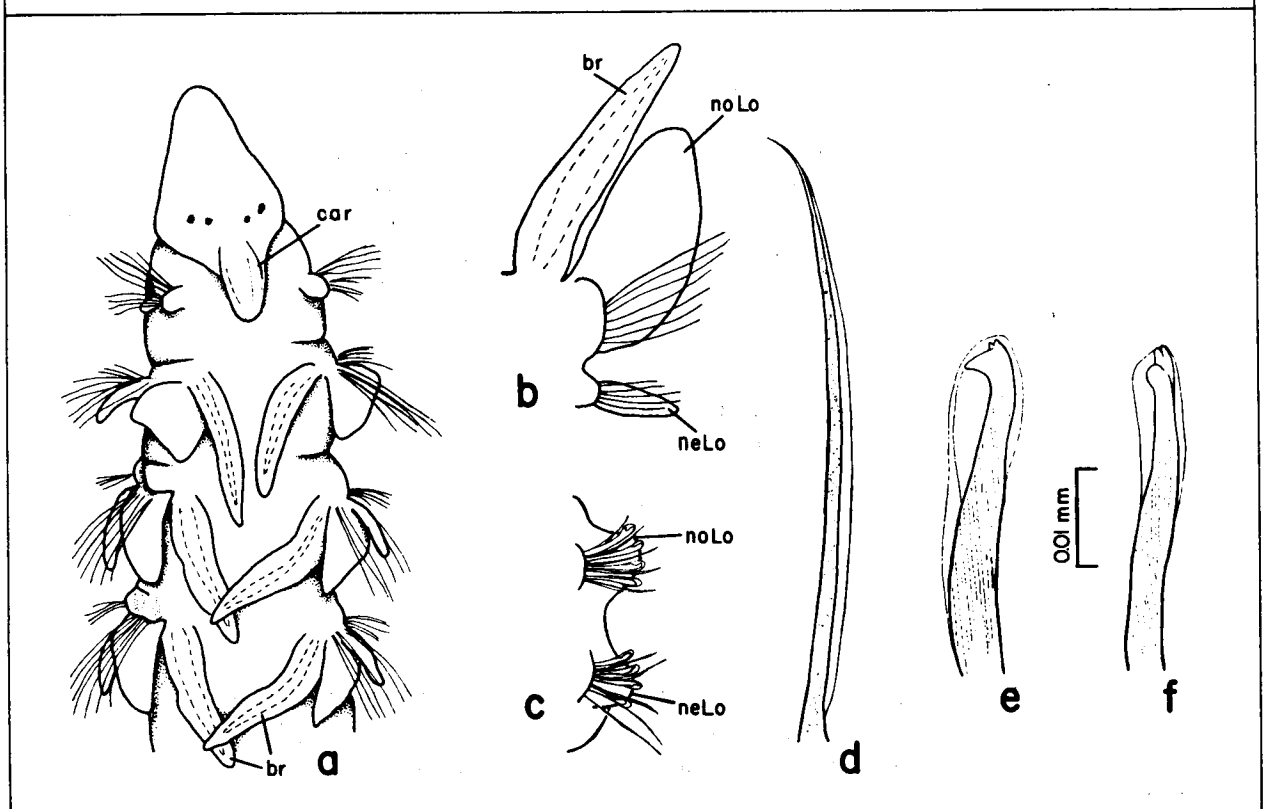

Figure 6-32. Aonides paucibranchiata: a, anterior end, dorsal view; b, parapodium from setiger 6; c, same, from posterior setiger; d, anterior limbate seta; e, hooded hook, lateral view; f, same, oblique frontal view (Figures a-e modified from Hartmann-Schröder 1971, fig. 113a-e).

eyes, posterior pair closer together and easier to detect. Peristomium surrounding posterior half of prostomium laterally, not projecting up as peristomial wings. Branchiae cirriform, erect, all of similar size and shape, generally longer than dorsal lamellae (Figure 6-30b); numbering 15-16 pairs beginning on setiger 2. Anterior parapodial region somewhat dorsoventrally flattened; dorsal and ventral lamellae well-developed, gradually decreasing in size in postbranchial region (Figure 6-30c). Anterior setae all limbate (Figure 6-30d). Bidentate hooded hooks (Figure 6-30e,f) first appearing in neuropodia by setigers 21-27; notopodial hooded hooks appearing 1-3 segments later. Pygidium missing.
PREVIOUSLY REPORTED HABITAT: Sandy sediments, 10-20 m depth.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in moderate depths off Florida (Figure 6-29); 24-43 m; coarse to fine sand.
DISTRIBUTION: Puerto Rico, North Carolina, Gulf of Mexico.

Aonides paucibranchiata Southern, 1914
Figures 6-31, 32a-f

Aonides paucibranchiata--Southern, 1914:100, pl. 11, fig. 24.
Aonides paucibranchiata--Fauvel, 1927:40, fig. 13f-k.
Aonides paucibranchiata--Hartmann-Schröder, 1971:329, fig. 113.
Aonides paucibranchiata--Foster, 1969:395; 1971:68.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2318C-11/77 (1 spec., USNM 90695), 2422C-7/76 (10 spec., USNM 90694).
DESCRIPTION:
Length, 13+ mm (previously reported to 25 mm, with about 100 segments); width, to 0.5 mm. All specimens incomplete with up to 50 setigers. Prostomium (Figure 6-32a) conical, anteriorly rounded, tapered posteriorly to about level of setiger 1. Occipital antenna absent. Two pairs of dark, red eyes, arranged in a slightly curved arch. Peristomium surrounding posterior half of prostomium laterally, not projecting up as peristomial wings. Cirriform branchiae beginning on setiger 2, numbering 6-8 pairs; generally longer than dorsal lamellae, held erect, approximately equal in size and shape throughout (Figure 6-32b). Anterior parapodial region cylindrical. Parapodial lamellae well-developed anteriorly; decreasing in size in postbranchial region (Figure 6-32c). Anterior setae all limbate (Figure 6-32d), heavily granulated. Hooded hooks tridentate (Figure 6-32e,f), with two equal teeth above main fang; first appearing in neuropodia of setiger 20 (17-30). Notopodial hooded hooks appearing 5-8 setigers later. Pygidium missing.
REMARKS: The material examined corresponds in most respects with previous descriptions of Aonides paucibranchiata (Southern, 1914; Fauvel, 1927). The appearance of notopodial hooded hooks prior to neuropodial hooks, as described by Hartmann-Schröder (1971:329), is contrary to the arrangement reported for most spionids.
PREVIOUSLY REPORTED HABITAT: Coarse sand, shell and fine gravel; 10-80 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two records off Florida (Figure 6-31); 20-24 m; medium to medium-fine sand.
DISTRIBUTION: Eastern North Atlantic, Black Sea, North Sea, Gulf of Mexico.

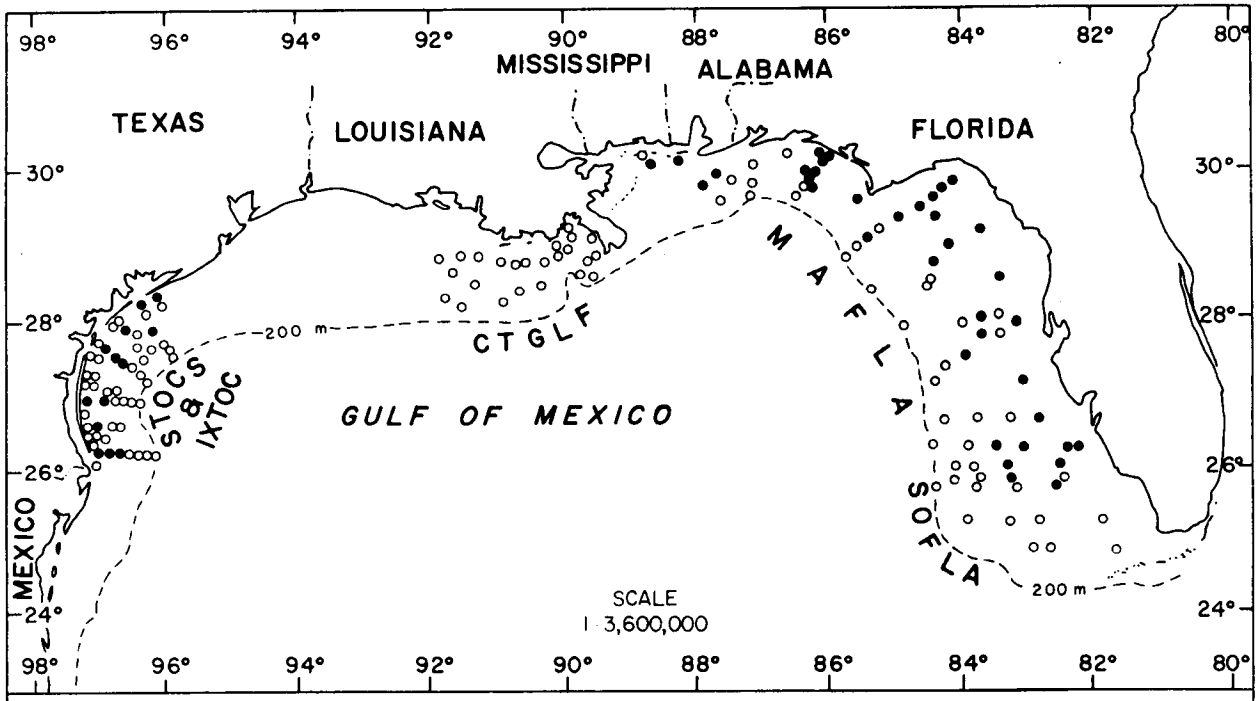

Figure 6-33. Distribution of Malacoceros vanderhorsti on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

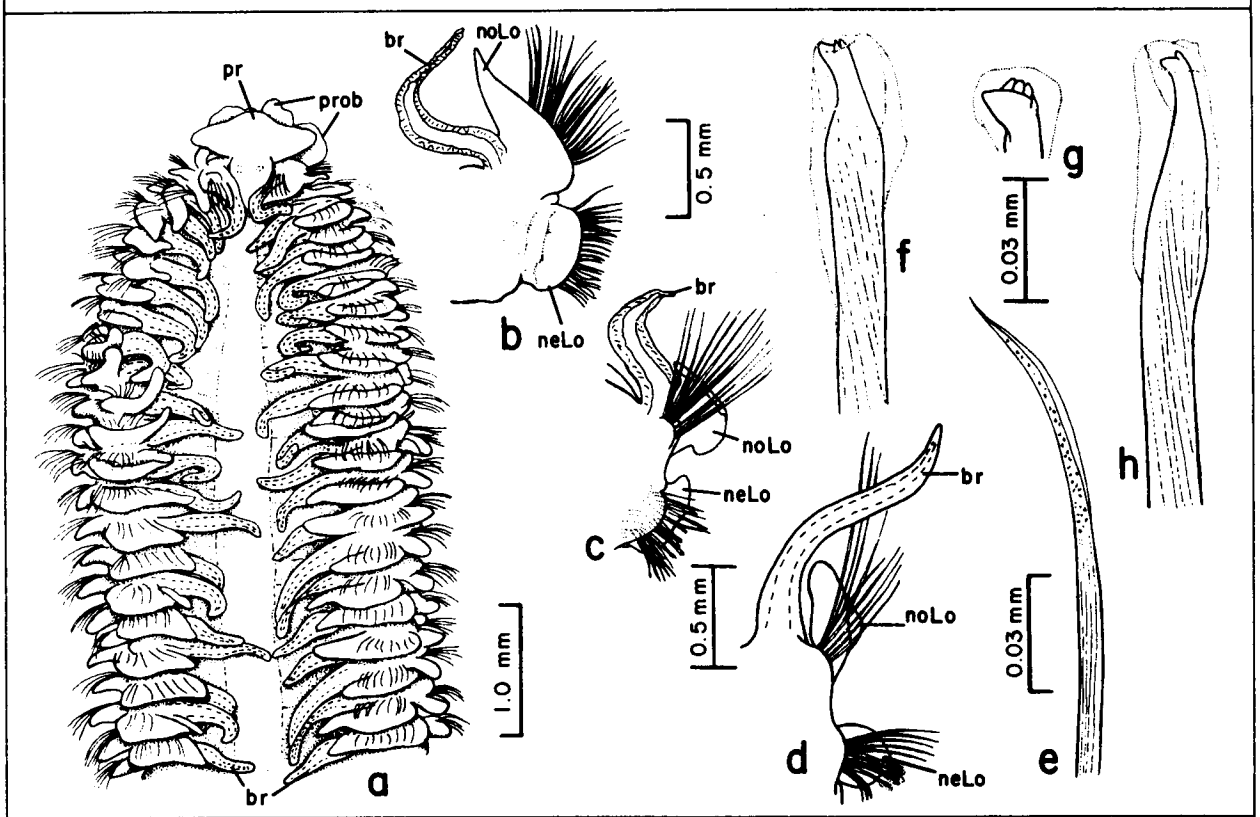

Figure 6-34. Malacoceros vanderhorsti: a, anterior end, dorsal view; b, parapodium from setiger 17; c, same, from setiger 62; d, same, from setiger 80; e, sabre seta; f, tridentate hooded hook; g, quadridentate hooded hook; h, bidentate hooded hook.

Genus **Malacoceros** Quatrefages, 1843

TYPE SPECIES: Spio vulgaris Johnston, 1827.
REFERENCES:
Pettibone, 1963:99.
Foster, 1971:47.
Fauchald, 1977a:24.
Blake and Kudenov, 1978:195.
DIAGNOSIS: Prostomium with frontal horns. Branchiae beginning on setiger 1 and continuing to near posterior end of body; only basally fused to notopodial lamellae. Notosetae capillary; neurosetae including capillary setae, hooded hooks and sabre setae. Pygidium with anal cirri.
REMARKS: The above definition follows Fauchald (1977a) and Blake and Kudenov (1978) in elevating Malacoceros and Rhynchospio to generic rank, rather than subgeneric status as provided by Pettibone (1963) and Foster (1971). This effectively separates those species in which branchiae begin on setiger 2 to the genus Rhynchospio.

Malacoceros vanderhorsti (Augener, 1927)
Figures 6-33, 34a-h

Scolecolepis vanderhorsti Augener, 1927b:64.
Malacoceros (Malacoceros) vanderhorsti--Pettibone, 1963:99.
Malacoceros (Malacoceros) vanderhorsti--Foster, 1971:48, figs. 86-92.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2F-12/80 (1 spec., USNM 90705), 6B-12/80 (1 spec., USNM 90704), 8D-11/80 (1 spec., USNM 90696); MAFLA 2318D-8/76 (1 spec.), 2419D-7/76 (1 spec.), 2422C-7/76 (10+ spec., USNM 90697), 2422F-7/76 (1 spec., USNM 90698), 2423-7/76 (1 spec., USNM 55892); STOCS 2/I-F/76 (1 spec., USNM 90699), 1/II-6 S/76 (1 spec., USNM 90701), 1/II-2 12/76 (1 spec., USNM 90700), 2/II-1 4/76 (1 spec., USNM 90702), 4/III-S/76 (1 spec., USNM 90703); IXTOC S49-2 12/79 (1 spec., USNM 90706).
DESCRIPTION:
Length, 50+ mm (previously reported to 55 mm, with 151 setigers); width, to 3.0 mm. All specimens incomplete with up to 170+ setigers. Body large, broad and dorsoventrally flattened for first 20-30 segments, appearing ragged due to long branchiae and notopodial lamellae (Figure 6-34a). Prostomium anteriorly curved with prominent, thick, laterally directed frontal horns; narrowing abruptly posteriorly into broad, elevated triangular lobe (Figure 6-34a). Eyes variable, as 3-5 irregularly arranged spots on either side of elevated area of prostomium. Proboscis membranous, sac-like, slightly protruding on most specimens examined. Parapodia of setiger 1 well-developed, more dorsal and slightly smaller than those of subsequent setigers. Cirriform branchiae beginning on setiger 1, continuing to posterior end of body; basally fused to notopodial lamellae, tapered distally, exceeding length of dorsal lamellae by 2-3 times on most setigers. Notopodial lamellae auricular for first 15-20 setigers; becoming longer and narrower with tapered tips thereafter (Figure 6-34a,b) to about setigers 50-60; thereafter again becoming smaller, more rounded, and basally expanded (Figure 6-34c). Neuropodial lamellae broadly rounded, extending laterally from body; often with ripple-like protuberance along free edge of lamellae on middle setigers.

Protuberance, when present, becoming more obvious on far posterior segments (Figure 6-34d). Neuropodial lamellae of posterior segments may also be asymmetrically rounded (Figure 6-34c). Limbate setae in dense whorls in both rami of anterior setigers and in the notopodia throughout; finely granular distally with thin, clear limbations. Neuropodia of most setigers with ventral group of 6-8 sabre setae. Sabre setae larger than limbate setae, finely granular, slightly limbate with thin, asymmetrically tapered tips (Figure 6-34e). Hooded hooks first appearing in neuropodia of setigers 24-70; primarily tridentate (Figure 6-34f) with two parallel distal teeth above more blunt main fang. Posterior hooks sometimes with third distal tooth above main fang (Figure 6-34g); anterior hooks sometimes appearing bidentate (Figure 6-34h) to unidentate due to wear of the distal teeth. Pygidium not observed.
REMARKS: The majority of material examined closely corresponds to Foster's (1971:48) description of Malacoceros vanderhorsti. Specimens from more southerly regions (e.g., SOFLA material), however, possessed the nipple-like neuropodial lamellae more characteristic of Malacoceros indicus (Fauvel, 1928). The origin of hooded hooks and dentition, however, did not match the range described by Foster (1971:50) for M. indicus. The large degree of variability in characters used to distinguish species of Malacoceros (i.e., number of distal teeth on the hooded hooks, segment of origin of hooded hooks, shape of the neuropodial lobes) suggests that a more detailed analysis and possible revision of the genus is needed.
PREVIOUSLY REPORTED HABITAT: Intertidal sand to depths of 33 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records off Florida and Texas (Figure 6-33); 10-75 m; coarse to very fine sand, silty fine sand, clayey sand, silty clayey sand, sandy silt, silty clay, sandy silty clay.
DISTRIBUTION: Caribbean Sea, Gulf of Mexico.

Genus **Paraprionospio** Caullery, 1914

TYPE SPECIES: Prionospio pinnata Ehlers, 1901b.
REFERENCES:
Foster, 1971:100.
Fauchald, 1977a:24.
DIAGNOSIS: Prostomium spindle-shaped, anteriorly rounded, without posterior caruncle. Peristomium well-developed, forming erect peristomial wings posteriorly. Setiger 1 well-developed, with transverse dorsal membrane connecting first pair of branchiae. Branchiae present as three pairs, all pinnate, from setiger 1. Anterior setae all capillary. Multidentate hooded hooks present in posterior noto- and neuropodia. Ventral sabre setae present. Pygidium with two short ventrolateral cirri and one long medial cirrus.

Paraprionospio pinnata (Ehlers, 1901)
Figures 6-35, 36a-g

Prionospio pinnata Ehlers, 1901b:163.
Prionospio tenuis--Hartman, 1945:32 [Not Verrill, 1880].
Prionospio treadwelli Hartman, 1951a:84.

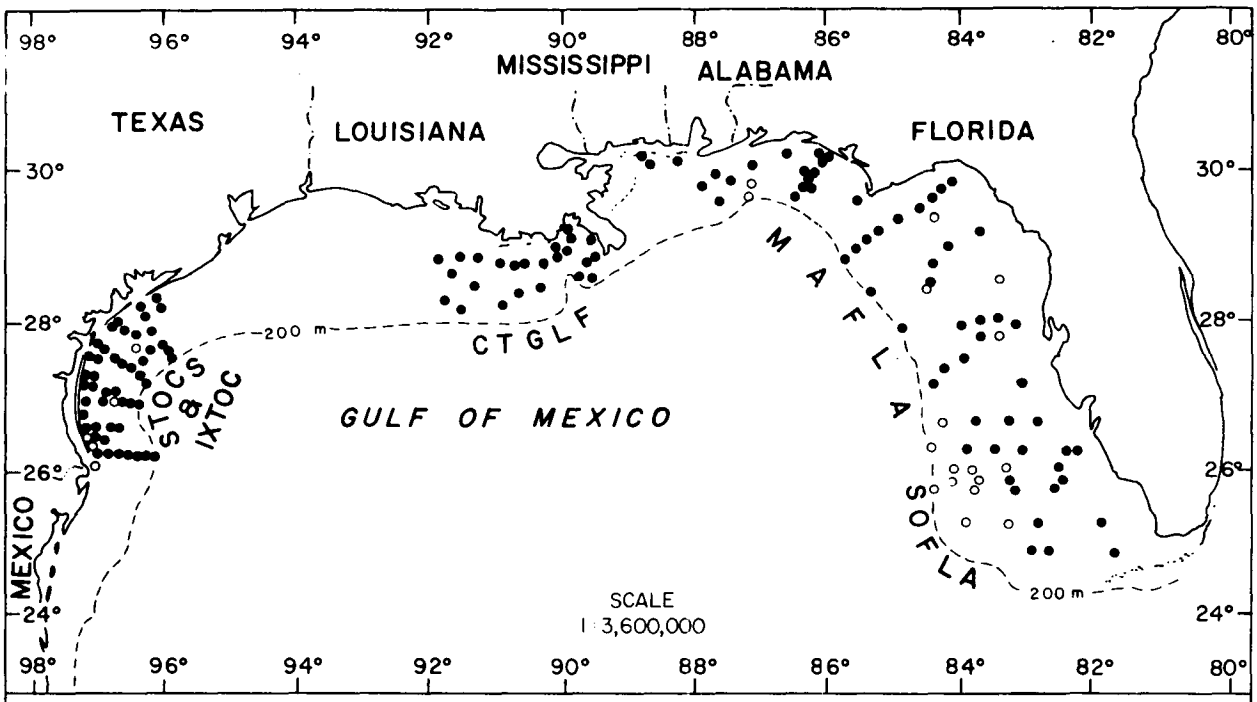

Figure 6-35. Distribution of Paraprionospio pinnata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

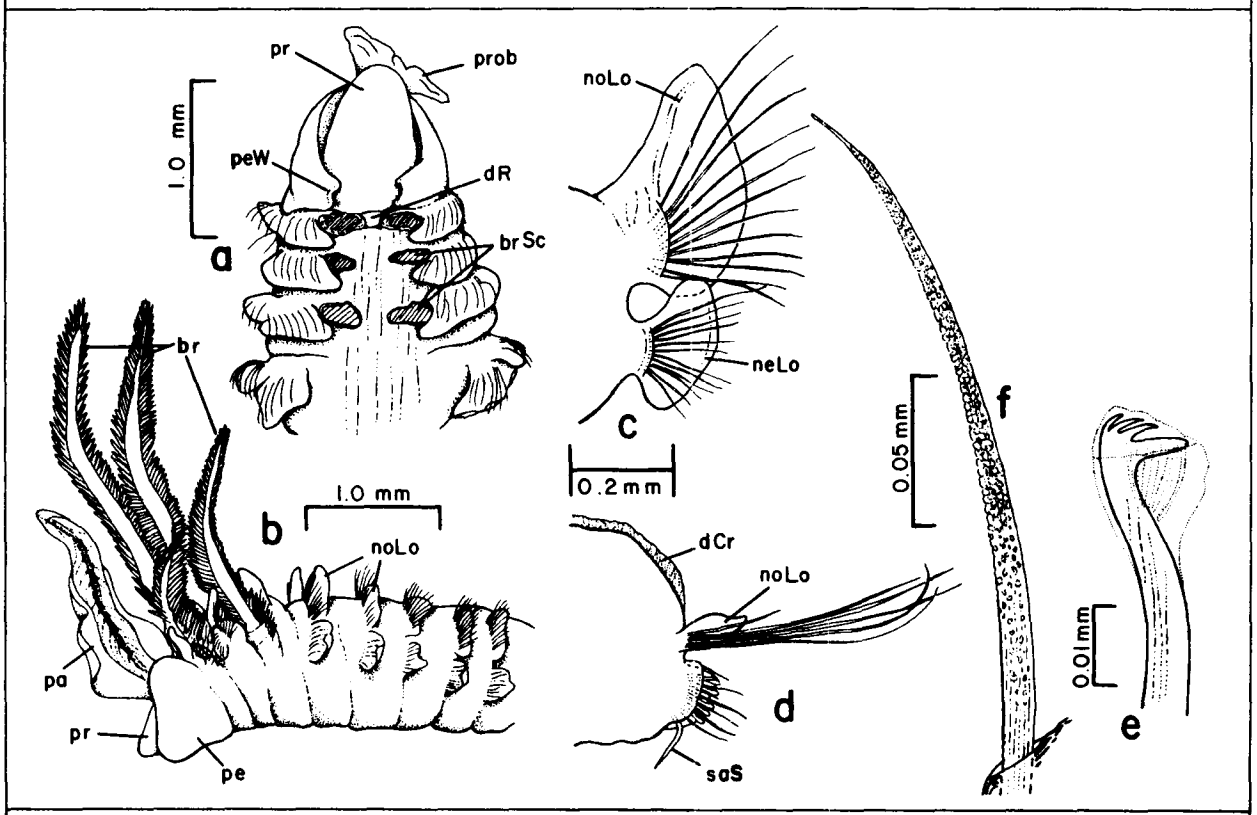

Figure 6-36. Paraprionospio pinnata: a, anterior end, dorsal view; b, same, lateral view; c, parapodium from setiger 3; d, same, from posterior setiger; e, neuropodial hooded hook; f, sabre seta.

Prionospio pinnata--Hartman, 1960:114, pl. 9, figs. 1-3; 1969:161, figs. 1-4.
Prionospio pinnata--Day, 1967:488, fig. 18.8.i-1.
Paraprionospio pinnata--Foster, 1969:389 [with synonymy], figs. 12-21; 1971:102, figs. 237-246.
Paraprionospio pinnata--Blake and Kudenov, 1978:209.
Prionospio (Paraprionospio) pinnata--Light, 1978b:76, figs. 77A-J, 79A-G.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 14A-4/81 (1 spec., USNM 90710), 14D-8/81 (4 spec., USNM 90709); MAFLA 2316J-8/76 (1 spec.), 2422C-7/76 (2 spec., USNM 91400), 2423B-7/76 (2 spec.), 2423D-7/76 (2 spec., USNM 55894); CTGLF 03-5/78 (4 spec., USNM 90707); STOCS 1/II-5 F/76 (38 spec., USNM 90711); IXTOC S54-11/79 (1 spec., USNM 90708).
DESCRIPTION:
Length, to 25 mm (previously reported to 48 mm, with 122 setigers); width, to 1.4 mm. Largest complete specimen with 75 setigers. Prostomium narrow, spindle-shaped, usually rounded anteriorly; enclosed laterally by peristomium, posteriorly by highly developed peristomial wings (Figure 6-36a). Caruncle absent; eyes inconspicuous or absent. Second segment achaetous, entirely fused with peristomium. Palps deeply grooved ventrally with broad membranes attached basally (Figure 6-36b). Conspicuous dorsal ridge connecting branchial bases on setiger 1 (Figure 6-36a). Anterior parapodial lamellae well-developed; long, auricular in branchial region (Figure 6-36c), becoming rounded and smaller posteriorly (Figure 6-36d). Anterior setae all capillary. Multidentate neuropodial hooded hooks (Figure 6-36e) first appearing about setiger 9 along with stout sabre setae (Figure 6-36f). Notopodial hooks appearing posterior to setiger 19. Pygidium with a short pair of lateral lobes and a single, long middorsal cirrus. Proboscis bilobed (Figure 6-36g).
REMARKS: Branchiae are often missing or in various states of regeneration. Some regenerating branchiae may be completely smooth (Light, 1978b:76; pers. obs. of author). The length and shape of the branchiae are extremely variable, especially in juvenile forms. This may possibly be due to the physico-chemical nature of the environment to which they are exposed.
PREVIOUSLY REPORTED HABITAT: Primarily silt and sandy silt sediments; eurybathyal, 3-1300 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records throughout northern Gulf (Figure 6-35); 4.5-189 m; coarse to very fine sand, silty fine sand, silty sand, clayey sand, sandy silt, clayey silt, sandy clayey silt, silty clay, sandy silty clay.
DISTRIBUTION: Chesapeake Bay to Florida, Gulf of Mexico, Caribbean, Morocco, W. to S. Africa, Indian Ocean; western Canada to Chile, Japan, New Zealand, New South Wales.

Genus **Prionospio** Malmgren, 1867 sensu lato

TYPE SPECIES: Prionospio steenstrupi Malmgren, 1867b.
REFERENCES:
Foster, 1971:80.
Fauchald, 1977a:24.

DIAGNOSIS: Prostomium anteriorly rounded to bluntly squared, posteriorly extended as a raised caruncle to about level of setiger 2; occipital antenna absent. Peristomium fused with setiger 1; lateral wings variously developed. Parapodia of setiger 1 small but distinct. Branchiae cirriform or both cirriform and pinnate, beginning on setiger 2; clearly separated from large, postsetal notopodial lobes. Anterior setae all capillary. Multidentate hooded hooks present in both noto- and neuropodia of posterior setigers. Ventral sabre setae usually present. Pygidium with one long middorsal and two short lateral anal cirri.

Subgenus **Prionospio** Malmgren, 1867b

DIAGNOSIS: Prostomium anteriorly rounded. Peristomial wings well-developed. Branchiae numbering five pairs, both cirriform and pinnate.

Key to the Gulf of Mexico BLM-OCS Species of Prionospio (Prionospio)

1a. Four pairs of branchiae; first and fourth pairs pinnate, second and third pairs cirriform. 2
1b. Five pairs of branchiae; first, fourth and fifth pairs pinnate; second and third pairs cirriform . . . . . .**Prionospio (Prionospio) heterobranchia***

2a. High membranous folds present across dorsum of setiger 7 (Figure 6-40a) or setigers 7 and 9 (Figure 6-42a). 3
2b. High membranous folds absent; low transverse ridges may be present across dorsum of a variable number of post-branchial setigers (Figure 6-38a). . . . **Prionospio (Prionospio) steenstrupi**, p. 6-47

3a. High dorsal membranous fold on setiger 7 only (Figure 6-40a) . . . . . .**Prionospio (Prionospio) fallax**, p. 6-49
3b. High dorsal membranous folds on setigers 7 and 9, possibly with lower crest on setiger 8 (Figure 6-42a). . . . . .**Prionospio (Prionospio) cristata**, p. 6-51

*Not recorded in Gulf of Mexico BLM-OCS collections, but previously reported from the area (Hartman, 1951a:85).

Prionospio (Prionospio) steenstrupi Malmgren, 1867
Figures 6-37, 38a-e

Prionospio steenstrupi Malmgren, 1867b:202.
Prionospio steenstrupi--Fauvel, 1927:60, fig. 21f-i.
Prionospio steenstrupi--Hartman, 1965:152; 1969:165, figs. 1, 2.
Prionospio steenstrupi--Day, 1967:489, fig. 18.9.o-r.
Prionospio steenstrupi--Foster, 1971:84 [with synonymy], figs. 175-185.
Prionospio steenstrupi--Light, 1978b:88, figs. 89, 90.
Prionospio steenstrupi--Blake and Kudenov, 1978:213, fig. 20a.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5A-11/80 (2 spec., USNM 90713), 28B-11/80 (1 spec., USNM 90714),

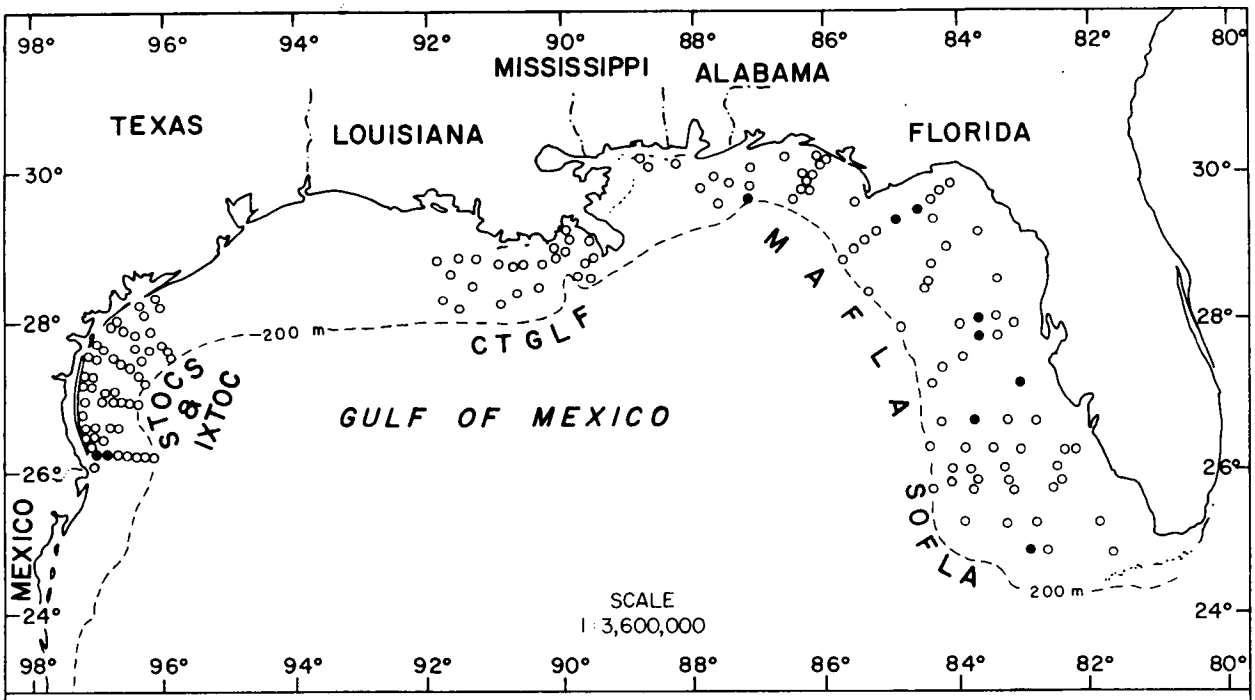

Figure 6-37. Distribution of Prionospio (Prionospio) steenstrupi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

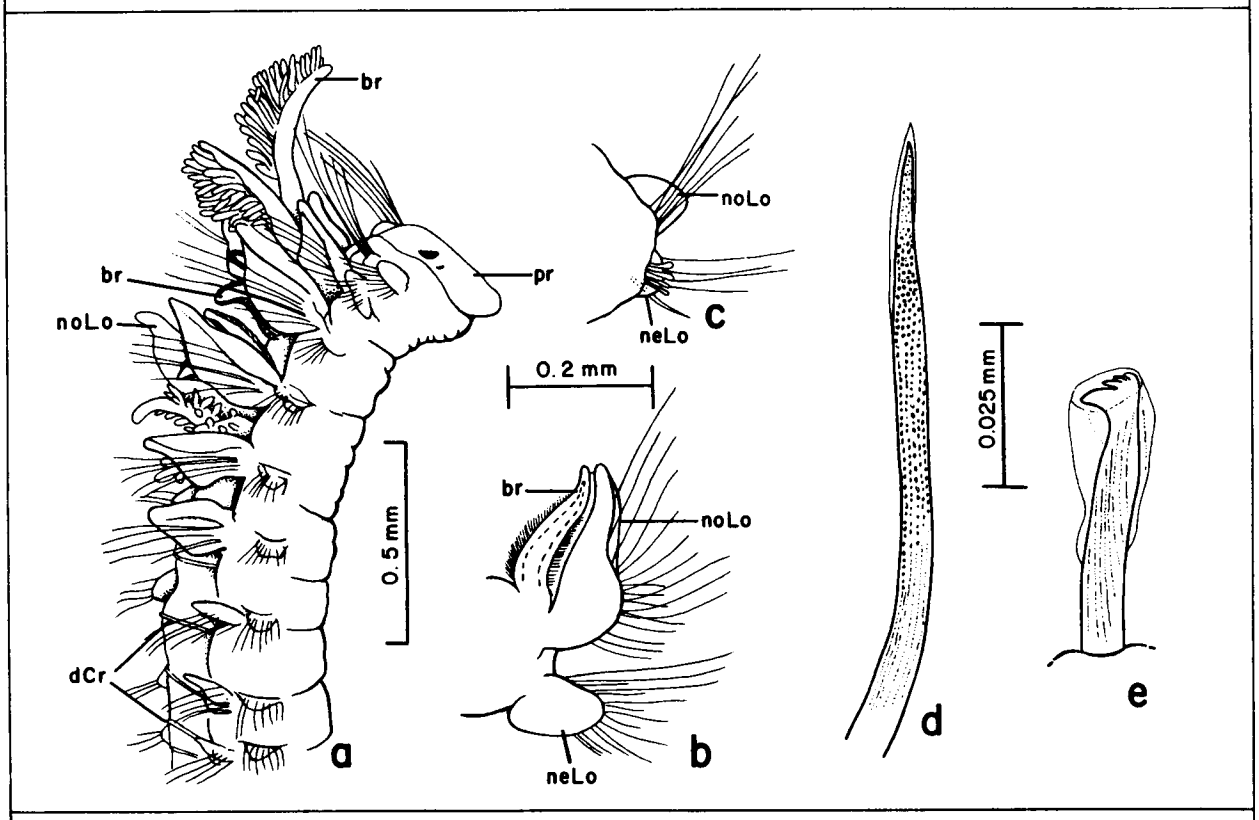

Figure 6-38. Prionospio (Prionospio) steenstrupi: a, anterior end, lateral view; b, parapodium from setiger 4; c, same, from setiger 20; d, sabre seta; e, hooded hook.

28C-8/81 (3 spec., USNM 90715); MAFLA 6I-5/74 (4 spec., USNM 55992), 2209B-7/76 (3 spec.), 2210B-7/76 (3 spec.), 2422C-7/76 (2 spec.), 2422E-7/76 (1 spec.), 2422J-7/76 (8 spec.), 2423J-7/76 (5 spec.), 2645F-7/76 (2 spec.), 2851B-7/76 (6 spec., USNM 90717); STOCS 1/IV-3 F/76 (16 spec., USNM 90716); IXTOC S53-11/79 (1 spec., USNM 90712).

DESCRIPTION:

Length, to 27 mm (previously reported to 25 mm, with 53-63 setigers); width, to 0.7 mm (previously reported to 0.8 mm). Largest specimen complete with 70 setigers. Prostomium anteriorly rounded, slightly inflated, extending posteriorly as a narrow caruncle to about level of setiger 2. Two pairs of eyes; anterior pair smaller, farther apart, often subdermal and inconspicuous; posterior pair large, elliptical. Notopodial lamellae small, rounded on setiger 1; large, lamellar on setiger 2; larger, triangular, dorsolaterally folded on setigers 3-4 (Figure 6-38a,b); decreasing in size through setiger 7, afterwards reduced to small, rounded lobes through posterior setigers (Figure 6-38c). Notopodial lamellae of setigers 6-9 may be connected by low transverse ridges (dorsal crests) on a variable number of postbranchial setigers (Figure 6-38a). Anterior neuropodial lamellae truncate, angular, becoming low and rounded posteriorly. Branchiae numbering four pairs; first and fourth pairs pinnate; second and third pairs cirriform. First pair usually longer than fourth pair, with longer and more densely arranged pinnae on posterior side of branchial stem (Figure 6-38a). Cirriform branchiae heavily ciliated, equal in size, extending near or just beyond tips of notopodial lobes. Anterior setae uni- to bilimbate. Ventral sabre setae (Figure 6-38d) long, slightly curved, with distal hood projecting beyond tip; first present about setiger 13 (11-14), numbering 1-2 per parapodium on middle setigers. Multidentate hooded hooks (Figure 6-38e) appearing in neuropodia from setiger 15 (12-19); in notopodia from setiger 27 or later.

PREVIOUSLY REPORTED HABITAT: Medium sand to sandy mud, mud, mud and gravel, gravel, rocks and shell debris; intertidal to 1745 m.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and Texas (Figure 6-37); 15-106 m; coarse to fine sand, silty fine to very fine sand, clayey sand, clayey sandy silt.

DISTRIBUTION: North Atlantic from Norway to Greenland and New Brunswick to Florida, Gulf of Mexico, Alaska to southern California, Japan, S. Africa, southeastern Australia.

Prionospio (Prionospio) fallax Söderström, 1920
Figures 6-39, 40a-c

Prionospio malmgreni Claparède, 1870a:73, pl. 22, fig. 3.
Prionospio fallax Söderström, 1920:235, figs. 135, 144, 145.
Prionospio fallax--Fauvel, 1927:61, fig. 21a-e.
Prionospio fallax--Day, 1963:418; 1967:492, fig. 18.9.a-c; 1973:74.
Prionospio fallax--Hartman, 1969:159, figs. 1-4.
Prionospio fallax--Foster, 1971:83.

MATERIAL EXAMINED:

Gulf of Mexico BLM-OCS:

SOFLA 6-11/80 (5 spec., USNM 90718); MAFLA 2207E-8/77 (4 spec.), 2207I-8/77 (2 spec.), 2207K-8/77 (3 spec.), 2210B-7/76 (1 spec.), 2422J-7/76

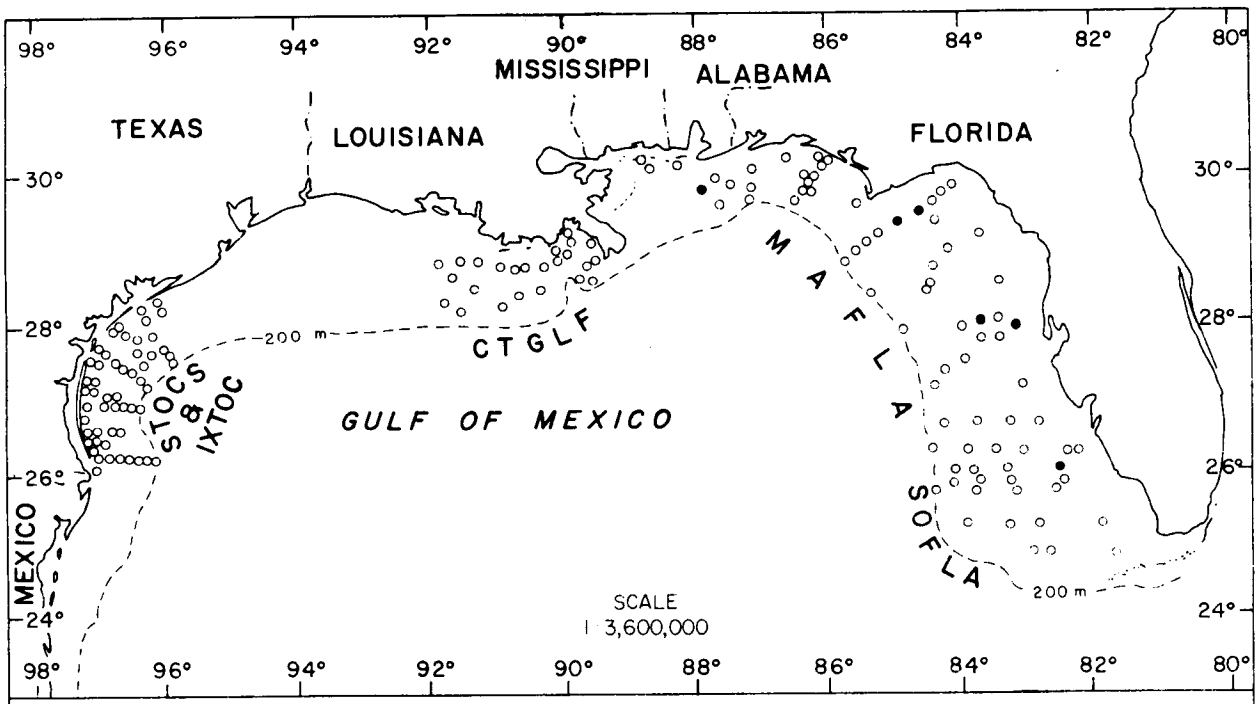

Figure 6-39. Distribution of Prionospio (Prionospio) fallax on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

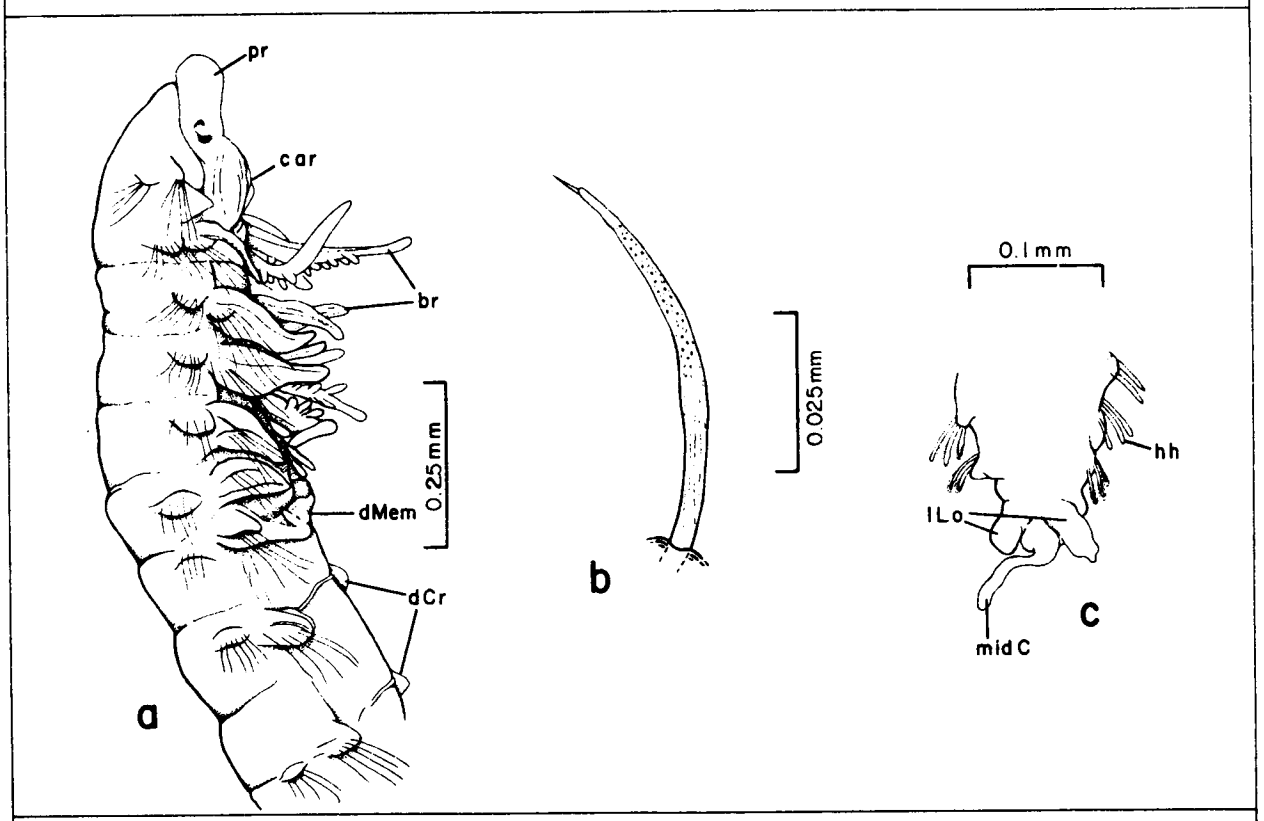

Figure 6-40. Prionospio (Prionospio) fallax: a, anterior end, dorsolateral view; b, sabre seta; c, posterior end.

(2 spec.), 2423-9/77 (1 spec., USNM 55991), 2640E-2/78 (4 spec., USNM 90719).

DESCRIPTION:

Length, to 9.4 mm (previously reported to 25 mm, with 55-63 setigers); width, to 0.38 mm (previously reported to 0.8 mm). Largest complete specimen with 48 setigers. Prostomium wedge-shaped, rounded anteriorly, inflated posteriorly into a large caruncle extending to anterior margin of setiger 2 (Figure 6-40a). Peristomium well-developed laterally, fused with first setiger. Palps long, sinuous, extending at least to setigers 19-22. Two pairs of eyes; anterior pair small, round to crescent-shaped; posterior pair generally crescent-shaped or multiple and amorphous. Notopodial lamellae of setiger 1 broad, directed more anterolaterally than those of branchial segments. Neuropodial lamellae smaller, rounded and longer than broad. Notopodial lamellae of branchial segments longer, auricular to foliose; becoming smaller, more bluntly rounded after setiger 7. Notopodial lamellae of setiger 7 connected across dorsum by a high membrane; smaller dorsal crests may be present on setigers 6 and 8. Branchiae numbering four pairs (Figure 6-40a); first and fourth pairs pinnate with long, clavate pinnules well-spaced on posterior half of stalk up to distal third, remainder devoid of pinnae; second and third pairs cirriform, similar in size, generally smaller than notopodial lobes. Anterior setae all capillary. Ventral sabre setae strongly curved, distally hooded (Figure 6-40b); present by setiger 10, numbering 1-2 per fascicle on middle setigers. Multidentate hooded hooks appearing in neuropodia beginning on setigers 10-12; in notopodia beginning on setigers 26-30. Pygidium (Figure 6-40c) with two short, thick lateral lobes and one long, slender middorsal cirrus.

REMARKS: Gulf of Mexico BLM-OCS specimens of Prionospio (Prionospio) fallax possessed a distinct dorsal membrane across setiger 7, with smaller dorsal crests distinctly visible on setigers 6 and 8. Considerable variation has been reported regarding dorsal membranes and crests among various species of Prionospio (Foster, 1971:87; Light, 1977:91), especially P. steenstrupi. Blake and Kudenov (1978:217), however, supported the continued use of dorsal crests as a diagnostic character for species separation. P. fallax may be confused with Prionospio cristata which also has a dorsal membrane across setiger 7, as well as setigers 9 and sometimes 8.

PREVIOUSLY REPORTED HABITAT: Fine to coarse sand and mixed sediments; 10-120 m.

GULF OF MEXICO BLM-OCS OCCURRENCE: Few scattered records off Florida (Figure 6-39); 19-37 m; medium to very fine sand, silty fine to very fine sand.

DISTRIBUTION: Gulf of Mexico, Atlantic from Sweden to Madeira, Mediterranean, South Africa, southern California, western Canada.

Prionospio (Prionospio) cristata Foster, 1971

Figures 6-41, 42a-f

Prionospio cristata Foster, 1971:87, figs. 186-199.
Prionospio cristata--Day, 1973:74.

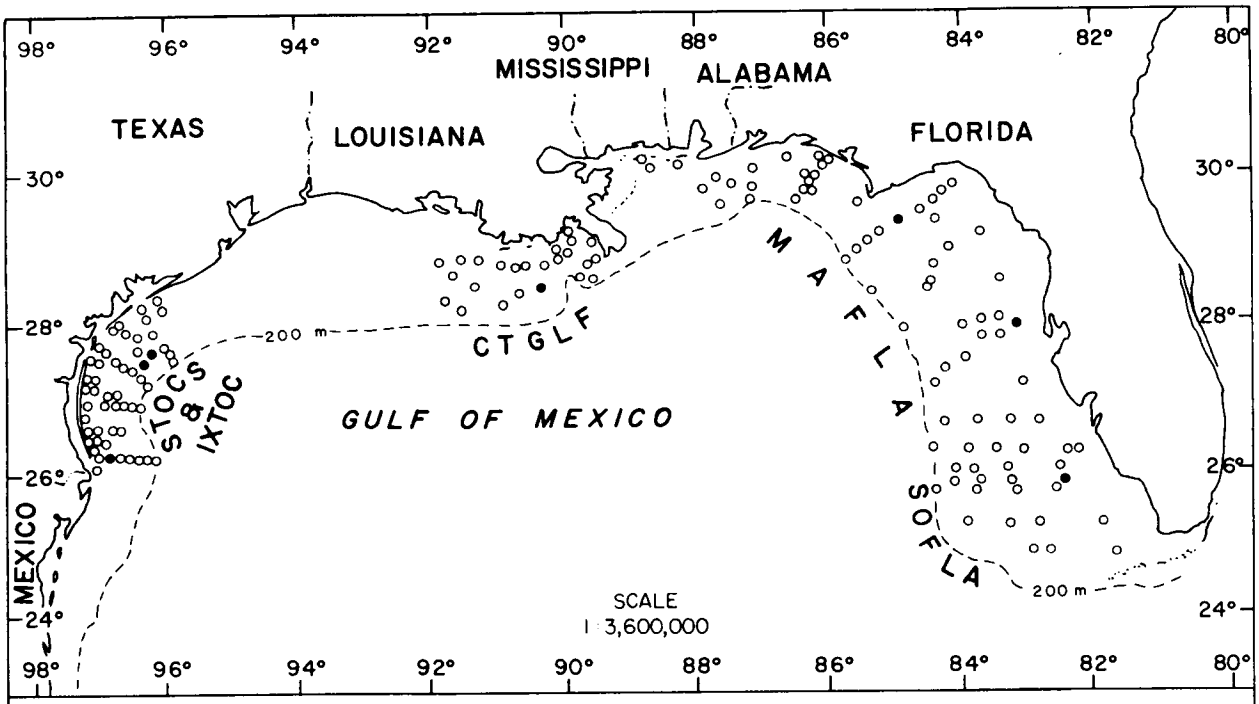

Figure 6-41. Distribution of Prionospio (Prionospio) cristata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

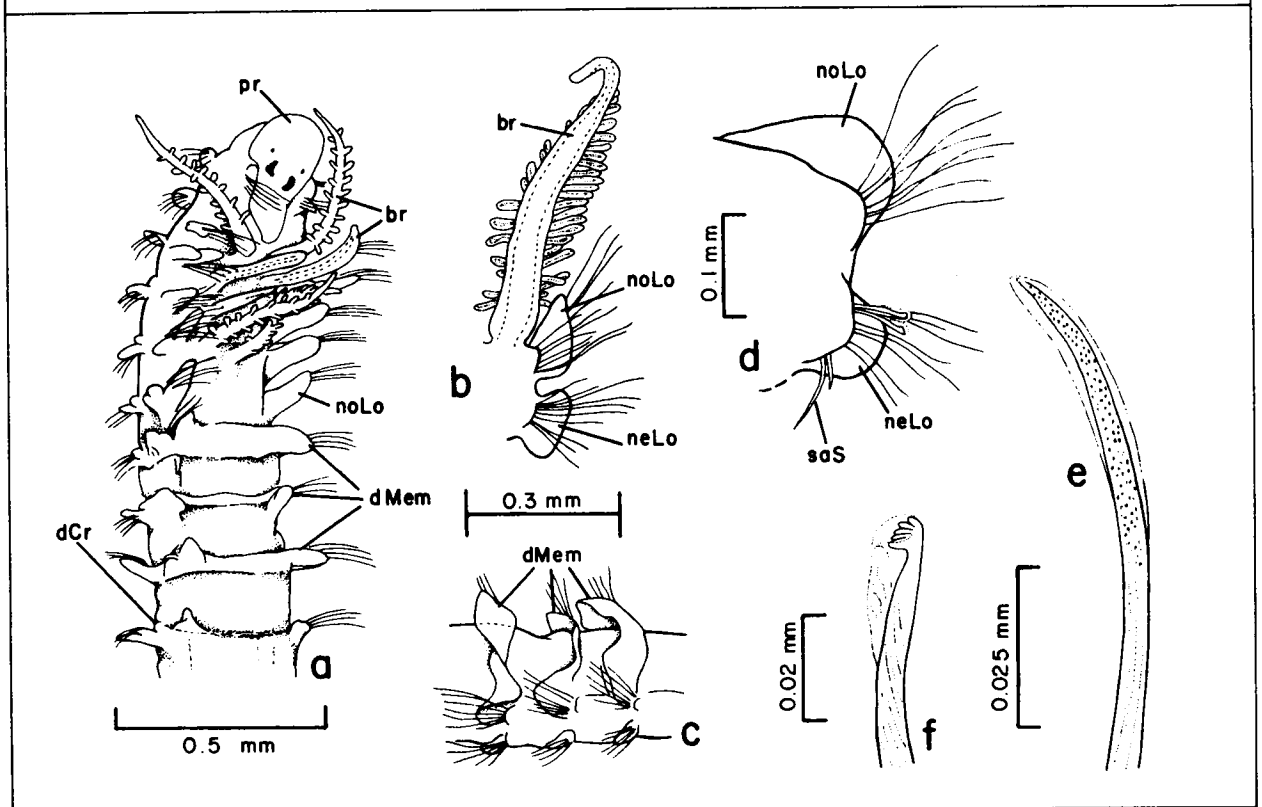

Figure 6-42. Prionospio (Prionospio) cristata: a, anterior end, dorsolateral view; b, parapodium from setiger 2; c, setigers 7-9, dorsolateral view; d, parapodium from setiger 12; e, sabre seta; f, hooded hook (Figures b-d from Foster 1971, figs. 187, 191, 192).

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 14D-8/81 (7 spec., USNM 90720), 14E-8/81 (5 spec., USNM 90721); MAFLA 2207E-8/77 (1 spec., USNM 90723), 2423-7/76 (3 spec., USNM 55990); CTGLF 03-5/78 (2 spec.); STOCS SB3-6 8/76 (1 spec., USNM 90724); HR1-5 7/76 (3 spec., USNM 90722); IXTOC S52-4 11/79 (1 spec., USNM 90725).
DESCRIPTION:
Length, to 9.6 mm (previously reported to 7.1 mm, with 33 setigers); width, to 0.5 mm. Largest complete specimen with 43 setigers. Prostomium rounded anteriorly, extended posteriorly as a well-developed, raised keel to anterior margin of setiger 2 (Figure 6-42a). Two pairs of eyes; anterior pair small, rounded; posterior pair large, reniform. First setiger well-developed, fused dorsally with peristomium; peristomial wings prominent. Notopodial lamellae of branchial segments fairly large, triangular; neuropodial lamellae smaller, ovoid, projecting well out from body (Figure 6-42b). Notopodia of setigers 7-9 connected across dorsum by high membranes (Figure 6-42a,c); membranes usually higher and more distinct on setigers 7 and 9 than on setiger 8. Low dorsal crests may also be present on setigers posterior to 9. Noto- and neuropodial lamellae becoming small and rounded by setigers 10-12 (Figure 6-42d). Branchiae numbering four pairs; first and fourth pairs pinnate, second and third pairs cirriform; all projecting well beyond notopodial lamellae. Pinnae of first and fourth branchial pairs well-spaced, arranged in four irregular rows on posterior surface of shaft; absent from distal end (Figure 6-42b). Anterior setae all capillary. Ventral sabre setae (Figure 6-42e) broadly hooded, heavily granulated, strongly curved; beginning on setiger 10; becoming noticeably thinner and less obviously sheathed on posterior setigers. Multidentate hooded hooks (Figure 6-42f) first appearing in neuropodia of setigers 11-12; in notopodia of setigers 26-32; secondary hood present, more obvious on posterior setigers.
REMARKS: This species is closely related to P. (Prionospio) fallax, but differs from the latter in possessing high membranous folds across both setiger 7 and setiger 9 instead of only setiger 7 (see "REMARKS" for P. fallax).
PREVIOUSLY REPORTED HABITAT: Rocky pools, sand and sandy mud; shallow depths from 0.5-32 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few scattered records off Florida, Louisiana, and Texas (Figure 6-41); 19-82 m; fine to very fine sand, silty sand, clayey sand, silty clayey sand.
DISTRIBUTION: North Atlantic, North Carolina, Florida, Gulf of Mexico, Caribbean Sea.

Subgenus Minuspio Foster, 1971

TYPE SPECIES: Prionospio cirrifera Wirén, 1883.
REFERENCES:
Foster, 1971:106.
Fauchald, 1977a:24.
Blake and Kudenov, 1978:211.
DIAGNOSIS: Prostomium anteriorly rounded, blunt or bilobed. Peristomial wings moderately developed. All branchiae cirriform, beginning on setiger 2. Sabre setae present or absent.

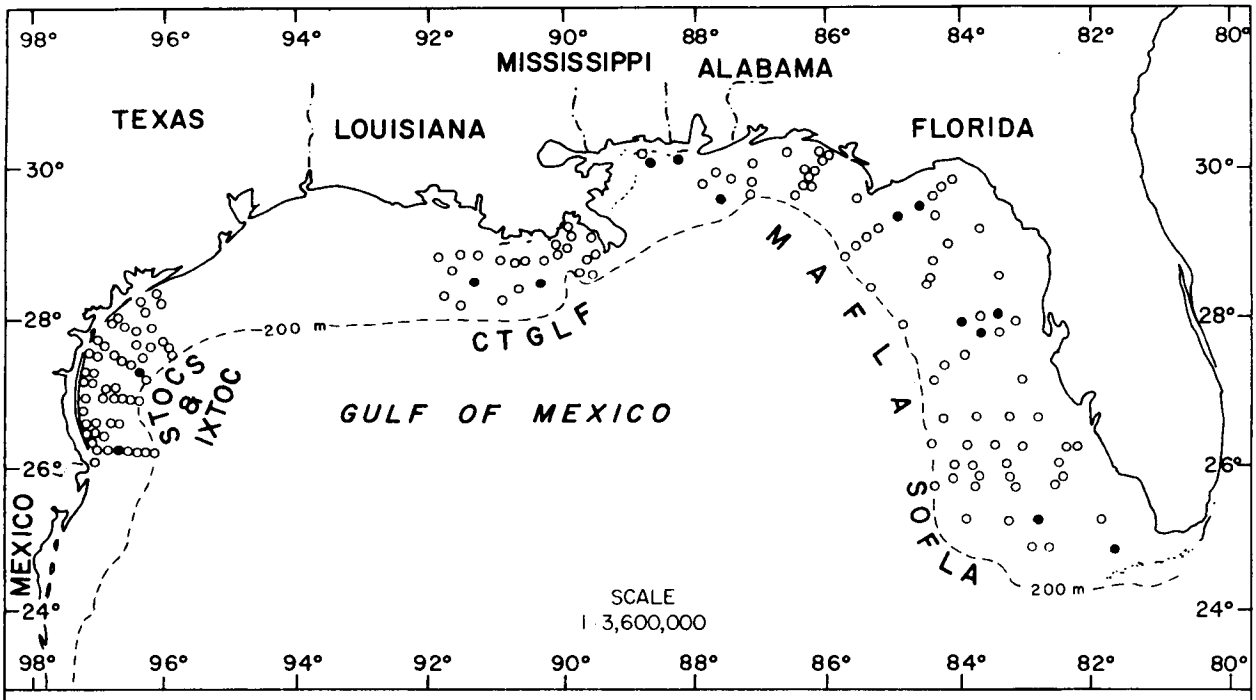

Figure 6-43. Distribution of Prionospio (Minuspio) cirrifera on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

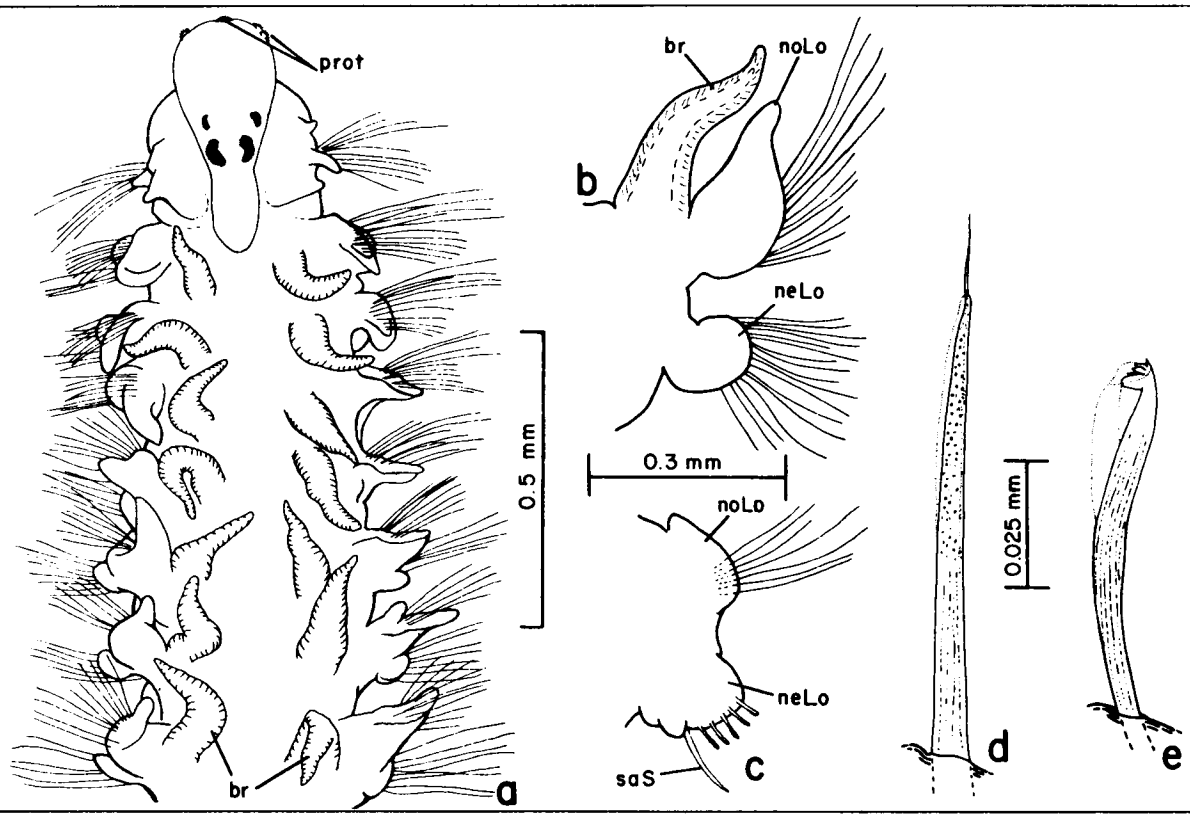

Figure 6-44. Prionospio (Minuspio) cirrifera: a, anterior end, dorsal view; b, parapodium from setiger 8; c, same, from setiger 20; d, sabre seta; e, hooded hook.

Key to the Gulf of Mexico BLM-OCS Species of Prionospio (Minuspio)

1a. Neuropodial hooded hooks multidentate (Figure 6-44e) . . . . . **Prionospio (Minuspio) cirrifera**, p. 6-55

1b. Neuropodial hooded hooks bi- to tridentate (Figures 6-46h,i; 48d) 2

2a. Neuropodial hooded hooks bidentate (Figure 6-46h,i); sabre setae present (Figure 6-46g) . . . .**Prionospio (Minuspio) sp. A**, p. 6-57

2b. Neuropodial hooded hooks tridentate (Figure 6-48d); sabre setae absent . . . . .**Prionospio (Minuspio)** cf. **cirrobranchiata**, p. 6-59

Prionospio (Minuspio) cirrifera Wirén, 1883
Figures 6-43, 44a-e

Prionospio cirrifera--Hartmann-Schröder, 1971:324.
Minuspio cirrifera Foster, 1971:108 [with synonymy], figs. 262-275.
Prionospio (Minuspio) cirrifera--Light, 1978b:81, figs. 81, 82.
Prionospio (Minuspio) cirrifera--Blake and Kudenov, 1978:222, fig. 25a.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22F-11/80 (2 spec., USNM 90733), 25B-11/80 (10 spec., USNM 90734); MAFLA 2208H-8/77 (2 spec.), 2208K-8/77 (1 spec.), 2209I-8/77 (1 spec.), 2209E-11/77 (1 spec.), 2211A-7/76 (1 spec.), 2211E-2/78 (3 spec.), 2422C-7/76 (5 spec.), 2423B-7/76 (3 spec., USNM 90732), 2638H-7/76 (2 spec., USNM 90729), 2639C-9/75 (3 spec.); CTGLF 03-5/78 (2 spec., USNM 90727; 1 spec., USNM 90728), 16-8/78 (2 spec., USNM 90726); STOCS 6/II-3 8/76 (5 spec., USNM 90731), 5/IV-3 5/76 (5 spec., USNM 90730).
DESCRIPTION:
Length, to 10.8 mm (previously reported to 30 mm, with 90 segments); width, to 0.75 mm (previously reported to 1.5 mm). Largest complete specimen with 65 setigers. Prostomium rounded, slightly inflated anteriorly, narrowing posteriorly into a raised caruncle extending to anterior margin of setiger 2 (Figure 6-44a). Anterior margin of prostomium smooth, or often with small, heavily ciliated medial and lateral protuberances. Eyes, if present, diffuse to distinctly crescent-shaped, numbering 1-2 pairs, anterior pair smaller, more widely separated than posterior pair. First setiger fused with peristomium, partially enclosing prostomium between two small, rounded peristomial wings. Parapodia well-developed in branchial region. Notopodial lamellae elongate to auricular from setigers 2-8 (Figure 6-44b), thereafter becoming smaller and rounded (Figure 6-44c). Branchiae cirriform, numbering 6-12 pairs, beginning on setiger 2; length and shape of branchiae and notopodial lobes varying considerably. Dorsal crests present as low, thin ridges on postbranchial setigers. All anterior setae uni- to bilimbate, with basal granulations. Sabre setae (Figure 6-44d) long, slightly sheathed, heavily granulated, with distal spine (often missing); first present on setiger 13 (12-17). Multidentate hooded hooks (Figure 6-44e) appearing in neuropodia between setigers 14 and 27; in notopodia by setiger 30.
REMARKS: As noted by Foster (1971:111), variability in number, length, and shape of the branchiae in Gulf of Mexico BLM-OCS collections is great, both between and within populations of this species, and may be related to some ecological factor such as oxygen availability. Many

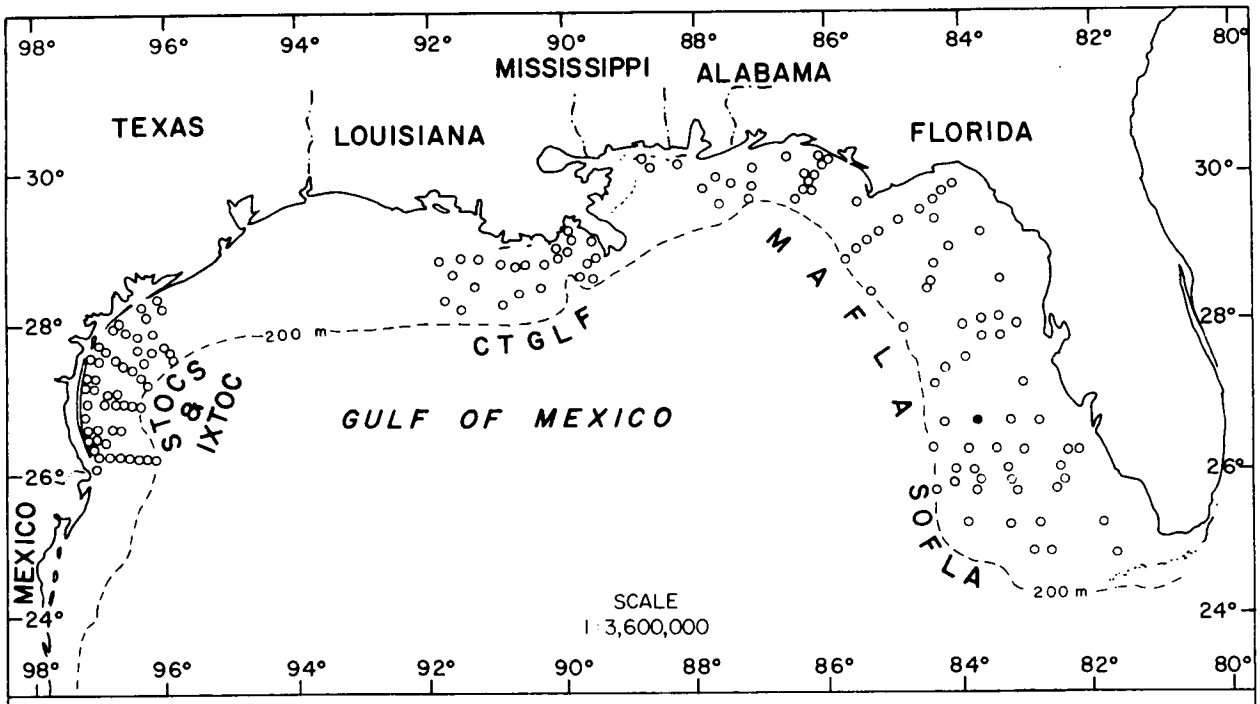

Figure 6-45. Distribution of Prionospio (Minuspio) sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

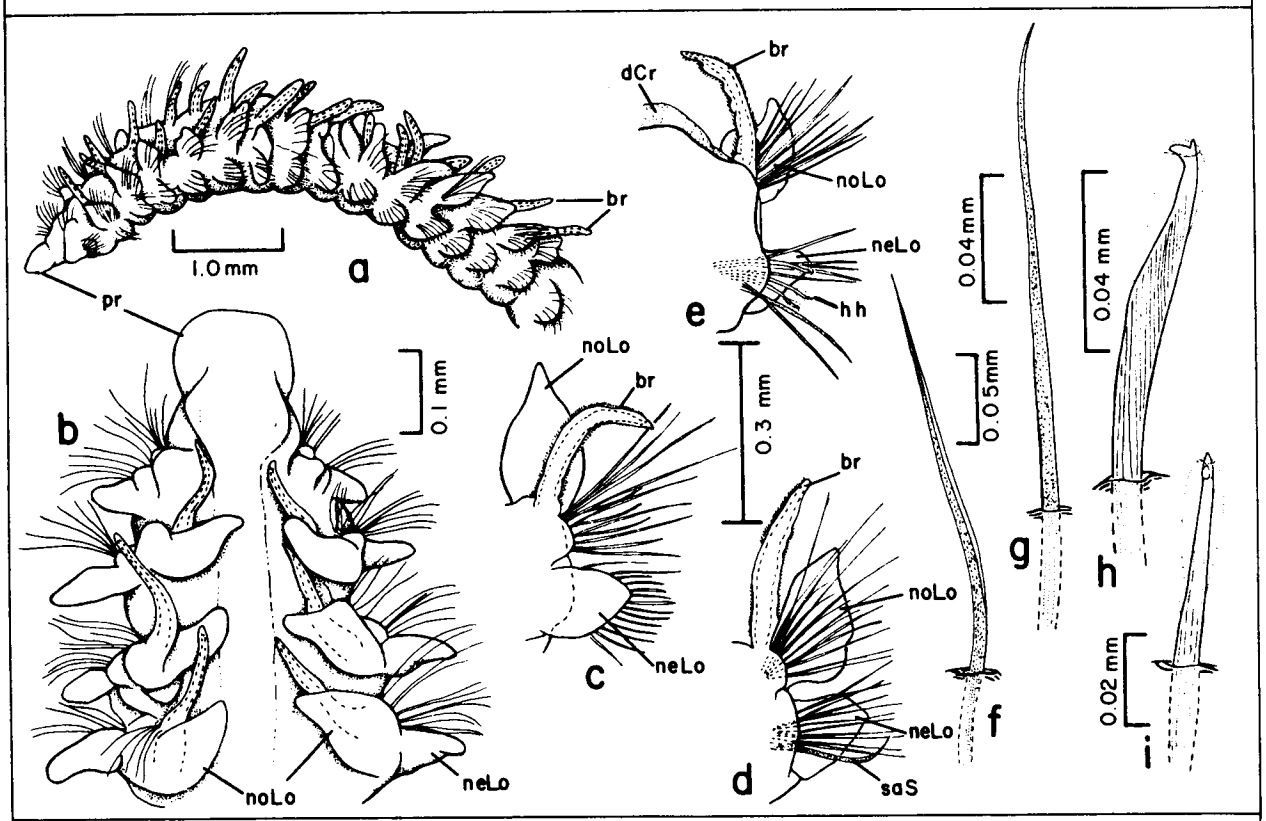

Figure 6-46. Prionospio (Minuspio) sp. A: a, anterior end, lateral view; b, same, dorsal view; c, parapodium from setiger 9; d, same, from setiger 13; e, same, from setiger 26; f, inferior notoseta from setiger 9; g, sabre seta; h, hooded hook, lateral view; i, same, frontal view.

individuals examined from Louisiana possessed the long, thin branchiae as described for P. delta Reish, 1968.
PREVIOUSLY REPORTED HABITAT: Primarily silt and sandy silt sediments, also found in sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records throughout northern Gulf (Figure 6-43); 19-98 m; coarse to fine sand, silty fine sand, silty clayey sand, sandy silt, clayey sandy silt, silty clay.
DISTRIBUTION: Arctic, Greenland to South America, Gulf of Mexico, North Sea, English Channel, Bering Sea to Gulf of California, Solomon Islands, Queensland, New South Wales, Victoria.

Prionospio (Minuspio) sp. A
Figures 6-45, 46a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5E-5/81 (1 spec., USNM 90735).
DESCRIPTION:
Length, 6.0+ mm; width, 0.5 mm. Body small, anterior end dorsally arched (Figure 6-46a); only specimen incomplete with 28 setigers. Prostomium rounded, flattened and spade-like anteriorly, raised and inflated posteriorly; eyes and caruncle absent (Figure 6-46b). Peristomium small, indistinct, fused with first setiger. Setiger 1 reduced, with small, rounded notopodial lobes and short, digitiform neuropodial lobes; setae present in both rami. Parapodial lobes of following setigers long and lamelliform (Figure 6-46c,d). Posterior notopodial lobes shorter, more basally inflated (Figure 6-46e); neuropodial lobes asymmetrically pointed. Branchiae cirriform, extending well beyond notopodial lamellae; numbering at least 25 pairs, all fairly consistent in size and shape. Dorsal crests present on middle and posterior segments (Figure 6-46e). Setae in two distinct rows in both rami of anterior setigers, those of posterior row longer and more strongly bent; all distinctly granular with thin limbations (Figure 6-46f). Posterior row replaced by hooded hooks in middle and posterior neuropodia. Sabre setae (Figure 6-46g) long, unsheathed, with heavy granulations, first present on setiger 12; numbering 1-2 per parapodium. Bidentate hooded hooks (Figure 6-46h,i) first appearing in neuropodia of setiger 19, numbering three per fascicle; absent from notopodia.
REMARKS: Prionospio (Minuspio) sp. A most closely resembles P. (Minuspio) polybranchiata (Fauvel, 1929:184) from the Indian Ocean, in having more than 20 pairs of branchiae. It differs from the latter in the dentition of the hooded hooks and in possessing sabre setae on middle and posterior setigers. It also resembles P. (Minuspio) cirrobranchiata Day, 1961, in possessing bidentate hooded hooks, but differs from the latter in having a greater number of pairs of branchiae, in the shape of the prostomium, and in possessing sabre setae.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off Florida (Figure 6-45); 91 m; coarse sand.

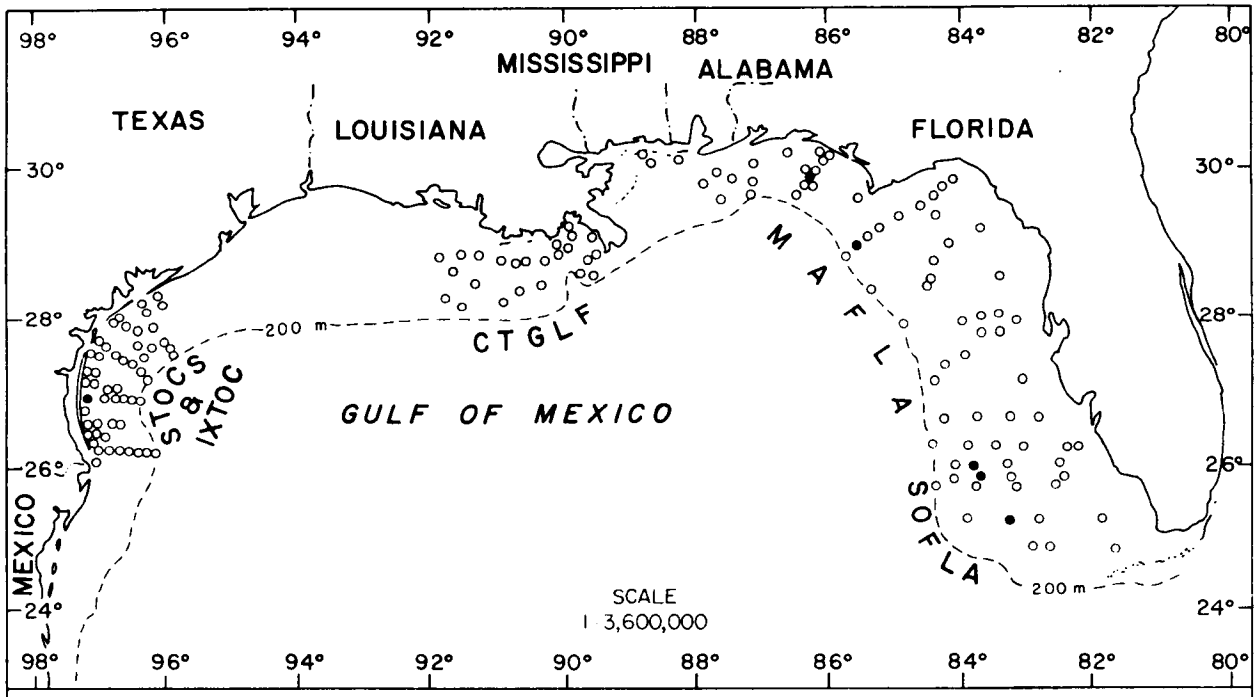

Figure 6-47. Distribution of Prionospio (Minuspio) cf. cirrobranchiata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

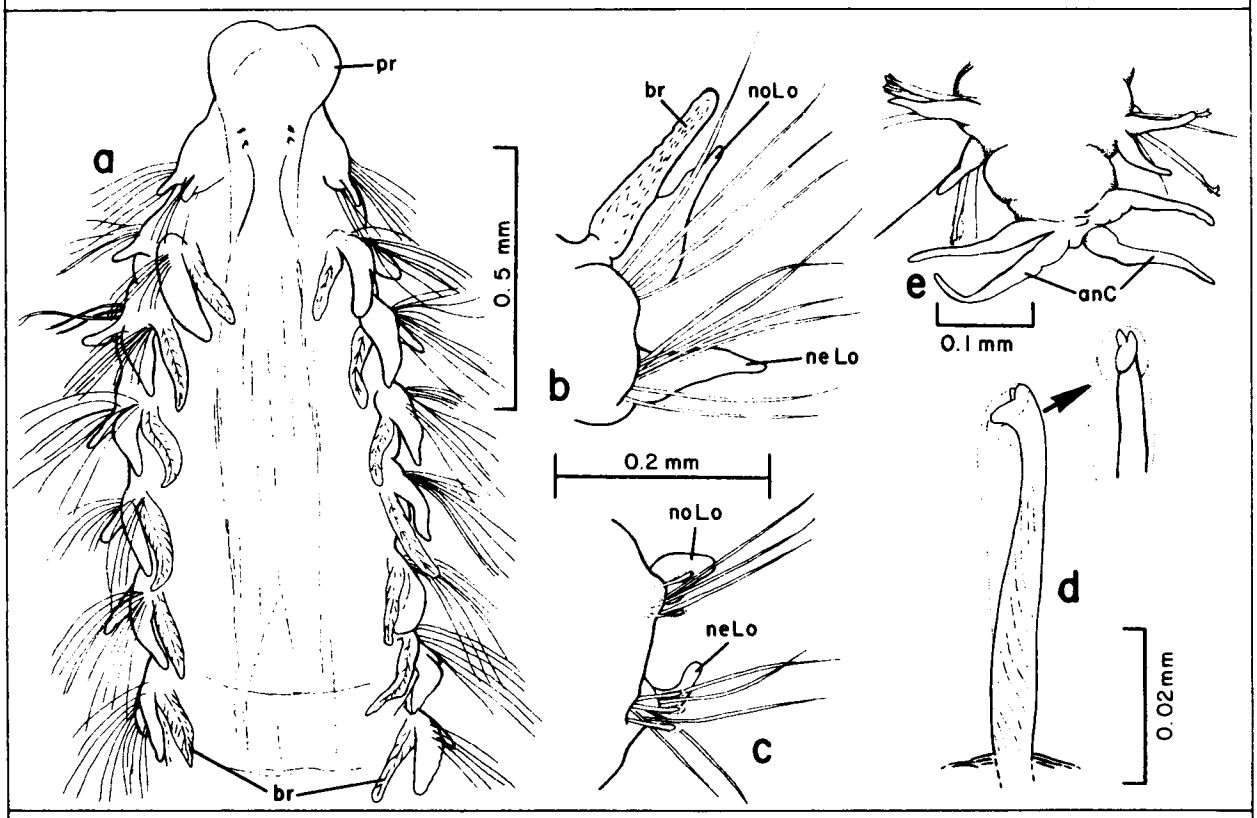

Figure 6-48. Prionospio (Minuspio) cf. cirrobranchiata: a, anterior end, dorsal view; b, parapodium from setiger 10; c, same, from posterior setiger; d, hooded hook, oblique lateral and frontal views; e, posterior end.

Prionospio (Minuspio) cf. cirrobranchiata Day, 1961
Figures 6-47, 48a-e

Prionospio ?cirrifera--Hartman, 1951a:84 [Not Wirén, 1883].
Prionospio cirrobranchiata Day, 1961:488, fig. 4a-d; 1967:488, fig. 18.8.e-h; 1973:73, fig. 10g-k.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12C-11/80 (1 spec., USNM 90736), 18D-5/81 (7 spec., USNM 90738), 24-11/80 (5 spec., USNM 90737); MAFLA 2426E-8/77 (6 spec.), 2426D-11/77 (5 spec., USNM 90740), 2533A-6/75 (1 spec.), 2533B-6/75 (6 spec.), 2533-2/78 (3 spec., USNM 55989); STOCS 4/III-6 S/76 (6 spec., USNM 90739).
DESCRIPTION:
Length, to 11.0 mm (previously reported to 30 mm, with 60 segments); width, to 0.84 mm. Largest complete specimen with 60 setigers. Prostomium (Figure 6-48a) flattened, squared to bilobed anteriorly, with a slightly raised caruncle posteriorly. Eyes, if present, small, crescent-shaped, numbering two pairs. Peristomium small, indistinct, fused with first setiger. Anterior notopodial lamellae (Figure 6-48b) elongate, erect, similar in length to adjacent branchiae; posterior ones much shorter, rounded, directed laterally (Figure 6-48c). Neuropodial lamellae tapered throughout. Branchiae strap-like, numbering 10-12 pairs, fairly consistent in size and shape. Hooded hooks distinctly tridentate (Figure 6-48d), with two equal teeth above main fang, present in neuropodia from setiger 17 (15-20) and in notopodia from setiger 27 (20-32); secondary hood present. Sabre setae absent. Pygidium with four anal cirri of equal length (Figure 6-48e).
REMARKS: Gulf of Mexico BLM-OCS specimens differ from those described by Day (1973:73) as Prionospio cirrobranchiata from North Carolina, only in having an additional tooth above the main fang of the hooded hooks.
PREVIOUSLY REPORTED HABITAT: Medium to fine sand, sandy mud; 80-200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and one off Texas (Figure 6-47); 15-90 m; coarse to fine sand.
DISTRIBUTION: North Carolina to Gulf of Mexico, South Africa.

Subgenus **Apoprionospio** Foster, 1969

TYPE SPECIES: Apoprionospio dayi Foster, 1969.
REFERENCES:
Foster, 1969:383; 1971:93.
Fauchald, 1977a:23.
DIAGNOSIS: Prostomium triangular, anteriorly blunt; peristomium without lateral wings. Branchiae numbering four pairs from setiger 2; first three pairs cirriform, fourth pair pinnate. Neuropodial postsetal lobes of setiger 2 large and foliose.

Key to the Gulf of Mexico BLM-OCS Species of Prionospio (Apoprionospio)

1a. Setiger 7 with dorsal membrane (Figure 6-50a,b); hooded hooks with 2-4 small teeth above main fang (Figure 6-50d), present in neuropodia beginning on setigers 16-18. . . . . **Prionospio (Apoprionospio) dayi**, p. 6-61

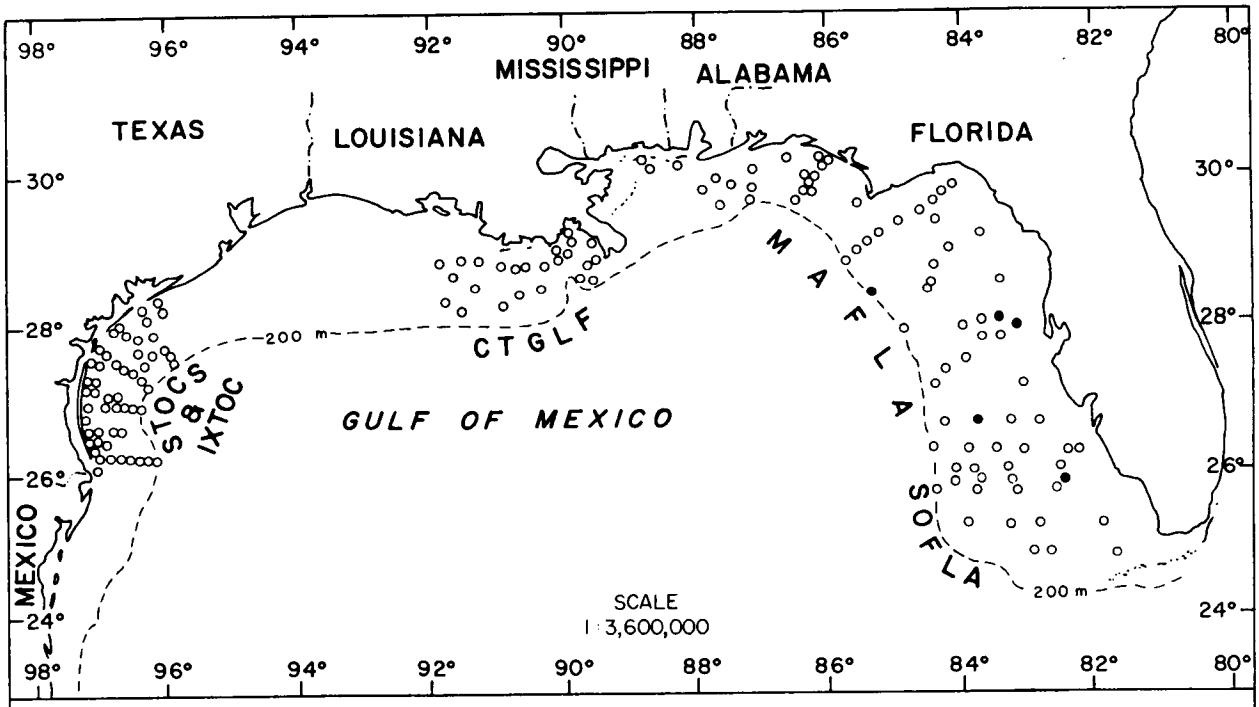

Figure 6-49. Distribution of Prionospio (Apoprionospio) dayi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

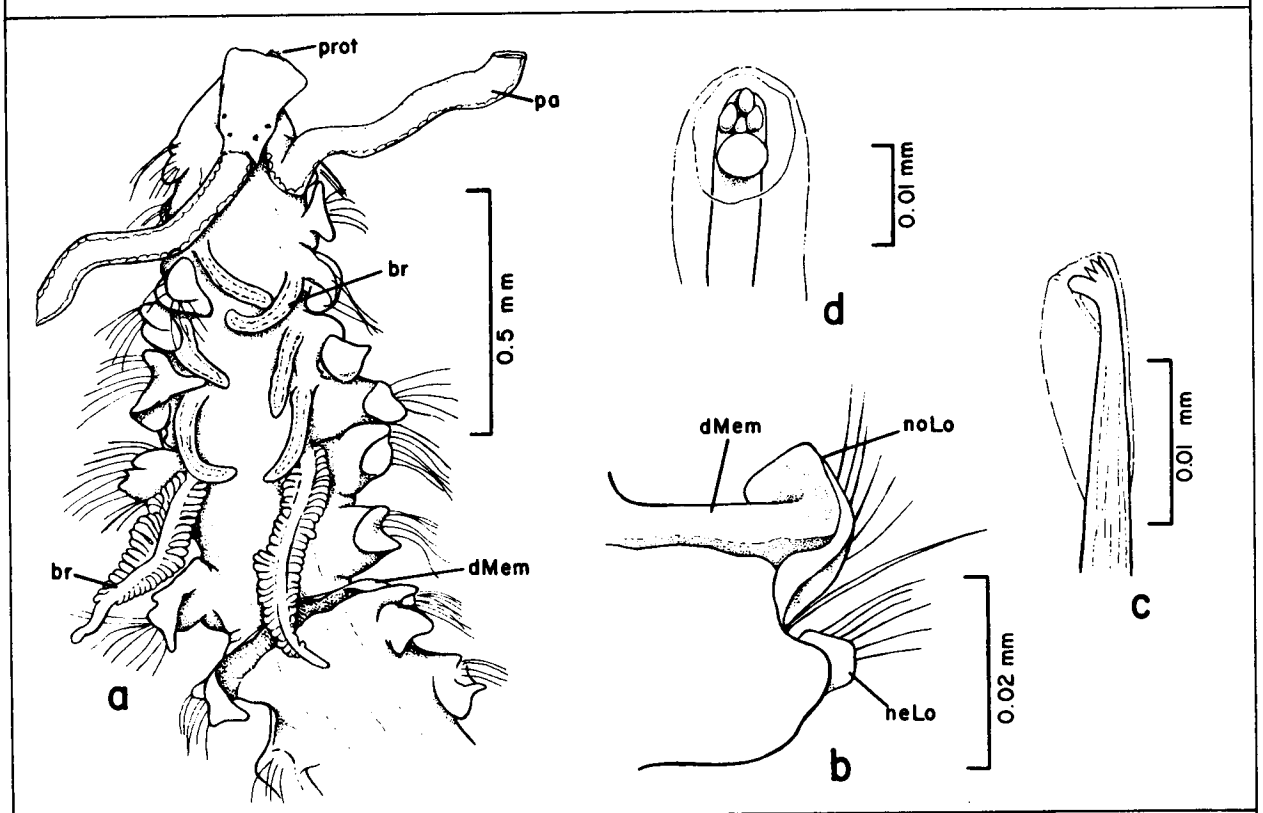

Figure 6-50. Prionospio (Apoprionospio) dayi: a, anterior end, dorsal view; b, parapodium and dorsal membrane from setiger 7; c, hooded hook, lateral view; d, distal end of same, frontal view.

1b. Setiger 7 without dorsal membrane; hooded hooks with 6-7 small teeth above main fang (Figure 6-52e), present in neuropodia beginning on setiger 15 . . **Prionospio (Apoprionospio) pygmaea**, p. 6-61

Prionospio (Apoprionospio) dayi (Foster, 1969)
Figures 6-49, 50a-d

Apoprionospio dayi Foster, 1969:383, figs. 1-11; 1971:97, figs. 226-236.
Prionospio dayi—Day, 1973:73, fig. 10 1-o.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5B-5/81 (1 spec., USNM 90744), 14D-8/81 (2 spec., USNM 90741), 14E-8/81 (2 spec., USNM 90742); MAFLA 2207J-8/77 (1 spec.), 2207K-8/77 (1 spec., USNM 90743), 2208B-7/76 (1 spec.), 2208G-7/76 (1 spec.), 2208H-8/77 (1 spec.), 2313I-8/76 (1 spec.).
DESCRIPTION:
Length, 7.2+ mm (previously reported to 10 mm, with 46 setigers); width, to 0.84 mm. All specimens incomplete with up to 20 setigers. Prostomium (Figure 6-50a) widest anteriorly with small ciliated protuberance on anterior margin, narrowing posteriorly to about the level of setiger 2. Two pairs of eyes, anterior pair larger and farther apart. Peristomium well-developed laterally, but not forming lateral wings. First pair of branchiae cirriform, slender, not obviously ciliated or tapered; second and third pairs thicker, tapered and obviously ciliated. Pinnate branchiae of fifth setiger 2-2.5 times as long as adjacent notopodial lamellae; pinnae as long as branchial width and extending on either side of stem to at least one-half to two-thirds its length, distal one-half to one-third bare. Anterior notopodia long, erect, with slight anterior fold, gradually forming cup-like depression from which notosetae emerge. Neuropodial lamellae smaller, more rounded. Setiger 7 with distinct transverse dorsal membrane between cup-shaped notopodial lobes (Figure 6-50b). Setigers 6 and 9, and variable number of subsequent setigers, sometimes with an indistinct fold or crest across dorsum. Large, hooded sabre setae first appearing in neuropodia of setiger 11. Hooded hooks multidentate (Figure 6-50c) with 3-4 small teeth above main fang (Figure 6-50d); appearing in neuropodia beginning on setigers 16-18, in notopodia after setiger 28.
PREVIOUSLY REPORTED HABITAT: Fine to medium sand, sandy mud; 3-200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off western Florida (Figure 6-49); 19-177 m; coarse to very fine sand, clayey sandy silt.
DISTRIBUTION: North Carolina, Gulf of Mexico.

Prionospio (Apoprionospio) pygmaea (Hartman, 1961)
Figures 6-51, 52a-e

Prionospio pygmaeus Hartman, 1961:93; 1963:44.
Prionospio pygmaeus--Laubier, 1962:147, 150.
Prionospio pygmaeus--Reish, 1963b:427.
Apoprionospio pygmaea--Foster, 1971:94, figs. 213-225.
Prionospio (Apoprionospio) pygmaea--Light, 1978b:84 [in part].

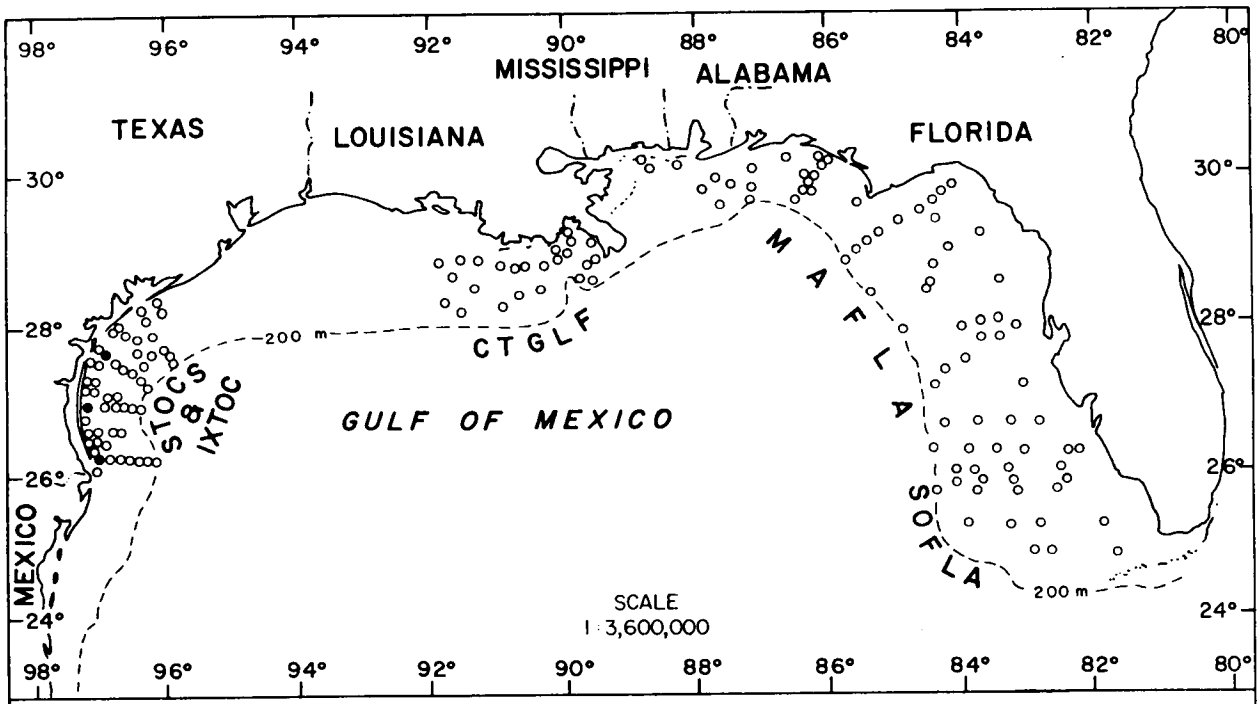

Figure 6-51. Distribution of Prionospio (Apoprionospio) pygmaea on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

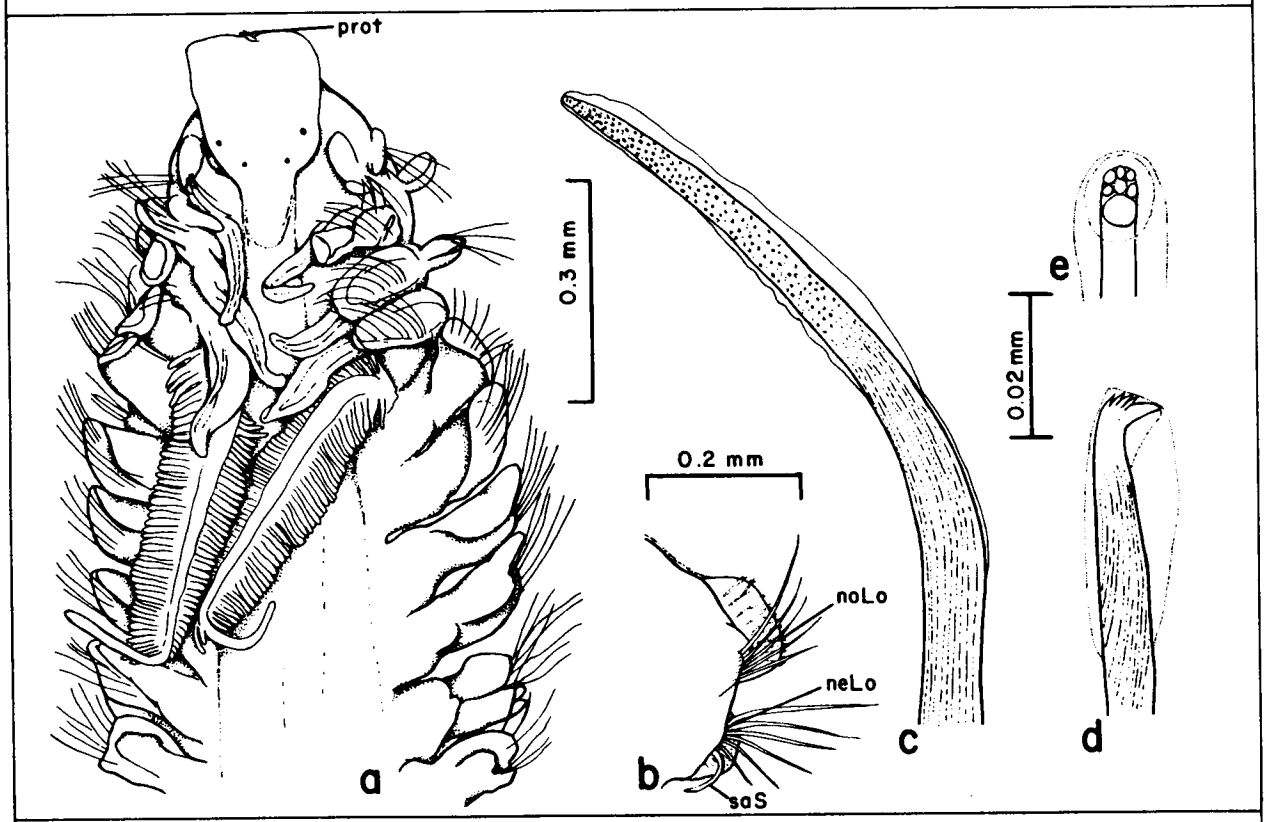

Figure 6-52. Prionospio (Apoprionospio) pygmaea: a, anterior end, dorsal view; b, parapodium from setiger 13; c, sabre seta; d, hooded hook, lateral view; e, same, frontal view.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
CTGLF 19-9/78 (1 spec., USNM 90747); STOCS 1/II-4 3/76 (2 spec., USNM 90746), 4/III-2 W/76 (2 spec., USNM 90745); IXTOC S53-11/79 (1 spec., USNM 90748).
DESCRIPTION:
Length, 8.4+ mm (previously reported to 14.1 mm, with 55 setigers); width, to 0.96 mm. All specimens incomplete with up to 28 setigers. Prostomium triangular to pentagonal in shape, longer than wide, extending posteriorly onto setiger 1 (Figure 6-52a); ciliated protuberance sometimes present medially on anterior margin. Two pairs of small eyes, reddish in color, anterior pair farther apart. Peristomium low, expanded laterally, but not forming lateral wings or hood. Anterior body region somewhat dorsoventrally flattened. First setiger biramous, well-developed. Anterior notopodia long, erect, with slight anterior fold, gradually forming cup-like depression from which notosetae emerge. Neuropodial lamellae smaller, more rounded. Postsetal lamellae of posterior segments forming semi-transparent, curtain-like membranes intersected laterally by glandular folds, or veins terminating onto margin in a ciliated tuft (Figure 6-52b). Indistinct transverse folds or crests may be present across dorsum. First pair of branchiae slender, obviously ciliated; second and third pairs much longer, heavily ciliated along proximal one-half to one-third of branchial stem. Pinnate branchiae of setiger 5 1-1.5 times longer than preceding pairs; pinnae long, extending laterally on either side of branchial stem, tip bare. Sabre setae (Figure 6-52c) first appearing on setiger 11. Hooded hooks (Figure 6-52d) first appearing in neuropodia of setiger 15; in notopodia of setigers 17-28. Hooks with 6-7 small teeth above main fang (Figure 6-52e).
PREVIOUSLY REPORTED HABITAT: Intertidal to 30 m in Thalassia flats, sand and mud bottoms from Gulf of Mexico; 30-72 m in hard-packed sandy mud from southern California.
GULF OF MEXICO BLM-OCS OCCURRENCE: Shallow records off Texas (Figure 6-51); 15-22 m; fine sand, silty sand, sandy silty clay.
DISTRIBUTION: Gulf of Mexico, southern California, Baja California.

Genus Spio Fabricius, 1785

TYPE SPECIES: Nereis filicornis O. F. Müller, 1776.
REFERENCES:
Foster, 1971:32.
Blake and Kudenov, 1978:226.
DIAGNOSIS: Prostomium rounded or faintly bilobed, without frontal horns; eyes present or absent. Branchiae beginning on setiger 1, continuing throughout body, often partially fused to dorsal lamellae on anterior setigers and reduced in size on setiger 1. Notosetae all capillary; neurosetae capillary anteriorly; including hooded hooks and sabre setae on middle and posterior setigers.

Spio pettiboneae Foster, 1971
Figures 6-53, 54a-e

Spio (Spio) pettiboneae Foster, 1971:35, figs. 48-56.
Spio pettiboneae--Day, 1973:70, fig. 11a-d.

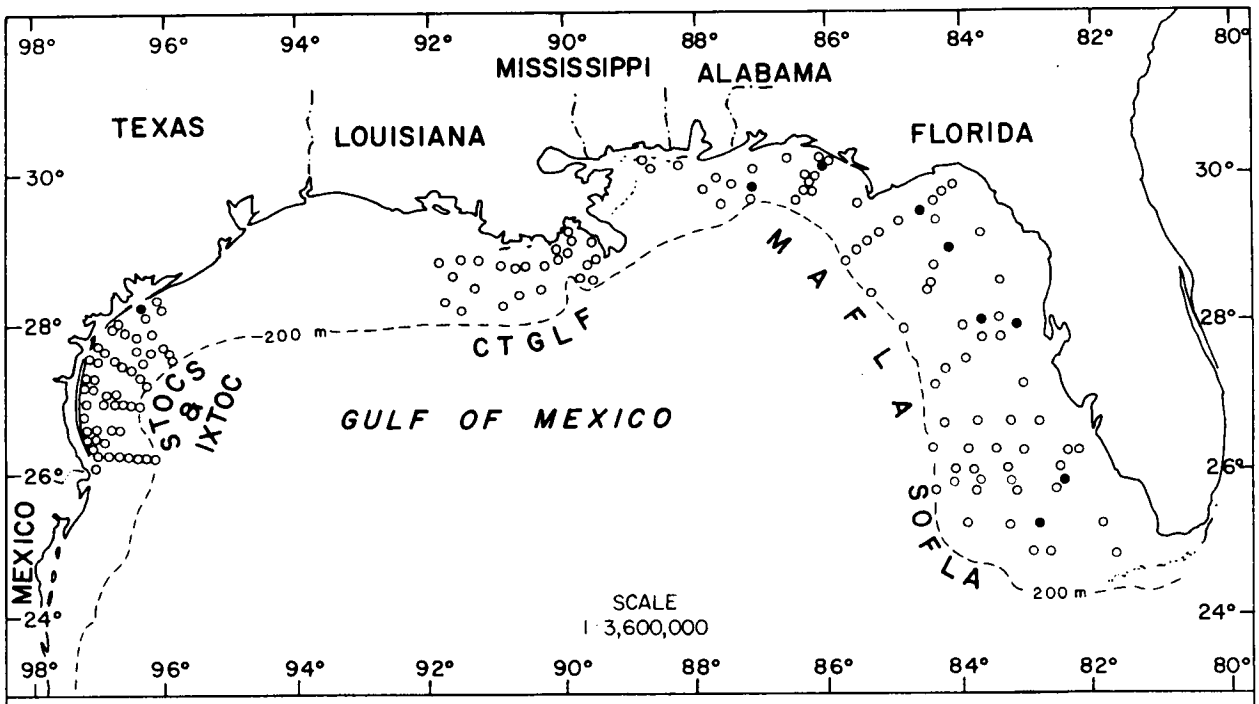

Figure 6-53. Distribution of Spio pettiboneae on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

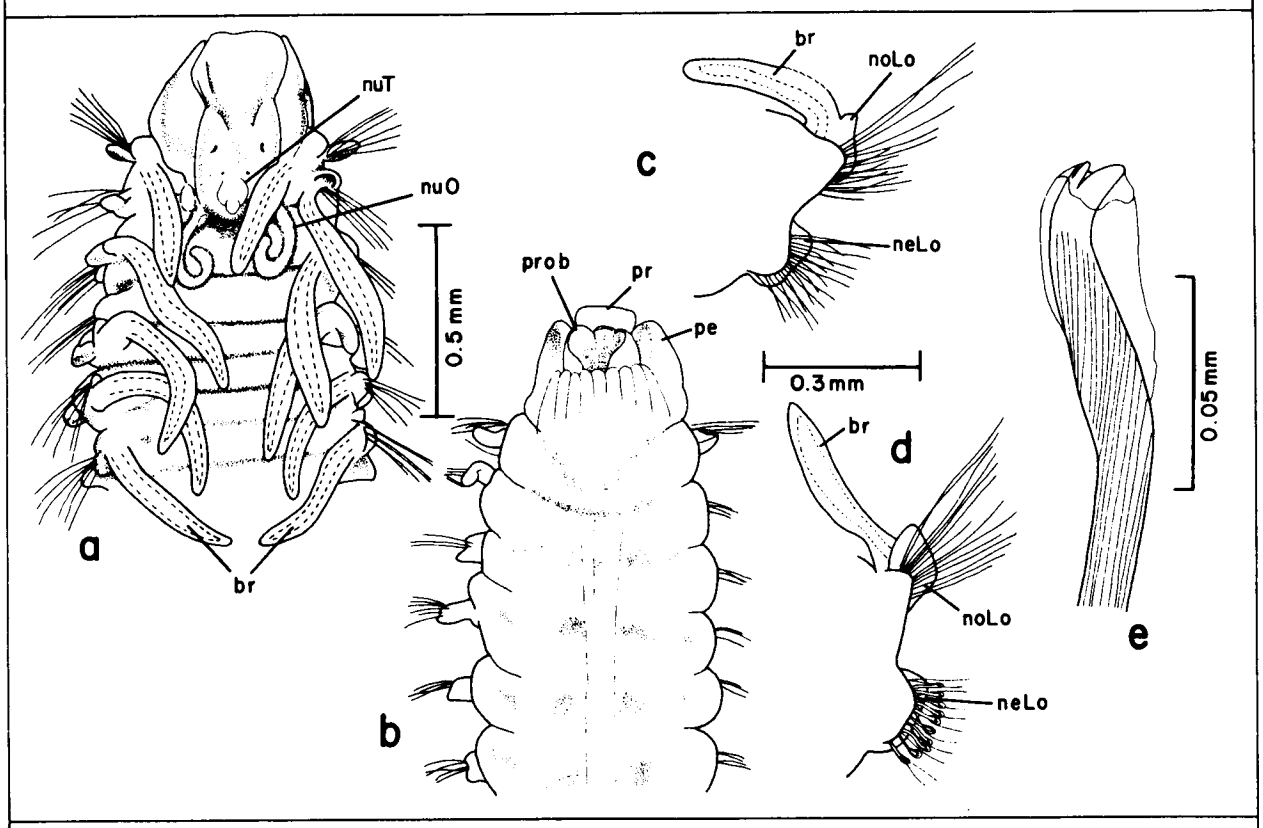

Figure 6-54. Spio pettiboneae: a, anterior end, dorsal view; b, same, ventral view; c, parapodium from setiger 8; d, same, from posterior setiger; e, hooded hook, lateral view (Figures c, d from Foster 1971, figs 49, 50).

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 14D-8/81 (1 spec., USNM 90753), 22E-11/80 (1 spec., USNM 90752); MAFLA 19E-6/75 (5 spec.), 2207I-8/77 (1 spec.), 2210G-6/76 (3 spec., USNM 90750), 2317D-9/75 (5 spec.), 2422C-6/76 (3 spec., USNM 90751), 2530-1/76 (3 spec., USNM 55975); STOCS 4/I-1 W/76 (1 spec., USNM 90749).
DESCRIPTION:
Length, 9.6+ mm (previously reported to 11 mm, with 35 setigers); width, to 1.76 mm. Body widest anteriorly, tapering gradually posteriorly; all specimens incomplete with up to 33 setigers. Head and anterior segments with distinct brown pigment pattern (Figure 6-54a,b). Intersegmental transverse pigment bands present dorsally; pair of diffuse pigment spots present on either side of midventral line on each segment. Prostomium anteriorly inflated, rounded to slightly incised, with raised caruncle (nuchal tentacle?) at level of palps. Two pairs of eyes, anterior pair larger, crescent-shaped, farther apart. Peristomium well-developed, closely applied to prostomium. Paired, recurved, nuchal organs extending onto setiger 3. Branchiae well-developed throughout, those of setiger 1 two-thirds length of those on following setigers. Presetal lamellae triangular, obvious on anterior segments (Figure 5-54c), becoming smaller and more rounded on posterior segments (Figure 5-54d). Anterior setae granular, uni- or bilimbate, arranged in two rows. Tridentate hooded hooks first replacing posterior row of capillary neurosetae on setiger 11 (11-15), numbering 6-9 per fascicle, increasing in size superiorly. Main fang of hook at slight angle to shaft, distal tooth slender, inconspicuous (Figure 6-54e). Ventral sabre setae usually present. Pygidium reported as bearing four thick, bluntly rounded cirri (Foster, 1971:36).
REMARKS: Foster's (1971) original description failed to mention the occurrence of a raised caruncle and paired nuchal organs extending from the prostomium. The latter, although inconspicuous in poorly preserved material, are distinct and obvious when highlighted against the dark brown pigment on anterior segments. Nuchal organs have been considered important in species separation (Blake and Kudenov, 1978:226).
PREVIOUSLY REPORTED HABITAT: Intertidal to 120 m; predominately fine to medium sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and one off Texas (Figure 6-53); 10-75 m; medium to very fine sand, silty very fine sand, clayey sand.
DISTRIBUTION: North Carolina; Gulf of Mexico.

Genus **Microspio** Mesnil, 1896

TYPE SPECIES: Spio mecznikowianus Claparède, 1869.
REFERENCES:
Foster, 1971:33.
Blake and Kudenov, 1978:232.
DIAGNOSIS: Prostomium rounded to faintly bilobed, without frontal horns; eyes present or absent. Branchiae clearly separate from dorsal lamellae, beginning on setiger 2, continuing throughout body. Notosetae all limbate; neurosetae all limbate anteriorly; including hooded hooks and sabre setae on middle and posterior setigers. Pygidium with anal cirri.

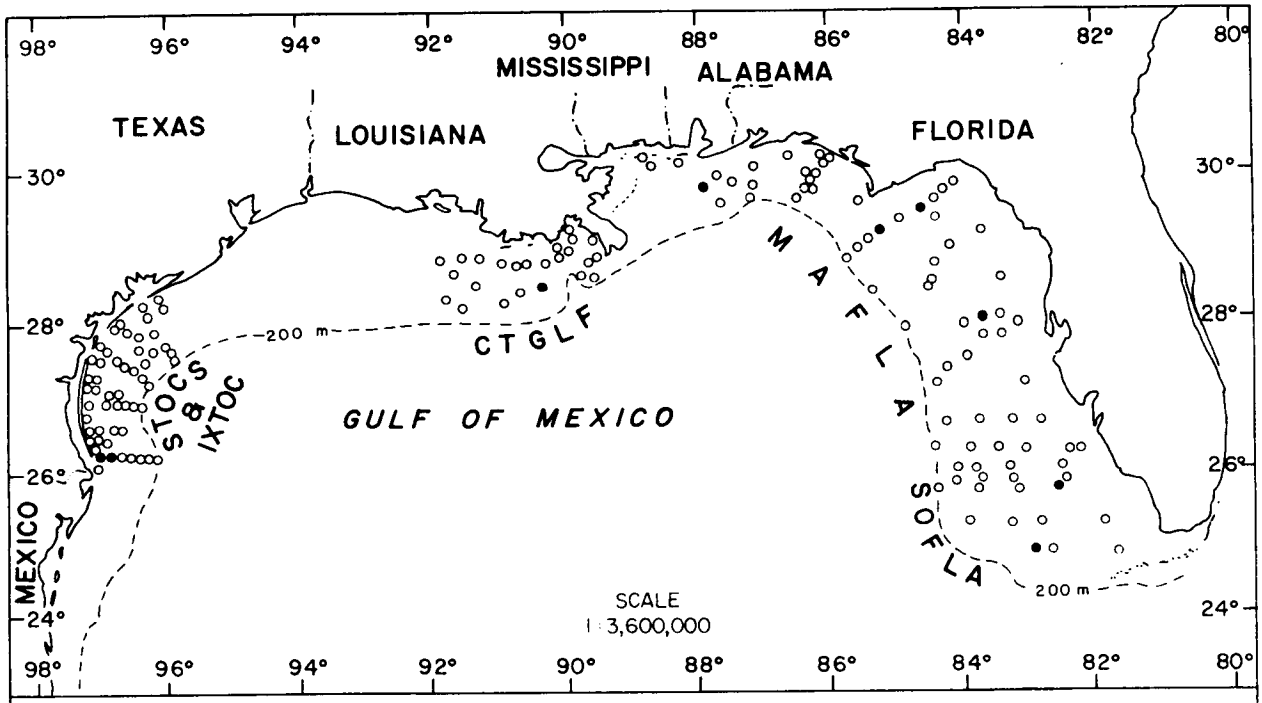

Figure 6-55. Distribution of Microspio pigmentata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

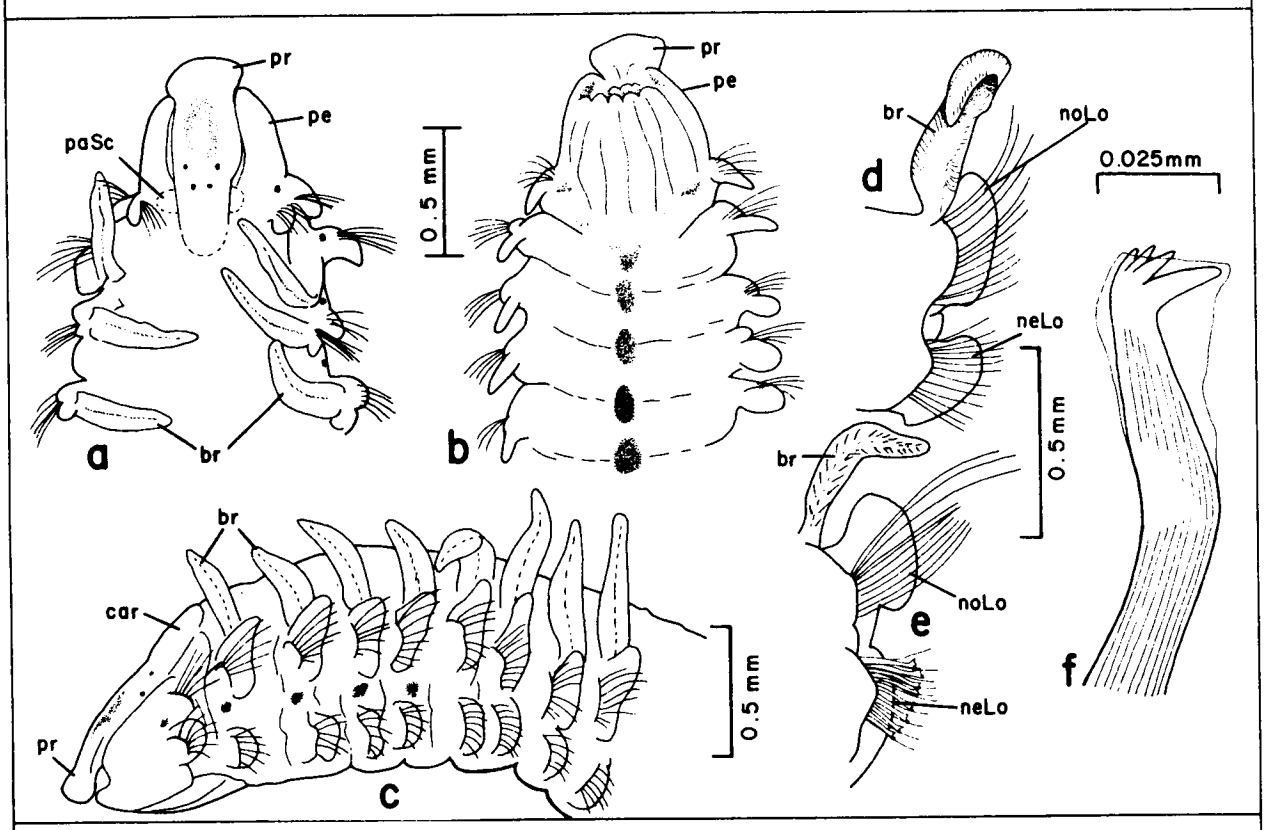

Figure 6-56. Microspio pigmentata: a, anterior end, dorsal view; b, same, ventral view; c, same, lateral view; d, parapodium from setiger 8; e, same, from setiger 20; f, hooded hook, lateral view.

Microspio pigmentata (Reish, 1959)
Figures 6-55, 56a-f

Spiophanes pigmentata Reish, 1959:11, pl. 6, figs. 1-4.
Nerinides pigmentata--Hartman, 1961:92.
Spio (Microspio) pigmentata--Foster, 1971:35 [list only].
Microspio pigmentata--Day, 1973:74, fig. 10p-t.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 28C-11/80 (3 spec., USNM 90757); MAFLA 2210E-6/76 (1 spec.), 2210F-7/76 (1 spec.), 2210G-7/76 (4 spec., USNM 90756), 2422J-7/76 (6 spec., USNM 90755), 2424I-7/76 (1 spec.), 2640-5/75 (1 spec., USNM 55893), 2960J-9/77 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 90754); STOCS 1/IV-2 Sp/77 (1 spec., USNM 90758; 4 spec.), 4/IV-W/77 (1 spec.).
DESCRIPTION:
Length, 7.4+ mm (previously reported to about 10.0 mm); width, to 1.6 mm. Body widest anteriorly, tapering gradually posteriorly; largest specimen incomplete with 22 setigers. Head and anterior segments with distinct pigment pattern including large middorsal patch on prostomium (Figure 6-56a), ventrolateral streaks on peristomium (Figure 6-56b), and interramal and midventral spots on first five setigers (Figure 6-56b,c). Prostomium anteriorly inflated, rounded, extending posteriorly onto setiger 2 as a raised caruncle (Figure 6-56a); occipital antenna and nuchal organs absent. Two pairs of eyes, round, equal in size, anterior pair farther apart. Setiger 1 well-developed with both noto- and neurosetae. Branchiae beginning on setiger 2 (Figure 6-56c); long, strap-like, well-developed and separate from notopodial lamellae throughout. Presetal lobes rounded, obvious on anterior setigers (Figure 6-56d), smaller posteriorly (Figure 6-56e). Setae narrowly limbate, smooth to granular, arranged in two rows in both noto- and neuropodia of anterior setigers. Hooded hooks replacing posterior row in neuropodia beginning on setigers 11-12; numbering 6-9 per fascicle, fewer on posterior setigers. Main fang of hooks at nearly right angle to shaft, surmounted by a series of 2-4 smaller denticles (Figure 6-56f).
PREVIOUSLY REPORTED HABITAT: 40-80 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida, two off Texas, one each off Louisiana and Alabama (Figure 6-55); 15-58 m; medium to fine sand, silty very fine sand, silty clayey sand, clayey sand.
DISTRIBUTION: North Carolina, Gulf of Mexico, southern California.

Genus **Laonice** Malmgren, 1867b

TYPE SPECIES: Nerine cirrata Sars, 1851.
REFERENCES:
Foster, 1971:69.
Fauchald, 1977a:24.
DIAGNOSIS: Prostomium bluntly rounded, incised, or roughly squared anteriorly, followed posteriorly by keel through a variable number of segments. Occipital antenna present. Branchiae cirriform, beginning on setiger 2; completely free from notopodial lobes. Notosetae all limbate; neurosetae including limbate setae, hooded hooks, and sabre setae

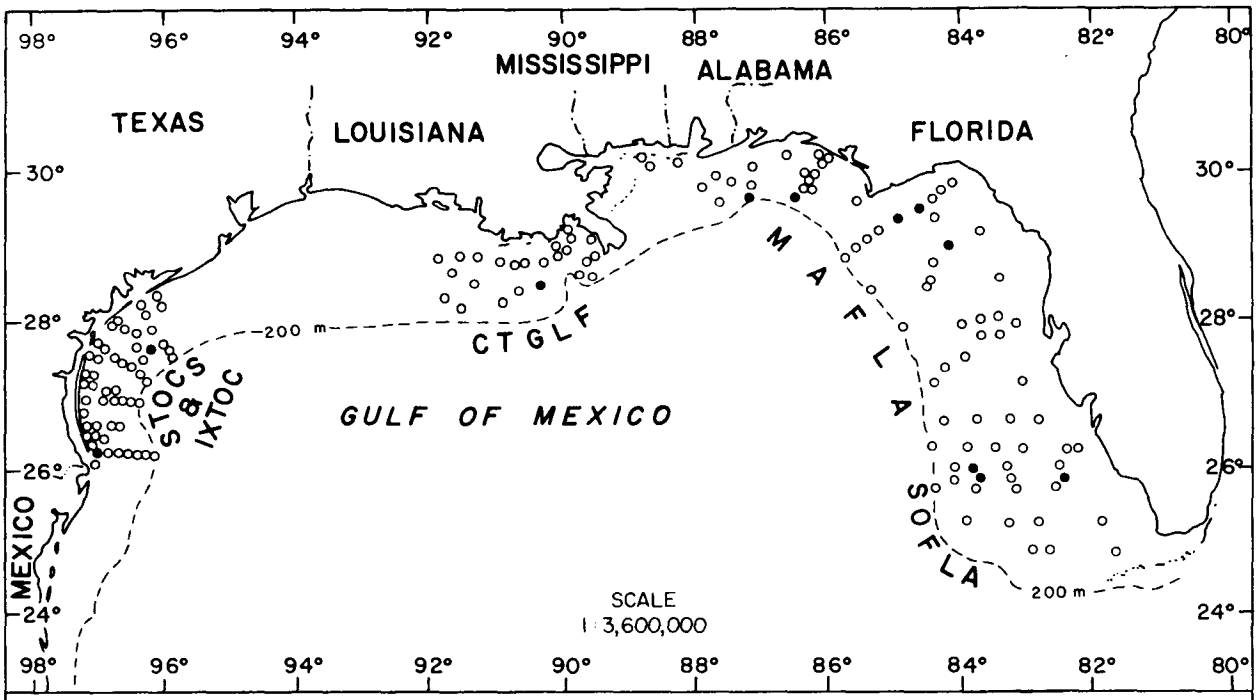

Figure 6-57. Distribution of Laonice cirrata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

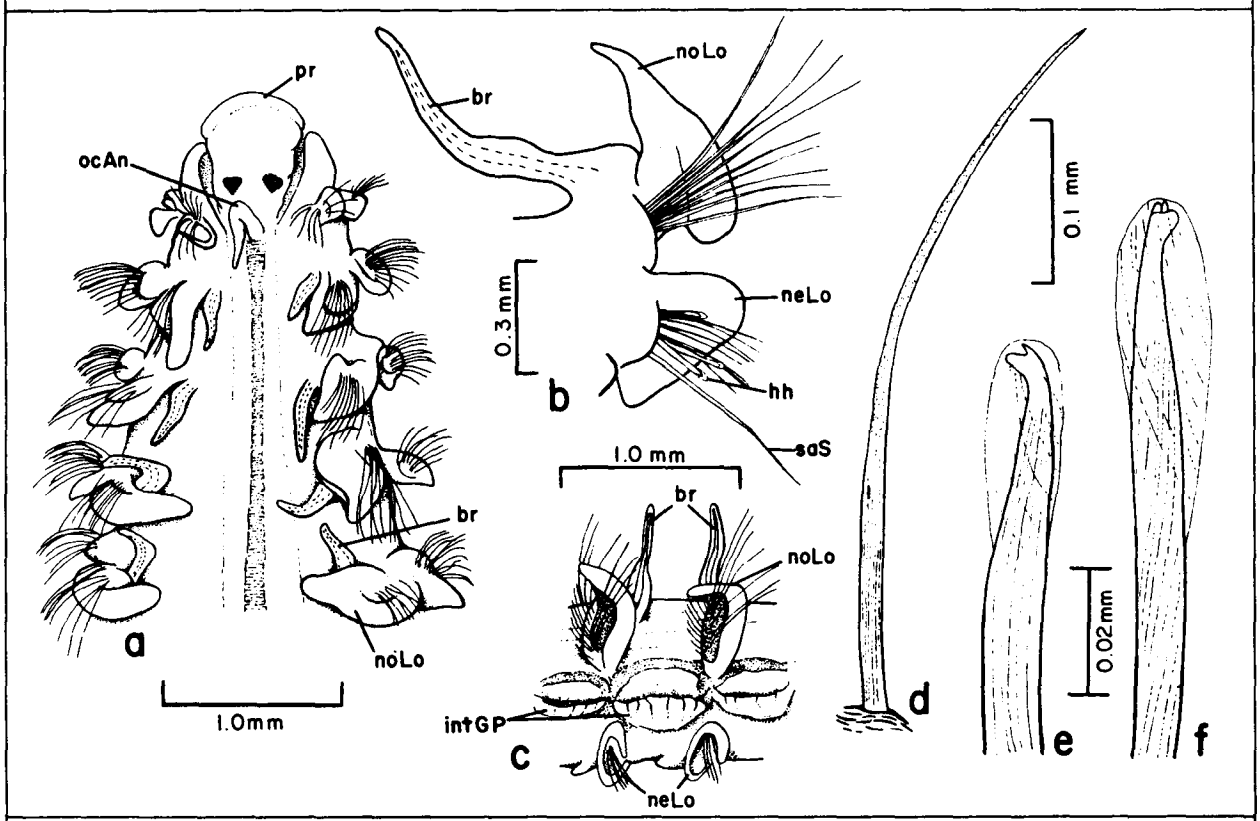

Figure 6-58. Laonice cirrata: a, anterior end, dorsal view; b, parapodium from setiger 18; c, setigers 25-26, lateral view showing interramal genital pouches; d, sabre seta; e, bidentate hooded hook, lateral view; f, tridentate hooded hook, oblique frontal view.

on posterior setigers. Interramal genital pouches present on at least some setigers. Pygidium with anal cirri.

Laonice cirrata (Sars, 1851)
Figures 6-57, 58a-f

Nerine cirrata Sars, 1851:207.
Laonice cirrata--Malmgren, 1867b:200.
Laonice cirrata--Hartman, 1969:107, figs. 1-4.
Laonice cirrata--Foster, 1971:69, figs. 155-160.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12B-11/80 (2 spec., USNM 90765), 14B-8/81 (2 spec., USNM 90766), 18E-4/81 (1 spec., USNM 90762); MAFLA 2317A-7/76 (4 spec., USNM 90761), 2422F-7/76 (1 spec.), 2423F-7/76 (2 spec., USNM 90760), 2536-2/78 (7 spec., USNM 55891), 2645H-6/75 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 90763); STOCS HR1-1 11/76 (1 spec., USNM 90759); IXTOC S53-11/79 (1 spec., USNM 90764).
DESCRIPTION:
Length, 14+ mm (previously reported to 33 mm, with 55 setigers); width, to 4.2 mm. All specimens incomplete with up to 30 setigers. Prostomium bluntly rounded anteriorly (Figure 6-58a), followed posteriorly by an ill-defined keel through 7-24 segments. Occipital tentacle prominent, cirriform, inserted at level of setiger 1. Eyes variable, up to two pairs; usually appearing as diffuse pigment spots on posterior half of prostomium. First pair of branchiae shorter than dorsal lamellae; subsequent branchiae longer. Parapodial lamellae well-developed throughout body (Figure 6-58b), notopodial lamellae often more angular and usually smaller than neuropodial lamellae. Interramal genital pouches present on 3-30 segments; appearing as cup-shaped outpocketing of lateral membrane connecting successive neuropodia (Figure 6-58c). All anterior setae limbate with granulated shafts and striated sheath. Single sabre setae (Figure 6-58d) present inferiorly in neuropodia from setigers 14-20. Bidentate (Figure 6-58e) and tridentate (Figure 6-58f) hooded hooks beginning in neuropodia of setigers 14-29. Tridentate hooks apparently restricted to superior portion of setal fascicle.
REMARKS: The validity of using genital pouches in diagnosing species is questionable due to variability in the origin and distribution of these structures, as observed in these collections and noted by Foster (1971:72).
PREVIOUSLY REPORTED HABITAT: Shallow water to abyssal depths in a variety of sediment types.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida, two off Texas, and one off Louisiana (Figure 6-57); 15-189 m; coarse to fine sand, silty sand, silty clayey sand, clayey silt.
DISTRIBUTION: Cosmopolitan.

CHAPTER 7

Joan M. Uebelacker
and Meredith L. Jones

FAMILY MAGELONIDAE Cunningham and Ramage, 1888

INTRODUCTION

The Magelonidae are a small family of long, slender, superficially spioniform polychaetes. The body is divided into an anterior region (thorax) consisting of the prostomium, achaetous peristomium, and first nine setigers; and a long posterior region (abdomen) of many setigers. The prostomium is flattened and shovel-like (spatulate) in appearance, and contains four muscle bands forming longitudinal ridges along the center. The anterior margin of the prostomium may be smooth or crenulate, and may be modified to form a pair of frontal horns. A pair of long, papillose palps arise ventrolaterally at the base of the prostomium. The proboscis is eversible and sac-like.

The thoracic parapodia are biramous and are located laterally or dorsolaterally. They often increase in size and change somewhat in shape progressing posteriorly along the thorax. The notopodia generally have a postsetal lateral lamella and sometimes a dorsal medial lobe (analogous to a dorsal cirrus). The neuropodia usually possess a ventral neuropodial lobe, which arises below and slightly anterior to the setae; and sometimes also a postsetal lobe or lateral lamella. The parapodia of setiger 9 are often small, with the rami usually widely separated; the segment itself may be short and laterally constricted. The thoracic setae are generally bilimbate, consisting of a slender central shaft with narrow, flimsy, transparent wings. The setae of setiger 9 may be modified to possess expanded, pennoned or mucronate tips.

The abdominal parapodia are also biramous, with the rami well-separated. Each ramus usually has a large lateral lamella arising from its lateral edge. A small lobe is present dorsally and ventrally at the medial edge of each ramus. The ridge bearing the hooded hooks may be developed to form a low postsetal structure known as an interlamella. In some species, lateral pouches occur between the parapodia of two consecutive anterior abdominal parapodia, or anterior to the parapodia of some or all segments farther back. The abdominal setae consist of curved, hooded hooks which are usually bi- or tridentate, although uni- or multidentate forms may be present. The hooded hooks of each ramus are usually arranged in two groups face-to-face, but in some species may all face the same direction. The pygidium is small and bears anal cirri.

The Magelonidae were thought by Hartman (1944d:318) to be most closely related to the Spionidae and the Chaetopteridae, although Fauchald (1977a) placed the family in a different suborder from the chaetopterids, and Pettibone (1982) considered them to belong to an order by themselves. The family is currently known for only one genus and 35-40 species, but is under revision by one of the authors (MLJ). Thirteen species, all but one presumably new to science, occur in the Gulf of Mexico BLM-OCS collections.

PRINCIPAL DIAGNOSTIC CHARACTERS

Jones (1963:22) recommended using the following characters in separating the species of Magelona: 1) the morphology of the hooded hooks; 2) the presence of prostomial frontal horns; 3) the presence of abdominal medial lamellae; 4) the presence of specialized setae on setiger 9; 5) the shapes of the thoracic lateral lamellae; and 6) the relative dimensions of the prostomium. A number of additional characters are used herein.

The Prostomium.

The presence of prostomial frontal horns is considered of primary importance in species separation. One group of species lacks frontal horns entirely (Figure 7-6a); the other group possesses them in various degrees of development, from rudimentary (Figure 7-20a) to well-developed (Figure 7-16a). In a few cases, the prostomium must be examined carefully to detect rudimentary frontal horns. Crenulation of the anterior margin (Figure 7-26a,b) may be a good specific character in some cases, such as Magelona sp. L, but was seen to vary intraspecifically in others. The general shape and relative dimensions of the prostomium are fairly constant within a species.

The Thoracic Parapodia.

Dorsal medial lobes (Figure 7-2b,c) occur in the notopodia of setigers 1-8 or 9 in some species, but are totally absent in others (Figure 7-6b-d). The neuropodial lobes are generally less diagnostic, although one species herein (Magelona sp. B) has well-developed postsetal lobes on setigers 1-8 (Figure 7-4b-e). The degree of development and shapes of the parapodial lobes and postsetal lamellae on setiger 9 can be important. For example, Magelona sp. A has large, smooth postsetal lamellae on setiger 9 (Figure 7-2d), whereas Magelona sp. B has fimbriated postsetal lamellae (Figure 7-4f). Thoracic parapodial structures generally increase in size or remain similar from anterior to posterior, but in Magelona sp. I the parapodial lobes on median thoracic setigers are reduced (Figure 7-20a); in addition, prominent oblique slits (function unknown) are present dorsolaterally on one or more of these setigers (Figure 7-20a).

The Abdominal Parapodia.

The presence of dorsal and ventral medial lobes on the abdominal parapodia was previously thought to be an important specific character. However, these lobes are often minute and easily overlooked, and are now thought to occur universally in the family. The size of the medial lobes relative to the lateral lamella may be diagnostic; e.g., in M. phyllisae Jones, 1963, the medial lobes are nearly as large as the lateral lamellae. The shapes of the lateral lamellae can also aid in separating species. The presence of interlamellae (Figure 7-2f,g) on anterior abdominal parapodia can be diagnostic.

The presence of lateral pouches can be an important diagnostic character, although in some species the lateral pouches do not occur until the mid-abdominal region (after setiger 30 or so), and thus may not be present on anterior fragmented specimens. In Magelona sp. A and Magelona sp. B, large lateral pouches occur between the parapodia of setigers 11 and 12 (Figures 7-2a, 4a); in M. riojai Jones, 1963, they occur between the parapodia of setigers 10 and 11. Smaller lateral

pouches are present anterior to the parapodia on some abdominal segments farther back in these three species and certain others, such as Magelona sp. G (Figure 7-16h). These smaller pouches seem to follow a regular arrangement after their first appearance; i.e., on every segment on both sides of the body in Magelona sp. G, and on every other segment on alternating sides of the body in Magelona sp. A, Magelona sp. B, and perhaps M. riojai.

The Setae.

The thoracic notosetae are generally not diagnostic with the exception of the setae of setiger 9, which may be modified (specialized) in some species. In Magelona sp. A and Magelona sp. B, for example, the setae of setiger 9 have asymmetrically pennoned (Figures 7-2e, 4h) tips.

The morphology of the abdominal hooded hooks is very important at the species level. Jones (1963:22) established the dentition of the hooded hooks (bidentate or tridentate) as the primary dichotomy for splitting the species of Magelona. The Gulf of Mexico BLM-OCS material also includes two species having unidentate spines or hooks (Figures 7-10g, 12f) in addition to bidentate hooks, and one species having either tri- or multidentate (Figure 7-20i) hooks. The sizes of the anterior abdominal hooks relative to each other are quite important at the species level. For example, M. pettiboneae Jones, 1963, and Magelona sp. C resemble each other in most characteristics, but the former has hooks of the same or slightly different sizes (Figure 7-6e,g,h), whereas the latter has hooks of three distinctly different sizes (Figure 7-8d,f). Some species have modified hooks anteriorly, such as unidentae spines or hooks in Magelona sp. D and Magelona sp. E (Figures 7-10f,g; 12f). Other species may possess modified hooks posteriorly. Magelona sp. H, for example, has only bidentate hooks anteriorly, while posteriorly there are also large, recurved spines, tridentate hooks, and enlarged bidentate hooks.

Illustrations included herein were drawn from Gulf of Mexico BLM-OCS specimens unless otherwise indicated. All parapodia are shown from an anterior view except as noted.

BIOLOGICAL NOTES

Magelonids are active burrowers in muds and sands, using the flattened prostomium and eversible proboscis to move through the sediment (Day, 1967:494). According to Fauchald and Jumars (1979:220), no distinct tubes are formed, but the worms maintain mucus-lined burrows (Jones, 1968b:292).

Members of the family feed as surface deposit-feeders, ingesting diatoms, detritus and small animals along with sediment grains. The worms remain buried in the substrate, with the palps extending above the surface. Food particles are captured by the papillose surface of the palps and transferred toward the mouth by looping motions (Jones, 1968b:293). Particle size selection may occur, with larger particles preferred, although selectivity may not take place in well-sorted sediments (Fauchald and Jumars, 1979:221). The palps apparently function in respiration, which is also facilitated by lateral sinuous movements of the body within the burrow (Jones, 1968b:294).

Little has been reported on reproduction in magelonids. One ovigerous specimen reported herein (Magelona sp. A) contained eggs in the lateral cavities of abdominal segments from about setiger 15.

SPECIES OF MAGELONIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Magelona sp. A	7-7
Magelona sp. B	7-9
Magelona pettiboneae Jones, 1963	7-11
Magelona sp. C	7-13
Magelona sp. D	7-13
Magelona sp. E	7-16
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Magelona sp. K	7-27
Magelona sp. L	7-27

Genus Magelona F. Müller, 1858

TYPE SPECIES: Magelona papillicornis F. Müller, 1858.
REFERENCES:
Hartman, 1944d:318.
Ushakov, 1955:278.
Day, 1967:494.
Hartmann-Schröder, 1971:343.
Fauchald, 1977a:26.
DIAGNOSIS: Body long, slender, tapered posteriorly; divided into thorax of nine setigers and abdomen of many setigers. Prostomium large, spatulate; anterior margin smooth or crenulate, rounded or produced laterally as two frontal horns. Palps paired, long, papillose, arising ventrolaterally from base of prostomium. Parapodia biramous, bearing various combinations of medial and lateral lobes or lamellae. Thoracic setae limbate or capillary, often modified on setiger 9. Abdominal setae as hooded hooks. Pygidium with anal cirri.

Key to the Gulf of Mexico BLM-OCS Species of Magelona

1a. Prostomium without frontal horns (Figure 7-6a). 2
1b. Prostomium with frontal horns (Figures 7-10a; 14a; 16a; 26a,b). 6

2a. Lateral pouches present between parapodia of two anterior abdominal setigers (Figures 7-2a, 4a); dorsal medial lamellae present on setigers 1-8 (Figure 7-2b,c). 3
2b. Lateral pouches absent from anterior abdominal setigers; dorsal medial lamellae absent from setigers 1-8 (Figure 7-6b,c). . . . 5

3a. Abdominal hooded hooks bidentate (Figure 7-2h) . . . . . **Magelona sp. A**, p. 7-7

3b. Abdominal hooded hooks tridentate (Figure 7-4i) 4

4a. Postsetal lamellae of setiger 9 fimbriated (Figure 7-4f); lateral pouches present between parapodia of setigers 11 and 12 (Figure 7-4a). . . . . .**Magelona sp. B**, p. 7-9

4b. Postsetal lamellae of setiger 9 smooth; lateral pouches present between parapodia of setigers 10 and 11. . . . . .**Magelona riojai***

5a. Hooded hooks of anterior abdominal setigers all similar in size, or of two distinct sizes (Figure 7-6h), or smoothly graded in size (Figure 7-6e,g). . . . . **Magelona pettiboneae**, p. 7-11

5b. Hooded hooks of anterior abdominal setigers of three abruptly different sizes (Figure 7-8d,f). . . . . **Magelona sp. C**, p. 7-13

6a. Anterior abdominal hooded hooks unidentate (Figure 7-10g) or bidentate (Figure 7-14f). 7

6b. Anterior abdominal hooded hooks tridentate (Figure 7-20g,h) or multidentate (Figure 7-20i) 11

7a. Anterior abdominal parapodia with unidentate (Figures 7-10g, 12f) and often bidentate (Figures 7-10h, 12f) hooded hooks. 8

7b. Anterior abdominal parapodia with only bidentate hooded hooks (Figure 7-14f). 9

8a. Larger hooded hooks of anterior abdominal setigers unidentate (Figure 7-10f,g). . . . . .**Magelona sp. D**, p. 7-13

8b. Larger hooded hooks of anterior abdominal setigers bidentate (Figure 7-12f). . . . . .**Magelona sp. E**, p. 7-16

9a. Prostomial frontal horns rudimentary (Figure 7-14a); anterior abdominal parapodia without interlamellae (Figure 7-14e) . . . . . .**Magelona sp. F**, p. 7-18

9b. Prostomial frontal horns well-developed (Figures 7-16a, 18a); anterior abdominal parapodia with interlamellae (Figures 7-16e, 18e). 10

10a. Parapodia of setigers 1-8 with dorsal medial lobes (Figure 7-16b,c). . . . . .**Magelona sp. G**, p. 7-18

10b. Parapodia of setigers 1-8 without dorsal medial lobes (Figure 7-18b,c). . . . . .**Magelona sp. H**, p. 7-20

11a. Setiger 6 with oblique slits dorsolaterally (Figure 7-20a); parapodia of setigers 1-8 without dorsal medial lobes (Figure 7-20b-d). . . . . .**Magelona sp. I**, p. 7-23

11b. Setiger 6 without oblique slits; parapodia of setigers 1-8 with dorsal medial lobes (Figure 7-24b-d). 12

12a. Parapodia of setiger 9 with dorsal medial lobes and ventral lateral lamellae (Figure 7-22e); anterior abdominal parapodia without interlamellae (Figure 7-22f) . . . . . **Magelona sp. J**, p. 7-25

12b. Parapodia of setiger 9 without dorsal medial lobes and ventral lateral lamellae (Figures 7-24e, 26e); anterior abdominal parapodia with interlamellae (Figures 7-24f, 26f). 13

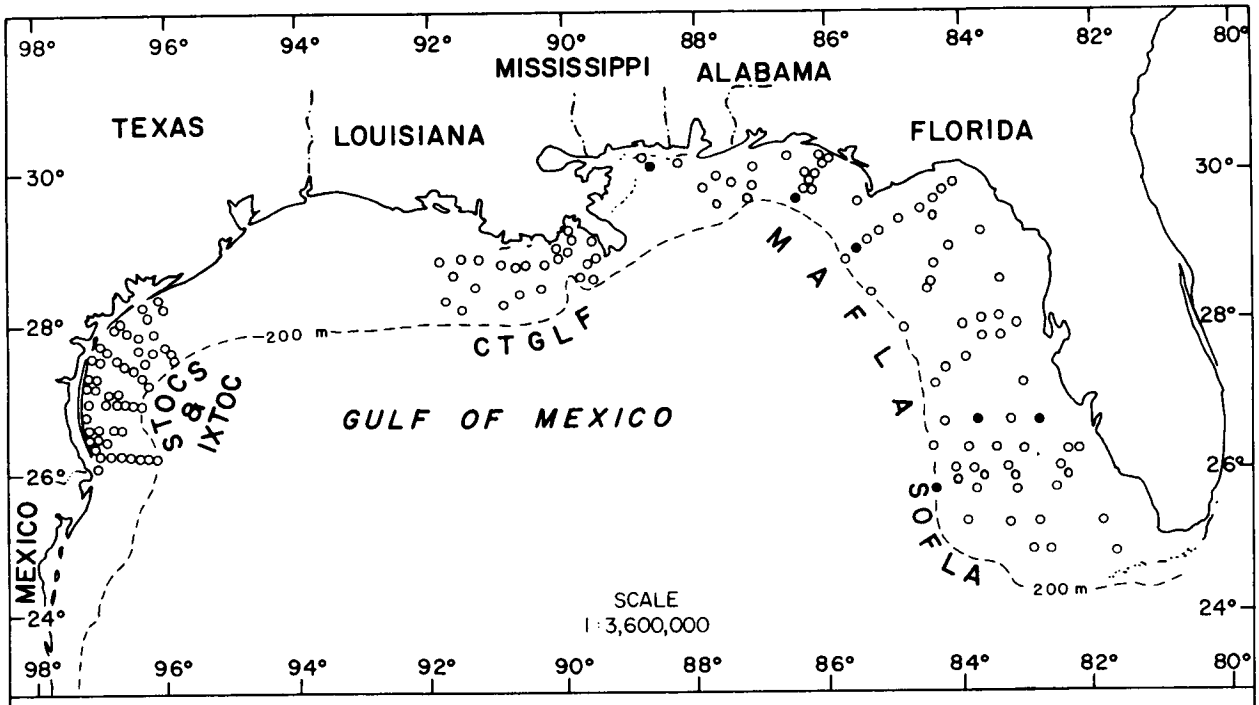

Figure 7-1. Distribution of Magelona sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

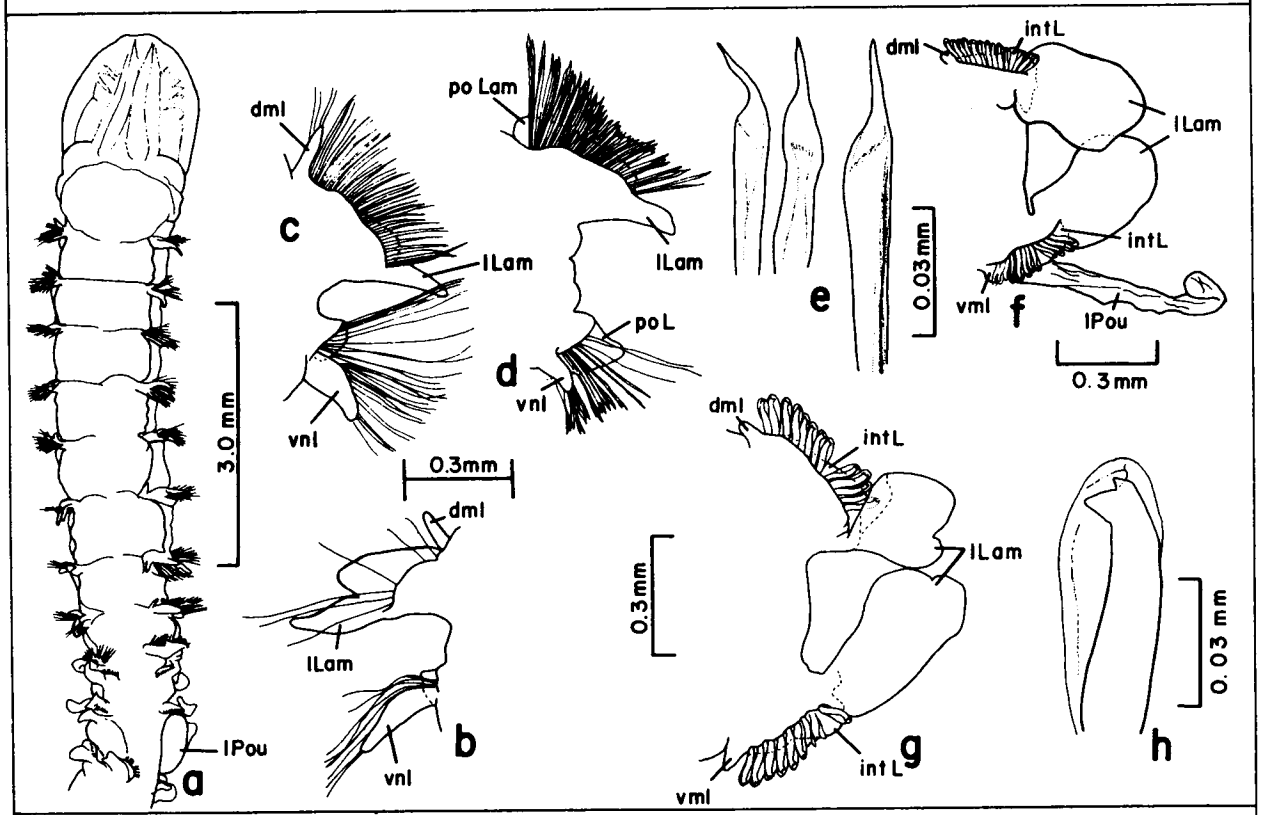

Figure 7-2. Magelona sp. A: a, anterior end, dorsal view; b, parapodium from setiger 3; c, same, from setiger 8; d, same, from setiger 9; e, tips of pennoned setae from same; f, parapodium from setiger 11, showing portion of lateral pouch; g, parapodium from setiger 37; h, hooded hook from setiger 10.

13a. Anterior margin of prostomium smooth (Figure 7-24a); setiger 9 with large parapodial lobes (Figure 7-24e) . . . . . .**Magelona sp. K**, p. 7-27

13b. Anterior margin of prostomium crenulate (Figure 7-26a,b); setiger 9 with small parapodial lobes (Figure 7-26e) . . . . . .**Magelona sp. L**, p. 7-27

*Not represented in Gulf of Mexico BLM-OCS collections but known from the Gulf coast of Florida and Mexico (Jones, 1963).

Magelona sp. A
Figures 7-1, 2a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5-11/80 (2 spec., USNM 86694); MAFLA 2426D-8/77 (1 spec., USNM 86695), 2426G-11/77 (1 spec., USNM 86696), 2426D-2/78 (1 spec., USNM 86698), 2957D-8/77 (2 spec., USNM 86697), 2957H-8/77 (1 spec., USNM 86699).

DESCRIPTION:
Length, 29+ mm; width, to 1.5 mm. Body arched dorsally, concave ventrally; all specimens incomplete with up to 38 setigers. Prostomium slightly longer than wide, rounded and smooth anteriorly, frontal horns absent (Figure 7-2a). Notopodia of setigers 1-8 with digitiform dorsal medial lobes; lateral lamellae bilobed, erect anteriorly (Figure 7-2b), becoming longer and prostrate by setiger 8 (Figure 7-2c); with limbate setae. Neuropodia of setigers 1-8 with lanceolate ventral neuropodial lobes smaller than notopodial lateral lamellae (Figure 7-2b); setal lobes mound-like anteriorly, becoming larger by setiger 8 (Figure 7-2c); with limbate setae. Notopodia of setiger 9 with small lateral lamellae and large, oval postsetal lamellae (Figure 7-2d); dorsal medial lobes absent. Neuropodia of setiger 9 with small, triangular postsetal lobes and digitiform ventral neuropodial lobes. Setae of setiger 9 modified, asymmetrical and pennoned distally (Figure 7-2e). Abdominal parapodia with papilliform dorsal and ventral medial lobes; large, broadly oval lateral lamellae; and high interlamellae (Figure 7-2f). Lateral lamellae gradually decreasing in size posteriorly (Figure 7-2g). Abdominal hooded hooks bidentate (Figure 7-2h); all similar in size, arranged in two groups face-to-face in each ramus (Figure 7-2f,g). Large lateral pouches present between parapodia of setigers 11 and 12 (Figure 7-2a,f). Smaller lateral pouches present anterior to parapodia, opening rearward, on alternating setigers on alternating sides of the body from setiger 26. One specimen ovigerous, with eggs in lateral cavities beginning about setiger 15.

REMARKS: Among the species of Magelona lacking frontal horns on the prostomium and having bidentate hooded hooks, Magelona sp. A resembles M. minuta Eliason, 1962b, in having broadly attached thoracic lateral lamellae. It differs from the latter in having specialized setae on the ninth setiger and in having lateral pouches.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered occurrences in northeastern Gulf (Figure 7-1); 24-189 m; coarse to fine sand, silty very fine sand, clayey and sandy silt.

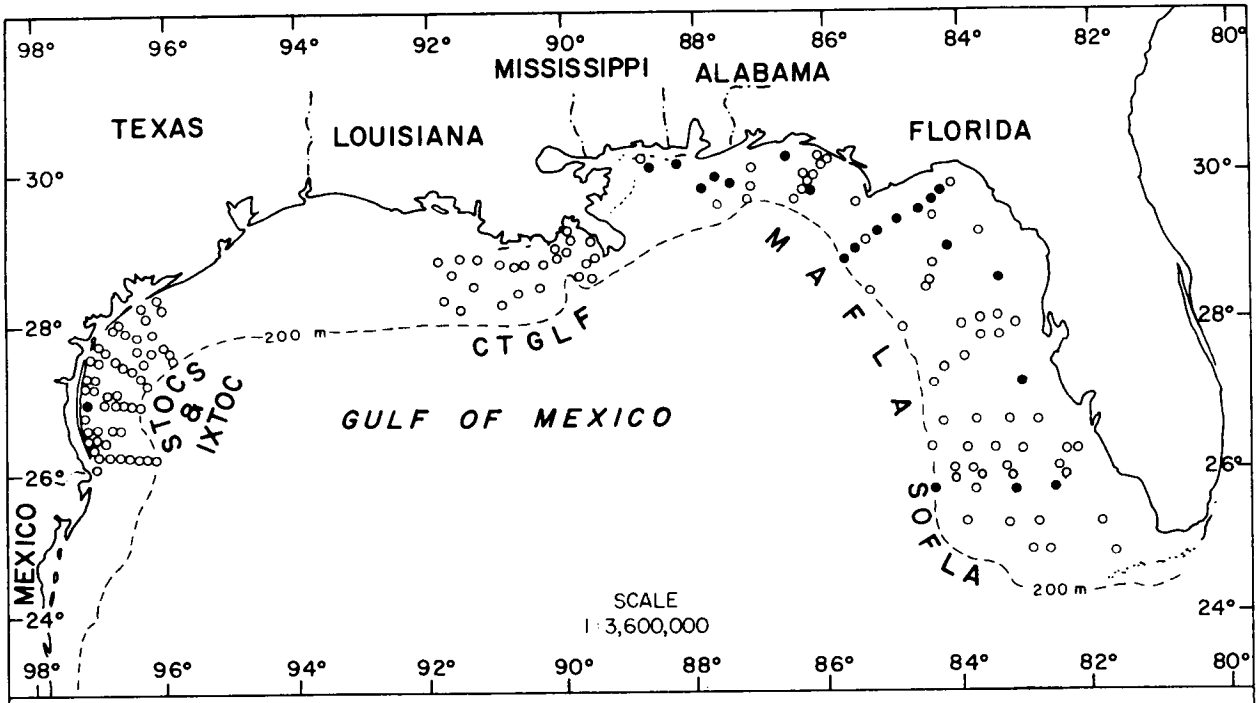

Figure 7-3. Distribution of Magelona sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

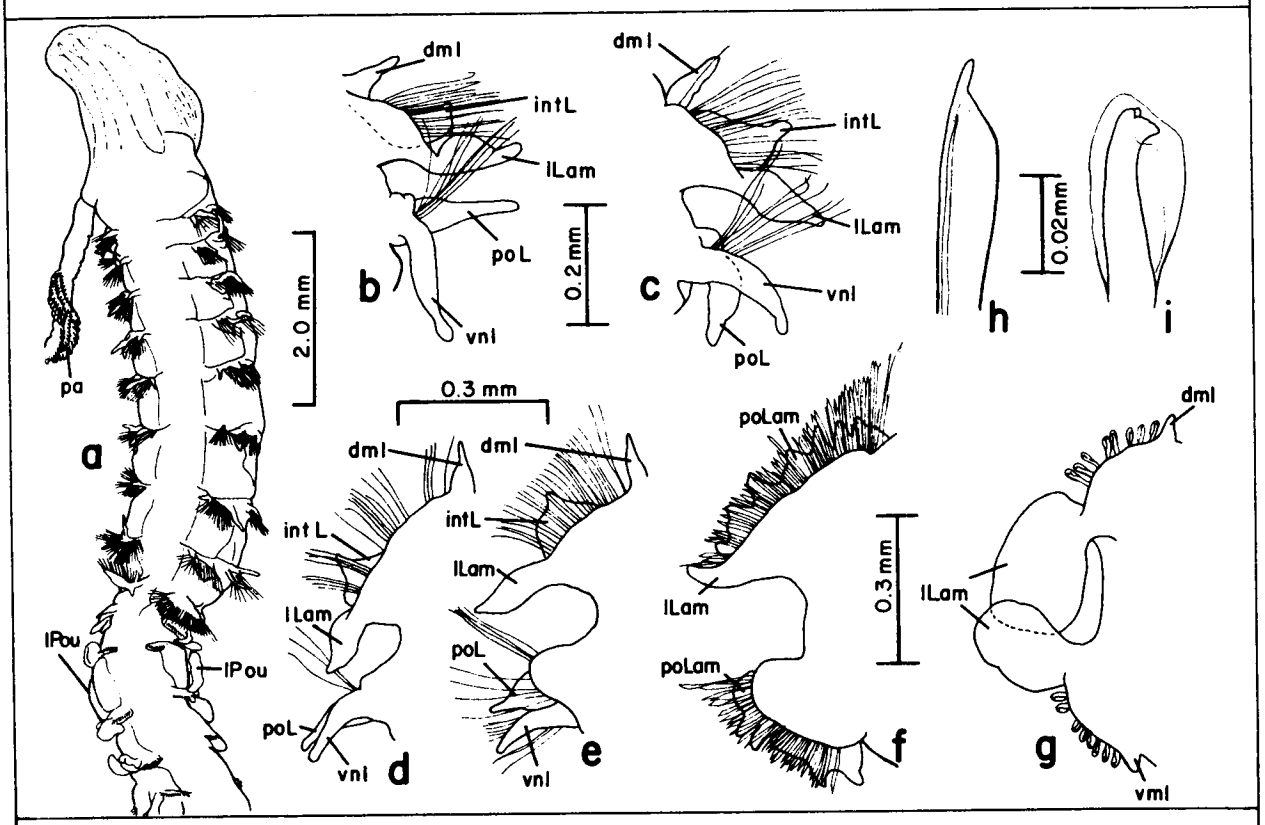

Figure 7-4. Magelona sp. B: a, anterior end, dorsal view; b, parapodium from setiger 1; c, same, from setiger 5; d, same, from setiger 7; e, same, from setiger 8; f, same, from setiger 9; g, same, from setiger 14; h, tip of modified seta from setiger 9; i, hooded hook from anterior abdominal region (Figure a from IEC 001-003 7/80).

Magelona sp. B
Figures 7-3, 4a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2422D-7/76 (1 spec., USNM 86706), 2424C-7/76 (1 spec., USNM 86712), 2424D-7/76 (1 spec., USNM 86708), 2640D-9/75 (1 spec., USNM 86711), 2641B-9/75 (1 spec., USNM 86709), 2642E-9/75 (1 spec., USNM 86707), 2855I-7/76 (1 spec., USNM 86701), 2960D-11/77 (1 spec., USNM 86705); IXTOC S50-6 11/79 (1 spec., USNM 86710).
Supplementary Material:
North Carolina--Wilmington, IEC Sta. 001-003, July 1980, 33°47.5'N, 78°01.5'W, 13 m, sand (1 spec., USNM 86702).
Gulf of Mexico--Mississippi Sound, Sta. 580-5, Oct. 1980, 30°10.90'N, 88°22.36'W, 10.9 m, clayey silt (7 spec., USNM 86700); Mobile Bay, No data (1 spec., USNM 86704).
DESCRIPTION:
Length, to 58 mm; width, to 2 mm. Body fairly large, cylindrical, constricted at setiger 9; largest specimen complete with 81 setigers. Prostomium nearly twice as long as wide, without frontal horns; anterior margin smooth (Figure 7-4a). Palps sometimes with narrow, transverse brown stripes. Notopodia of setigers 1-8 with digitiform dorsal medial lobes, lanceolate lateral lamellae, and nipple-shaped postsetal interlamellae (Figure 7-4b-e). Neuropodia of setigers 1-8 with subulate postsetal lobes and ventral neuropodial lobes (= presetal lobes), similar to each other in size. Setiger 9 with short notopodial lateral lamellae, and broad, crenulate, postsetal lamellae on both rami (Figure 7-4f). Abdominal parapodia with short, papilliform dorsal and ventral medial lobes, and rounded, foliaceous lateral lamellae (Figure 7-4g); interlamellae absent. Setigers 1-8 with limbate setae; setiger 9 with modified limbate setae having asymmetrically pennoned tips (Figure 7-4h). Abdominal hooded hooks tridentate, teeth blunt (Figure 7-4i); arranged in two groups face-to-face in each ramus (Figure 7-4g); all similar in size. Large lateral pouches present between parapodia of setigers 11 and 12. Smaller paired lateral pouches opening rearward just anterior to parapodia, beginning on one side of body between setigers 18 and 26, present on every other setiger on alternating sides of body, in a pattern such as setiger 25 (left), 27 (right), 29 (left), 31 (right). . .continuing to near posterior end. Pygidium with three short, slender anal cirri.
REMARKS: Magelona sp. B seems closely allied with two other species of Magelona from the Gulf of Mexico, both of which also have a long prostomium lacking frontal horns, thoracic dorsal medial lobes, specialized setae on setiger 9, large lateral pouches between the parapodia of two anterior abdominal setigers, and the same alternating arrangement of smaller lateral pouches farther back. Magelona sp. A has bidentate hooded hooks, smooth postsetal lamellae on setiger 9, and large lateral pouches between the parapodia of setigers 11 and 12. The other species, which is probably M. riojai Jones, 1963, has tridentate hooded hooks, smooth postsetal lamellae on setiger 9, and large lateral pouches between the parapodia of setigers 10 and 11 (not mentioned in the original description of M. riojai but observed on two paratypes from Mexico (USNM 30838)). The latter occurs off Texas and Florida but was not found in BLM-OCS collections, and thus is not included in this chapter. Magelona sp. B closely resembles M. heteropoda Mohammad, 1973, from Kuwait. It

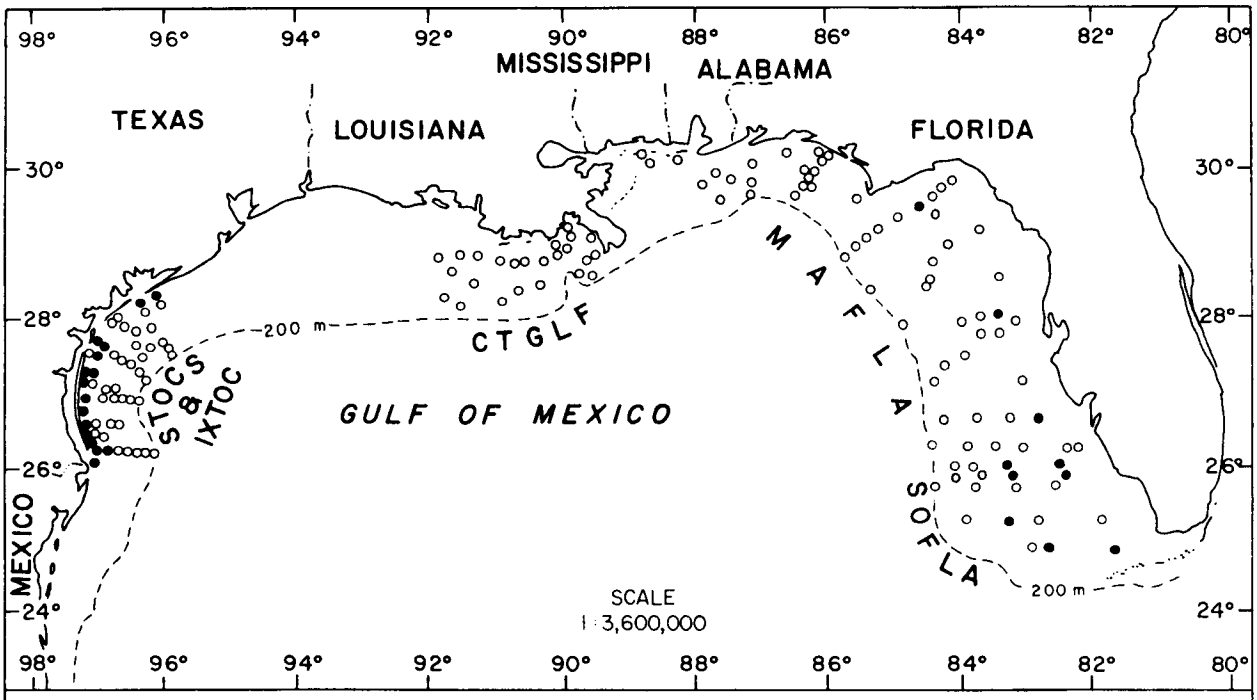

Figure 7-5. Distribution of Magelona pettiboneae on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

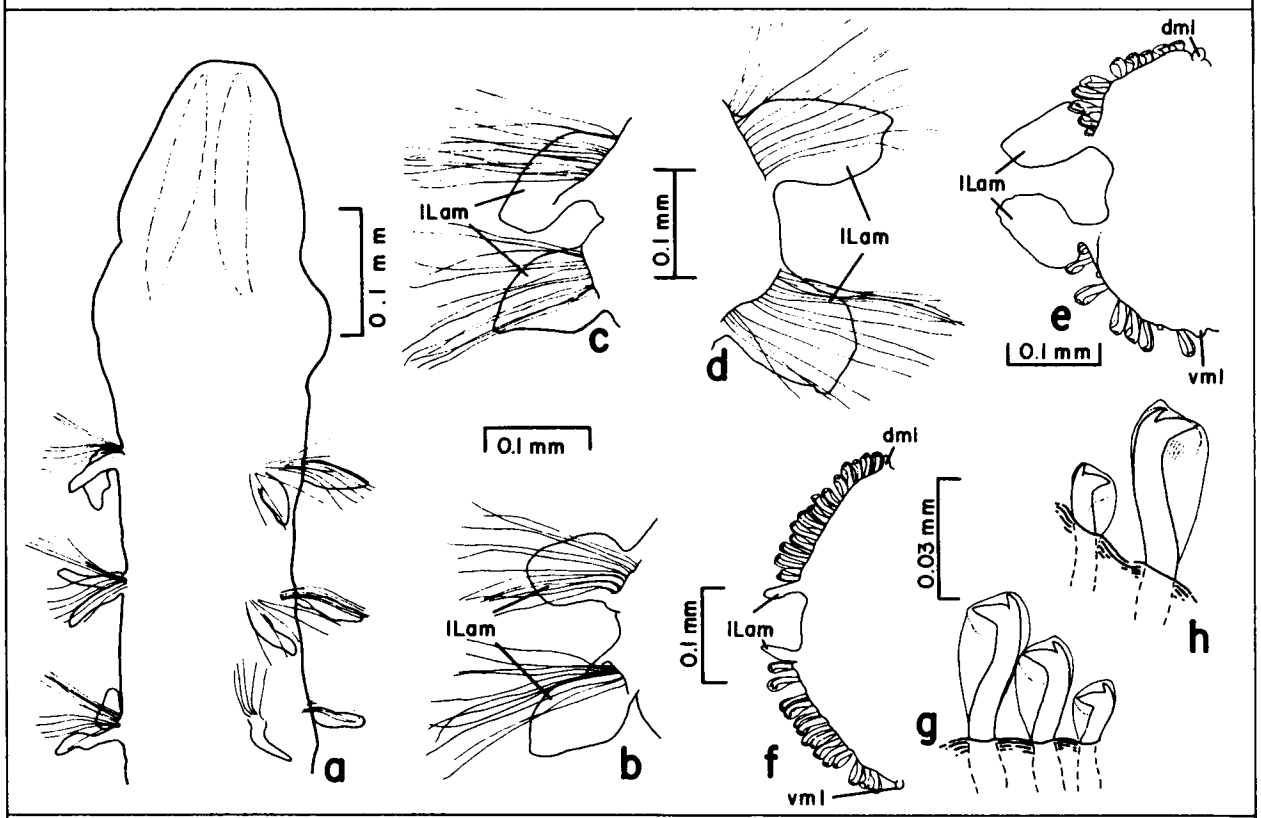

Figure 7-6. Magelona pettiboneae: a, anterior end, dorsal view; b, parapodium from setiger 1; c, same, from setiger 8; d, same, from setiger 9; e, same, from setiger 10; f, same, from posterior setiger; g, h, hooded hooks from setiger 10 (Figures b-h from Texas, Sta. LM30).

differs from the latter in possessing both ventral and postsetal neuropodial lobes on thoracic setigers, and in having much more strongly crenulate postsetal lamellae on setiger 9.
GULF OF MEXICO BLM-OCS OCCURRENCE: Common in northeastern Gulf and one record off Texas (Figure 7-3); 15-180 m; medium to fine and, silty fine to very fine sand, clayey and sandy silt.

Magelona pettiboneae Jones, 1963
Figures 7-5, 6a-h

Magelona pettiboneae Jones, 1963:15, figs. 36-47.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25-11/80 (4 spec., USNM 86689); MAFLA 2208K-8/77 (13 spec., USNM 86687), 2422C-7/76 (1 spec., USNM 86686); STOCS 1/IV-2 Sp/76 (12 spec., USNM 86688), 4/IV-3 Sp/76 (1 spec., USNM 86692), 4/IV-1 F/76 (5 spec., USNM 86693); IXTOC S50-4 11/79 (2 spec., USNM 86691).
Supplementary Material:
Gulf of Mexico--Florida, Seahorse Key, east side N. cove, Sept. 1960, silty sand, J. Taylor coll. (2 paratypes, USNM 30841), off Tampa Bay, IEC Sta. 713 008-003, Oct. 1979, 27°38.8'N, 82°55.8'W, 12 m (3 spec., USNM 86685); Texas, Sta. LM30, 27°34'16"N, 97°15'34"W, 0.5 m, sand, T. R. Calnan coll. (5 spec., USNM 86690).
DESCRIPTION:
Length, 25+ mm (previously reported to 39 mm); width, to 0.5 mm (previously reported to 1.0 mm). Body cylindrical; most specimens incomplete, largest ones with up to 66 setigers. Prostomium usually slightly longer than wide; bluntly rounded and smooth anteriorly, frontal horns absent (Figure 7-6a). Notopodial and neuropodial lateral lamellae lanceolate on thoracic setigers (Figure 7-6b-d); dorsal medial lobes and ventral neuropodial lobes absent. Parapodia of setiger 9 similar to other thoracic parapodia. Abdominal parapodia with large, foliaceous, basally constricted lateral lamellae (Figure 7-6e), gradually decreasing in size and becoming digitiform posteriorly (Figure 7-6f); dorsal and ventral medial lobes small, papilliform; interlamellae absent. Thoracic setae slender, capillary; setiger 9 without specialized setae. Abdominal hooded hooks bidentate, variable in size, arranged in two groups face-to-face in each ramus (Figure 7-6e,f). Upper group of anterior notopodial hooks similar to each other in size; lower group similar or increasing in size from ventral to dorsal (Figure 7-6e,g). Upper group of anterior neuropodial hooks similar in size or including one smaller, dorsalmost hook above 1-4 larger hooks (Figure 7-6e,h); lower group similar in size to upper larger hooks. More posteriorly, hooded hooks all of one size (Figure 7-6f). Lateral pouches absent. Pygidium conical with two short, slender cirri.
REMARKS: Magelona pettiboneae remains known only from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Intertidal to 33 m; sand, silty sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Common off southwestern Florida and Texas (Figure 7-5); 4.5-88 m; sands, silts and clays.
DISTRIBUTION: Gulf of Mexico.

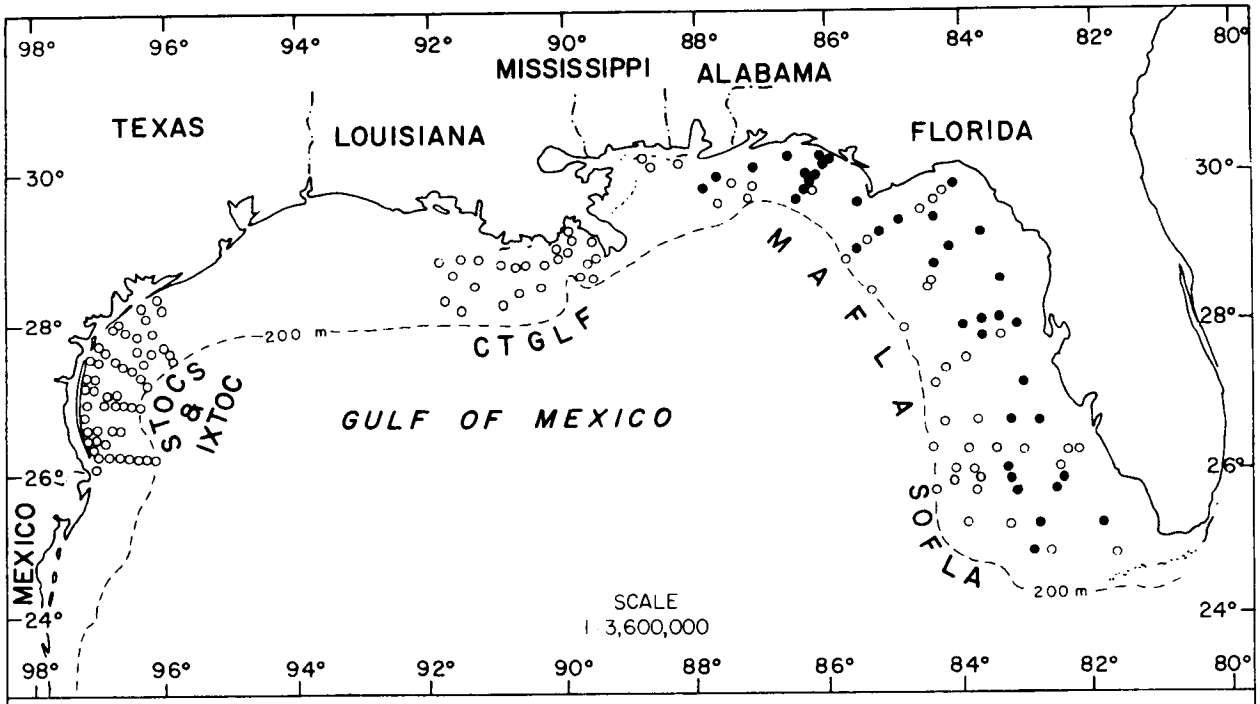

Figure 7-7. Distribution of Magelona sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

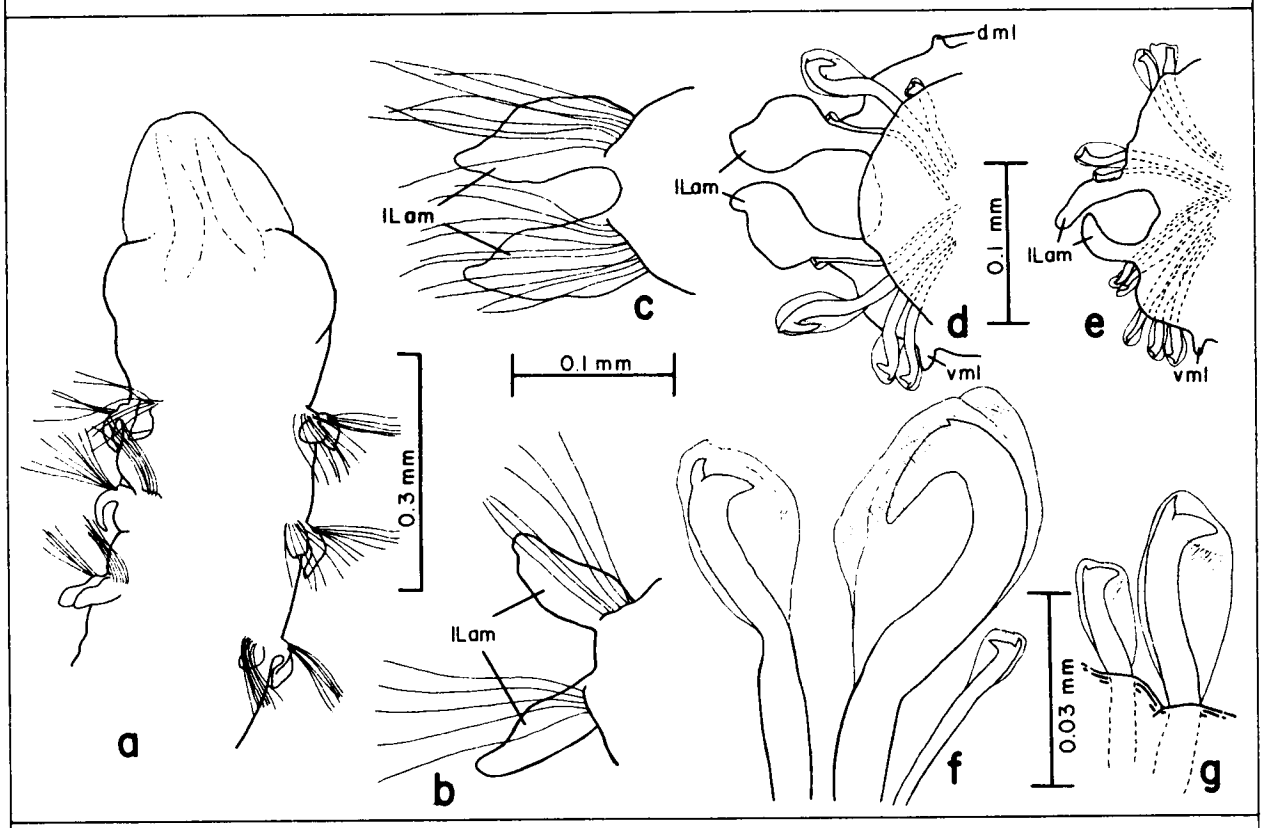

Figure 7-8. Magelona sp. C: a, anterior end, dorsal view; b, parapodium from setiger 4; c, same, from setiger 8; d, same, from setiger 11; e, same, from posterior setiger; f, hooded hooks from setiger 14; g, same, from posterior setiger.

Magelona sp. C
Figures 7-7, 8a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16-No date (5 spec., USNM 86726); MAFLA 2208K-8/77 (1 spec., USNM 86722), 2209C-7/76 (2 spec., USNM 86718), 2210B-7/76 (2 spec., USNM 86717), 2210D-7/76 (2 spec., USNM 86720), 2210I-7/76 (2 spec., USNM 86713-4), 2211H-7/76 (1 spec., USNM 86719), 2211I-7/76 (1 spec.), 2316F-8/76 (1 spec., USNM 86723), 2424B-7/76 (1 juv., USNM 86716), 2530C-2/76 (1 spec., USNM 86725), 2531C-2/76 (3 spec., USNM 86721), 2532C-1/76 (1 spec., USNM 86715), 2535C-7/76 (1 spec., USNM 86724).
DESCRIPTION:
Length, to 12 mm; width, to 0.25 mm. Body small, cylindrical; complete specimens with up to 55 setigers. Prostomium about same length as width, rounded to triangular, blunt and smooth anteriorly, frontal horns absent (Figure 7-8a). Notopodial and neuropodial lateral lamellae lanceolate on thoracic setigers (Figure 7-8b,c); dorsal medial lobes and ventral neuropodial lobes absent. Parapodia of setiger 9 similar to other thoracic parapodia. Abdominal parapodia with fairly small, foliaceous, basally constricted lateral lamellae (Figure 7-8d); lamellae gradually decreasing in size and becoming digitiform posteriorly (Figure 7-8e). Dorsal and ventral medial lobes small, papilliform on anterior abdominal setigers; dorsal medial lobes apparently absent posteriorly. Interlamellae absent. Thoracic setae slender, capillary or limbate. Setiger 9 without specialized setae. Abdominal hooded hooks bidentate, arranged in two groups face-to-face in each ramus (Figure 7-8d,e). Anterior hooded hooks of three distinct sizes (Figure 7-8f); each ramus with 1-2 minute hooks arising at base of lateral lamellae and facing medially, single large hook with minute apical tooth, facing medially, and one or more intermediate-sized hooks, facing laterally. Posterior hooks of two sizes (Figure 7-8g), including single small hook arising next to lateral lamellae, and several slightly larger hooks. Hooks all similar in size on far posterior setigers. Lateral pouches absent. Pygidium conical with two short, digitiform cirri. One specimen ovigerous.
REMARKS: Magelona sp. C appears to be closely allied with M. pettiboneae. It differs from the latter in having smaller lateral lamellae on anterior abdominal setigers, in apparently lacking dorsal medial lobes posteriorly, and in having anterior hooded hooks of three abruptly different sizes.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread in northeastern Gulf (Figure 7-7); 10-117 m; coarse to fine-very fine sand, silty fine to very fine sand, clayey and sandy silt.

Magelona sp. D
Figures 7-9, 10a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2640H-2/78 (1 spec., USNM 86728), 2643I-6/75 (3 spec., USNM 86730), 2643F-9/75 (1 spec., USNM 86729), 2645B-7/76 (1 spec., USNM 86727), 2960G-9/77 (1 spec., USNM 86731); STOCS SB3-1 8/76 (2 spec.,

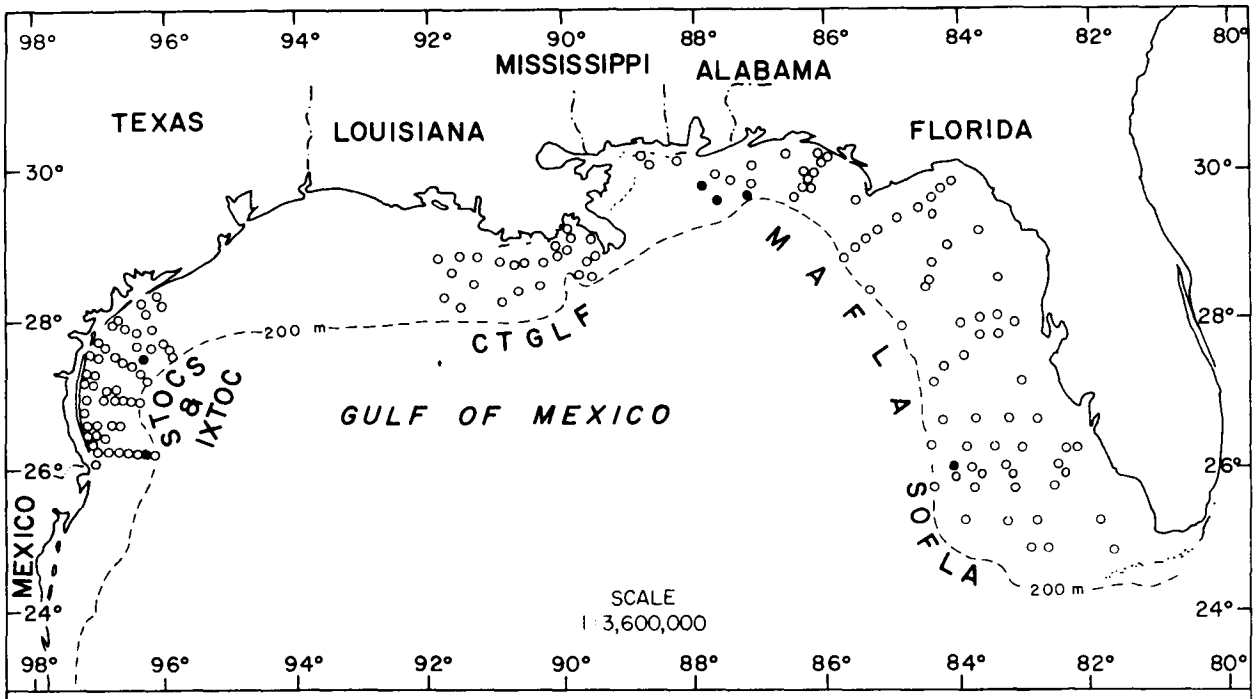

Figure 7-9. Distribution of Magelona sp. D on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

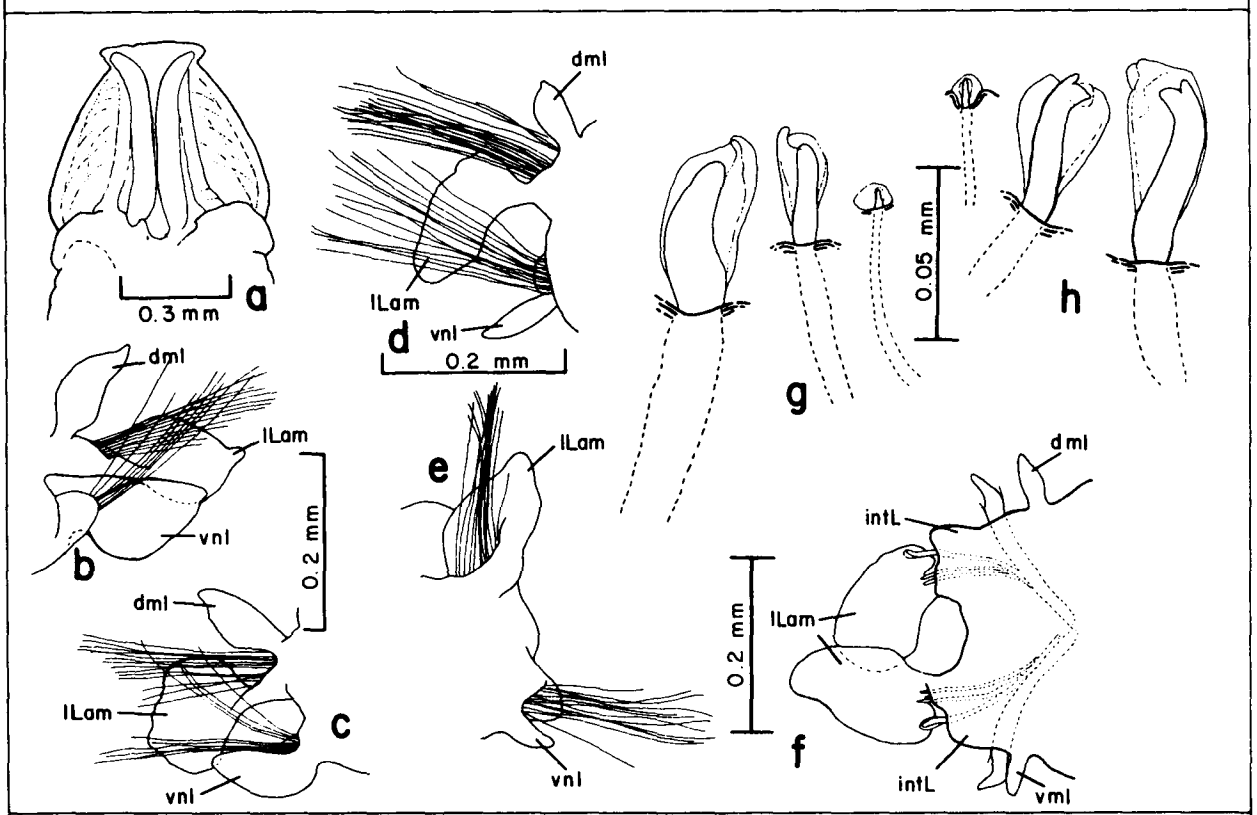

Figure 7-10. Magelona sp. D: a, prostomium, dorsal view; b, parapodium from setiger 1; c, same, from setiger 4; d, same, from setiger 8; e, same, from setiger 9; f, same, from setiger 11; g, hooded hooks from setiger 13; h, same, from setiger 19.

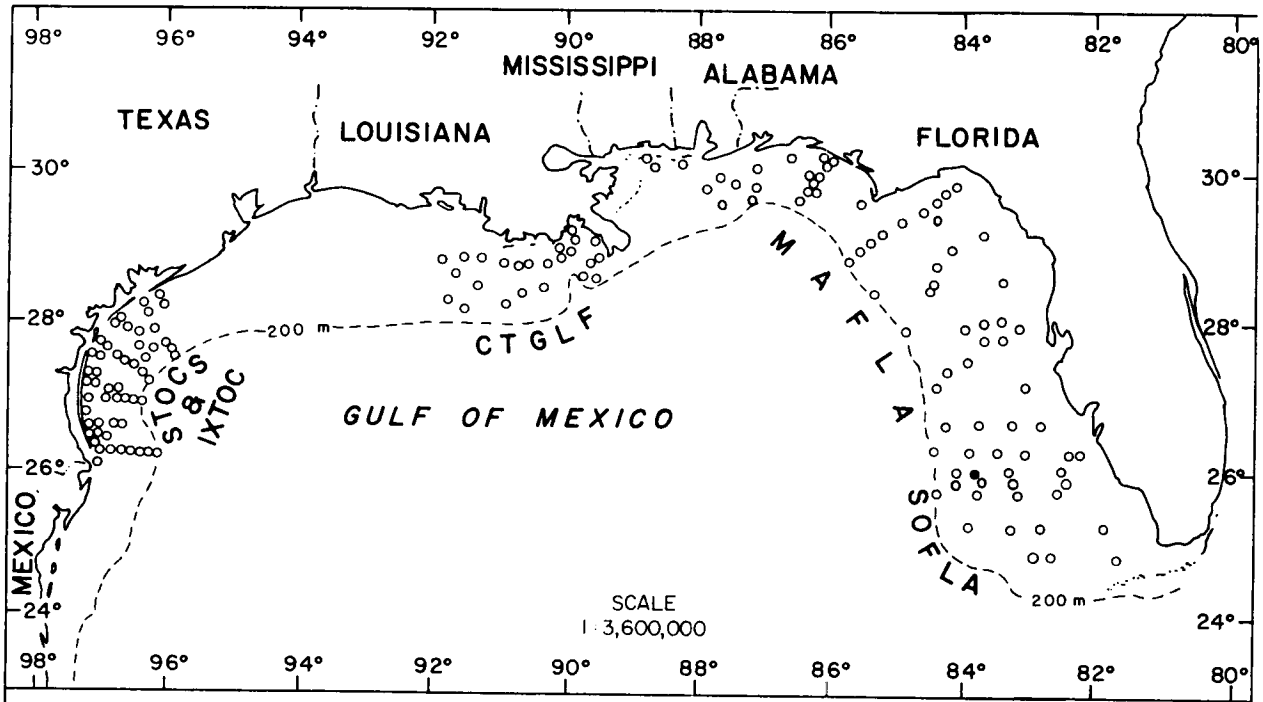

Figure 7-11. Distribution of Magelona sp. E on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

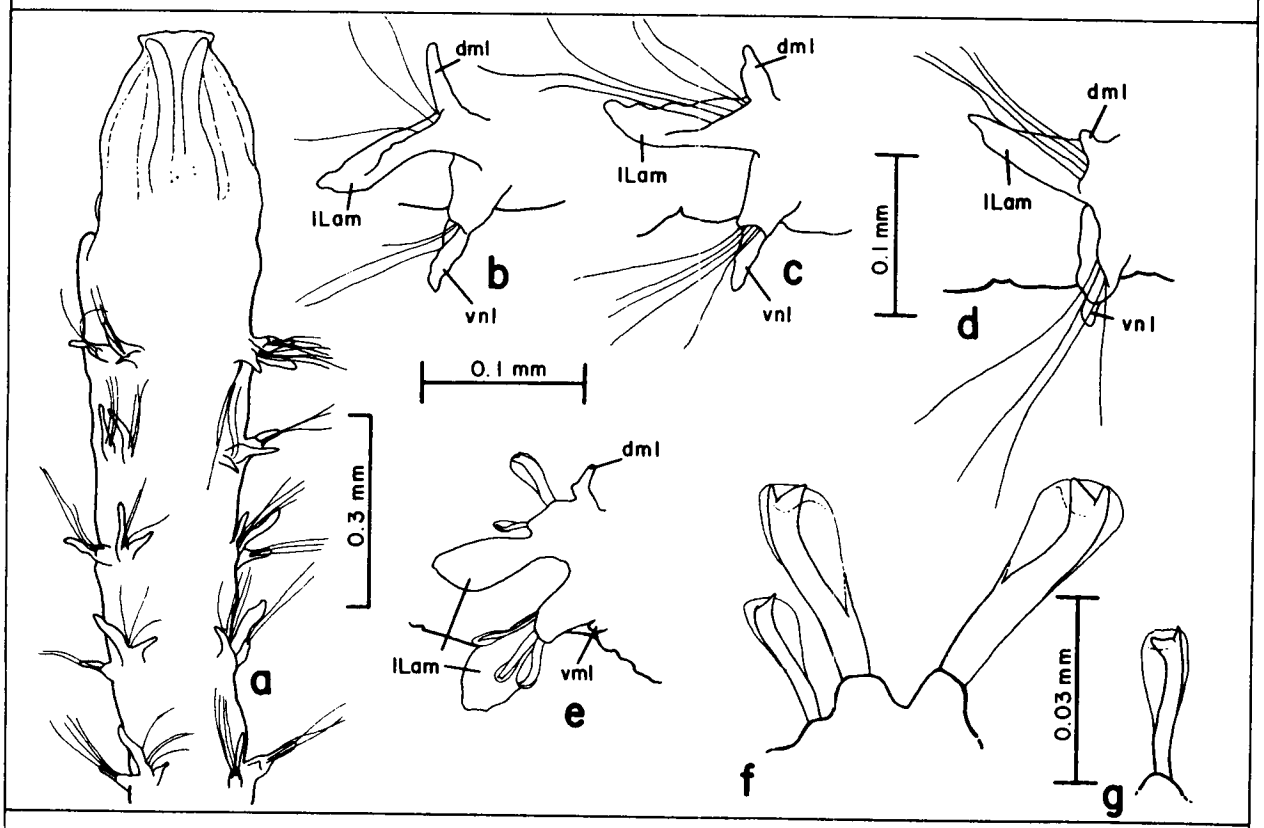

Figure 7-12. Magelona sp. E: a, anterior end, dorsal view; b, parapodium from setiger 3, posterolateral view; c, same, from setiger 8; d, same, from setiger 9; e, same, from setiger 10; f, hooded hooks from setiger 12; g, hooded hook from mid-abdominal setiger.

USNM 86734), SB3-1 12/76 (5 spec., USNM 86733), SB3-4 12/76 (2 spec., USNM 86732), SB3-5 12/76 (3 spec., USNM 86735).
DESCRIPTION:
Length, 12.5+ mm; width, to 0.6 mm. Body slender, without pigmentation; all specimens incomplete with up to 33 setigers. Prostomium triangular to oval, with well-developed frontal horns (Figure 7-10a), anterior margin smooth or minutely crenulate. Anterior thoracic parapodia with large, foliaceous dorsal medial lobes, lateral lamellae and ventral neuropodial lobes (Figure 7-10b). Dorsal medial lobes and ventral neuropodial lobes gradually diminishing in size to setiger 8 (Figure 7-10c,d). Setiger 9 with small lateral lamellae and ventral neuropodial lobes; dorsal medial lobes absent (Figure 7-10e). Anterior abdominal parapodia with small, digitiform dorsal and ventral medial lobes, and large, foliaceous lateral lamellae; setal lobes expanded medially forming raised interlamellae (Figure 7-10f). Thoracic setae limbate. Each anterior abdominal ramus with one large hooded acicular spine near medial lamella, and one small and two minute hooded acicular spines near lateral lamella (Figure 7-10f,g). Small spines becoming bidentate by setigers 13-17; large spines becoming smaller and bidentate by setigers 18-22 (Figure 7-10h); bidentate hooks similar in size and arranged face-to-face in each ramus. Lateral pouches absent.
REMARKS: Magelona sp. D resembles M. annulata Hartmann-Schröder, 1962, from Peru, in the shape of the prostomium and in having interlamellae on abdominal setigers. It differs from the latter primarily in possessing acicular spines in the anterior abdominal region.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few scattered occurrences off Florida, Alabama and Texas (Figure 7-9); 15-106 m; coarse to fine sand.

Magelona sp. E
Figures 7-11, 12a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12C-11/80 (1 spec., USNM 86736).
DESCRIPTION:
Length, 3.75+ mm; width, 0.25 mm. Only specimen minute, incomplete with about 22 setigers. Prostomium slightly longer than wide, with fairly well-developed frontal horns (Figure 7-12a); anterior margin minutely crenulate. Parapodia similar from setigers 1-8, with fairly long, digitiform dorsal medial lobes; narrow, lanceolate notopodial lateral lamellae; and digitiform ventral neuropodial lobes (Figure 7-12b,c). Dorsal medial lobes minute and ventral neuropodial lobes reduced on setiger 9 (Figure 7-12d). Abdominal parapodia with digitiform dorsal medial lobes; fairly small, lanceolate lateral lamellae; and minute, papilliform ventral medial lobes (Figure 7-12e); interlamellae absent. Setigers 1-9 with limbate setae. Each ramus of anterior abdominal parapodia with two groups of hooded hooks arranged face-to-face. Medial group usually with single, large, bidentate hook; lateral group usually with one large, bidentate hook and one small, unidentate hook (Figure 7-12f). Small hooks becoming slightly larger and bidentate (Figure 7-12g) after first few abdominal setigers. Lateral pouches absent.
REMARKS: Magelona sp. E is represented in Gulf of Mexico BLM-OCS voucher collections only by a single small specimen which may be a juvenile. However, the combination of characters, and particularly the

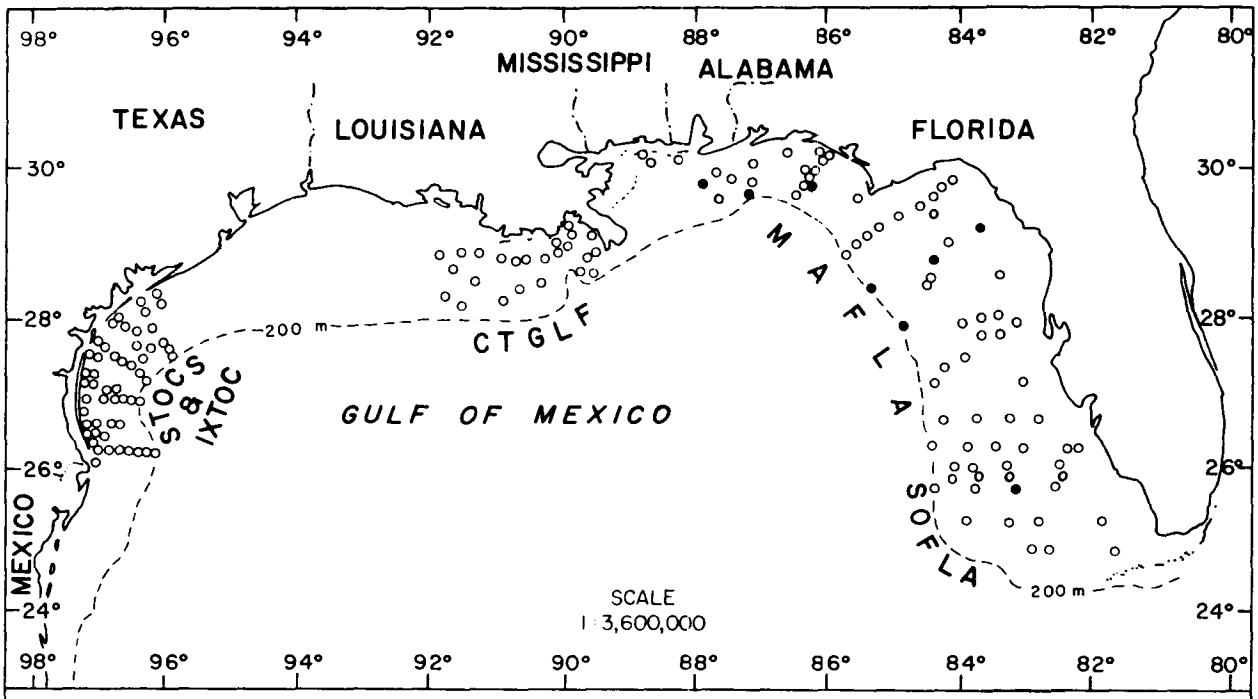

Figure 7-13. Distribution of Magelona sp. F on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

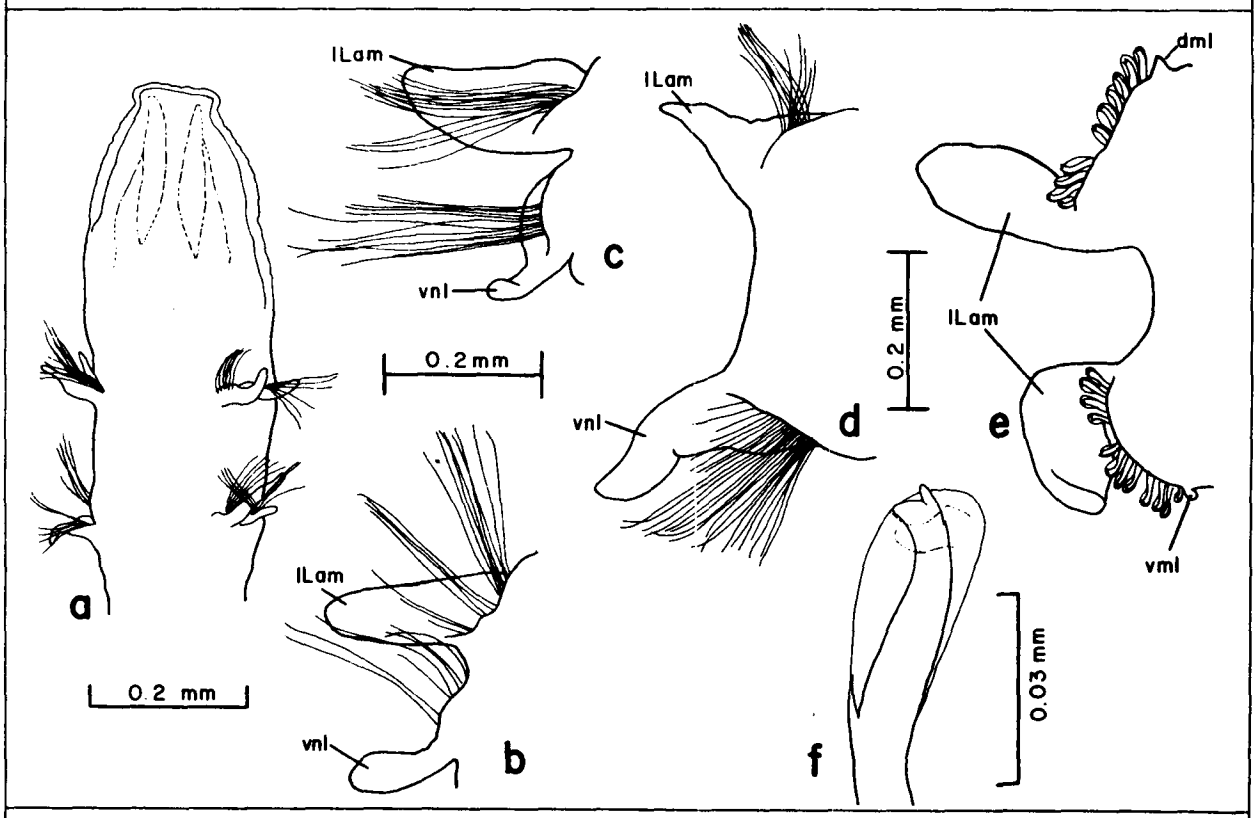

Figure 7-14. Magelona sp. F: a, anterior end, dorsal view; b, parapodium from setiger 1; c, same, from setiger 7; d, same, from setiger 9; e, parapodium (composite) from setigers 10, 11; f, hooded hook from anterior abdominal region.

morphology of the hooded hooks, are quite distinct from other Gulf of Mexico species included in this chapter.
GULF OF MEXICO BLM-OCS OCCURRENCE: One record off southwestern Florida (Figure 7-11); 90 m; fine sand.

Magelona sp. F
Figures 7-13, 14a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2212E-8/77 (1 spec., USNM 86738), 2212F-8/77 (1 spec., USNM 86739), 2212J-11/77 (2 spec., USNM 86737), 2212F-2/78 (1 spec., USNM 86740), 2534C-7/76 (2 spec., USNM 86742), 2959H-2/78 (1 spec., USNM 86741).
DESCRIPTION:
Length, 12.1+ mm; width, to 0.8 mm. Body fairly small; all specimens incomplete with up to 27 setigers. Prostomium about same length as width, with rudimentary frontal horns (Figure 7-14a); anterior margin smooth or minutely crenulate. Parapodia similar from setigers 1-8, with narrow, cylindrical to flattened notopodial lateral lamellae, and generally cylindrical ventral neuropodial lobes (Figure 7-14b,c); dorsal medial lobes absent. Rami of setiger 9 well-separated, each with triangular lobe (Figure 7-14d). Abdominal parapodia with minute, papilliform dorsal and ventral medial lobes, and narrowly foliaceous lateral lamellae (Figure 7-14e); interlamellae absent. Setigers 1-9 with limbate setae. Abdominal hooded hooks bidentate, all similar in size, arranged in two groups face-to-face in each ramus (Figure 7-14e,f). Lateral pouches absent.
REMARKS: Magelona sp. F resembles M. longicornis Johnson, 1901, and M. phyllisae Jones, 1963, in the shapes of the prostomium, parapodial lobes and hooded hooks. It differs from the former in lacking dorsal medial lobes on setigers 1-8 and both dorsal and ventral medial lobes on setiger 9, and in having the hooded hooks of each ramus arranged in two groups face-to-face rather than all front-to-back. It differs from the latter in having much smaller abdominal medial lobes.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered occurrences in northeastern Gulf (Figure 7-13); 20-189 m; coarse to medium sand, silty very fine sand, clayey sandy silt.

Magelona sp. G
Figures 7-15, 16a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2-11/80 (2 spec., USNM 86759), 6-11/80 (3 spec., USNM 86751, 86760); MAFLA 2209I-11/77 (1 spec., USNM 86757), 2421B-7/76 (1 spec., USNM 86758), 2421A-9/77 (3 spec., USNM 86745), 2421A-11/77 (1 spec., USNM 86753), 2422G-7/76 (5 spec., USNM 86755), 2640G-7/76 (1 spec., USNM 86750), 2641F-7/76 (1 spec., USNM 86746), 2642I-6/75 (2 spec., USNM 86748), 2642H-9/75 (1 spec., USNM 86749), 2643F-9/75 (1 spec., USNM 86754), 2959H-11/77 (1 spec., USNM 86747), 2960G-9/77 (1 spec., USNM 86756).

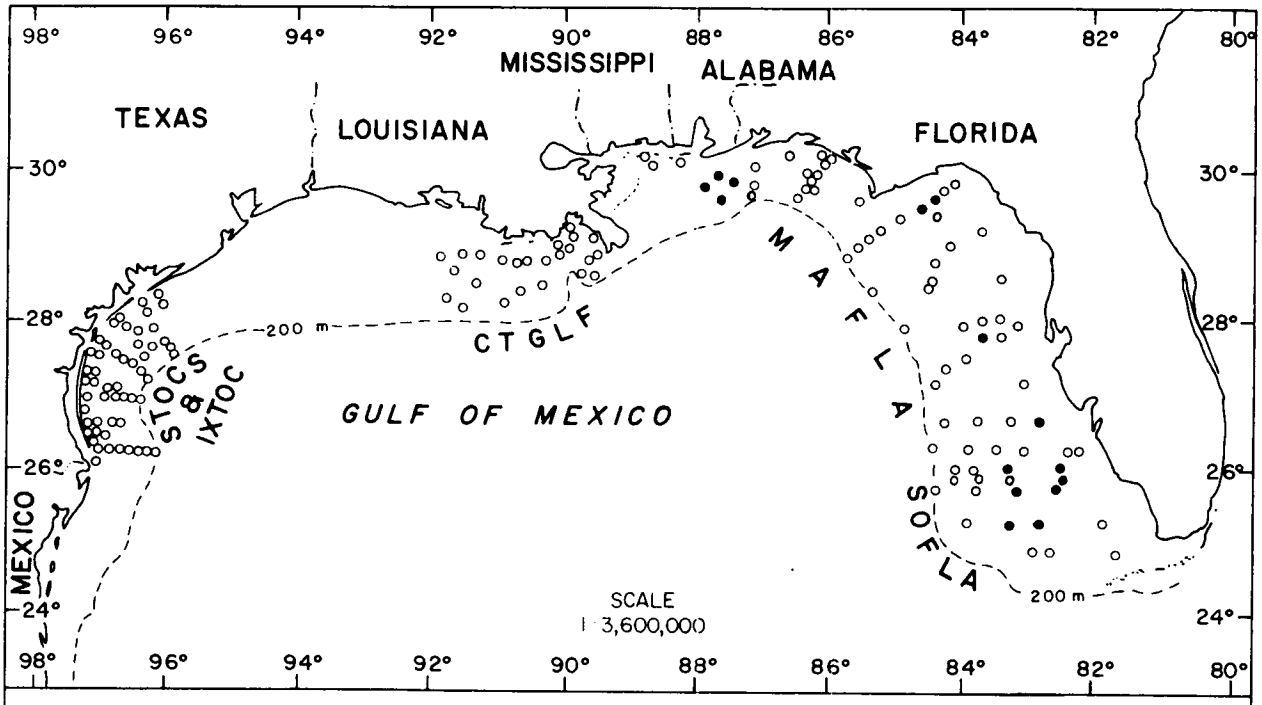

Figure 7-15. Distribution of Magelona sp. G on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

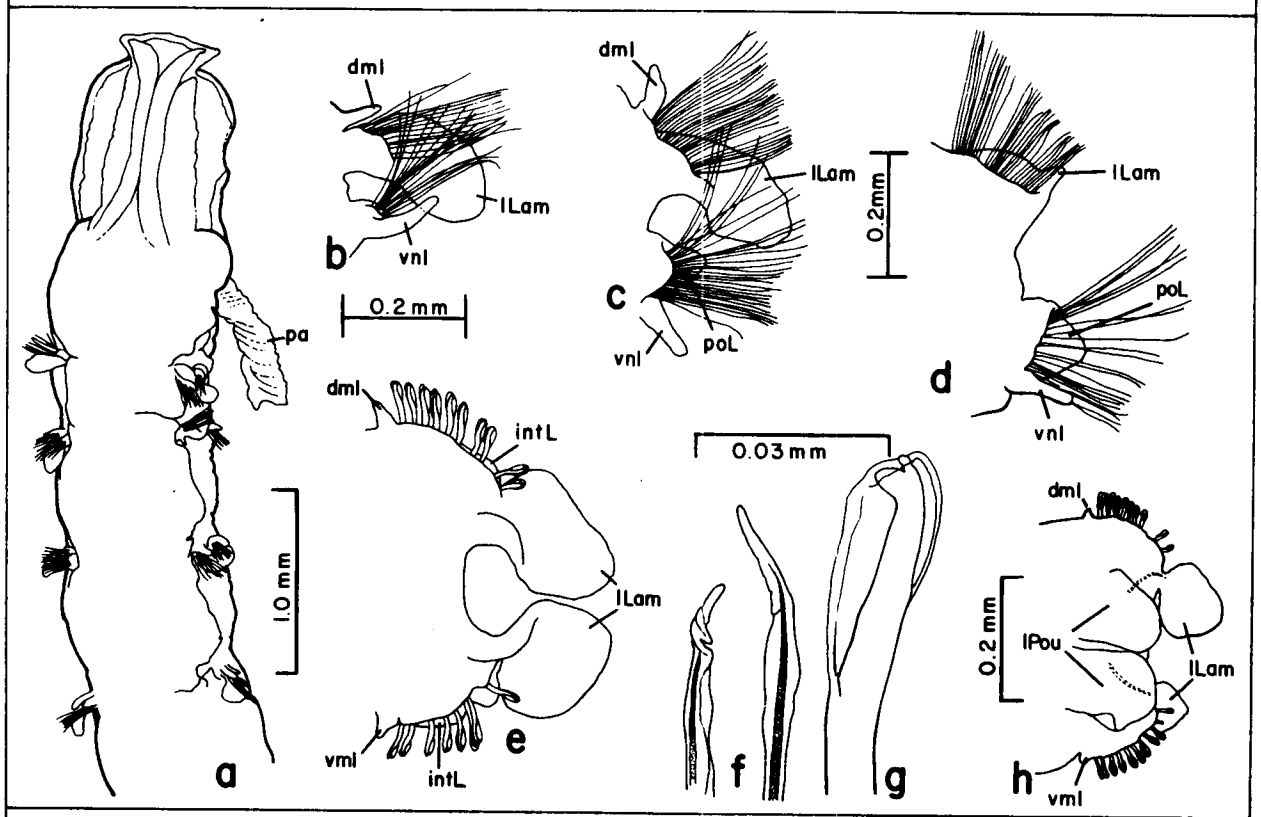

Figure 7-16. Magelona sp. G: a, anterior end, dorsal view; b, parapodium from setiger 1; c, same, from setiger 8; d, same, from setiger 9; e, same, from setiger 13; f, tips of modified setae from setiger 9; g, hooded hook from setiger 13; h, left side of setiger 48, anterolateral view.

Supplementary Material:
Gulf of Mexico--off Tampa Bay, IEC Sta. 723 004-010, Jan. 1980, 27°37.1'N, 82°55.1'W, 10 m (1 spec., USNM 86743); off Mississippi Sound, COE Sta. 470-6, Nov. 1980, 30°05.50'N, 88°14.74'W, 18.9 m, sand (1 spec., USNM 86744), Sta. 477-8, Nov. 1980, 30°09.89'N, 88°27.63'W, 23.8 m, sand (1 spec., USNM 86752).
DESCRIPTION:
Length, 17.0+ mm; width, to 1.0 mm. Body fairly large; all specimens incomplete with up to 31 setigers. Prostomium about twice as long as wide, with prominent frontal horns (Figure 7-16a); anterior margin smooth. Parapodia similar from setigers 1-7, gradually increasing in size, with digitiform dorsal medial lobes, foliaceous notopodial lateral lamellae, and long ventral neuropodial lobes (Figure 7-16b). Neuropodial postsetal lobes long, triangular on setigers 8 and 9 (Figure 7-16c,d). Dorsal lateral lamellae reduced and dorsal medial lobes absent on setiger 9 (Figure 7-16d). Abdominal parapodia with papilliform dorsal and ventral medial lobes; and large, rounded, foliaceous lateral lamellae (Figure 7-16e). Low interlamellae present on anterior abdominal setal lobes (Figure 7-16e). Setigers 1-8 with limbate setae; setiger 9 with limbate setae having slightly expanded crenulate tips (Figure 7-16f). Abdominal hooded hooks bidentate, arranged in two groups face-to-face in each ramus (Figure 7-16e,g). Hooded hooks generally all similar in size; single hook at base of each lateral lamella often slightly smaller (Figure 7-16e). Paired lateral pouches present on each setiger on both sides of body beginning on setigers 27-28, opening rearward just anterior to parapodia (Figure 7-16h).
REMARKS: Magelona sp. G resembles M. longicornis Johnson, 1901, in having frontal horns and bidentate hooded hooks, well-developed dorsal medial lobes and ventral neuropodial lobes in the thorax, and papilliform dorsal and ventral medial lobes in the abdomen. It differs from the latter in having a long prostomium, triangular postsetal lobes on setigers 8 and 9, reduced lateral lamellae on setiger 9, and rounded rather than triangular lateral lamellae in the abdomen; in lacking dorsal medial lobes on setiger 9; and in having abdominal hooded hooks arranged face-to-face rather than front-to-back.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread in northeastern Gulf (Figure 7-15); 19-88 m; medium to very fine sand, silty fine to very fine sand, clayey sandy silt.

Magelona sp. H
Figures 7-17, 18a-j

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2638E-9/75 (4 spec., USNM 86762), 2638C-11/77 (1 spec., USNM 86761); CTGLF 21-5/78 (10 spec., USNM 86766); STOCS 1/II-1 8/76 (10 spec., USNM 86765), 4/III-3 F/76 (10 spec., USNM 86767), 4/III-4 F/76 (10 spec., USNM 86763); IXTOC S53-1 11/79 (7 spec., USNM 86764).
Supplementary Material:
North Carolina--off Wilmington, IEC Sta. 733 001-008, July 1980, 33°47.5'N, 78°01.5'W, 13 m, sand (5 spec., USNM 86769).
Gulf of Mexico--Louisiana, LOOP Sta. 477-5, Nov. 1979, 29°02'09"N, 90°05'48"W, 16 m, clayey silt (5 spec., USNM 86768); Texas, Sta. CC 157,

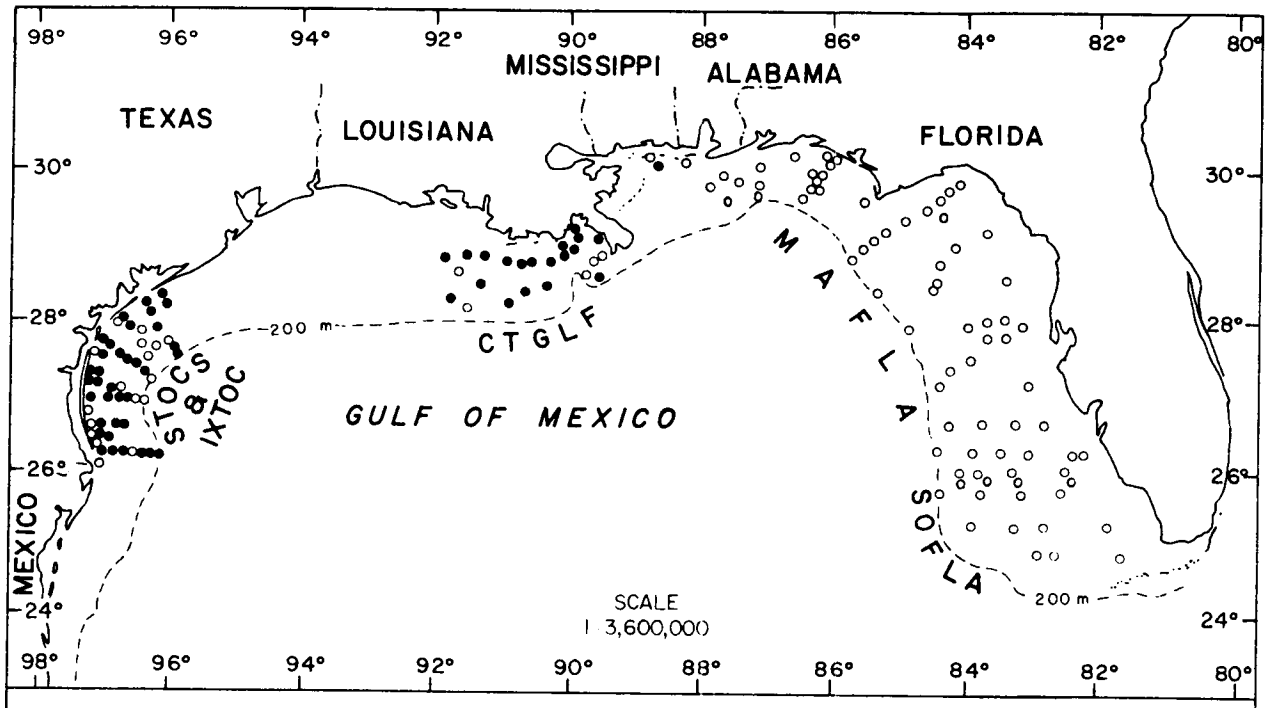

Figure 7-17. Distribution of Magelona sp. H on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

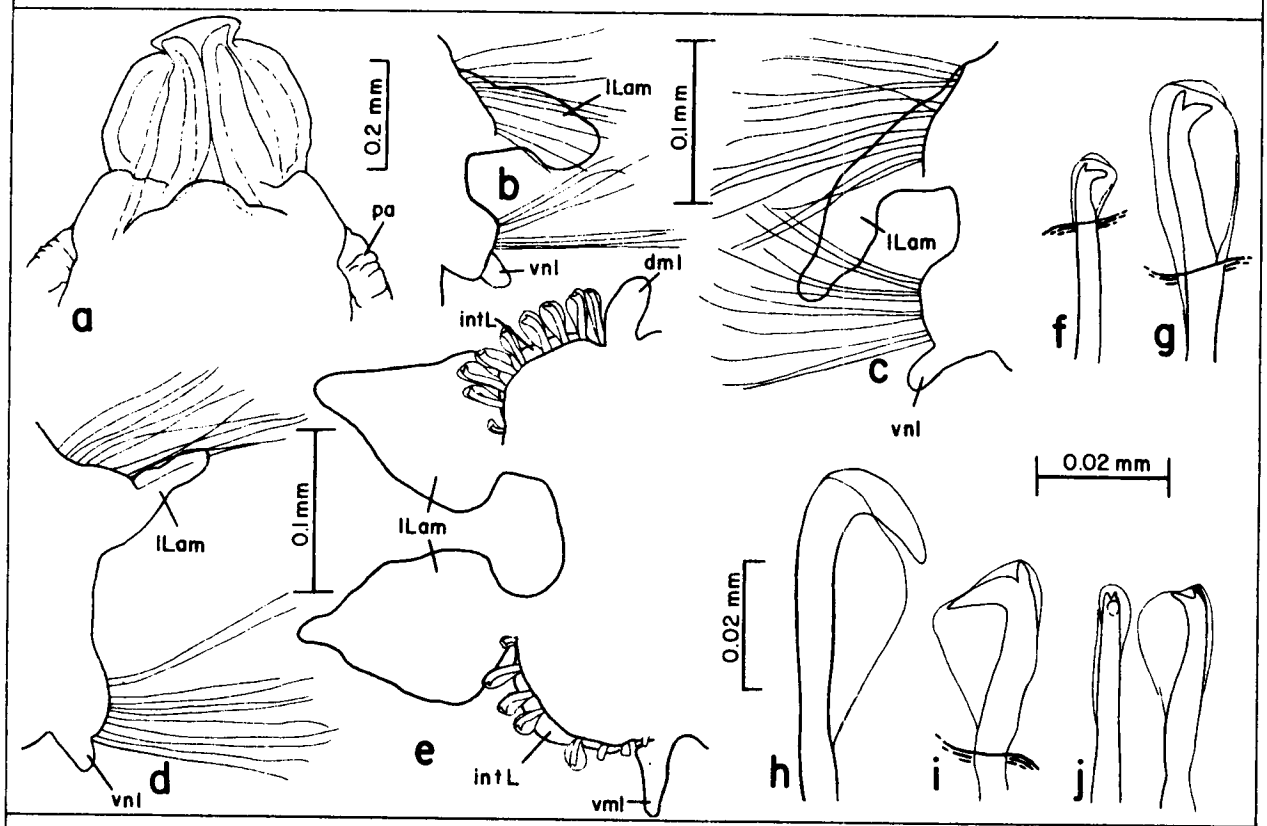

Figure 7-18. Magelona sp. H: a, prostomium, dorsal view; b, parapodium from setiger 1; c, same, from setiger 8; d, same, from setiger 9; e, same, from setiger 10; f, g, hooded hooks from same; h, hooded recurved spine from setiger 49; i, enlarged, bidentate hooded hook from setiger 44; j, tridentate hooded hooks from setigers 40, 47 (Figures a-g from IEC 733 7/80; h-j from LOOP 477-5 11/79).

27°49'12"N, 97°13'08"W, 3 m, muddy sand, T. R. Calnan coll. (5 spec., USNM 86770).
DESCRIPTION:
Length, 16.5+ mm; width, to 0.3 mm. All specimens incomplete with up to 52 setigers. Prostomium rounded to oval, with well-developed frontal horns (Figure 7-18a); anterior margin smooth. Thoracic parapodia similar from setigers 1-8; with narrow, flattened to nearly cylindrical dorsal lateral lobes and short, digitiform ventral neuropodial lobes (Figure 7-18b,c); dorsal medial lobes absent. Dorsal lateral lamellae reduced on setiger 9 (Figure 7-18d). Abdominal setigers with digitiform dorsal and ventral medial lobes, and large, triangular lateral lamellae (Figure 7-18e); low interlamellae present. Thoracic setae limbate. Anterior abdominal hooded hooks bidentate, of two sizes, arranged in two groups face-to-face in each ramus. Single small hook present at base of each lateral lamella (Figure 7-18e,f); remaining hooks larger (Figure 7-18g). Most rami with 1-3 large, curved spines beginning about setigers 26-38 (Figure 7-18h). Large, bidentate hooded hooks (Figure 7-18i) and smaller tridentate hooks (Figure 7-18j) present sporadically from about setiger 35. Lateral pouches absent.
REMARKS: Magelona sp. H appears to be unique among the numerous species of the genus, in having several different forms of hooded hooks including large curved spines. Most specimens examined herein were broken anterior to the appearance of modified hooks. Magelona sp. H resembles M. phyllisae Jones, 1963, in most respects, but modified hooded hooks do not occur in the latter.
GULF OF MEXICO BLM-OCS OCCURRENCE: Abundant off Louisiana and Texas (Figure 7-17); 6-134 m; predominantly silts and clays.

Magelona sp. I
Figures 7-19, 20a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207E-11/77 (1 spec., USNM 86784), 2208K-8/77 (4 spec., USNM 86785), 2209H-11/77 (1 spec., USNM 86779), 2318G-11/77 (1 spec., USNM 86773), 2318I-11/77 (1 spec., USNM 86772), 2638I-9/75 (1 spec., USNM 86781), 2639C-6/75 (2 spec., USNM 86787), 2639F-9/75 (1 spec., USNM 86783), 2639A-11/77 (2 spec., USNM 86780), 2640C-8/77 (2 spec., USNM 86786), 2641C-6/75 (1 spec., USNM 86788), 2645H-7/76 (1 spec., USNM 86782), 2960K-2/78 (1 spec., USNM 86771); CTGLF 04-6/78 (1 spec., USNM 86790); STOCS 1/II-10 2/76 (1 spec., USNM 86792), 1/II-4 3/76 (2 spec., USNM 86778), 1/II-5 3/76 (2 spec., USNM 86794), 1/II-4 Sp/76 (2 spec.), 1/II-5 Sp/76 (4 spec., USNM 86793), 4/II-5 7/76 (2 spec., USNM 86791); IXTOC S52-3 11/79 (1 spec., USNM 86789).
Supplementary Material:
Gulf of Mexico--Mobile Bay, Sta. 88-30H 11b, Bayou la Batre Channel Marker #6, Jan. 1973 (1 spec., USNM 86777), Mobil Oil Sta. 001-E-7/78 (12 spec., USNM 86776); Texas, Sta. CC90, 27°47'54"N, 97°17'18"W, 5 m, mud, T. R. Calnan coll. (1 spec., USNM 86775).
DESCRIPTION:
Length, 26+ mm; width, to 1.1 mm. Body pale or with brown color band dorsally and ventrally on setigers 6-8; all specimens incomplete with up to 45 setigers. Prostomium broadly triangular, with rudimentary frontal horns (Figure 7-20a), anterior margin smooth. Lateral lamellae of

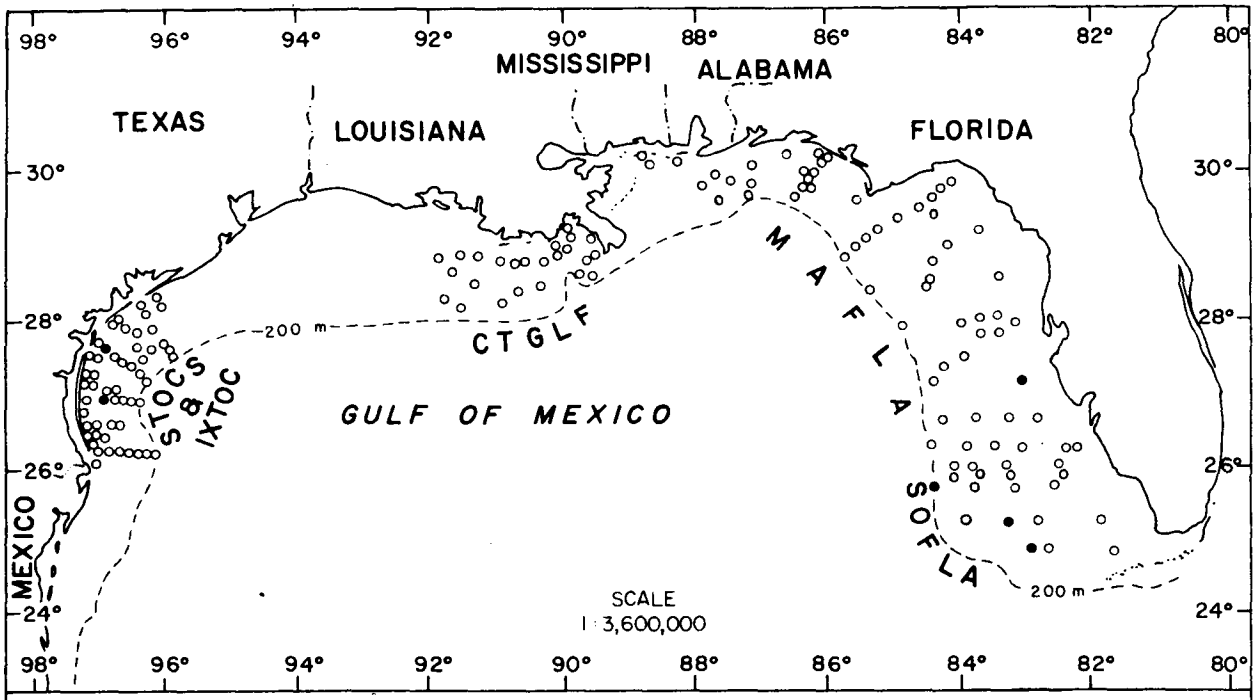

Figure 7-21. Distribution of Magelona sp. J on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

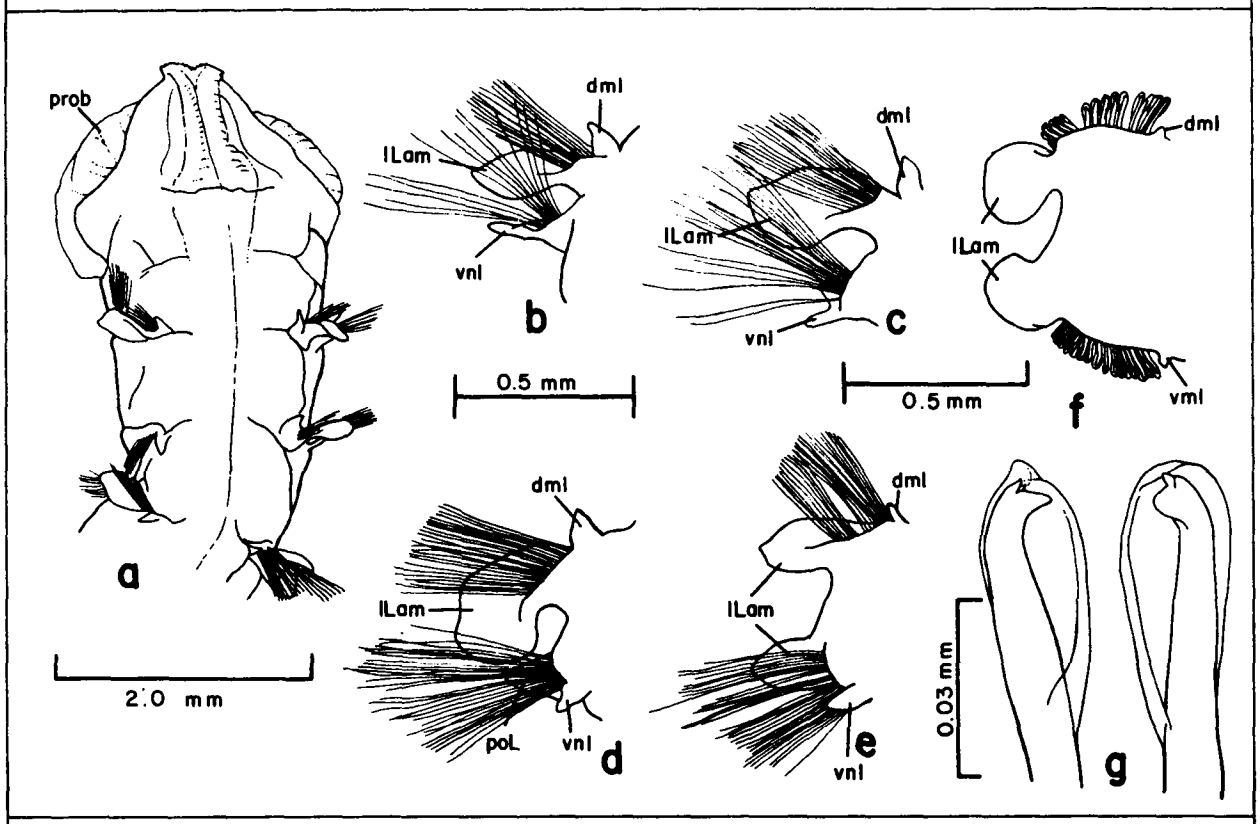

Figure 7-22. Magelona sp. J: a, anterior end, dorsal view; b, parapodium from setiger 2; c, same, from setiger 6; d, same, from setiger 8; e, same, from setiger 9; f, same, from setiger 10; g, hooded hooks from setiger 12 (Figures a-g from Texas, Sta. 1315).

thoracic notopodia lanceolate anteriorly (Figure 7-20b), becoming digitiform and shorter from setigers 3 or 4 (Figure 7-20c) to 6 or 7, becoming longer again on setiger 7 or 8 (Figure 7-20d) and short on setiger 9 (Figure 7-20e); dorsal medial lobes absent. Thoracic neuropodia with digitiform ventral neuropodial lobes, becoming smaller on setigers 3 or 4 to 6 or 7, larger on setiger 7 or 8, diminishing abruptly in size to a papilla on setiger 9. Oblique slits extending posterodorsally from notopodia of setigers 5-7; most prominent and sometimes visible only on setiger 6 (Figure 7-20a). Lateral lamellae of anterior abdominal setigers triangular to lanceolate, equal in size, usually with acuminate tips; dorsal and ventral medial lobes minute, papilliform (Figure 7-20f); interlamellae absent. Thoracic setae limbate. Abdominal hooded hooks tridentate (Figure 7-20g,h), or multidentate with 3-5 denticles above main fang (Figure 7-20i); hooks all similar in size, arranged in two groups face-to-face in each ramus.

REMARKS: Magelona sp. I is nearly identical to M. polydentata Jones, 1963, from the Bahamas, apparently differing from the latter in possessing oblique dorsal slits on some thoracic setigers, in having abdominal dorsal and ventral medial lamellae, and in having predominantly tridentate hooks on some specimens. These two species also seem closely allied with M. equilamellae Harmelin, 1964, from the Mediterranean, and M. agoensis Kitamori, 1967, from Japan, in the shapes of the prostomium, parapodial lobes and hooded hooks.

GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread throughout northern Gulf (Figure 7-19); 9-106 m; sands, silts and clays.

Magelona sp. J

Figures 7-21, 22a-g

MATERIAL EXAMINED:

Gulf of Mexico BLM-OCS:

SOFLA 28-11/80 (1 spec., USNM 86795); MAFLA 2851F-7/76 (1 spec., USNM 86797), 2957G-8/77 (1 spec., USNM 86796); STOCS 1/II-7 W/76 (1 spec.-ovig., USNM 86800), 1/II-1 3/76 (1 spec.-ovig., USNM 86799), 1/III-4 F/76 (1 spec., USNM 86798).

Supplementary Material:

Gulf of Mexico--off Mississippi Sound, COE Sta. 476-1, Nov. 1980, 30°03.20'N, 88°14.40'W, 21.0 m, sand (1 spec., USNM 86801); Texas, Sta. 1315, 27°41'41"N, 97°04'35"W, 15 m, sandy mud, T. R. Calnan coll. (1 spec., USNM 86802), Sta. 1310, 27°38'56"N, 96°59'47"W, 23 m, sandy mud, T. R. Calnan coll. (1 spec., USNM 86803).

DESCRIPTION:

Length, 32+ mm; width, to 2 mm. Body fairly large, without pigmentation; all specimens incomplete with up to 38 setigers. Prostomium broadly triangular, with small or rudimentary frontal horns (Figure 7-22a); anterior margin smooth or minutely crenulate. Anterior thoracic parapodia with conical dorsal medial lobes, lanceolate notopodial lateral lamellae, and digitiform ventral neuropodial lobes (Figure 7-22b). Lateral lamellae becoming auricular, and ventral neuropodial lobes becoming smaller on middle thoracic parapodia (Figure 7-22c). Neuropodial postsetal lobes large, triangular on setiger 8 (Figure 7-22d). Setiger 9 with small dorsal medial lobes; notopodial and neuropodial lateral lamellae large, foliaceous, equal in size; ventral neuropodial lobes small (Figure 7-22e). Anterior abdominal parapodia with papilliform

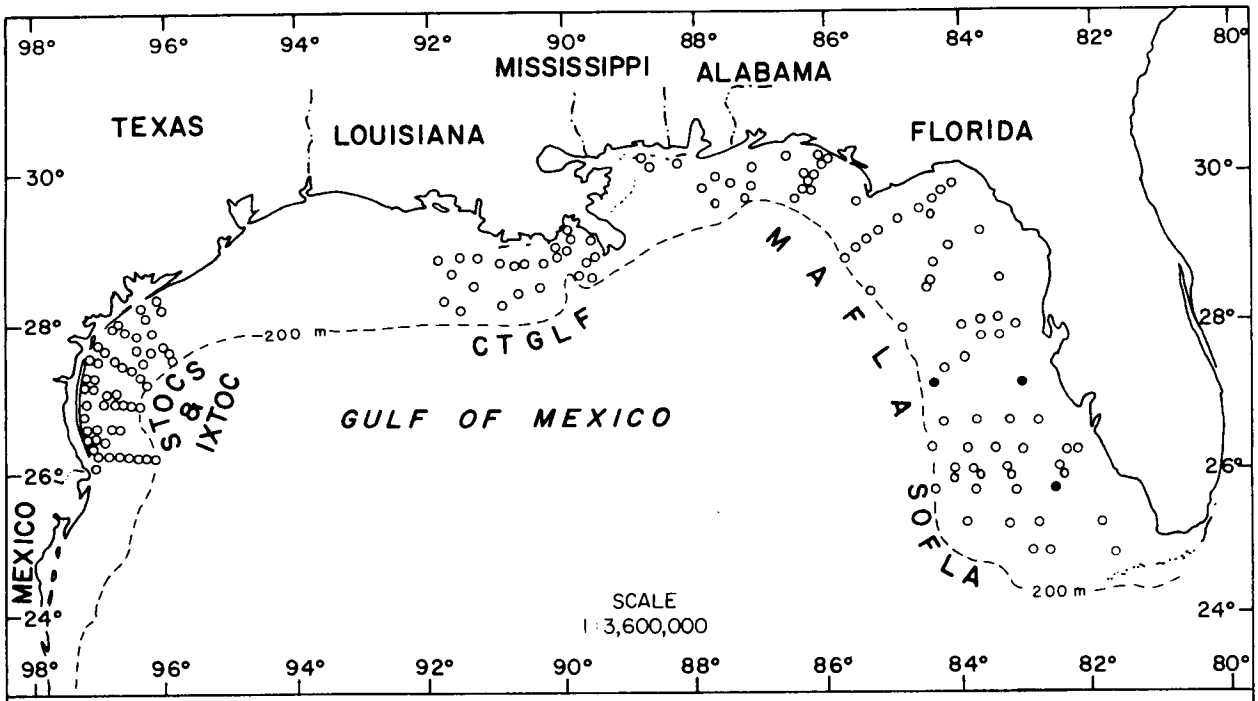

Figure 7-23. Distribution of Magelona sp. K on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

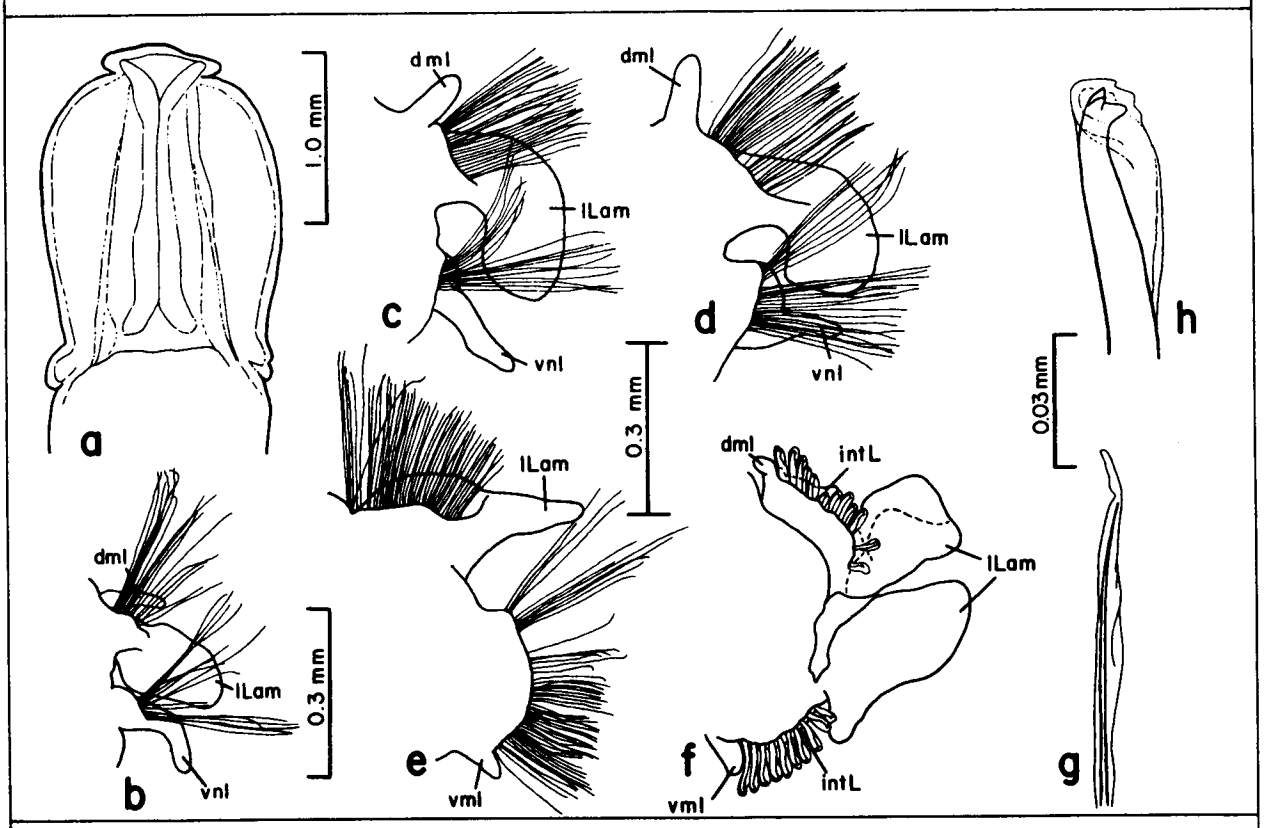

Figure 7-24. Magelona sp. K: a, prostomium, dorsal view; b, parapodium from setiger 2; c, same, from setiger 7; d, same, from setiger 8; e, same, from setiger 9; f, same, from setiger 10; g, modified seta from setiger 9; h, hooded hook from anterior abdominal region.

dorsal and ventral medial lobes; lateral lamellae equal in size and rounded to oval in outline (Figure 7-22f); interlamellae absent. Thoracic setae limbate. Abdominal hooded hooks tridentate (Figure 7-22g), all similar in size, arranged in two groups face-to-face in each ramus. Lateral pouches absent.
REMARKS: Magelona sp. J is similar to M. lenticulata Gallardo, 1968, from Viet Nam, in nearly all respects. It differs from the latter in having larger lateral lamellae on setiger 9, and more rounded abdominal lateral lamellae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few occurrences off Texas and southwestern Florida (Figure 7-21); 22-180 m; medium to fine sand, silty very fine sand, sandy and silty clay.

Magelona sp. K
Figures 7-23, 24a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2851-7/76 (1 spec., USNM 86805), 2960G-2/78 (2 spec., USNM 86804).
DESCRIPTION:
Length, 61+ mm; width, to 0.9 mm. All specimens incomplete with up to 46 setigers. Prostomium about twice as long as wide, with well-developed frontal horns (Figure 7-24a); anterior margin smooth. Thoracic parapodia similar from setigers 1-8; with short, digitiform dorsal medial lobes; longer, digitiform ventral neuropodial lobes; and foliaceous notopodial lateral lamellae (Figure 7-24b-d). Setiger 9 with thickened, laterally pointed notopodial lateral lamellae, and short, digitiform ventral medial lobes (Figure 7-24e). Anterior abdominal setigers with short, digitiform dorsal and ventral medial lobes, and large, foliaceous lateral lamellae (Figure 7-24f); interlamellae also present. Setigers 1-8 with limbate setae; setiger 9 with limbate setae having slightly expanded, crenulate tips (Figure 7-24g). Abdominal hooded hooks tridentate (Figure 7-24h), all similar in size, arranged in two groups face-to-face in each ramus. Lateral pouches absent.
REMARKS: Magelona sp. K is similar to M. pitelkai Hartman, 1944d, from California, with respect to the parapodial lobes, tridentate hooded hooks, and modified setae of setiger 9. It differs from the latter in having well-developed frontal horns and foliaceous thoracic lateral lamellae, and in lacking the minute hook at the base of each abdominal lateral lamella. Magelona sp. K also resembles M. berkeleyi Jones, 1971, in many respects, but has a much longer prostomium and relatively longer thoracic ventral neuropodial lobes, and lacks the minute hook at the base of each abdominal lateral lamella.
GULF OF MEXICO BLM-OCS OCCURRENCE: Three records off southwestern Florida (Figure 7-23); 27-121 m; fine sand, silty very fine sand.

Magelona sp. L
Figures 7-25, 26a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25-11/80 (3 spec., USNM 86818); MAFLA 2536E-9/75 (1 spec., USNM 86819), 2536H-2/78 (1 spec.); CTGLF 03-5/78 (2 spec., USNM 86806-7);

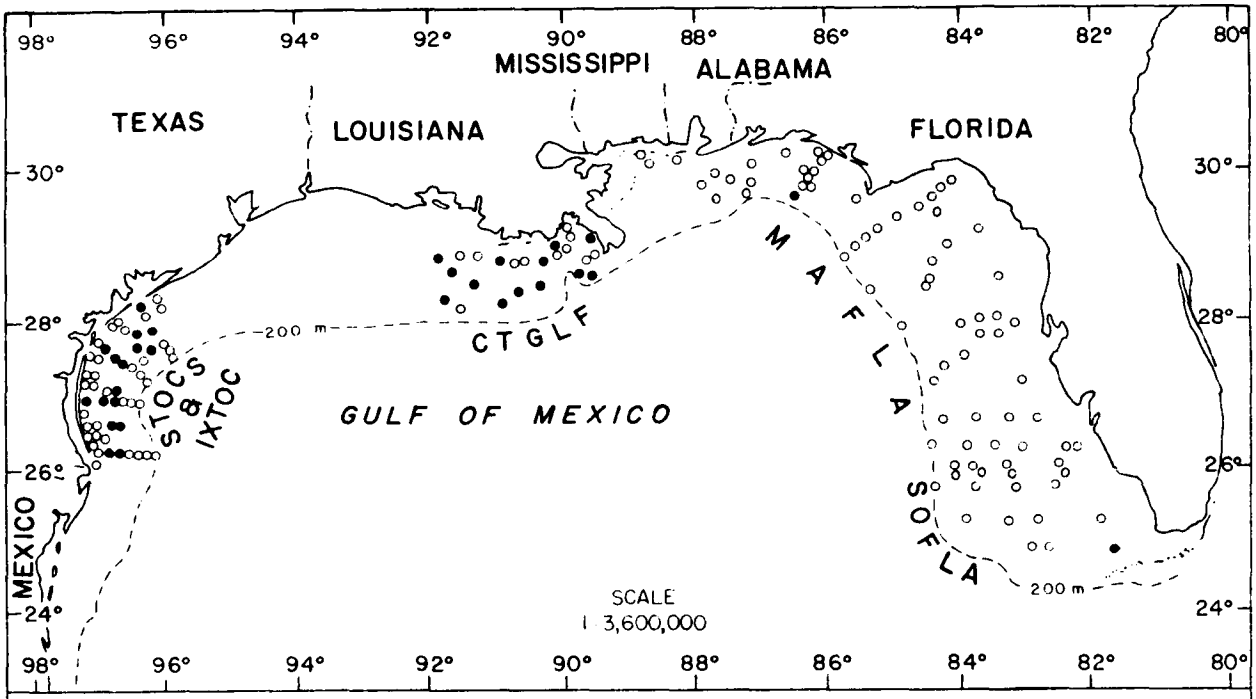

Figure 7-25. Distribution of Magelona sp. L on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

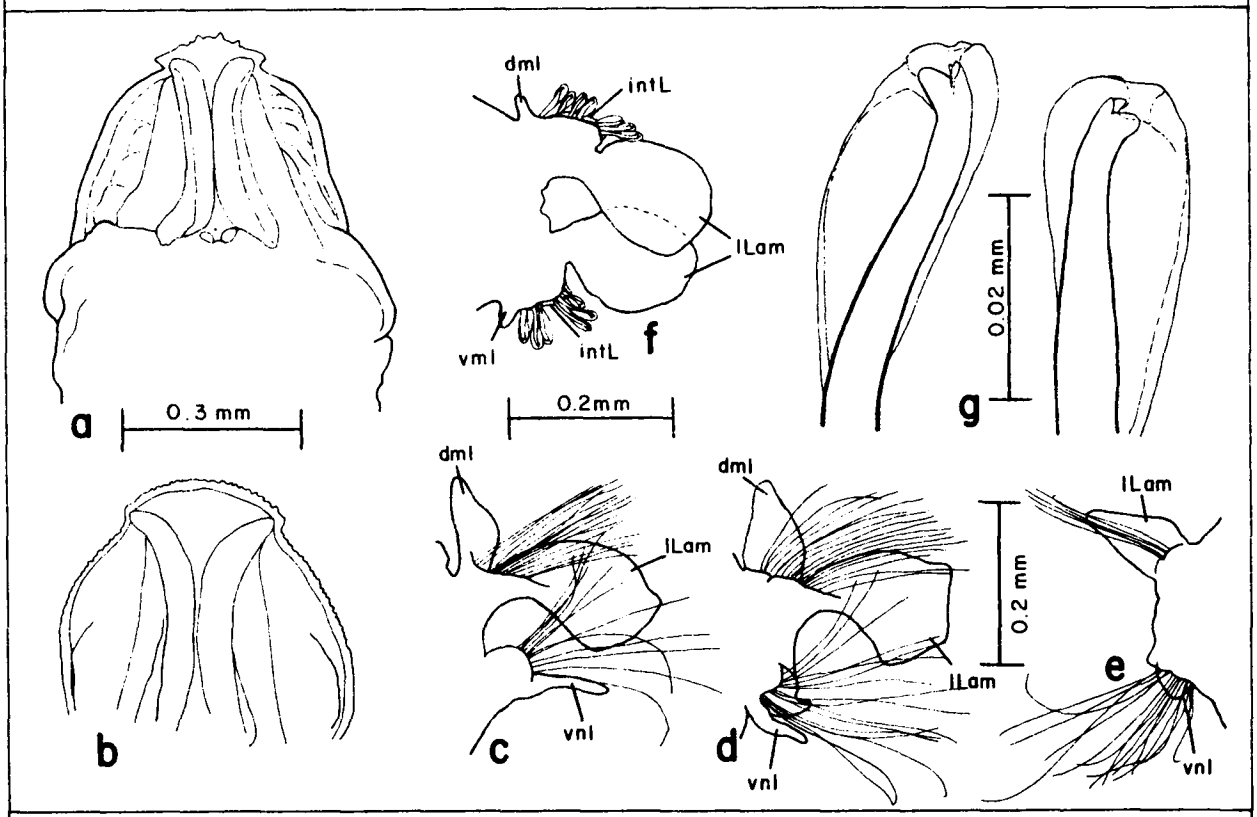

Figure 7-26. Magelona sp. L: a, prostomium, dorsal view; b, same, from different specimen; c, parapodium from setiger 1; d, same, from setiger 7; e, same, from setiger 9; f, same, from setiger 12; g, hooded hooks from same (Figures a, c-g from IEC 724 1/80).

STOCS 2/I-5 Sp/76 (5 spec., USNM 86816), 1/II-7 W/76 (1 spec., USNM 86808), 2/II-2-Retake 3/76 (6 spec., USNM 86814), 2/II-5 Sp/76 (2 spec., USNM 86815), 4/II-3 Sp/76 (2 spec., USNM 86810), 1/III-4 F/76 (1 spec., USNM 86811), HR3-5 8/76 (1 spec., USNM 86812), HR4-6 Sp/76 (5 spec., USNM 86813); IXTOC S54-6 11/79 (1 spec., USNM 86817).

Supplementary Material:

Caribbean--off San Juan, Puerto Rico, IEC Sta. 724 006-001, Jan. 1980, 18°30.7'N, 66°07.5'W, 407 m, silty clay (1 spec., USNM 86821).

Gulf of Mexico--Louisiana, LOOP Sta. 482-7, Apr. 1980, 28°54'48"N, 89°59'05"W, 34.7 m, clayey silt (1 spec., USNM 86820).

DESCRIPTION:

Length, 12.5+ mm; width, to 0.6 mm. Body slender; all specimens incomplete with up to 41 setigers. Prostomium oval, with well-developed frontal horns; anterior margin minutely crenulate (Figure 7-26a,b). Anterior thoracic parapodia with large, triangular dorsal medial lobes; large, foliaceous lateral lamellae; and digitiform ventral neuropodial lobes (Figure 7-26c). Dorsal medial lobes and lateral lamellae remaining relatively constant in size through setiger 8; ventral neuropodial lobes diminishing somewhat in size posteriorly (Figure 7-26d). Setiger 9 with small notopodial lateral lamellae and ventral neuropodial lobes (Figure 7-26e); dorsal medial lobes absent. Anterior abdominal parapodia with papilliform dorsal and ventral medial lobes; lateral lamellae large, rounded in outline (Figure 7-26f); low interlamellae present. Thoracic setae limbate. Abdominal hooded hooks tridentate (Figure 7-26g), all similar in size, arranged in two groups face-to-face in each ramus. Paired lateral pouches present on each setiger on both sides of body, beginning on setigers 28-31, opening rearward just anterior to parapodia.

REMARKS: Magelona sp. L resembles Magelona sp. J in many respects, but has better developed frontal horns and larger thoracic dorsal medial lobes, and lacks dorsal medial lobes and ventral lateral lamellae on setiger 9. These specimens are similar in most characters to M. berkeleyi Jones, 1971, from Washington, but differ from the latter in lacking the minute hook at the base of each abdominal lateral lamella.

GULF OF MEXICO BLM-OCS OCCURRENCE: Common in northwestern Gulf and two records off Florida (Figure 7-25); 10-189 m; predominantly in silts and clays.

CHAPTER 8

Katherine M. Gilbert

Family TROCHOCHAETIDAE Pettibone, 1963

INTRODUCTION

The Trochochaetidae are a small family of spioniform polychaetes. Their long (up to 90 mm), cylindrical body is divided into 2-3 regions: the head and thoracic region with well-developed noto- and neuropodial lobes; followed by a slender, transitional, middle region without notopodial lobes; and a more slender, posterior, abdominal region with large neuropodia and small notopodia. Setal composition varies among these regions.

The prostomium is divided into an anterior portion with several small, ciliated protuberances on the anterior margin, and an elevated posterior portion which may have 2-4 small dermal eyes and a median antenna posteriorly. A caruncle extends onto the first and sometimes second setigerous segments. Between the prostomium and the first setiger is a narrow ridge or peristomium which bears a dorsal pair of long, grooved, often deciduous palps, and a ventral mouth. Characteristically, parapodia of the first one or two setigers are directed anteriorly, and the neuropodia of the third setiger and sometimes the second have a fan of dark, stout, curved spines.

The notopodial and neuropodial postsetal lobes, sometimes referred to as dorsal and ventral cirri, may be cylindrical or flattened, with smooth or fimbriated margins. Notopodial postsetal lobes decrease in size posteriorly. Smooth capillary setae are present on both notopodia and neuropodia of the thoracic region. Additionally, from setiger 5 on, the neuropodia may have stout, straight, lanceolate or geniculate setae with smooth or serrate margins. In the posterior abdominal region the notopodia have a few spines arranged in a stellate fashion.

The pygidium forms a collar with slight lobations and a variable number of small cirri. Minute papillae cover the entire integument and are especially prominent on the parapodial lobes. The proboscis is thin-walled, saccate, and eversible.

The family Trochochaetidae was originally described in part by Mesnil (1897a) and Chamberlin (1919b) under the names Disomidae and Disomididae, respectively. The family included the genera Disoma Oersted, 1843, and Poecilochaetus Claparède, 1875, until Hannerz (1956) examined the larvae and established the family Poecilochaetidae. Both genera show affinities to the Spionidae but differ enough to be placed in separate families. Pettibone (1963) replaced Disoma, since it was preoccupied, with Trochochaeta Levinsen, 1883, and consequently changed the family name to Trochochaetidae.

Presently, this monogeneric family consists of nine species. One species, presumably new to science, occurs in the Gulf of Mexico BLM-OCS material.

PRINCIPAL DIAGNOSTIC CHARACTERS

Species are distinguished on a series of parapodial characteristics: parapodial postsetal lobes with smooth or fimbriated (Figure 8-2f) margins; the presence of notosetae and neuropodial acicular spines on setiger 2 (Figure 8-2a,e); and the kinds of stout neurosetae (straight, lanceolate, or geniculate with smooth or serrate margins) occurring throughout the body. The presence or absence of a median antenna is also a useful character. Additionally, the shapes of the prostomium and caruncle may aid in separating species.

BIOLOGICAL NOTES

Trochochaetids are found in fine sands and muds in fragile tubes formed of fibrous secretions and sediment particles (Pettibone, 1976b:3). The worms continuously lengthen and add branches to their tubes (Fauchald and Jumars, 1979:255), sometimes forming dense mats. The trochochaetids are not known to be dominant anywhere. They are considered selective bottom deposit-feeders utilizing their palps to collect food.

The sexes are separate and the early larval stages are planktotrophic. Larvae of at least one species, Trochochaeta multisetosa, are characterized by having exceedingly long larval setae on setiger 1 and an outspread shield or "umbrella" formed by the coalesced prostomium and peristomium (Pettibone, 1963:315).

Genus Trochochaeta Levinsen, 1883

TYPE SPECIES: Disoma multisetosa Oersted, 1843.
REFERENCES:
Ushakov, 1955:280 (as Disoma).
Pettibone, 1963:308; 1976b:3.
DIAGNOSIS: Body cylindrical, gradually tapering posteriorly. Prostomium fairly small, extending posteriorly as a caruncle; with or without a median antenna. Two or four eyes often present. Palps long, grooved, dorsally located between prostomium and notopodia of first setiger. Parapodia of setigers 1 and 2 directed anteriorly. Fan of heavy acicular neurosetae present on setiger 3 and sometimes also on setiger 2. Stout, modified neurosetae present from setiger 5 to posterior end. Dark acicular spines present in notopodia of posterior abdominal region.

Trochochaeta sp. A
Figures 8-1, 2a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2212D-2/78 (1 spec., USNM 89874), 2313E-11/77 (1 spec., USNM 89875), 2536H-2/75 (1 spec., USNM 89876); STOCS 3/I-4 W/76 (1 spec., USNM 89873).

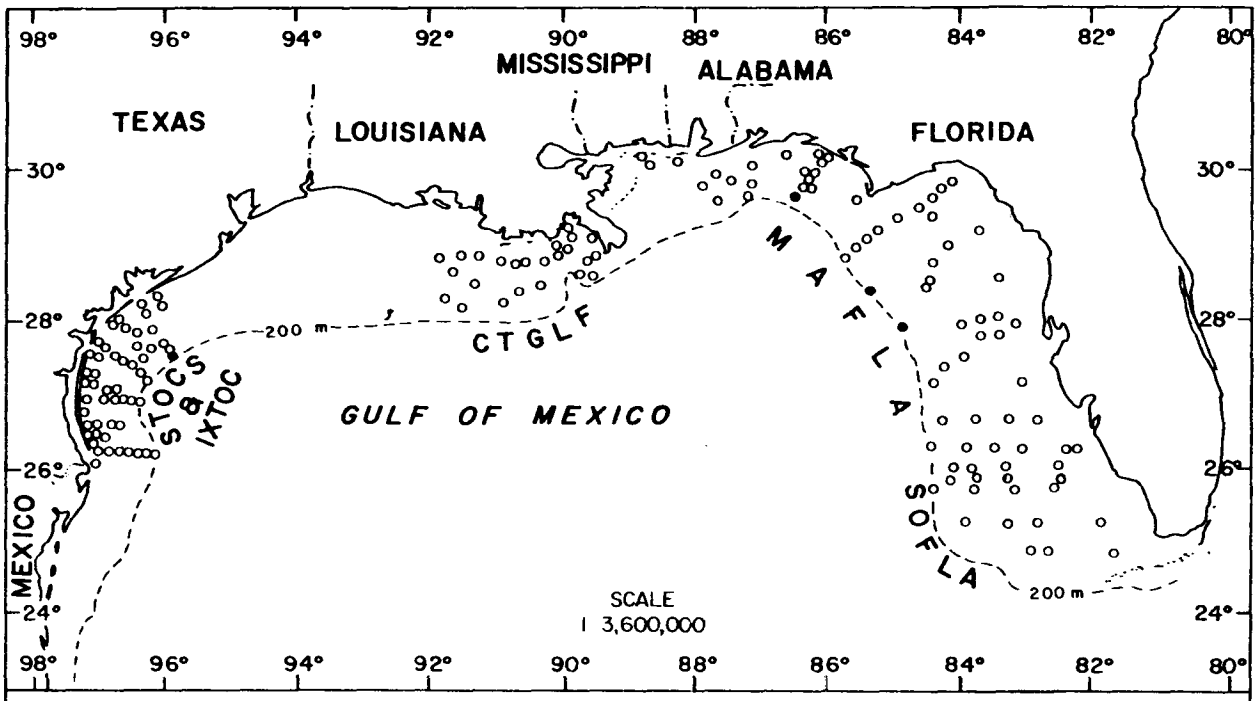

Figure 8-1. Distribution of Trochochaeta sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

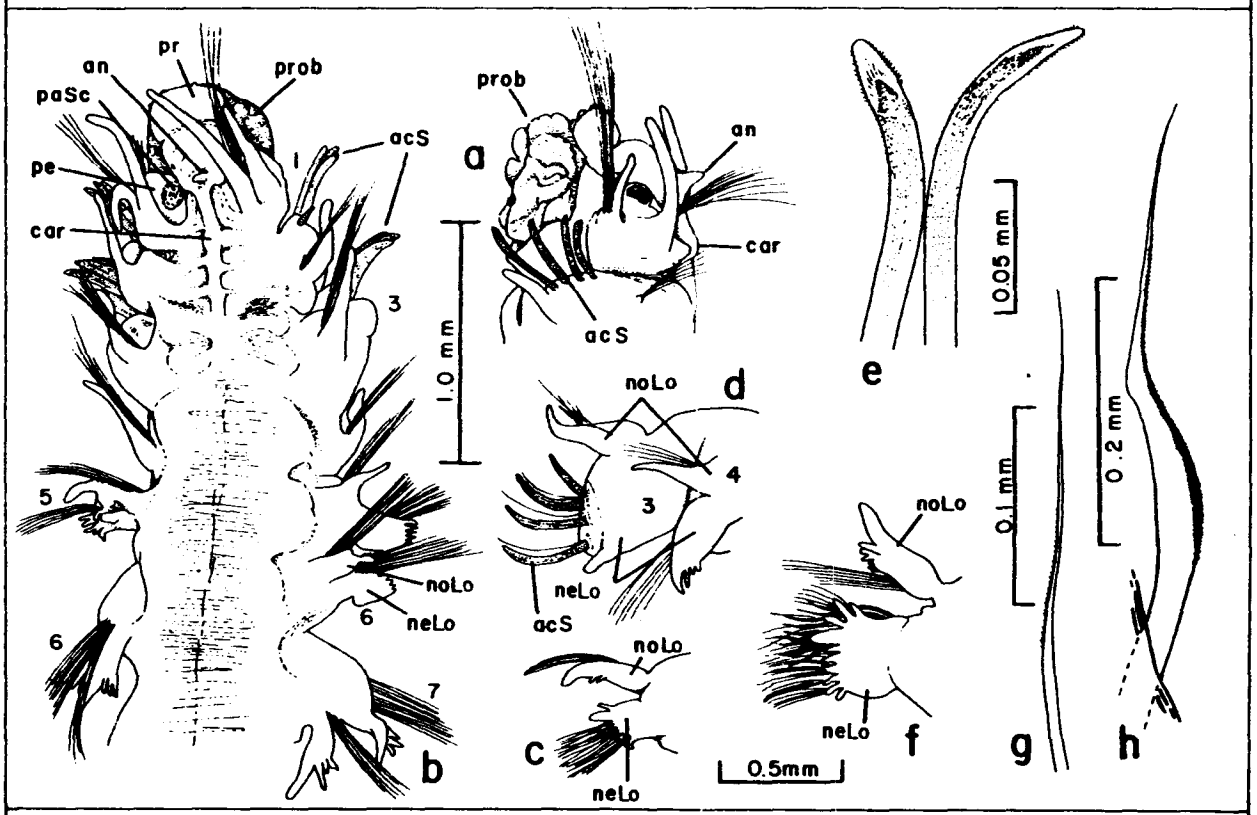

Figure 8-2. Trochochaeta sp. A: a, head region, lateral view; b, anterior end, dorsal view (palps missing); c, parapodium from setiger 5, posterior view; d, parapodia from setigers 3 and 4, posterolateral view; e, anterior neuropodial spines; f, parapodium from setiger 11, posterior view; g, serrate neuroseta; h, geniculate neuroseta.

DESCRIPTION:
Length, 9.0+ mm; width, to 1.0 mm. All specimens incomplete with up to 23 setigers (posterior segments missing), all having biramous parapodia. Prostomium (Figure 8-2a,b) tapering posteriorly, broadly rounded anteriorly; with medial transverse furrow, one pair of eyes, and a nuchal antenna (Figure 8-2b). Caruncle with transverse ridges, extending to posterior margin of setiger 2. Palps missing, palpal scars located lateral and slightly posterior to nuchal antenna. Notopodia on setigers 1-4 slender, entire; from setiger 5, notopodial lobes broader and ventrolaterally fimbriated (Figure 8-2c). All notopodia with smooth capillary setae only. Neuropodial lobes of setiger 1 long, slender; with smooth capillary setae. Neuropodia of setigers 2-3 large, truncate, with ventral projecting lobes and 4-5 dark, stout, slightly curved acicular spines; with 1-2 smooth capillary setae between neuropodial spines (Figure 8-2d). Spines pubescent, distally flattened (Figure 8-2e). Neuropodial lobes from setiger 4 fimbriated (Figure 8-2f); with several capillary setae and slightly curved, serrate setae (Figure 8-2g). Additionally, neuropodia of setigers 5-13 with several stout, geniculate, serrate setae having long, finely tapered ends (Figure 8-2h). Posterior transitional and abdominal regions unknown.
REMARKS: This species is most similar to Trochochaeta multisetosa (Oersted), the only other species of the genus for which fimbriated parapodial lobes have been described. It differs from T. multisetosa in having a nuchal antenna, a caruncle with transverse ridges, notosetae on setiger 2, and geniculate setae on setigers 5-13. The caruncle of T. multisetosa is slender and straight without ridges.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few occurrences throughout northern Gulf (Figure 8-1); deep water, 134-189 m; silty very fine sand, sandy silt, clayey silt, silty clay, clay.

CHAPTER 9

Michael R. Milligan and
Katherine M. Gilbert

FAMILY POECILOCHAETIDAE Hannerz, 1956

INTRODUCTION

The Poecilochaetidae are a small family of spioniform worms. Mesnil (1897a) originally assigned them to the Disomidae, which included the two genera Disoma and Poecilochaetus. After studying the larval development, Hannerz (1956) considered Poecilochaetus sufficiently different from Disoma to warrant the designation of the new family Poecilochaetidae. Disomidae has since been changed to Trochochaetidae Pettibone, 1963, and Elicodasia Laubier and Ramos, 1973, has been added to the Poecilochaetidae.

Poecilochaetids are long (up to 90 mm), slender worms with numerous well-defined segments. The prostomium (Figure 9-2a) is small and rounded to trapezoidal in outline and sits atop the well-developed tentacular segment (peristomium). A facial tubercle projects anteriorly from the upper lip of the peristomium in Poecilochaetus. Elicodasia and Genus A lack a facial tubercle. Prostomial antennae are present in Elicodasia and Genus A, but absent in Poecilochaetus. One or two pairs of eyes may be present, and are sometimes coalesced. A pair of long, spioniform palps (often missing from preserved specimens) originate laterally between the prostomium and the tentacular segment. The tentacular segment possesses 1-2 pairs of tentacular cirri and may have well-developed setae. The ventral cirri and setae, when present on this segment, project anteriorly beyond the facial tubercle, with the setae forming a distinct cephalic cage. Nuchal organs, when present, extend posteriorly on the dorsum over a variable number of anterior segments as one or more ridge-like lobes. Parapodia are biramous with spindle- (Figure 9-2b,d,e) or bottle-shaped (Figure 9-2c) dorsal and ventral cirri. Lateral sensory organs are present between the rami of most segments (Figure 9-2b-e). Branchiae, when present, comprise 1-4 filiform to digitate lobes posterior to and between the parapodial cirri. Setae are all simple and include smooth capillary setae (Figure 9-4d); two kinds of hispid setae, hooked (Figure 9-2h) or straight (Figure 9-4e); spirally pectinate setae (Figure 9-2i,j); plumose setae (Figure 9-4h); and four acicular forms (Figures 9-2g; 4g,i,j). The pygidium bears 3-4 cirri.

The family currently includes 14 known species: Elicodasia mirabilis Laubier and Ramos, 1973, and 13 species of Poecilochaetus. Ten of these have been described in the last 20 years. The most comprehensive work to date is that of Pilato and Cantone (1976), which includes a key to all known species of Poecilochaetus and tables detailing pertinent taxonomic characters. Intraspecific variability in these characters, however, has not been adequately addressed (see "REMARKS", p. 9-5). Allen (1904) provided an extensive anatomical study of Poecilochaetus from England, and Hannerz (1956) analyzed the larval development of the family.

Two species occurred in northern Gulf of Mexico BLM-OCS collections, including a species of Poecilochaetus and a potentially new genus.

PRINCIPAL DIAGNOSTIC CHARACTERS

With the addition of the genus Elicodasia and a potentially new genus to the previously monogeneric family, generic distinctions must be clarified. One major generic distinction depends on the position of the anterior projection which is a single dorsal median antenna (arising from the prostomium) in Elicodasia, and a facial tubercle (arising from the peristomium) in Poecilochaetus. Genus A has two dorsal median projections which are prostomial in origin and are thus antennae. Other generic differences include the presence of setae on the tentacular segment, the presence of nuchal organs on the prostomium, the number of setigers with neuropodial setae, and the position of the anus.

Characteristics commonly used to separate species of Poecilochaetus have been found to be extremely variable; thus great care and judgment must be exercised when studying a population. The basic differences are the presence of branchiae, number of segments without interramal sensory papillae, length of the lobes of the nuchal organs, number of segments with bottle-shaped cirri, and the number of anterior setigers with neuropodial uncini. Additional distinctions have been made with regard to the position of various forms of setae. However, the developmental state (see "BIOLOGICAL NOTES"), amount of handling, and degree of fixation must be taken into consideration.

BIOLOGICAL NOTES

Poecilochaetids inhabit long, branching, fragile tubes composed of loosely packed sand or foraminiferan shells encrusting a mucus sleeve. These worms have been found in mud-filled crevices (Day, 1967), muddy or sandy substrates (Hartman, 1965), or among roots and rhizomes of aquatic vegetation (Taylor, 1966). Although uncommonly encountered in benthic surveys, when present these worms may numerically dominate certain areas (Fauchald and Jumars, 1979).

These spioniform polychaetes have been observed to use their long, grooved palps for suspension-feeding on algae and diatoms (Allen, 1904), as well as for selective deposit-feeding on detritus from the substrate (Hartmann-Schröder, 1971). Presumably, both feeding modes may be used by a single organism.

The larvae of Poecilochaetus are planktonic and were collected long before the adult forms were identified. In P. johnsoni, water temperature appears to be a major factor in triggering reproduction in spring, summer, and fall when water temperatures are about 20°C or above (Taylor, 1966). The larvae appear to remain planktonic for a prolonged period prior to settling. Juveniles differ from adults in having fewer segments (40-50); a smaller prostomium, nuchal organ and palps; large acicular setae on most or all segments, and fewer pinnate setae; and in lacking bottle-shaped cirri and branchiae (Fauvel, 1927).

SPECIES OF POECILOCHAETIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Poecilochaetus johnsoni Hartman, 1939	9-3
Genus A	9-7

Key to the Genera of Poecilochaetidae

1a. Facial tubercle present (Figure 9-2a); antennae absent; nuchal organs present. . . . . **Poecilochaetus**, p. 9-3
1b. Facial tubercle absent; one or two antennae present; nuchal organs absent. 2

2a. Single median antenna present. . . . . **Elicodasia***
2b. Paired median antennae present (Figure 9-4a) . . . **Genus A**, p. 9-7

*Not found in Gulf of Mexico BLM-OCS material.

Genus **Poecilochaetus** Claparède, 1875

TYPE SPECIES: Poecilochaetus fulgoris Claparède, 1875.
REFERENCES:
Fauvel, 1927:67.
Hartman, 1939b:163.
Day, 1967:519.
Fauchald, 1977a:27.
DIAGNOSIS: Prostomium small, with two pairs of eyespots, occasionally coalesced; antennae absent; nuchal organs present. Peristomium with conical facial tubercle projecting from dorsal lip. First segment with large ventral cirri and small dorsal cirri. Segments 2-6 with tapering dorsal and ventral cirri of similar size. Segments 7-12 or 13 with bottle-shaped cirri; subsequent cirri foliose. Branchiae often present on middle and posterior segments. Numerous stout capillary setae directed anteriorly or laterally forming a cephalic cage on segment 1. Anterior segments with acicular neurosetae.
REMARKS: There appears to be some disagreement among workers as to the origin of the facial tubercle. Hartman (1939b), Pilato and Cantone (1976), and Fauchald (1977a), considered it to be prostomial in origin and therefore referred to it as an antenna. Day (1967) and Pettibone (1982) referred to its origin as peristomial. The authors herein accept the latter view and adopt the term facial tubercle (following Pettibone, 1982) as the structure is homologous to the facial tubercle of the Sigalionidae (Chapter 25).

Poecilochaetus johnsoni Hartman, 1939
Figures 9-1, 2a-n

Poecilochaetus johnsoni Hartman, 1939b:163, pl. 30, figs. 14-24; 1969:203, figs. 1-5.
Poecilochaetus johnsoni--Pilato and Cantone, 1976:29, fig. 1i,j.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 18-11/80 (4 spec., USNM 89725), 20B-8/81 (3 spec., USNM 89726); MAFLA 2316-9/77 (1 spec., USNM 89723), 2423D-7/76 (1 spec.), 2423E-7/76 (1 spec., USNM 89724), 2423F-7/76 (1 spec.), 2423H-7/76 (1 spec.), 2423I-7/76 (1 spec.), 2423C-7/77 (1 spec.), 2426G-2/78 (1 spec.), 2531E-7/76 (1 spec.), 2640I-7/76 (1 spec.); CTGLF 03-5/78 (1 spec., USNM

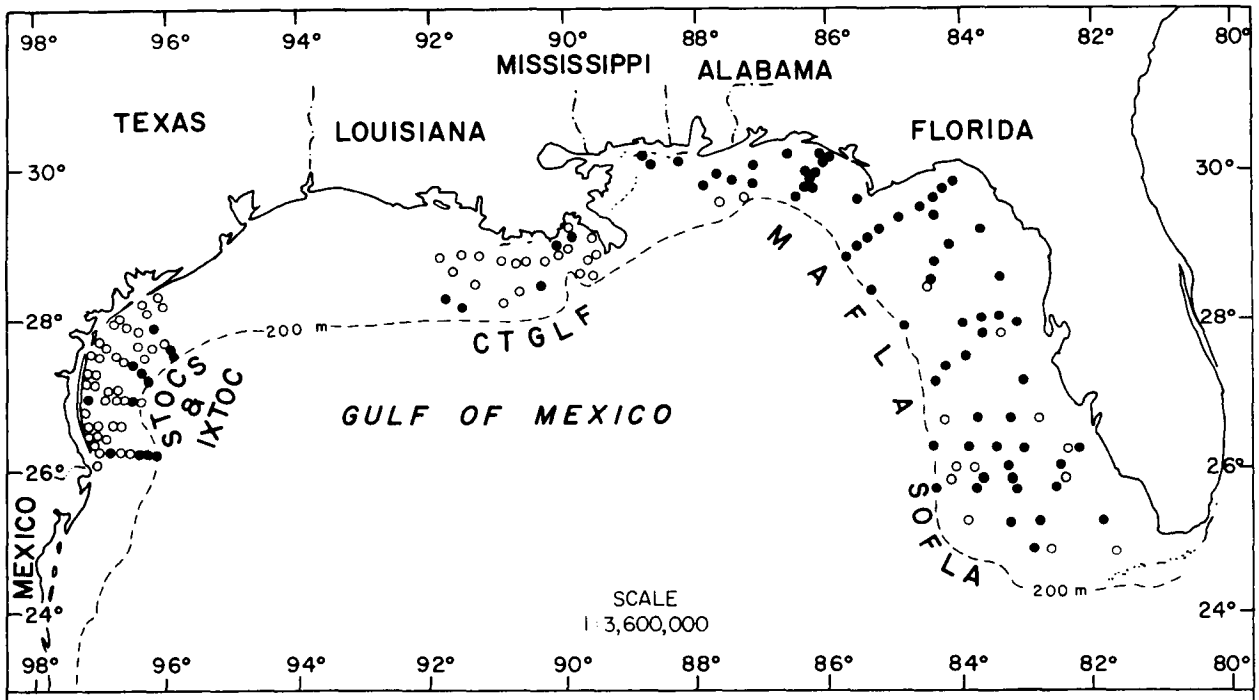

Figure 9-1. Distribution of Poecilochaetus johnsoni on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

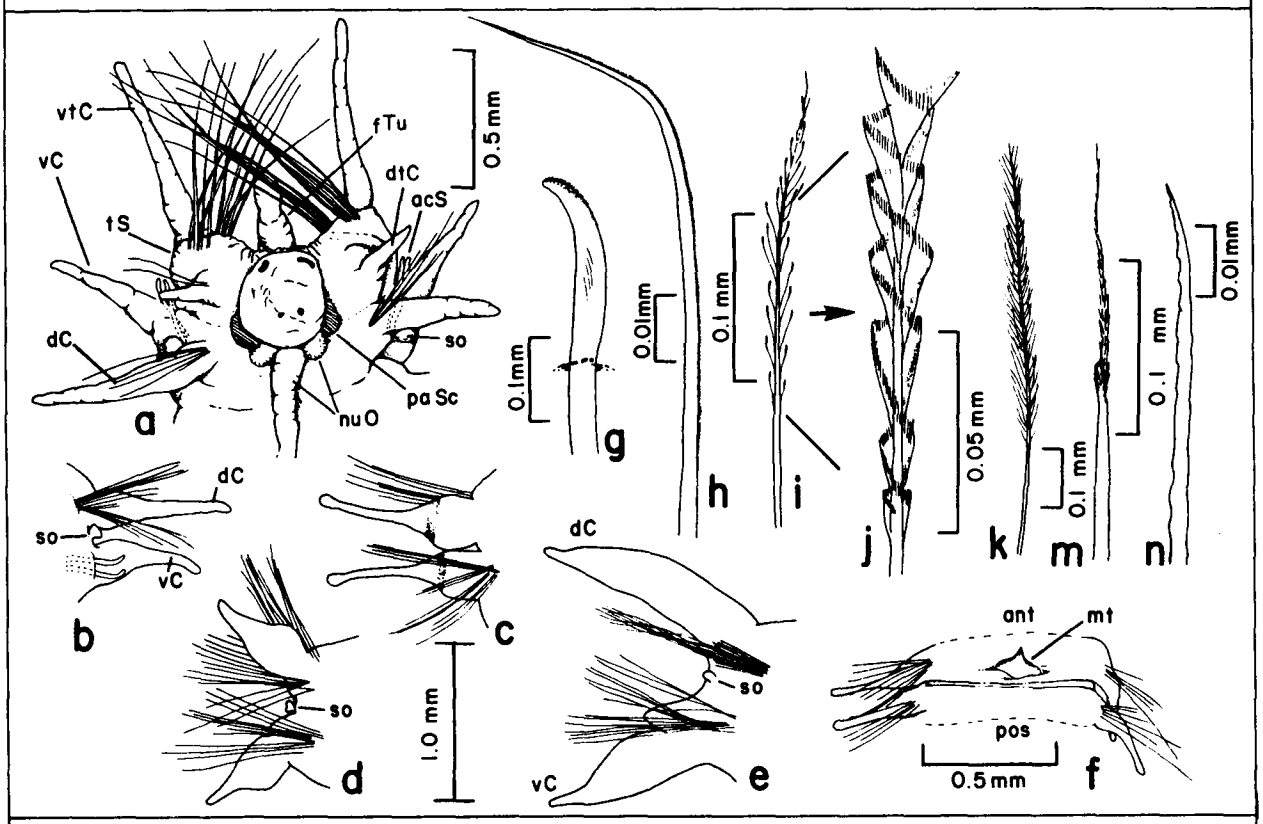

Figure 9-2. Poecilochaetus johnsoni: a, dorsal view anterior end; b, 3rd parapodium; c, 9th parapodium; d, 20th parapodium; e, 50th parapodium; f, chitinous tooth from segment 9; g, neuropodial acicular seta from segment 3; h, distal end of hispid capillary seta from segment 5; i, plumose seta from segment 20; j, enlargement of same showing spiralled margin; k, pinnate seta from segment 20; m, aristate setae from segment 35; n, knobbed notopodial seta from segment 70. (All parapodia in anterior view to same scale.)

89719); STOCS 3/II-1 3/76 (1 spec., USNM 89720), 3/II-4 4/76 (1 spec., USNM 89721), 5/II-1 3/76 (1 spec., USNM 89722).
Supplementary Material:
Gulf of Mexico--off Louisiana, 29°05'51"N, 90°06'50"W, 9 m, LOOP Sta. 474-1/80 (1 spec.).
DESCRIPTION:
Length, 70+ mm (previously reported to 90 mm complete); width, to 3 mm. Body long, slender; largest specimen incomplete with 75 segments. Prostomium (Figure 9-2a) small, rounded, with two pairs of eyes, anterior pair larger. Nuchal organ trilobed; median lobe long, extending posteriorly to segment 4 or 5; lateral lobes short, same length as width. Long, grooved palps inserted on either side of nuchal organ (generally autotomized upon fixation). Dorsal tentacular cirri short, slender; ventral tentacular cirri much larger (Figure 9-2a), directed anteriorly. Dorsal cirri of segments 2-4 (Figure 9-2b) longer than ventral cirri; becoming much longer than ventral cirri on segment 5, similar in length on segment 6. Dorsal and ventral cirri bottle-shaped with swollen tips (Figure 9-2c) on segments 7-13. Following segments with clavate to conical, similar cirri (Figure 9-2d), becoming larger and longer on far posterior segments (Figure 9-2e). Branchiae absent. Interramal sensory organs (Figure 9-2b,d,e) present on all segments except 6-9. Small conical tubercles on ventrum and ventral cirri of segments 1, 2, 6-8. Segment 9 with broadly triangular, chitinous tooth on middorsum (Figure 9-2f). Setal fascicles inserted anterior to parapodial cirri; arranged in fan shape in both rami to segment 42; thereafter notopodial fascicles inserted in spiral arrangement (Figure 9-2e). Setae of numerous forms: 1) stout capillary setae forming cephalic cage on segment 1; 2) 3-7 stout acicular spines with hooked, slightly pubescent tips in neuropodia of segments 2 and 3 (Figure 9-2g); 3) slender, hispid setae (Figure 9-2h) in both rami of all segments, more numerous anteriorly, spination more distinct posteriorly; 4) plumose setae (Figure 9-2i) with spirally fringed margins (Figure 9-2j) visible under oil immersion, present in both rami posterior to segment 6; 5) pinnate setae (Figure 9-2k) with long, sinuous lateral pinnae, on all segments posterior to 14; 6) stout aristate setae with long hirsute arista (Figure 9-2m) from segments 22-46; 7) short, knobbed notosetae (Figure 9-2n) arranged in dense whorls from segment 43. Pygidium not observed.
REMARKS: Although the majority of specimens examined fit the description of Poecilochaetus johnsoni, much variability was noted. For example, most specimens possessed bottle-shaped cirri on segments 7-13; however, occasionally these cirri were not developed on segments 12 and/or 13. Also, interramal sensory organs, usually absent from segments 6-9, were sometimes present on segment 9. It should also be noted that the chitinous middorsal tooth on segment 9, obvious in large specimens, is easily overlooked in smaller specimens. The most variable character, however, was the segment on which plumose setae first appeared. According to Pilato and Cantone (1976), these setae should begin on segment 7 in P. johnsoni; however, in specimens examined from the Gulf of Mexico they began anywhere from segments 2-14, and in some specimens began on a different segment on opposite sides of the same worm. Also, plumose setae generally appeared in the notopodia one or two segments anterior to those found in the neuropodia. The origin of pinnate setae was also somewhat variable, beginning on segments 15-19. Finally, the change of shape of the notopodial fascicles was often gradual, occurring between segments 40 and 46.

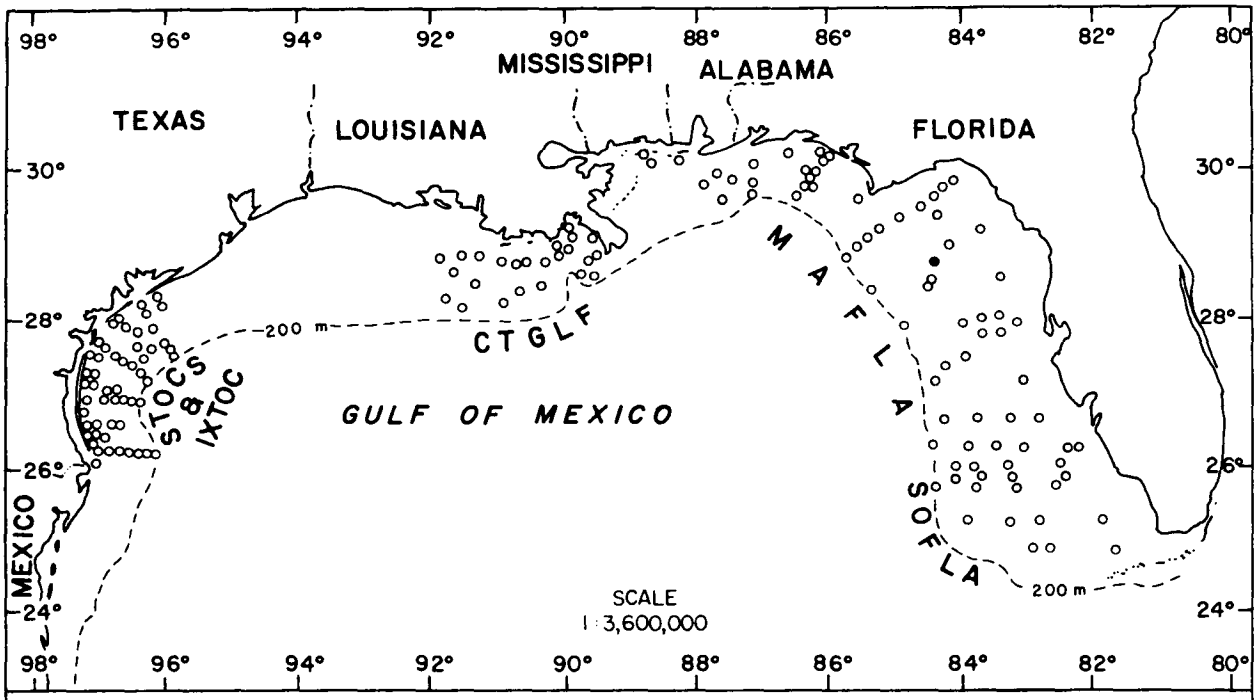

Figure 9-3. Distribution of poecilochaetid Genus A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

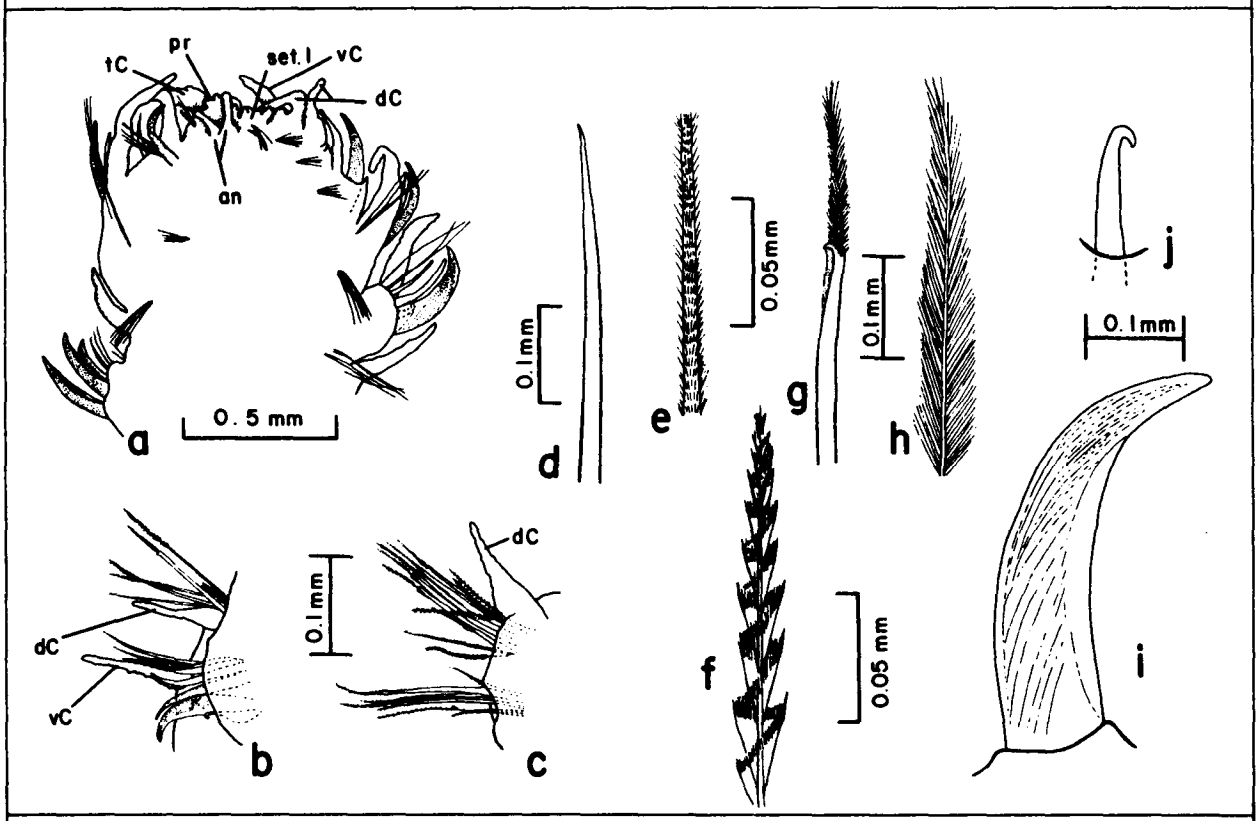

Figure 9-4. Genus A: a, anterior end, dorsal view; b, parapodium from setiger 9, posterior view; c, same, setiger 13; d, smooth capillary notoseta; e, hispid notoseta; f, plumose notoseta; g, aristate notoseta; h, pinnate notoseta; i, large, curved, acicular neuroseta; j, small, hooked acicular neuroseta.

PREVIOUSLY REPORTED HABITAT: Intertidal to 2,332 m; mud and sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread throughout northern Gulf (Figure 9-1); 10-189 m; in wide variety of sediment types from coarse sand to silts and clays.
DISTRIBUTION: Southern California, southeastern United States, Gulf of Mexico.

Genus A
Figures 9-3, 4a-j

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2316C-11/77 (1 spec., USNM 89876), 2316I-11/77 (1 spec., USNM 89877).
DESCRIPTION:
Length, 90+ mm; width, to 0.9 mm. Body dorsally convex, ventrally concave, incomplete with up to 17 segments. Anterior end, tentacular, dorsal and ventral cirri papillose. Prostomium damaged, covered with large irregular protuberances, with a pair of median antennae at posterior edge (Figure 9-4a). Single pair of large palps originating lateral to prostomium. Tentacular segment achaetous. Segments 2-3 small. Parapodia biramous. Dorsal and ventral cirri large, slender (Figure 9-4b), present from segment 2. Ventral cirri not apparent after segment 12 (Figure 9-4c). Notosetae of five kinds: 1) short, smooth capillary setae (Figure 9-4d) and 2) hispid setae (Figure 9-4e) averaging six per ramus, present throughout; 3) 1-3 plumose setae (Figure 9-4f) and 4) aristate setae (Figure 9-4g) present beginning on segment 11; and 5) 1-2 pinnate setae (Figure 9-4h) present from segment 14. Neurosetae of six kinds: 1) 3-4 hispid setae, 2) four stout, curved acicular setae (Figure 9-4i) increasing in size ventrally, and 3) one small, hooked acicular seta (Figure 9-4j) positioned ventrally, present on each neuropodium from segments 2-13; 4) 2-3 plumose setae, 5) 5-6 aristate setae, and 6) 1-2 pinnate setae present on each neuropodium from segment 14.
REMARKS: Both specimens examined were damaged, leaving the characters of the head and abdominal region in doubt. This genus is similar to Elicodasia Laubier and Ramos in most respects, but differs in apparently having two antennae and lacking a double-lobed tentacular segment.
GULF OF MEXICO BLM-OCS OCCURRENCE: Single station off western Florida (Figure 9-3); 35 m; silty fine sand.

CHAPTER 10

Joan M. Uebelacker

FAMILY HETEROSPIONIDAE Hartman, 1963

INTRODUCTION

The Heterospionidae are a small family of long, cylindrical worms ranging in length to about 70 mm. The body is divided into a short thoracic region of 7-9 setigers, and an abdominal region of several elongate segments. The prostomium is short and conical, lacks eyes and appendages, but has a pair of large, eversible, ciliated nuchal organs (Figures 10-2a, 4a). The peristomium is achaetous and presumably bears a pair of long, grooved palps.* The eversible proboscis is smooth and sac-like. The thoracic parapodia are biramous, forming low ridges bearing numerous capillary setae. Hooks may be present in the neuropodia of setiger 1. Branchiae are long and cirriform, arising posterior to the notopodia of several thoracic segments starting on setiger 2.

The transition from thorax to abdomen may be abrupt or gradual, and is marked by lengthening of the segments and spreading of the setal fascicles (Figure 10-4a). The abdominal capillary setae appear slightly more slender than those of the thorax. The abdominal parapodia are reduced so that the setae appear to arise from the body wall, often forming nearly complete cinctures around the body (Figures 10-2c, 4b). Acicular spines (Figures 10-2d, 4d) or subuluncini (Figure 10-4c) may occur in a variable number of abdominal segments. Branchiae are absent. The abdomen usually fragments upon collection so complete specimens are rarely obtained. The posterior end is known only from a single species (*Heterospio longissima*); it is inflated, with several pairs of acicular spines and a terminal anus.

The family Heterospionidae contains a single genus, *Heterospio* Ehlers, 1874 (=*Longosoma* Hartman, 1944d) and four known species. Two species occur on the Gulf of Mexico outer continental shelf; one is tentatively referred to *H. longissima* and the other is presumably new to science. Heterospionids have not previously been reported from the Gulf of Mexico.

*Hartman (1965:163) found several unattached palps in a sample with heterospionids, assumed that the palps belonged to the heterospionids, and illustrated them as such (pl. 30, fig. f). Other authors have failed to find attached palps, noting instead that the palps were "lost", and possibly mistaking the nuchal organs for the scars of palp attachment (see Hartman, 1957:336; 1969:205; Laubier *et al.*, 1972-73:245; Imajima, 1974:64; Fauchald, 1977a:27; Intes and LeLoeuff, 1977:223). Pettibone (1982:24) diagnosed the family as having both prostomial nuchal organs and peristomial palps. Neither palps nor scars of their attachment were observed on Gulf of Mexico BLM-OCS specimens, although distinct, usually everted nuchal organs were readily apparent.

PRINCIPAL DIAGNOSTIC CHARACTERS

Species of Heterospio are distinguished according to the presence of neuropodial hooks on setiger 1, number of thoracic setigers, and segment of origin of abdominal cinctures and modified abdominal setae. Neuropodial hooks occur on setiger 1 of H. catalinensis and Heterospio sp. A (Figure 10-2b); the other species have only capillary setae in the thorax. The number of thoracic setigers varies, with seven in H. reducta; eight in H. mediterranea, Heterospio sp. A, and questionably H. longissima as described by Ehlers (1874); and nine in H. catalinensis and H. longissima sensu Hartman (1965). Perhaps of more significance than the number of thoracic setigers is the degree of elongation of the first abdominal setiger. Laubier et al. (1972-73:251) presented a schematic diagram of the known species of Heterospio illustrating relative setiger elongation, origin of modified abdominal setae, and presence of abdominal cinctures. In Gulf of Mexico specimens, the modified abdominal setae (acicular spines) begin abruptly on setiger 13 in Heterospio sp. A (Figure 10-2d), but develop gradually over several setigers in H. cf. longissima, appearing first as subuluncini (Figure 10-4c). The anterior abdominal setal fascicles approach each other dorsally but do not extend across the ventrum in Heterospio sp. A (Figure 10-2a,c) and other species, whereas they form nearly complete cinctures in H. cf. longissima (Figure 10-4a,b).

Figures were drawn from Gulf of Mexico BLM-OCS specimens unless otherwise indicated.

BIOLOGICAL NOTES

Heterospionids occur infrequently in scattered parts of the world, from shallow to abyssal depths. They have been classified as tentaculate, discreetly motile, surface deposit-feeders (Fauchald and Jumars, 1979:262). Pettibone (1982:24) suggested that they may be tubicolous. Reproduction is unknown.

SPECIES OF HETEROSPIONIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Heterospio sp. A	10-4
Heterospio cf. longissima Ehlers, 1874	10-6

Genus **Heterospio** Ehlers, 1874

TYPE SPECIES: Heterospio longissima Ehlers, 1874.
REFERENCES:
Hartman, 1965:162.
Laubier et al., 1972-73:244.
Fauchald, 1977a:27.
DIAGNOSIS: Body long, cylindrical, with thoracic region of 8-10 short segments, and abdominal region of several long segments. Prostomium conical, with paired eversible nuchal organs. Peristomium often biannulate, presumably with pair of long spioniform palps. Branchiae long,

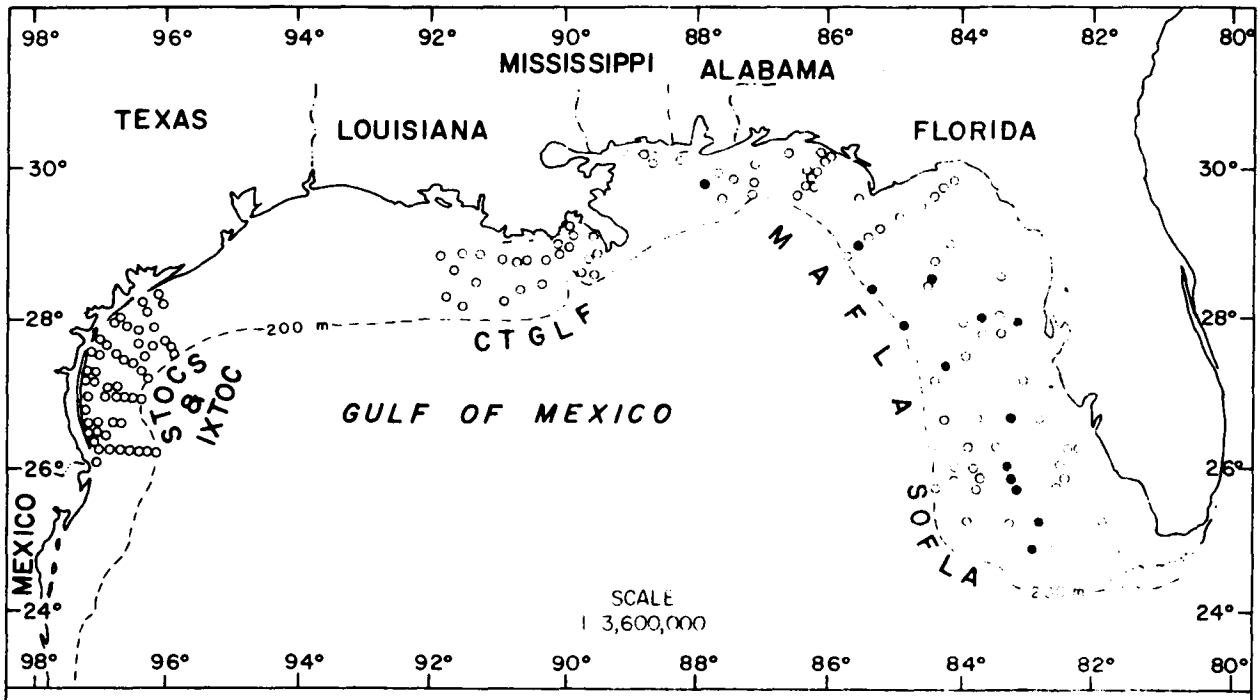

Figure 10-1. Distribution of Heterospio sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

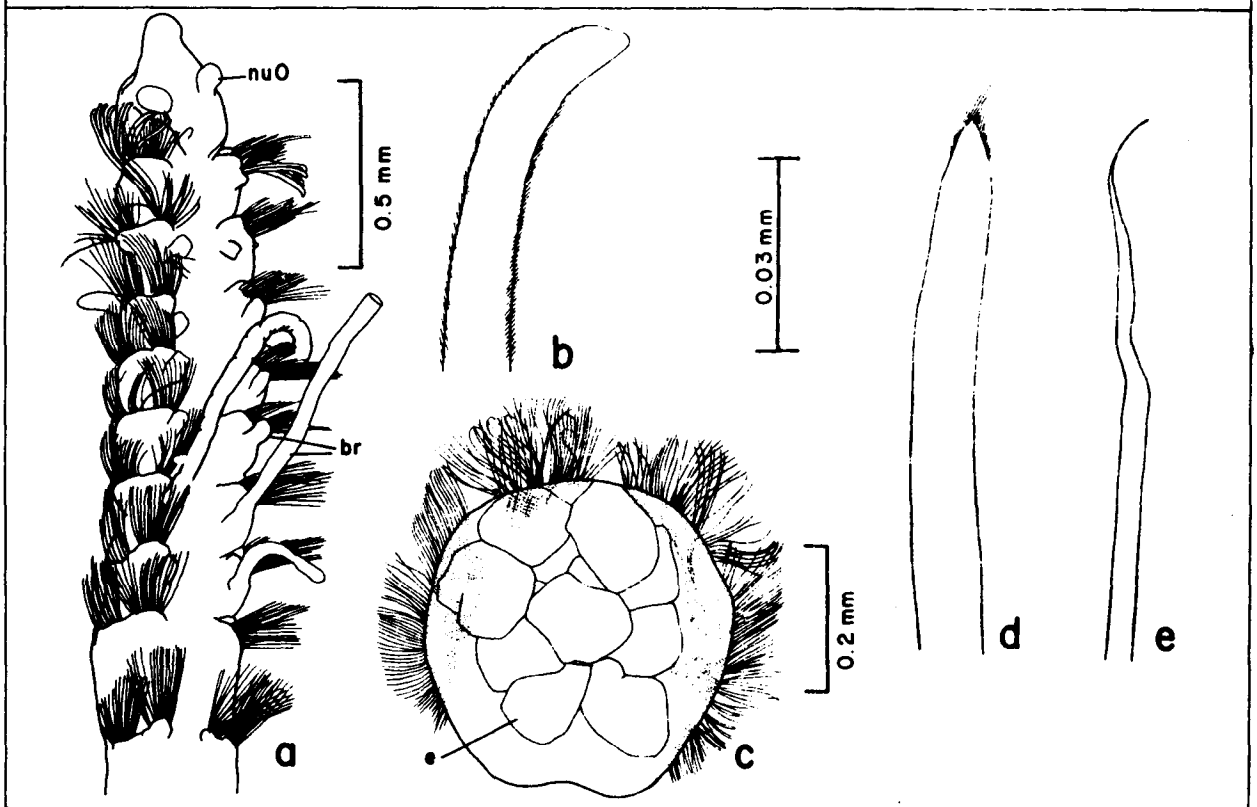

Figure 10-2. Heterospio sp. A: a, anterior end, dorsolateral view; b, neuropodial hook from setiger 1; c, cross-section of setiger 12; d, acicular spine from setiger 16; e, capillary seta from setiger 16.

cirriform, on some thoracic segments from setiger 2. Thoracic setae mostly capillary; hooks sometimes present on setiger 1. Abdominal setae including capillary setae, acicular spines and subuluncini.

Key to the Gulf of Mexico BLM-OCS Species of Heterospio

1a. Setiger 1 with neuropodial hooks (Figure 10-2a,b); anterior abdominal setae not forming cinctures (Figure 10-2a) . . . . . **Heterospio sp. A**, p. 10-4

1b. Setiger 1 without neuropodial hooks (Figure 10-4a); anterior abdominal setae forming cinctures (Figure 10-4b) . . . . . **Heterospio cf. longissima**, p. 10-6

Heterospio sp. A
Figures 10-1, 2a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8A-11/80 (7 spec., USNM 75235); MAFLA 2210B-7/76 (2 spec.), 2210C-7/76 (1 spec.), 2747G-2/78 (1 spec.), 2959G-8/77 (1 spec.), 2959C-11/77 (1 spec.), 2959E-11/77 (1 spec., USNM 75147), 2959G-2/78 (1 spec.), 2959K-2/78 (1 spec., USNM 75146).
DESCRIPTION:
Length, 29.8+ mm; width, to 0.44 mm. Body long, thread-like, all specimens incomplete with up to 16 setigers. Prostomium bluntly conical, with large, often everted nuchal organs (Figure 10-2a); not sharply delineated from peristomium. Thorax with eight setigers; branchiae from setigers 2 to 6-7. Setiger 8 about twice length of preceding setigers. Neuropodia of setiger 1 with 5-12 long, minutely hirsute hooks (Figure 10-2b); remaining thoracic setae capillary, variable in length. First abdominal segment (setiger 9) similar to thoracic setigers but with parapodia located more dorsally. Abdominal setal fascicles gradually spreading (Figure 10-2c), nearly encircling body from setiger 13. Anterior abdominal setae numerous, slender, capillary. Acicular spines (Figure 10-2d) and subuluncini present from setiger 13, accompanied by slender capillary setae (Figure 10-2e). One specimen with eggs in coelom of setigers 11 and 12; three specimens with sperm in setigers 9-10 to 11-12.
REMARKS: These specimens resemble H. catalinensis (Hartman, 1944d) in having neuropodial hooks on setiger 1. They differ from the latter in having only eight thoracic setigers, in lacking branchiae on setigers 8-9, and in lacking acicular spines on setigers 11-12.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered occurrences off Florida and Alabama (Figure 10-1); mostly moderate depths, 19-82 m, with two records in 177 and 189 m; medium to fine-very fine sand, silty fine to very fine sand, clayey sandy silt.

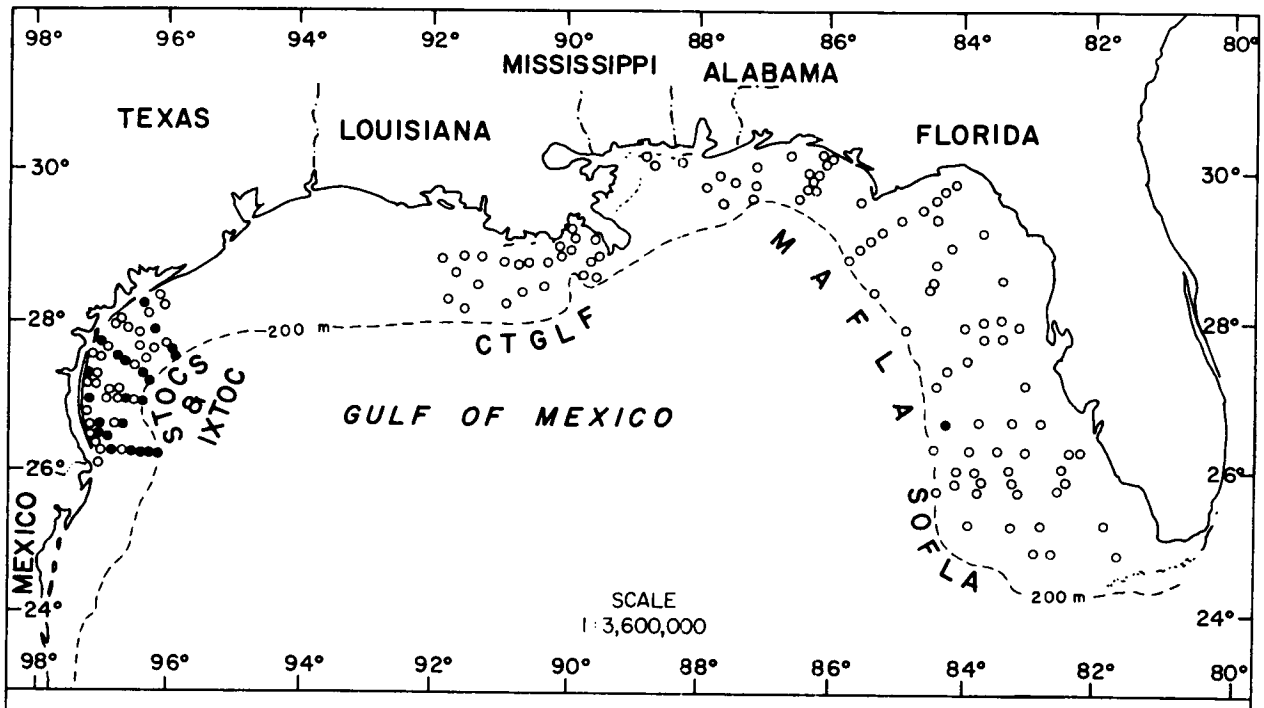

Figure 10-3. Distribution of Heterospio cf. longissima on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

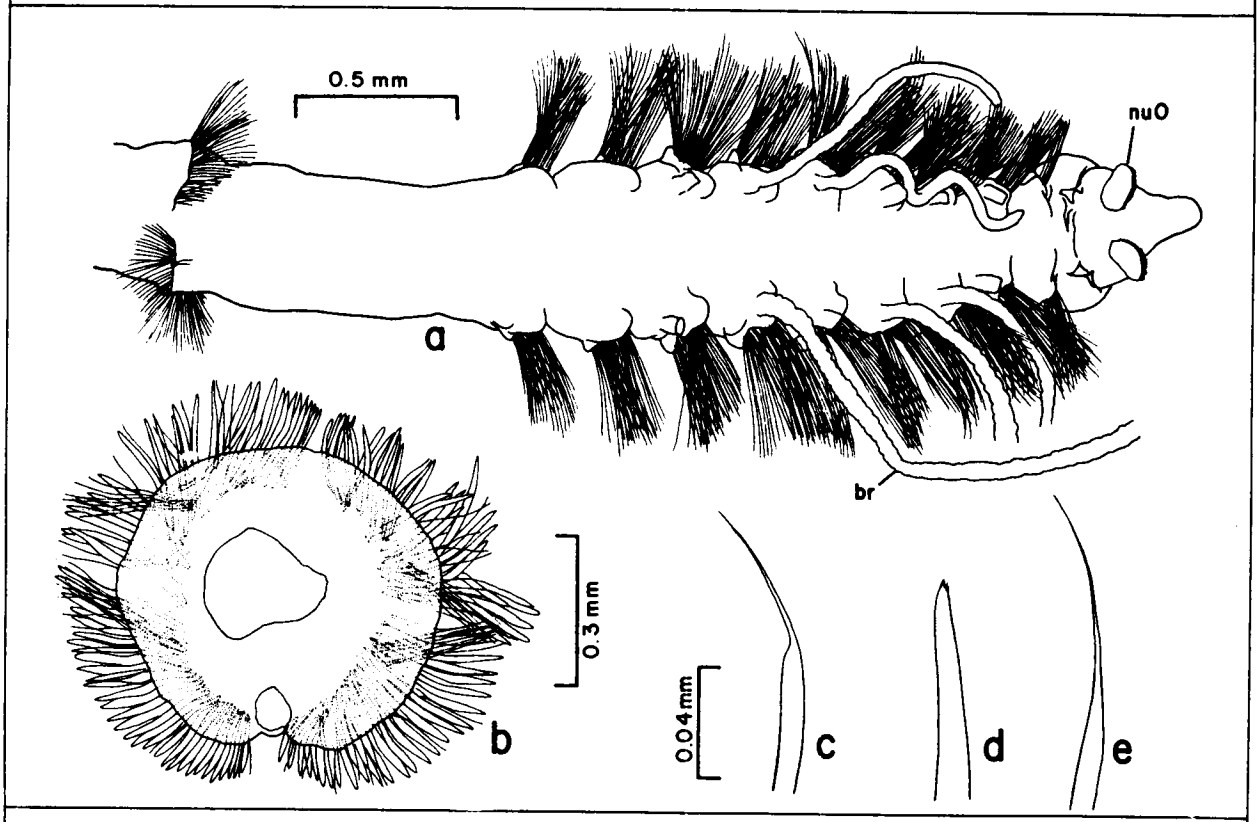

Figure 10-4. Heterospio cf. longissima: a, anterior end, dorsal view; b, cross-section of setiger 14; c, subuluncinus from setiger 11; d, acicular spine from setiger 14; e, capillary seta from setiger 14; figures a, c-e drawn from West Flower Gardens specimen.

Heterospio cf. longissima Ehlers, 1874
Figures 10-3, 4a-e

Heterospio longissima--Hartman, 1965:163, pl. 30, figs. f-h.
Heterospio longissima--Imajima, 1974:63, fig. 3a-d.
Heterospio longissima--Intes and LeLoeuff, 1977:223.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 31A-7/81 (1 spec., USNM 88475); STOCS 2/II-5 W/76 (1 spec., USNM 75192), 2/II-1 12/77 (1 spec., USNM 75191), 6/IV-2 S/76 (3 spec., USNM 75194), 6/IV-6 S/76 (2 spec., USNM 75136), 6/IV-1 F/76 (2 spec., USNM 75195), 6/IV-5 F/76 (2 spec., USNM 75193); IXTOC M37-12/79 (1 spec., USNM 75116).
Supplementary Material:
Gulf of Mexico--West Flower Gardens, NMFS Sta. WFG-III-6-5, Apr. 1981 (1 spec.).
DESCRIPTION:
Length, 26.4+ mm (previously reported to 30+ mm); width, to 0.56 mm (previously reported to 1.4 mm). Body long, thread-like, all specimens incomplete with up to 14 setigers. Prostomium bluntly conical, with large, ciliated nuchal organs (Figure 10-4a). Thorax with nine setigers; branchiae from setigers 2 to 4-8. Setiger 9 elongate. All thoracic setae capillary, variable in length. Abdominal setal fascicles forming nearly complete cinctures around body (Figure 10-4b) from first abdominal segment (setiger 10). Setae of setiger 10 all slender, capillary. Subuluncini (Figure 10-4c) present on setigers 11-12 along with capillary setae. Setigers 13-14 with subuluncini, acicular spines (Figure 10-4d) and capillary setae (Figure 10-4e). Two specimens with eggs in coelom of setigers 11 and 12.
REMARKS: H. longissima, as described by Hartman (1965), apparently differs from the original description of Ehlers (1874) in having a shorter setiger 9, and in having anterior abdominal setal fascicles forming cinctures and bearing modified setae (see Laubier et al., 1972-73:251). Thus Hartman's material may in fact represent another species. Gulf of Mexico BLM-OCS specimens differ from H. longissima sensu Hartman in lacking branchiae on setiger 9.
PREVIOUSLY REPORTED HABITAT: 35-4950 m; sand and gravel, fine mud.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous occurrences off southern Texas and one off southwestern Florida (Figure 10-3); 4.5-134 m; predominately in silty clay, also sand, silty and clayey sand, and sandy silty clay.
DISTRIBUTION: Off Ireland, off New England and Bermuda, off northeastern South America, Mediterranean, Japan, ?Gulf of Mexico.

CHAPTER 11

Katherine M. Gilbert

FAMILY CHAETOPTERIDAE Malmgren, 1867b

INTRODUCTION

Chaetopterids are permanent tube dwellers whose unusual morphology reflects a distinct modification for this existence. Size of these fragile worms ranges from 7-285 mm. In general, the body is dorsally concave or flattened, ventrally convex, and consists of three regions. The anterior body region comprises the first 9-18 segments, usually with uniramous parapodia. Anterior notopodial lobes are either short and truncate, or long and tapered. The middle region consists of two to several segments with biramous parapodia. The notopodia of this region may be single-lobed and tapered or digitiform, bi- or trilobed and fleshy or foliaceous, or they may be fused middorsally. The posterior region comprises a variable number of segments with biramous parapodia having digitiform or tapered notopodial lobes. Neuropodia occur in the form of tori or pinnules.

The prostomium is quite small and is surrounded by a peristomial collar. The mouth is situated anterodorsally within this collar. All species possess a pair of palps which may be long, grooved and ciliated; or short, smooth and tapered. A pair of short tentacular cirri and reniform eyes may also be present. A thin, ciliated, middorsal groove begins behind the peristomium and continues either to the first setiger of the middle region or to the posterior end of the body. One or more cup-shaped structures (cupules) occur along this groove. A glandular pad traverses the ventrum from the peristomial rim to the first or second segment of the middle region.

Lanceolate notosetae occur in the anterior region. Setiger 4 also possesses dark, stout, modified setae.* Embedded capillary setae occur in the notopodia of the remaining body regions, although slightly projecting limbate setae are present posteriorly in a few species. All neurosetae are uncini embedded either directly in the body wall or in tori or pinnules. The anus is terminal.

Tubes are generally fragile and are composed of a translucent chitinous material, or an opaque parchment material sometimes with embedded sediment granules. Parchment tubes occur in curved or straight forms, while chitinous tubes occur in branched or simple forms and may be annulated.

According to Fauchald (1977a), the family Chaetopteridae is the single member of the suborder Chaetopteriformia, order Spionida. Currently, the family includes 41 species in four genera: Chaetopterus Cuvier, 1827; Spiochaetopterus Sars, 1853; Mesochaetopterus Potts, 1914; and Phyllochaetopterus Grube, 1863. Four species in three genera occur

*According to Fauchald (pers. comm.) the stout setae are neuropodial in origin, rendering setiger 4 biramous. Examination of cleared sections of setiger 4 and adjacent setigers indicates that the stout setae replace the ventralmost lanceolate notosetae in position and origin. Therefore, in this text setiger 4 is assumed to be uniramous.

in the Gulf of Mexico BLM-OCS collections. Two species represent new records for the Gulf.

PRINCIPAL DIAGNOSTIC CHARACTERS

The nature of the tube is generically characteristic; thus the tube should be retained with the animal when found intact. The opaque parchment tubes are either U-shaped and relatively sturdy, as in Chaetopterus, or straight and fragile, as in Mesochaetopterus. Translucent chitinous tubes may be multibranched, as in some Phyllochaetopterus, or straight, with or without a side branch, as in Spiochaetopterus.

The shape of the peristomium dorsally, along with the occurrence of tentacular cirri and the length of the palps, are features used in generic distinctions. The peristomium may be reduced dorsally to a thin lip as in Chaetopterus (Figure 11-2a), incised dorsolaterally producing a middorsal protuberance as in Mesochaetopterus (Figure 11-6a) or fairly even all around as in Spiochaetopterus (Figure 11-4a). The shape and number of specialized setae of the fourth setiger (Figure 11-4h,i), and the presence of neuropodia on the last anterior segment (Figure 11-2a,b) also may be used to distinguish genera. Generally, due to the fragility of the worms of this family, only the characters of the anterior region are used in the taxonomy. When the middle region is intact, the structure of the notopodial lobes is diagnostic. These lobes may be multilobed and fleshy or foliaceous as in Spiochaetopterus (Figure 11-4c), single-lobed and tapered or digitiform as in Mesochaetopterus (Figures 11-6a, 8a), or fused middorsally as in Chaetopterus (Figure 11-2a).

On the specific level, several characters may be used depending on the genus. The prostomium may be ovoid or elongate and may possess a cleft, although this character is often difficult to see. The number of specialized setae on setiger 4 is a useful character when several occur. Species also may be separated according to characteristics of the middle region, including number of segments of the region, the structure of the notopodial lobes (fleshy or foliaceous), the number and positions of cupules, the shape of the neuropodial tori (uni- or bilobed), and sometimes the number of teeth per uncinus.

Care should be taken when extracting these worms from their tubes. They produce large amounts of mucus which adheres to their epithelium, especially after preservation. The notopodial lobes and cupules are usually damaged during tubal extraction. As a result, species are often difficult to identify.

In this work, body length was measured from the peristomial rim to the pygidium; body width, between the outer bases of the notopodial lobes of setiger 6.

BIOLOGICAL NOTES

Chaetopterids are commonly found from intertidal to shallow waters inhabiting soft sand or mud sediments. However, they may also be found on hard substrates in bathyal and abyssal depths (McCarty, 1974; Fauchald and Jumars, 1979). The species discussed in this chapter are reported to be solitary, but colonial aggregations have been observed for other species. Phyllochaetopterus socialis, for example, has been

reported in mats as dense as "1,000 tubes per square decimeter" on reef surfaces (McCarty, 1974). Dense populations of compound ascidians, hydroids, sponges, crustaceans, molluscs, other polychaetes, and fish are often associated with this network community. The tube of Chaetopterus variopedatus, a solitary species, supports two commensal crabs, Pinnixa chaetopterana and Polyonyx gibbsi, along with several commensal polynoid polychaetes (Pettibone, 1982).

Tube building and dwelling have been well-documented for Spiochaetopterus costarum oculatus and Chaetopterus variopedatus. Upon removal from or destruction of the tube, S. costarum immediately begins to rebuild. The gland responsible for tube secretion is located on the ventrum of setigers 5 or 6 to 9. The convex shape of the ventrum is used with a side-to-side motion to mold first one side of the tube and then another as the chitinous material is secreted. This species is able to reverse its body position within the tube. In an inverted position the worm secretes a transverse partition with 2-4 small perforations in the lower end of the tube. The purpose of this partition is not clear. As the tube is lengthened, the modified seta of setiger 4 is utilized to cut out old partitions which are then pasted against the walls with glandular secretions. The modified or "cutting" seta is also used to cut open the side of a tube for addition of a side branch (Barnes, 1964). Unlike Spiochaetopterus, members of the genus Chaetopterus are unable to rebuild after removal from the original tube. They spend their entire life within the same tube, utilizing the cutting setae to split the parchment material for expansion (Enders, 1908), filling in the openings with glandular secretions.

Water circulation for respiration and filter feeding is accomplished by rhythmic notopodial movement of the middle region. The tube of Chaetopterus variopedatus is U-shaped and open to the water column at both ends. A strong current is generated by the expanded, fused notopodia. The neuropodial lobes of the first three segments of the middle region are fused midventrally, forming suction disks which maintain the worm's position in the tube. The notopodial lobes of the middle region of Spiochaetopterus are lined with thin membranes which facilitate water movement. Only the anterior end of the tube opens to the water column, but water can also enter through the posterior tube opening from the substrate. The worm uses its pectinate neurosetae to maintain its position within the tube (Barnes, 1964). Respiratory exchange is across the epithelium. The feeding mode is fairly similar for all species. Mucus bags are secreted by the notopodial lobes of the middle region. In Chaetopterus, only the long tapered lobes of the first setiger in the middle region have this capability. As the water current flows through the passages, suspended detritus and plankton are caught in the mucus. The bags are then pulled into the cupule posterior to the notopodial lobes and rolled into a mucus ball. The balls are transferred by ciliary movement up the middorsal groove to the mouth (MacGinitie, 1939; Barnes, 1964; MacGinitie and MacGinitie, 1949). The palps may also aid in food capture. On occasions when the concentration of food particulates is low, Spiochaetopterus costarum oculatus has been observed to surface deposit feed with its palps (Fauchald and Jumars, 1979). The primary function of the palps is egestion. After fecal pellets are excreted from the terminal anus, they are carried anteriorly by ciliary action up the middorsal groove. The pellets are transferred to the deep ciliated grooves of the palps and deposited outside the tube. Other debris entering the tube is similarly discarded. This method of

egestion is utilized in all genera except Chaetopterus, in which the posterior tube opening allows egested and extraneous material to be flushed out with the current. The palps of Chaetopterus accordingly are short and tapered, unmodified for waste removal, but possibly function as sensory organs for detecting food particles entering the tube.

Sexes are separate. At least in Chaetopterus, fertilization is external. Eggs and larvae are found within the tubes. The metatrochophore larvae exist in the plankton up to several months. Their form is barrel-shaped with two slender, projecting palps and an anal projection. Anteriorly they possess two sets of three red eyespots and an apical tuft. The middle body region is bordered by an anterior and posterior ciliary band or mesotroch. Between these bands, segments are added gradually up to eight setigers. The larvae feed by capturing other larvae and phytoplankton in mucus strands secreted by the pygidium (Ward, 1978; Pettibone, 1982).

SPECIES OF CHAETOPTERIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Chaetopterus variopedatus (Renier, 1804)	11-6
Spiochaetopterus costarum (Claparède, 1868)	11-8
Mesochaetopterus capensis (McIntosh, 1885)	11-11
Mesochaetopterus taylori (Potts, 1914)	11-11

Key to the Genera of Chaetopteridae

1a. Tentacular cirri present. . . . . .**Phyllochaetopterus***
1b. Tentacular cirri absent 2

2a. Palps shorter than anterior region (Figure 11-2a). . . . . .**Chaetopterus**, p. 11-4
2b. Palps longer than anterior region (Figure 11-6a). 3

3a. Setiger 4 with one (rarely two) pairs of specialized setae; tube translucent. . . . . **Spiochaetopterus**, p. 11-8
3b. Setiger 4 with several pairs of specialized setae; tube opaque . . . . . .**Mesochaetopterus**, p. 11-9

*Not represented in Gulf of Mexico BLM-OCS collections.

Genus **Chaetopterus** Cuvier, 1827

TYPE SPECIES: Tricoelia variopedatus Renier, 1804.
REFERENCES:
Fauvel, 1927:77.
Ushakov, 1955:288.
Day, 1967:529.
Fauchald, 1977a:28.
DIAGNOSIS: Peristomium small dorsally, forming a broad collar laterally with projecting midventral edge. Palps shorter than anterior region. Anterior region with 8-12 segments; anterior parapodia uniramous with

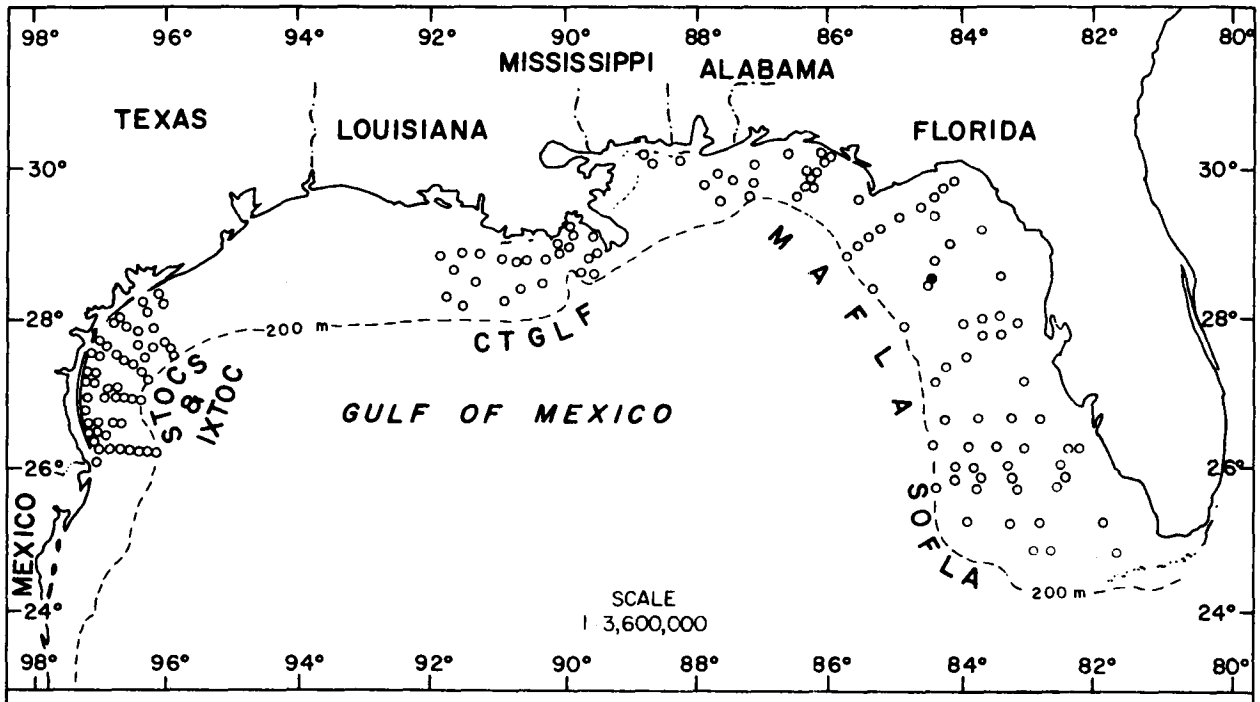

Figure 11-1. Distribution of Chaetopterus variopedatus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in the BLM-OCS monitoring programs.

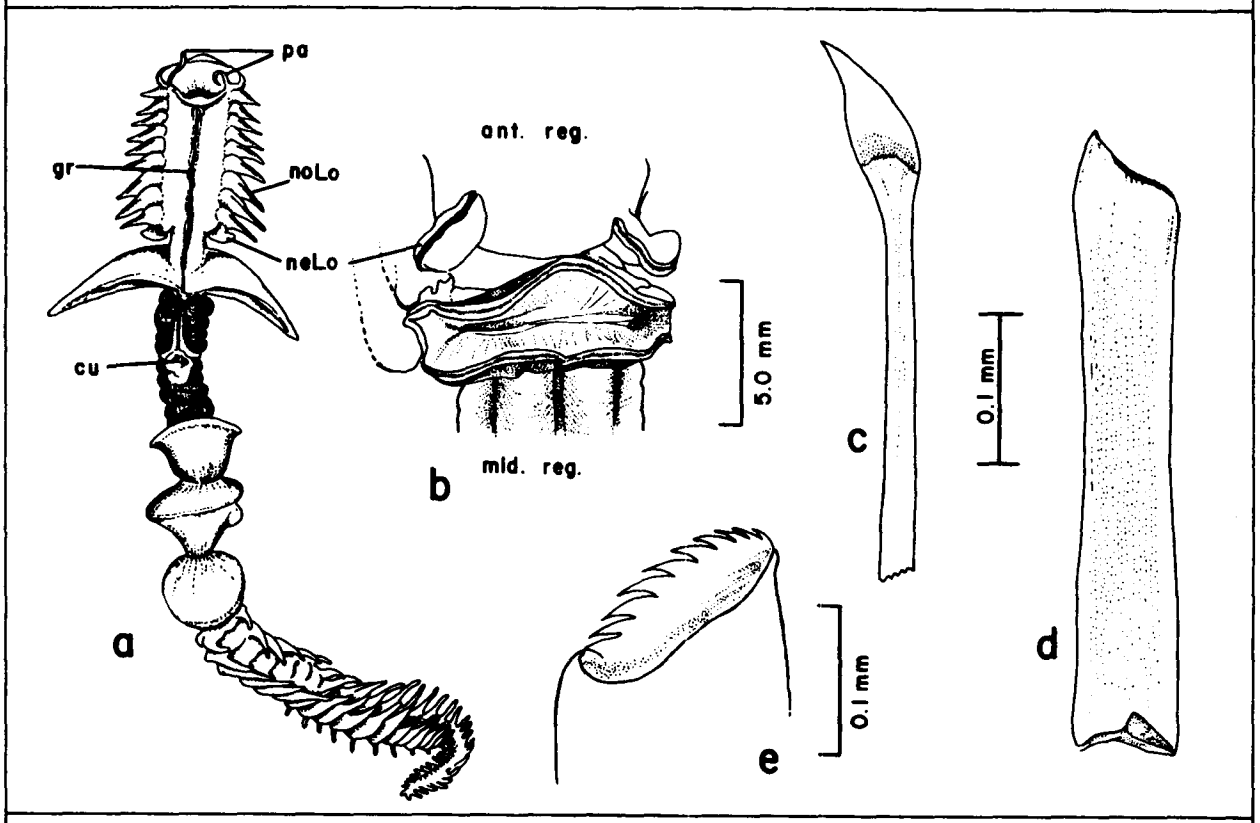

Figure 11-2. Chaetopterus variopedatus: a, whole animal, dorsal view (modified from Barnes, 1974 fig. 10-33 and Hobson and Banse, 1981 fig. 8a); b, fused neuropodia of first setiger of middle region; c, notoseta of anterior region; d, modified seta from setiger 4; e, uncinus.

notopodia only, except for those of last segment of the region; notopodial lobes long, distally tapered. Setiger 4 with several modified setae. Notopodial lobes of first segment of middle region at least three times longer than those of anterior region, distally tapered; remaining notopodial lobes of middle region fused middorsally. Posterior region with biramous parapodia. Tube opaque, composed of parchment material, externally covered with sand grains.

Chaetopterus variopedatus (Renier, 1804)
Figures 11-1, 2a-e

Chaetopterus variopedatus--Fauvel, 1927:77, fig. 26a-n.
Chaetopterus variopedatus--Ushakov, 1955:291, fig. 104a,b; fig. 105a-g.
Chaetopterus variopedatus--Day, 1967:529, fig. 22.2.a-g.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2315A-11/77 (2 spec., USNM 89507, juv.?).
Supplementary Material:
Gulf of Mexico--Mississippi Sound, Oct. 1972, B. A. Vittor coll./ID. (2 spec., 1 gravid).
DESCRIPTION:
Length, 9+ mm (previously reported to 250 mm); width, to 1.8 mm (previously reported to 25 mm). Body tapering posteriorly (Figure 11-2a); both specimens incomplete with up to 24 segments. Palps extending slightly beyond peristomium. Eyes paired, reniform, located anterior to base of palps in juveniles. Anterior region with nine segments; neuropodia present on setiger 9 only. Middorsal groove extending from peristomium to setiger 11. Ventral glandular pad extending from inside peristomial rim to distal edge of anterior region. Middle region with five segments. Notopodial lobes of first middle segment distally tapered, as long as anterior region; notopodia of second middle segment modified, forming a cupule; notopodial lobes of third through fifth middle segments fused middorsally, forming disk-shaped plates. Neuropodial lobes of first three middle segments fused midventrally, producing suction disks (Figure 11-2b); neuropodia of last two middle segments as bilobed tori. Notopodia of posterior region long, distally tapered, similar in size and shape to those of anterior region; neuropodia as bilobed tori. Notosetae of anterior region lanceolate (Figure 11-2c). Setiger 4 with six stout modified setae (Figure 11-2d) ventrally. Notosetae of remaining setigers as embedded capillaries. All neurosetae as pectinate uncini with 7-10 teeth (Figure 11-2e).
REMARKS: With the exception of the presence of eyes, the BLM-OCS specimens examined adequately fit reported descriptions of C. variopedatus. In view of the small specimen size, the presence of eyes may be considered a juvenile character.
PREVIOUSLY REPORTED HABITAT: Intertidal to 100 m; sandy mud and mixed sediments.
GULF OF MEXICO BLM-OCS OCCURRENCE: Single occurrence from northeastern Gulf (Figure 11-1); 38 m; silty fine sand.
DISTRIBUTION: Cosmopolitan in temperate and tropical waters.

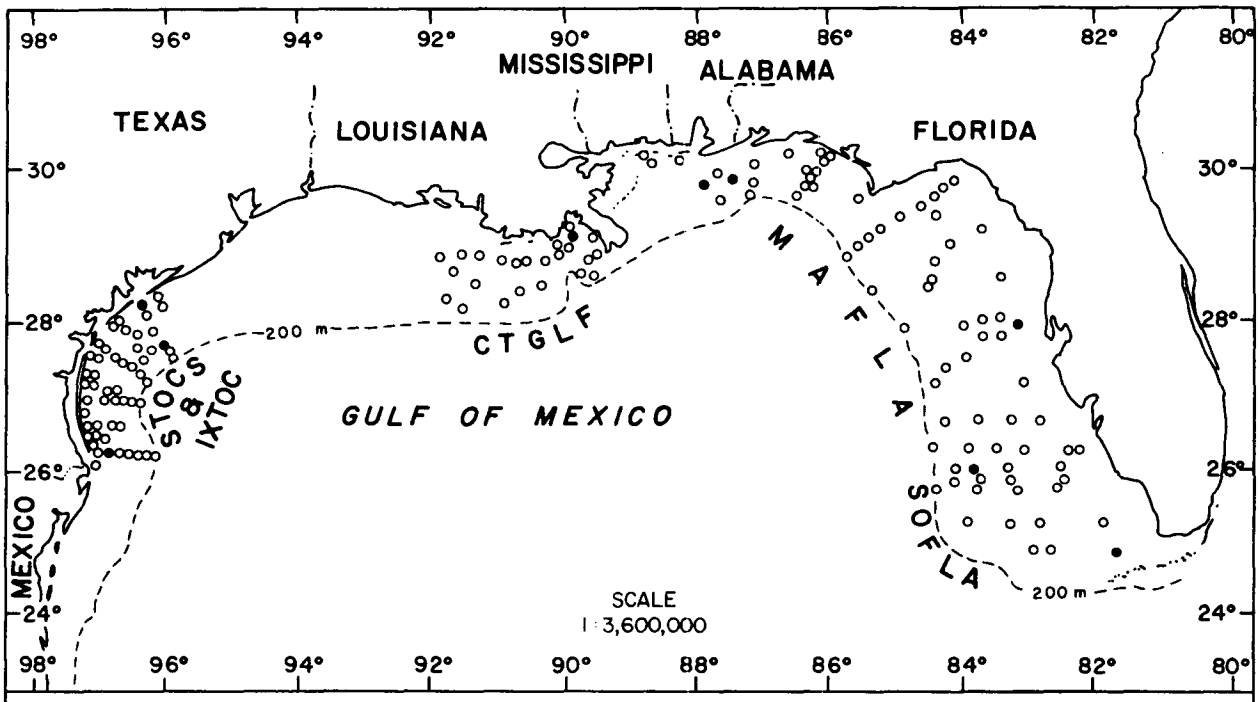

Figure 11-3. Distribution of Spiochaetopterus costarum on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in the BLM-OCS monitoring programs.

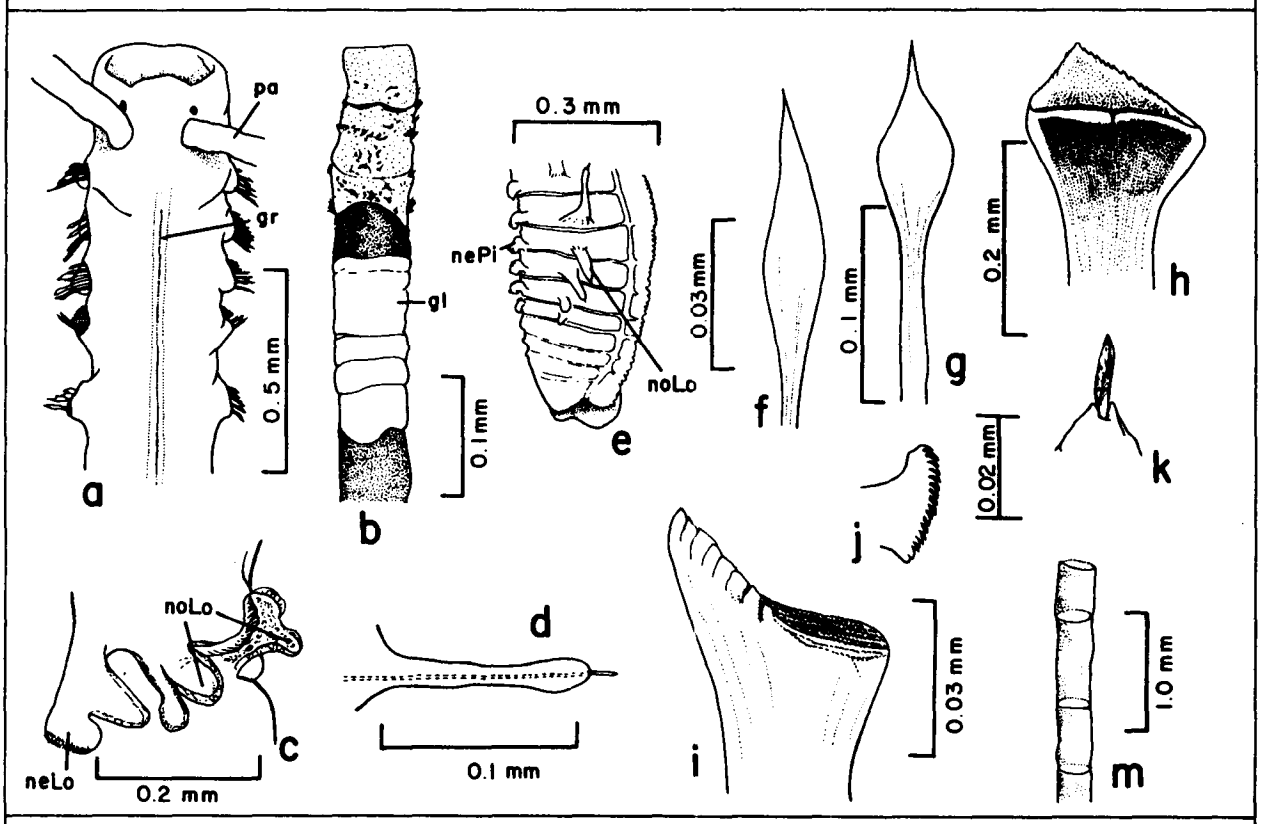

Figure 11-4. Spiochaetopterus costarum: a, anterior region, dorsal view; b, same, ventral view; c, parapodium of middle region, lateral view; d, notopodial lobe from posterior region; e, posterior region, dorsolateral view; f, g, anterior notosetae; h, modified seta from setiger 4, frontal view; i, same, lateral view; j, uncinus; k, notoseta from posterior region; m, tube.

Genus **Spiochaetopterus** Sars, 1853

TYPE SPECIES: Spiochaetopterus typicus Sars, 1856.
REFERENCES:
Ushakov, 1955:291.
Day, 1967:527.
Gitay, 1969:10.
Fauchald, 1977a:28.
DIAGNOSIS: Peristomium forming even, closed collar around mouth. Palps longer than anterior region. Anterior region with 9-10 setigers; distinctive glandular region occurring ventrally on setigers 6-9; all parapodia uniramous; notopodial lobes short. Setiger 4 with one (rarely two) pair of stout modified setae. Parapodia of middle region biramous; notopodia foliaceous with three lobes, notosetae internal; neuropodial tori bearing several imbricated rows of pectinate uncini. Posterior region with biramous parapodia; notopodia digitiform, neuropodia uncinigerous. Tube thin, chitinous, translucent, with slightly constricted annulations.
REMARKS: In a revision of the genus Spiochaetopterus, Gitay (1969) discussed the synonymy of Telepsavus and Leptochaetopterus with Spiochaetopterus.

Spiochaetopterus costarum (Claparède, 1868)
Figures 11-3, 4a-m

Telepsavus costarum Claparède, 1868:340, pl. 20, fig. 1.
Telepsavus costarum--Berkeley and Berkeley, 1952:63, figs. 127-130.
Telepsavus costarum--Imajima and Hartman, 1964:294.
Spiochaetopterus costarum--Day, 1967:528.
Spiochaetopterus costarum--Gitay, 1969:14.
Spiochaetopterus costarum oculatus--Day, 1973:79.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12A-11/80 (1 spec., USNM 89508), 25-11/80 (4 spec., USNM 89509); MAFLA 2207D-8/77 (1 spec., USNM 89510), 2207G-8/77 (2 spec., USNM 89511), 2640I-6/75 (1 spec., USNM 89512), 2640C-8/77 (1 spec., USNM 89513), 2642E-6/75 (1 spec.); CTGLF 01-1/79 (1 spec., USNM 89518); STOCS 4/I-1 W/76 (2 spec., USNM 89514), 4/I-5 W/76 (5 spec., USNM 89515), 4/I-6 W/76 (1 spec., USNM 89516), 5/I-4 W/76 (4 spec., USNM 89517); IXTOC S52-12/79 (1 spec., USNM 89519).
Supplementary Material:
Gulf of Mexico--Mobile Bay, Mobil Oil 155C-7/78 (3 spec.).
DESCRIPTION:
Length, to 9 mm (previously reported to 630 mm); width, to 0.4 mm (previously reported to 3 mm). Body small, uniformly slender; complete specimens with up to 46 segments. Peristomium extended anteriorly beyond prostomium (Figure 11-4a). Eyes, when present, located anterior to base of palps. Middorsal groove extending from setiger 2 to posterior end of body. Narrow glandular band traversing setiger 1 ventrally (Figure 11-4b). Ventrum with dark pigment spots between peristomium and ventral gland of setigers 6-9, pigment more dense near gland. Anterior region with nine setigers; notopodial lobes truncate. Notopodia trilobed in middle region (Figure 11-4c), with entire, digitiform lobes in

posterior region (Figure 11-4d,e). Neuropodia of posterior region forming pinnules. Notosetae of anterior region lanceolate (Figure 11-4f,g); one pair of dark modified setae (Figure 11-4h,i) present on setiger 4. Notopodial lobes of middle region with fine embedded capillary setae; neuropodia with several imbricating rows of pectinate uncini having 17-20 teeth each (Figure 11-4j). Notosetae of posterior region slightly projecting, limbate (Figure 11-4k), usually one per lobe; neuropodia with few uncini. Tube of soft chitin, translucent, with slightly constricted annulations (Figure 11-4m), and adherent fine sand grains anteriorly.

REMARKS: This species has cupules present immediately anterior to the notopodial lobes of the middle region (generally not apparent after preservation) (Gitay, 1969). Five subspecies of Spiochaetopterus costarum including S. costarum oculatus have been described (see Gitay, 1969). Diagnostic subspecific characters include the number of mucus bags, pigmentation patterns, presence of eyes, shape of the prostomium, number of segments in the middle region, and the nature of the posterior parapodia. In Gulf of Mexico BLM-OCS material, these characters are either not consistent or are obscured by the poor condition of the animals. Therefore, no subspecies are defined herein. Distributions and depth ranges reported in the literature support identifications to subspecies.

PREVIOUSLY REPORTED HABITAT: Intertidal to abyssal regions (see "REMARKS"); sand and mud.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered occurrences throughout northern Gulf (Figure 11-3); 10-90 m; medium to very fine sand, clayey sand, sandy clayey silt, sandy silty clay, silty clay.

DISTRIBUTION: Cosmopolitan in temperate and tropical waters (see "REMARKS"); also in deep and cold waters.

Genus **Mesochaetopterus** Potts, 1914

TYPE SPECIES: Mesochaetopterus taylori Potts, 1914.

REFERENCES:

Berkeley and Berkeley, 1952:61.

Day, 1967:531.

Fauchald, 1977a:28.

DIAGNOSIS: Peristomium incised dorsolaterally forming a middorsal protuberance; collar even, formed by lateral and ventral portions. Palps longer than anterior region. Anterior region with 9-14 segments; anterior parapodia uniramous; notopodial lobes short. Setiger 4 with several modified setae. Middle region with few (2-3) long segments; parapodia biramous; notopodia single-lobed; neuropodia uncinigerous. Lateral areas of middle region corrugated. Posterior region with several short segments; parapodia biramous; notopodia single-lobed, digitiform; neuropodia uncinigerous. Tube thin, chitinous, opaque, covered with encrusted sediment.

Key to the Gulf of Mexico BLM-OCS Species of Mesochaetopterus

1a. Middle region with two segments only, second segment with a cupule (Figure 11-6a). . . . . .**Mesochaetopterus capensis**, p. 11-11

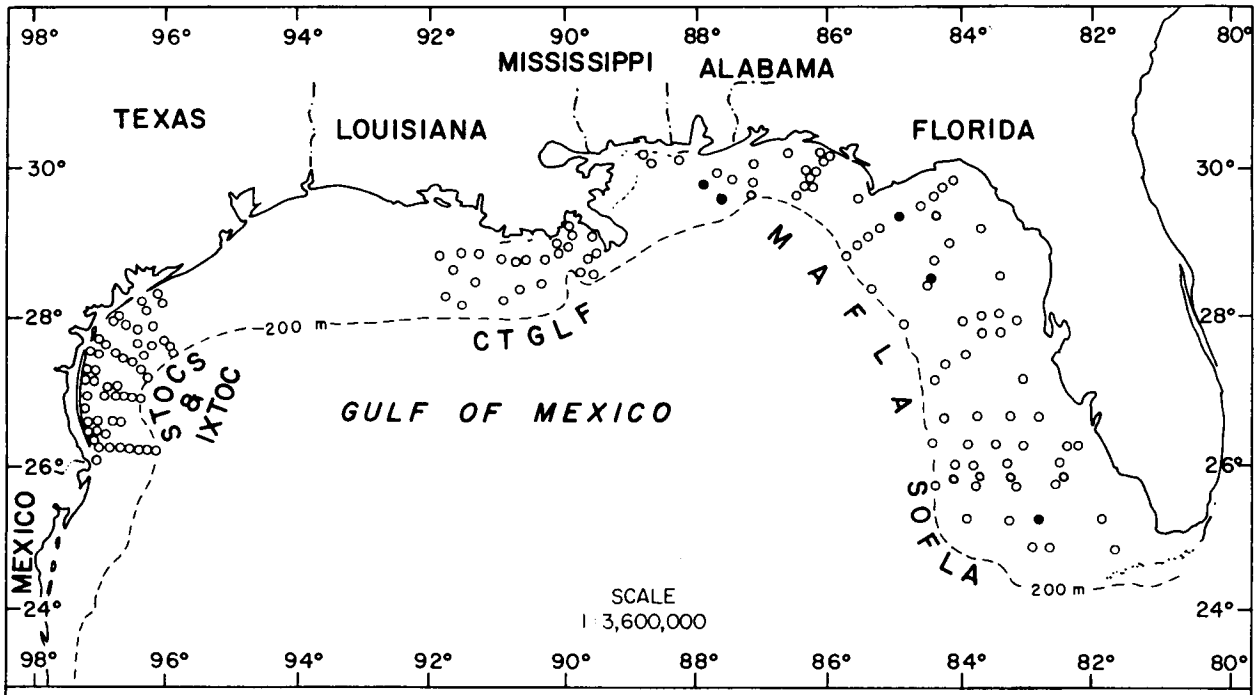

Figure 11-5. Distribution of Mesochaetopterus capensis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in the BLM-OCS monitoring programs.

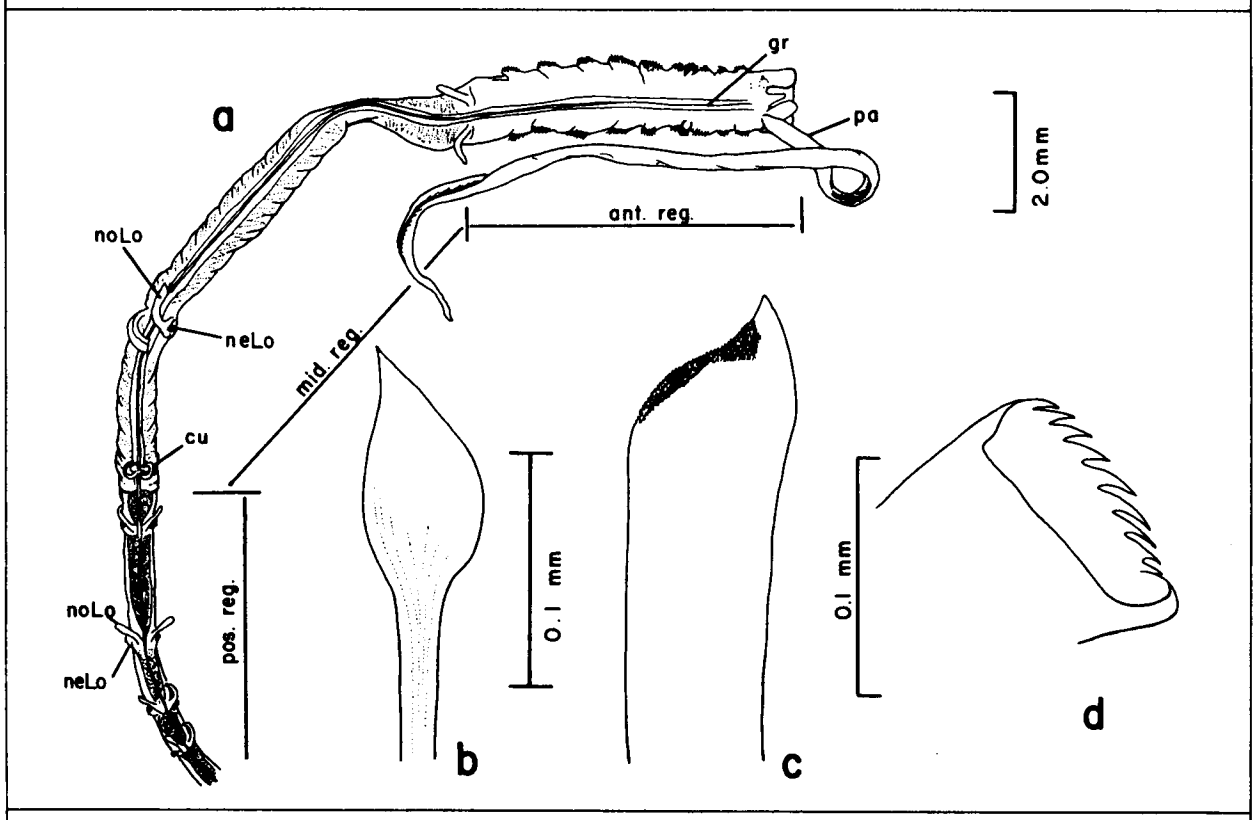

Figure 11-6. Mesochaetopterus capensis: a, body, dorsal view; b, notoseta from anterior region; c, modified seta from setiger 4; d, uncinus.

1b. Middle region with three segments, second and third segments each with a cupule (Figure 11-8a). . **Mesochaetopterus taylori**, p. 11-11

Mesochaetopterus capensis (McIntosh, 1885)
Figures 11-5, 6a-d

Ranzania (?) capensis McIntosh, 1885:378, pl. 23a, figs. 19, 20.
Ranzanides capensis--Day, 1961:498.
Mesochaetopterus capensis--Day, 1967:532, fig. 22.2.o-r.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22A-4/81 (1 spec., USNM 89520); MAFLA 14D-5/74 (1 spec., USNM 89521); 2315A-11/77 (2 spec., USNM 89522), 2423F-7/76 (1 spec. USNM 89523), 2423H-7/76 (1 spec., USNM 89524), 2640K-11/77 (2 spec., USNM 89525), 2640C-2/78 (3 spec., USNM 89526), 2640E-2/78 (1 spec., USNM 89527).
DESCRIPTION:
Length, 24.0+ mm (previously reported to 15 mm); width, to 0.4 mm. Body small, uniformly slender (Figure 11-6a); all specimens incomplete with up to 27 segments. Palps extending to posterior portion of middle region. Eyes, when present, at lateral bases of palps. Middorsal groove present from setiger 1 to posterior end of body. Ventral glandular pad extending from peristomial rim to neuropodia of setiger 10. Anterior region with nine segments. Middle region with two segments; notopodial lobes long, digitiform; neuropodia practically flush with body. A single cupule present middorsally immediately anterior to start of posterior region. Posterior region marked by change from corrugated to smooth epithelium laterally and opaque to transparent epithelium dorsally; notopodial and neuropodial lobes similar to those of middle region. Notosetae of anterior region lanceolate (Figure 11-6b); 7-9 stout modified setae (Figure 11-6c) present ventrolaterally on setiger 4. Notopodia of middle and posterior regions with embedded fine capillary setae. Neurosetae all as pectinate uncini with 8-10 teeth each (Figure 11-6d).
REMARKS: M. capensis is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: 22-64 m; sand and shell with algae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few occurrences in northeastern Gulf (Figure 11-5); 19-69 m; medium to fine sand, silty fine sand.
DISTRIBUTION: South Africa, Gulf of Mexico.

Mesochaetopterus taylori Potts, 1914
Figures 11-7, 8a-e

Mesochaetopterus taylori--Berkeley and Berkeley, 1952:61, figs. 124-126.
Mesochaetopterus taylori--Hartman, 1969:213, figs. 1-4.
Mesochaetopterus taylori--Day, 1973:80.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25C-11/80 (2 spec., USNM 89528); MAFLA 2209C-11/77 (1 spec., USNM 89529); STOCS 4/IV-5 F/77 (1 spec., USNM 89530).

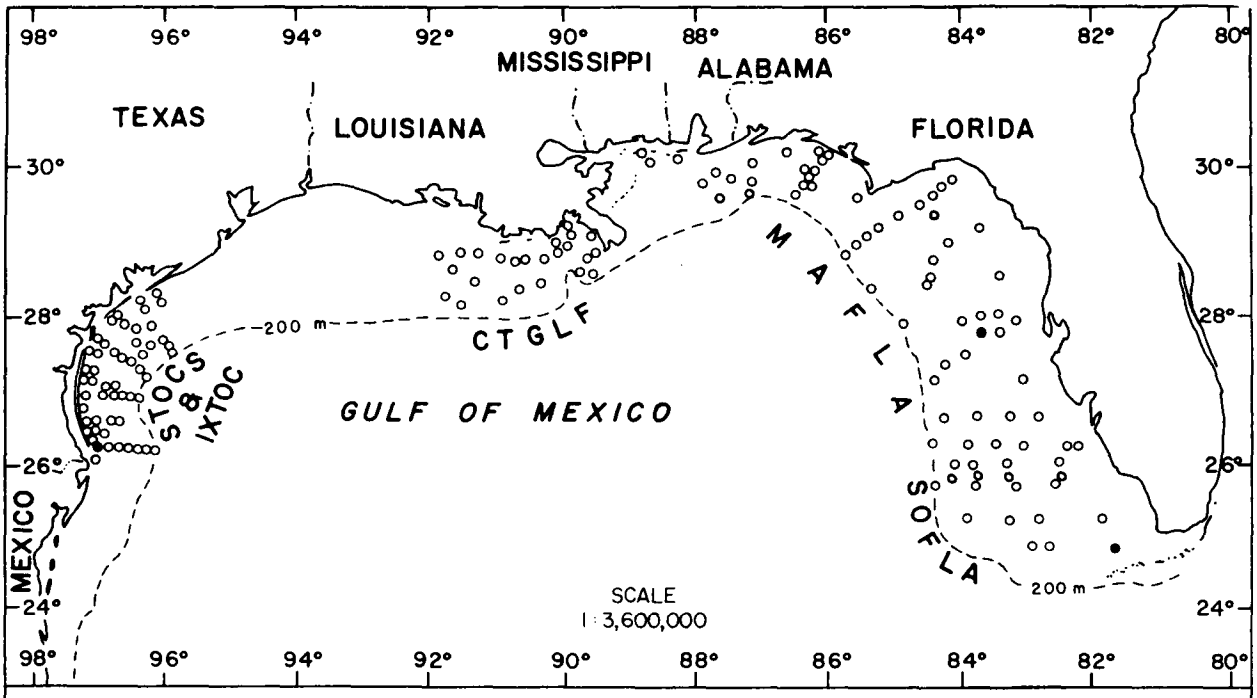

Figure 11-7. Distribution of Mesochaetopterus taylori on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in the BLM-OCS monitoring programs.

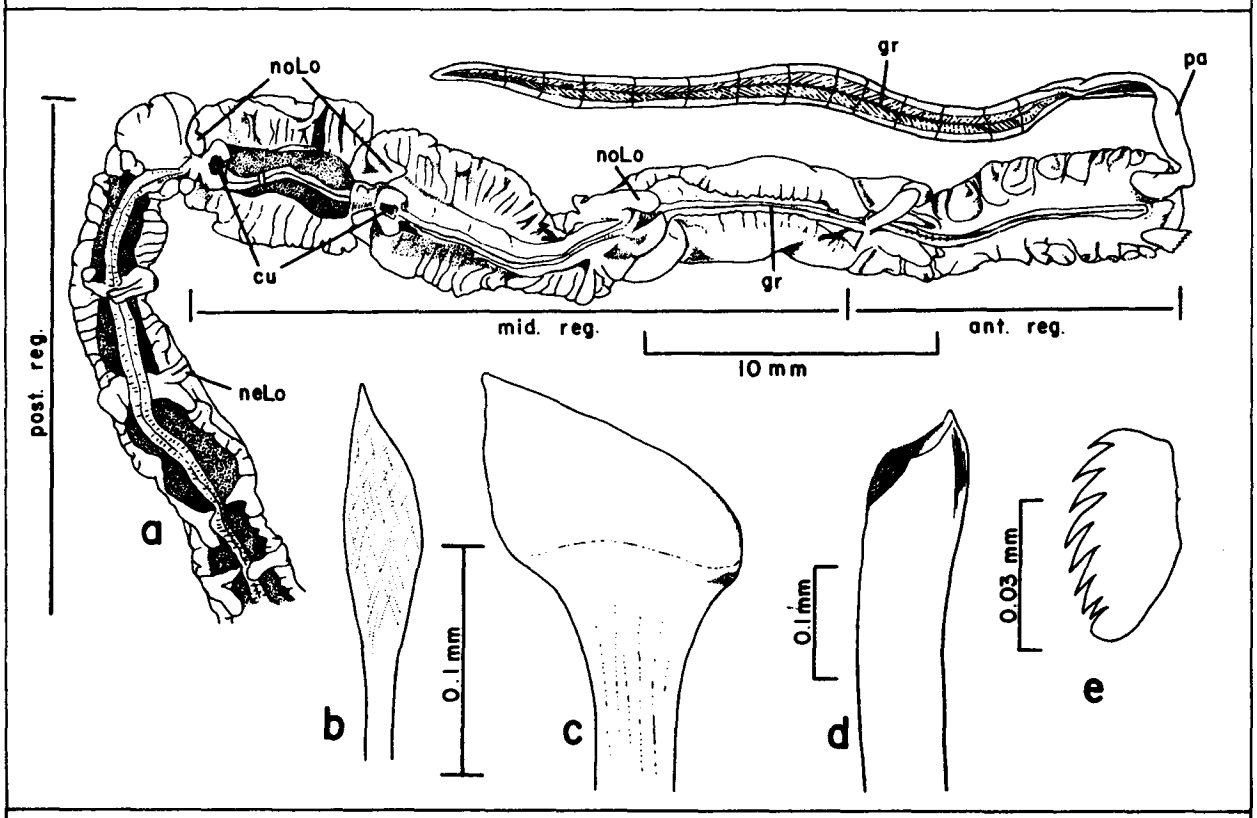

Figure 11-8. Mesochaetopterus taylori: a, body, dorsal view; b, c, notosetae from anterior region; d, modified seta from setiger 4; e, uncinus.

DESCRIPTION:
Length, 53+ mm (previously reported to 285 mm); width, to 3.5 mm (previously reported to 10 mm). Body large, uniformly slender (Figure 11-8a); all specimens incomplete with up to 17 segments. Palps extending to posterior portion of middle region, with thin, dark, transverse bands. Eyes absent. Middorsal groove present from setiger 1 to posterior end of body. Ventral glandular pad extending from peristomial rim to second parapodia of middle region, tapering posteriorly. Anterior region with nine segments. Middle region with three segments; notopodial lobes long, digitiform; neuropodia nearly flush with body. Two cupules present middorsally, located anterior to third parapodia of middle region and first parapodia of posterior region. Segments of posterior region becoming smaller, evenly spaced. Notosetae of anterior region lanceolate (Figure 11-8b,c); setiger 4 with 12-15 stout, modified setae (Figure 11-8d). Notopodia of middle and posterior regions with embedded fine capillary setae. Neurosetae as pectinate uncini with 7-8 teeth each (Figure 11-8e).
REMARKS: M. taylori is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Intertidal; sand and mud.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two occurrences from western Florida shelf and single occurrence off Texas (Figure 11-7); 15-34 m; sand, clayey sandy silt, silty clay.
DISTRIBUTION: Western Canada to northern California, North Carolina, Gulf of Mexico.

CHAPTER 12

Paul S. Wolf

FAMILY CIRRATULIDAE Carus, 1863

INTRODUCTION

Cirratulids are elongate (up to 250 mm), cylindrical polychaetes with numerous segments. The prostomium is usually conical and small, with or without eyespots. The proboscis is unarmed, smooth, sac-like, and not eversible. The peristomium is long and achaetous, and extends posteriorly above the first few setigers in some genera, e.g., Cirriformia and Cirratulus. At the posterior margin of the peristomium, a pair of large grooved palps or numerous tentacular filaments may be present dorsally. Following the palps or tentacular filaments, each setiger, except perhaps far posterior setigers, bears a pair of long, dorsal branchial filaments that arise above the notosetae in most species. Segments are usually crowded anteriorly, elongate medially, and again crowded posteriorly. Anterior noto- and neurosetae are usually serrate simple setae, but occasionally smooth or spinose natatory setae are present in the notopodia. Posterior setae of both rami may be modified into spines, hooks, or even aristate setae. The pygidium is usually composed of a small ventral lobe with a terminal anus.

Nine genera are currently recognized in the Cirratulidae (Fauchald, 1977a), of which five, plus two undescribed genera, occur in Gulf of Mexico BLM-OCS collections. The family comprises about 140 species (Pettibone, 1982:28) but of these only three tentative assignments could be made in the material examined herein; the rest (thirteen species) are potentially new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

The Cirratulidae are poorly known taxonomically. Most descriptions are not sufficiently detailed to allow for accurate identifications of specimens. This may be due to the lack of consistant diagnostic characters within established genera. It appears that some characters, e.g., the first appearance of spines in Chaetozone, are highly variable and this variability is not fully understood. Observed variability has been noted in the species descriptions herein, but further investigations will be necessary to elucidate the taxonomic consequences of such variability.

To identify cirratulids, one must initially distinguish between the feeding appendages and the branchial appendages. There are two types of feeding appendages--palps and tentacular filaments--both of which are grooved and restricted to anterior setigers. Palps occur as a single pair (Figure 12-14a), are normally larger in diameter than tentacular or branchial filaments, and arise dorsal or anterodorsal to the first setiger. Bi-palpate cirratulids, e.g., Tharyx, Chaetozone, Caulleriella, and Dodecaceria do not possess tentacular filaments. Tentacular filaments are more dorsal in origin than the branchial filaments, and occur in two groups restricted to one setiger in Cirratulus and Cirriformia (Figure 12-4a) or arise above at least two setigers in Timarete.

Feeding appendages differ anatomically from branchial filaments in having only one blood vessel per filament rather than two. However, this distinction is difficult to see in most specimens since one of the blood vessels in the branchiae usually collapses upon fixation (W. Kennedy, pers. comm.).

Branchial filaments (Figure 12-2a) are readily distinguished by their external morphology and placement. They lack grooves and are usually located above and perhaps slightly posterior to the notosetae in the anterior body region, but may arise middorsally or between the noto- and neurosetae in the posterior body region. Except for the genus Timarete, there is only one pair of branchial filaments per setiger. They can be restricted to anterior setigers as in Dodecaceria, or may be present along almost the entire length of the body as in some species of Tharyx.

The primary generic characters among the bi-palpate cirratulids are the presence and kinds of specialized setae. These setae usually consist of spines or hooks which are distally entire, dentate, or excavate. The distribution and exact nature of the modified setae have traditionally been used as specific characters; however, these may be more variable than previously thought.

The primary generic characters among the multi-tentaculate cirratulids are the placement of the tentacular filaments and their relation to the branchial filaments. Specific importance is then given to the exact setiger(s) from which the tentacular filaments arise. If present, modified setae in the form of unidentate spines or hooks are also specifically important.

Identification of cirratulids is difficult, not only because of their confusing taxonomy, but also because preserved specimens are often missing essential appendages. Where the appendages are missing, it is necessary to rely on the distribution of scars or minute remnants. This is particularly difficult in small specimens or in specimens where scars are hidden within segmental grooves by contraction. Identification should not be attempted if the distribution of palpal, tentacular, or branchial appendages cannot be ascertained.

BIOLOGICAL NOTES

Cirratulids are sluggish worms usually found buried just below the surface of the substratum with only their feeding appendages and branchial filaments visible above. Most forms are free-living and inhabit tubes, while species of Dodecaceria are capable of burrowing into coral, shell, or rock (Fauchald and Jumars, 1979:207). Cirratulids occur in shallow water as well as the deep sea, and may be the dominant species in some samples.

According to Fauchald and Jumars (1979:208), cirratulids are surface deposit-feeders, using palps and tentacular filaments for food collection. They may be selective in terms of particle size and composition.

Cirratulids may be dioecious or hermaphroditic (M. Petersen, pers. comm.), or they may reproduce asexually (Day, 1967:499). Some cirratulids undergo an epitokous phase (Fauvel, 1927:89), developing large eyes and natatory setae. Some specimens encountered herein have what appear to be natatory setae; however, it is not known if these setae are associated with reproduction since the specimens apparently lack

gametes. Cirratulid larvae are lecithotrophic with a short pelagic phase (Blake, 1975:186).

SPECIES OF CIRRATULIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

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Cirriformia sp. A	12-5
Cirriformia sp. B	12-8
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Tharyx cf. annulosus Hartman, 1965	12-10
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Caulleriella cf. alata (Southern, 1914)	12-15
Caulleriella sp. A	12-18
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Caulleriella sp. C	12-20
Caulleriella cf. zetlandica (McIntosh, 1911)	12-20
Chaetozone sp. A	12-25
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Chaetozone sp. B	12-28
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Dodecaceria sp. A	12-30

Key to the Genera of Cirratulidae from the Gulf of Mexico BLM-OCS Programs

1a. One pair of palps present (Figure 12-14a). 2
1b. Multiple tentacular filaments present (Figure 12-4a) . . . . . **Cirriformia**, p. 12-5

2a. Specialized setae absent; all setae simple and smooth or finely serrate. . . . . .**Tharyx**, p. 12-10
2b. Specialized setae present as aristate, unidentate, bidentate, excavate, or bulbous forms. 3

3a. Specialized setae aristate (Figure 12-10e). . . .**Genus A**, p. 12-13
3b. Specialized setae otherwise 4

4a. Specialized setae with distal "bulb" (Figure 12-12e) . . . . . .**Genus B**, p. 12-13
4b. Specialized setae, if present, distally unidentate, bifid, or excavate. 5

5a. Specialized setae bifid (Figure 12-14b). . .**Caulleriella**, p. 12-15
5b. Specialized setae not bifid 6

6a. Specialized setae unidentate (Figure 12-28d) . . . . . **Chaetozone**, p. 12-22
6b. Specialized setae distally excavate (Figure 12-32b). . . . . .**Dodecaceria**, p. 12-30

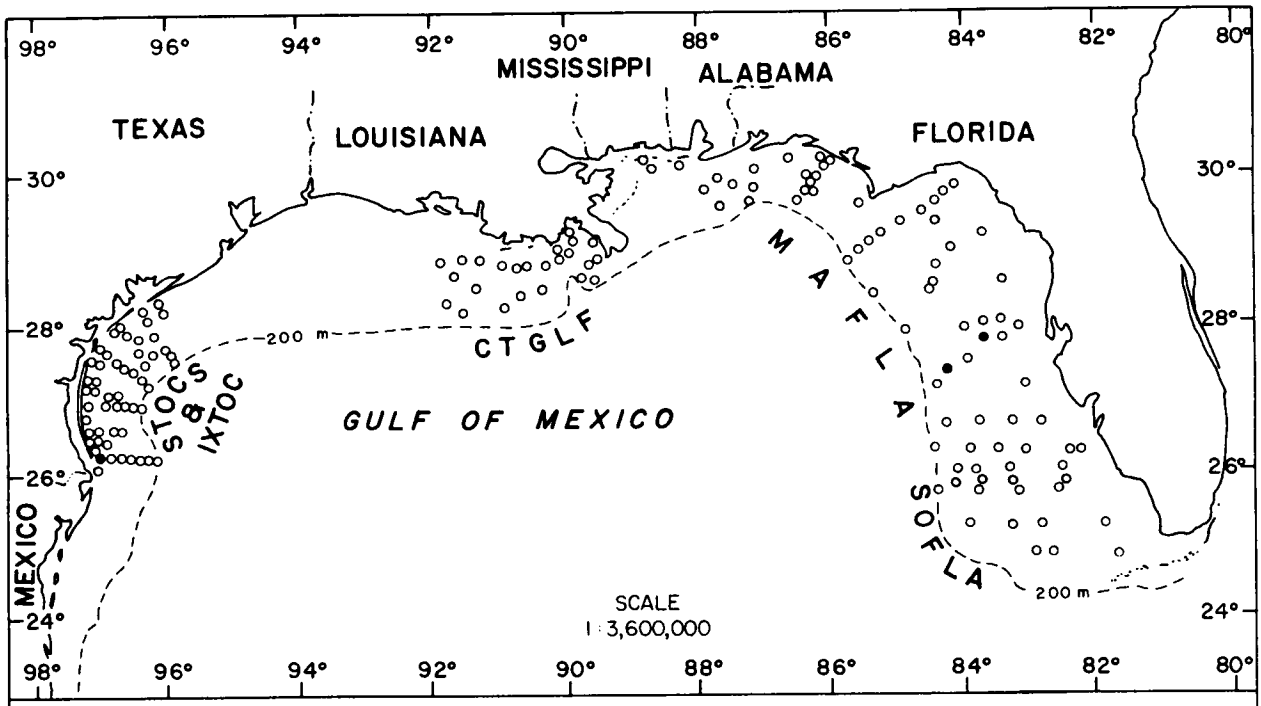

Figure 12-1. Distribution of Cirriformia sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

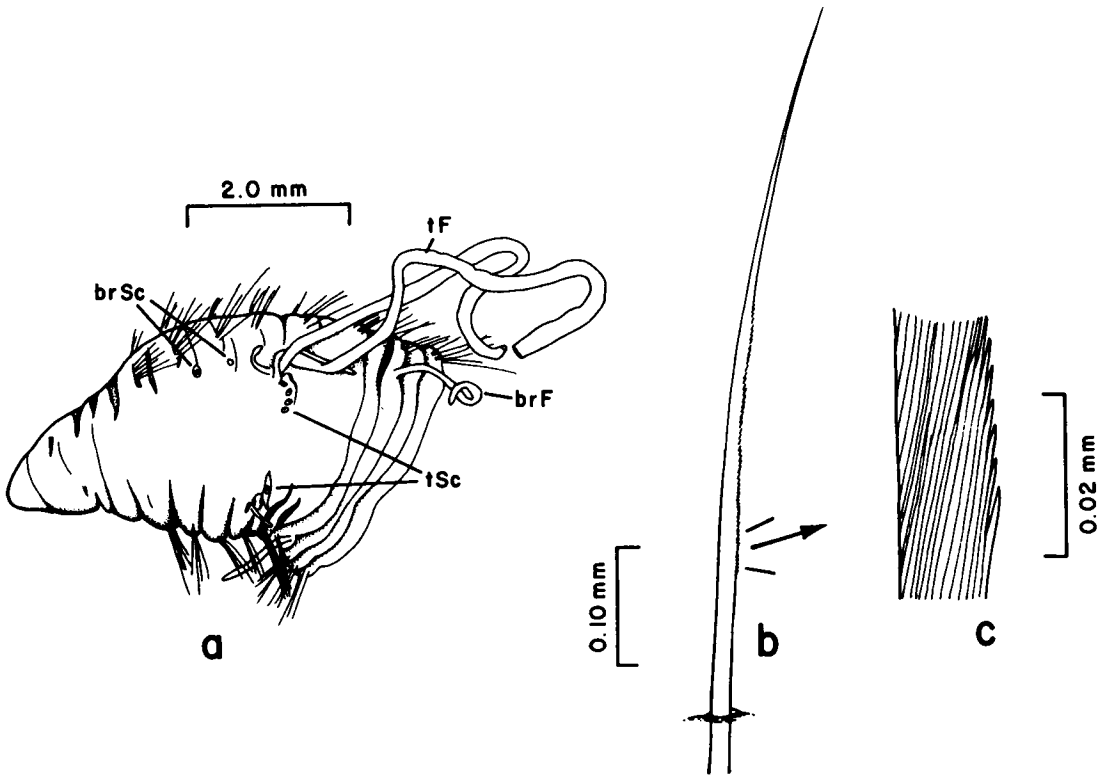

Figure 12-2. Cirriformia sp. A: a, anterior end, dorsal view; b, serrate notoseta from anterior region; c, portion of same.

Genus **Cirriformia** Hartman, 1936b

TYPE SPECIES: Terebella tentaculata Montagu, 1808.
REFERENCES:
Day, 1967:514.
Fauchald, 1977a:29.
DIAGNOSIS: Tentacular filaments arising in two dorsolateral groups from extension of peristomium (Day, 1967:514) above one of the anterior setigers. At least one pair of branchial filaments arising anterior to tentacular filaments. Parapodia with simple setae only, or additionally with unidentate spines.
REMARKS: The above diagnosis is slightly modified from Day (1967) to include those forms described herein, where the first pair of branchial filaments arises anterior to setiger 1, and those forms whose tentacular filaments arise above setiger 1.

Key to the Gulf of Mexico BLM-OCS Species of Cirriformia

1a. Tentacular filaments arising above setiger 1 (Figure 12-4a). . . 2
1b. Tentacular filaments arising above setiger 3 or 4 (Figure 12-2a) . . . . . **Cirriformia sp. A**, p. 12-5

2a. Unidentate spines present in both rami . . . . . **Cirriformia sp. B**, p. 12-8
2b. Unidentate spines present in neuropodia only . . . . . **Cirriformia sp. C**, p. 12-8

Cirriformia sp. A
Figures 12-1, 2a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2209E-7/76 (1 spec.), 2747E-2/78 (2 spec.); STOCS 4/IV-S/77 (1 spec., USNM 75188).
DESCRIPTION:
Length, 21.0+ mm; width, to 4.75 mm. Body large, widest anteriorly; largest specimen incomplete with 76 setigers. Prostomium bluntly conical, eyes absent. Tentacular filaments arising from posterior margin of setiger 3 or 4 (Figure 12-2a). Branchial filaments arising above notosetae from at least setiger 2. Simple setae broad and spinose anteriorly (Figure 12-2b,c), narrower and smooth posteriorly, present in both rami throughout. Spines not observed.
REMARKS: All specimens examined were incomplete so the absence of posterior spines cannot be confirmed. However, the location of the tentacular filaments on setiger 3 or 4 and the absence of spines through at least setiger 76, distinguish Cirriformia sp. A from the other species of the genus encountered in the Gulf of Mexico BLM-OCS collections.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 12-1); 15-74 m; sand, clayey sandy silt.

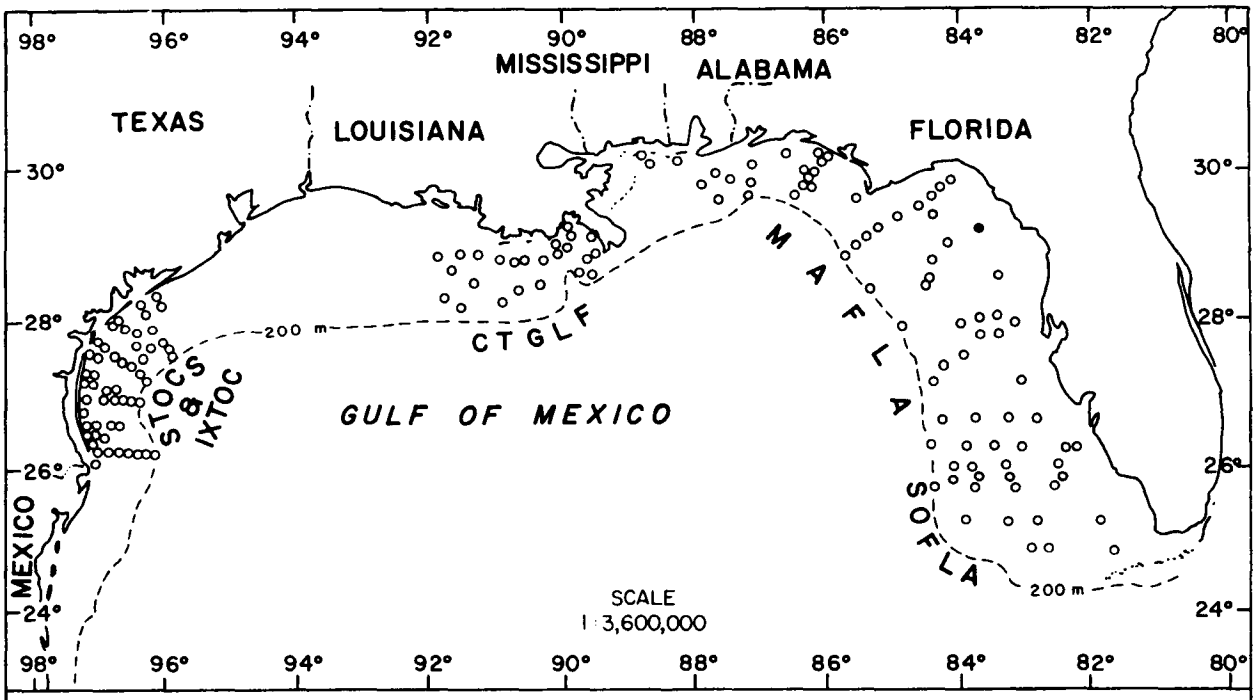

Figure 12-3. Distribution of Cirriformia sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

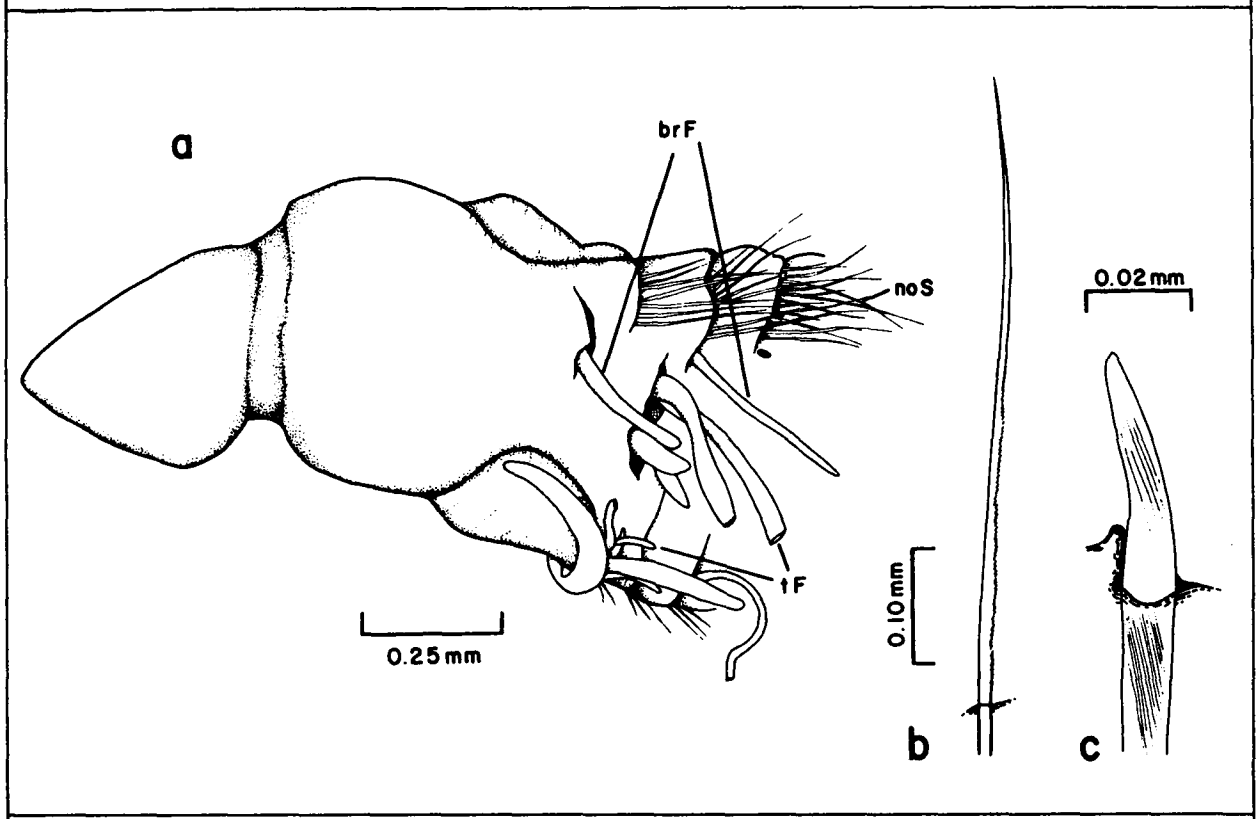

Figure 12-4. Cirriformia sp. B: a, anterior end, dorsal view; b, notoseta from anterior region; c, unidentate spine from posterior region.

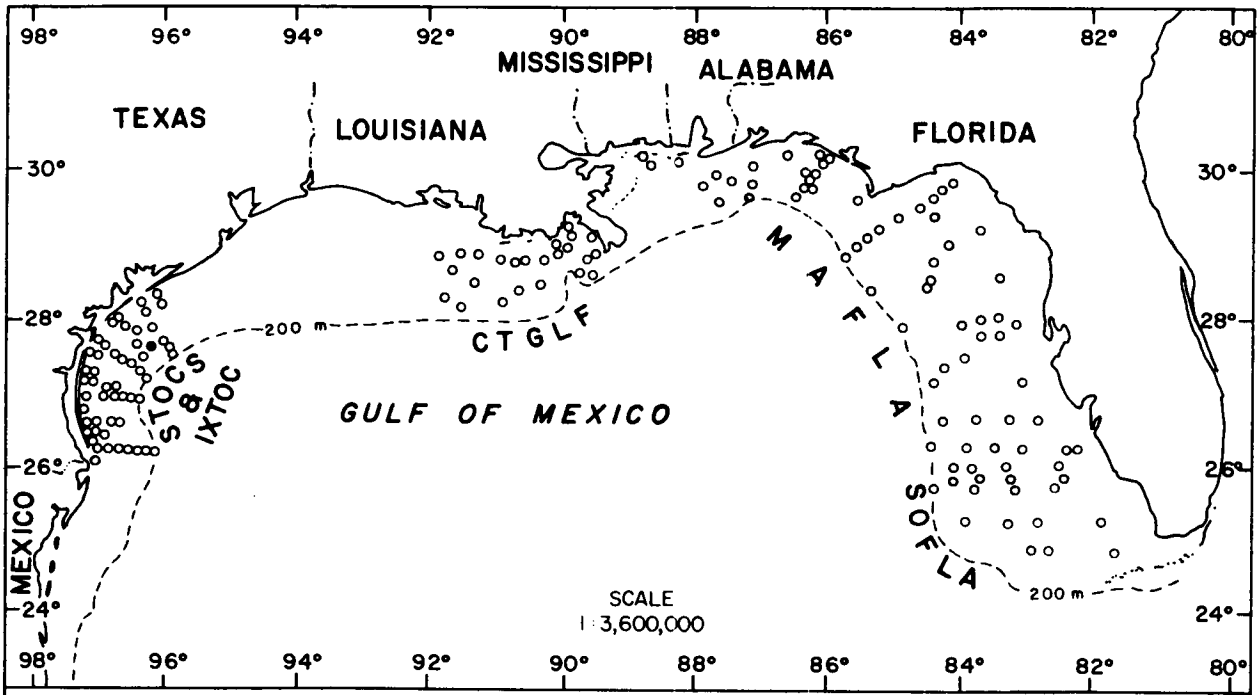

Figure 12-5. Distribution of Cirriformia sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

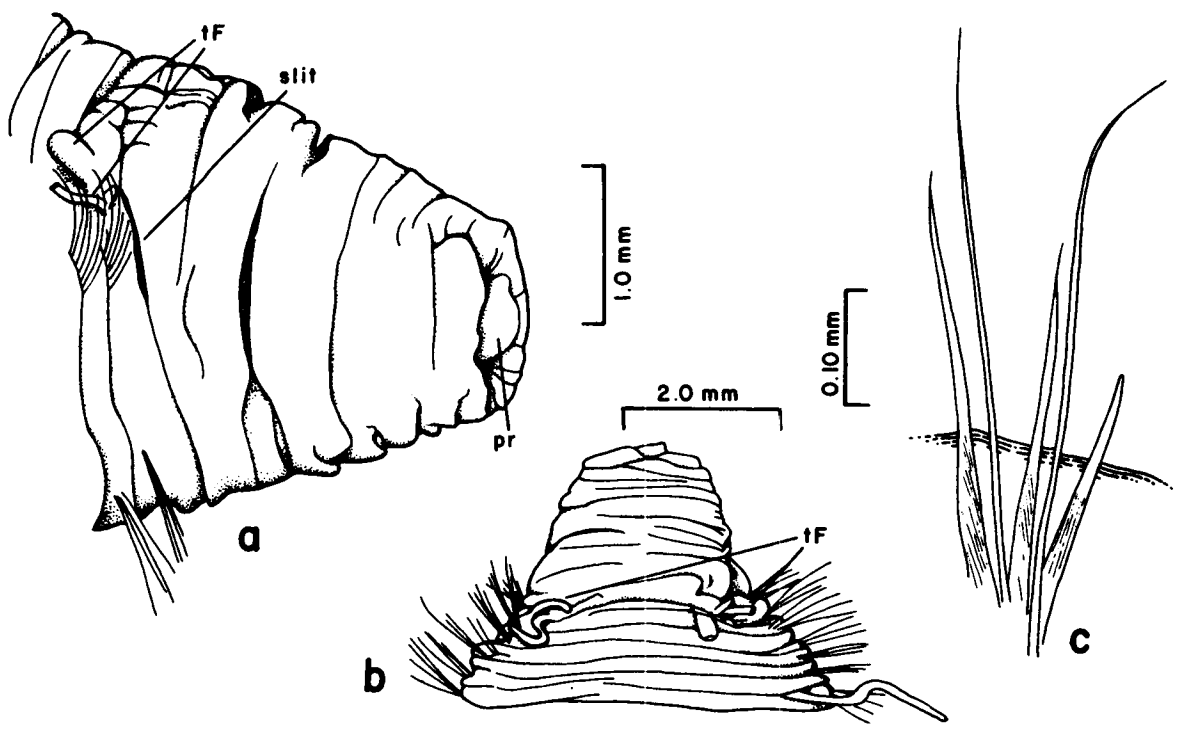

Figure 12-6. Cirriformia sp. C: a, anterior end, lateral view; b, anterior end, dorsal view; c, neurosetae, far posterior setiger.

Cirriformia sp. B
Figures 12-3, 4a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2318I-11/77 (1 spec.), 2318J-11/77 (1 spec., USNM 75144).
DESCRIPTION:
Length, to 14.0 mm; width, to 1.90 mm. Body large, widest anteriorly; complete with about 120 setigers. Prostomium conical, pointed, eyes absent. Tentacular filaments arising from posterior margin of setiger 1 (Figure 12-4a). First pair of branchial filaments arising anterior to setiger 1, continuing above notosetae to near end of worm. Simple setae serrate (Figure 12-4b) in both rami anteriorly, smooth and narrow posteriorly. Unidentate spines (Figure 12-4c) beginning in neuropodia of setiger 7 and notopodia of setigers 9-12. Pygidium damaged but appearing to have small ventral lobe.
REMARKS: Cirriformia sp. B is similar to C. punctata (Grube, 1858), C. capensis (Schmarda, 1861), and C. filigera (Delle Chiaje, 1825) in having acicular spines anteriorly. It differs from the others in having tentacular filaments arising from setiger 1 instead of setigers 4-5. Of the Cirriformia species with tentacular filaments arising above setiger 1, this species is most similar to C. grandis (Verrill, 1873) as redescribed by Day (1973:81). It differs from C. grandis in that distinct unidentate spines appear more anteriorly.
GULF OF MEXICO BLM-OCS OCCURRENCE: Single record off Florida (Figure 12-3); 20 m; medium sand.

Cirriformia sp. C
Figures 12-5, 6a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS HR4-S/76 (1 spec.).
DESCRIPTION:
Length, 106+ mm (anterior fragment); width, to 1.0 mm. Body large, widest anteriorly. Prostomium conical, retracted (Figure 12-6a). Tentacular filaments arising from setiger 1 (Figure 12-6a,b). First pair of branchial filaments absent, but scar present inside slit anterior to setiger 1 (Figure 12-6a). Anterior simple setae of both rami minutely serrate. Posterior simple setae of both rami including long, smooth setae alternating with wide, abruptly tapering setae (Figure 12-6c). Far posterior neuropodia with inferior spine (Figure 12-6c). Spines absent from notopodia. Pygidium with extended ventral lobe.
REMARKS: The Gulf of Mexico BLM-OCS specimen from off Texas appears superficially identical to Cirratulus hedgpethi Hartman, 1951a, also reported off Texas. Examination of the holotype of C. hedgpethi (AHF Poly 0572) reveals that it too belongs to the genus Cirriformia since it bears the scars of branchial filaments within slits anterior to setiger 1. The only difference between the two specimens appears to be the presence of the inferior spine on posterior setigers of Cirriformia sp. C. With additional specimens from the type locality of Cirratulus hedgpethi it may be possible to show that it is the same as Cirriformia sp. C, and that the presence of the inferior spine is variable.

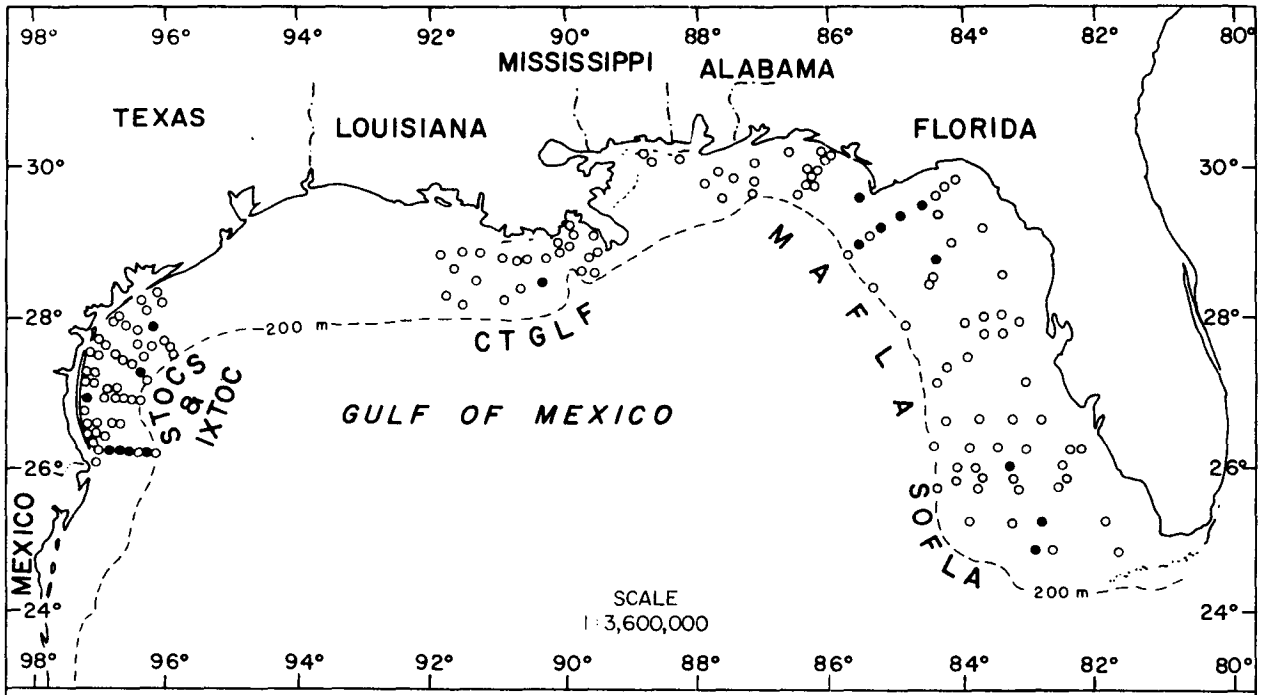

Figure 12-7. Distribution of Tharyx cf. annulosus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

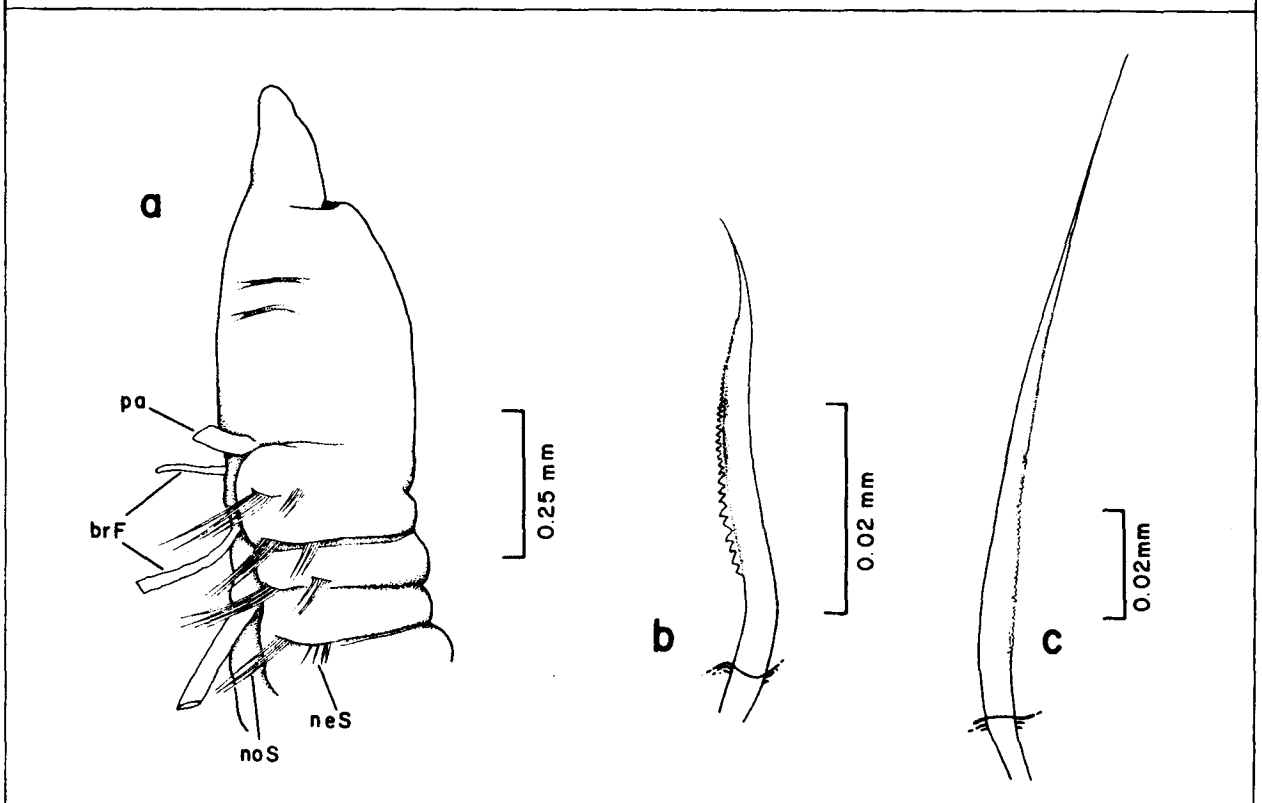

Figure 12-8. Tharyx cf. annulosus: a, anterior end, lateral view; b, neuroseta, posterior setiger; c, notoseta, posterior setiger.

GULF OF MEXICO BLM-OCS OCCURRENCE: Single record off Texas (Figure 12-5); 76 m; silty clay.

Genus **Tharyx** Webster and Benedict, 1887

TYPE SPECIES: Tharyx acutus Webster and Benedict, 1887.
REFERENCES:
Hartman, 1961:106.
Day, 1967:504.
Fauchald, 1977a:30.
DIAGNOSIS: Single pair of grooved palps present. Numerous branchial filaments present at least to middle of body. Simple setae only in both rami throughout.

Tharyx cf. **annulosus** Hartman, 1965
Figures 12-7, 8a-c

Tharyx annulosus Hartman, 1965:167, pl. 34, figs. a-d.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 28-12/80 (10 spec., including 1 female, USNM 90450), 22-12/80 (4 spec., including 1 male, USNM 90451), 28-12/80 (3 spec., USNM 90452); MAFLA 2316J-2/78 (5 spec., USNM 90440), 2422B-6/75 (5 spec., USNM 90441), 2423A-7/76 (1 spec.), 2423C-7/76 (2 spec.), 2423D-7/76 (1 spec.), 2423E-7/76 (1 spec.), 2423J-7/76 (1 spec.), 2424J-7/76 (1 spec.), 2426I-6/75 (4 spec.), 2854G-8/77 (1 spec.); CTGLF 03-5/78 (2 spec., USNM 90439); STOCS 2/II-S/76 (2 spec., USNM 90442), 6/II-12/76 (1 spec., USNM 90443), 4/III-S/76 (2 spec., USNM 90444), 1/IV-S/76 (9 spec., USNM 90445), 2/IV-S/76 (4 spec., USNM 90446), 3/IV-W/76 (1 spec., USNM 90453), 3/IV-S/76 (1 spec., USNM 90447), 5/IV-S/76 (3 spec., USNM 90448); IXTOC S52-4 11/79 (1 spec., USNM 90449).
DESCRIPTION:
Length, to 21.0 mm; width, to 0.5 mm. Body long, narrow, inflated posteriorly; complete specimens with up to 123 setigers. Prostomium (Figure 12-8a) bluntly conical; eyes absent. Palps arising near anterior margin of setiger 1. First pair of branchial filaments arising immediately behind palps (Figure 12-8a); thereafter, above notosetae of setiger 1, continuing to near end of body. Setae of both rami serrate anteriorly, becoming "saw-edged" posteriorly; neurosetae shorter (Figure 12-8b), with slighty larger teeth than notosetae (Figure 12-8c). Some specimens with extremely long, smooth natatory setae on anterior notopodia. Pygidium with small, triangular ventral lobe.
REMARKS: These specimens differ from the original description of T. annulosus in having the first pair of branchial filaments arising anterior to setiger 1 instead of above the notosetae of setiger 1, and in having "saw-edged" notosetae, which were not mentioned in the original account of T. annulosus. It may be that the differences noted above are simply variations. Within the Gulf of Mexico BLM-OCS material examined, many variations are found, including the presence or absence of a pair of branchial filaments anterior to setiger 1 (broken?); numerous to few (2-4) neurosetae posteriorly in single rows or up to about four rows per fascicle; and neurosetae with widely spaced to close-set teeth along the

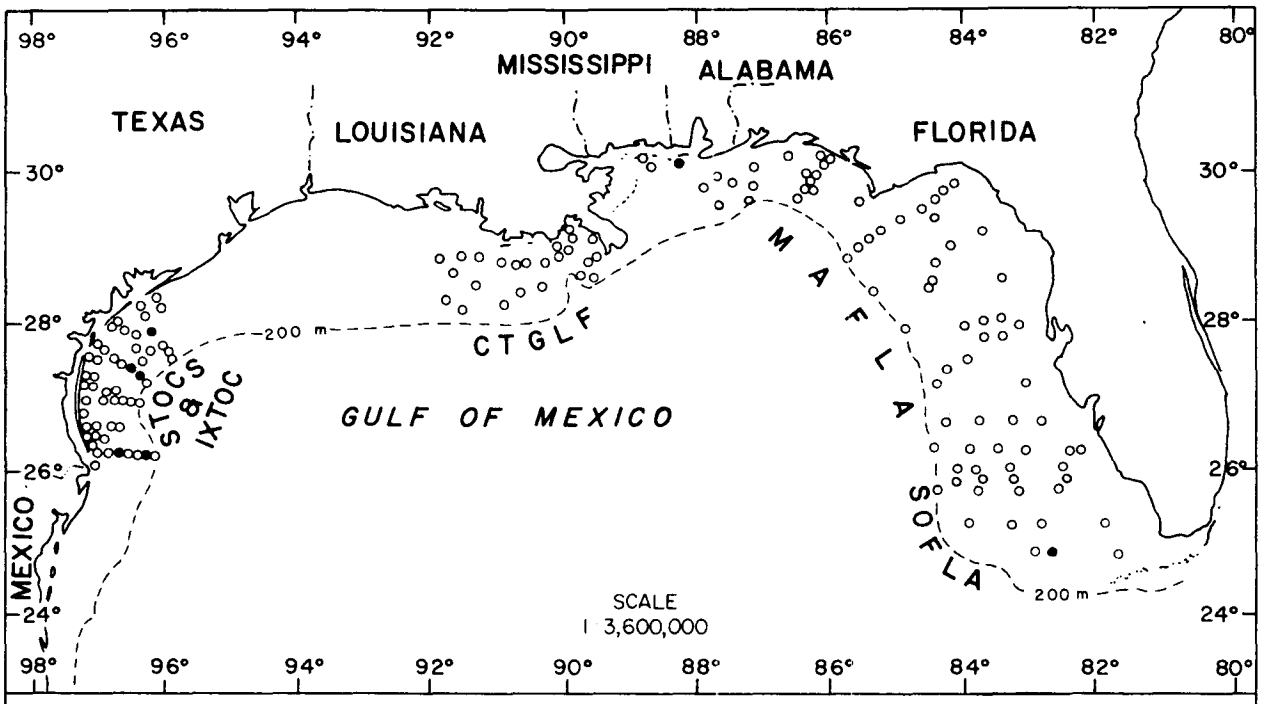

Figure 12-9. Distribution of Genus A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

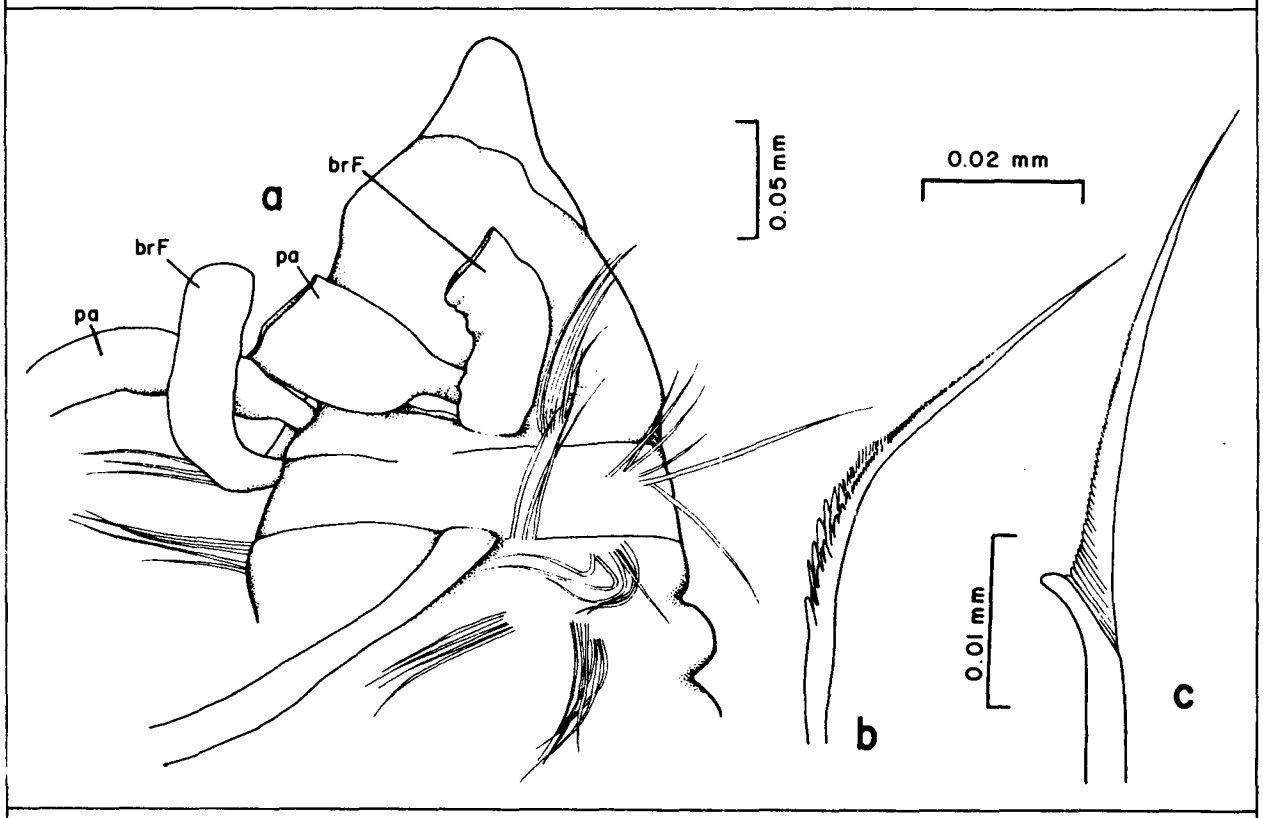

Figure 12-10. Genus A: a, anterior end, dorsal view; b, portion of notoseta, setiger 7; c, aristate neuroseta, posterior setiger.

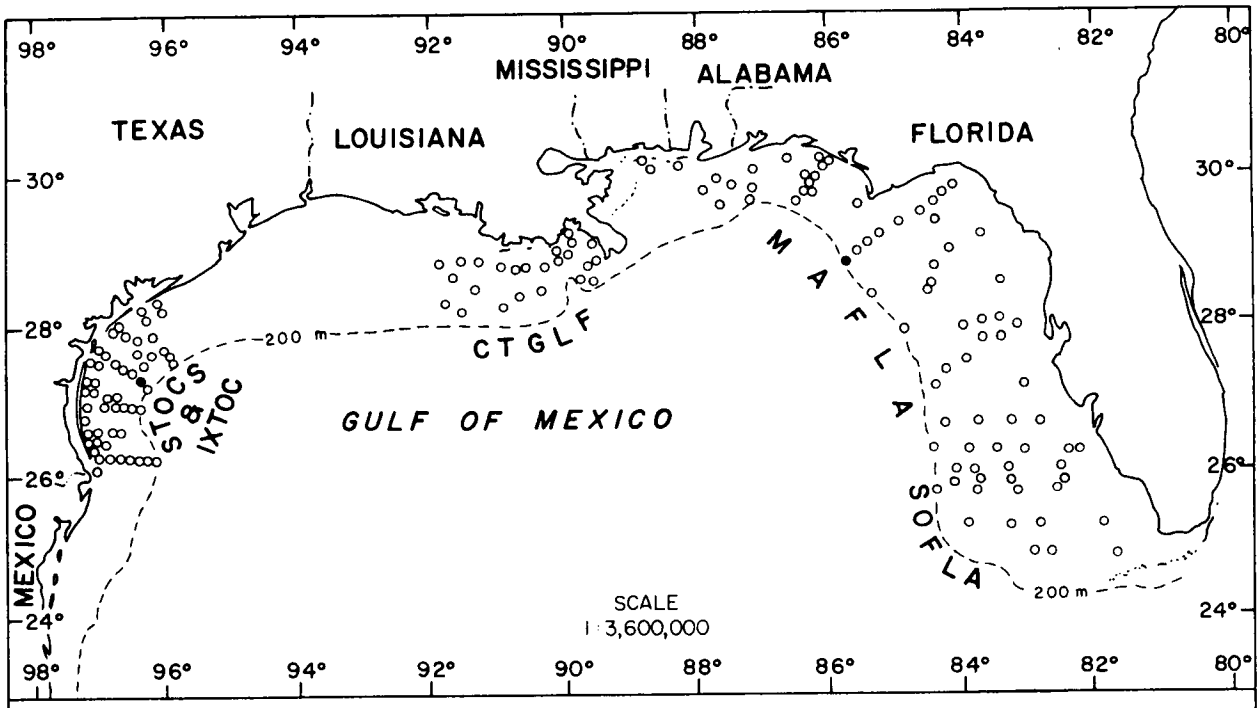

Figure 12-11. Distribution of Genus B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

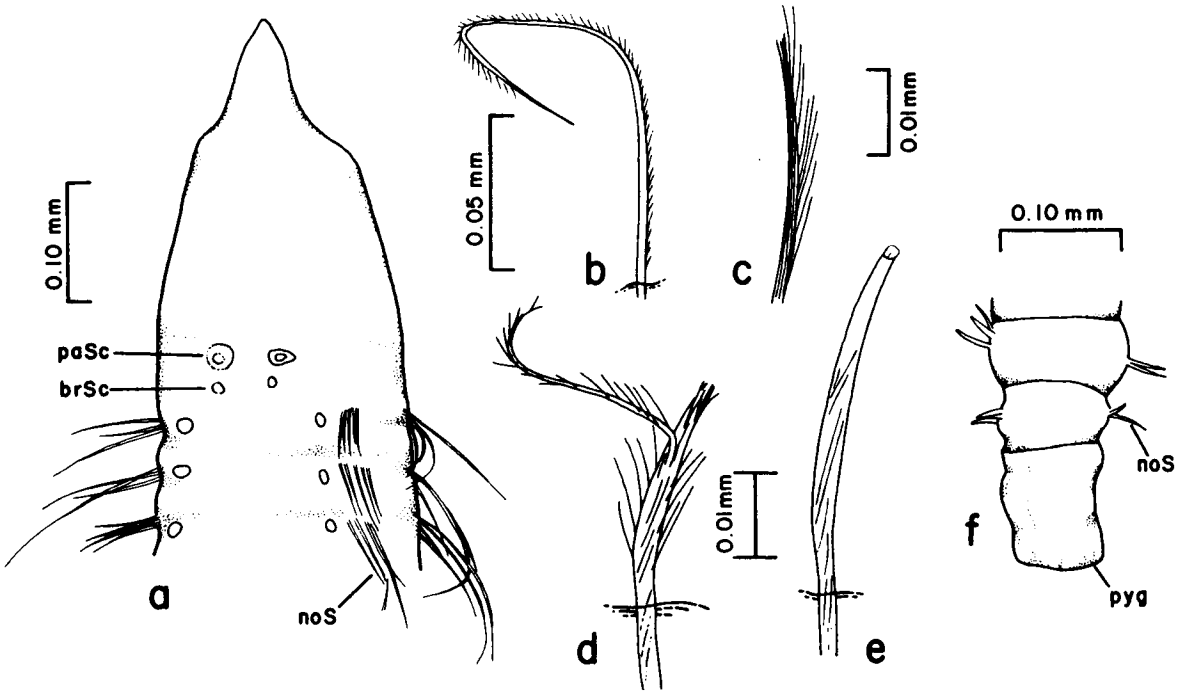

Figure 12-12. Genus B: a, anterior end, dorsal view; b, anterior notoseta; c, portion of same; d, portion of posterior notoseta; e, neuroseta, posterior setiger; f, posterior end, dorsal view.

margin. A species complex could be involved; however, this could not be established within the limits of the present study.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 12-7); 15-98 m; medium to fine sand, silty fine sand, silty and clayey sand, silty and sandy clay.

Genus A
Figures 12-9, 10a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 26D-4/81 (3 spec., USNM 90456); MAFLA 2639A-2/78 (1 spec.); STOCS 2/I-3 Sp/77 (1 gravid spec., USNM 75189), 5/II-5 Sp/77 (1 spec., USNM 75190), 6/II-F/76 (1 spec.), 3/IV-S/76 (1 spec., USNM 90454), 5/IV-F/76 (1 gravid spec., USNM 90455).
DESCRIPTION:
Length, to 7.0 mm; width, to 0.2 mm. Body small, slightly swollen anteriorly and posteriorly; complete specimens with up to 46 setigers. Prostomium bluntly conical, without eyespots (Figure 12-10a). Single pair of palps arising from anterior margin of setiger 1. First pair of branchiae arising above notosetae of setiger 1 (Figure 12-10a). Noto- and neurosetae smooth basally but with at least two longitudinal rows of serrations medially (Figure 12-10b), minutely serrate distally. Specialized setae aristate (Figure 12-10c) from setigers 6-8 in neuropodia and setiger 12 in notopodia. Pygidium with small triangular ventral lobe, anus terminal.
REMARKS: The specialized setae appear to be unique among the Cirratulidae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida, Alabama, and Texas (Figure 12-9); 32-98 m; sand, silt and clay combinations.

Genus B
Figures 12-11, 12a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2427H-7/76 (1 male, USNM 75145); STOCS 6/II-S/77 (1 spec.).
DESCRIPTION:
Length, to 7.0 mm; width, to 0.4 mm. Body small, slender, slightly swollen anteriorly; complete specimens with up to 33 setigers. Prostomium acutely pointed, without eyespots. Single pair of palps arising well forward of setiger 1 (Figure 12-12a). First pair of branchial filaments arising between palps and notopodia of setiger 1; branchial filaments present thereafter above notosetae of setiger 1 and continuing to middle of body. Anterior simple setae of both rami long, thin, with distinct serrations along one edge (Figure 12-12b,c). Posterior simple setae shorter, broad, splintered so as to appear pubescent (Figure 12-12d). Modified setae with a faint hood or "bulb" distally (Figure 12-12e), present from neuropodia of setiger 12 and notopodia of setiger 16. Pygidium truncate posteriorly (Figure 12-12f); anus ventral(?).
REMARKS: This specimen could not be assigned to any known genus of Cirratulidae because of the unusual shape of the modified setae.

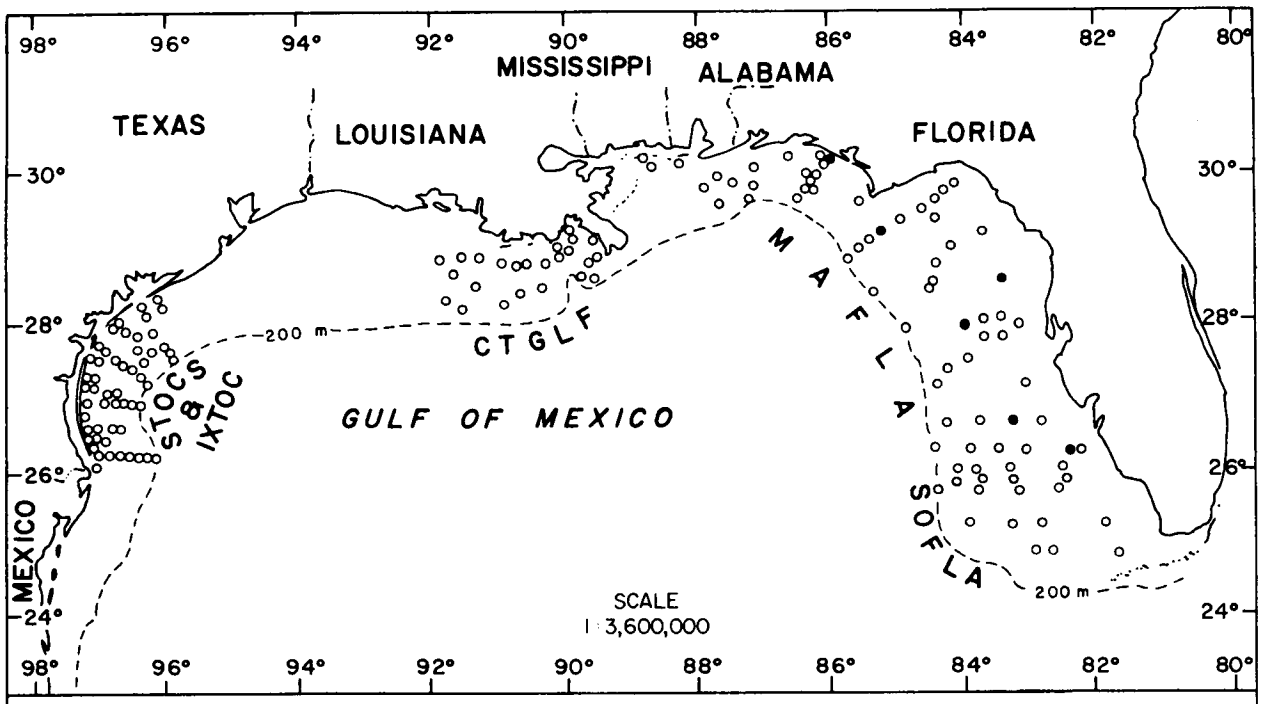

Figure 12-13. Distribution of Caulleriella cf. alata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

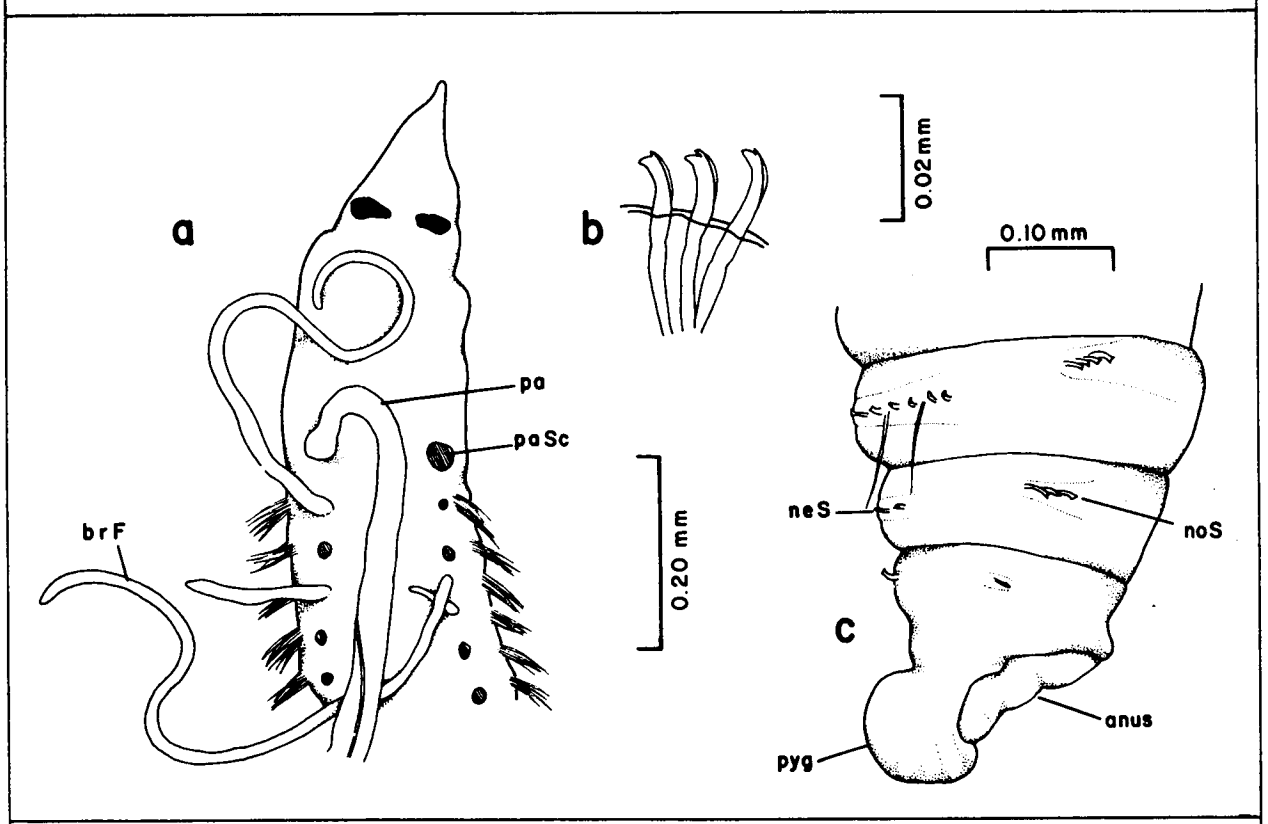

Figure 12-14. Caulleriella cf. alata: a, anterior end, dorsal view; b, neurosetae, posterior setiger; c, posterior end, lateral view.

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 12-11); 74-100 m; medium-fine sand, silty clay.

Genus **Caulleriella** Chamberlin, 1919b

TYPE SPECIES: Cirratulus bioculatus Keferstein, 1862.
REFERENCES:
Hartman, 1961:106.
Day, 1967:506 [in part].
Fauchald, 1977a:29.
DIAGNOSIS: Single pair of grooved palps arising anterior to setiger 1. Branchial filaments first present from or anterior to setiger 1, immediately behind palps. Hooks bi- to multidentate, present in neuropodia only or in both noto- and neuropodia.
REMARKS: The generic diagnosis follows Hartman (1961:107).

Key to the Gulf of Mexico BLM-OCS Species of Caulleriella

1a. Hooks with limbations and/or hoods (Figure 12-16b). 2
1b. Hooks without limbations or hoods (Figure 12-18d) 3

2a. Hooks without hoods (Figure 12-14b). . . . . **Caulleriella** cf. **alata**, p. 12-15
2b. Hooks with hoods (Figure 12-16b). . . **Caulleriella sp. A**, p. 12-18

3a. Posterior notopodia with spines only . . . . . **Caulleriella sp. B**, p. 12-18
3b. Posterior notopodia without spines. 4

4a. First pair of branchial filaments arising anterior to setiger 1 (Figure 12-20a). . . . . .**Caulleriella sp. C**, p. 12-20
4b. First pair of branchial filaments arising from setiger 1 (Figure 12-22a). . . . . **Caulleriella** cf. **zetlandica**, p. 12-20

Caulleriella cf. **alata** (Southern, 1914)
Figures 12-13, 14a-c

Chaetozone alata Southern, 1914:112, pl. 12, fig. 27A-D.
Heterocirrus alatus--Fauvel, 1927:99, fig. 34a-c.
Caulleriella alata--Hartmann-Schröder, 1971:355.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4A-8/81 (1 spec., USNM 90457), 4C-8/81 (1 spec., USNM 90458); MAFLA 2102C-9/75 (12 spec.), 2211E-7/76 (2 spec., USNM 75140), 2424A-11/77 (1 spec.), 2529F-5/75 (1 spec.), 2852C-8/77 (1 spec.).
DESCRIPTION:
Length, to 10 mm (previously reported to 12 mm); width, to 0.30 mm. Body small, slender, slightly swollen anteriorly; complete specimens with up to 75 setigers. Prostomium long, sharply pointed, with pair of small to large subdermal eyespots (Figure 12-14a). Palps arising well forward of setiger 1. Branchial filaments arising above notosetae from

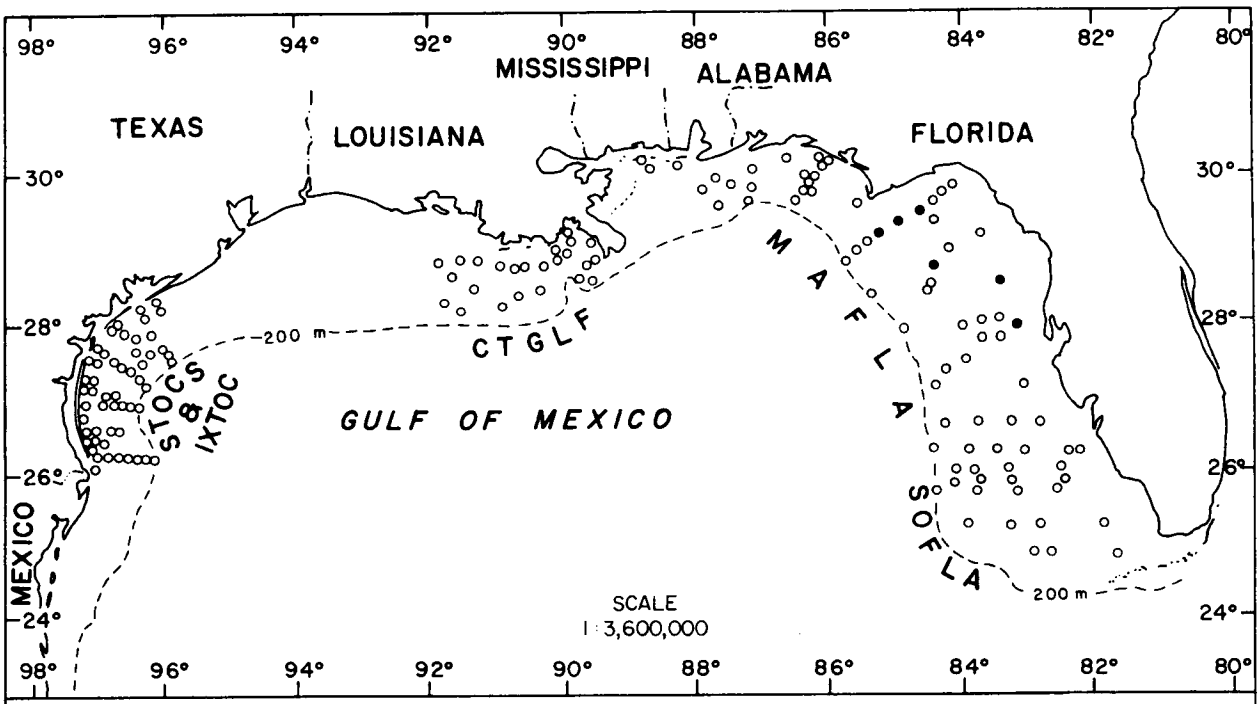

Figure 12-15. Distribution of Caulleriella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

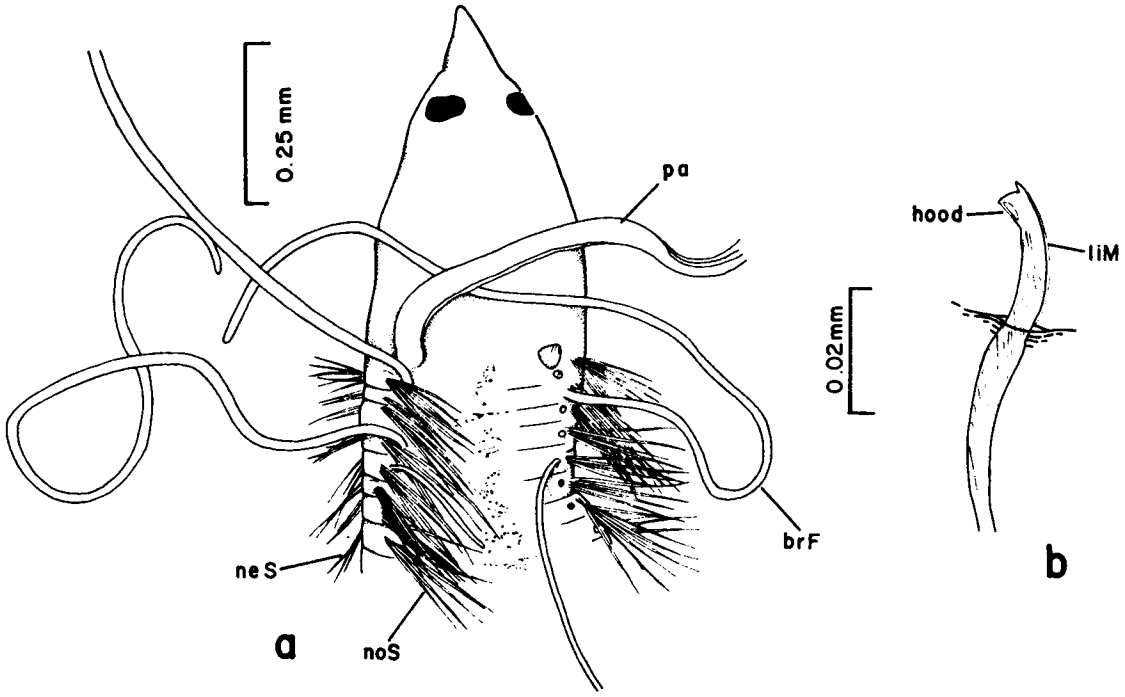

Figure 12-16. Caulleriella sp. A: a, anterior end, dorsal view; b, neuroseta, posterior setiger.

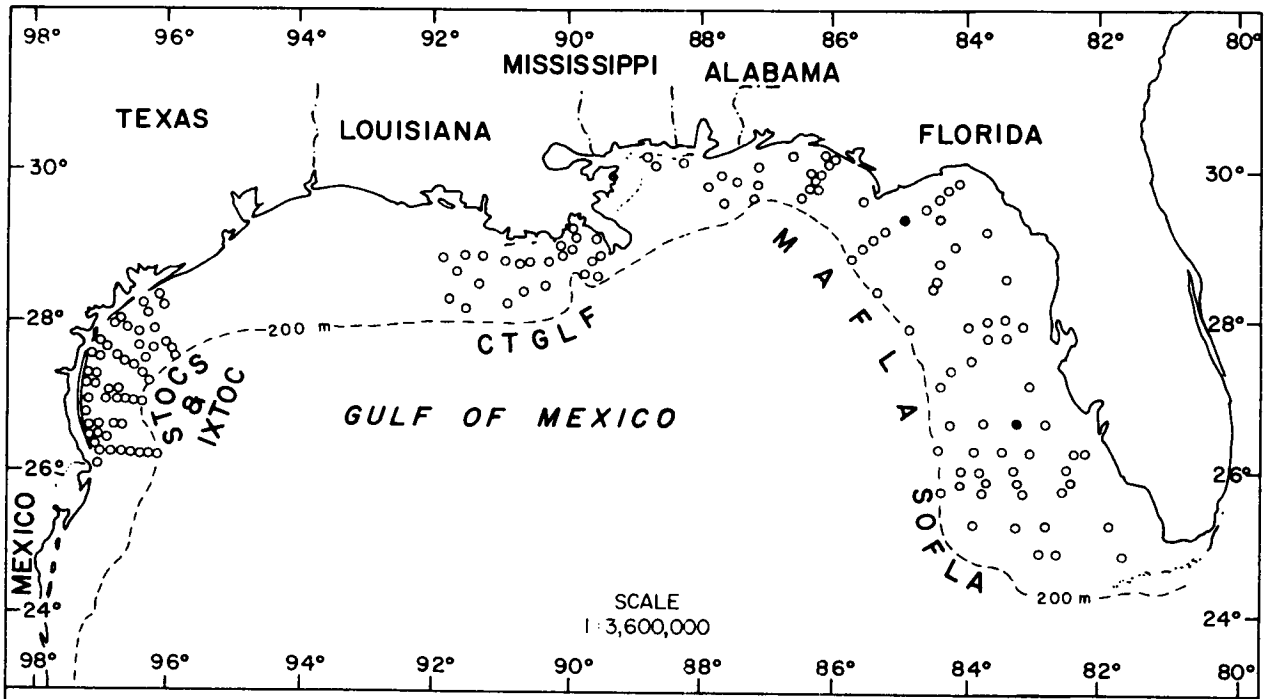

Figure 12-17. Distribution of Caulleriella sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

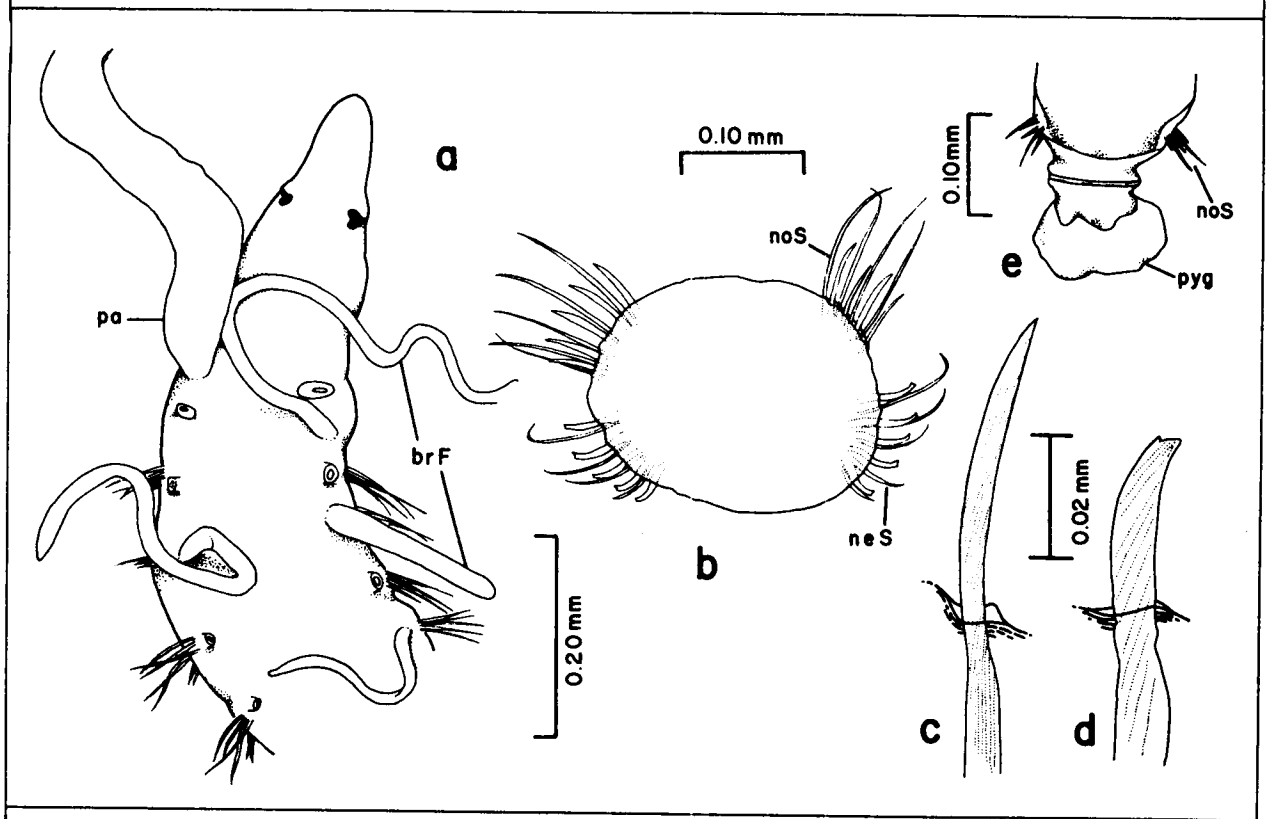

Figure 12-18. Caulleriella sp. B: a, anterior end, dorsal view; b, cross-section, posterior setiger; c, notopodial spine, posterior setiger; d, neuropodial hook, posterior setiger; e, posterior end, dorsal view.

setiger 1, continuing to near end of body. Notopodia with minutely serrate simple setae anteriorly, gradually replaced by notopodial hooks beginning on setigers 14-34. Neuropodia with 1-3 slender, smooth capillary setae throughout. Neuropodial hooks (Figure 12-14b) beginning on setiger 1. All hooks distinctly bifid with limbations on convex side. Pygidium with large rounded ventral lobe (Figure 12-14c).
REMARKS: These specimens differ from C. alata in having notopodial hooks beginning on a wide range of setigers instead of setigers 20-21, and in having palps arising more posteriorly.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 12-13); 18-43 m; coarse to fine sand.

Caulleriella sp. A
Figures 12-15, 16a,b

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207K-8/77 (1 spec.), 2316H-11/77 (1 spec.), 2422C-7/76 (2 spec.), 2422I-7/76 (2 spec.), 2423C-7/76 (1 spec., USNM 75142), 2424A-11/77 (1 spec., USNM 75143), 2852C-9/77 (1 spec.).
DESCRIPTION:
Length, 4.5+ mm; width, to 0.4 mm. Body small, slender, slightly swollen anteriorly, sometimes with several middorsal and midventral black pigment spots; all specimens incomplete with up to 48 setigers. Prostomium acutely pointed with pair of large subdermal eyespots (Figure 12-16a). Palps arising at anterior margin of setiger 1. Branchial filaments arising above notosetae from setiger 1, continuing to near end of worm. Notopodia with minutely serrate capillary setae, and distinctly bifid hooks beginning on setigers 42-68. Long natatory setae present on middle and posterior setigers. Neuropodia with numerous minutely serrate simple setae anteriorly, gradually replaced by neuropodial hooks beginning on setigers 7-14. Hooks of both rami distinctly bidentate, each with a limbus along the convex side and a thin hood on the concave side (Figure 12-16b). Pygidium missing from all specimens examined.
REMARKS: Caulleriella sp. A differs from other species of the genus in having a thin hood on the concave side of all hooks.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 12-15); 19-35 m; medium to fine-very fine sand, silty fine sand.

Caulleriella sp. B
Figures 12-17, 18a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4A-8/81 (2 spec., 1 gravid, USNM 90459), 4B-8/81 (2 spec., USNM 90460), 4C-8/81 (2 spec., USNM 90461); MAFLA 2423D-7/76 (1 spec.).
DESCRIPTION:
Length, to 7.0 mm; width, to 0.4 mm. Body small, swollen anteriorly; complete specimens with up to 50 setigers. Prostomium conical with a pair of small to large subdermal eyespots (Figure 12-18a). Palps arising well forward of setiger 1. First pair of branchial filaments arising between palps and notopodia of setiger 1 (Figure 12-18a); there-

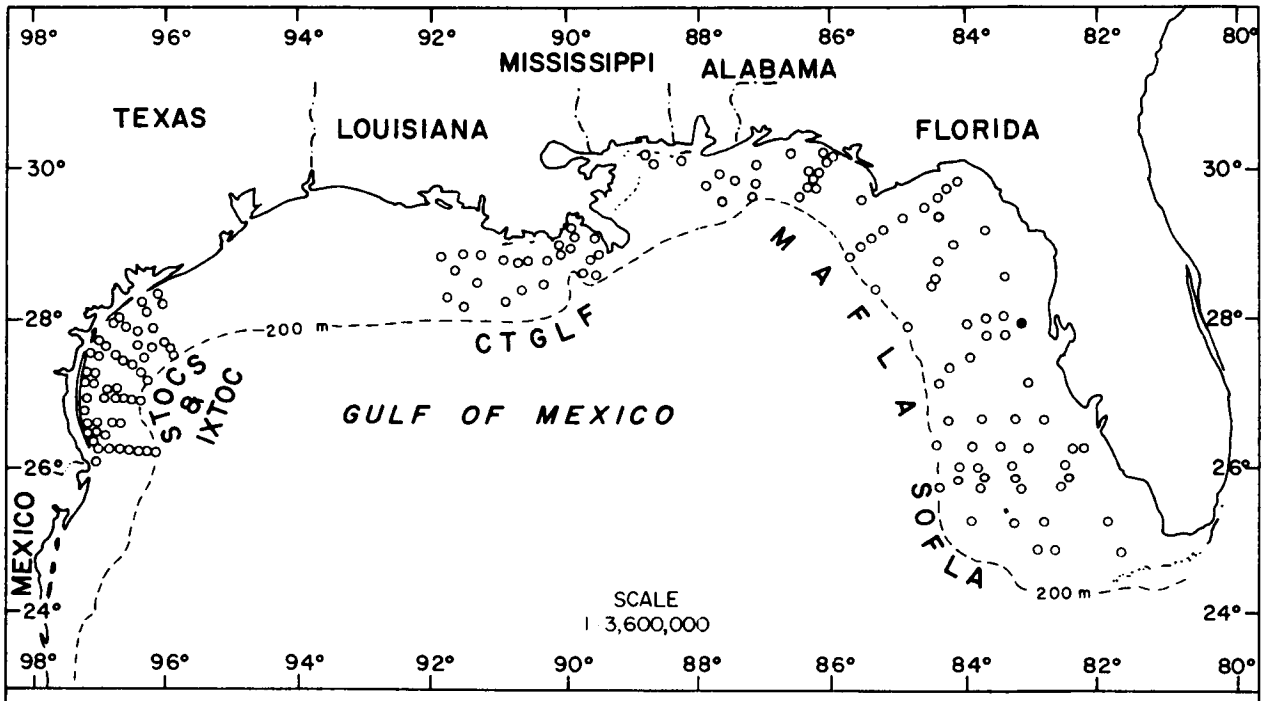

Figure 12-19. Distribution of Caulleriella sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

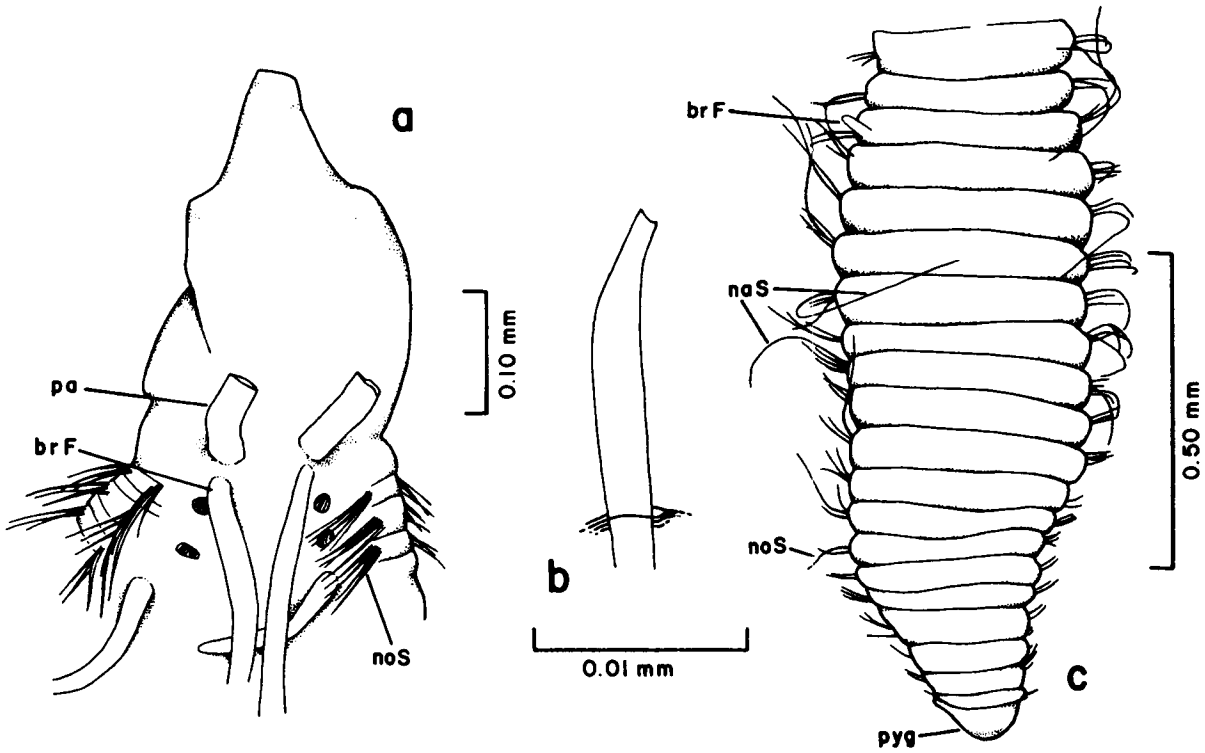

Figure 12-20. Caulleriella sp. C: a, anterior end, dorsal view; b, neuropodial hook, posterior setiger; c, posterior end, dorsal view.

after, branchial filaments arising above notosetae of setiger 1 and continuing to near end of body. Simple setae of both rami smooth throughout (Figure 12-18b). Unidentate notopodial spines (Figure 12-18c) beginning on setigers 33-34. Bifid neuropodial hooks (Figure 12-18d) beginning on setigers 7-9. Both unidentate spines and bifid hooks present on posterior neuropodia of some specimens. Pygidium indistinctly lobed dorsally, flared ventrally (Figure 12-18e).
REMARKS: Voucher material from Gulf of Mexico BLM-OCS collections included a female with eggs in the midbody region, enlarged eyes, and long, hollow natatory setae on the notopodia of middle setigers. Caulleriella sp. B is unique among the species of the genus in having unidentate spines in the notopodia.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 12-17); 19-56 m; medium sand, silty fine sand.

Caulleriella sp. C
Figures 12-19, 20a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207H-7/76 (1 spec.).
DESCRIPTION:
Length, 8.0 mm; width, 0.4 mm. Body small, swollen anteriorly and posteriorly; complete with about 95 setigers. Prostomium conical, truncate anteriorly (Figure 12-20a); eyes absent. Palps arising well forward of setiger 1. First pair of branchial filaments arising between palps and notopodia of setiger 1; thereafter branchial filaments arising above notosetae from setiger 1 to near end of body. Simple setae of both rami minutely serrate throughout, fewer in number posteriorly. Hooks absent from notopodia, present in neuropodia beginning nine setigers anterior to pygidium, arranged inferiorly one per fascicle. All hooks minutely bifid distally, without hoods or limbations (Figure 12-20b). Pygidium without pronounced lobes (Figure 12-20c).
REMARKS: The specimen of Caulleriella sp. C from Gulf of Mexico BLM-OCS voucher material has what appears to be natatory setae in the notopodia of middle and posterior setigers. These natatory setae are extremely long (Figure 12-20c) and minutely spinose. The form of the hooks is unique among the species of Caulleriella.
GULF OF MEXICO BLM-OCS OCCURRENCE: Single record off Florida (Figure 12-19); 19 m; fine sand.

Caulleriella cf. zetlandica (McIntosh, 1911)
Figures 12-21, 22a-e

Chaetozone zetlandica McIntosh, 1911:161.
Heterocirrus zetlandica Fauvel, 1927:99, fig. 34i-n.
Caulleriella zetlandica--Day, 1967:509.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2209D-7/76 (1 spec.), 2209F-8/77 (1 spec., USNM 75141).

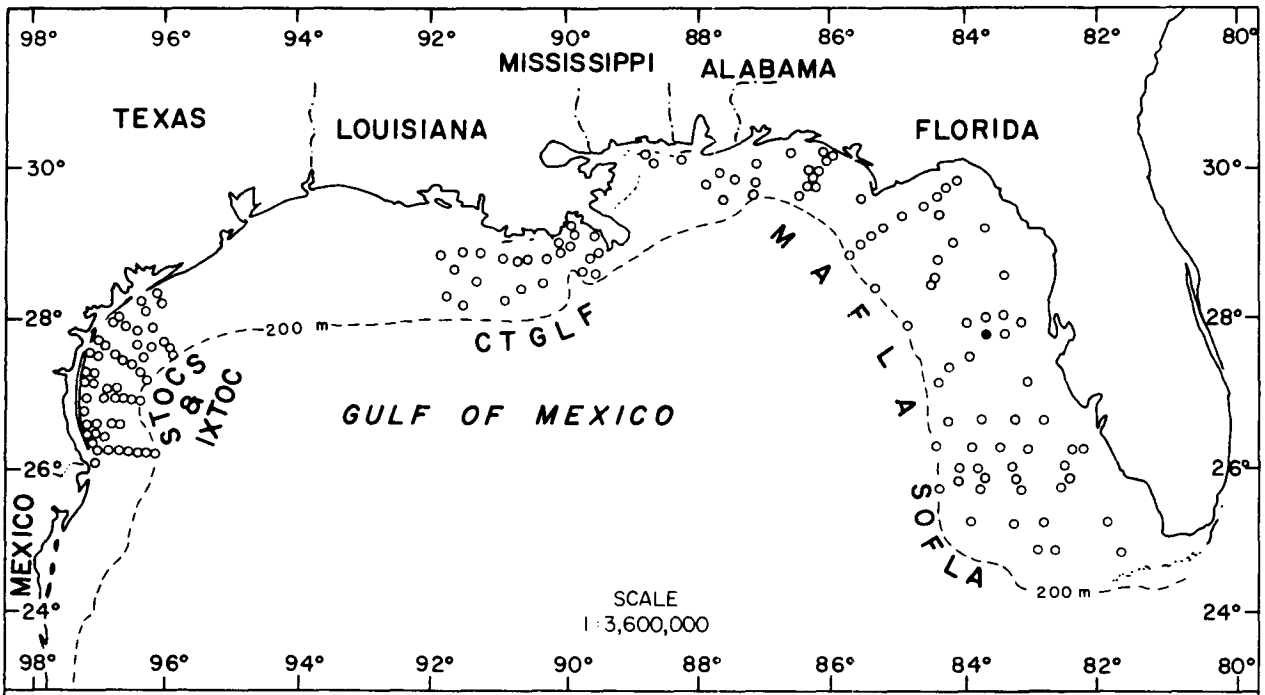

Figure 12-21. Distribution of Caulleriella cf. zetlandica on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

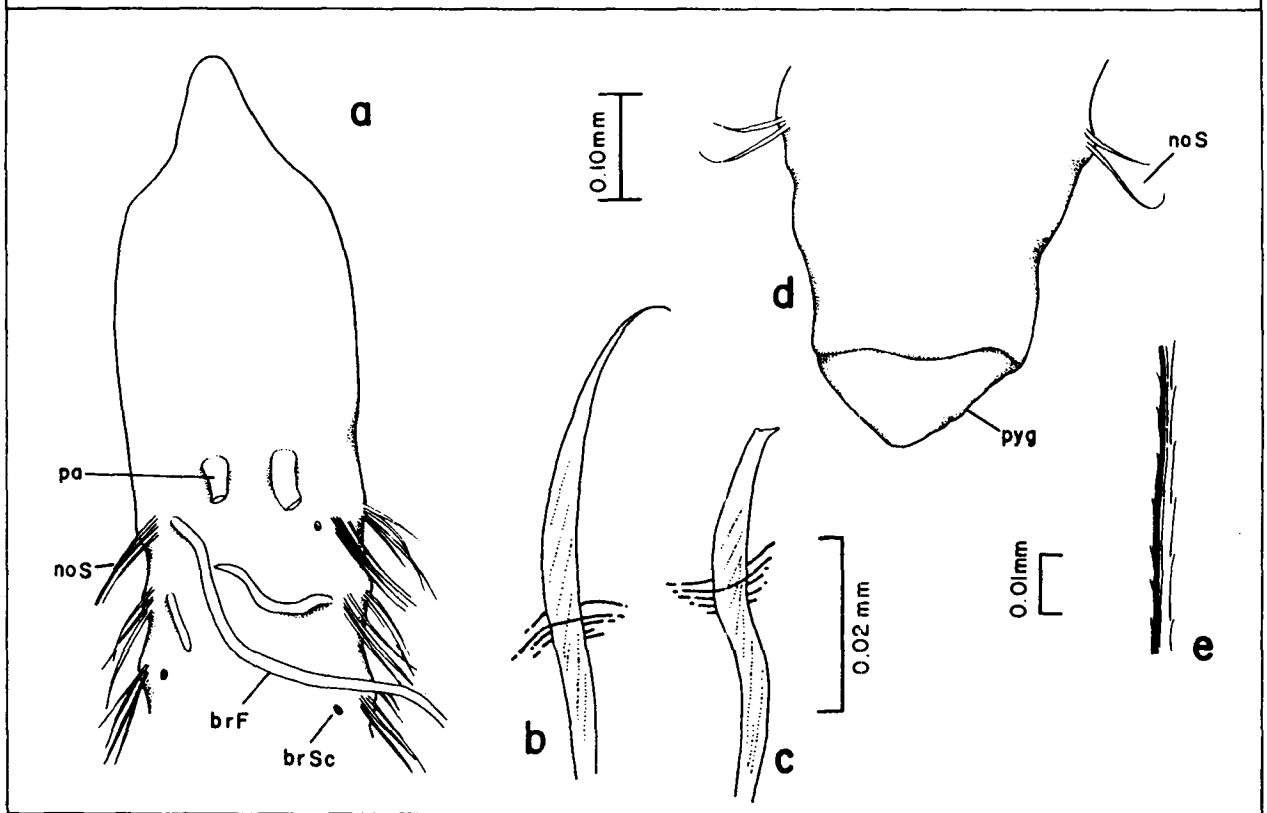

Figure 12-22. Caulleriella cf. zetlandica: a, anterior end, dorsal view; b, neuroseta, posterior setiger; c, bidentate neuropodial hook; d, posterior end, ventral view; e, portion of spinose natatory seta.

DESCRIPTION:
Length, to 8.0 mm (previously reported to 44 mm); width, to 0.2 mm. Body small, slightly swollen anteriorly; complete with up to 38 setigers. Prostomium conical, without eyespots. Palps arising well forward of setiger 1 (Figure 12-22a). Branchial filaments inserted above notosetae from setiger 1, continuing to near end of body. Notopodia with smooth simple setae. Notopodial hooks absent. Neuropodial simple setae numerous anteriorly, becoming somewhat sabre-shaped and fewer in number posteriorly (Figure 12-22b). Neuropodial hooks (Figure 12-22c) minutely bidentate, without limbations, beginning on setigers 4-17, numbering one hook per fascicle. Pygidium with small, conical, ventral lobe (Figure 12-22d).
REMARKS: These specimens differ from C. zetlandica in having only one hook per fascicle instead of 2-4, and in having the neuropodial hooks beginning on setigers 4-17 instead of 15-25. Gulf of Mexico BLM-OCS specimens have what appear to be natatory setae on the notopodia of middle setigers. These setae are extremely long and minutely spinose (Figure 12-22e). No gametes were observed in either of the specimens examined.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 12-21); 34 m; clayey silt.

Genus **Chaetozone** Malmgren, 1867

TYPE SPECIES: Chaetozone setosa Malmgren, 1867b.
REFERENCES:
Hartman, 1961:109.
Day, 1967:509 [in part].
Fauchald, 1977a:29.
DIAGNOSIS: Single pair of grooved palps present anteriorly. Branchial filaments arising immediately behind palps or on setiger 1. Unidentate spines present on some noto- and neuropodia.
REMARKS: The generic diagnosis follows Hartman (1961:107).

Key to the Gulf of Mexico BLM-OCS Species of Chaetozone

1a. Posterior setal fascicles long, nearly surrounding the body (Figure 12-28e). 2
1b. Posterior setal fascicles short, not surrounding the body (Figure 12-24c). . . . . .**Chaetozone sp. A**, p. 12-25

2a. Neuropodial spines beginning on setiger 1. . . . . **Chaetozone sp. D**, p. 12-25
2b. Neuropodial spines beginning posterior to setiger 1 3

3a. Neuropodial spines beginning on setigers 12-97; natatory setae absent. . . . . **Chaetozone sp. B**, p. 12-28
3b. Neuropodial spines beginning on setigers 4-28; natatory setae present anteriorly (Figure 12-30a). . . **Chaetozone sp. C**, p. 12-28

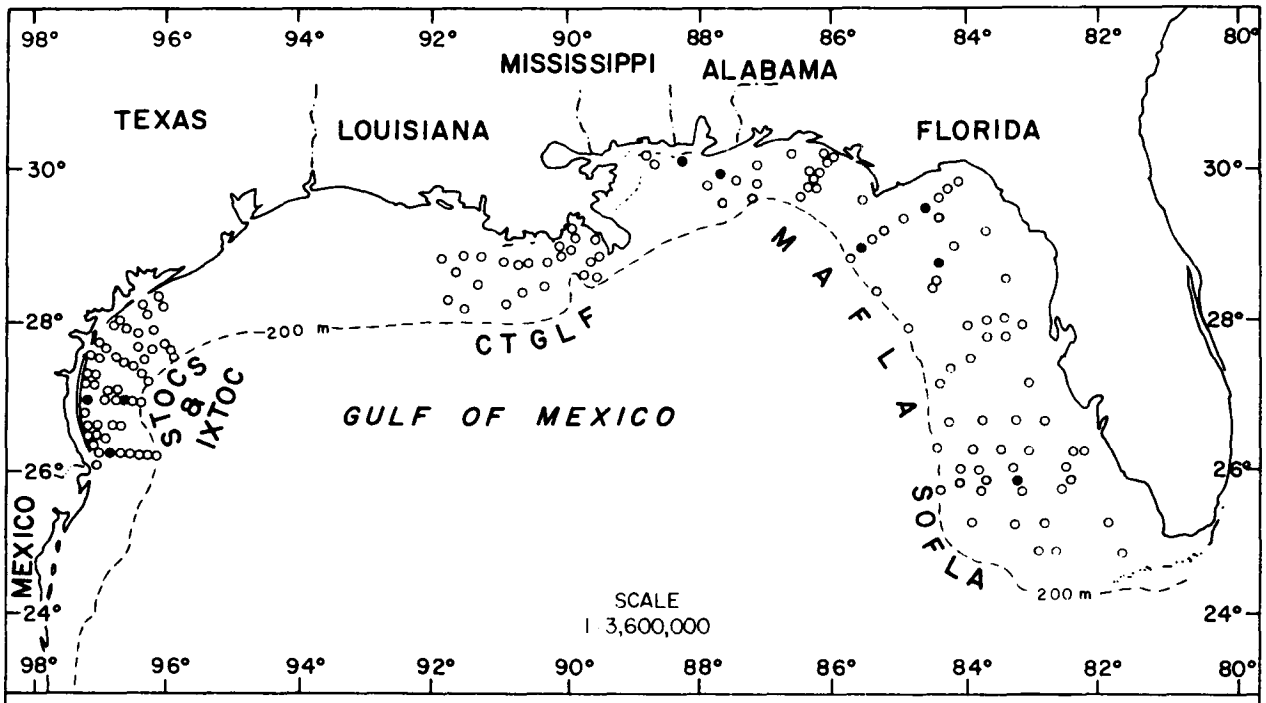

Figure 12-23. Distribution of Chaetozone sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

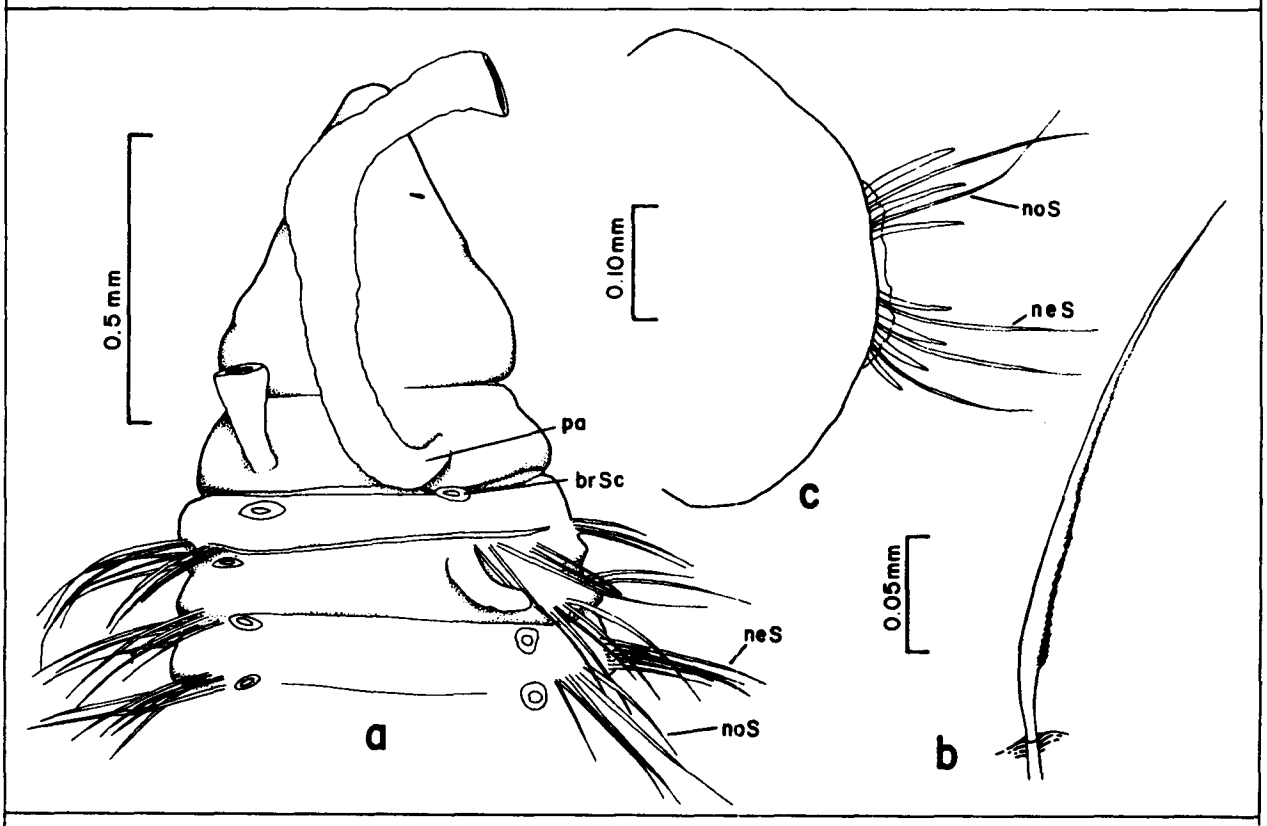

Figure 12-24. Chaetozone sp. A: a, anterior end, dorsal view; b, notoseta, anterior setiger; c, partial cross-section, posterior setiger.

Chaetozone sp. A
Figures 12-23, 24a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16C-4/81 (1 spec., USNM 90462); MAFLA 2316I-7/76 (1 spec.), 2316I-2/78 (1 spec.), 2316J-2/78 (1 spec.), 2422J-7/76 (1 spec.), 2426D-6/75 (1 spec.), 2639G-9/75 (3 spec., USNM 90463), 2641B-6/75 (1 spec.); STOCS 2/III-S/77 (1 spec., USNM 90464), 4/III-F/77 (4 spec., USNM 90465), 1/IV-3 S/77 (4 spec., USNM 75185), 1/IV-F/77 (1 gravid spec.).
DESCRIPTION:
Length, 44.0+ mm; width, to 1.75 mm. Body long, slightly swollen anteriorly; all specimens incomplete with up to 81 setigers. Prostomium bluntly conical; eyes variable in size or absent. Palps arising well forward of setiger 1 (Figure 12-24a). First pair of branchial filaments arising between palps and notopodia of setiger 1; thereafter branchial filaments arising above notosetae of setiger 1 and continuing to near end of worm. Anterior simple setae of both rami distinctly serrate (Figure 12-24b). Posterior simple setae similar but narrower. Unidentate spines beginning on setigers 27-61 in notopodia, 18-62 in neuropodia. Posterior parapodia short, not forming complete cinctures around the body (Figure 12-24c). Pygidium with small triangular ventral lobe.
REMARKS: Chaetozone sp. A may actually represent a complex of several species because of the wide range of setigers on which the unidentate spines begin.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida, Alabama and Texas (Figure 12-23); 15-82 m; medium to fine sand, silty fine sand, clayey sand, sandy silt, silty clay.

Chaetozone sp. D
Figures 12-25, 26a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22-11/80 (1 spec., USNM 90466), 26C-11/80 (2 spec., USNM 90467); MAFLA 2316E-7/76 (1 spec.), 2318H-11/77 (1 spec.), 2640G-9/75 (1 spec., USNM 90468), 2641F-7/76 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 90470), 03-1/79 (1 spec., USNM 90469); STOCS 6/I-F/77 (1 spec., USNM 90471), 6/III-W/77 (1 spec., USNM 90472), 1/IV-W/77 (1 spec., USNM 90473), 1/IV-F/77 (6 spec., USNM 90474); IXTOC S52-11/79 (1 spec., USNM 90475).
DESCRIPTION:
Length, to 10.0 mm; width, to 1.75 mm. Body short, swollen anteriorly, tapered posteriorly; largest specimen complete with over 50 setigers. Prostomium bluntly conical (Figure 12-26a); eyes variable in size or absent. Palps arising near anterior margin of setiger 1. Branchial filaments arising above notosetae from setiger 1, continuing to near end of body. Anterior notopodia with long, spinose natatory setae (Figure 12-26b), and wide, serrate setae (Figure 12-26c). Anterior neurosetae slender, smooth, alternating with wide, serrate setae. Posterior simple setae slender, smooth in both rami. Unidentate spines beginning on setiger 1 in neuropodia, setigers 7-25 in notopodia. Posterior setal fascicles elongate, nearly surrounding the body (Figure 12-26d). Pygidium with rounded ventral lobe.

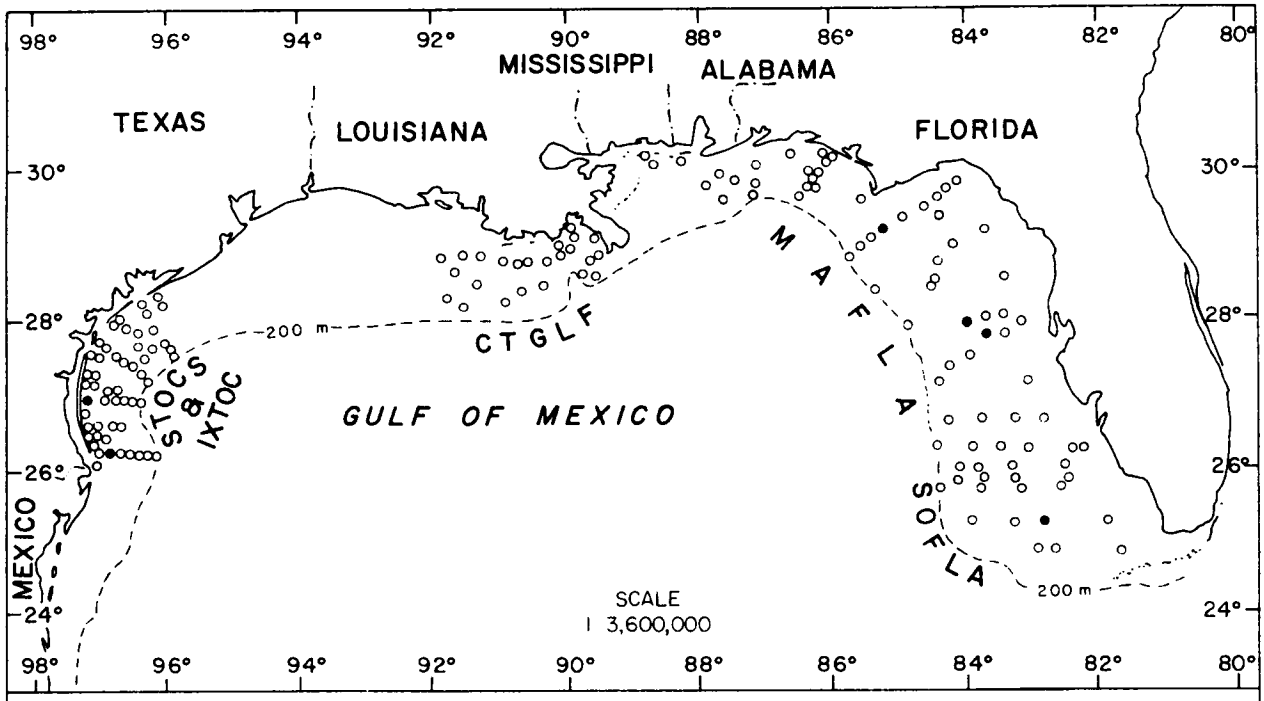

Figure 12-27. Distribution of Chaetozone sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

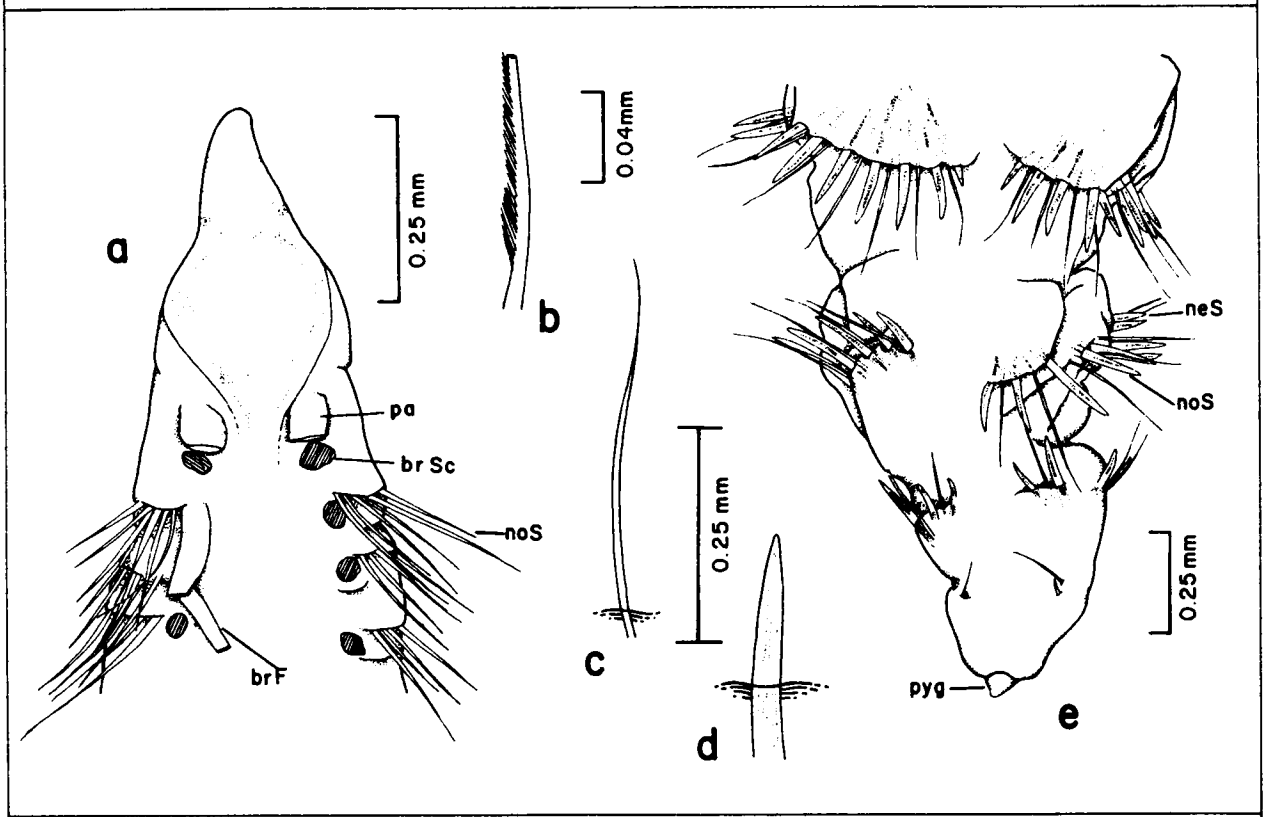

Figure 12-28. Chaetozone sp. B: a, anterior end, dorsal view; b, basal portion of anterior notoseta; c, posterior notoseta; d, neuropodial spine; e, posterior end, dorsal view.

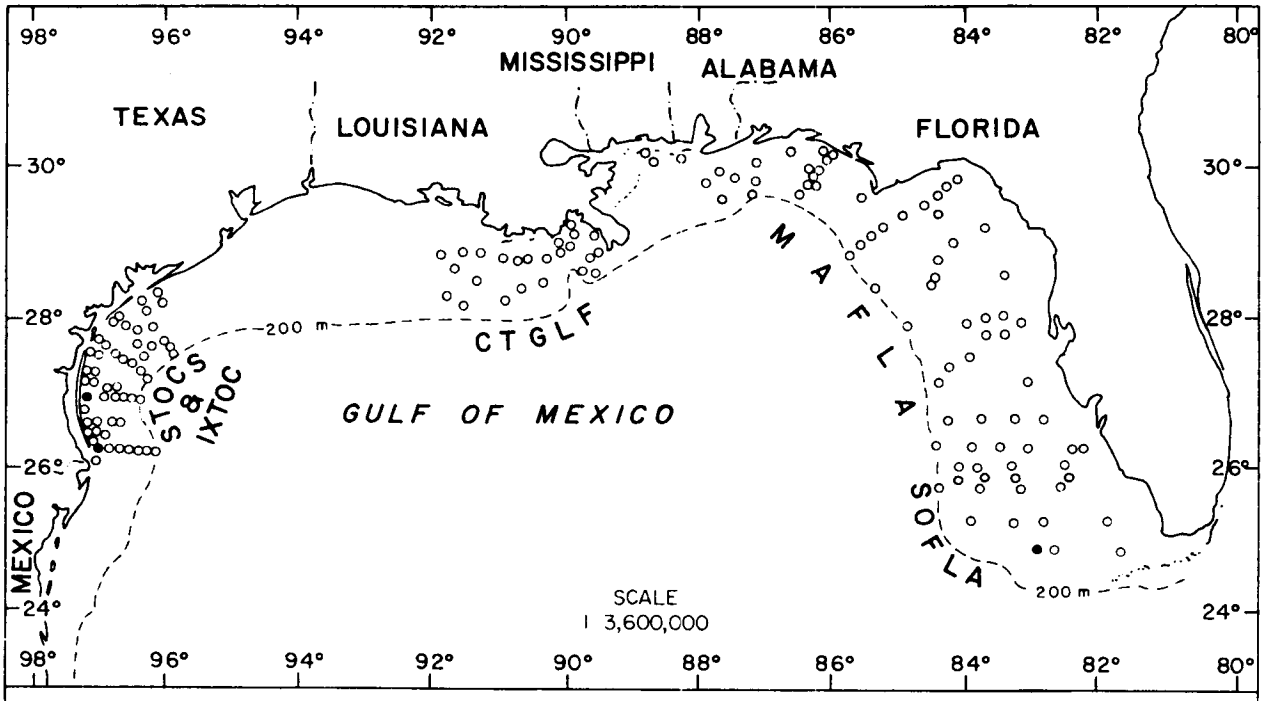

Figure 12-29. Distribution of Chaetozone sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

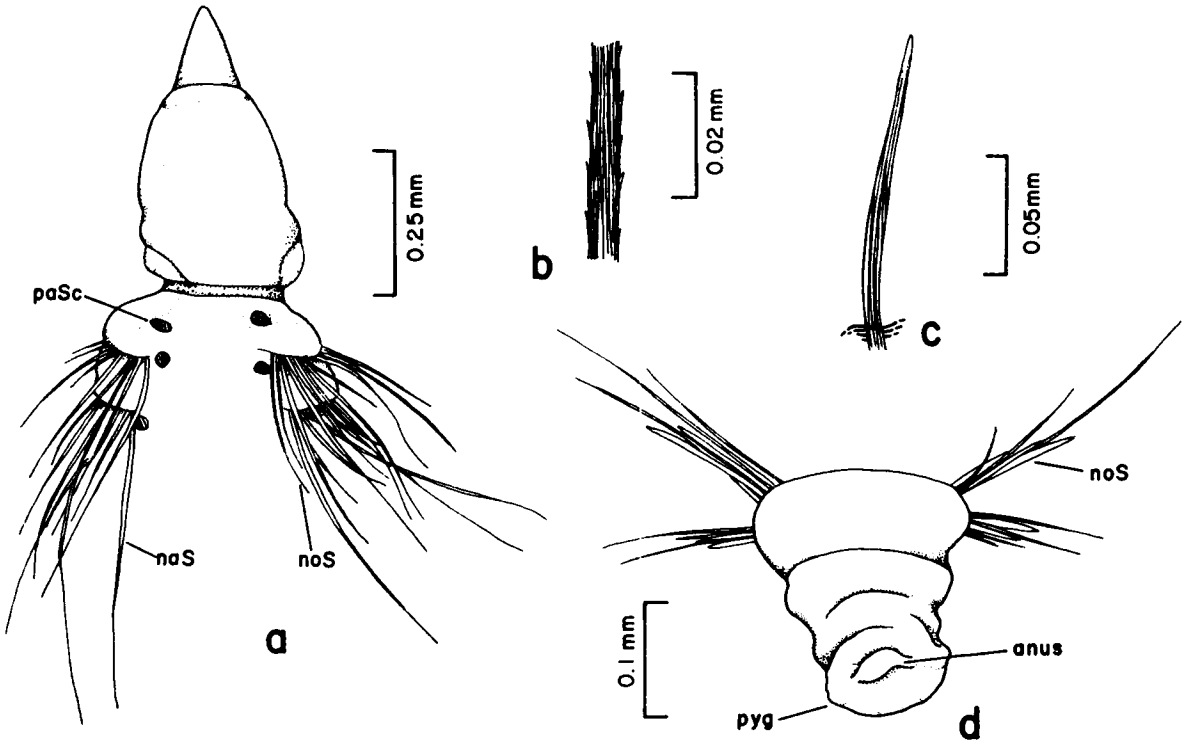

Figure 12-30. Chaetozone sp. C: a, anterior end, dorsal view; b, portion of spinose natatory seta, anterior setiger; c, unidentate spine from posterior notopodium; d, posterior end, dorsal view.

REMARKS: Chaetozone sp. D is similar to C. gayheadia Hartman, 1965; however, the holotype of C. gayheadia is an individual with a regenerating anterior end. Thus, the spines may not begin on setiger 1 and C. gayheadia is indeterminable (M. Petersen, pers. comm.).
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered throughout study area (Figure 12-25); 20-125 m; medium to fine sand, silty fine sand, silty and clayey sand, silty clay.

Chaetozone sp. B
Figures 12-27, 28a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22-11/80 (2 spec., USNM 90476); MAFLA 2209G-8/77 (1 spec., USNM 90477), 2209H-8/77 (1 spec.), 2211H-9/75 (1 spec.), 2424B-7/76 (1 spec.), 2424C-7/76 (1 spec.); STOCS 4/III-W/77 (1 spec., USNM 90478), 4/III-4 F/77 (1 spec., USNM 75186), 1/IV-S/77 (1 spec., USNM 90479).
DESCRIPTION:
Length, to 60 mm; width, to 2.0 mm. Body long, slightly swollen anteriorly; largest specimen complete with over 150 setigers. Prostomium long, sharply conical; eyes variable in size or absent. Palps arising well forward of setiger 1 (Figure 12-28a). First pair of branchiae arising between palps and setiger 1; thereafter branchial filaments located above notosetae from setiger 1 to at least middle of body. Anterior notosetae serrate along margin (Figure 12-28b); posterior simple setae of both rami narrow and smooth (Figure 12-28c). Unidentate spines (Figure 12-28d) beginning on setigers 12-97 in neuropodia, 17-104 in notopodia. Posterior setal fascicles elongate, nearly surrounding the body (Figure 12-28e). Pygidium with small, conical, ventral lobe.
REMARKS: Chaetozone sp. B is similar to C. setosa, Malmgren 1867b, for which no detailed description exisits. Consequently, Chaetozone sp. B could not definitely be identified as the latter.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 12-27); 15-53 m; coarse to fine sand, clayey sand, clayey sandy silt.

Chaetozone sp. C
Figures 12-29, 30a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 28-11/80 (2 spec., USNM 90480); STOCS 4/III-F/77 (1 spec.-gravid), 4/IV-F/77 (1 spec., USNM 75187).
DESCRIPTION:
Length, to 9.0 mm; width, to 1.0 mm. Body short, slightly swollen anteriorly; complete specimens with up to 64 setigers. Prostomium evenly tapered, pointed (Figure 12-30a), with or without small eyes. Palps arising near anterior margin of setiger 1. Branchial filaments arising above notosetae from setiger 1 to near end of body. Anterior notopodia with long, spinose natatory setae (Figure 12-30b) and wider, serrate capillary setae. Posterior notopodia with long, smooth natatory setae and wider, smooth capillary setae. Neuropodial simple setae serrate anteriorly, becoming smooth and narrow posteriorly. Unidentate spines (Figure 12-30c) beginning on setigers 4-28 in neuropodia, 16-43

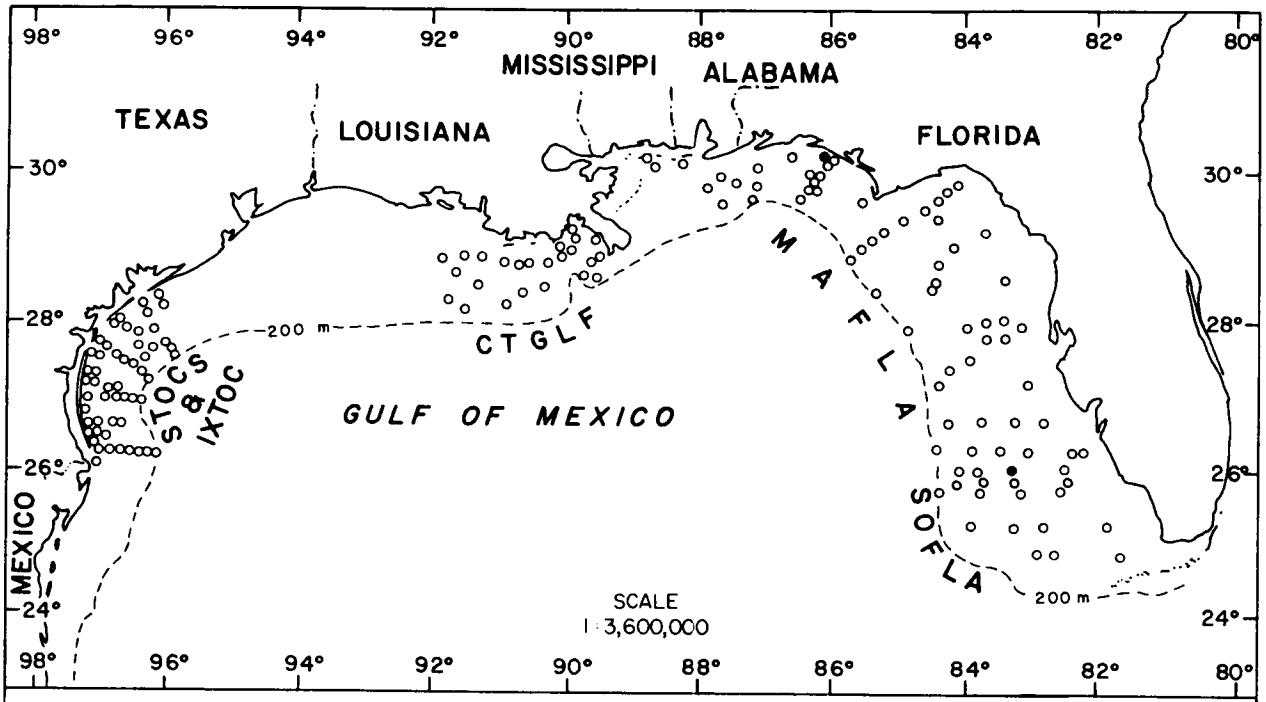

Figure 12-31. Distribution of Dodecaceria sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

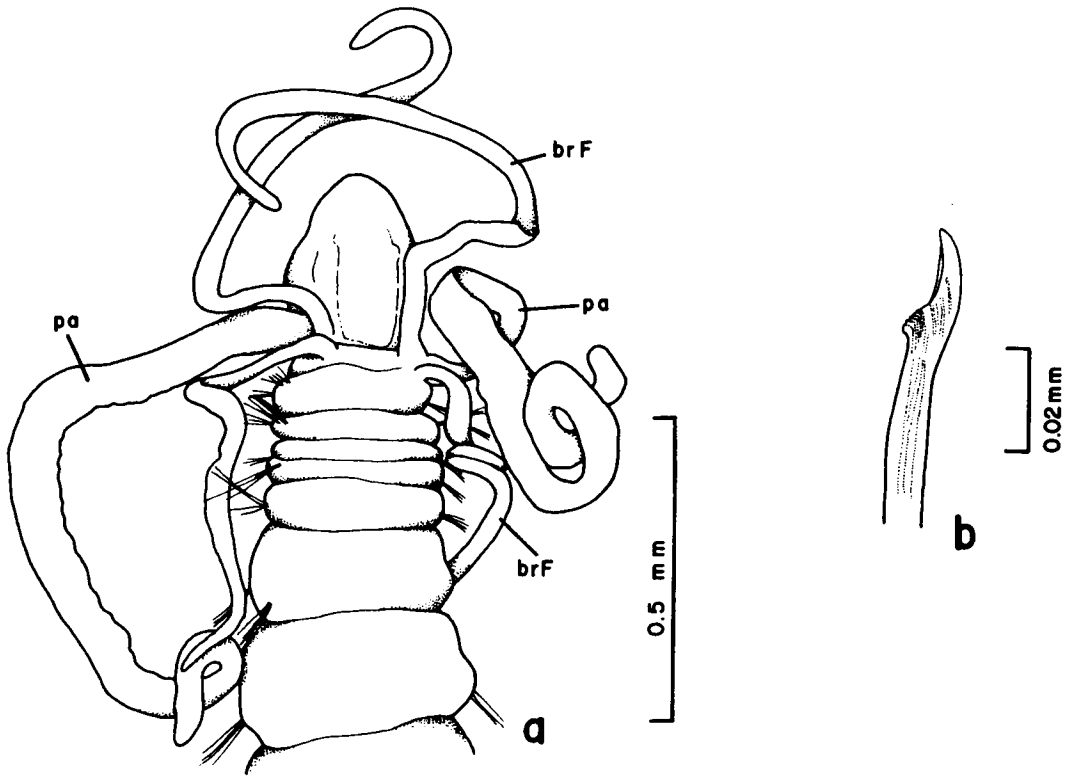

Figure 12-32. Dodecaceria sp. A: a, anterior end, dorsal view; b, spoon-shaped seta, posterior region.

in notopodia. Posterior setal fascicles elongate, but not surrounding the body. Pygidium without well-developed ventral lobe, but with thickened lip surrounding terminal anus (Figure 12-30d).
REMARKS: It is possible that Chaetozone spp. B and C are the same, with the latter representing sexually mature individuals as indicated perhaps by the presence of the long natatory notosetae. However, considering that specimens of Chaetozone sp. B are larger, yet not sexually mature as opposed to smaller gravid specimens of Chaetozone sp. C, the taxonomic picture becomes quite confused.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 12-29); 15-58 m; sand.

Genus **Dodecaceria** Oersted, 1843

TYPE SPECIES: Dodecaceria concharum Oersted, 1843.
REFERENCES:
Day, 1967:502.
Fauchald, 1977a:30.
DIAGNOSIS: Single pair of grooved palps present. Branchial filaments filiform or clavate, present on few anterior segments. Parapodia with capillary setae anteriorly; distally excavate (spoon-shaped) spines present from middle setigers.

Dodecaceria sp. A
Figures 12-31, 32a,b

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8D-11/80 (1 spec., USNM 90481); MAFLA 2528I-11/77 (1 spec.), 2528K-2/78 (1 spec.).
DESCRIPTION:
Length, to 15.0 mm; width, to 0.75 mm. Body small, highly pigmented with some specimens black in preservative; complete specimens with up to 82 setigers. Prostomium (Figure 12-32a) rounded anteriorly; eyespots absent. Anterior margin of setiger 1 with pair of large palps and one pair of branchial filaments. Some specimens with additional pair of branchial filaments arising above notosetae of setiger 1. Simple setae of both rami serrate along one margin. Acicular hooks (Figure 12-32b) beginning on setigers 10-17 in neuropodia, 11-19 in notopodia. Hooks excavate, minutely to distinctly ridged, varying in shape on same specimen. Pygidium with small, triangular ventral lobe.
REMARKS: Dodecaceria sp. A is similar to D. diceria Hartman, 1951a. The type material of the latter, however, does not have the spoon-shaped setae as shown in Figure 12-32b (J. Blake, pers. comm.).
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 12-31); 37-48 m; coarse to fine sand.

CHAPTER 13

Paul S. Wolf

FAMILY ACROCIRRIDAE Banse, 1969

INTRODUCTION

The Acrocirridae are a small family of sedentary, non-tubicolous worms. The head is composed of a reduced prostomium lying dorsally on the peristomium. The head is retractile in Flabelligella Hartman, 1965, and non-retractile in Acrocirrus Grube, 1872, and Macrochaeta Grube, 1850. The prostomium is devoid of antennae but bears a pair of frontal palps. Branchiae, when present, are long and filiform, begin on segment 2, and usually number four pairs. The body may be quite smooth to densely papillose with adherent sand grains and mucus. Parapodia are poorly developed. Neurosetae arise on segment 4 or 5 and notosetae arise on the same segment as the neurosetae or a few segments later. The notosetae are all long and annulate, tapering to fine tips. The neurosetae are simple, pseudocompound, or compound with a membrane below the hook. In some species a large modified acicular hook may be present in the neuropodia of one segment, usually segment 14. It is primarily the setal morphology that distinguishes the Acrocirridae from other families of polychaetes.

The genera Acrocirrus and Macrochaeta were originally placed in the Cirratulidae, although both genera differed from cirratulids in possessing frontal palps, in having the prostomium situated dorsally on the peristomium, and in the number and arrangement of the branchiae. Banse (1969) removed Acrocirrus and Macrochaeta from the Cirratulidae, based primarily on the above characters, and erected the family Acrocirridae to include them. Orensanz (1974b) later transferred the genus Flabelligella from the Flabelligeridae to the Acrocirridae. The most detailed treatment of the Acrocirridae is that of Banse (1969). Keys to all known species may be found in Banse (1969, 1979c) and Kudenov (1976). Orensanz (1974b) listed key characters of the species of Flabelligella.

The Acrocirridae are currently composed of three genera and about 20 species (Pettibone, 1982:29). The family itself is herein newly recorded from the Gulf of Mexico. It is represented in the BLM-OCS material by two genera, each with one species.

PRINCIPAL DIAGNOSTIC CHARACTERS

Among the Acrocirridae, the presence of branchiae, the degree of separation of the palpal bases, and the degree of epithelial papillation serve as key generic characters. Branchiae are present in Acrocirrus and Macrochaeta but absent entirely in Flabelligella. The branchiae, when present, number 4-6 pairs, one pair per segment beginning on segment 2. They are long and filiform. All acrocirrids possess one pair of frontally placed palps. They are usually quite long in species of Acrocirrus, shorter in Macrochaeta and Flabelligella (i.e., about as long as or slightly longer than the width of the body). The epithelium is densely papillose in Flabelligella, somewhat less densely papillose in Macrochaeta, and smooth to sparsely papillose in Acrocirrus.

The branchiae and palps are deciduous and often are not present in preserved material. Other less obvious characters for identification must be relied upon in this case. One such character is the number of segments in the thorax. In Acrocirrus, there are always 12 thoracic segments. In Macrochaeta, however, the number of thoracic segments varies interspecifically and sometimes intraspecifically. Normally in both Acrocirrus and Macrochaeta, the concave edges of the blades of the neurosetae face posteriorly in the thorax and anteriorly in the abdomen. Otherwise, it may be possible to distinguish the abdomen from the thorax by the occurrence of neurosetae with much shorter blades (Figure 13-2c) in the abdomen than in the thorax (Figure 13-2b). In some cases, however, the change in blade size may be gradual, and it may not be possible to differentiate the thorax from the abdomen.

A large, modified, acicular hook in the neuropodia of segment 14 is present in most species of the genus Acrocirrus (Figure 13-2d,e), but it does not occur in all species of the genus. To my knowledge, it has never been reported in either of the other genera.

Total length of the specimen in question can also be useful in identifying to genus. In Acrocirrus, individuals are usually greater than 15 mm long and 0.75 mm wide, whereas individuals of Macrochaeta are usually smaller. However, size can be unreliable, particularly in dealing with material from the Gulf of Mexico and other tropical or subtropical areas, as shown by specimens examined herein.

In Acrocirrus, species are separated primarily by the morphology and distribution of the neurosetae. According to Banse (1969:2599), the known species can be placed into three groups. The first group comprises species possessing compound neurosetae throughout (A. crassifilis Moore, 1923, A. muroranensis Okuda, 1934, A. uchidai Okuda, 1934, and A. validus Marenzeller, 1879). Species of the second group possess a modified segment 14 which bears a large acicular hook (A. frontifilis (Grube, 1860b), A. heterochaetus Annenkova, 1934a, A. incisa Kudenov, 1975, and A. aciculigerus Kudenov, 1976). The third group comprises species that have simple hooks on at least some abdominal setigers (A. okotensis Imajima, 1963, and A. trisectus Banse, 1969). Other specific characters within Acrocirrus include the presence or absence of dorsal cirri, the segment of origin of the neurosetae, and the appearance of the prostomium (smooth or ridged).

Within the genus Macrochaeta, M. papillosa Ehlers, 1913, M. clavicornis (Sars, 1835), M. pege Banse, 1969, and M. australiensis Kudenov, 1976, all possess four pairs of branchiae and only compound falcigerous neurosetae. M. helgolandica Friedrich, 1937, also possesses four pairs of branchiae, but has simple falcigers in the abdomen. M. sexoculata (Webster and Benedict, 1887) possesses compound falcigers only in the neuropodia, but has 5-6 pairs of branchiae. The only other known species, M. polyonyx Eliason, 1962a, differs from the others in having three or more neurosetae per fascicle instead of only one or two.

Species of the genus Flabelligella differ primarily in where the notosetae begin (segment 1 as in F. minuta Hartman, 1965, or segment 5 as in F. mexicana Fauchald, 1972a) and the number of noto- and neurosetae per parapodium.

BIOLOGICAL NOTES

Almost nothing is known concerning the biology of the acrocirrids. They have been found intertidally beneath stones and in coarse sediments in deeper water. They are selective bottom deposit feeders. Food particles are carried via the ciliated grooves of the palps to the mouth (Pettibone, 1982:30). Sexes are separate. Members of the family may develop a few additional capillary setae as a morphological adaptation for swimming during reproduction (Schroeder and Hermans, 1975:23).

SPECIES OF ACROCIRRIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

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Acrocirrus frontifilis (Grube, 1860)	13-3
Macrochaeta cf. clavicornis (Sars, 1835)	13-7

Key to the Genera of Acrocirridae from the Gulf of Mexico BLM-OCS Program

1a. Palps long, with bases separated by less than width of palps; body with few papillae (Figure 13-2a); thorax always with 12 segments; complete specimens usually greater than 25 mm long and 0.75 mm wide. . . . . .**Acrocirrus**, p. 13-3

1b. Palps short, with bases separated by at least width of palps; body with more numerous papillae (Figure 13-4a); thorax with variable number of segments; complete specimens usually less than 15 mm long and 0.75 mm wide . . . . . **Macrochaeta**, p. 13-5

Genus **Acrocirrus** Grube, 1872

TYPE SPECIES: Heterocirrus frontifilis Grube, 1860b.
REFERENCES:
Banse, 1969:2599.
Kudenov, 1976:138.
Fauchald, 1977a:30.
DIAGNOSIS: Palps long, with bases separated by less than their width. Four pairs of branchiae present; papilla always present on segment 3 below each branchia. Thorax always comprising segments 1-12. Body with few papillae. Notosetae long, annulate. Neurosetae as simple or compound hooded hooks. Some species with large, modified acicular hook in neuropodia of segment 14. Complete specimens usually greater than 15 mm long and 0.75 mm wide, with more than 50 segments.

Acrocirrus frontifilis (Grube, 1860)
Figures 13-1, 2a-f

Heterocirrus frontifilis Grube, 1860b:89.
Acrocirrus frontifilis--Banse, 1969:2600, figs. 1a, 2a-e.

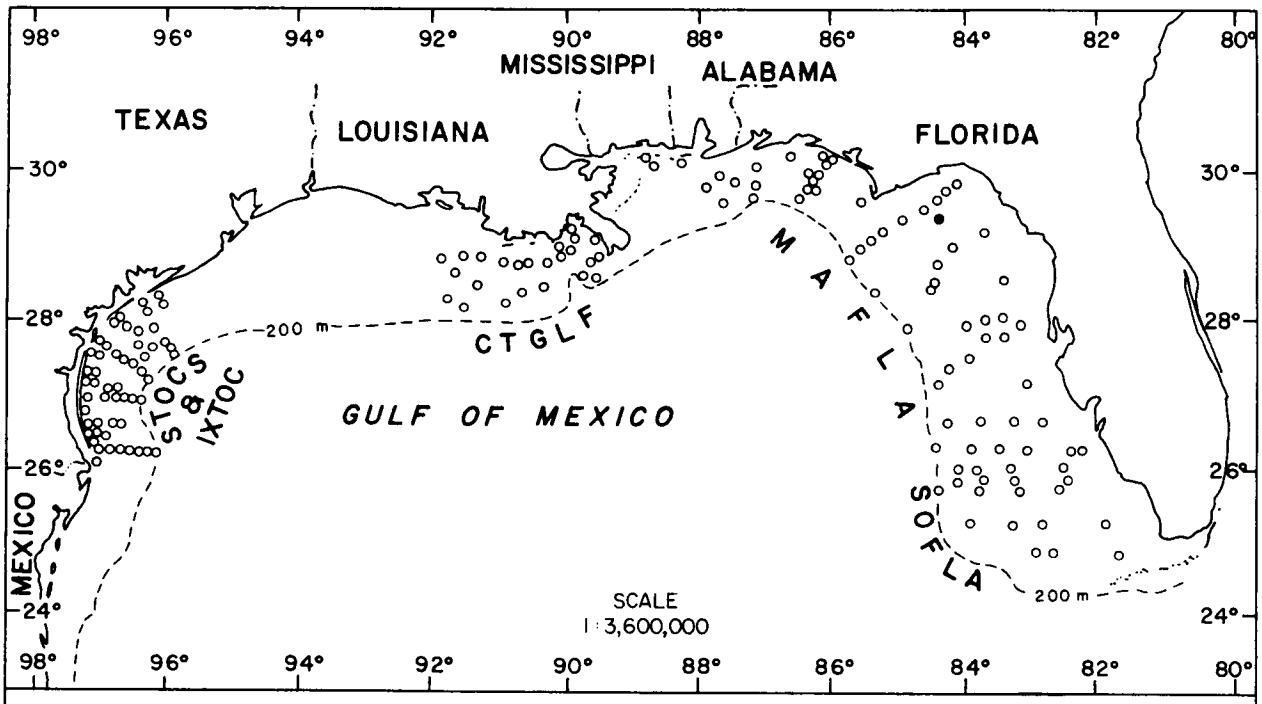

Figure 13-1. Distribution of Acrocirrus frontifilis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

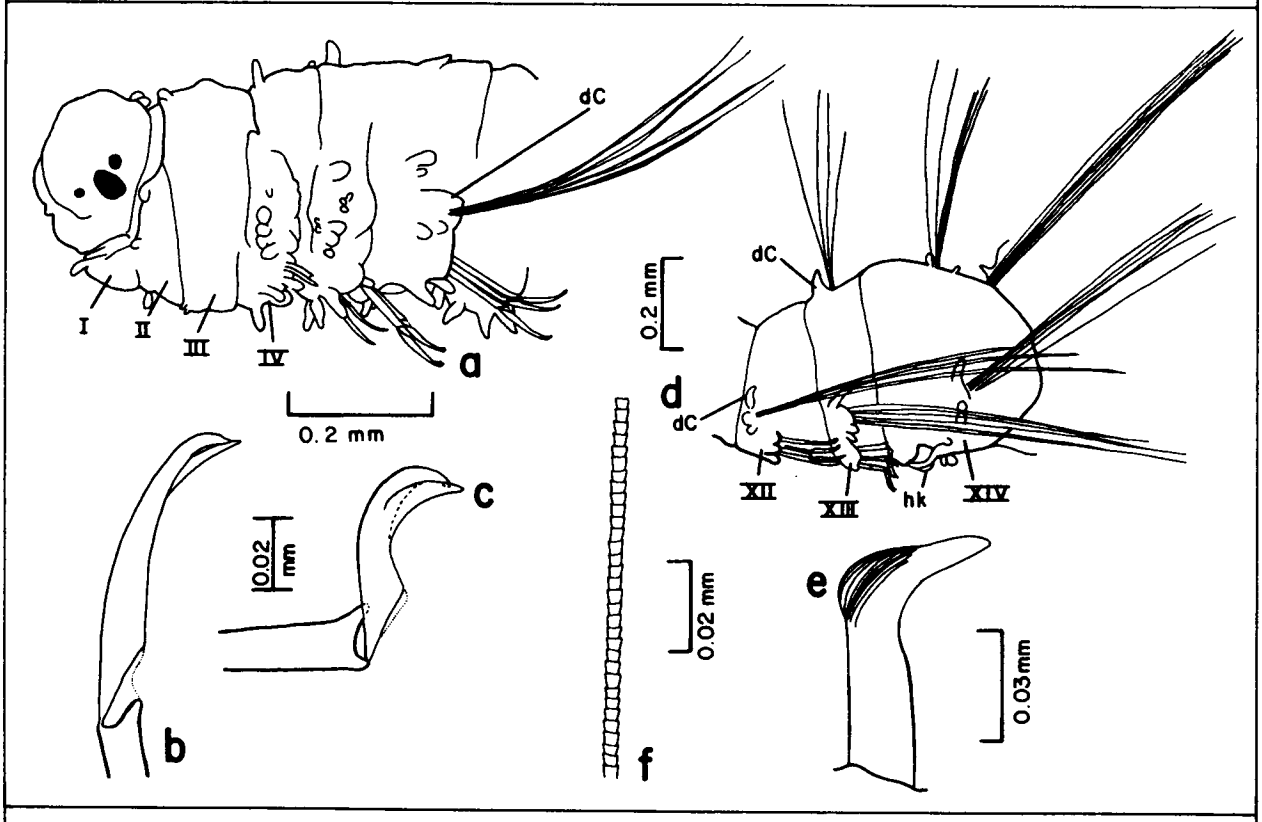

Figure 13-2. Acrocirrus frontifilis: a, anterior end, lateral view; b, thoracic neuroseta; c, abdominal neuroseta; d, segments 12-14, lateral view; e, acicular hook from segment 14; f, portion of notoseta.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2853H-8/77 (1 spec., USNM 86849).
DESCRIPTION:
Length, to 10 mm (previously reported to 80 mm); width, to 0.3 mm (previously reported to 0.75 mm). Only specimen incomplete and fragmented with total of about 44 segments. Prostomium (Figure 13-2a) with three pairs of eyespots, middle pair largest. Palps and branchiae missing, scars not discernible. Segments 1 and 2 not visible dorsally, more obvious laterally (Figure 13-2a). Body with few papillae located primarily around parapodia. Neurosetae of segments 4-12 (thorax) as long-bladed compound hooks (Figure 13-2b). Neurosetae of segments 13 and 15 to end of worm (abdomen) with shorter blades reflexed upon setal shafts (Figure 13-2c). Neuropodia of segment 14 each with a single simple, stout hook having striated cap on convex margin (Figure 13-2d,e). Notopodia beginning on segment 6, with dorsal cirri (Figure 13-2a,d); notosetae (Figure 13-2f) annulate.
REMARKS: The only specimen available for examination appears to match the description of A. frontifilis given by Banse (1969:2600), particularly with respect to setal distribution, placement of papillae at the parapodia, and presence of dorsal cirri, all of which are unique to the species. The Gulf of Mexico BLM-OCS specimen differs from Banse's (1969) description in that the blades of both the anterior and posterior hooks face posteriorly instead of reversing orientation at the beginning of the abdomen. Also, the neurosetae from segment 14 on are rather unusual in having their blades reflexed upon the setal shafts. This may be due to the condition of the specimen, or may be variable as a few setae were found with non-reflexed or less sharply reflexed blades.
PREVIOUSLY REPORTED HABITAT: On stones; 4-124 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Single occurrence off Florida (Figure 13-1); 29 m; coarse sand.
DISTRIBUTION: Northern Adriatic Sea, Mediterranean Sea, northern Arabian Sea, Gulf of Mexico.

Genus **Macrochaeta** Grube, 1850

TYPE SPECIES: Nais clavicornis Sars, 1835.
REFERENCES:
Banse, 1969:2609.
Kudenov, 1976:140.
Fauchald, 1977a:30.
DIAGNOSIS: Palps short, with bases separated by at least their width. Branchiae usually numbering four pairs; a papilla sometimes present on segment 3 below each branchia. Thorax with variable number of segments. Body with numerous, irregularly arranged papillae. Notosetae long, annulate. Neurosetae as simple, pseudocompound, or compound hooded hooks. Large modified acicular hooks absent. Complete specimens less than 15 mm long and 0.75 mm wide, with fewer than 50 segments.

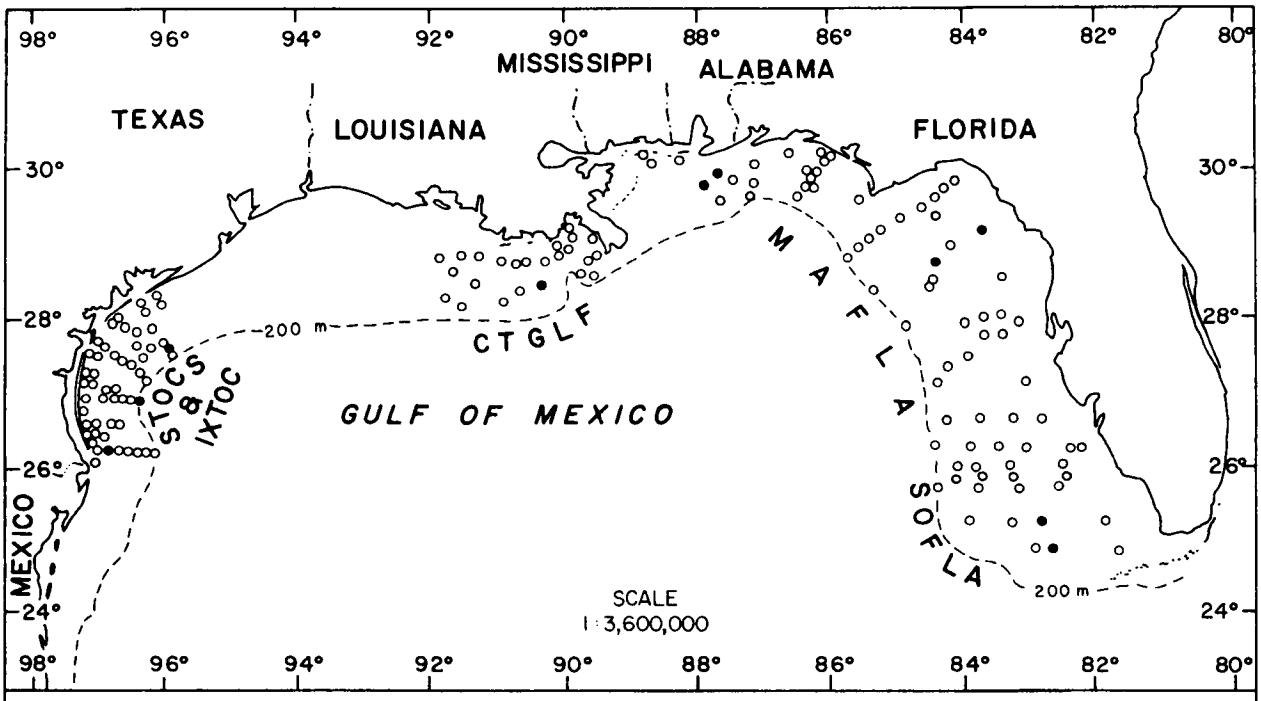

Figure 12-25. Distribution of Chaetozone sp. D on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

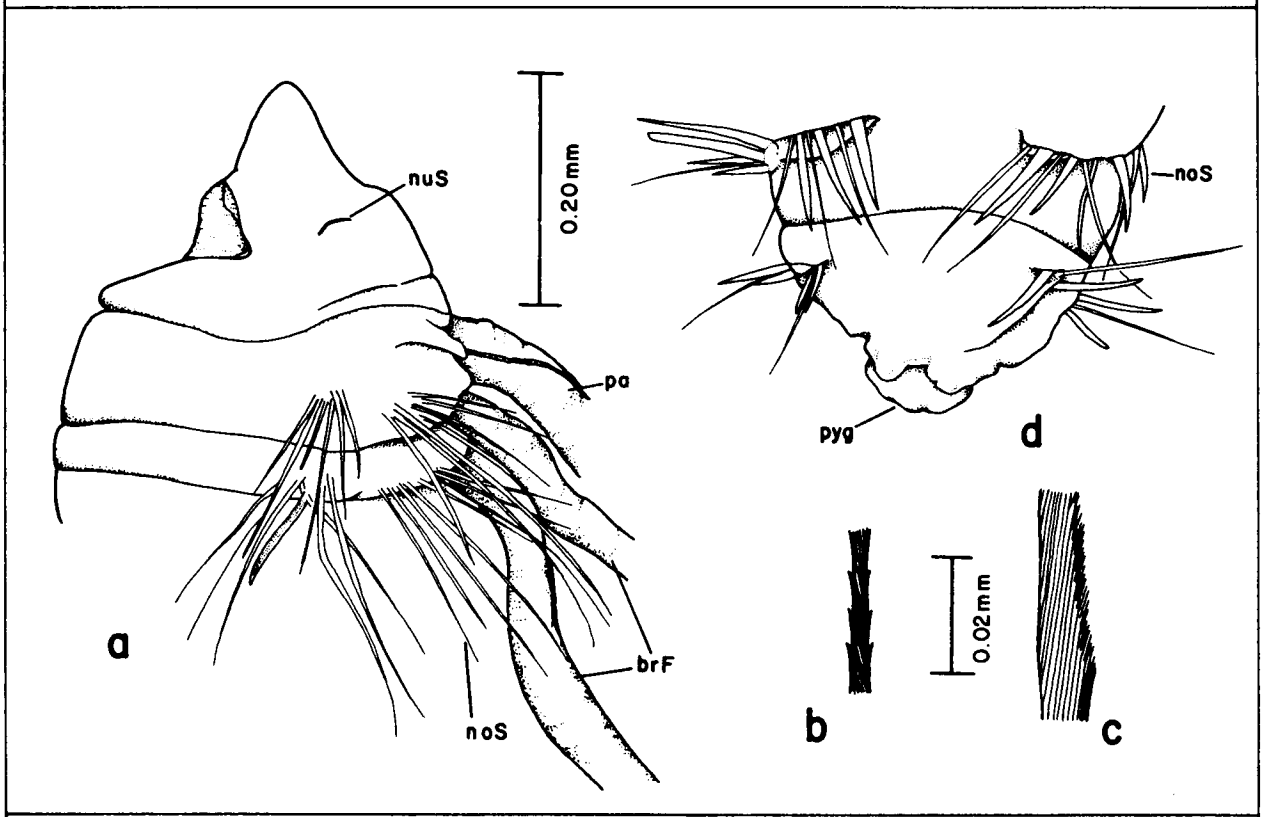

Figure 12-26. Chaetozone sp. D: a, anterior end, lateral view; b, portion of spinose notoseta, anterior region; c, portion of serrate notoseta, anterior region; d, posterior end, dorsal view.

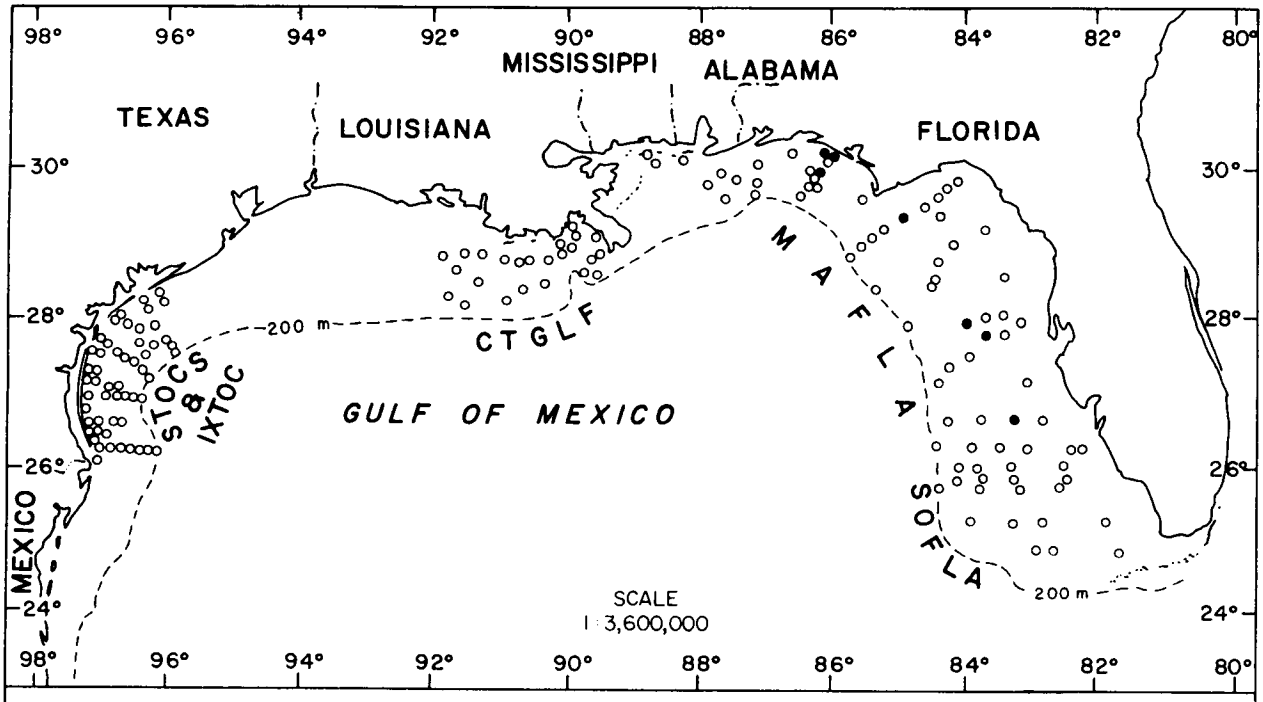

Figure 13-3. Distribution of Macrochaeta cf. clavicornis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

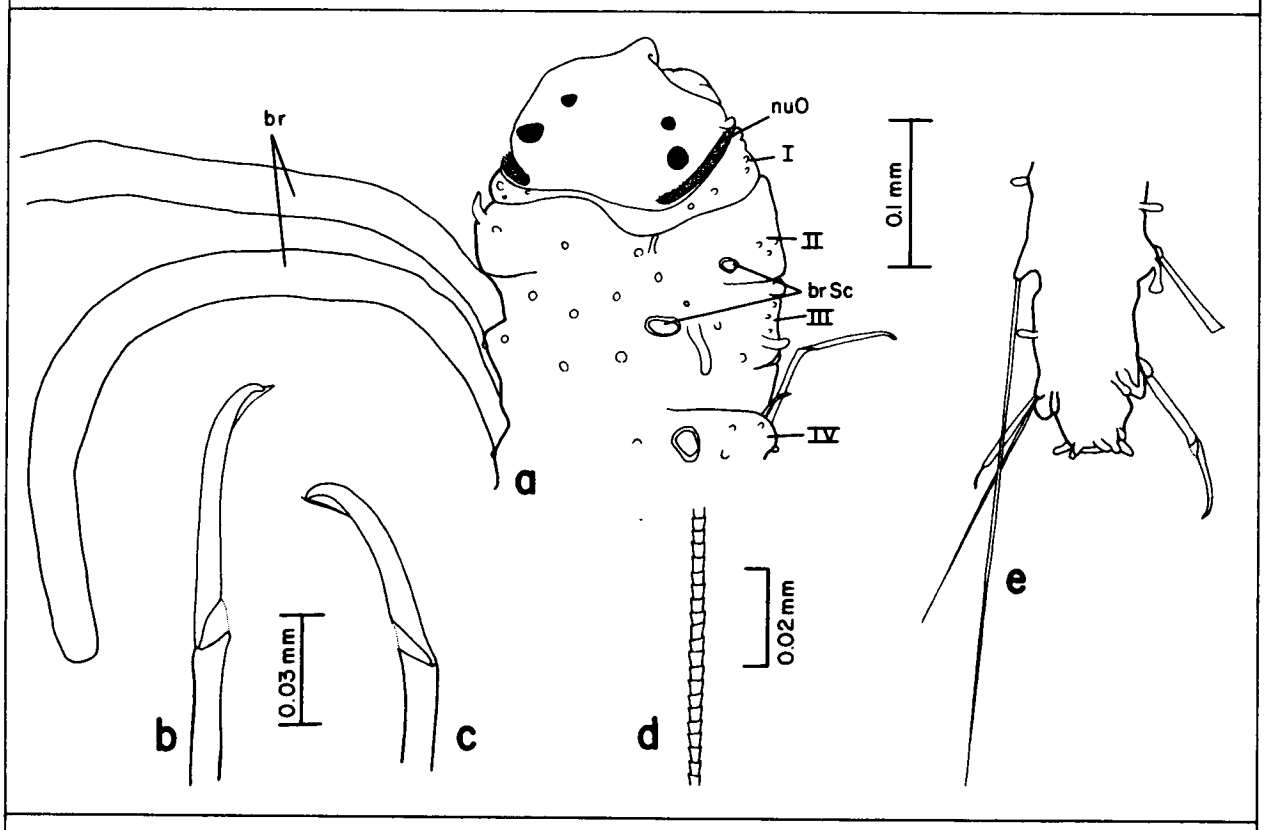

Figure 13-4. Macrochaeta cf. clavicornis: a, anterior end, dorsolateral view; b, anterior neuroseta; c, posterior neuroseta; d, portion of notoseta; e, posterior end, dorsal view.

Macrochaeta cf. clavicornis (Sars, 1835)
Figures 13-3, 4a-e

Nais clavicornis Sars, 1835:64.
Macrochaeta clavicornis--Banse, 1969:2610, figs. 1f, 6a-g.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2D-11/80 (1 spec., USNM 86848); MAFLA 2209E-11/77 (1 spec.), 2211E-8/77 (2 spec.), 2211C-11/77 (1 spec.), 2211E-2/78 (4 spec.), 2423B-7/76 (1 spec.), 2423C-7/76 (2 spec.), 2423E-8/77 (1 spec.), 2423I-8/77 (3 spec.), 2528H-2/78 (1 spec.), 2529C-9/75 (1 spec.), 2531F-2/78 (1 spec.), 2531G-2/78 (1 spec.).
DESCRIPTION:
Length, to 4.0 mm (previously reported to 7 mm); width, to 0.3 mm. Largest specimen nearly complete with 27 segments. Prostomium (Figure 13-4a) with 2-3 pairs of eyes, middle or posterior pair largest; and pair of long, ciliated nuchal organs located along posterior lateral margins. Palps clavate. Segment 1 visible dorsally. Four pairs of branchiae present on segments 2-5. Conspicuous papilla present on segment 3 below each branchia (Figure 13-4a). Body with few papillae; degree of papillation as well as arrangement variable. Neurosetae as compound hooks numbering 1-2 per parapodium beginning on segment 4; blades of neurosetae slightly longer on anterior segments than on posterior segments (Figures 13-4b,c). Notosetae minutely annulate (Figure 13-4d), usually numbering 1-2 per parapodium beginning on segment 6. Pygidium (Figure 13-4e) with about 4-6 dorsal papillae and a pair of longer papillae (anal cirri?) ventrally.
REMARKS: Gulf of Mexico BLM-OCS specimens of Macrochaeta cf. clavicornis were generally in poor condition; thus, the description above is a composite. Two specimens possessed one palp each, and only three specimens possessed branchiae, although none retained the assumed complement of four pairs. The degree of papillation among specimens was quite variable, but this could be due to the poor condition of the worms. These specimens differ from Banse's description of M. clavicornis in having neurosetae first present from segment 6 instead of 4 or 5, and in having all compound hooks with blades facing posteriorly instead of abruptly reversing directions at segment 13. With respect to the latter character, Banse (1969:2612) reported specimens from the Irish Sea as having hooks with blades facing posteriorly in an irregular pattern.
PREVIOUSLY REPORTED HABITAT: Mud, coarse sand and gravel or shell; 18-30 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 13-3); 19-45 m; coarse to medium sand, silty fine sand, clayey sandy silt.
DISTRIBUTION: North Sea: Norway, Sweden, British Isles; Mediterranean near Marseille; Gulf of Mexico.

CHAPTER 14

R. Michael Ewing

Family **CAPITELLIDAE** Grube, 1862

INTRODUCTION

Capitellids are small to large (1-20 cm), elongate, simple-bodied, cylindrical worms. Many representatives are earthworm-like in appearance in that they lack parapodial projections. The body is composed of a small prostomium without appendages, a thorax usually consisting of a definite number of segments, and a long abdomen with a varying number of segments. A pair of eversible nuchal organs usually appear as ciliated pits near the posterolateral border of the prostomium. Subdermal eyes, when present, appear as paired eyespots or as variously shaped ocular pigment patches. The first thoracic segment (peristomium) may be achaetous or may have both noto- and neurosetae. The transition from thorax to abdomen may be abrupt or externally indistinct and marked only by change in setal types. Setae include capillary setae, multidentate hooded hooks, and various modified setae (e.g., genital spines, acicular spines, and spatulate setae). Lateral sense organs and nephridial apertures may be present along various portions of the body. Branchiae, if present, appear as variously shaped, retractile or stationary lobes restricted to the abdomen. The pygidium is simple, or modified to form an anal plaque or funnel, with or without caudal appendages.

Capitellids are one of the earliest recognized groups of polychaetes (Hartman, 1947a), dating back to 1780 with the description of Capitella capitata (= Lumbricus capitatus Fabricius). Approximately 140 known species representing as many as 36 genera, including the recent additions of Amastigos Piltz, 1977, Dodecaseta McCammon and Stull, 1978, and Nonatus Amaral, 1980, are recognized for the family. Ten genera and 21 species are represented in the Gulf of Mexico BLM-OCS collections. Seven of these species may be new to science, and three are of questionable assignment. Five taxa are newly reported from this region.

PRINCIPAL DIAGNOSTIC CHARACTERS

The capitellids are one of the most simple-bodied groups of polychaetes, but because of their simplicity, representatives of this family are among the most difficult to identify. Principal morphological characters used to separate genera and species include thoracic structure (e.g., number of segments, kinds and distribution of setae), abdominal structure (e.g., kinds of setae, parapodial modifications, and presence of specialized structures), structure of the hooded hooks, and shape of the pygidium.

Prostomium.

Prostomial shape is highly variable among the capitellids and should not be considered as a key generic character; however, the shape of the prostomium is usually constant (but only rarely unique) for a particular species and thus may be used as a secondary specific character. The presence of eyespots or ocular patches on the prostomium is

sometimes not a reliable character but may be used in certain cases to distinguish between closely related species. Ocular patches, when present, may be obscured by stains used in the treatment of benthic samples (e.g., rose bengal) or they may fade somewhat on specimens stored in alcohol for extended periods of time. Eyespots are occasionally present in juveniles of a given species but absent in the adult.

Thorax.

Several characters routinely used to describe the thoracic region of capitellids are the number of thoracic segments, the presence of setae on the first segment (peristomium), and the distribution of setal types, particularly the number of thoracic segments with capillary setae only.

The number of thoracic segments is not always easily determined because of the presence of "transitional" segments in some taxa or the lack of distinct parapodial (including setal) differences between the last thoracic and first abdominal segments in others. When this transition is not abrupt, other methods for determining the number of thoracic segments may be used with some success. A change in appearance of the surface epithelium may indicate a transition from thorax to abdomen. For example, segments are completely glandular in appearance throughout the thorax of many capitellids, but the glandular areas are almost always restricted to the parapodial tori of abdominal segments. Stains such as methyl green may be used to identify these regions (Banse, 1979b:875).

A pattern of subtle increase in fascicle size (i.e., number of setae) toward the abdomen may be recognized by close examination of the last 3-4 thoracic neuropodia. Noticeable deviations from the otherwise gradual increase in number of neurosetae per fascicle may provide a clue as to the location of the thoracic-abdominal disjunction. Setal lengths and/or shape, including dentition of hooded hooks, particularly in the notopodia, may differ considerably between thorax and abdomen. In some species, the transition is accompanied by a slight change in the orientation of the setae and tori.

Segment size is another character which should be examined. Rapid, distinct changes in segment length:width ratios in the posterior thoracic region may indicate the point of transition to the abdomen. The investigator should also attempt to locate nephridial apertures (Figure 14-18c), the minute pores leading to the metanephrida (see Dales, 1963), positioned on the side of the body in the intersegmental grooves. These structures are often extremely difficult to locate except in large specimens but can sometimes be observed by spreading the segments apart. Lateral sense organs (Figure 14-16b), homologous with prostomial nuchal organs (Hartman, 1947a), are present on most capitellids as minute, interramal pits on some or all segments, but may also appear as ovoid protuberances above the neuropodia of abdominal segments. The presence of these structures is not regarded as a key generic character.

The setal arrangement on thoracic segments is probably the most frequently used character for the generic subdivision of capitellids. In the illustrations for each of the BLM-OCS species, a diagrammatic representation of the adult thoracic setal formula is provided. In these diagrams the following abbreviations are used to designate setal type: C = capillary setae, H = hooded hooks, M = mixed fascicles of capillary setae and hooks, G = genital spines, and Sp = modified spatulate setae. Variations from the usual arrangement, as often observed in

juveniles, are illustrated and discussed in the "REMARKS" section of each species description. Diagnoses provided for several of the genera in this text represent compilations of descriptions from several references.

The presence or absence of setae on the peristomium is a recognized generic character, and with few exceptions is easily confirmed. The distribution of capillary setae, hooded hooks and/or modified setae in the thorax is also useful in separating species in a few genera. However, the importance of this character, particularly at the specific level, may be overestimated unless intraspecific setal variation is taken into account. The distribution of capillary setae in the thoracic neuropodia varies considerably with body size in several Notomastus species (see Ewing, 1982) and probably changes with development in many other capitellid genera.

Abdomen.

Structures of the abdominal region of many capitellids may exhibit considerable modification. Parapodia, particularly the neuropodial tori, are often greatly enlarged from the first abdominal segment compared to those of the thorax (Figure 14-16b), and in many capitellids continue to increase in size posteriorly. Branchiae, if present, usually appear on middle and posterior abdominal segments as simple, nonretractile, lamellar projections of the notopodia and/or neuropodia (Figures 14-16e, 18c), or as retractile, composite structures emerging from either the notopodia or neuropodia (Figure 14-34d). The presence and structure of branchiae are important characters in the identification of a few genera, and are also required in numerous species identifications. Unfortunately, many capitellid collections are represented by anterior fragments only and thus the branchiae or other modifications of the abdominal segments cannot be observed.

The presence of capillary setae or mixed fascicles of capillary setae and hooded hooks in the abdomen, particularly in the notopodia, and the complete or partial absence of setae in either ramus are also significant characters in the generic identifications of capitellids, but are less frequently considered at the species level. Intraspecific variations in setal type (i.e., with body size) are relatively uncommon in the abdomen except on anteriormost segments.

Structure of the hooded hooks.

The dentition of the hooded hooks is known to vary considerably among the capitellids and may show some degree of variability between or within setal fascicles of a given species. Whenever possible, cross-sections of whole segments or entire setal fascicles should be mounted on a slide and cleared using an agent such as Amman's lactophenol or CMC-10. Hook structure should always be examined under oil immersion from several angles, to more accurately assess the number and arrangement of denticles above the main fang. The configuration of denticles is easily observed in many species but extremely difficult to see in others, and should not be used as the sole character for any identifications. Recent studies using scanning electron microscopy have shown that hooded hook microstructure is often much more complex than can be assessed using ordinary light microscopy (Thomassin and Picard, 1972; Warren, 1976).

Pygidium.

Except for Scyphoproctus Gravier, 1904, and Pulliella Fauvel, 1929, the pygidium is not considered important in the traditional generic subdivision of capitellids. The shape of this structure, including the presence of acicular spines (Figure 14-36d), caudal cirri (Figures 14-10c, 30f), or other modifications, is a valuable character at the specific level in several genera.

BIOLOGICAL NOTES

Capitellids are among the most common and abundant polychaetes worldwide. They occur primarily, but not exclusively, on soft bottoms, inhabiting a wide variety of sediment types from intertidal to abyssal depths. Most are motile and nontubicolous although at least two species, Capitella capitata and Heteromastus filiformis, are known to inhabit mucus-lined tubes. Some capitellids (e.g., Capitella capitata, Heteromastus filiformis, Mediomastus ambiseta) have been considered as "indicators" of pollution or environmental disturbance (Grassle and Grassle, 1974, 1976; Gray, 1979; Reish, 1979). Of these, Capitella capitata is probably the most commonly used and most frequently cited marine organism as an indicator of marine pollution (Reish, 1979). In particular, this species has been universally suggested as an indicator of man-induced, organically enriched areas (see Pearson and Rosenberg, 1976; Rosenberg, 1976; numerous citations in Reish, 1979; Gray, 1981). C. capitata has also been reported in large densities in naturally organic-rich sediments (Hartman, 1963), and in benthic habitats defaunated by man-made disasters such as oil spills (e.g. Grassle and Grassle, 1974) and by natural environmental perturbations such as red tide blooms (Reish, 1973) and tropical storms (Gray, 1981). This species may maintain moderately high densities in seemingly undisturbed areas (author's observation). Because of the opportunistic nature of C. capitata, its use as a pollution indicator is of limited value.

All capitellids feed by everting a papillose, sac-like pharynx. Deposit feeding by these worms is usually considered a non-selective process, however, some forms may exhibit a degree of selectivity by particle size or food type (Fauchald and Jumars, 1979).

All capitellids are dioecious, but with the exception of Capitella and perhaps related genera (i.e., Capitomastus and Branchiocapitella), sexual dimorphism is not conspicuous (Hartman, 1947a). Fertilization is generally external although copulation is known to occur in some members of at least two genera, Capitella and Notomastus (Hartman, 1947a). Capitellids produce either planktonic or benthic larvae. One of the most cosmopolitan and opportunistic species, Capitella capitata, may exhibit an alternative mode of reproduction, producing either larval type (Grassle and Grassle, 1974; Gray, 1979).

SPECIES OF CAPITELLIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

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Decamastus ?gracilis Hartman, 1963	14-8
Decamastus sp. A	14-11

Peresiella sp. A..... 14-13
Mediomastus californiensis Hartman, 1944..... 14-14
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Key to the Genera of Capitellidae from the Gulf of Mexico BLM-OCS Programs

1a. Thorax with nine setigers. . . . . .**Capitella**, p. 14-7
1b. Thorax with more than nine setigers. 2

2a. Thorax with ten setigers. . . . . .**Decamastus**, p. 14-8
2b. Thorax with more than ten setigers 3

3a. Thorax with 11 setigers. 4
3b. Thorax with more than 11 setigers. 9

4a. Setigers 1-3 with capillary setae; modified spatulate setae present in thorax. . . . . .**Peresiella**, p. 14-11
4b. More than three setigers with capillary setae; modified spatulate setae absent from thorax 5

5a. Setigers 1-4 with capillary setae. . . . . **Mediomastus**, p. 14-13
5b. More than four setigers with capillary setae. 6

6a. Setigers 1-5 with capillary setae. . . . . **Heteromastus***
6b. More than 5 setigers with capillary setae 7

7a. Setigers 1-6 with capillary setae. . . . . .**Barantolla**, p. 14-16
7b. Eleven thoracic setigers with capillary setae 8

8a. Abdominal notopodia without setae or with hooded hooks only. . . . . **Notomastus**, p. 14-18
8b. Abdominal notopodia with mixed fascicles of capillary setae and hooded hooks. . . . . .**Mastobranchus**, p. 14-33

9a. Thorax with 13 setigers. . . . . .**Dasybranchus**, p. 14-37
9b. Thorax with more than 13 setigers. 10

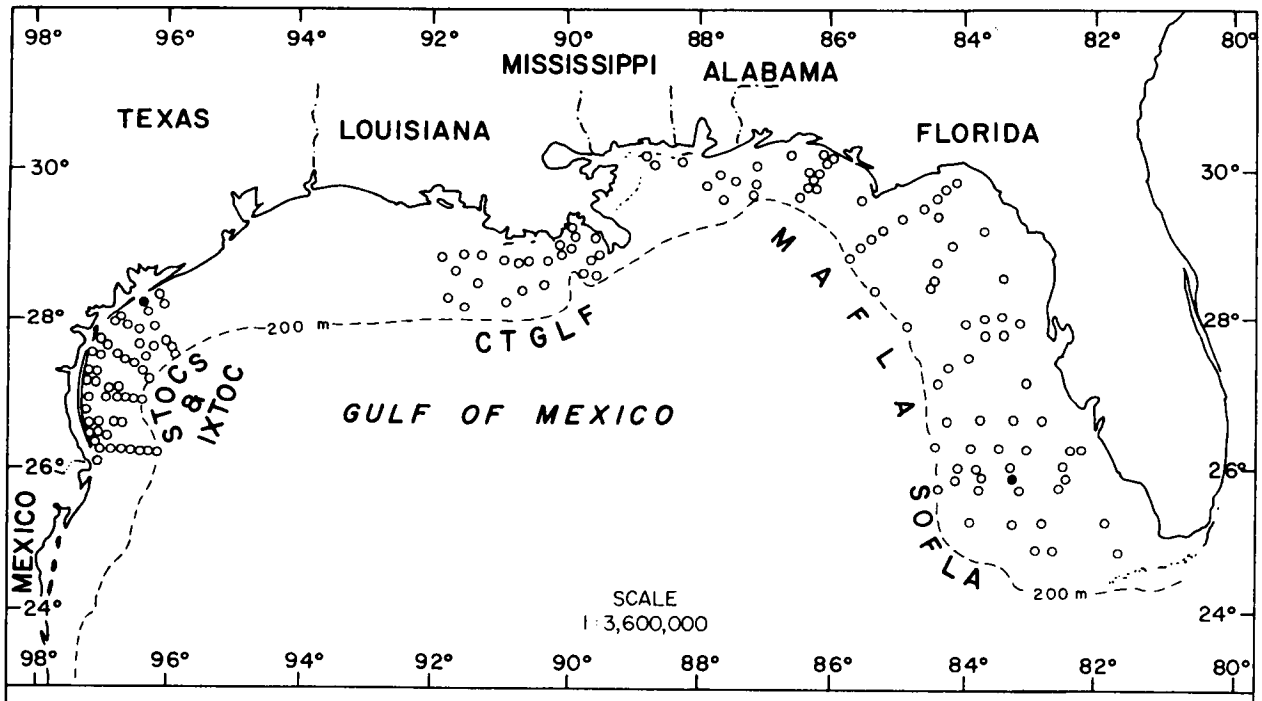

Figure 14-1. Distribution of Capitella capitata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

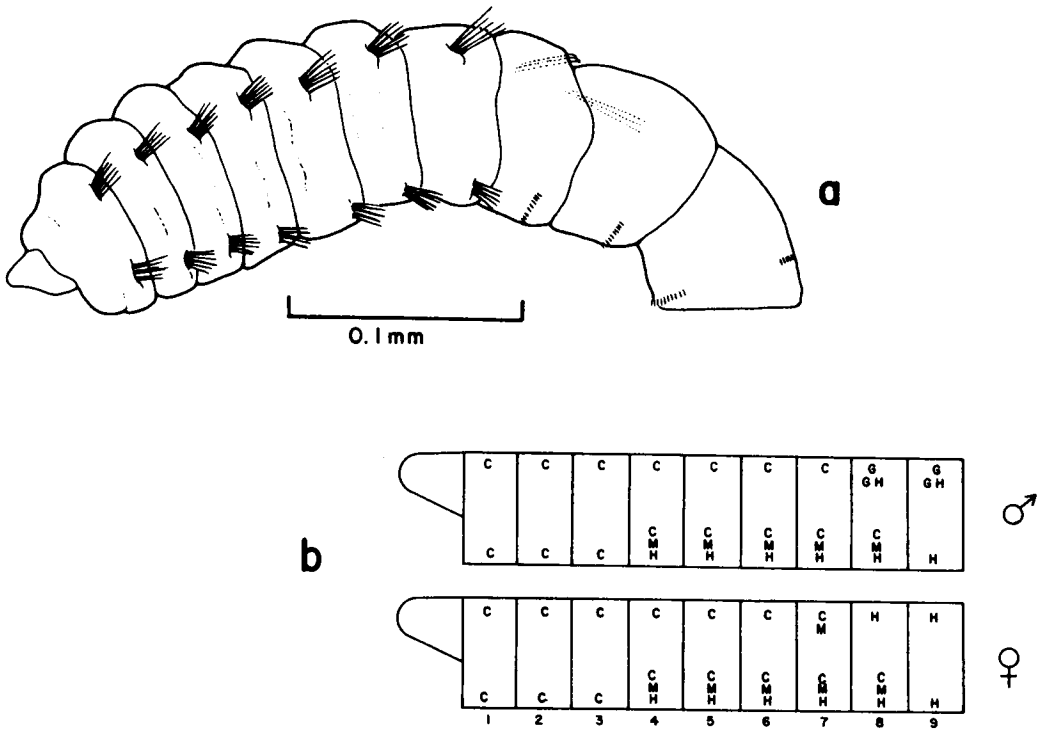

Figure 14-2. Capitella capitata: a, anterior end, lateral view; b, diagrammatic representations of thoracic setal arrangements.

10a. Peristomium and following segment achaetous. . . . . .
. . . . . .**Scyphoproctus**, p. 14-41
10b. Only one achaetous segment (peristomium) . . . . . .
. . . . . .**Leiocapitella**, p. 14-42

*Not represented in Gulf of Mexico BLM-OCS collections but known from shallow areas of the Gulf (Hartman, 1951a).

Genus **Capitella** Blainville, 1828

TYPE SPECIES: Lumbricus capitatus Fabricius, 1780.
REFERENCES:
Hartman, 1947a:404.
Warren, 1976:196.
Fauchald, 1977a:33.
DIAGNOSIS: Prostomium conical, with or without eyes. Thorax consisting of nine segments, all setigerous. Capillary setae in both rami of first three setigers; following thoracic segments with capillary setae, hooded hooks, or mixed setal fascicles; genital spines in notopodia of segments 8-9 in males and in females of some species. Abdomen with hooded hooks only in both rami. Lateral organs and branchiae absent. Pygidium without appendages.
REMARKS: In a recent review of the genus Capitella, Warren (1976) extended the diagnosis to include Capitellides Mesnil, 1897b, which has genital spines in the notopodia of setigers 8-9 in both sexes.

Capitella capitata (Fabricius, 1780)
Figures 14-1, 2a-b

Lumbricus capitatus Fabricius, 1780:279.
Capitella capitata--Eisig, 1887:849, pl. 27, figs. 21-23.
Capitella capitata--Fauvel, 1927:154, fig. 55a-h.
Capitella capitata--Hartman, 1947a:404, pl. 43, figs. 1, 2.
Capitella capitata capitata--Warren, 1976:198, pl. 1, figs. a,b, pl. 14.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16E-7/81 (1 spec., USNM 75240); IXTOC N40-12/79 (1 spec., USNM 75118).
Supplementary Material:
Gulf of Mexico--off Louisiana, 29°15'18"N, 90°11'22"W, LOOP Sta. 407-1/80, 0.9 m, clayey silt (1 spec.), 29°15'17"N, 90°11'46"W, LOOP Sta. 462-5/80, 0.9 m, clayey silt (3 spec.), 29°05'26"N, 90°07'23"W, LOOP Sta. 470-5/80, 10.4 m, clayey silt (1 spec.), 29°05'14"N, 90°06'58"W, LOOP Sta. 471-4/80, 12.2 m, sandy silt (1 spec.), 28°56'12"N, 90°04'07"W, LOOP Sta. 479-8/80, 26.5 m, silty clay (1 spec.), 28°53'06"N, 90°01'30"W, LOOP Sta. 481-8/80, 33.5 m, clayey silt (1 spec.).
DESCRIPTION:
Length, 18+ mm (previously reported to 70 mm); width, to 0.9 mm (previously reported to 2 mm). Largest specimen incomplete with 29 setigers. Prostomium conical, without eyes. Notopodia with capillary setae only on setigers 1-7; setigers 8-9 with hooded hooks only in females;

males with genital spines (sometimes mixed with hooks) in last two thoracic notopodia. Neuropodia with capillary setae only on setigers 1-3; capillary setae only, mixed fascicles, or hooks only on setigers 4-8; and hooks only in last thoracic neuropodia (Figure 14-2a,b). Nephridial apertures not observed. Abdomen with hooks only in both rami, consisting of a main fang surmounted by about 35 teeth arranged in seven or more rows (see Warren, 1976, pl. 4).
REMARKS: The thoracic setal formula of Capitella capitata is extremely variable and known to change with age. Warren (1976) discussed in detail the variations in setal arrangement and other morphological characters of several C. capitata subspecies.
PREVIOUSLY REPORTED HABITAT: Intertidal to 914 m; wide variety of sediment types, often extremely abundant in organically enriched sediments (see "BIOLOGICAL NOTES").
GULF OF MEXICO BLM-OCS OCCURRENCE: Two disjunct occurrences off Texas and Florida (Figure 14-1); 10-54 m; muddy fine sand, sand-silt-clay.
DISTRIBUTION: Cosmopolitan.

Genus **Decamastus** Hartman, 1963

TYPE SPECIES: Decamastus gracilis Hartman, 1963.
REFERENCES:
Hartman, 1963:61.
Thomassin, 1970:81.
Fauchald, 1977a:34.
DIAGNOSIS: Prostomium short, triangular or conical, with or without eyes. Thorax with an achaetous peristomium and ten segments bearing capillary setae only. First setiger complete or with notopodia only. Abdomen with multidentate hooded hooks only in both rami. Branchiae absent.

Key to the Gulf of Mexico BLM-OCS Species of Decamastus

1a. First setiger complete, with noto- and neurosetae. . . . . .**Decamastus ?gracilis**, p. 14-8
1b. First setiger incomplete, with notosetae only. . . . . **Decamastus sp. A**, p. 14-11

Decamastus ?gracilis Hartman, 1963
Figures 14-3, 4a-d

Decamastus gracilis Hartman, 1963:61; 1969:375, figs. 1, 2.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211F-11/77 (1 spec.).
Supplementary Material:
California--off Redondo Beach, 33°49'42"N, 118°25'18"W, 232 m, No date, fine sandy mud, O. Hartman ID. (Decamastus gracilis, AHF Poly 0435, holotype; AHF Poly 0436, paratype).

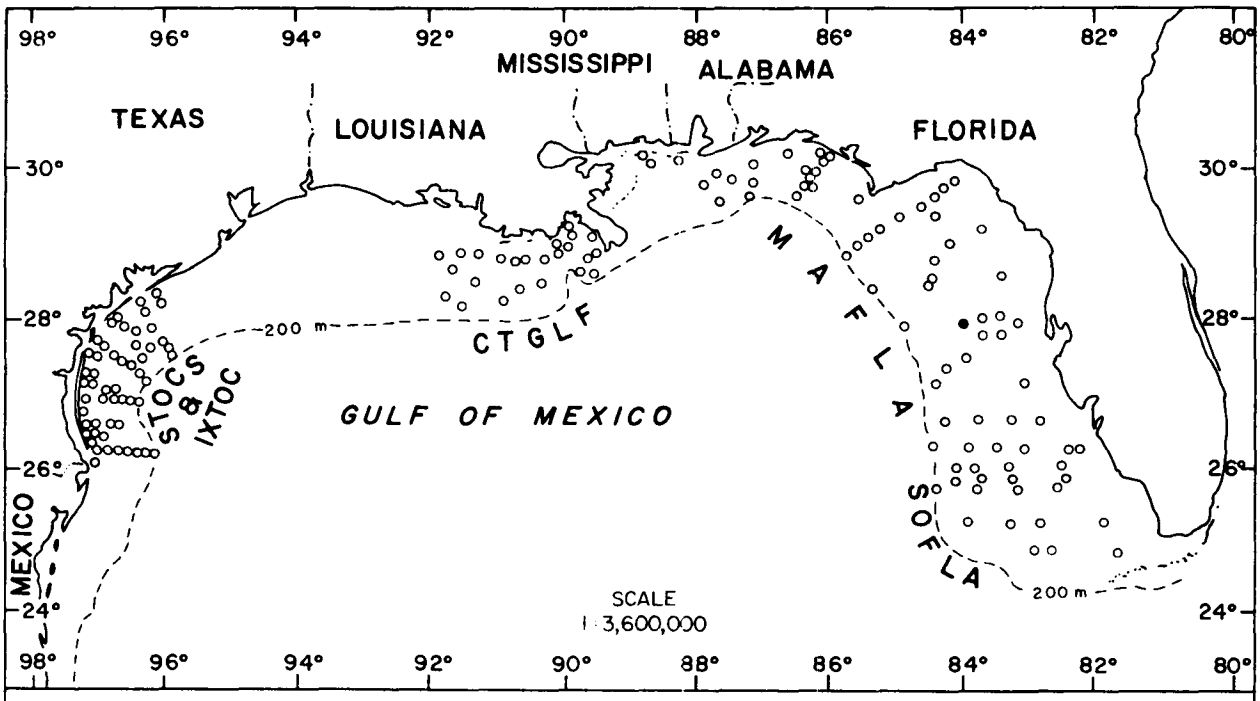

Figure 14-3. Distribution of Decamastus ?gracilis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

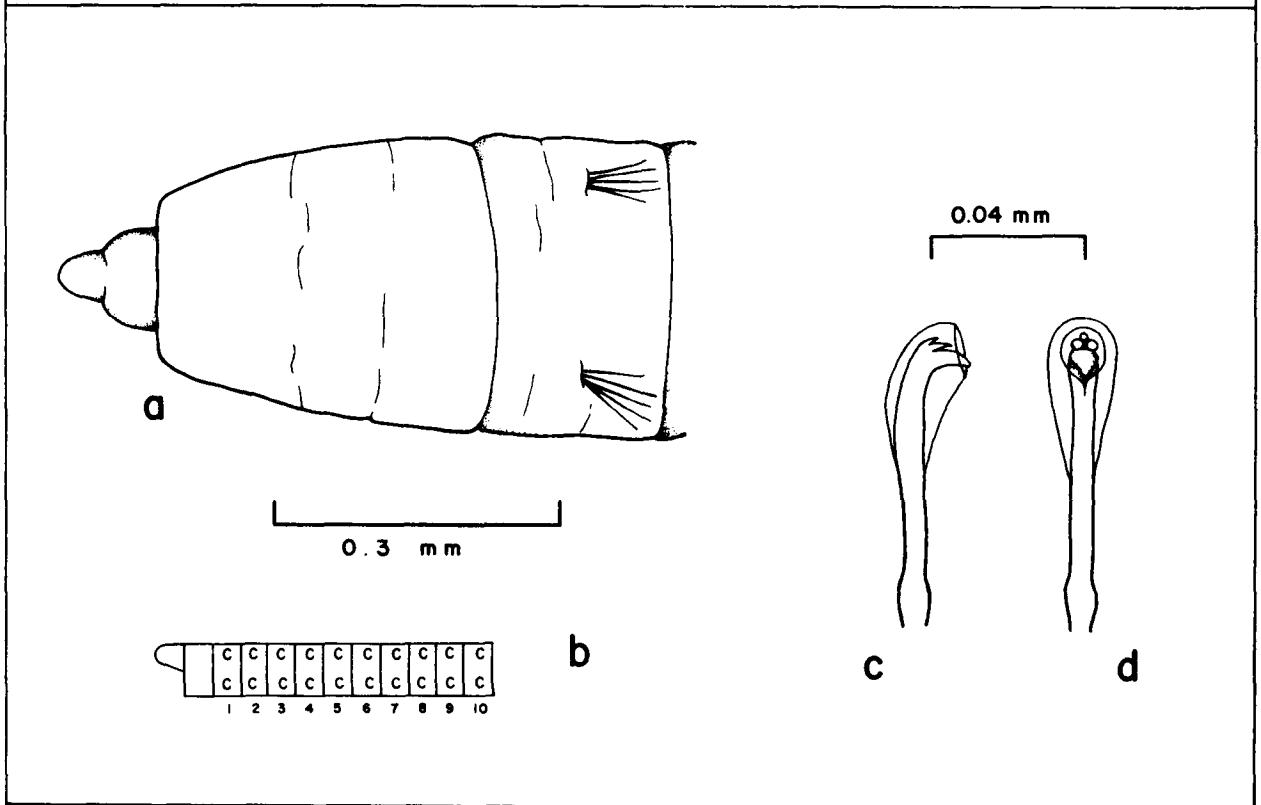

Figure 14-4. Decamastus ?gracilis: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

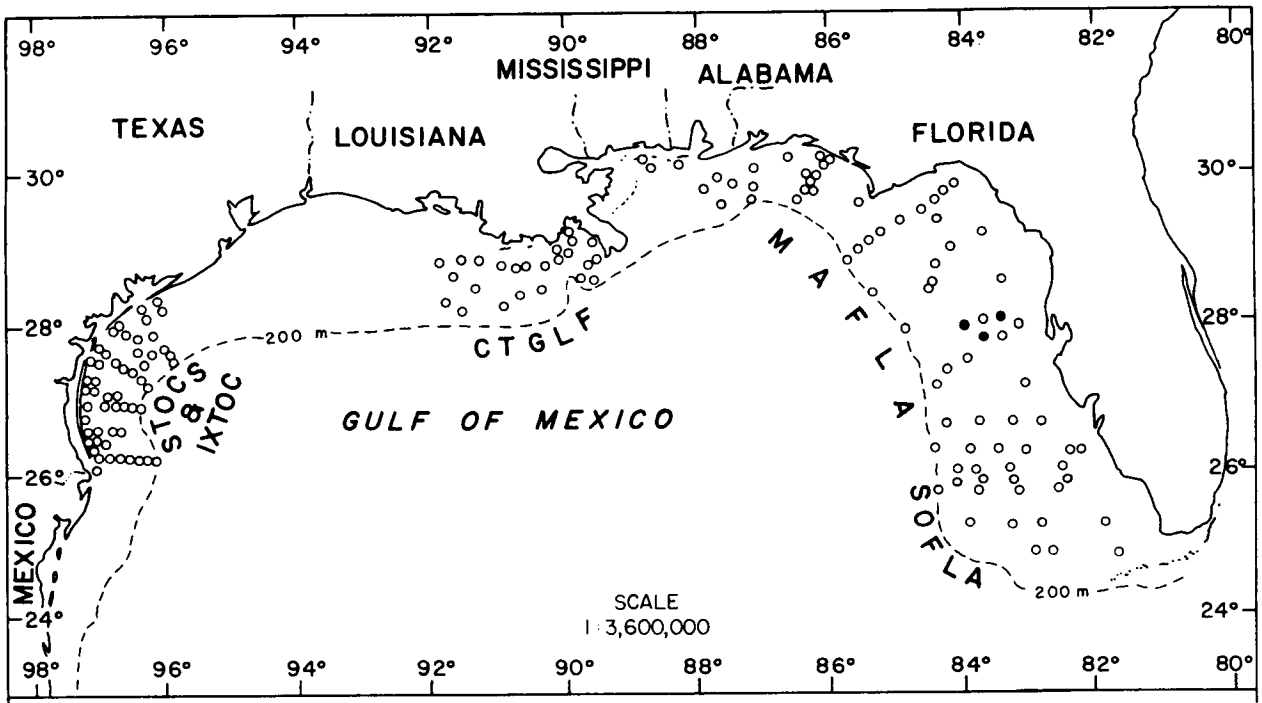

Figure 14-5. Distribution of Decamastus sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

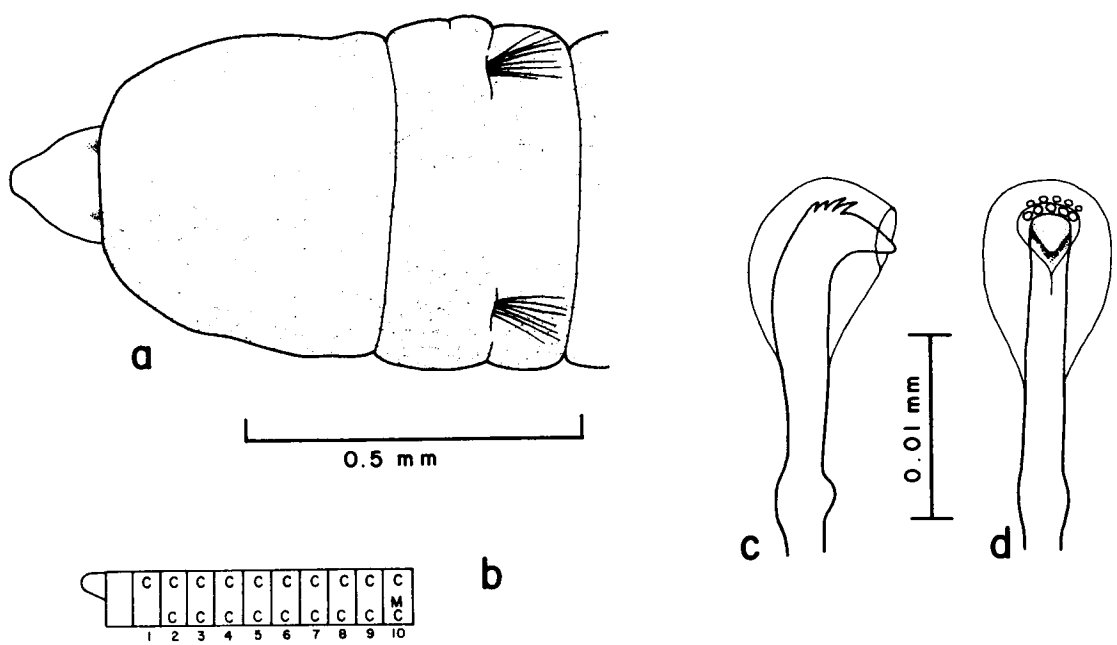

Figure 14-6. Decamastus sp. A: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

DESCRIPTION:
Length, 10+ mm (previously reported to 47+ mm); width, 0.5 mm (previously reported to 1.1 mm). Only specimen incomplete with 18 setigers. Prostomium short, broadly conical, biannulate on dorsal surface; eyes absent (Figure 14-4a). Thoracic epithelium smooth. First thoracic setiger with both noto- and neuropodia (Figure 14-4b). Transition from thorax to abdomen indistinct, marked only by change in setal type. Lateral organs and nephridial apertures not observed. Abdominal hooded hooks with main fang surmounted by three small denticles in triangular arrangement (Figure 14-4c,d).
REMARKS: The BLM-OCS specimen agrees with Decamastus gracilis Hartman, 1963, in having a complete first setiger. D. gracilis possesses "collared" abdominal segments in the posterior region (see Hartman, 1969:375, fig. 2). Since the presence of these parapodial projections cannot be confirmed in this anterior fragment, the specimen is only tentatively referred to D. gracilis.
PREVIOUSLY REPORTED HABITAT: 113-755 m; mud.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 14-3); 43 m; coarse sand.
DISTRIBUTION: Southern California, ?Gulf of Mexico.

Decamastus sp. A
Figures 14-5, 6a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2208D-7/76 (1 spec., USNM 75150), 2209J-7/76 (1 spec.), 2211D-7/76 (1 spec.).
DESCRIPTION:
Length, 10+ mm; width, to 0.6 mm. Largest specimen incomplete with 28 setigers. Prostomium broadly conical; ocular patches present but sometimes inconspicuous (Figure 14-6a). Thoracic epithelium faintly tesselated through setiger 4, smooth thereafter. First setiger with notopodia only (Figure 14-6b). Transition from thorax to abdomen indistinct, marked only by change in setal type. Abdominal hooded hooks with main fang surmounted by 15 or more denticles arranged in at least three rows (Figure 14-6c,d). Lateral organs and nephridial apertures not observed.
REMARKS: Decamastus sp. A closely resembles D. nudus Thomassin, 1970, in having an incomplete first setiger and tesselated integument through the first 3-4 thoracic setigers. It differs from the latter in having hooded hooks with a greater number of teeth above the main fang. Two specimens of Decamastus sp. A had a mixed fascicle of capillary setae and hooks on one side of the last thoracic neuropodia, perhaps a juvenile character.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several records off Florida (Figure 14-5); 30-43 m; coarse sand, clayey sandy silt.

Genus **Peresiella** Harmelin, 1968

TYPE SPECIES: Peresiella clymenoides Harmelin, 1968.
REFERENCES:
Harmelin, 1968:256.
Thomassin, 1970:75.

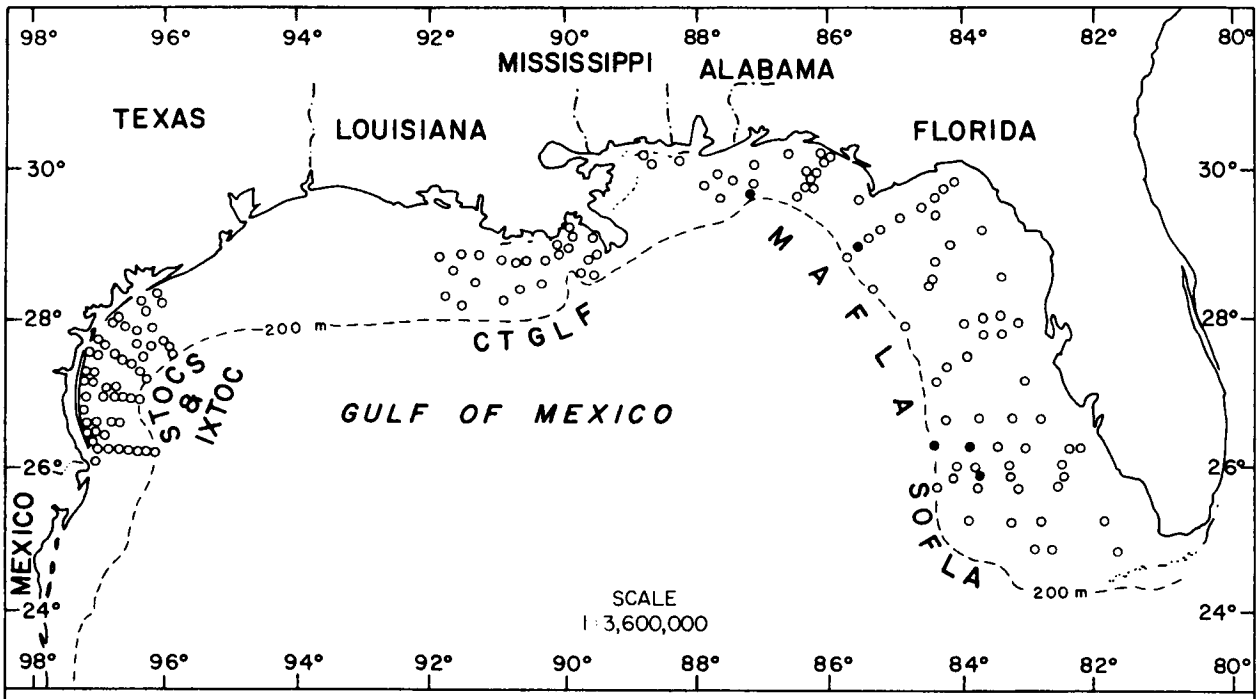

Figure 14-7. Distribution of Peresiella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

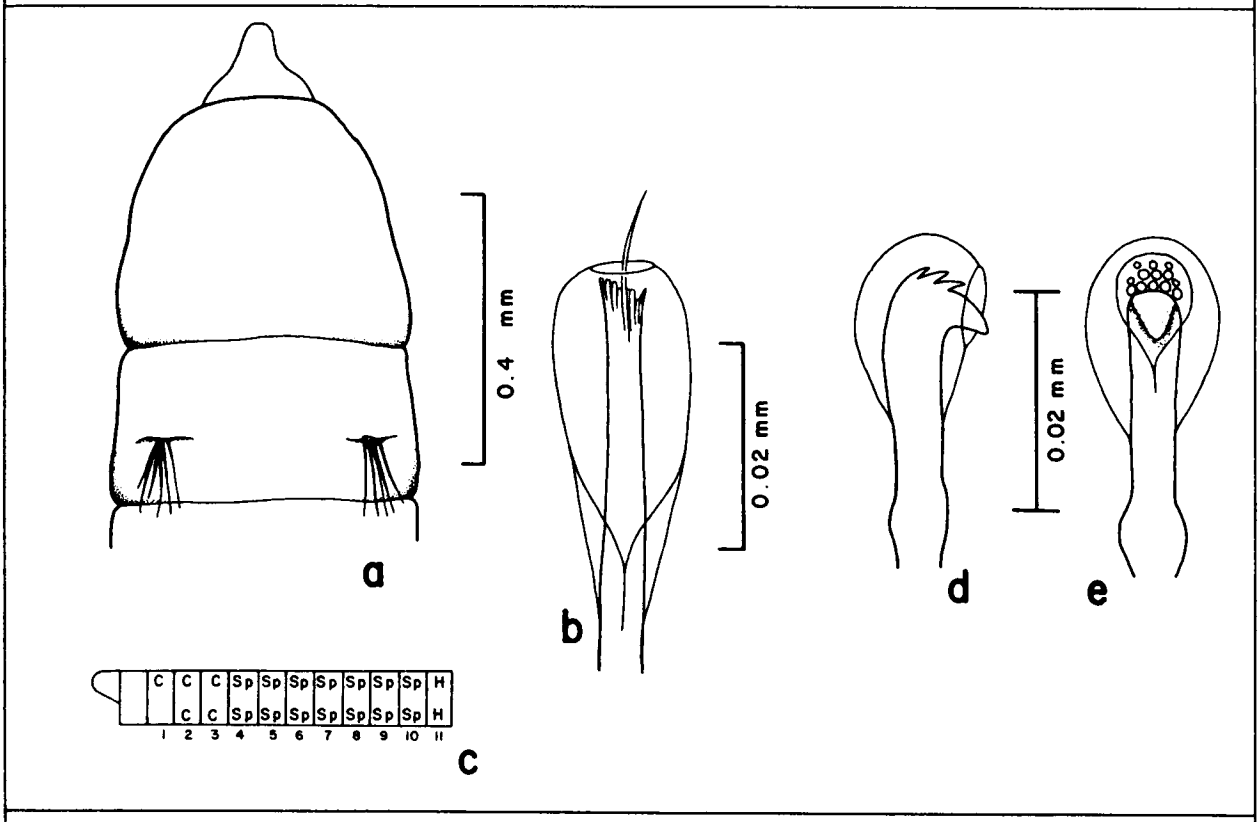

Figure 14-8. Peresiella sp. A: a, anterior end, dorsal view; b, spatulate seta, frontal view; c, diagrammatic representation of thoracic setal arrangement; d, abdominal hooded hook, lateral view; e, frontal view of same.

Fauchald, 1977a:35.
DIAGNOSIS: Prostomium conical, tapering anteriorly to a small oval or pointed palpode; eyes present or absent. Thorax with achaetous peristomium and 11 setigerous segments. First three setigers with capillary setae only; setiger 1 with notopodia only; remainder of thoracic setigers with modified spatulate setae, capillary setae or hooded hooks. Abdominal parapodia with hooded hooks only in both rami. Branchiae, if present, beginning on posterior abdominal segments as simple, conical expansions of superior part of notopodia.

Peresiella sp. A
Figures 14-7, 8a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 18A-4/81 (1 spec., USNM 75252); MAFLA 2105H-6/75 (1 spec.), 2106B-5/75 (1 spec.), 2426H-6/75 (2 spec.), 2645C-6/75 (1 spec., USNM 75158).
DESCRIPTION:
Length, 6.0+ mm; width, to 0.5 mm. Largest specimen incomplete with 18 setigers. Prostomium small, tapering to rounded tip; eyes not observed (Figure 14-8a). Thoracic epithelium smooth to faintly tesselated. First setiger incomplete; following two setigers with capillary setae only; setigers 4-10 with modified spatulate setae (Figure 14-8b) in both rami; last thoracic setiger with hooded hooks only (Figure 14-8c). Separation between thorax and abdomen marked by narrowing of segments and slight increase in number of setae per fascicle. Abdomen with hooded hooks throughout. Hooded hooks multidentate (Figure 14-8d,e) with main fang surmounted by numerous (10+) minute teeth arranged in 2-3 rows. Branchiae not observed.
REMARKS: Peresiella sp. A differs from the two known species of the genus in having seven thoracic setigers with spatulate setae rather than eight as in the type species P. clymenoides Harmelin, 1968, or two as in P. acuminatobranchiata Thomassin, 1970. The present species is further distinguished from P. clymenoides in that the latter has neuropodial hooks on setigers 12-13 with a slender, extremely curved main fang, noticeably different from other abdominal hooks. Peresiella sp. A was confused with Heteromastus filiformis in BLM-MAFLA samples but the former is easily separated from H. filiformis in having three anterior setigers with capillary setae rather than five and possessing modified spatulate setae in the thorax.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several records off Florida (Figure 14-7); 82-168 m; coarse to fine sand, silty very fine sand.

Genus **Mediomastus** Hartman, 1944

TYPE SPECIES: Mediomastus californiensis Hartman, 1944c.
REFERENCES:
Hartman, 1944c:264; 1947a:407.
Hartmann-Schröder, 1962:143.
Day, 1967:600.
Warren, 1979:757.
DIAGNOSIS: Prostomium small, conical or pointed, with or without palpode; eyes present or absent. Thorax with achaetous peristomium and 10

setigerous segments of which the last may be transitional; setigers 1-4 with capillary setae only in both rami; thereafter, thoracic segments with hooded hooks. Abdomen with or without branchiae. Abdominal neuropodia with hooks only; notopodia of median and posterior abdominal segments with or without capillary setae. Pygidium with or without caudal cirrus.

Key to the Gulf of Mexico Species of Mediomastus

1a. Notopodia of median and posterior abdominal segments with capillary setae. . . . . .**Mediomastus ambiseta***

1b. Abdominal notopodia with hooded hooks only . . . . . **Mediomastus californiensis**, p. 14-14

*Not represented in BLM-OCS collections but commonly found in estuarine and nearshore habitats along the northern and northeastern Gulf coast (Dauer and Simon, 1976a,b; Vittor & Assoc., Inc., unpublished). Further taxonomic information may be found in Hartman (1947a:408, 1969:369).

Mediomastus californiensis Hartman, 1944
Figures 14-9, 10a-c

Mediomastus californiensis Hartman, 1944c:264, pl. 26, figs. 64-65; 1947a:408, pl. 46, figs. 3, 4; 1969:387, figs. 1-4.
Mediomastus californiensis--Day, 1973:99.
Mediomastus californiensis--Hutchings and Rainer, 1979:779.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 6A-7/81 (7 spec., USNM 75245), 22B-11/80 (5 spec., USNM 75246), 25A-11/80 (9 spec., USNM 75247); MAFLA 2422C-7/76 (1 spec.), 2423B-7/76 (1 spec., USNM 75153; 25 spec.), 2423C-7/76 (29 spec.), 2423E-7/76 (5 spec.), 2424B-7/76 (2 spec.), 2642E-6/75 (3 spec.); CTGLF 03-5/75 (6 spec.); STOCS 1/I-S/76 (22 spec.); IXTOC S52-11/79 (1 spec., USNM 75119).
Supplementary Material:
Gulf of Mexico--Florida, Alligator Harbor, washed from fine sand tubes on beach, Jan. 1950, O. Hartman, ID. (5 spec.); off Tampa Bay, 26°37.1'N, 82°54.0'W, IEC Sta. 723 TB002-1/80, 12 m, sand (6 spec.); off Louisiana, 28°53'06"N, 90°01'30"W, LOOP Sta. 481-9/80, 33.5 m, clayey silt (2 spec.); off Louisiana, 29°04'50"N, 90°34'48"W, IEC Sta. 743 HO-003-11/80, 4 m, muddy sand (7 spec.); Mississippi Sound, 30°15'20"N, 88°21'46"W, COE Sta. 047-10/80, 5.5 m, muddy sand (1 spec.); Mobile Bay, 30°15'13"N, 88°03'08"W, Mobil Sta. 054C-7/78, 5.3 m, sand (1 spec.), Mobil Sta. 057B-7/78, 4.0 m, sand (1 spec.).
Atlantic Ocean--Hutchinson Island, Florida, 27°22'08"N, 80°13'46"W, 11.8 m, Sept. 1972, J. L. Taylor ID. (100 spec., USNM 54592), same coordinates, 10.3 m, Mar. 1973, J. L. Taylor ID. (25 spec., USNM 54593); North Carolina, off Beaufort, 34°34'N, 76°25'W, Apr. 1965, 20 m, sand and broken shell, J. H. Day ID. (28 spec., USNM 51199), Cape Lookout, intertidal sand mixed with gravel and shell, Aug. 1974, S. Gardiner ID. (3 spec., USNM 53903).

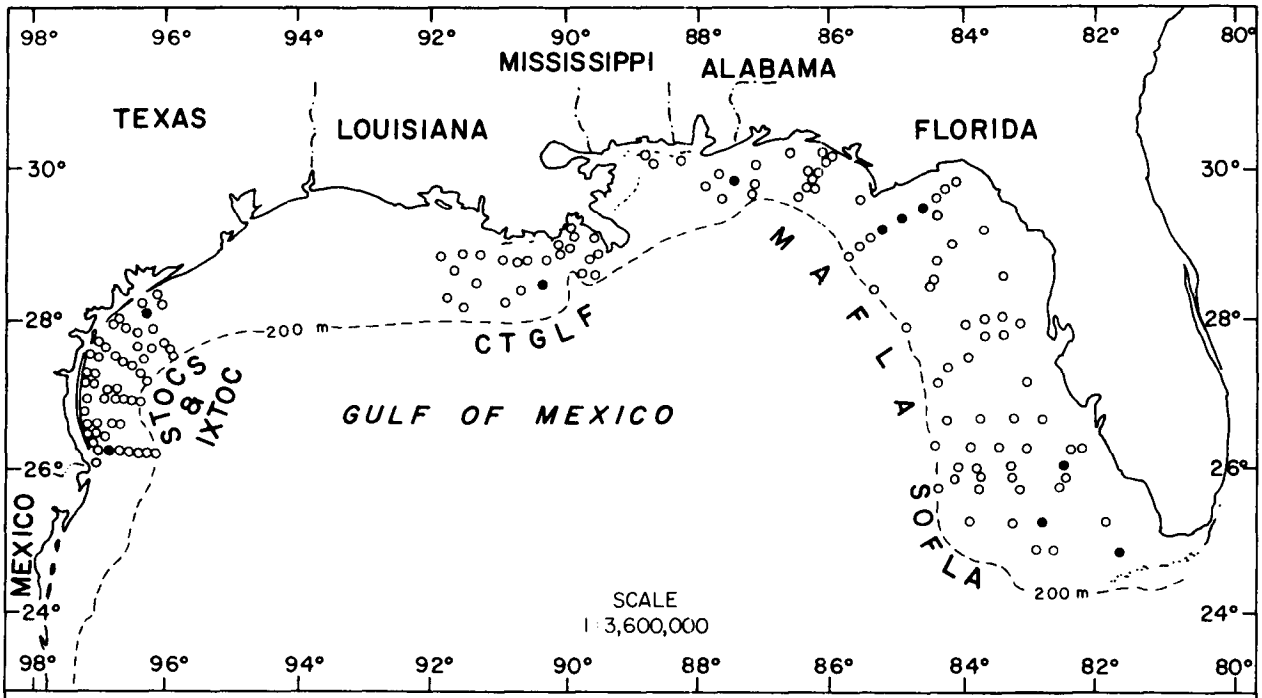

Figure 14-9. Distribution of Mediomastus californiensis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

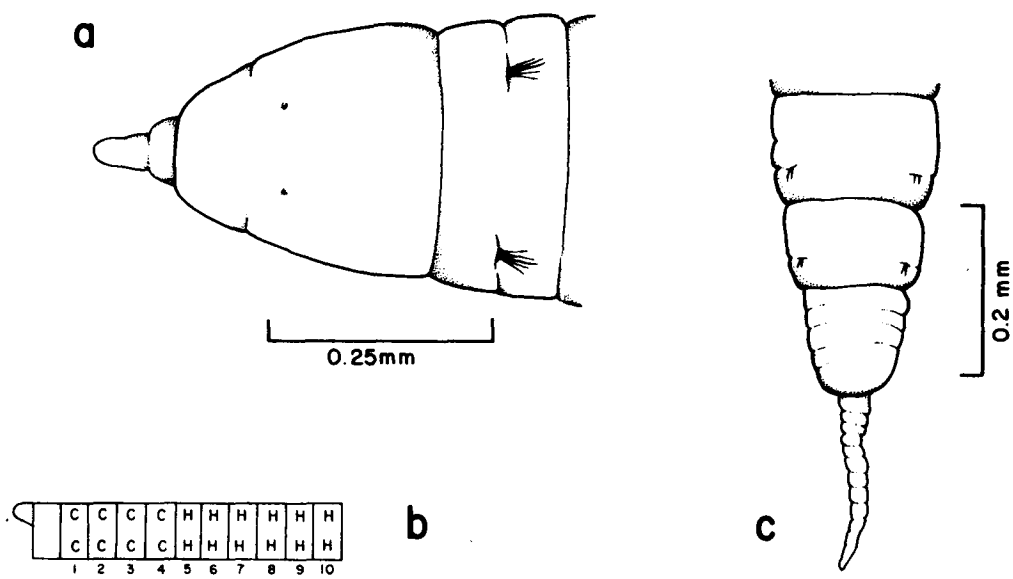

Figure 14-10. Mediomastus californiensis: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, last two abdominal segments and pygidium, dorsal view.

California--Tomales Bay, intertidal, sandy mud (AHF Poly 0428, holotype).
DESCRIPTION:
Length, to 25 mm (previously reported to 25 mm); width, to 0.5 mm (previously reported to 1.0 mm). Largest specimen complete with 100+ setigers. Body thread-like. Prostomium triangular in dorsal view, tapering anteriorly to a cylindrical palpode (Figure 14-10a). Thoracic epithelium smooth. Thorax consisting of an achaetous peristomium with a pair of inconspicuous eyespots and ten biramous setigers (Figure 14-10b). Abdomen with hooks only in both rami of all segments; shafts of hooks becoming noticeably longer in posterior notopodia. Lateral organs and branchiae absent. Pygidium terminating in a filiform caudal appendage (Figure 14-10c).
REMARKS: Contrary to suggestions by Hartmann-Schröder (1962) and Kinner and Maurer (1978), complete specimens of M. californiensis from BLM-OCS samples, as well as specimens from other Gulf of Mexico collections, possess a caudal cirrus as described by Hartman (1951a). The structure of hooded hooks observed in M. californiensis from these collections differs considerably from Hartman's illustrations (1969:387, figs. 3, 4) in having more than five teeth in 2-3 rows above the main fang. Hutchings and Rainer (1979), however, examined paratypes of M. californiensis and noted variation in the dentition of hooded hooks between thorax and abdomen and within a setal fascicle.
PREVIOUSLY REPORTED HABITAT: Intertidal to 517 m; commonly found in fine muddy sands.
GULF OF MEXICO BLM-OCS OCCURRENCE: Abundant throughout northern Gulf (Figure 14-9); 18-53 m; medium to very fine sand, muddy sand, silt/clay.
DISTRIBUTION: North Carolina to Florida, Gulf of Mexico, Oregon to California, Australia.

Genus **Barantolla** Southern, 1921

TYPE SPECIES: Barantolla sculpta Southern, 1921.
REFERENCES:
Southern, 1921:642.
Fauvel, 1932:196.
Hutchings, 1974:185.
Fauchald, 1977a:33.
DIAGNOSIS: Prostomium oval to conical, with palpode; eyes present or absent. Thorax with achaetous peristomium and 11 setigerous segments; first setiger with or without neurosetae. Notopodia of setigers 2-6 with capillary setae only; setiger 7 with mixed fascicles or hooded hooks only; following thoracic notopodia with hooks only. Neuropodia with capillary setae only through setigers 6-8, thereafter with hooks only. Abdomen with hooks only in both rami. Branchiae, when present, as tufts of three or more digitate lobes. Pygidium without appendages.

Barantolla sp. A
Figures 14-11, 12a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5C-7/81 (1 spec.), 18A-4/81 (1 spec.), 18E-4/81 (2 spec.), 24B-

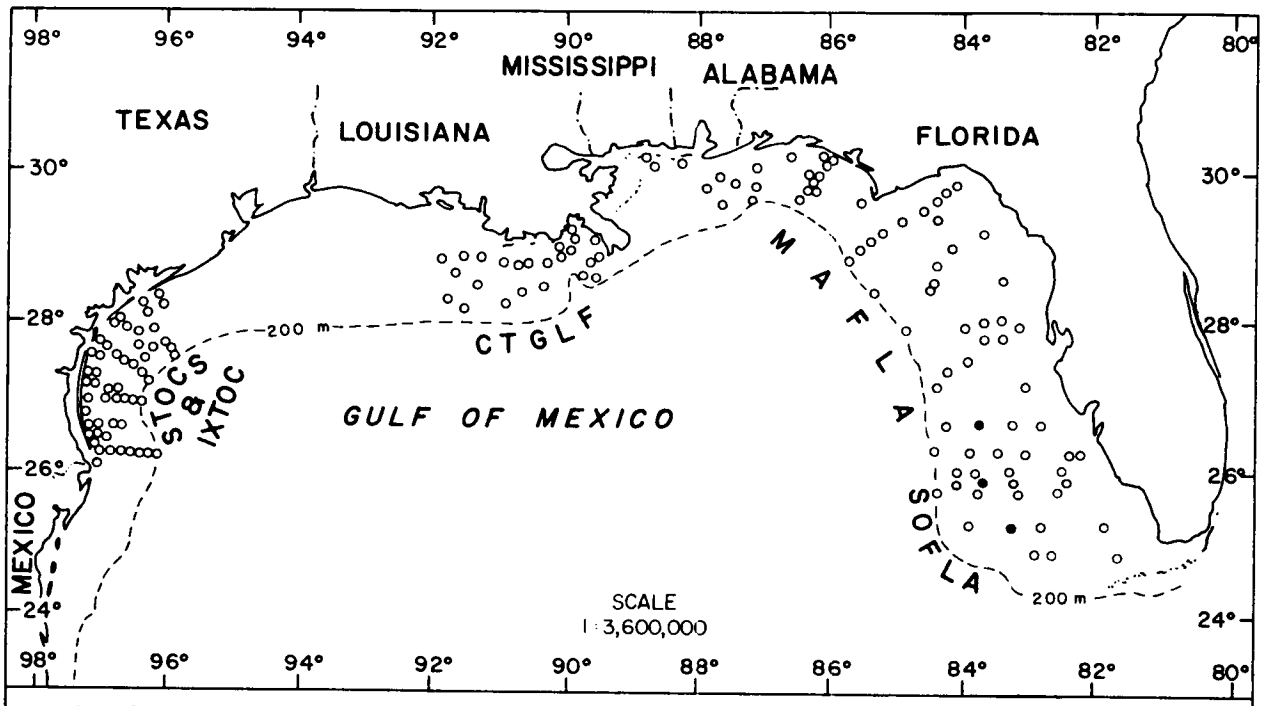

Figure 14-11. Distribution of Barantolla sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

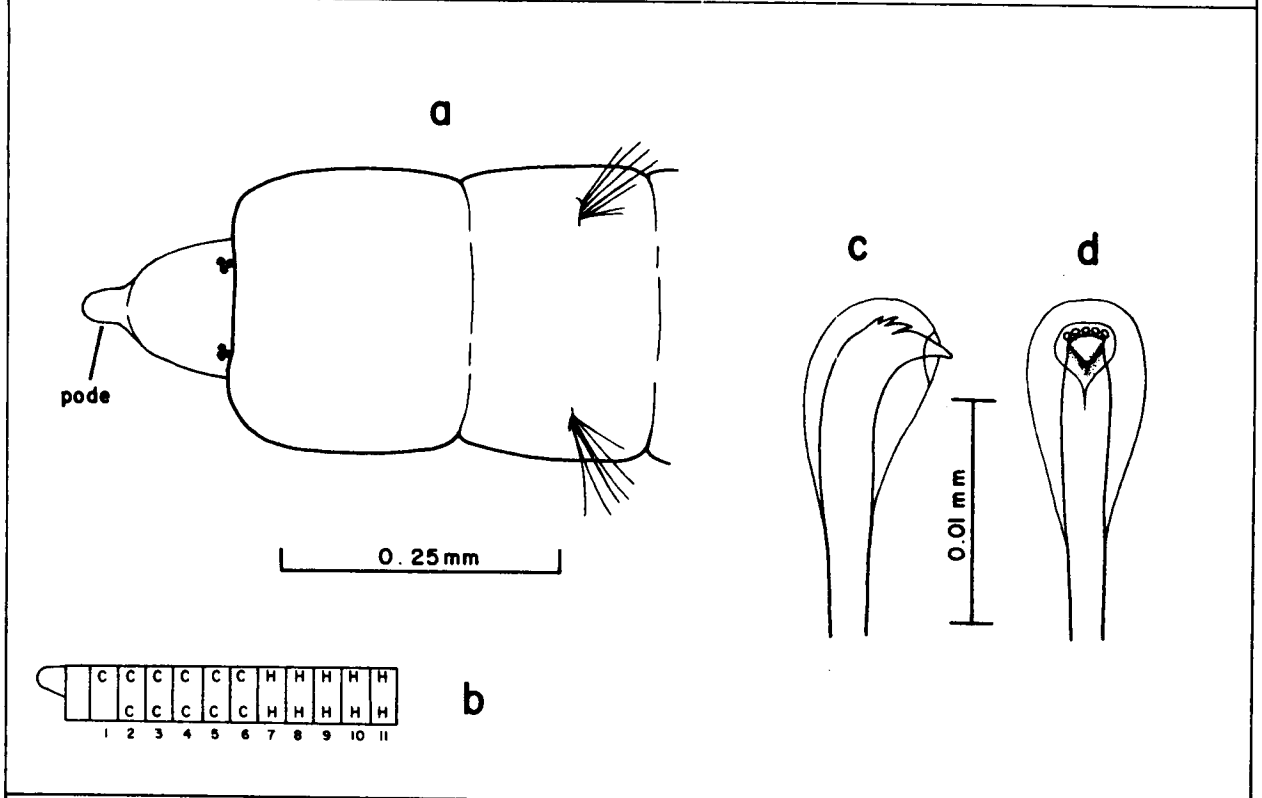

Figure 14-12. Barantolla sp. A: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

8/81 (6 spec.).
Supplementary Material:
Australia--Botany Bay, Sydney, Sta. 883, Dec. 1975, NSW Fisheries coll., C. Glasby ID. (Barantolla lepte, 6 spec., AM W18695).
DESCRIPTION:
Length, 9+ mm (previously reported to 45 mm); width, to 0.35 mm (previously reported to 1.0 mm). Largest specimen incomplete with 28 setigers. Prostomium broad at base, tapering anteriorly to a cylindrical palpode; with small but conspicuous ocular patches (Figure 14-12a). Thoracic epithelium smooth. First setiger with capillary setae in notopodia only; following five setigers with capillary setae only in noto- and neuropodia; thereafter with hooded hooks only in both rami (Figure 14-12b). Transition from thorax to abdomen fairly distinct; anterior abdominal segments narrower and noticeably longer than those of posterior thorax. Abdominal hooks in short, widely separated rows. Nephridial apertures and lateral organs not visible. Branchiae presumably absent. Hooded hooks multidentate with main fang surmounted by at least ten minute denticles in 2-3 rows (Figure 14-12c,d).
REMARKS: These specimens agree with Barantolla lepte Hutchings, 1974, in the thoracic setal arrangement. However, they differ in having small ocular patches consisting of 2-3 distinct eyespots rather than elongate, diffuse patches of 10-15 minute pigment spots, and a smooth rather than tesselated epithelium on anterior thoracic segments. Abdominal notosetae in B. lepte are in short rows emerging from a single, elevated glandular torus; neurosetal fascicles are noticeably longer and arise from well-defined, widely separated tori. In Barantolla sp. A, all abdominal setae are in short, well-separated rows arising directly from the body wall.
GULF OF MEXICO BLM-OCS OCCURRENCE: Three stations off southern Florida (Figure 14-11); 87-91 m; coarse to medium sand.

Genus **Notomastus** Sars, 1851

TYPE SPECIES: Notomastus latericeus Sars, 1851.
REFERENCES:
Sars, 1851:199.
Hartman, 1947a:411.
Day, 1967:597.
Thomassin, 1970:82.
Hartmann-Schröder, 1971:398.
Ewing, 1982:232.
DIAGNOSIS: Prostomium conical, with or without palpode; eyes present or absent. Thorax with achaetous peristomium and eleven setigerous segments; first setiger with or without neurosetae; following thoracic segments with capillary setae only in both rami or with hooks only in neuropodia of last 1-3 setigers. Abdomen with hooded hooks only in both rami. Nephridial apertures, when present, limited to either thorax or abdomen or present on a few segments in both regions. Branchiae, if present, as nonretractile, simple expansions of noto- and/or neuropodia, or as eversible, branched tufts from notopodial ridges. Pygidium with or without appendages.

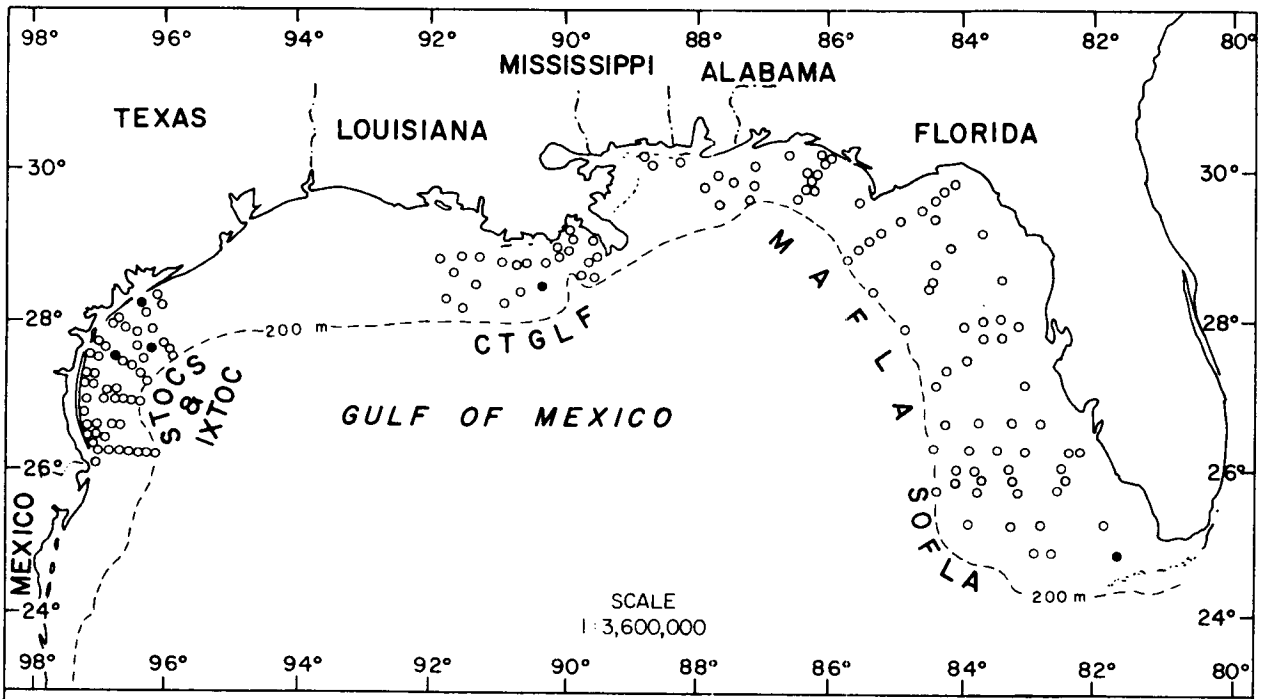

Figure 14-13. Distribution of Notomastus daueri on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

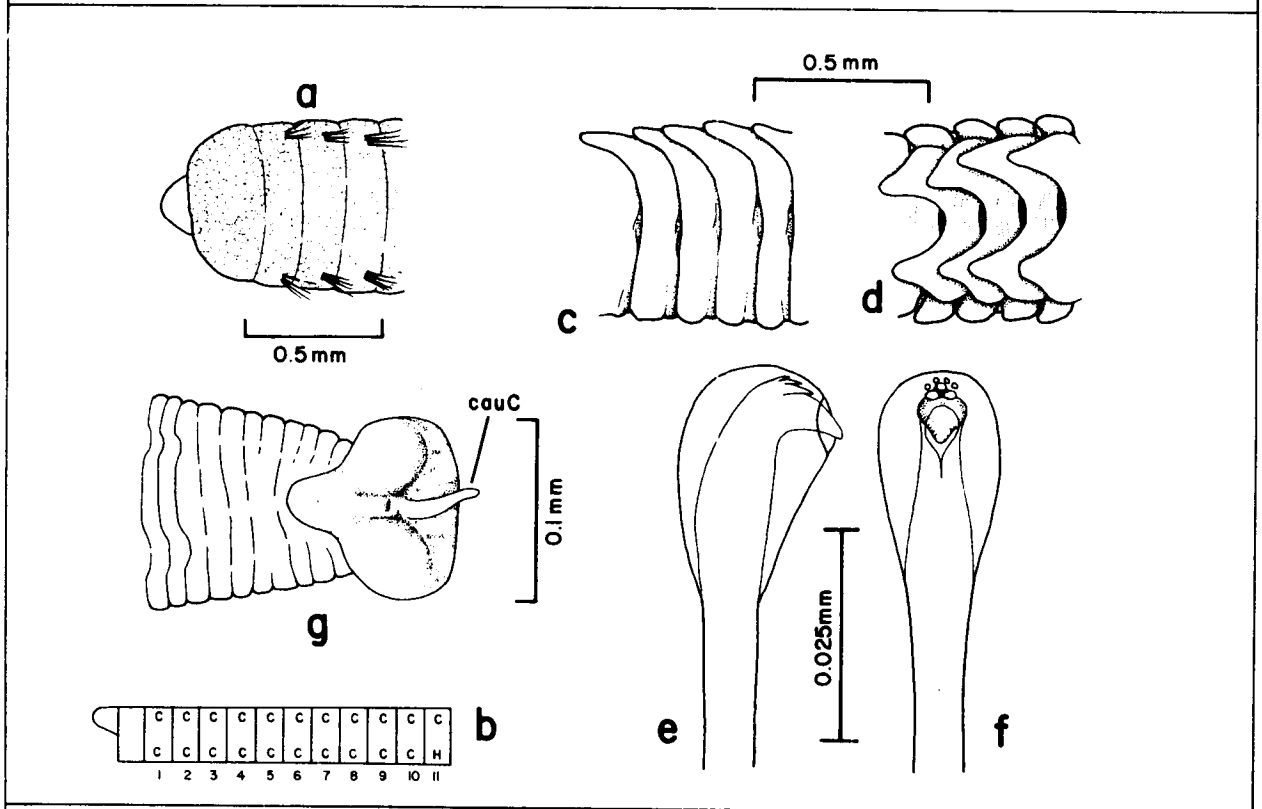

Figure 14-14. Notomastus daueri: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, posterior abdominal segments, lateral view; d, dorsal view of same; e, abdominal hooded hook, lateral view; f, frontal view of same; g, pygidium, dorsal view. Figures c-g taken from Ewing, 1982.

Key to the Gulf of Mexico BLM-OCS Species of Notomastus

1a. First setiger complete, with noto- and neurosetae. 2
1b. First setiger incomplete, with notosetae only. 5

2a. Last thoracic segment with capillary setae only in both rami . . 3
2b. Last thoracic segment with capillary setae only in notopodia and hooded hooks only in neuropodia (Figure 14-14b). . . . . .**Notomastus daueri**, p. 14-20

3a. Abdominal notosetae present. 4
3b. Abdominal notosetae absent. . . . . **Notomastus lobatus**, p. 14-22

4a. Nephridial apertures (Figure 14-18c) restricted to thorax; thoracic segments uniannulate. . . . . **Notomastus lineatus**, p. 14-24
4b. Nephridial apertures restricted to abdomen; thoracic segments biannulate. . . . . .**Notomastus latericeus**, p. 14-26

5a. All thoracic setigers with capillary setae only 6
5b. Some thoracic setigers with neuropodial hooded hooks. 7

6a. Prostomium with long ocular patches (Figure 14-22a). . . . . **Notomastus ?tenuis**, p. 14-26
6b. Prostomium with pair of minute (often inconspicuous) eyespots (Figure 14-24a). . . . . .**Notomastus hemipodus**, p. 14-28

7a. Last thoracic neuropodia with hooded hooks only (Figure 14-26b). . . . . .**Notomastus americanus**, p. 14-31
7b. Last two thoracic neuropodia with hooded hooks only (Figure 14-28b). . . . . **Notomastus sp. A**, p. 14-33

Notomastus daueri Ewing, 1982
Figures 14-13, 14a-g

Notomastus daueri Ewing, 1982:234, fig. 1a-e.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25A-7/81 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 90354); STOCS 4/II-2/76 (2 spec., USNM 90355), 4/II-5/76 (3 spec., USNM 90356), HR3-12/76 (1 spec., USNM 90357); IXTOC N40-11/79 (1 spec.).
Supplementary Material:
Gulf of Mexico--off Louisiana, 28°56'12"N, 90°04'07"W, LOOP Sta. 479-4/80, 27.7 m, silty clay (USNM 71442, holotype; USNM 71443, 2 paratypes; 18 additional spec.), 28°53'06"N, 90°1'30"W, LOOP Sta. 481-9/80, 33.5 m, clayey silt (AHF Poly 1361, 1 paratype), 28°51'06"N, 90°04'21"W, LOOP Sta. 484-8/80, 33.4 m, clayey silt (1 spec.); Mississippi Sound, 30°14'29"N, 88°25'38"W, COE Sta. 043-10/80, 5.6 m, muddy sand (1 spec.).
DESCRIPTION:
Length, to 65 mm; width, to 1.1 mm. Largest specimen complete with 234 setigers. Prostomium short, broadly triangular, without eyes (Figure 14-14a). Thoracic epithelium faintly areolated through setiger 4, smooth thereafter. First ten thoracic setigers with capillary setae only in both rami; last thoracic setiger with capillary setae only in

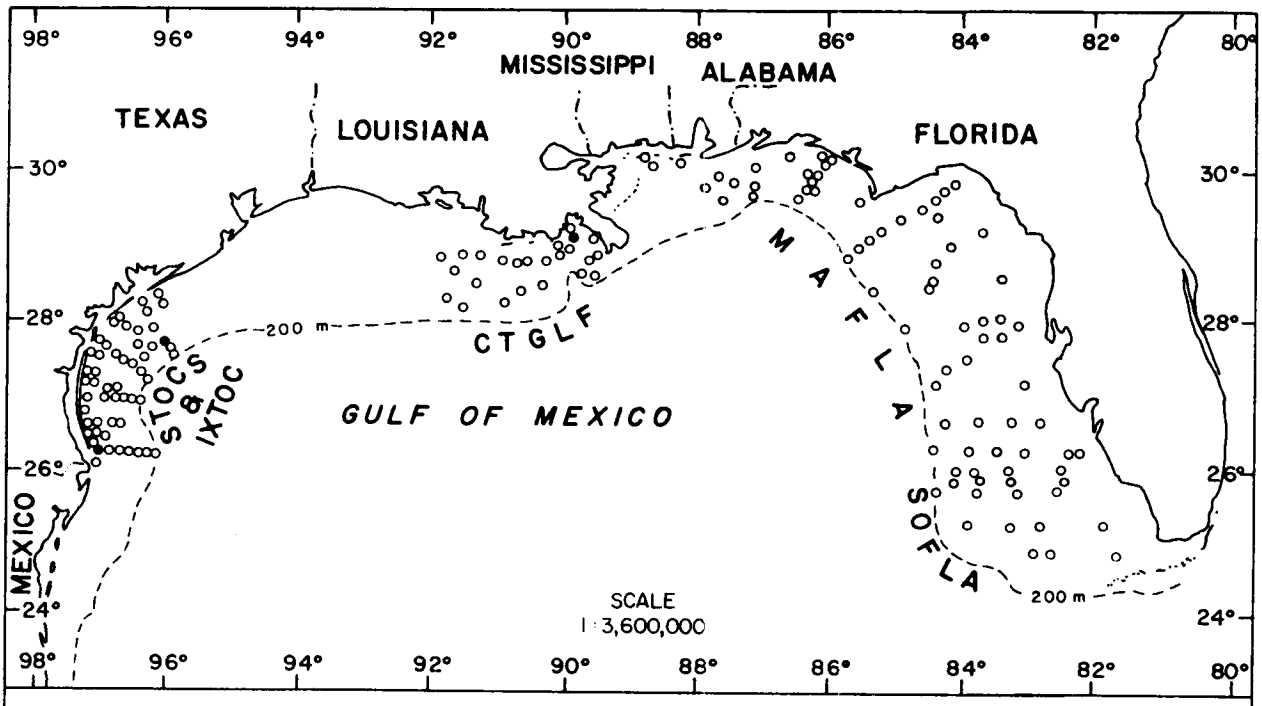

Figure 14-15. Distribution of Notomastus lobatus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

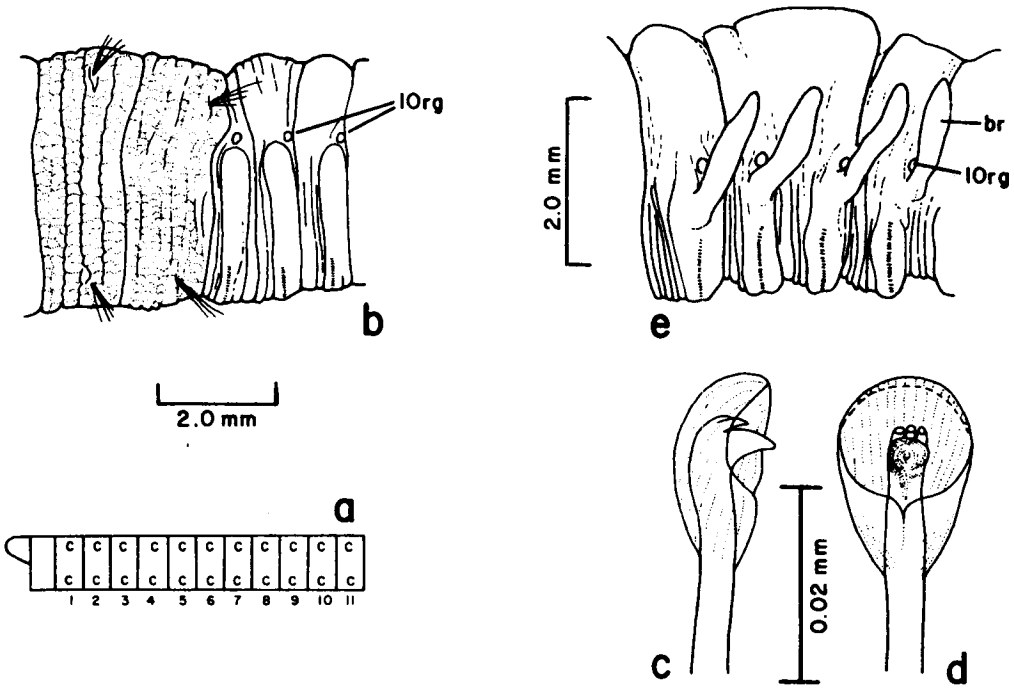

Figure 14-16. Notomastus lobatus: a, diagrammatic representation of thoracic setal arrangement; b, last two thoracic and first three abdominal segments, lateral view; c, abdominal hooded hook, lateral view; d, frontal view of same; e, mid-abdominal segments showing branchiae (lateral view).

notopodia and hooded hooks only in neuropodia (Figure 14-14b). Nephridial apertures located in segmental grooves between each of the last four thoracic segments. Transition from thorax to abdomen usually distinct. Abdominal tori with multidentate hooded hooks only; notopodial hooks in short rows on anterior segments, disappearing completely 5-15 segments after appearance of branchial lobes. Neurosetal fascicles on long, slightly elevated glandular tori; neurosetae present to pygidium. Lateral organs present from first setigerous segment, presumably present throughout abdomen but inconspicuous by median abdominal segments. Branchiae emerging from anterior abdominal segments as short posterolateral swellings of the notopodia, increasing in length posteriorly, developing into large triangular lamellae by midabdomen (Figure 14-14c,d). Hooded hooks multidentate with main fang surmounted by 7-8 denticles arranged in three rows (Figure 14-14e,f). Pygidium funnel-shaped with a single digitiform median cirrus (Figure 14-14g).
REMARKS: Significant variations in the thoracic setal formula were observed in numerous small (juvenile?) specimens of Notomastus daueri. For example, the last two thoracic notopodia may have mixed fascicles of capillary setae and hooks or hooded hooks only; neuropodia of setigers 7-10 may have capillary setae only, mixed fascicles, hooks only, or combinations of these in a given segment.
PREVIOUSLY REPORTED HABITAT: 5-34 m; muddy sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records throughout Gulf (Figure 14-13); 10-81 m; silty clayey sand, silty clay, sandy silty clay.
DISTRIBUTION: Gulf of Mexico.

Notomastus lobatus Hartman, 1947
Figures 14-15, 16a-e

Notomastus lobatus Hartman, 1947a:415, pl. 51, figs. 1-5; 1969:399, figs. 1-5.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
CTGLF 02-5/78 (1 spec., USNM 90348); STOCS 5/I-Sp/76 (1 spec., USNM 75205), 4/IV-F/76 (1 spec.).
Supplementary Material:
Gulf of Mexico--Mobile Bay, 30°15'13"N, 88°03'08"W, Mobil Sta. 052B-4/79, 6.5 m, sandy clay (1 spec.), Mobil Sta. 055C-7/78, 4.3 m, sand (1 spec.); off Mississippi, 30°08'41"N, 88°52'43"W, COE Sta. 157-11/80, 11.1 m, clayey silt (3 spec.), 30°11'28"N, 88°41'13"W, COE Sta. 363-11/80, 11.9 m, silty sand (1 spec.), 30°10'19"N, 88°55'06"W, IEC Sta. 732 MO 014-6/80, 8.0 m, muddy sand (2 spec.).
Atlantic Ocean--off North Carolina, 33°47.5'N, 78°01.5'W, IEC Sta. 733WL 001-7/80, 13 m, clean sand (1 spec.), 33°46.1'N, 78°00.0'W, IEC Sta. 733WL 002-7/80, 13 m, muddy sand (2 spec.).
Mexico--Gulf of California, Velero III sta. 1069-40, 31°06'30"N, 114°28'15"W, muddy bottom, 38-64 m, Feb. 1940, O. Hartman ID. (2 paratypes, AHF).
DESCRIPTION:
Length, 250+ mm (previously reported to 60 mm); width, to 10 mm (previously reported to 5.5 mm). Largest specimen complete with 180+ setigers. Prostomium short, triangular, often withdrawn into first segment;

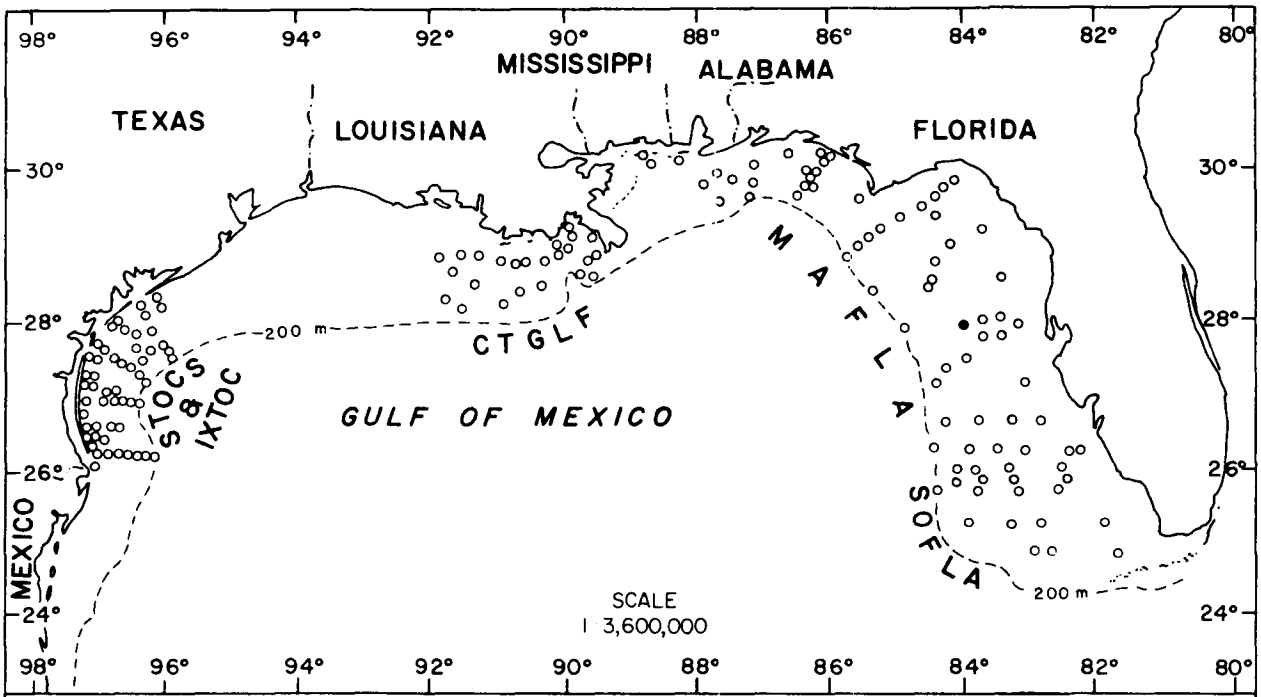

Figure 14-17. Distribution of Notomastus lineatus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

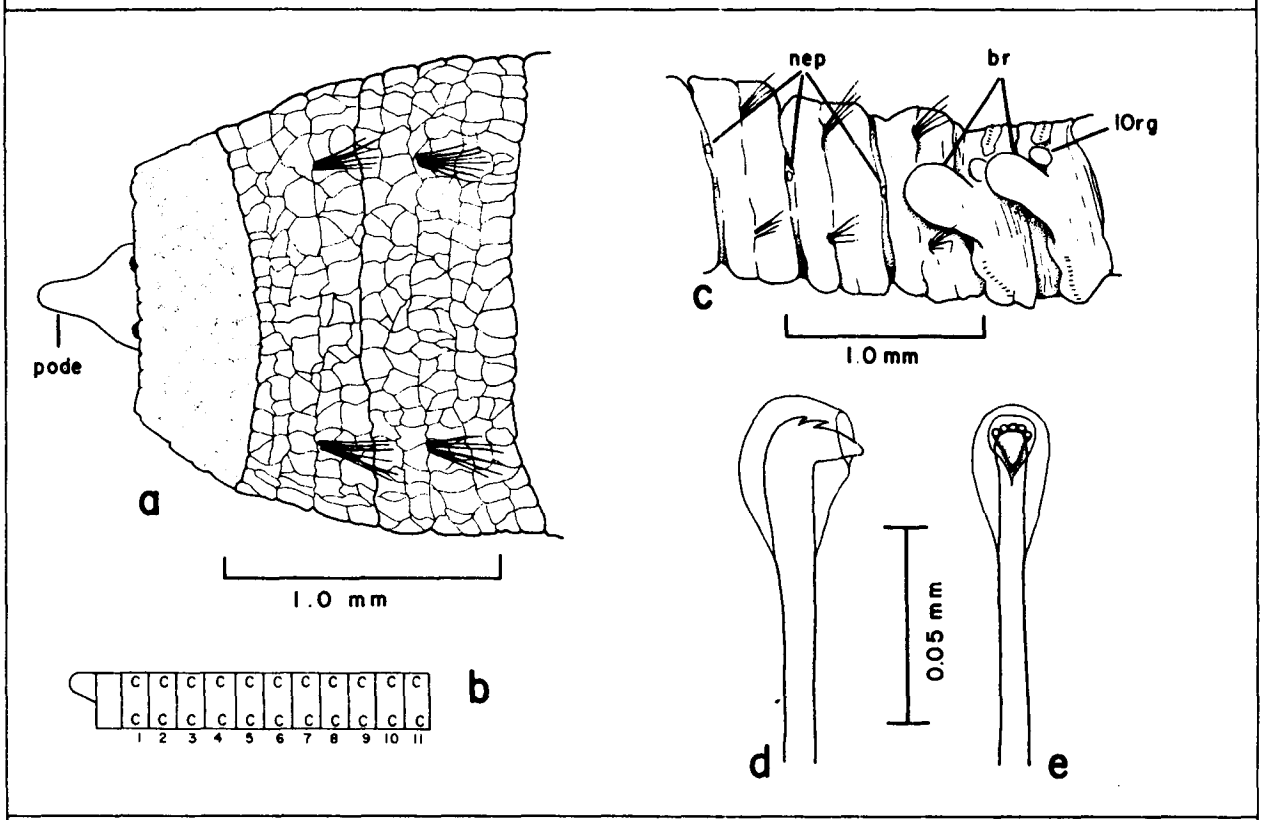

Figure 14-18. Notomastus lineatus: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, lateral view of last three thoracic and first two abdominal segments; d, abdominal hooded hook, lateral view; e, frontal view of same.

eyes usually absent, infrequently present on small specimens. Thoracic epithelium areolated throughout, segments biannulate. All thoracic setigers with capillary setae only in both rami (Figure 14-16a). Transition from thorax to abdomen abrupt (Figure 14-16b). Abdomen ventrally flattened, dorsally inflated. Neuropodial tori greatly enlarged from thorax, with long rows of hooded hooks separated by shallow midventral groove; notopodial tori and notosetae absent. Hooded hooks multidentate with unusually large hood; main fang surmounted by 3-4 denticles (Figure 14-16c,d). Branchiae first present from abdominal segments 12-25 as nonretractile, strap-like prolongations of superior part of neuropodial tori (Figure 14-16e); branchiae presumably present throughout abdomen (only complete specimen examined was regenerating tail end). Pygidium without appendages.
PREVIOUSLY REPORTED HABITAT: Intertidal to 644 m; commonly found in mud and muddy sands.
GULF OF MEXICO BLM-OCS OCCURRENCE: Three stations off Texas and Louisiana (Figure 14-15); 15-81 m; sand, sandy silt, silty clay.
DISTRIBUTION: North Carolina, Gulf of Mexico, southern California to Mexico.

Notomastus lineatus Claparède, 1870
Figures 14-17, 18a-e

Notomastus (Clistomastus) lineatus Claparède, 1870a:18; pl. 17, fig. 4.
Notomastus lineatus--Fauvel, 1927:145, fig. 51a-i.
Notomastus (Clistomastus) lineatus--Hartman, 1947a:419, pl. 46, figs. 1, 2; 1969:395, figs. 1-5.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211A-8/77 (1 spec., USNM 90349).
DESCRIPTION:
Length, 16.0+ mm (previously reported to 60 mm); width, 2.0 mm (previously reported to 2.0 mm). Largest specimen incomplete with 22 setigers. Prostomium broad at base, tapering anteriorly to a cylindrical palpode; ocular patches present (Figure 14-18a). Thoracic epithelium strongly areolated through setiger 6 or 7, less distinctly areolated thereafter. Thorax with capillary setae only in both rami (Figure 14-18b). Nephridial apertures visible in segmental groove between each of last three thoracic setigers (Figure 14-18c). Transition from thorax to abdomen abrupt, marked by change from capillary setae to hooded hooks in both rami and by distinct parapodial differences. Abdominal notopodial tori short; neuropodia large, superiorly inflated into foliaceous branchial lamellae. Conspicuous ovoid lateral organs present between noto- and neuropodia. Hooded hooks multidentate with main fang surmounted by 4-5 teeth in a single row (Figure 14-18d,e).
REMARKS: Hooded hooks occasionally have a second row of 2-4 minute denticles barely visible under oil immersion. This species may be easily confused with Notomastus latericeus which has remarkably similar abdominal neuropodial vesicular structures; however, the latter lacks nephridial apertures in the thorax.
PREVIOUSLY REPORTED HABITAT: Shallow subtidal to 298 m; fine to coarse sand, sandy gravel, coral rubble.

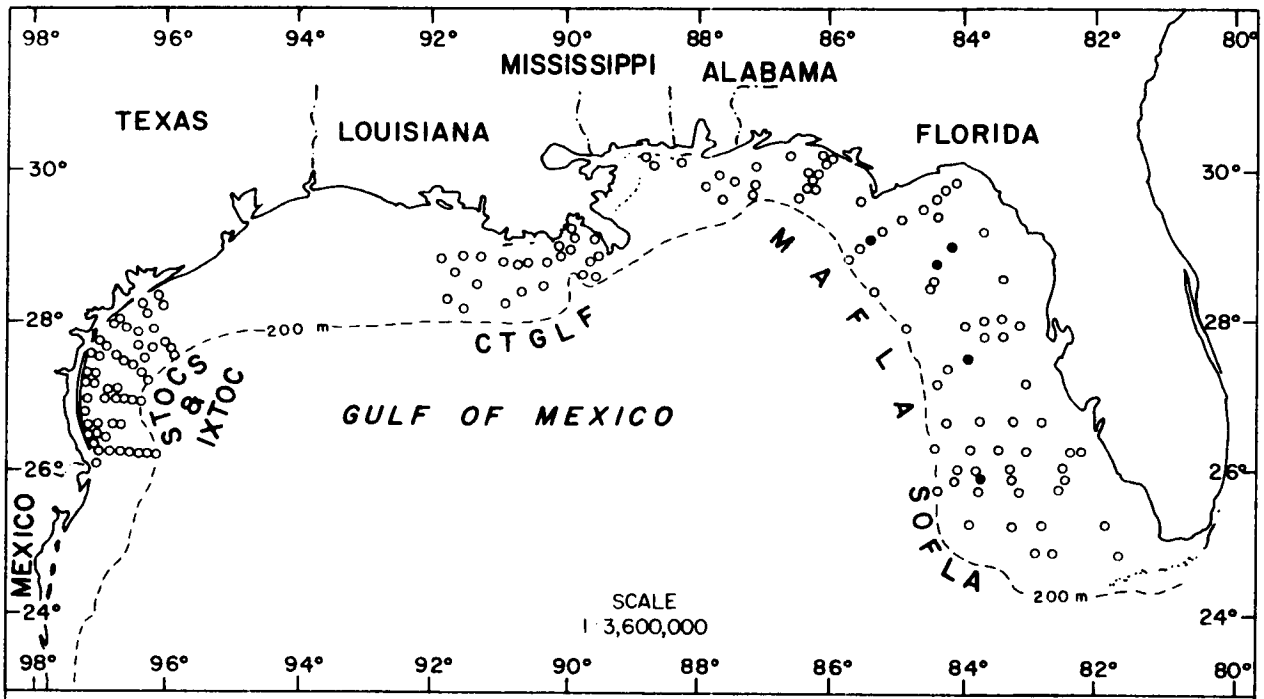

Figure 14-19. Distribution of Notomastus latericeus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

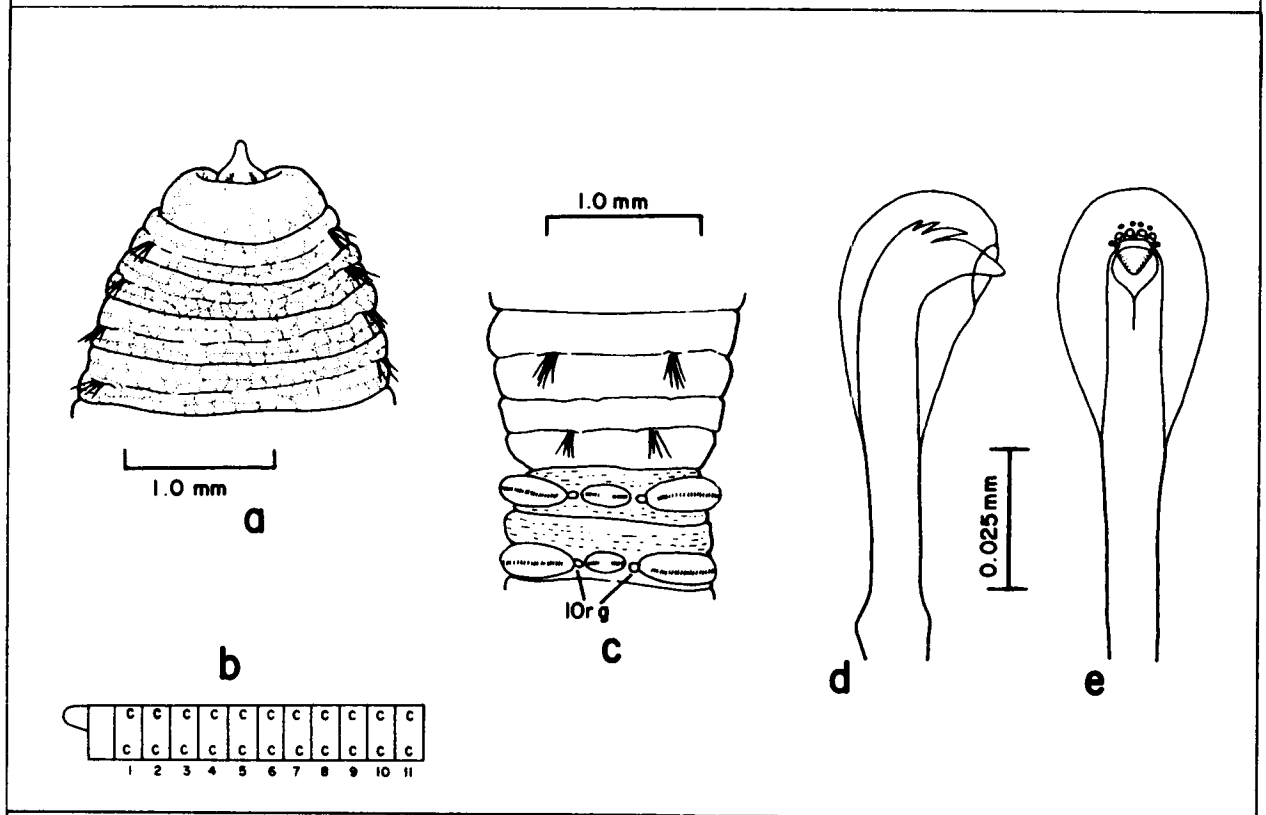

Figure 14-20. Notomastus latericeus: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, last two thoracic and first two abdominal segments, dorsal view; d, abdominal hooded hook, lateral view; e, frontal view of same.

GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 14-17), 43 m; coarse sand.
DISTRIBUTION: Mediterranean Sea, Gulf of Mexico, Panama, Antarctic, Canada to California.

Notomastus latericeus Sars, 1851
Figures 14-19, 20a-e

Notomastus latericeus Sars, 1851:199.
Notomastus latericeus--Fauvel, 1927:143, fig. 49a-h.
Notomastus latericeus--Day, 1967:599, fig. 28.2.a-d.
Notomastus latericeus--Gallardo, 1968:120, pl. 53, fig. 13.
Notomastus latericeus--Thomassin, 1970:83, fig. 8a-e.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 18A-11/80 (4 spec.), 18A-4/81 (1 spec.); MAFLA 2316B-9/75 (1 spec.), 2316F-9/75 (2 spec.), 2316H-9/75 (1 spec.), 2317G-9/75 (1 spec.), 2317A-8/76 (1 spec., USNM 75156), 2425A-9/75 (2 spec.), 2748-2/78 (1 spec.).
DESCRIPTION:
Length, 23+ mm (previously reported to 300 mm); width, to 2.2 mm. Largest specimen incomplete with 29 setigers. Prostomium broadly conical, tip blunt; ocular patches present (Figure 14-20a). Thoracic epithelium distinctly areolated through setigers 6-8, becoming increasingly smooth thereafter; segments biannulate. Thorax with capillary setae only in both rami (Figure 14-20b). Transition from thorax to abdomen abrupt (Figure 14-20c). Abdomen with hooded hooks only in both rami. Conspicuous ovoid lateral organ between noto- and neuropodia of most abdominal segments; seven or more pairs of nephridial apertures (usually inconspicuous) from second abdominal segment. Branchiae rudimentary, represented by small dorsolateral swellings of notopodia and large triangular extensions of neuropodia. Hooded hooks multidentate with main fang surmounted by up to 18 minute denticles arranged in three or more rows (Figure 14-20d,e). Pygidium without appendages.
REMARKS: The anterior abdominal segments of Notomastus latericeus resemble those of N. lobatus in that the neuropodial tori are often similar in shape and relative size. However, Notomastus lobatus differs considerably from the former species in lacking abdominal notosetae and in the structure of the hooded hooks.
PREVIOUSLY REPORTED HABITAT: Intertidal to 4360 m; found in a wide variety of sediment types.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several records off Florida (Figure 14-19); 29-87 m; coarse to medium sand, silty fine to very fine sand.
DISTRIBUTION: Cosmopolitan.

Notomastus ?tenuis Moore, 1909
Figures 14-21, 22a-e

Notomastus tenuis Moore, 1909a:277, pl. 9, fig. 55.
Notomastus angulatus--Chamberlin, 1919b:16.
Notomastus angulatus--Berkeley, 1929:312.

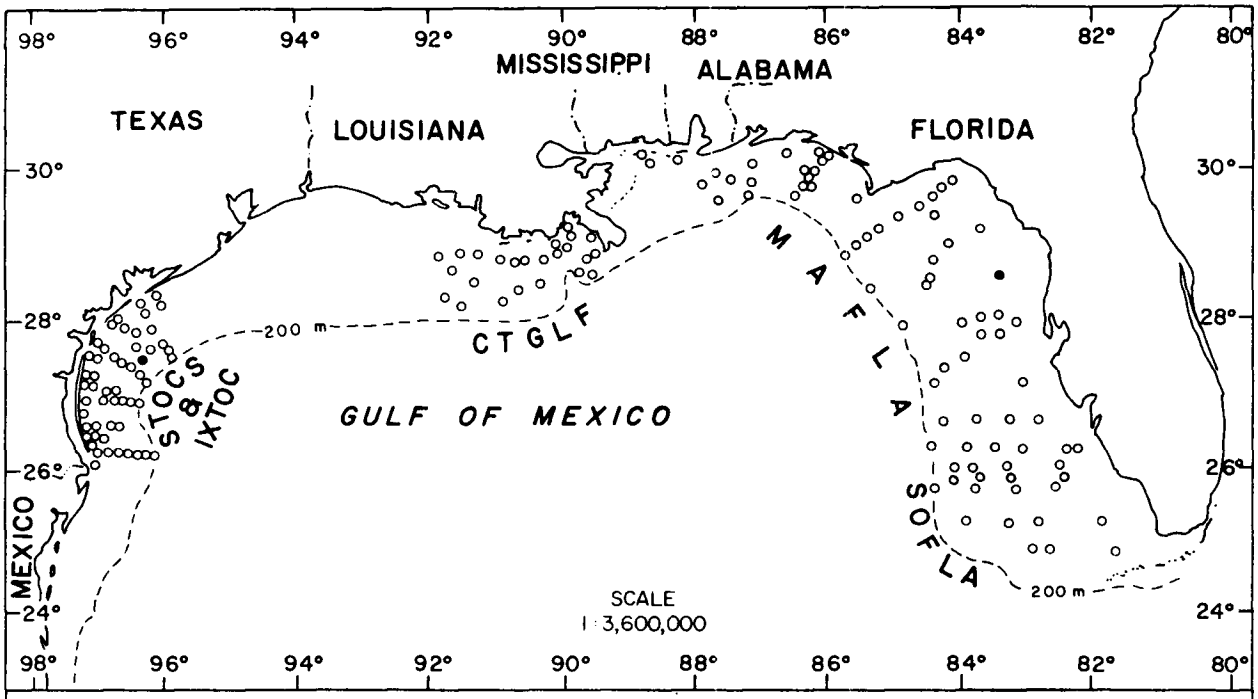

Figure 14-21. Distribution of Notomastus ?tenuis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

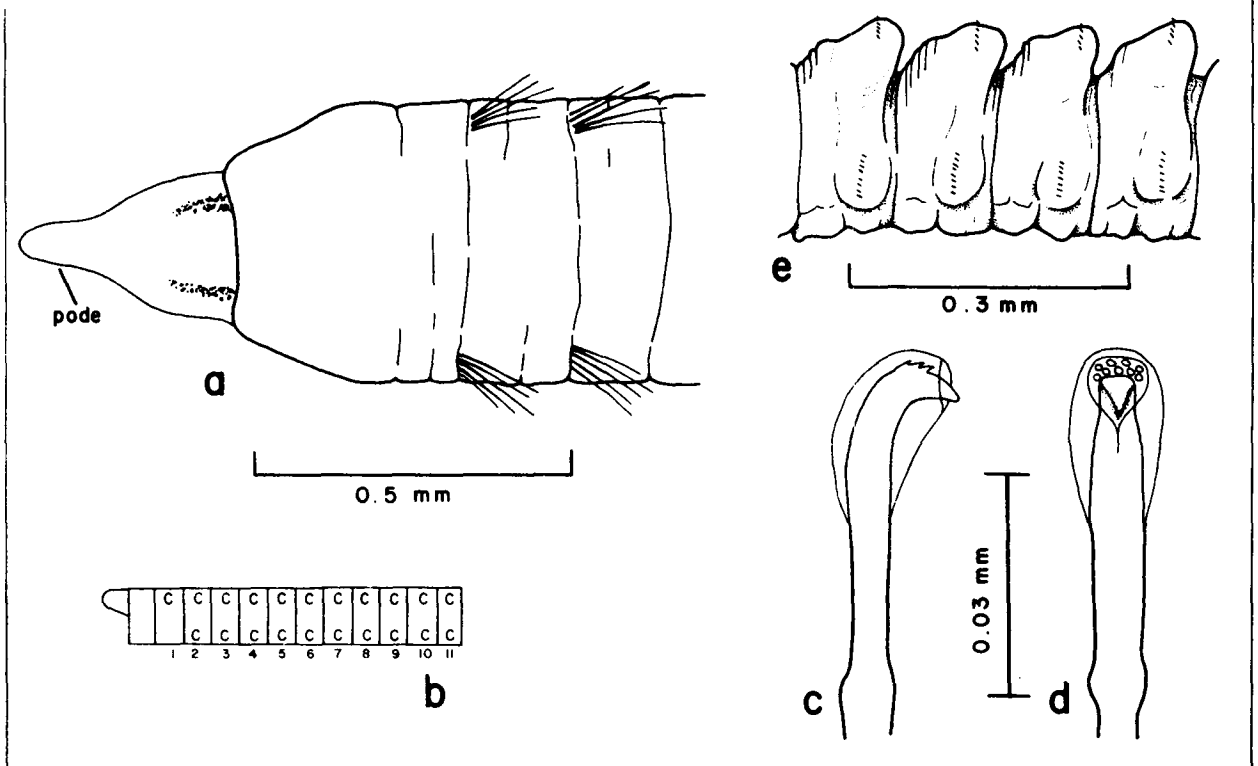

Figure 14-22. Notomastus ?tenuis: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same; e, ventrolateral view of posterior abdominal segments (adapted from Hartman, 1947, pl. 47, fig. 5).

Notomastus (Clistomastus) tenuis--Hartman, 1947a:420, pl. 47, figs. 1-5; 1969:397, figs. 1-5.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2852C-7/76 (3 spec.); STOCS SB3-S/76 (1 spec., USNM 90350).
Supplementary Material:
California--Newport Harbor, Velero III Sta. 1450-42, 33°36'04"N, 117°52'48"W, intertidal, June 1942, O. Hartman ID. (Notomastus tenuis, 2 spec.).
DESCRIPTION:
Length, 15.0+ mm (previously reported to 250 mm); width, to 0.7 mm (previously reported to 0.8 mm). Largest specimen incomplete with 23 setigers. Prostomium broadly conical, terminating in a small palpode; elongate ocular patches present (Figure 14-22a). Thoracic epithelium smooth to faintly areolated. First thoracic setiger incomplete with notopodia only; following ten setigers with capillary setae only in both rami (Figure 14-22b). Nephridial apertures not observed. Transition from thorax to abdomen indistinct, marked only by change in setal type. Abdomen with multidentate hooded hooks only in both rami. Hooded hooks with main fang surmounted by two or more rows of minute denticles (Figure 14-22c,d). Lateral organs inconspicuous. Distinct branchial structures absent but parapodia of median and posterior abdominal segments slightly inflated (Figure 14-22e).
REMARKS: Specimens agree with previous descriptions of Notomastus tenuis Moore, 1909a, in the thoracic setal formula and in the presence of enlarged abdominal parapodia. Moore (1909a, pl. IX, fig. 55) illustrated, albeit poorly, a lateral view of a hooded hook showing at least two rows of denticles above the main fang. Hartman (1947a), however, described the hooded hooks as having a main fang surmounted by a single row of four or five teeth. Due to possible differences in hook dentition, and particularly the absence of posterior ends, these specimens are questionably referred to Notomastus tenuis.
PREVIOUSLY REPORTED HABITAT: Intertidal to 379 m; mud and sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off Florida and Texas (Figure 14-21); 22-82 m; medium sand.
DISTRIBUTION: Canada to California, ?Gulf of Mexico.

Notomastus hemipodus Hartman, 1945
Figures 14-23, 24a-d

Notomastus (Clistomastus) hemipodus Hartman, 1945:38; 1947a:424, pl. 48, figs. 1-5; 1951a:103, pl. 24, figs. 1-3; 1969:393, figs. 1-5.
Notomastus hemipodus--Day, 1973:100.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 14E-7/81 (2 spec., USNM 75250); MAFLA 2101D-7/76 (1 spec.), 2208G-8/77 (1 spec.), 2209F-8/77 (1 spec.), 2210F-7/76 (1 spec., USNM 75155), 2421A-9/75 (1 spec.), 2851H-7/76 (1 spec.); IXTOC S52-11/79 (1 spec.).
Supplementary Material:
Gulf of Mexico--Mobile Bay, 30°15'13"N, 88°03'08"W, Mobil Sta. 054F-4/79, 5.3 m, sandy clay (1 spec.), Mobil Sta. 055A-7/78, 4.3 m, sand (1 spec.), Mobil Sta. 056B-7/78, 4.0 m, sand (1 spec.).

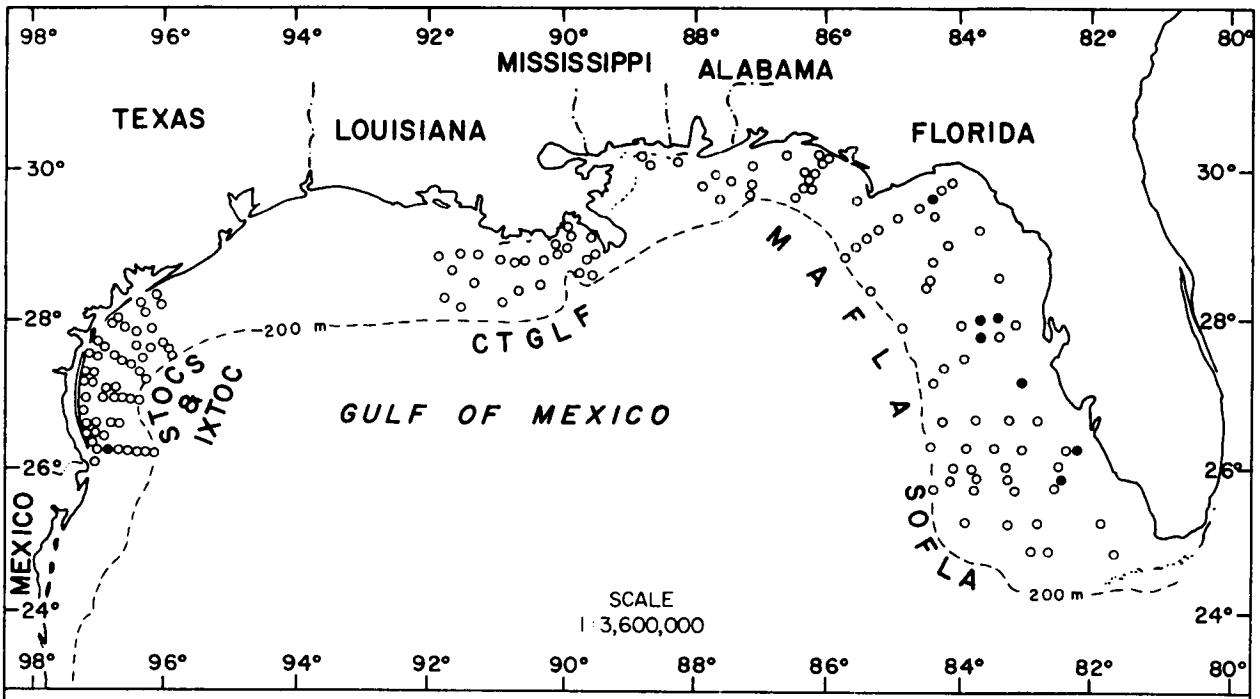

Figure 14-23. Distribution of Notomastus hemipodus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

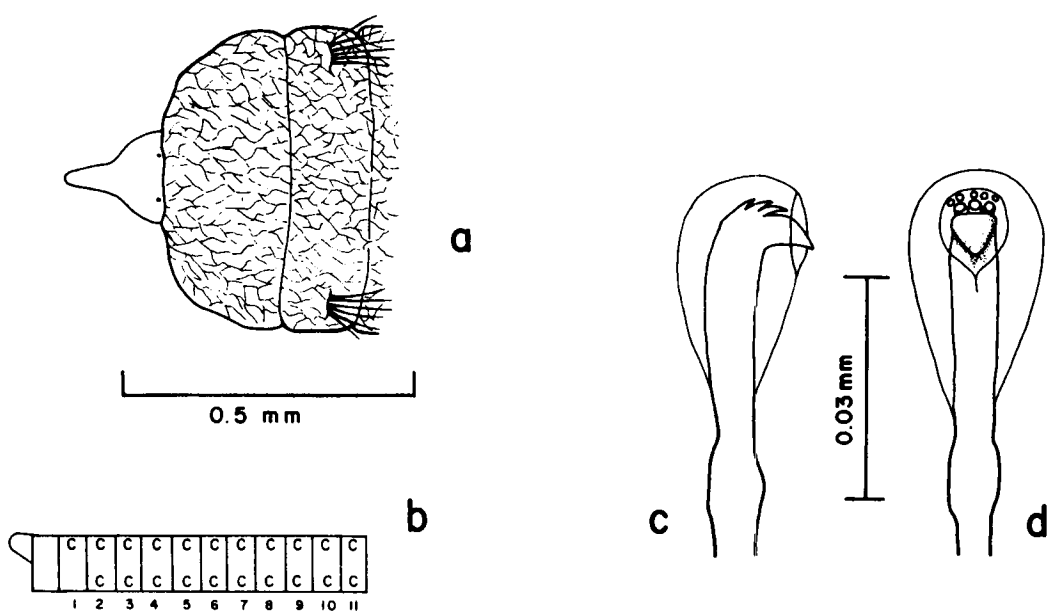

Figure 14-24. Notomastus hemipodus: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

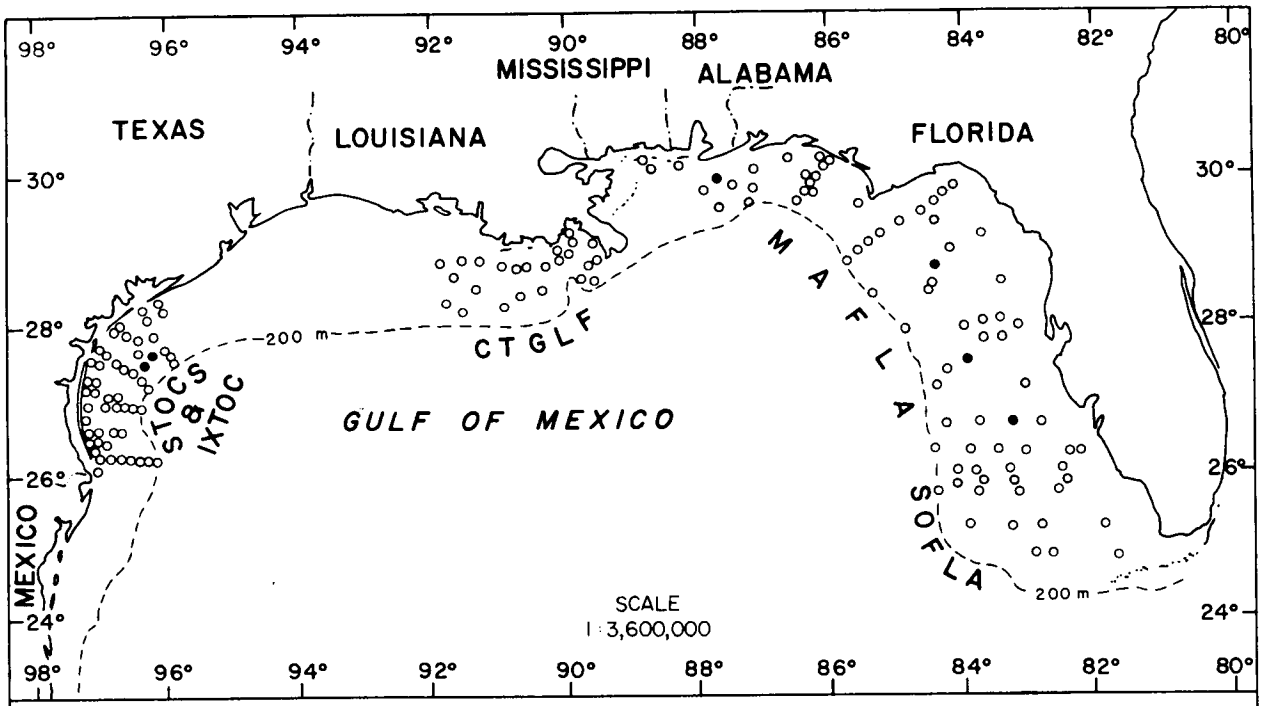

Figure 14-25. Distribution of Notomastus americanus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

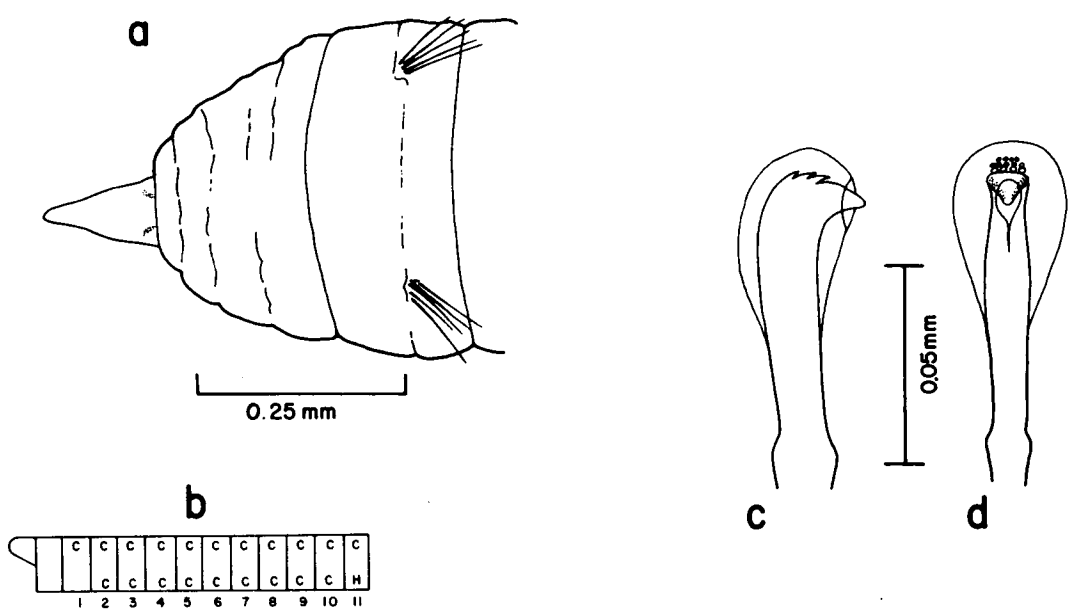

Figure 14-26. Notomastus americanus: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

North Carolina--Bogue Sound, intertidal, June 1940, muddy sand, O. Hartman coll./ID. (AHF Poly 0414, holotype; AHF Poly 0415, 4 paratypes).
DESCRIPTION:
Length, 20+ mm (previously reported to 30 mm); width, to 0.7 mm (previously reported to 1.7 mm). Largest specimen incomplete with 33 setigers. Prostomium short, triangular, tapering anteriorly to a slender palpode with rounded tip; single pair of eyespots (often inconspicuous) located near posterior margin of prostomium (Figure 14-24a). Thoracic epithelium faintly areolated through first 4-6 segments (in largest specimens), following segments smooth. First setiger with notopodia only, followed by ten biramous setigers with capillary setae only (Figure 14-24b). Transition from thorax to abdomen marked by change from capillary setae to hooks only in both rami. Abdominal hooks with main fang surmounted by eight or more minute denticles in 2-3 rows (Figure 14-24c,d). Lateral organs and nephridial apertures not observed. Branchiae absent.
PREVIOUSLY REPORTED HABITAT: Intertidal to 120 m; mud and muddy sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records throughout Gulf (Figure 14-23); 11-37 m; silty fine to very fine sand, clayey sandy silt.
DISTRIBUTION: North Carolina, Gulf of Mexico, California.

Notomastus americanus Day, 1973
Figures 14-25, 26a-d

Notomastus americanus Day, 1973:100, fig. 13 1-n.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4C-7/81 (2 spec.); MAFLA 2316B-9/75 (1 spec.), 2641D-6/75 (2 spec., USNM 75154), 2748-2/78 (1 spec.); STOCS HR1-7/76 (1 spec.), HR1-11/76 (3 spec., USNM 90351), SB3-8/76 (1 spec.).
DESCRIPTION:
Length, 17+ mm (previously reported to 18 mm); width, to 0.8 mm. Largest specimen incomplete with 53 setigers. Prostomium narrowly conical with dense, oblong to elliptical ocular patches near base (Figure 14-26a). Thoracic epithelium usually smooth, sometimes faintly tesselated on anterior 3-5 segments. First setiger incomplete with capillary setae in notopodia only; setigers 2-10 with capillary setae in both rami; last thoracic segment with capillary setae only in notopodia and hooded hooks only in neuropodia (Figure 14-26b). Transition from thorax to abdomen indistinct. Abdomen with multidentate hooded hooks (Figure 14-26c,d) only in short rows in both rami (see "REMARKS"). Lateral organs and nephridial apertures not observed; branchiae absent.
REMARKS: Small specimens of Notomastus americanus occasionally have mixed setal fascicles (capillary setae and hooks) in the neuropodia of setiger 10. Day (1973) described the dental formula of N. americanus hooded hooks as MF:4:2; BLM-OCS specimens have many more denticles above the main fang (MF:4:4-5:4+).
PREVIOUSLY REPORTED HABITAT: 80-100 m; fine to medium sand, fine muddy sand mixed with pteropod shells.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in northeastern Gulf and two records off southern Texas (Figure 14-25); 35-82 m; coarse to fine sand, silty fine sand.

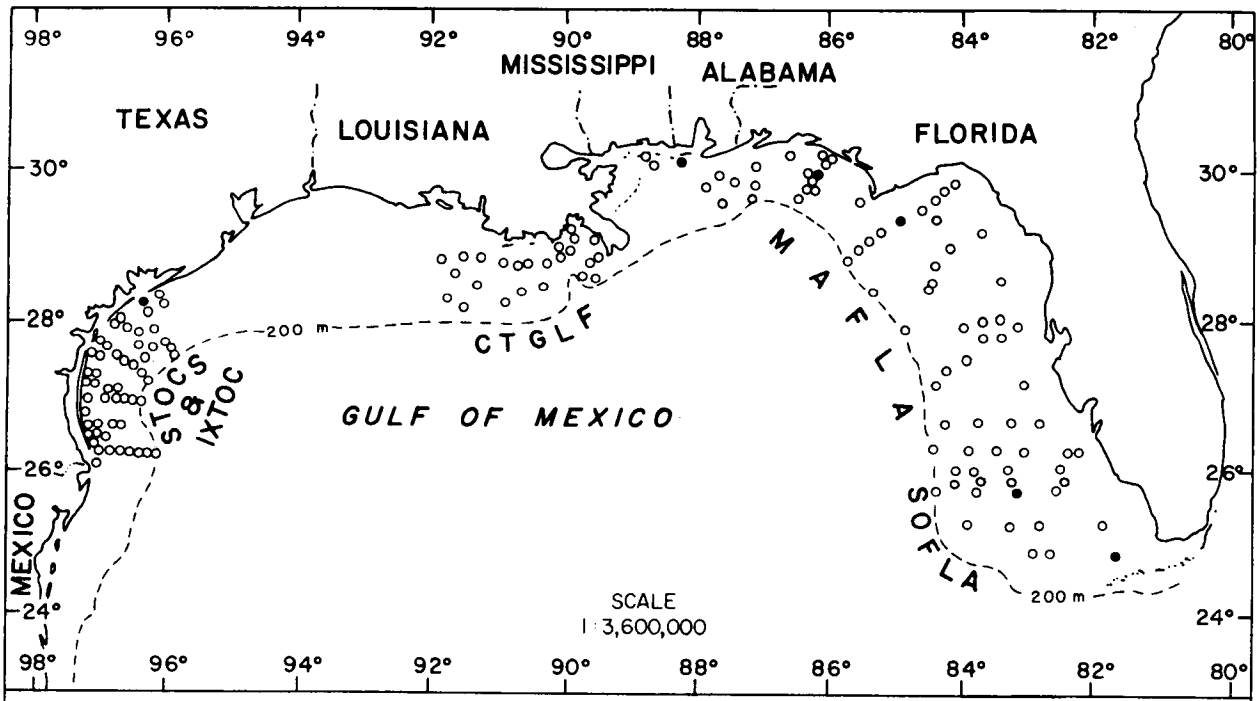

Figure 14-27. Distribution of Notomastus sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

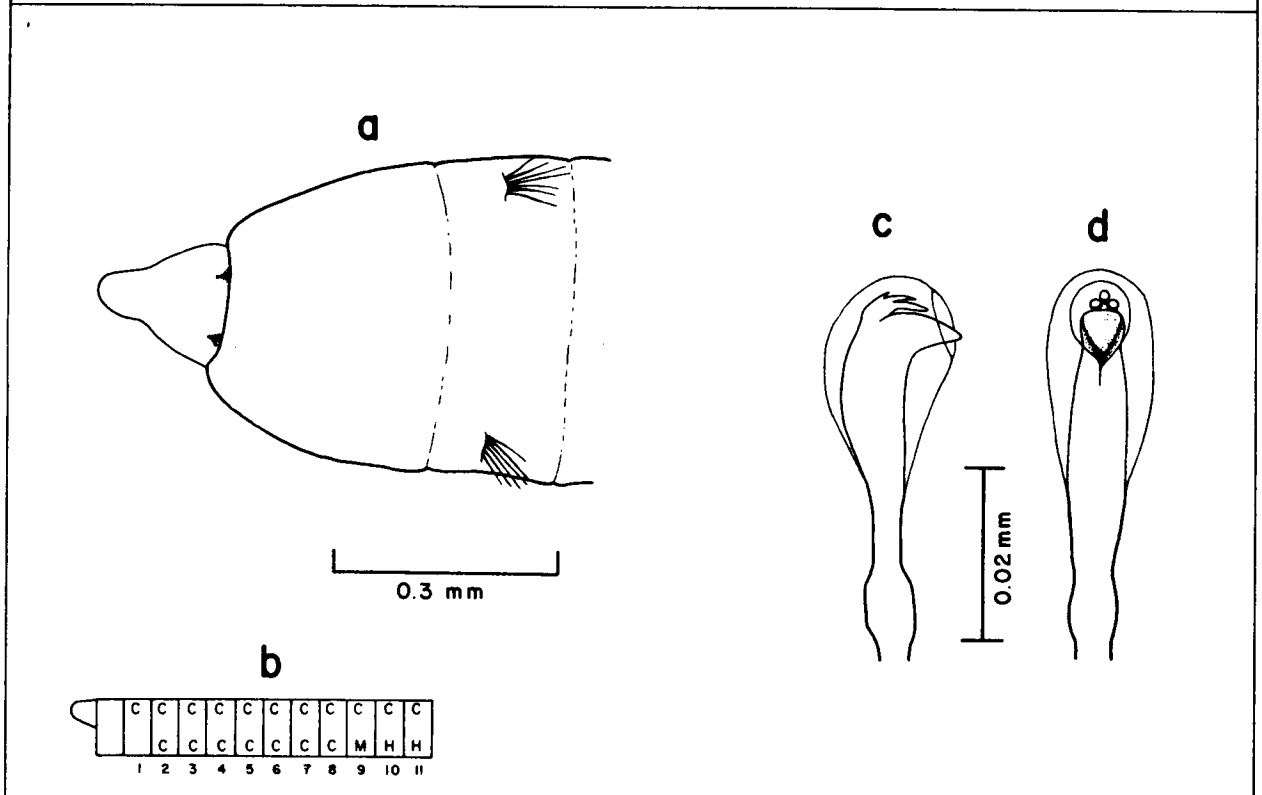

Figure 14-28. Notomastus sp. A: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

DISTRIBUTION: North Carolina, Gulf of Mexico.

Notomastus sp. A
Figures 14-27, 28a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25A-7/81 (1 spec., USNM 75251); MAFLA 2423C-7/76 (1 spec.), 2423E-7/76 (1 spec.), 2423J-7/76 (2 spec.), 2423G-8/77 (1 spec.), 2423J-8/77 (1 spec.), 2531E-11/77 (1 spec.), 2639E-6/75 (1 spec., USNM 75157), 2959K-No date (1 spec.); IXTOC N40-11/79 (1 spec., USNM 75117).
DESCRIPTION:
Length, 4.0+ mm; width, to 0.4 mm. Largest specimen incomplete with 29 setigers. Prostomium conical with bluntly rounded tip; ocular patches usually present (Figure 14-28a). Thoracic epithelium smooth throughout. First thoracic setiger incomplete with capillary setae only in notopodia; setigers 2-9 with capillary setae only in both rami or with mixed setal fascicle(s) in neuropodia of setiger 9; last two thoracic segments with capillary setae only in notopodia and hooded hooks only in neuropodia (Figure 14-28b). Transition from thorax to abdomen indistinct, marked by slight increases in segment length and number of setae per fascicle. Abdomen with hooded hooks only in short, widely separated setal rows in both rami. Hooks with main fang surmounted by three denticles in triangular arrangement and a third row of four or more extremely small teeth (Figure 14-28c,d). Nephridial apertures and lateral organs not observed; branchiae absent.
REMARKS: Notomastus sp. A agrees with Notomastus teres Hartman, 1965, in having an incomplete first setiger and the last two thoracic neuropodia with hooks only. However, N. teres does not have visible eyes and mixed fascicles of hooks and capillary setae in the neuropodia of setiger 9. Abdominal notopodia are nearly coalesced in N. teres, whereas all abdominal notopodia are widely separated in Notomastus sp. A.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in northeastern Gulf and one off Texas (Figure 14-27); 19-60 m; coarse sand, silty fine to very fine sand, sandy silt.

Genus **Mastobranchus** Eisig, 1887

TYPE SPECIES: Mastobranchus trinchesii Eisig, 1887.
REFERENCES:
Eisig, 1887:831.
Fauvel, 1927:152; 1936:81; 1953:369.
Thomassin, 1970:88.
Fauchald, 1977a:34.
DIAGNOSIS: Prostomium rounded to acutely conical, eyes usually present. Thorax with 12 segments, consisting of an achaetous peristomium followed by 9-11 setigers with capillary setae only in both rami. First setiger complete or with notopodia only. Two or more abdominal notopodia with mixed fascicles of capillary setae and hooded hooks; abdominal neuropodia with hooded hooks only. Branchiae, if present, as digitate neuropodial processes on at least some anterior abdominal segments; branchiae of posterior region either as simple filaments from ventral parapodia or

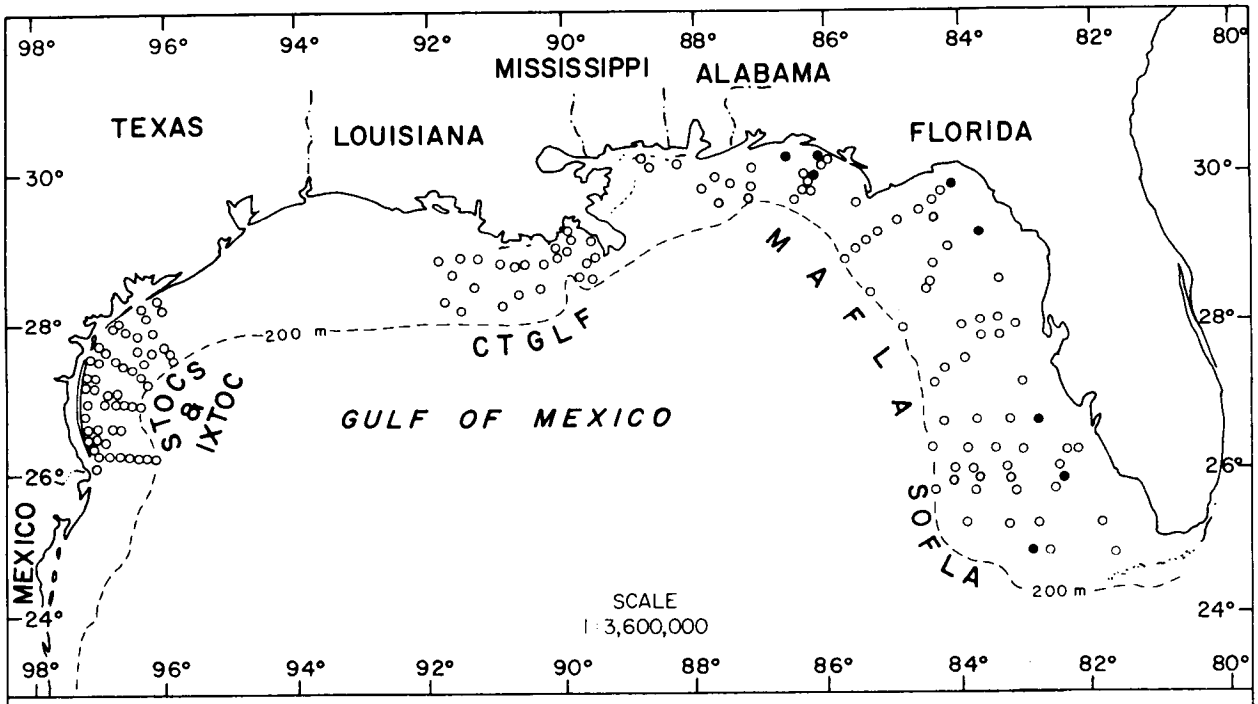

Figure 14-29. Distribution of Mastobranchus sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

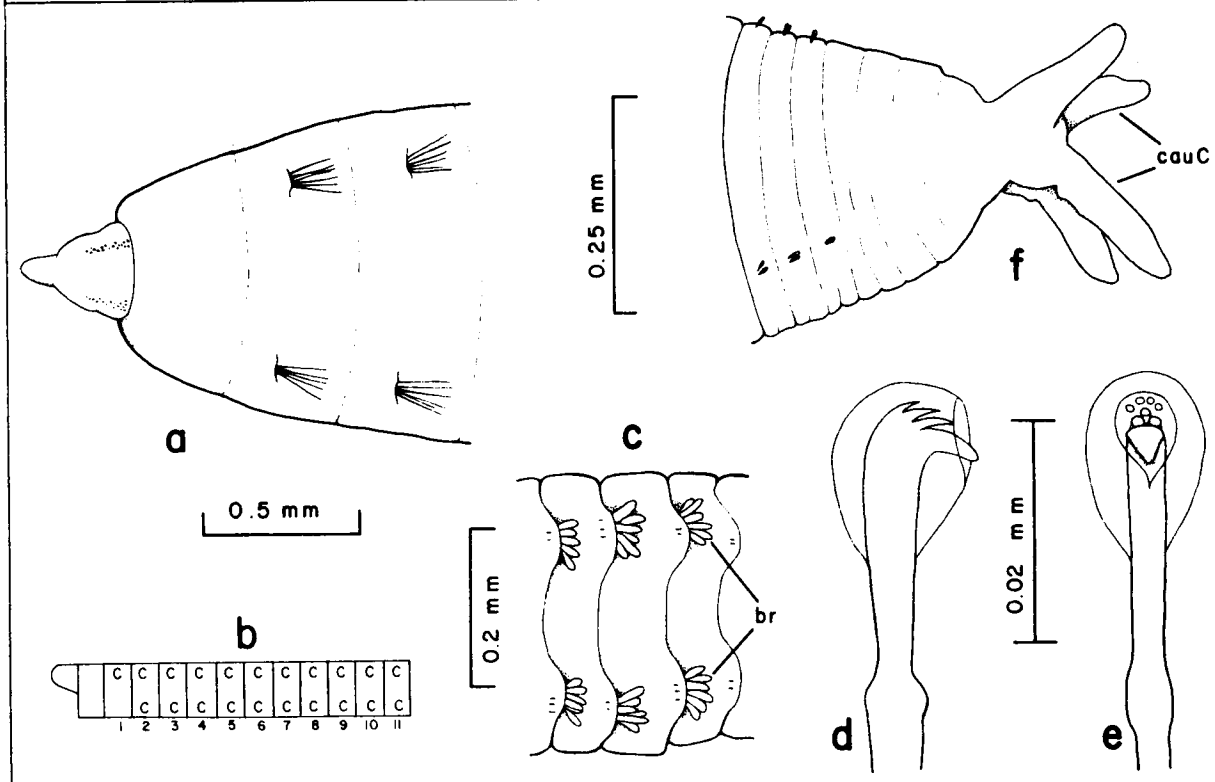

Figure 14-30. Mastobranchus sp. A: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, posterior abdominal segments showing everted branchiae, dorsal view; d, abdominal hooded hook, lateral view; e, frontal view of same; f, last three abdominal segments and pygidium, lateral view.

as retractile, composite structures arising from notopodia. Pygidium with 3-4 caudal cirri.

Mastobranchus sp. A
Figures 14-29, 30a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2A-5/81 (2 spec., USNM 75248), 14D-7/81 (1 spec., USNM 75244), 28E-11/80 (1 spec., USNM 75249); MAFLA 2318D-1/76 (1 spec.), 2419F-11/77 (1 spec., USNM 75152), 2419I-8/77 (1 spec.), 2528H-9/75 (2 spec.), 2531C-8/77 (1 spec.), 2531D-8/77 (1 spec.), 2531E-2/76 (1 spec.), 2855F-8/77 (1 spec.).
Supplementary Material:
Gulf of Mexico--off Alabama, 30°04'14"N, 87°53'50"W, COE Sta. 694-11/80, 13.4 m, sand (1 spec.); off Florida, 27°37.1'N, 82°54.0'W, IEC Sta. 713TB 003-10/79, 12 m, clean sand (1 spec.), 27°37.1'N, 82°55.1'W, IEC Sta. 713TB 004-10/79, 10 m, clean sand (5 spec.), 27°38.1'N, 82°55.1'W, IEC Sta. 713TB 005-10/79, 12 m, clean sand (2 spec.), 27°37.1'N, 82°58.0'W, IEC Sta. 713TB 006-10/79, 17 m, clean sand (5 spec.), 27°37.1'N, 82°54.0'W, IEC Sta. 723TB 003-1/80, 12 m, clean sand (3 spec.), 27°37.1'N, 82°55.1'W, IEC Sta. 723TB 004-1/80, 10 m, clean sand (4 spec.).
Atlantic Ocean--off North Carolina, 33°43.8'N, 78°01.0'W, IEC Sta. 733WL 010-7/80, 10 m, clean sand (1 spec.).
DESCRIPTION:
Length, to 72 mm; width, to 1.3 mm. Largest specimen complete with 110+ setigers. Prostomium long, conical, biannulate on dorsal surface with conspicuous ocular patches (Figure 14-30a). Thoracic epithelium smooth to faintly tesselated through setiger 4, smooth thereafter. First thoracic setiger with capillary setae in notopodia only, followed by ten setigers with capillary setae only in both rami (Figure 14-30b). Nephridial apertures located in segmental grooves following each of last five thoracic and first abdominal segments. Transition from thorax to abdomen fairly distinct. Abdominal neuropodia with hooded hooks only in long, well-separated rows on slightly elevated glandular tori. Notopodia with mixed fascicles of capillary setae and hooks throughout all or most of abdomen; notopodia in posterior third of abdomen often with hooks only, decreasing in number toward pygidium. Posterior abdominal segments usually strobiliform. Branchiae from mid- to posterior abdominal region as eversible branched tufts of 5-8 digitate filaments emerging posterior to the notopodial tori (Figure 14-30c). Hooded hooks multidentate with main fang surmounted by 7-8 teeth arranged in three rows (Figure 14-30d,e). Pygidium with four digitiform caudal cirri (Figure 14-30f).
REMARKS: Considerable variations were noted in the thoracic setal formula of small specimens of Mastobranchus sp. A. Mixed fascicles or hooded hooks only may rarely appear in the last one or two notopodia. Neuropodia of the last four thoracic segments may have capillary setae only, hooded hooks only, or mixed setal fascicles. This species differs from Mastobranchus trinchesii Eisig, 1887, in having an incomplete first setiger.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several records in northeastern Gulf (Figure 14-29); 10-58 m; coarse to fine sand.

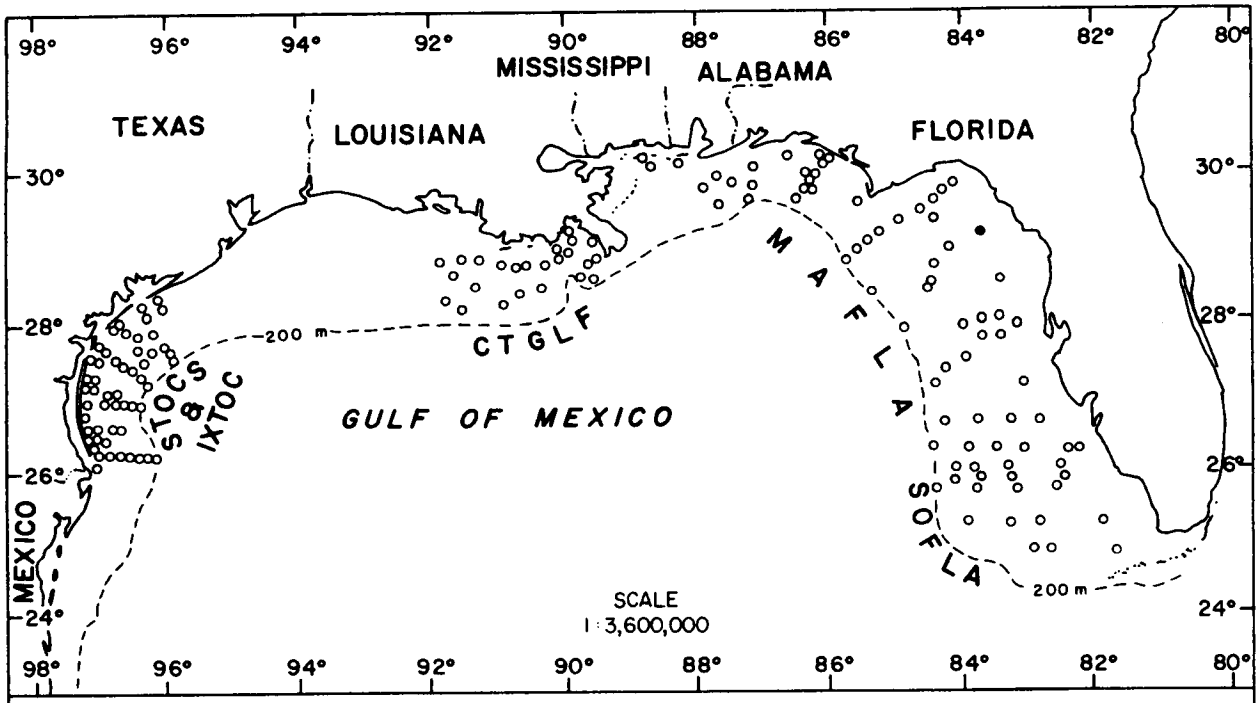

Figure 14-31. Distribution of Dasybranchus lunulatus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

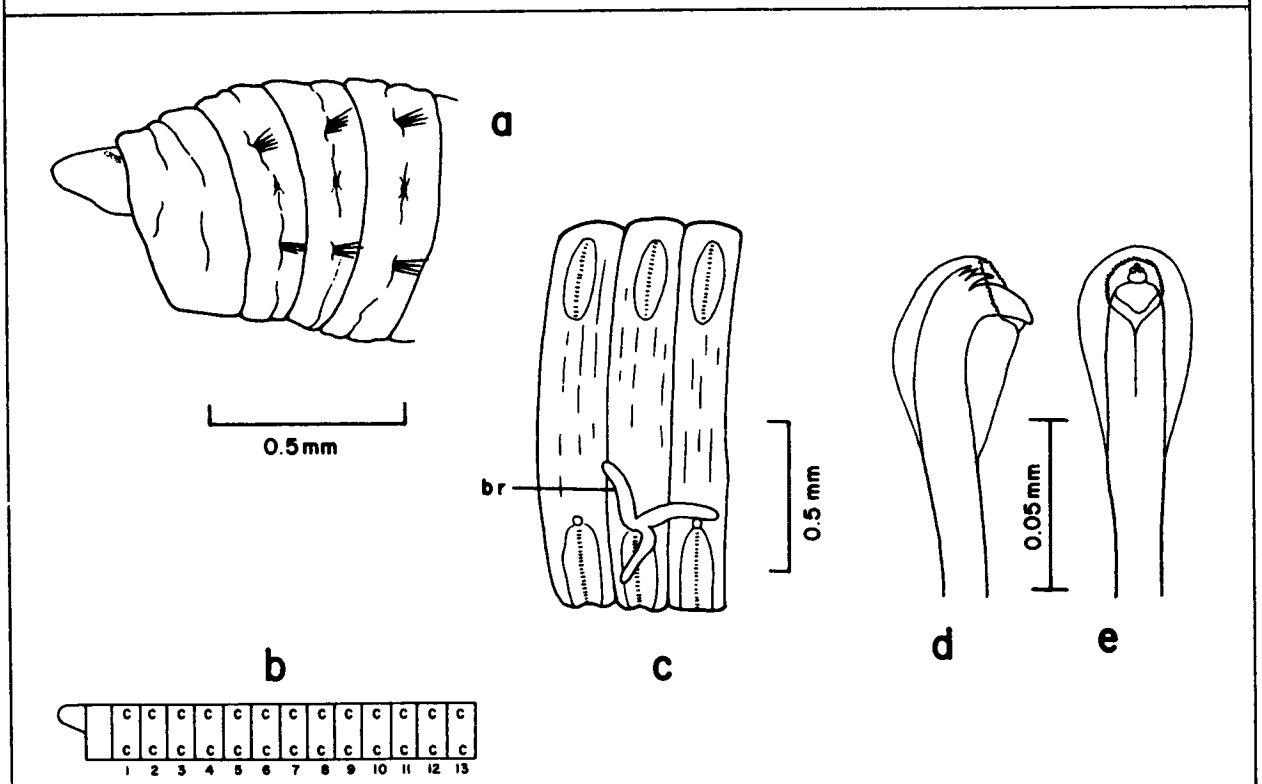

Figure 14-32. Dasybranchus lunulatus: a, anterior end, lateral view; b, diagrammatic representation of thoracic setal arrangement; c, midabdominal segments showing branchiae and branchial pores, lateral view; d, abdominal hooded hook, lateral view; e, frontal view of same.

Genus **Dasybranchus** Grube, 1850

TYPE SPECIES: Dasymallus caducus Grube, 1846.
REFERENCES:
Hartman, 1947a:430.
Hartmann-Schröder, 1971:392.
Day, 1967:603.
Fauchald, 1977a:33.
DIAGNOSIS: Prostomium oval to triangular, with or without eyes. Thorax with an achaetous peristomium and 13 setigers bearing capillary setae only in both rami. Abdomen with hooded hooks only in both rami. Branchiae as simple filaments or branched tufts, retractile or nonretractile, arising from superior edge of neuropodia on median and posterior abdominal segments. Lateral organs present on all thoracic and some abdominal setigers, often inconspicuous. Nephridial apertures present in thorax and abdomen; genital pores present on some posterior segments. Pygidium without appendages.

Key to the Gulf of Mexico BLM-OCS Species of Dasybranchus

1a. Branchiae consisting of one or more simple, digitate filaments (Figure 14-32c); thorax smooth to faintly tesselated . . . . . **Dasybranchus lunulatus**, p. 14-37

1b. Branchiae consisting of branched tufts (Figure 14-34d); thorax areolated. . . . . **Dasybranchus lumbricoides**, p. 14-39

Dasybranchus lunulatus Ehlers, 1887
Figures 14-31, 32a-e

Dasybranchus lunulatus Ehlers, 1887:174, pl. 45, figs. 5-9.
Dasybranchus lunulatus--Treadwell, 1939b:289.
Dasybranchus lunulatus--Hartman, 1947a:432, pl. 56, figs. 1, 2; 1951a:103.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2318C-8/76 (1 spec.).
Supplementary Material:
Puerto Rico--Jobos Bay, Sta. X, Halimeda sand in Thalassia bed, Oct. 1976, C. D. Long ID. (12 spec., USNM 54889).
DESCRIPTION:
Length, 16+ mm; width, 0.7 mm (previously reported to 1.5 mm). Only specimen incomplete with 93 setigers. Prostomium short, oval, partially withdrawn under peristomium; conspicuous crescent-shaped ocular patches located anterior to nuchal slits (Figure 14-32a). Thoracic epithelium smooth except for wrinkles of contraction and faint tesselation on anterior few segments. Thorax with capillary setae only in both rami (Figure 14-32b). Lateral organs from setiger 1, appearing as a minute papilla between noto- and neuropodia of each segment, presumably present throughout most of abdomen but inconspicuous after first few segments. Separation between thorax and abdomen indistinct except for change from capillary setae to hooded hooks. Abdomen with hooks only on slightly elevated tori; neurosetal fascicles long, extending ventrally from

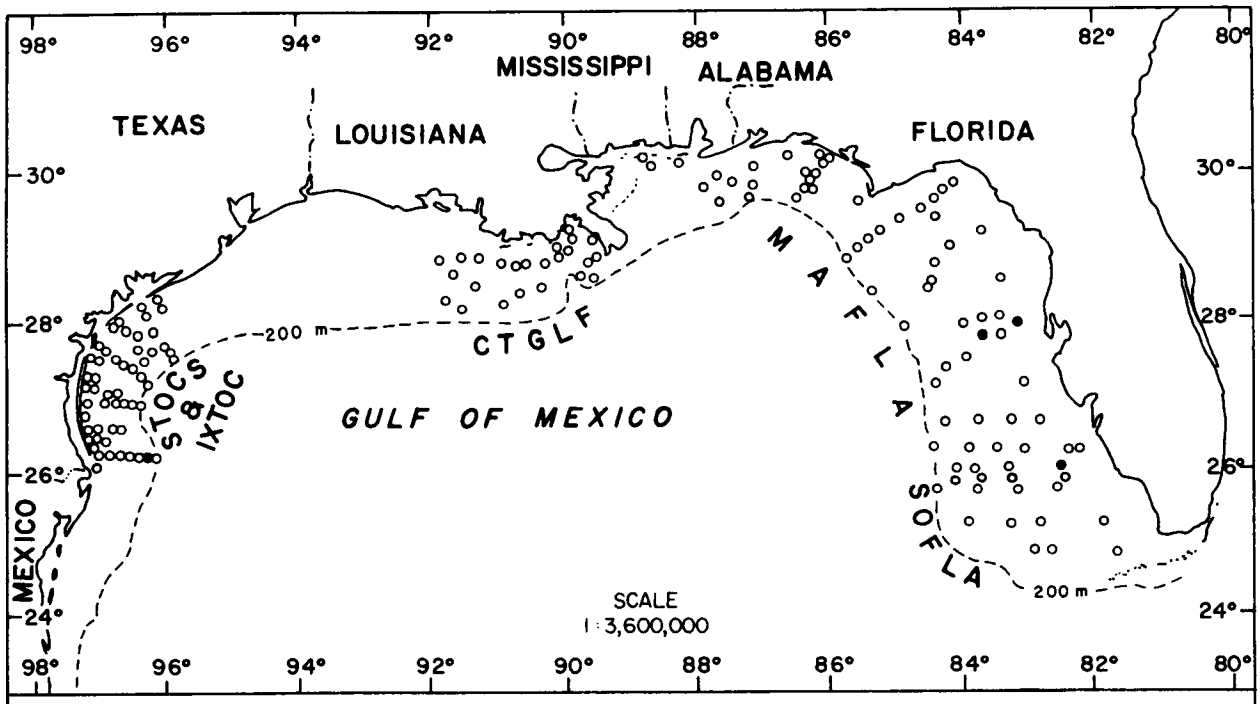

Figure 14-33. Distribution of Dasybranchus lumbricoides on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

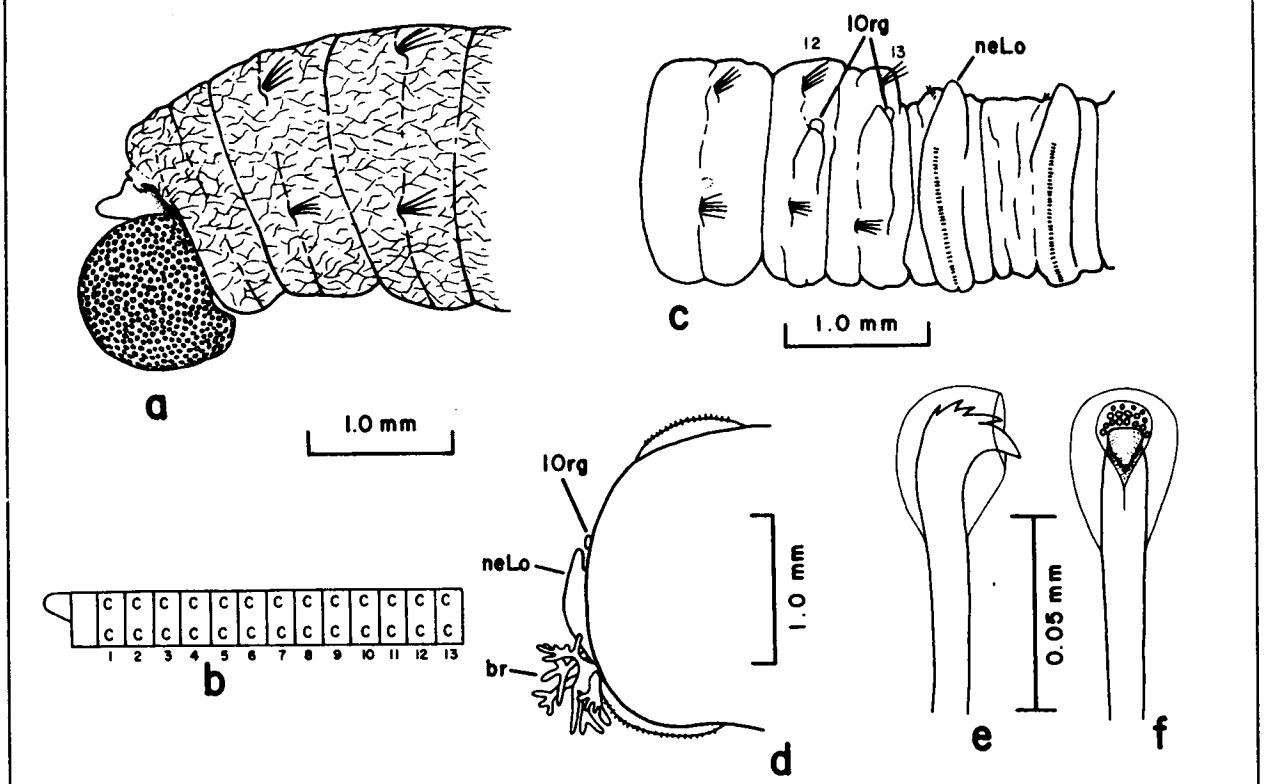

Figure 14-34. Dasybranchus lumbricoides: a, anterior end showing everted pharynx, lateral view; b, diagrammatic representation of thoracic setal arrangement; c, last three thoracic and first two abdominal segments, lateral view; d, partial cross section of midabdominal segment showing everted branchiae; e, abdominal hooded hook, lateral view; f, frontal view of same.

lateral organ, separated by narrow midventral groove. Notopodial tori shorter than neuropodia, dorsolateral in position, well-separated. Retractile branchiae on median and posterior segments consisting of one or more digitate filaments emerging from small pore at superior edge of neuropodial tori (Figure 14-32c). Hooded hooks multidentate (Figure 14-32d,e) with large main fang surmounted by smaller fang and three minute, well-separated denticles in triangular arrangement; margin of hood finely serrate around aperture.
PREVIOUSLY REPORTED HABITAT: Intertidal to 4 m; muddy to clean sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 14-31); 20 m; medium sand.
DISTRIBUTION: North Carolina to Key West, Gulf of Mexico, Puerto Rico.

Dasybranchus lumbricoides Grube, 1878
Figures 14-33, 34a-f

Dasybranchus lumbricoides Grube, 1878b:190, pl. 10, fig. 4.
Dasybranchus lumbricoides--Hartman, 1947a:431, pl. 56, figs. 3, 4; 1969:373, figs. 1-3.
Dasybranchus lumbricoides--Fauchald, 1972a:241.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 6D-7/81 (1 spec., USNM 75241), 6E-7/81 (1 spec., USNM 75242); MAFLA 2207C-7/76 (1 spec.), 2209D-1/76 (1 spec., USNM 75149); STOCS 3/IV-F/76 (1 spec., USNM 90352).
Supplementary Material:
Gulf of Mexico--Florida, Alligator Harbor, intertidal, Apr. 1950, O. Hartman ID. (2 spec., AHF N5715); Bald Point, intertidal, Mar. 1950, O. Hartman ID. (1 spec., AHF N5716); St. Andrews Bay, sand among roots of Diplantera, Oct. 1957, M. L. Jones coll./ID. (1 spec., USNM 50420); Tampa Bay, intertidal, fine sand, 1963, J. L. Taylor coll./ID. (1 spec., USNM 45658).
Atlantic Ocean--North Carolina, Beaufort, intertidal, muddy sand, June 1940, O. Hartman ID. (AHF N1698, 5 spec.); Cape Lookout, intertidal sand mixed with gravel and shell fragments, Apr. 1973, S. Gardiner coll./ID. (5 spec., USNM 53897).
DESCRIPTION:
Length, 10+ mm (previously reported to 300 mm); width, to 1.5 mm (previously reported to 5 mm). Largest specimen incomplete with 52 setigers. Prostomium broad at base, triangular, tapering anteriorly to a small, oval palpode; indistinct ocular patches present. Thoracic segments distinctly biannulate; epithelium areolated (Figure 14-34a). Thorax with capillary setae only in both rami (Figure 14-34b). Setigers 12 and 13 transitional between thorax and abdomen, with enlarged neuropodial tori, distinct lateral organs, and slightly elevated notopodial tori (Figure 14-34c). Abdomen with hooded hooks only in both rami; notopodia with short setal rows, tori nearly coalesced; neuropodial tori with long setal fascicles extending from lateral to midventral position. Retractile branchiae present on median and posterior abdominal segments as composite tufts emerging dorsal to neuropodia (Figure 14-34d). Hooded hooks multidentate with main fang surmounted by up to 20 teeth arranged in 3-4 crescentic rows (Figure 14-34e,f). Pygidium not observed.
PREVIOUSLY REPORTED HABITAT: Intertidal to 3 m; sand, coral rubble.

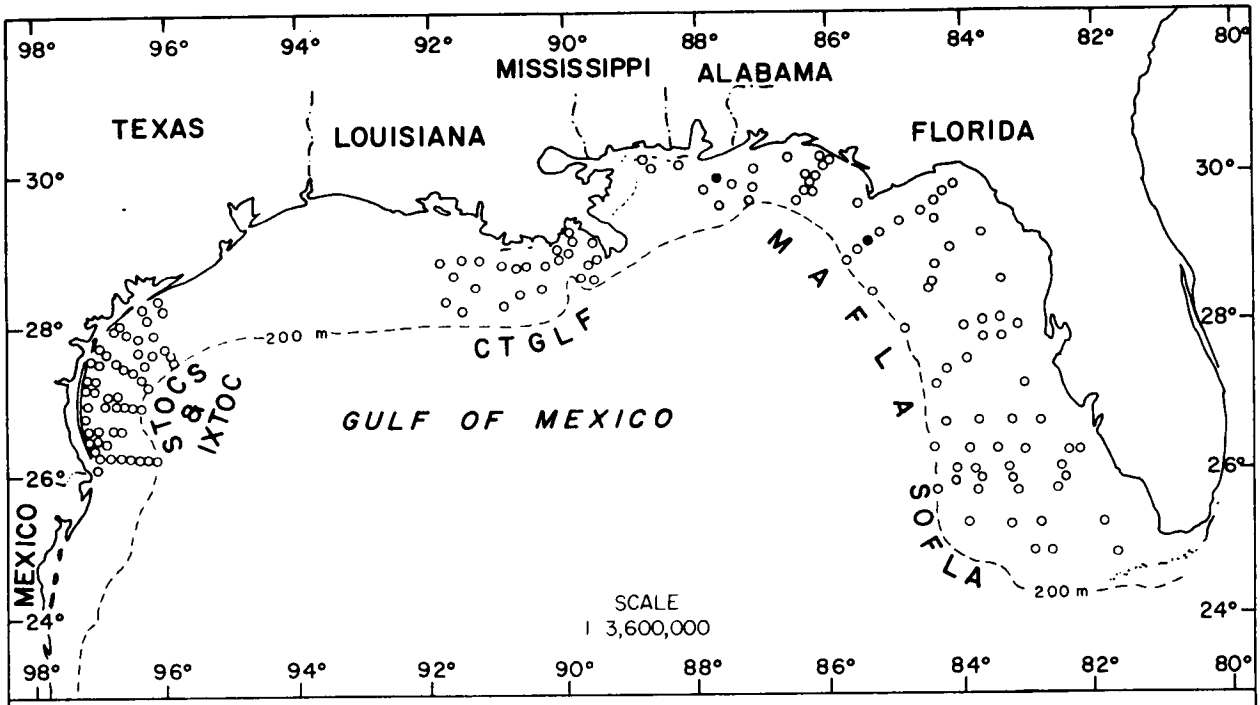

Figure 14-35. Distribution of Scyphoproctus ?platyproctus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

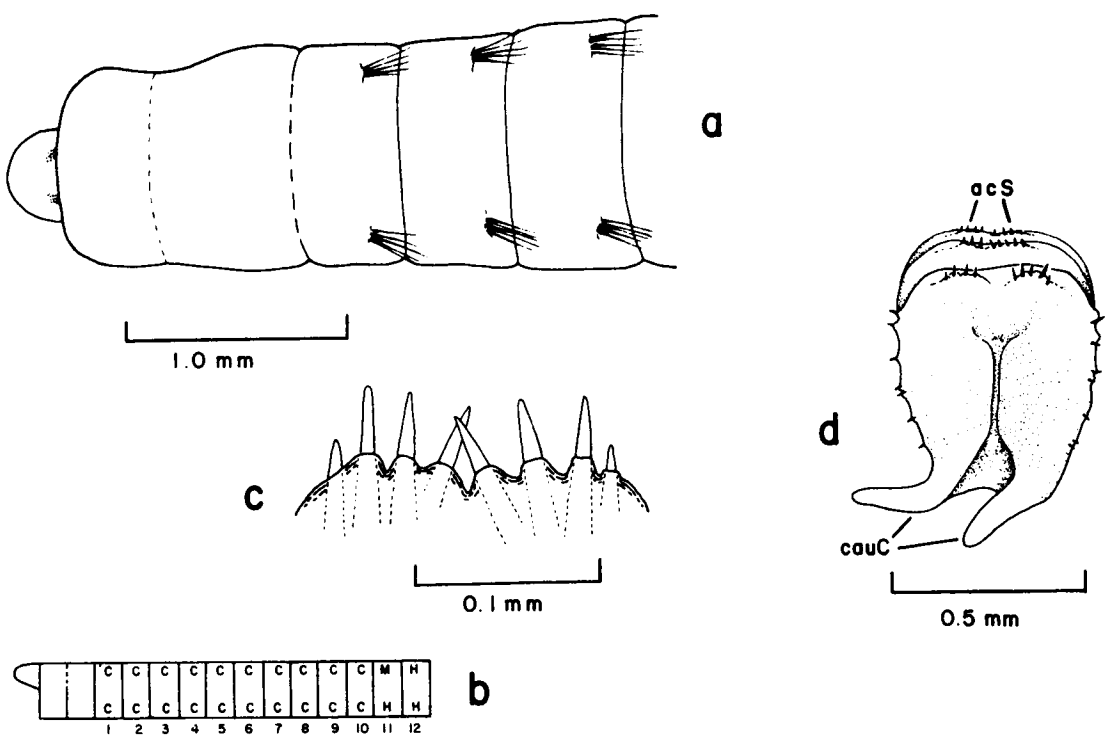

Figure 14-36. Scyphoproctus ?platyproctus: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, posterior abdominal notopodia; d, last two abdominal segments and pygidium, posterior view.

GULF OF MEXICO BLM-OCS OCCURRENCE: One station off southern Texas and scattered records off western Florida (Figure 14-33); 19-91 m; fine-very fine sand, clayey sand, clayey sandy silt.
DISTRIBUTION: North Carolina to Florida, Gulf of Mexico, Panama, California to Galapagos Islands, Philippine Islands.

Genus **Scyphoproctus** Gravier, 1904

TYPE SPECIES: Scyphoproctus djiboutensis Gravier, 1904.
REFERENCES:
Gravier, 1904:557.
Day, 1967:604.
Thomassin, 1970:91.
Fauchald, 1977a:35.
DIAGNOSIS: Prostomium conical to oval; eyes present. Thorax with 12-16 segments, usually including two achaetous segments and 10-14 setigers with capillary setae only in both rami or hooks only in last thoracic neuropodia. Abdomen with hooks only in both rami of most segments, replaced by acicular spines in notopodia of several preanal segments. Branchiae absent. Pygidium expanded as an anal plaque with a pair of ventral, digitiform cirri and numerous acicular spines arranged in transverse rows or in groups around the periphery.

Scyphoproctus ?platyproctus Jones, 1961
Figures 14-35, 36a-d

Scyphoproctus platyproctus Jones, 1961:10, figs. 15-26, 27b-1.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 12D-5/74 (1 spec.), 12E-5/74 (1 spec.), 2425-9/75 (1 spec.).
DESCRIPTION:
Length, to 15 mm (previously reported to 25 mm); width, to 0.5 mm (previously reported to 1.5 mm). Largest specimen complete with 59 setigers. Prostomium short, broadly oval, with distinct ocular patches. Thoracic epithelium smooth. Thorax consisting of 14 segments: an achaetous peristomium followed by a poorly defined segment (i.e., well-delimited ventrally, fused with peristomium dorsally) without setae (Figure 14-36a), and 12 setigerous segments. Setigers 1-10 with capillary setae only in both rami; setiger 11 with mixed fascicles of capillary setae and hooded hooks in notopodia and hooks only in neuropodia; last thoracic segment with hooks only in both noto- and neuropodia (Figure 14-36b). Transition from thorax to abdomen indistinct, marked only by slight increase in segment length and number of setae per fascicle. Most abdominal segments with hooks only; hooks emerging from slightly elevated glandular pads in both rami, present to near posterior end. Last three setigers with acicular spines in notopodia (Figure 14-36c) and hooks only in neuropodia. Hooded hooks multidentate with main fang surmounted by up to 20 minute teeth arranged in four or more rows. Nephridial apertures and lateral organs not observed. Branchiae absent. Pygidium as a flattened plaque with two ventral cirri and several groups of acicular spines around margin (Figure 14-36d).

REMARKS: These small (juvenile?) specimens agree with Scyphoproctus platyproctus in numerous characters but are questionably referred to this species because of the presence of hooded hooks on the last two thoracic segments.
PREVIOUSLY REPORTED HABITAT: 30 m; muddy very fine sand, found in empty Strombus shell and vacated sabellariid polychaete tubes.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations in northern Gulf (Figure 14-35); 36-37 m; medium to fine sand.
DISTRIBUTION: Gulf of Mexico.

Genus **Leiocapitella** Hartman, 1947

TYPE SPECIES: Leiocapitella glabra Hartman, 1947.
REFERENCES:
Hartman, 1947a:437.
Fauchald, 1977a:34.
DIAGNOSIS: Prostomium short, broadly oval or cylindrical; eyes present or absent. Thorax with achaetous peristomium and 14-17 setigerous segments including 1-2 transitional segments. First setiger with capillary setae in both rami or in notopodia only. Notopodia of setigers 2-14 with capillary setae only; setigers 15-17 with capillary setae only, hooded hooks only, or mixed setal fascicles. Neuropodia through setiger 12 with capillary setae only; setigers 13-17 with capillary setae, hooks, or mixed fascicles. Abdominal parapodia posterior to transitional segments with hooks only in both rami. Branchiae absent.

Key to the Gulf of Mexico BLM-OCS Species of Leiocapitella

1a. First setiger complete, with capillary setae in both rami. . . . . .Leiocapitella sp. A, p. 14-42
1b. First setiger incomplete, with capillary setae in notopodia only 2

2a. Neuropodia of setiger 14 with hooded hooks only (Figure 14-40b). . . . . **Leiocapitella glabra**, p. 14-45
2b. Neuropodia of setiger 14 with capillary setae only (Figure 14-42b). . . . . .**Leiocapitella sp. B**, p. 14-47

Leiocapitella sp. A
Figures 14-37, 38a-d

Leiocapitella glabra--Day, 1973:100.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 22B-11/80 (2 spec., USNM 75243); MAFLA 2424A-2/76 (1 spec.), 2640I-11/77 (1 spec.).
Supplementary Material:
Atlantic Ocean--off Beaufort, North Carolina, Sta. BST 26R, 34°20'N, 75°57'W, Apr. 1965, J. H. Day coll./ID. (USNM 51203, as Leiocapitella glabra).

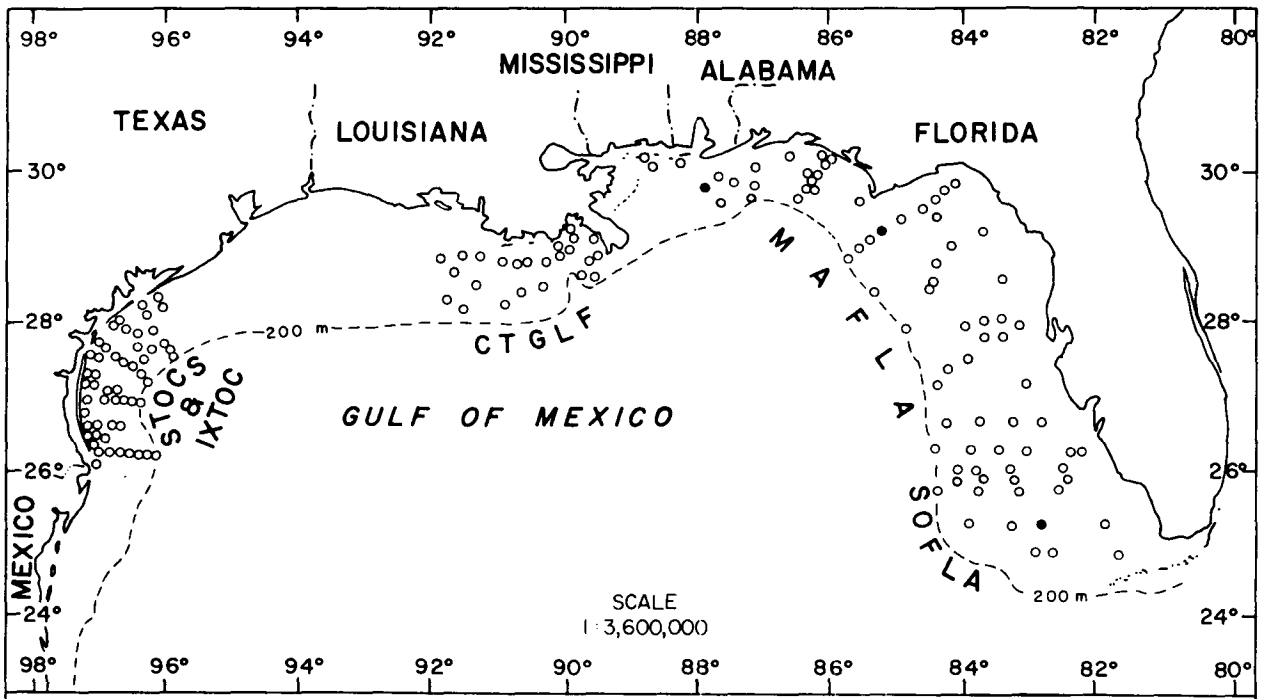

Figure 14-37. Distribution of Leiocapitella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

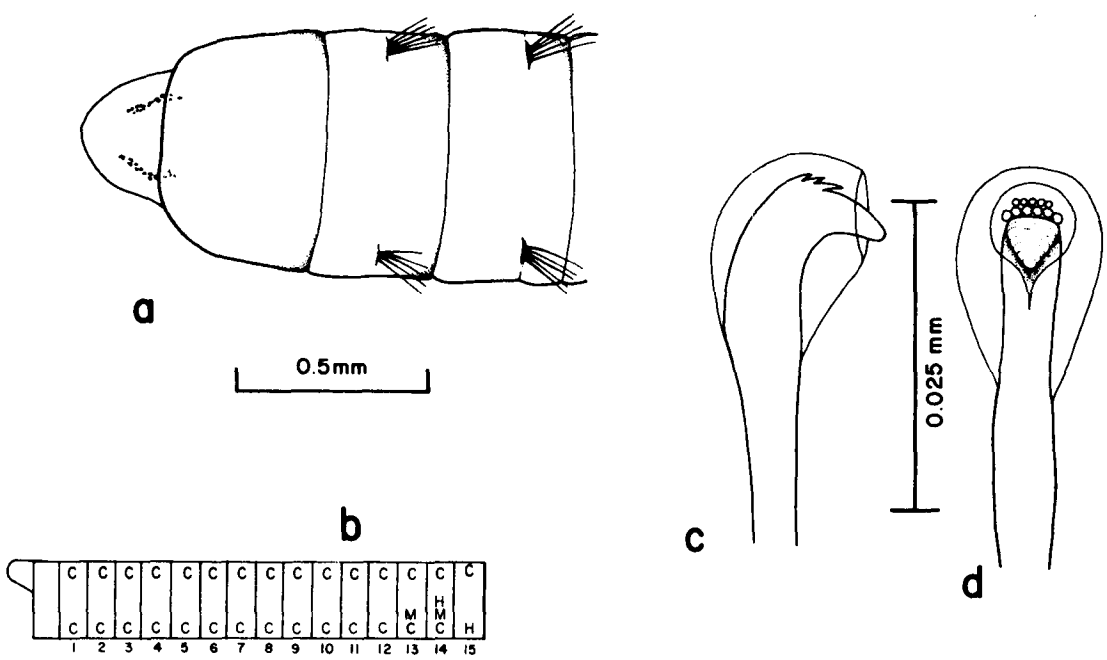

Figure 14-38. Leiocapitella sp. A: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

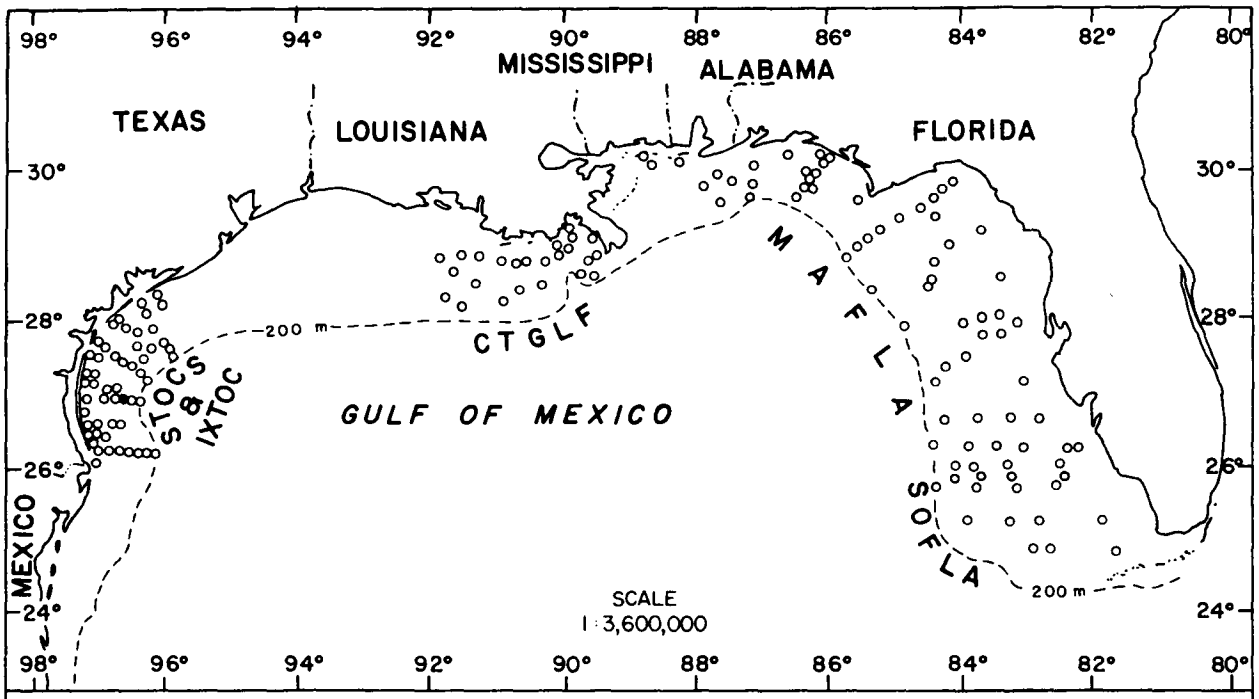

Figure 14-39. Distribution of Leiocapitella glabra on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

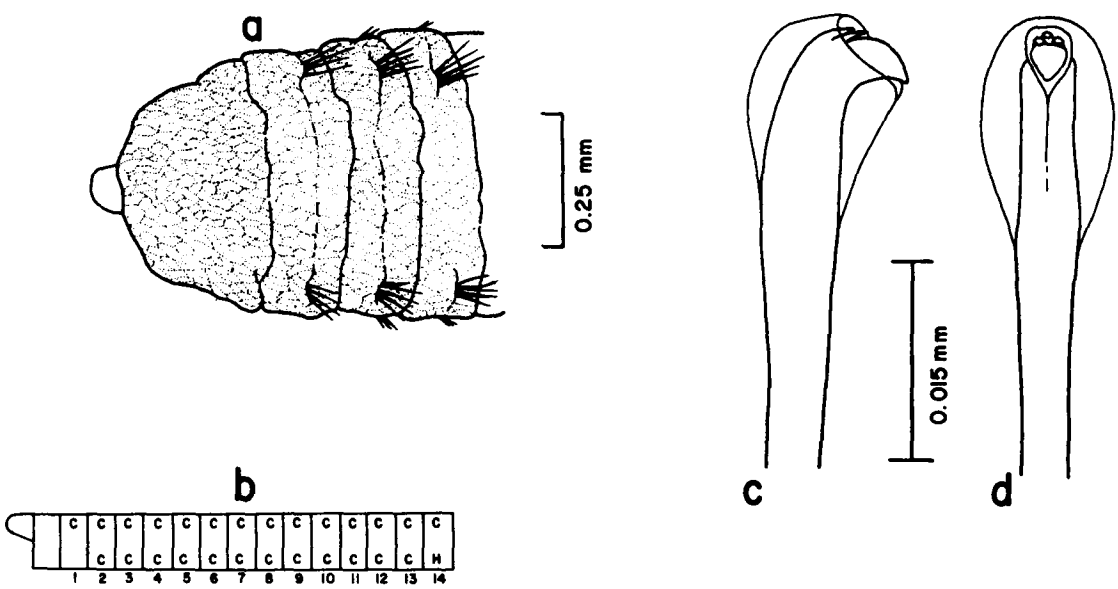

Figure 14-40. Leiocapitella glabra: a, anterior end, dorsal view; b, diagrammatic representation of thoracic setal arrangement; c, abdominal hooded hook, lateral view; d, frontal view of same.

DESCRIPTION:
Length, 6.0+ mm; width, to 0.7 mm. Largest specimen incomplete with 19 setigers. Prostomium broadly oval with elongate ocular patches (Figure 14-38a). Thoracic epithelium faintly tesselated through setigers 5-6, smooth thereafter. First thoracic setiger complete. All thoracic notopodia with capillary setae only. Thoracic neuropodia with capillary setae only through setiger 12, capillary setae or mixed fascicles in setiger 13, capillary setae, mixed fascicles, or hooded hooks in setiger 14, and hooks only in the following neuropodia (Figure 14-38b). Lateral organs and nephridial apertures not observed. Transition from thorax to abdomen indistinct. Abdomen with hooks only in both rami. Hooded hooks multidentate with main fang surmounted by at least ten minute denticles arranged in 2-3 rows (Figure 14-38c,d). Branchiae absent. Pygidium not observed.
REMARKS: BLM-OCS specimens of Leiocapitella sp. A closely agree with specimens previously identified by Day (1973:100) as Leiocapitella glabra. This species differs most noticeably from L. glabra, as described by Hartman, in having a biramous first setiger and hooded hooks with many more denticles above the main fang.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off Alabama and northwestern Florida (Figure 14-37); 27-35 m; medium sand.

Leiocapitella glabra Hartman, 1947
Figures 14-39, 40a-d

Leiocapitella glabra Hartman, 1947a:438, pl. 54, figs. 1-3.
Leiocapitella glabra--[not Day, 1973:100].

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS 2/III-S/76 (1 spec., USNM 90353).
Supplementary Material:
Mexico--Gulf of California, Velero III Sta. 1107-40, 24°26'39"N, 110°22'53"W, 64 m, Feb. 1940, O. Hartman ID. (AHF Poly 0425, holotype).
DESCRIPTION:
Length, 15+ mm (previously reported to 51 mm); width, 0.9 mm (previously reported to 1.5 mm). BLM-OCS specimen incomplete with 35 setigers. Prostomium short, cylindrical, broadly rounded at tip; eyes absent (Figure 14-40a). Thoracic epithelium tesselated through setigers 5-6, becoming increasingly smooth thereafter. First setiger incomplete with capillary setae in notopodia only; next 12 setigers with capillary setae only in both rami; last thoracic segment (setiger 14) transitional with capillary setae only in notopodia and hooded hooks only in neuropodia (Figure 14-40b). Lateral organs and nephridial apertures not observed. Transition from thorax to abdomen indistinct, marked only by setal change. Abdomen with hooded hooks only in both rami; notosetae in short rows on slightly elevated glandular tori; neuropodial rows longer, tori ventrolateral in position at first, separated only by narrow midventral space in midabdominal region. Hooded hooks multidentate with three small teeth arranged in a triangle above main fang (Figure 14-40c,d). Branchiae absent. Pygidium unknown.
REMARKS: The original description of Leiocapitella glabra Hartman (1947a:438) was based on two specimens, one of which had mixed fascicles in the notopodia of setiger 15.

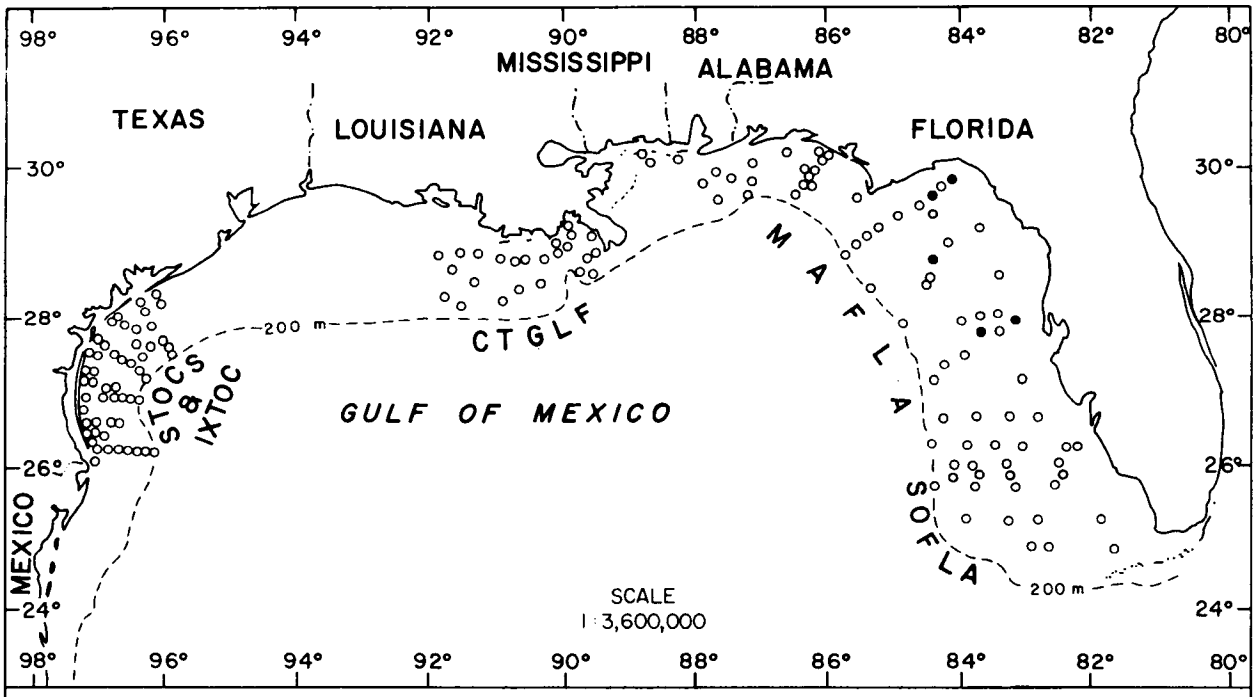

Figure 14-41. Distribution of Leiocapitella sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

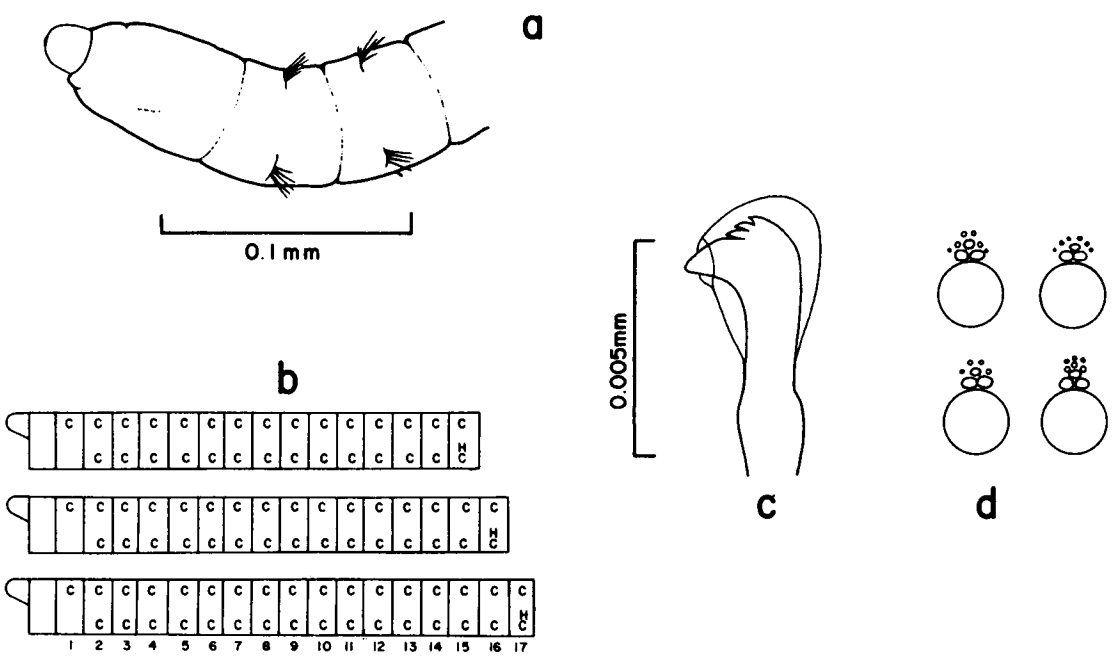

Figure 14-42. Leiocapitella sp. B: a, anterior end, dorsal view; b, diagrammatic representations of thoracic setal arrangements; c, abdominal hooded hook, lateral view; d, diagrammatic representations of hooded hooks in frontal view showing variations in arrangement of denticles.

PREVIOUSLY REPORTED HABITAT: 53-100 m; mud.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Texas (Figure 14-39); 65 m; silty clay.
DISTRIBUTION: Gulf of California, southern California, Gulf of Mexico.

Leiocapitella sp. B
Figures 14-41, 42a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207G-8/77 (1 spec.), 2209G-8/77 (1 spec., USNM 75151), 2316D-8/76 (1 spec.), 2419F-11/77 (1 spec.), 2419I-11/77 (1 spec.), 2421A-6/75 (1 spec.), 2421A-9/75 (3 spec.).
DESCRIPTION:
Length, 43+ mm; width, to 0.9 mm. Largest specimen incomplete with 56 setigers. Prostomium short, tongue-shaped, eyes usually absent (Figure 14-42a). Thoracic epithelium smooth. First setiger incomplete with capillary setae in notopodia only; next 14-16 setigers usually with capillary setae only in both rami (two specimens with hooded hooks only in last thoracic neuropodia) (Figure 14-42b). Lateral organs and nephridial apertures not observed. Transition from thorax to abdomen indistinct except for setal change. Abdomen with hooks only on slightly elevated notopodial and neuropodial tori. Hooded hooks multidentate with main fang surmounted by 7-10 denticles arranged in three or more rows (Figure 14-42c); dentition of these hooks often variable within a setal fascicle or between parapodia (Figure 14-42d). Branchiae presumably absent. Pygidium not observed.
REMARKS: Leiocapitella sp. B differs from L. glabra in having a smooth rather than tesselated thoracic epithelium, 1-4 additional thoracic setigers with capillary setae only in both rami, and hooded hooks with a much greater number of denticles.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several stations off Florida (Figure 14-41); 10-35 m; medium-fine to fine-very fine sand, silty fine sand, clayey sandy silt.

CHAPTER 15

Paul S. Wolf

FAMILY MALDANIDAE Malmgren, 1867b

INTRODUCTION

Maldanids are slender, cylindrical polychaetes commonly called "bamboo worms" due to the presence of some long segments giving the jointed appearance of bamboo. Upon close examination, however, the body appears to be divided into two or three regions. These regions are marked by subtle differences in the degree of segmentation; distribution of glandular areas; and to a lesser extent, the morphology, distribution, and number of notosetae. The prostomium is contractile and fused with the peristomium to form the head. The dorsal surface of the head may form a flattened plate (cephalic plaque) with a raised margin (cephalic rim) (Figure 15-8a). A median ridge (cephalic keel) may also be present, flanked by a pair of ciliated nuchal slits. The total number of setigers together with the number of achaetous preanal segments is constant in some genera, variable in others. Notosetae are usually narrow to wide limbate setae with or without pinnae (Figures 15-2b, 10b). Plumose forms may also be present, especially in middle and posterior regions (Figure 15-10d). Neurosetae are usually rostrate uncini (Figure 15-6f) located in single rows on well-developed tori. The pygidium is highly variable, from a simple anus to a funnel surrounded by anal cirri to a flattened plate (anal plaque). The anus may be dorsal or terminal.

The family was first erected by Malmgren (1867b) and later revised and divided into five subfamilies (Lumbriclymeninae, Rhodininae, Nicomachinae, Euclymeninae, and Maldaninae) by Arwidsson (1907). Important taxonomic reviews may also be found in Fauvel (1927) and Day (1967).

Fauchald (1977a) recognized 30 genera and 218 species of Maldanidae. Of these, only eight species representing seven of the above genera have been found in the Gulf of Mexico BLM-OCS collections. Four of these species may be new to science, and two species were considered indeterminable but were included to verify their respective generic records for the Gulf of Mexico.

PRINCIPAL DIAGNOSTIC CHARACTERS

In order to identify maldanids accurately and consistently, complete specimens are needed. This is especially true in identifying to subfamily. The principal morphological characters include: 1) the presence and shape of certain structures associated with the head (e.g., cephalic keel, cephalic rim, and nuchal slits); 2) the total number of segments; 3) the kinds of notosetae; 4) the kinds of neurosetae; and 5) the shape of the pygidium and location of the anus. Another character which appears to be consistent and specific is the delineation of the body regions using primarily the degree of segmentation.

The Head.

Head structures are most important in identifying maldanids to subfamily. Members of the Euclymeninae and Maldaninae have a well-developed cephalic plaque (Figure 15-8a) with a rather membranous cephalic rim; long, narrow nuchal slits; and a low, narrow cephalic keel. Nichomachinae, Lumbriclymeninae, and Rhodininae lack a cephalic plaque but usually have a well-developed cephalic keel and shorter nuchal slits (Figure 15-2a). For species identification, appearance of the various head structures are important, but must be used cautiously due to variations caused by fixation and preservation.

Number of Segments.

The number of setigers together with the number of achaetous preanal segments are taxonomically important at the specific level. Newcomers to maldanid taxonomy should be aware that regeneration, especially of anterior ends, is quite common among the Maldanidae, and can lead to discrepancies in segments counts.

Notosetae.

In general, the kinds and distribution of the notosetae appear to be of value only at the species level of identification. Some workers such as Day (1967) attach little taxonomic importance to the notosetae. Pilgrim (1977), on the other hand, completed a detailed study of the notosetae and suggested that they may indeed be useful characters. While preparing this chapter it appeared that not only the kinds of notosetae but also their distribution along the body may be important. It will take a much more detailed treatment than that given herein to determine their taxonomic value. All decriptions of the notosetae are made from observations under oil immersion. In large specimens the notosetae must be teased from the parapodia for examination. Smaller specimens may be mounted whole.

Essentially, four kinds of notosetae were found in specimens from the Gulf of Mexico BLM-OCS collections: 1) bilimbate, distally pinnate setae (Figure 15-10b), primarily restricted to the anterior region; 2) fine capillary setae which may have numerous fine pinnae (hispid setae), usually occurring in the same fascicle as the bilimbate setae and also generally restricted to the anterior setigers (Figure 15-10c); 3) plumose setae normally beginning on the middle setigers and present throughout the rest of the worm (Figure 15-10d); 4) specialized notosetae of various forms such as the very fine capillary setae (restricted to setiger 9) of Clymenella torquata (Figure 15-8e), the spirally fringed or spinous seta found in Asychis elongatus (Figure 15-14c) and Maldane sp. A (Figure 15-16d) respectively, and the spatulate companion setae of Asychis elongatus (Figure 15-14d,e).

Neurosetae.

The kinds and distribution of the neurosetae appear to be important at both the generic and specific levels. For example, the genera Euclymene and Axiothella are separated based on the neurosetae of the first three setigers. In Euclymene the anterior neurosetae are quite different from the neurosetae of subsequent setigers; in Axiothella the neurosetae are similar throughout. Within the genus Euclymene, species are distinguished on whether the neurosetae of setigers 1-3 are smooth or dentate acicular spines (Figures 15-10e and 15-12b, respectively). Aside from those of the anterior setigers, the usual maldanid neuroseta

is a rostrate uncinus with subrostral hairs below the main fang (Figure 15-6f). The uncinus may have a vertical series of teeth above the main fang (Figure 15-4c), or as in Asychis elongatus, the teeth may be arranged in crescentic rows (Figure 15-14f).

Pygidium and Anus.

The shape of the pygidium and location of the anus are valuable characters and, with few exceptions, must be observed even when identifying to subfamily. The pygidium may be simple as in the Rhodininae and some Lumbriclymeninae, or formed into an anal plaque. The anal plaque may be rimmed with cirri as in Euclymene (Figure 15-10g), petaloid as in Petaloproctus (Figure 15-2d), or formed into an oval plate as in Maldane (Figure 15-16f). The anus is positioned either terminally as in Euclymene (Figure 15-10g) or dorsally as in Asychis (Figure 15-14h). An enlarged ventral valve or small papillae may be present at the anal opening.

Body Regions.

Some maldanids have three distinct body regions (Figure 15-6a). In most species examined the anterior region consists of the prostomium, peristomium, and setigers 1-8. This region is characterized by distinct segmentation, distinct and extensive glandular areas that usually form rings around part or even the whole segment, anterior placement of the parapodia, and the presence of modified neurosetae such as acicular spines on the anteriormost setigers of the region.

The middle region begins at setiger 9. In general, this region may be characterized as having indistinct and relatively long segments, more diffuse glandular regions usually limited to the parapodia, and parapodia located near the middle of each segment.

The posterior region, beginning with setiger 14 or 15, is characterized as having relatively short and rather distinct segmentation (but not as distinct as that of the anterior region), glandular areas that are slightly more distinct than those of the middle region, posterior placement of the parapodia, and the presence of a pygidium sometimes preceded by achaetous segments.

BIOLOGICAL NOTES

The majority of maldanids are tubicolous, inhabiting soft bottoms from intertidal to abyssal depths. Their tubes vary from thick mud tubes to loosely constructed burrows. Some maldanids, such as Petaloproctus socialis, form dense mats creating important habitats (Hartman, 1945:40).

Of the maldanids studied, all are deposit feeders ingesting sand grains from which protozoans and diatoms apparently are gleaned (Fauchald and Jumars, 1979:221). Day (1967:614) stated that some maldanids appear to lay in their tubes head-down with the pygidium plugging the entrance. The anal cirri then serve a sensory function.

So far as is known, most maldanids do not produce pelagic larvae; rather, eggs are incubated in jelly-like masses outside the tube. After developing a few setigers (Bookhout and Horn, 1949:158), the larvae escape from the mucus cocoon and begin tube construction.

SPECIES OF MALDANIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Petaloproctus indeterminable	15-6
Macroclymene indeterminable	15-8
Axiothella sp. A	15-8
Clymenella torquata (Leidy, 1855)	15-10
Euclymene sp. A	15-14
Euclymene sp. B	15-16
Asychis elongatus (Verrill, 1873)	15-18
Maldane sp. A	15-20

Key to the Subfamilies and Genera of Maldanidae from the Gulf of Mexico BLM-OCS Programs

1a. Neurosetae beginning on setiger 5. . . . . (subfamily **Rhodininae**)*
1b. Neurosetae beginning on setiger 1 or 2. 2

2a. Cephalic plaque present or absent, cephalic keel low or poorly developed 3
2b. Cephalic plaque absent, cephalic keel well-developed (Figure 15-2a) (subfamily **Nicomachinae**). . . . . **Petaloproctus**, p. 15-6

3a. Cephalic plaque well-developed, with cephalic rim (Figure 15-8a) 4
3b. Cephalic plaque absent, without cephalic rim . . . . . .(subfamily **Lumbriclymeninae**)*

4a. Anal plaque rimmed with cirri (Figure 15-10g), anus terminal on a raised cone (Figure 15-10g) (subfamily **Euclymeninae**). 5
4b. Anal plaque not rimmed with cirri, anus dorsal (subfamily **Maldaninae** 8

5a. Setigers numerous (29 or more). . . . . .**Macroclymene**, p. 15-6
5b. Setigers few (usually less than 25) 6

6a. Neurosetae of setigers 1-3 as either smooth (Figure 15-10e) or dentate acicular spines (Figure 15-12b) 7
6b. Neurosetae of setigers 1-3 as rostrate uncini (Figure 15-6e,f) . . . . . .**Axiothella**, p. 15-8

7a. Distinct membranous collar present on anterior margin of setiger 4 (Figure 15-8b) . . . . . .**Clymenella**, p. 15-10
7b. Collar absent from setiger 4. . . . . .**Euclymene**, p. 15-14

8a. Anal plaque with long dorsal lobe (Figure 15-14h). . . . . .**Asychis**, p. 15-18
8b. Anal plaque without long dorsal lobe (Figure 15-16f) . . . . . .**Maldane**, p. 15-20

*Not represented in Gulf of Mexico BLM-OCS voucher collections.

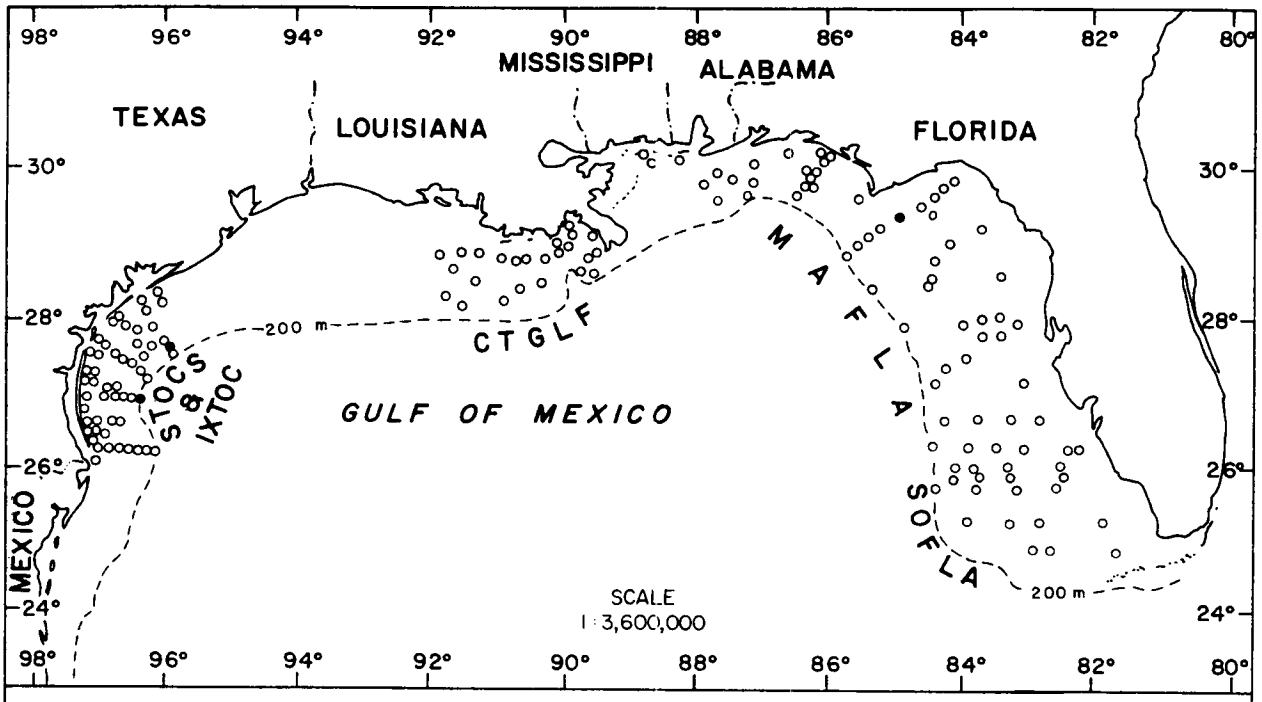

Figure 15-1. Distribution of Petaloproctus sp. on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

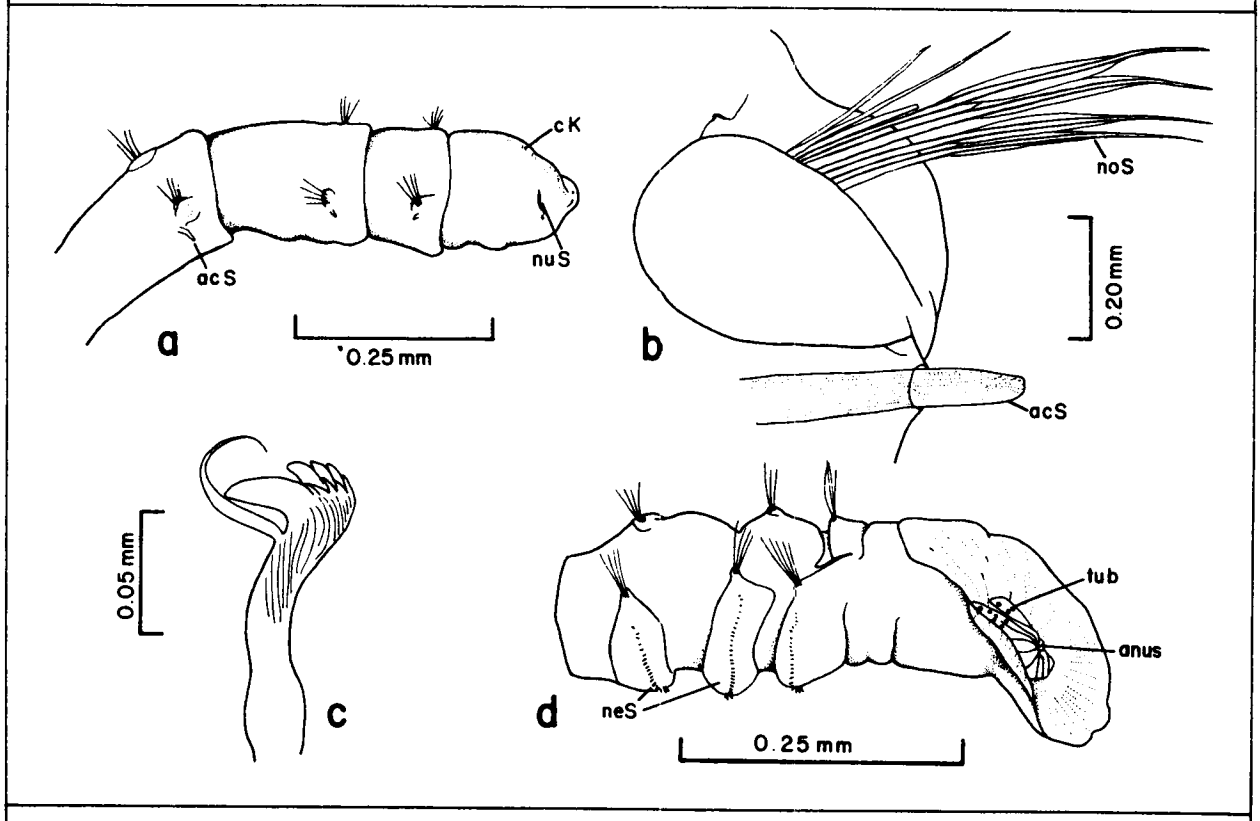

Figure 15-2. Petaloproctus sp.: a, anterior end, lateral view; b, parapodium from setiger 3, lateral view; c, neuroseta from last setiger; d, posterior end, lateral view.

Genus **Petaloproctus** Quatrefages, 1865

TYPE SPECIES: Petaloproctus terricola Quatrefages, 1865.
REFERENCES:
Day, 1967:622.
Arwidsson, 1907:113.
DIAGNOSIS: Cephalic plaque absent; prostomium with a well-developed cephalic keel. Nuchal slits short. Neuropodia of setigers 1-3 with acicular spines; subsequent neurosetae as rostrate uncini. Anal plaque as a petaloid plate, anus terminal.

Petaloproctus indeterminable
Figures 15-1, 2a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2423E-2/78 (1 head, 3 posterior ends).
DESCRIPTION:
Length, to 18 mm (anterior fragment with five setigers); width, to 15 mm. Total number of setigers unknown; achaetous preanal segments absent. Pigment spots present anteriorly on prostomium and at anterior margin of nuchal slits (Figure 15-2a). Notosetae (Figure 15-2b) including broadly bilimbate setae and narrow capillary setae. Neurosetae including acicular spines and rostrate uncini. Uncini with four rows of teeth above main fang, one thickened subrostral hair below (Figure 15-2c). Anal plaque with numerous small tubercles above the anus (Figure 15-2d).
REMARKS: Since the Gulf of Mexico BLM-OCS specimens are incomplete, the total number of setigers cannot be determined. This character appears to be specific; thus the specimens could not be assigned to any species. The small tubercles present dorsally on the anal plate are not mentioned in descriptions of any known Petaloproctus species; therefore, specimens examined here could represent a new species.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Texas (Figure 15-1); 19-125 m; silty sand, silty clay.

Genus **Macroclymene** Verrill, 1900

TYPE SPECIES: Clymene producta Lewis, 1897.
REFERENCES:
Verrill, 1900:655.
Hartman, 1951a:106.
Mangum, 1962:7.
Day, 1967:633.
DIAGNOSIS: Cephalic plaque with a cephalic rim. Nuchal slits straight, parallel. Body usually with 29 or more setigers. Neuropodia of setigers 1-3 with 1-2 smooth or dentate acicular spines. Pygidium rimmed with anal cirri, anus terminal within funnel.

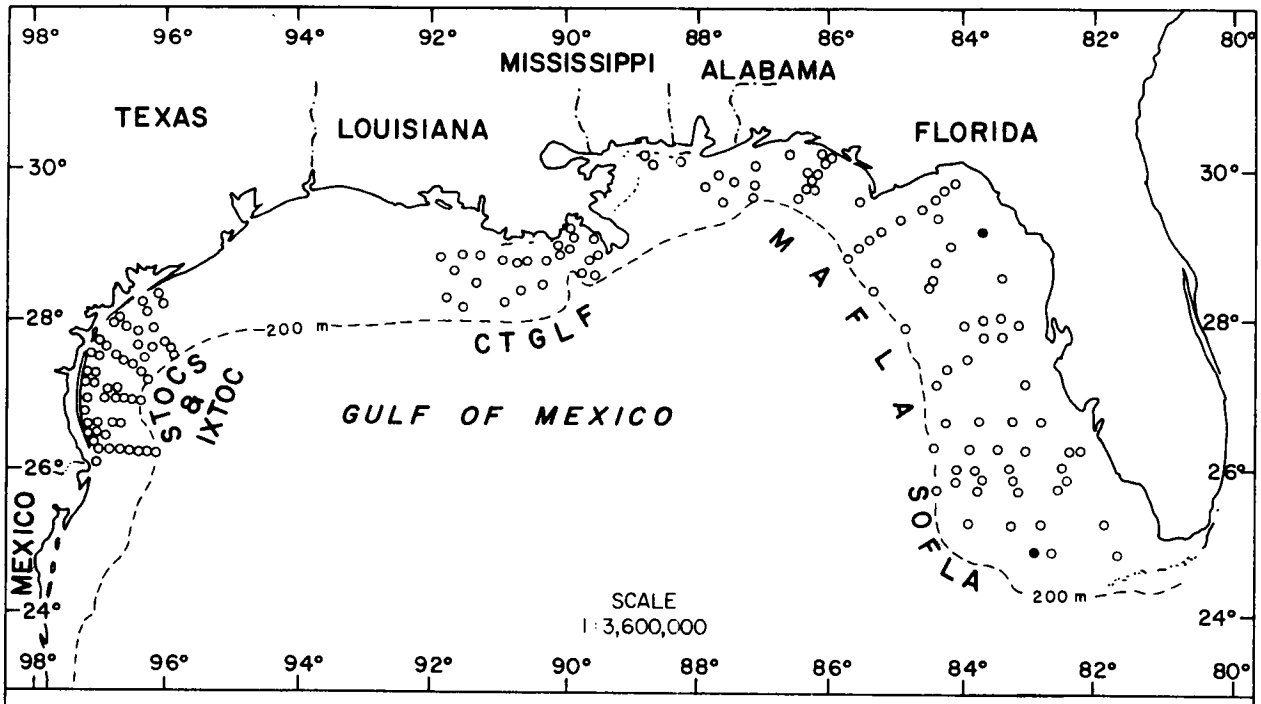

Figure 15-3. Distribution of Macroclymene sp. on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

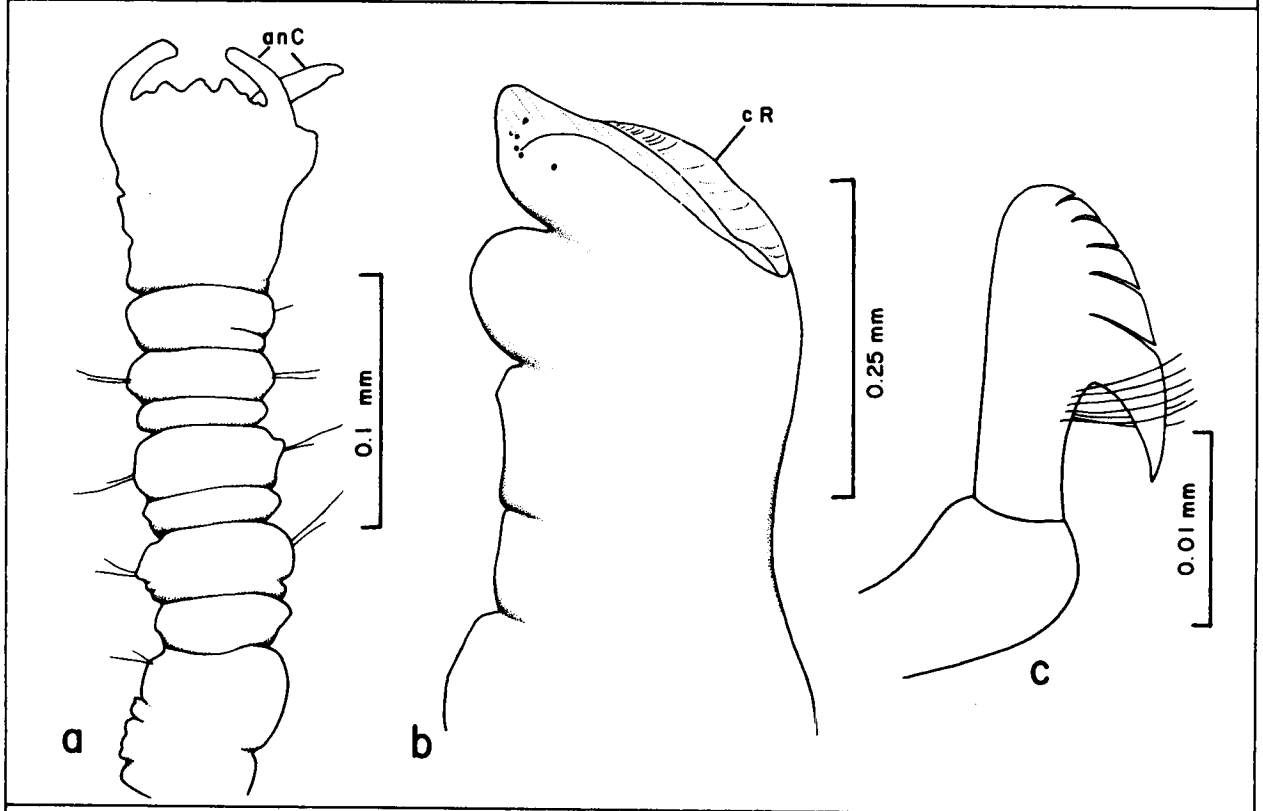

Figure 15-4. Macroclymene sp.: a, posterior end, dorsal view; b, anterior end, lateral view; c, neuroseta from setiger 17.

Macroclymene indeterminable
Figures 15-3, 4a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 28A-5/81 (2 spec., USNM 86865); MAFLA 2318D-2/78 (1 spec.), 2318G-2/78 (1 spec.).
DESCRIPTION:
Length, to 15 mm; width, to 0.15 mm. Body with 23-32 setigers plus additional developing setigers posteriorly (Figure 15-4a). Eyespots present anterolaterally on palpode and cephalic rim. Cephalic rim entirely smooth (Figure 15-4b); cephalic keel narrow, low. Segmentation relatively distinct throughout. Notosetae of four kinds: 1) bilimbate setae on setigers 1-7 or 8; 2) narrow capillary setae on setigers 1-3; 3) pinnate notosetae beginning on setiger 4; and 4) wide hispid setae from setiger 7 or 8. Neurosetae of setigers 1-3 as dentate acicular spines. Subsequent neurosetae as uncini with 4-5 teeth in single vertical series above main fang (Figure 15-4c). Posterior setigers developing anterior to anal plaque with notosetae apparently emerging first (Figure 15-4a). Anal plaque rimmed with about 12 anal cirri (Figure 15-4a), three or four cirri longer than others.
REMARKS: Within the Maldanidae certain specific characters may change with growth. For example, the acicular spines of setigers 1-3 may be dentate in juvenile specimens and smooth in adults as in Euclymene modesta (Arwidsson, 1922:32) and Euclymene sp. A (see page 15-14). The largest specimen of Macroclymene found in Gulf of Mexico BLM-OCS voucher collections is much smaller (15 mm) than M. zonalis (Verrill, 1874a) (about 200 mm). Due to this apparent size discrepancy with other species of Macroclymene, it is felt that the BLM-OCS specimens may not be fully developed with regards to such specific characteristics as the cephalic rim, neuropodial spines of setigers 1-3, and anal plaque. Therefore, it seems best to confirm the generic record for the Gulf of Mexico, but not to attempt a specific identification.
GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 15-3); 20-58 m; medium to fine sand.

Genus **Axiothella** Verrill, 1900

TYPE SPECIES: Axiothea catenata Malmgren, 1865b.
REFERENCES:
Verrill, 1900:657.
Arwidsson, 1907:205.
Day, 1967:629.
DIAGNOSIS: Cephalic plaque with raised caphalic rim. Nuchal slits long, parallel. Neurosetae as rostrate uncini, similar throughout. Anal plaque as a funnel rimmed with cirri, anus terminal within funnel.

Axiothella sp. A
Figures 15-5, 6a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 20-11/80 (7 spec.-2 ovig., USNM 75236); MAFLA 2207G-8/77 (1

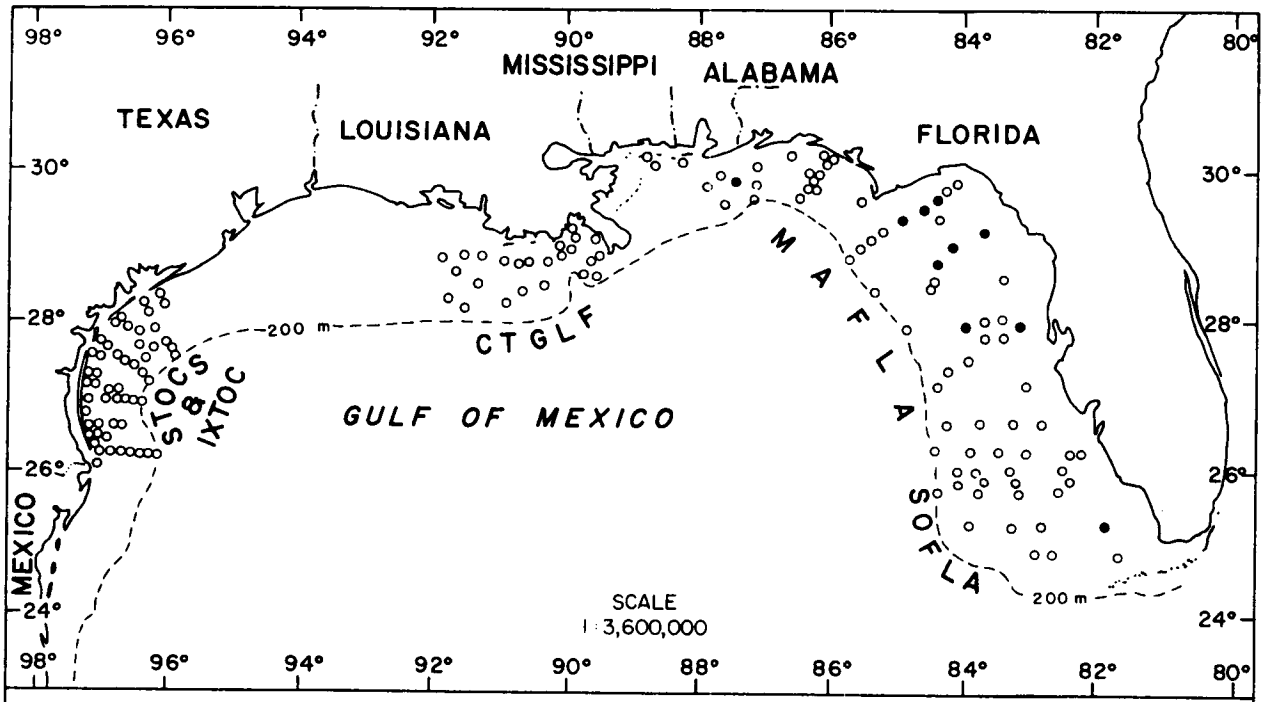

Figure 15-5. Distribution of Axiothella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

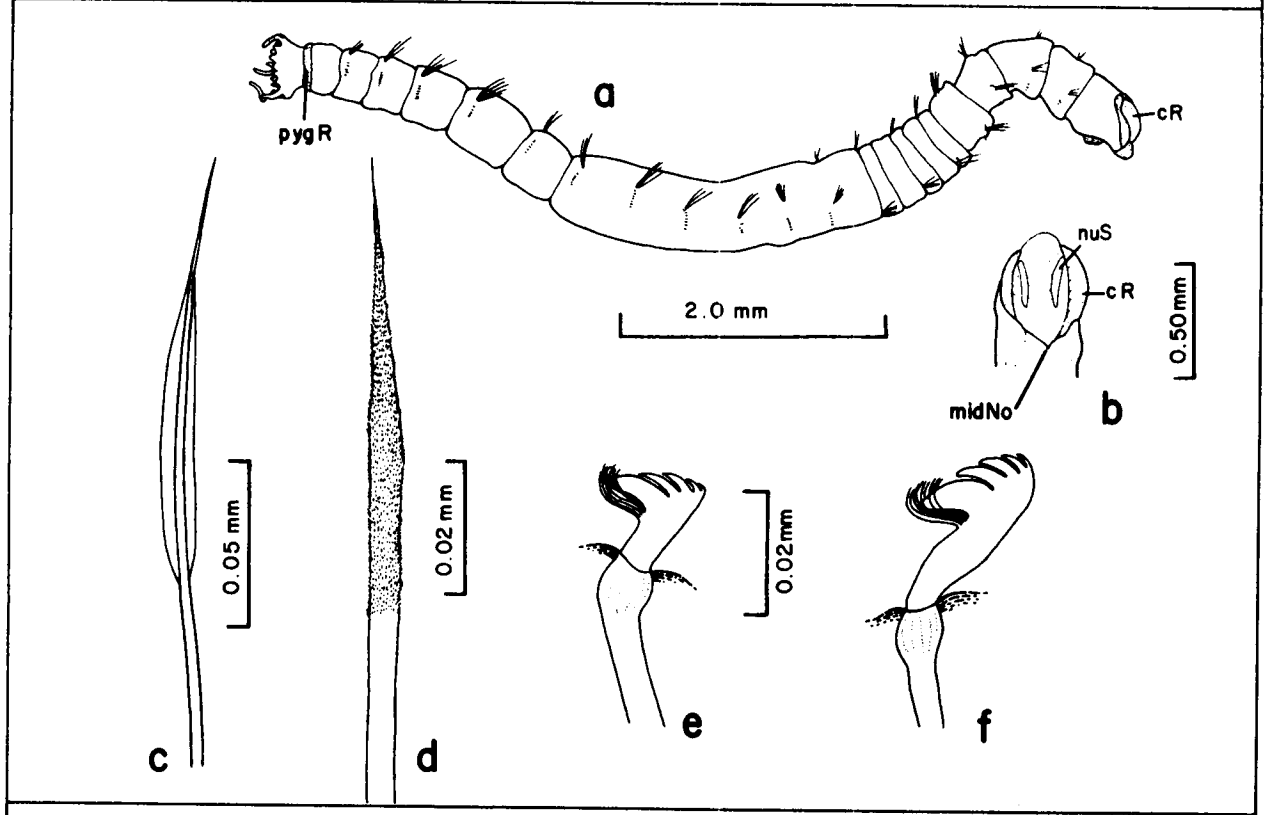

Figure 15-6. Axiothella sp. A: a, whole worm; b, cephalic plaque, dorsal view; c, notoseta from setiger 3; d, notoseta from setiger 8; e, neuroseta from setiger 3; f, neuroseta from setiger 13.

spec.), 2207I-11/77 (2 spec.), 2211E-8/77 (1 spec.), 2316H-11/77 (1 spec.), 2317A-7/76 (1 spec.), 2318B-7/76 (6 spec.), 2318C-7/76 (7 spec.), 2318D-7/76 (8 spec.), 2421E-7/76 (3 spec.), 2422G-No date (1 spec.), 2422I-6/76 (2 spec.), 2423G-2/78 (1 spec.), 2642A-6/75 (1 spec.).

DESCRIPTION:

Length, to 14 mm; width, to 0.75 mm. Number of setigers constant at 18 with one achaetous preanal segment. Numerous eyespots on anteroventral margin of palpode. Cephalic rim high, smooth except for middorsal notch (Figure 15-6a). Cephalic keel narrow, low; nuchal slits well-developed, slightly curved (Figure 15-6b). Setigers 1-8 distinctly segmented; indistinct segmentation beginning at junction of setigers 8 and 9, continuing to junction of setigers 13 and 14 where segmentation again becomes distinct (Figure 15-6a). Notosetae of four kinds: 1) bilimbate setae (Figure 15-6c) on anterior four or five setigers; 2) slender capillary setae on anterior three or four setigers; 3) pinnate setae present from setiger 3; and 4) broad hispid setae (Figure 15-6d) from setiger 4 or 5. Neuropodia of setigers 1-3 with 2-3 uncini (Figure 15-6e) similar to uncini of following setigers (Figure 15-6f). All uncini with 4-5 teeth in single vertical series above main fang. Preanal segment with thickened pygidial ring. Anal plaque rimmed with about 20-24 anal cirri, midventral cirrus up to 1.5 times longer than next longest cirrus. Anus terminal on raised cone, anal papillae absent.

REMARKS: Axiothella sp. A is similar to A. mucosa (Andrews, 1891), but differs from the latter in having one instead of three achaetous preanal segments and in being much smaller in length (14 mm for a gravid female instead of about 80 mm).

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 15-5); 19-43 m; coarse to fine-very fine sand, silty fine to very fine sand.

Genus **Clymenella** Verrill, 1873

TYPE SPECIES: Clymene torquatus Leidy, 1855.

REFERENCES:

Mangum, 1962:3.

Fauchald, 1977a:40.

DIAGNOSIS: Cephalic plaque with raised cephalic rim. Nuchal slits long, parallel. Distinct membranous collar present on anterior margin of setiger 4. Setigers 1-3 with dentate acicular neurosetae; subsequent neurosetae with vertical series of teeth above main fang. Anal plaque as a funnel rimmed with cirri, anus terminal within funnel.

Clymenella torquata (Leidy, 1855)
Figures 15-7, 8a-i

Clymenella torquata--Hartman, 1945:40, pl. 8, figs. 1, 2.

Clymenella torquata calida Hartman, 1951a:105.

Clymenella torquata--Mangum, 1962:3, figs. 1a, 2a.

MATERIAL EXAMINED:

Gulf of Mexico BLM-OCS:

SOFLA 8-11/80 (1 spec., USNM 86871), 22E-11/80 (1 spec., USNM 86870); MAFLA 2209C-11/77 (1 spec.), 2209D-11/77 (1 spec.), 2210B-6/76 (1

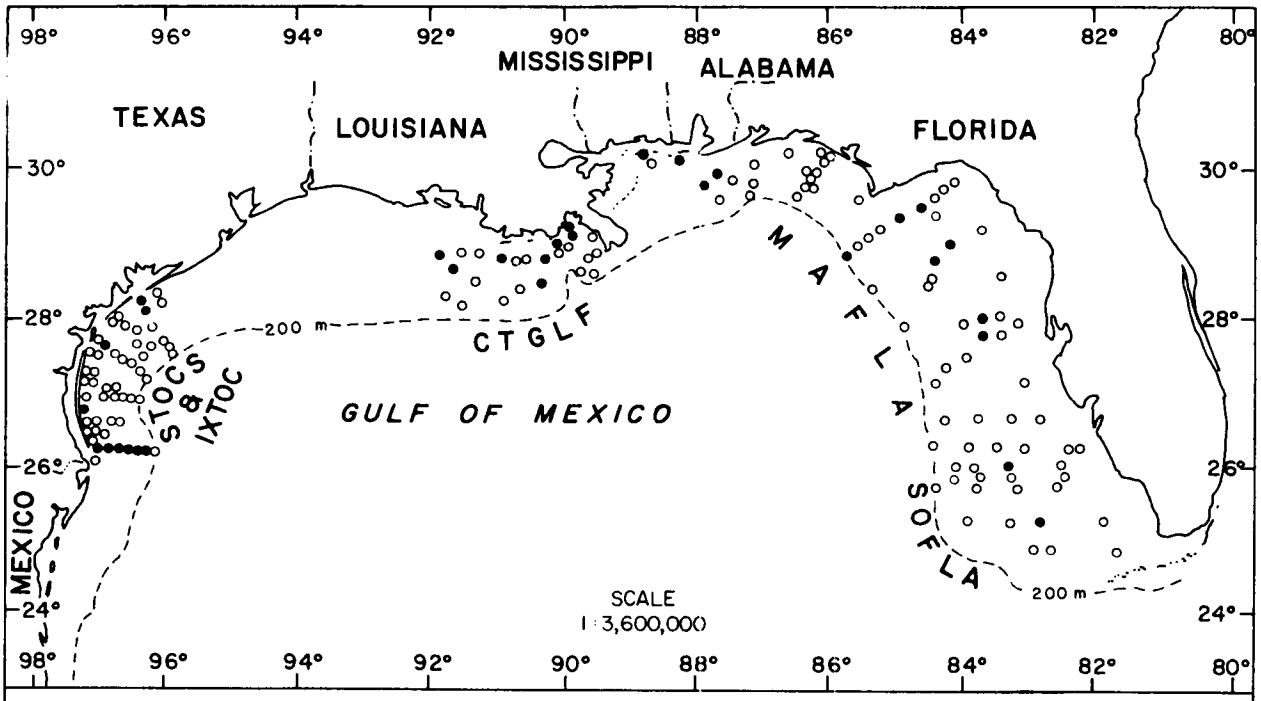

Figure 15-7. Distribution of Clymenella torquata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

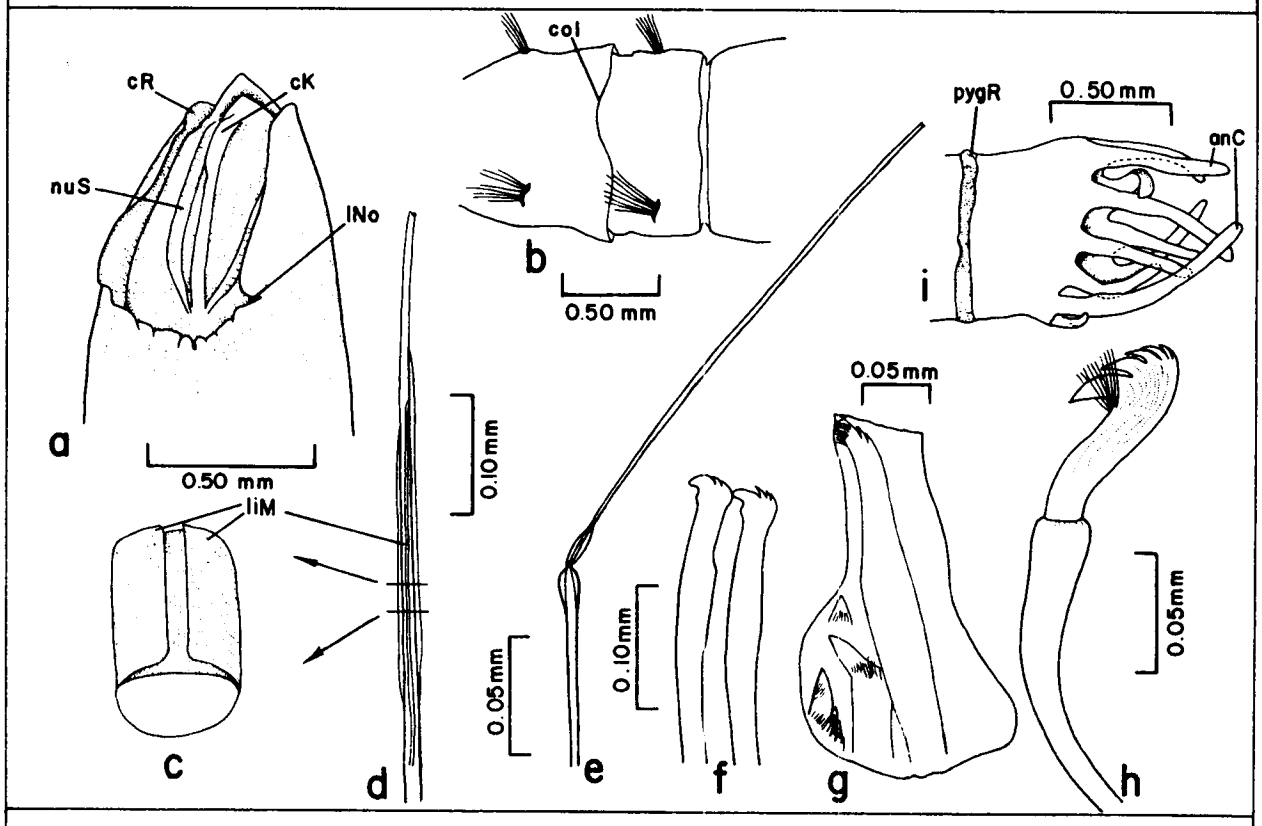

Figure 15-8. Clymenella torquata: a, cephalic plaque, dorsal view; b, setigers 3 and 4, dorsal view; c, diagrammatic section of notoseta from setiger 1; d, notoseta from setiger 1; e, specialized notoseta from setiger 9; f, neurosetae from setiger 1; g, setal development sac from setiger 3; h, neuroseta from setiger 8; i, pygidium, lateral view.

spec.), 2210C-6/76 (1 spec.), 2422F-No date (1 spec.), 2423J-2/78 (2 spec.), 2641-7/76 (1 spec., USNM 56032); CTGLF 01-5/78 (1 spec., USNM 86866); STOCS 4/III-2 F/76 (12 spec., USNM 86868), 4/III-6 F/76 (6 spec., USNM 86869); IXTOC S52-1 11/79 (1 spec., USNM 86867).

Supplementary Material:

Gulf of Mexico--off Alabama, IEC Sta. 722MO 008-008, Jan. 1980, 30°9.5'N, 88°8.42'W, 15 m, sand (1 spec.); COE Sta. 582-5, Oct. 1980, 30°12.68'N, 88°11.24'W, 11.3 m, silty clay (1 spec.); Louisiana IEC Sta. 745 CA 009-004, June 1981 (1 spec.); LOOP Sta. 479-6, Nov. 1979 (1 spec.); Barataria Bay, July 1942 (3 spec., AHF 2763); Grand Isle, July 1953 (2 spec., AHF 10189); Texas, IEC Sta. 712SN 011-006, Sept. 1979 (1 spec.).

DESCRIPTION:

Length, 31.0+ mm (previously reported to 80 mm); width, to 3.0 mm. Largest specimen incomplete with ten setigers; number of setigers of complete specimens constant at 18, plus 2-3 achaetous preanal segments followed by pygidial ring. Eyespots absent. Cephalic rim with 4-10 crenulations posteriorly and pair of lateral notches; middorsal notch absent (Figure 15-8a). Cephalic keel narrow, low; nuchal slits slightly curved, ending posteriorly even with lateral notches of cephalic rim. Setigers 1-8 with distinct segmentation, including junction of peristomium and setiger 1. Anterior margin of setiger 4 prolonged as a membranous collar, broadly indented dorsally (Figure 15-8b). Indistinct segmentation beginning at junction of setigers 8 and 9, continuing to junction of setigers 13 and 14, then becoming slightly more distinct. Notosetae of three kinds: 1) bilimbate, hispid setae with limbae forming a channel along one edge (Figure 15-8c,d), present throughout; 2) pinnate setae, present throughout; and 3) numerous, very fine, specialized setae present on setiger 9 only (Figure 15-8e). Neurosetae of setigers 1-3 (Figure 15-8f) with 3-4 teeth above main fang, without subrostral hairs except for newly formed uncini which have a few hairs (Figure 15-8g). Uncini present from setiger 4, with 6-7 teeth above main fang, subrostral hairs present (Figure 15-8h). Two or three achaetous preanal segments present, elongate in some specimens. Thickened pygidial ring present just anterior to anal plaque; funnel rimmed with about 12 cirri (Figure 15-8i). Anal opening on elevated cone; papillae present at opening.

REMARKS: The papillae around the anal opening are only visible when the anal cone is extended. Clymenella torquata calida Hartman, 1951a, from Louisiana, was separated from the stem species based on the number of crenulations on the cephalic rim. Mangum (1962:4) tentatively agreed. No type material was ever designated for the subspecies; however, examination of several specimens deposited at the Allan Hancock Foundation by Hartman as C. torquata calida shows the number of crenulations is variable. Therefore, C. torquata calida is herein synonymized with C. torquata.

PREVIOUSLY REPORTED HABITAT: Sand or mud, intertidal to 110 m.

GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread throughout study area (Figure 15-7); 6-175 m; primarily sands and sandy silts.

DISTRIBUTION: New England to northern Florida, Gulf of Mexico, Atlantic coast of England.

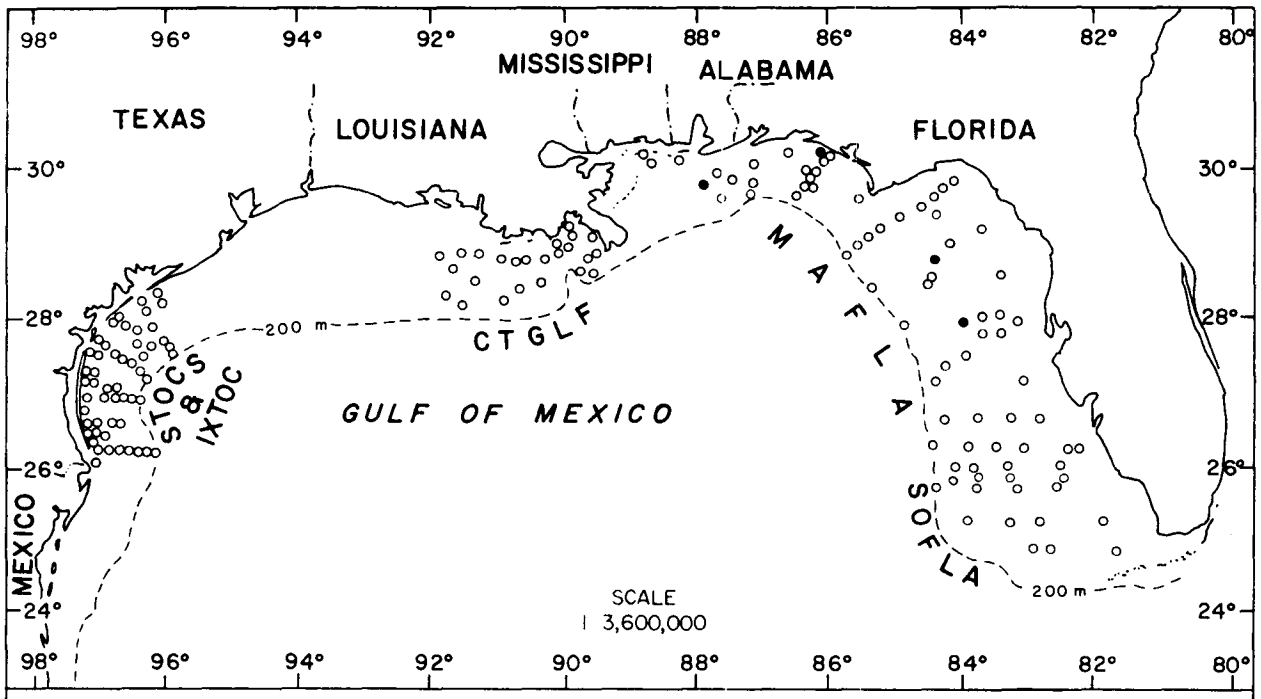

Figure 15-9. Distribution of Euclymene sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

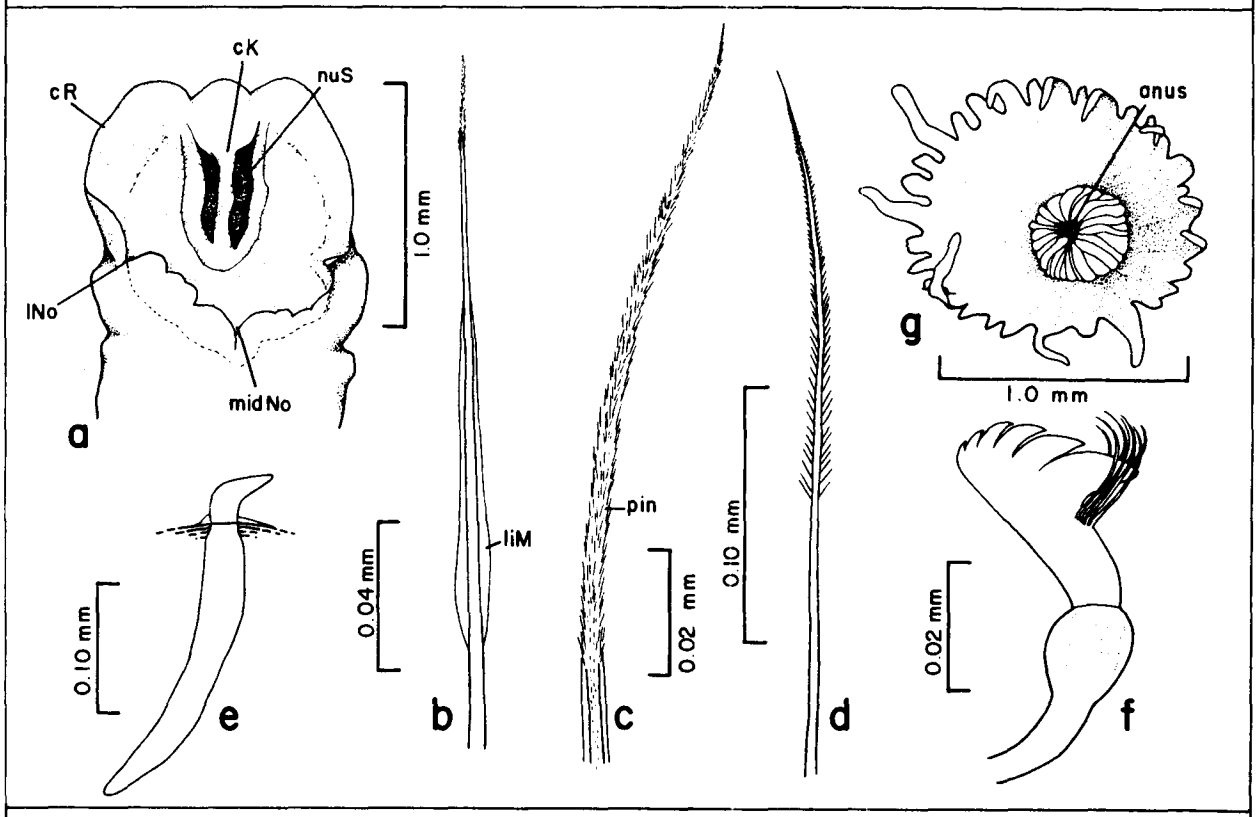

Figure 15-10. Euclymene sp. A: a, cephalic plaque, dorsal view; b, wide limbate notoseta from setiger 1; c, distal end of narrow limbate notoseta from setiger 1; d, plumose notoseta from setiger 18; e, neuroseta from setiger 1; f, neuroseta from setiger 18; g, pygidium, oblique terminal view.

Genus **Euclymene** Verrill, 1900

TYPE SPECIES: Clymene oerstedii Claparède, 1863.
REFERENCES:
Arwidsson, 1907:217.
Day, 1967:634.
DIAGNOSIS: Cephalic plaque with cephalic rim. Nuchal slits long, parallel. Setigers 1-3 with smooth or dentate acicular neurosetae; subsequent neurosetae as rostrate uncini with vertical series of teeth above main fang. Anal plaque as a funnel rimmed with cirri, anus terminal within funnel.

Key to the Gulf of Mexico BLM-OCS Species of Euclymene

1a. Acicular neurosetae of setigers 1-3 smooth (Figure 15-10e), midventral anal cirrus filiform (Figure 15-10g) . . . . . .**Euclymene sp. A**, p. 15-14

1b. Acicular neurosetae of setigers 1-3 dentate (Figure 15-12b), midventral anal cirrus large, club-shaped (Figure 15-12d) . . . . . .**Euclymene sp. B**, p. 15-16

Euclymene sp. A
Figures 15-9, 10a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211I-6/76 (1 spec.), 2211H-2/78 (1 spec., USNM 75160), 2316K-11/77 (1 juv.), 2528B-6/75 (1 juv.), 2528E-6/75 (1 spec.), 2640B-7/76 (1 spec.).
DESCRIPTION:
Length, to 19 mm; width, to 1.0 mm. Number of setigers constant at 19, plus two achaetous preanal segments followed by pygidial ring. Numerous eyespots present ventrolaterally on cephalic rim and ventrally on palpode. Cephalic rim high, slightly crenulate posteriorly, with pair of lateral notches and single deep middorsal notch (Figure 15-10a). Cephalic keel narrow, low; nuchal slits parallel, slightly divergent anteriorly, ending posteriorly even with lateral notches of cephalic rim. Setigers 1-8 with distinct segmentation, including junction of peristomium and setiger 1; segmentation indistinct beginning at junction of setigers 8 and 9 and continuing to pygidium. Notosetae of anterior setigers including broad, bilimbate, distally hispid setae (Figure 15-10b); and narrow, bilimbate, distally hispid setae (Figure 15-10c). Notosetae of posterior setigers including broad setae having distal pinnae without limbate margins, and narrow plumose setae (Figure 15-10d). Neuropodia of setigers 1-3 with 1-2 smooth, hooked, acicular spines (Figure 15-10e). Subsequent uncini with 4-5 teeth in single vertical series above main fang (Figure 15-10f). Preanal segments with vestigial neuropodial tori. Thickened pygidial ring present just anterior to anal plaque; funnel encircled by numerous (up to 31) anal cirri, midventral cirrus always long, other cirri randomly long or short (Figure 15-10g). Anus terminal on slightly raised cone within funnel.

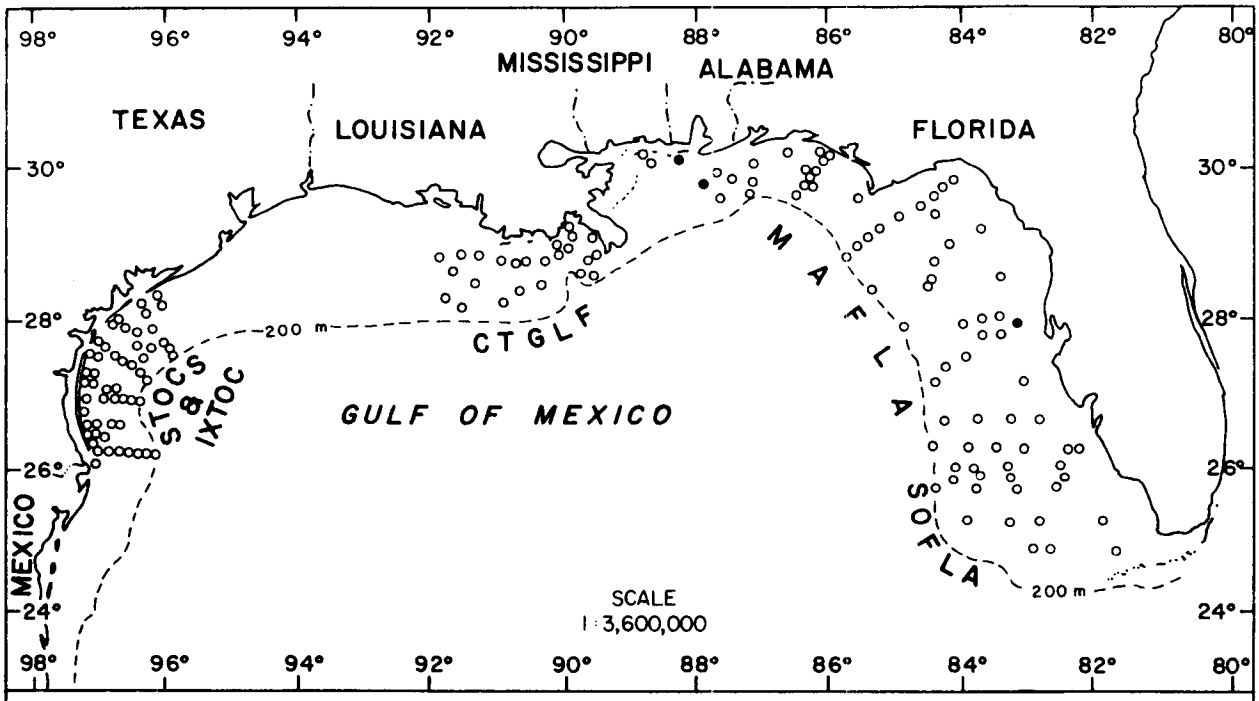

Figure 15-11. Distribution of Euclymene sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

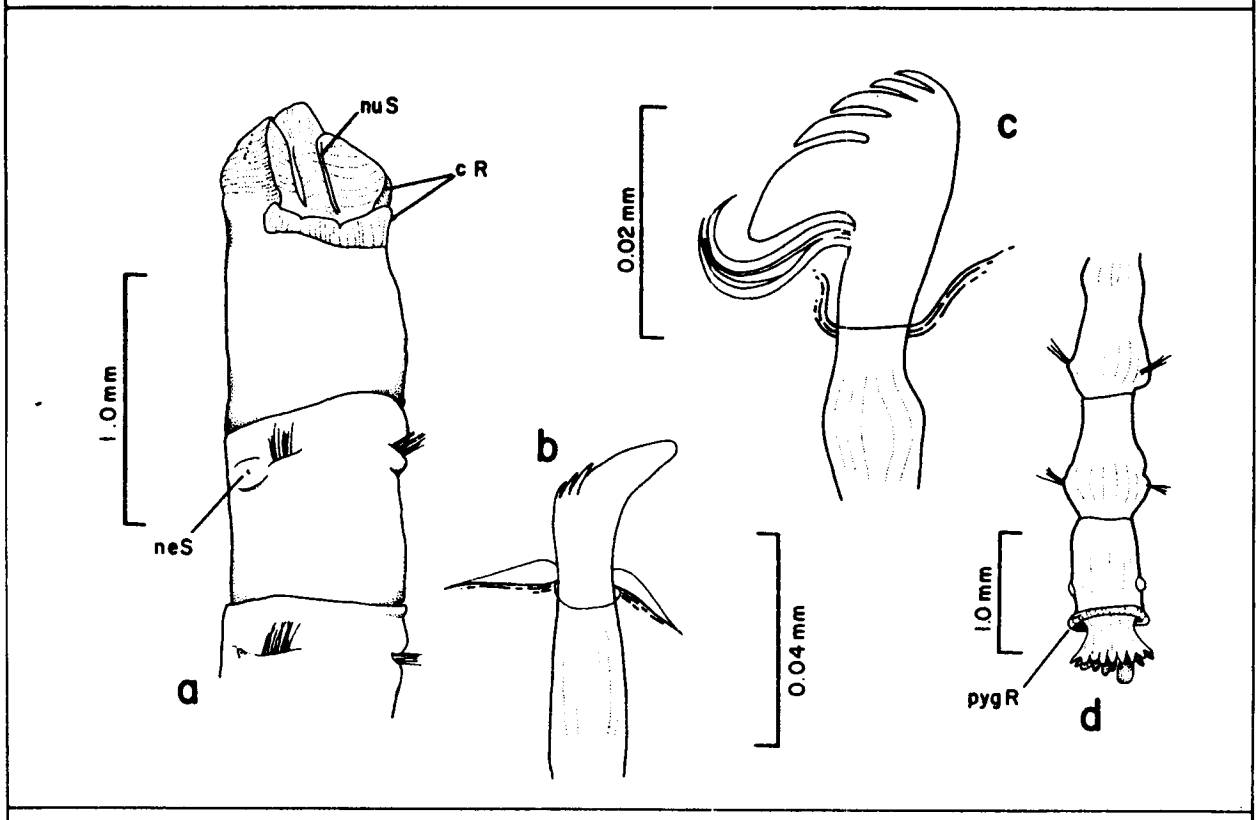

Figure 15-12. Euclymene sp. B: a, anterior end, dorsolateral view; b, neuroseta from setiger 2; c, neuroseta from setiger 20; d, posterior end, dorsal view.

REMARKS: Euclymene sp. A is similar to E. oerstedi (Claparède, 1863), which lacks a middorsal notch and crenulations on the cephalic rim and has dentate rather than smooth acicular spines in setigers 1-3; E. lombricoides (Quatrefages, 1865), which has three rather than two achaetous preanal segments; and E. coronata Verrill, 1900, whose rather unclear description limits accurate comparison until type material can be examined. The smallest specimens of Euclymene sp. A (juveniles?) differ from the above description in having dentate rather than smooth neuropodial spines on setigers 1-3 and in lacking crenulations on the cephalic rim. These specimens would then seem to match E. oerstedi. Specimens intermediate between juveniles and adults however, have both dentate and smooth neuropodial spines on setigers 1-3 and even within the same fascicle. This parallels Arwidsson's (1922:32) observations of Euclymene modesta (Quatrefages, 1865). Specimens of Euclymene sp. A of increasing size gradually began to exhibit crenulations on the cephalic rim.

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida and Alabama (Figure 15-9); 35-43 m; coarse to medium sand, silty fine sand.

Euclymene sp. B

Figures 15-11, 12a-d

MATERIAL EXAMINED:

GULF of Mexico BLM-OCS:

MAFLA 2207H-8/77 (1 spec.), 2639E-7/76 (1 spec., USNM 75161), 2640F-7/76 (2 spec.).

Supplementary Material:

Gulf of Mexico--off Alabama, COE Sta. 691-7, Apr. 1981, 30°05.42'N, 87°57.50'W, 16.8 m (1 spec.).

DESCRIPTION:

Length, to 27 mm; width, to 1.0 mm. Number of setigers constant at 23, with one achaetous preanal segment followed by pygidial ring. Eyespots present ventrolaterally on cephalic rim (Figure 15-12a) and ventrally on palpode. Cephalic rim with pair of lateral notches and single middorsal notch. Cephalic keel narrow, low; nuchal slits parallel. Segmentation distinct on setigers 1-8, indistinct beginning at junction of setigers 8 and 9 and continuing to junction of setigers 14 and 15, again distinct thereafter. Some specimens with brown-pigmented areas on parapodia from about setiger 8, darkest on setigers 12-19. Notosetae of four kinds: 1) broad, bilimbate, hispid setae, present throughout; 2) narrow, smooth, bilimbate setae from setigers 1-8; 3) numerous fine capillary setae present on setiger 9 only; and 4) pinnate capillary setae on setigers 10-23. Neuropodia of setigers 1-3 with dentate acicular spines (Figure 15-12b). Uncini of following setigers with 4-5 teeth above main fang (Figure 15-12c). Preanal segment with vestigial neuropodial tori (Figure 15-12d). Thickened pygidial ring present just anterior to anal plaque; funnel encircled by about 18 equal cirri and one larger, club-shaped, ventral cirrus. Anus terminal on a raised cone.

REMARKS: Among the known species of the genus, Euclymene sp. B is most similar to E. annandalei Southern, 1921, in having a club-shaped ventral cirrus on the anal plaque. It differs from the latter, however, in having 23 setigers instead of 21, one achaetous preanal segment instead of two, and a cephalic rim without crenulations.

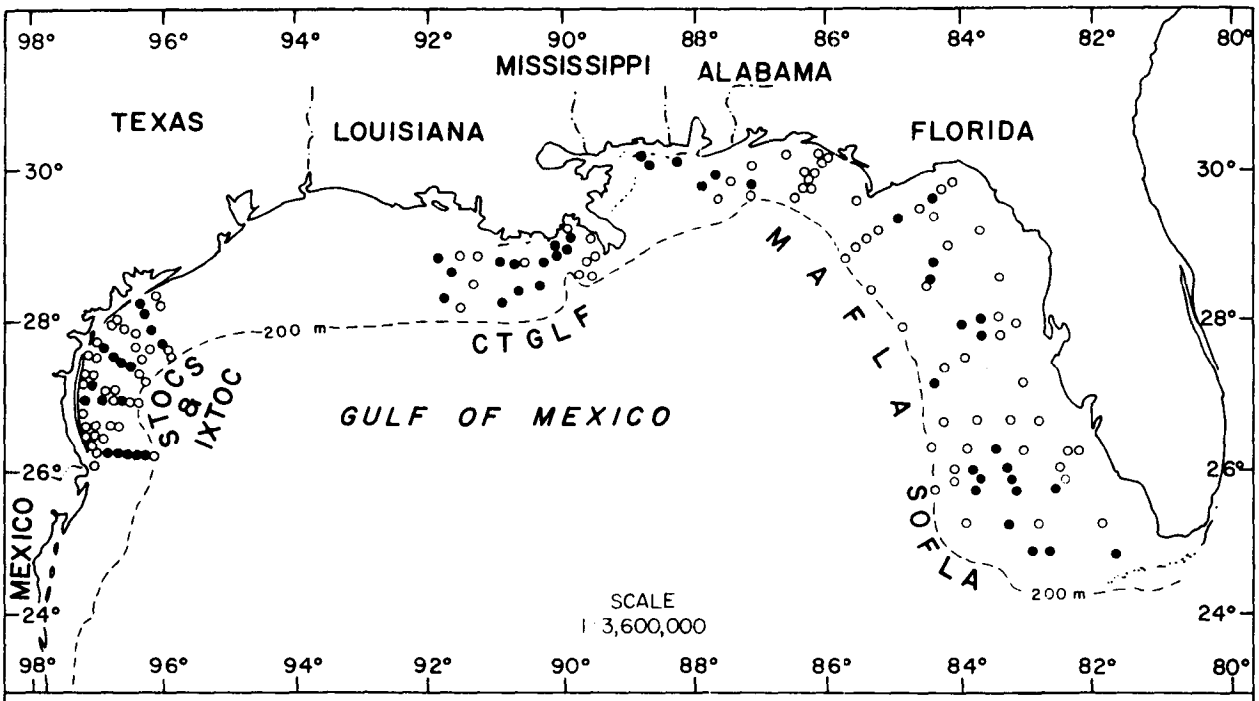

Figure 15-13. Distribution of Asychis elongatus on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

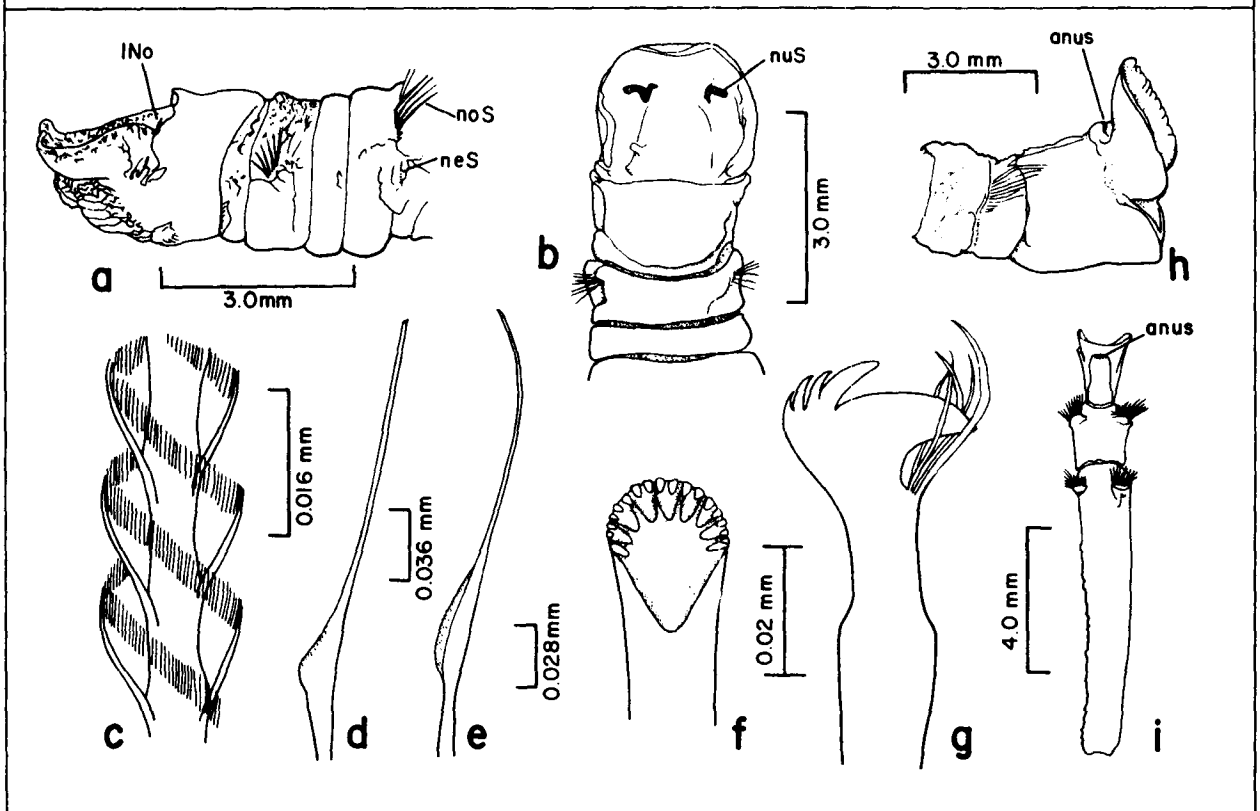

Figure 15-14. Asychis elongatus: a, anterior end, lateral view; b, same, dorsal view; c, distal portion of spirally fringed seta; d, spatulate companion seta; e, limbate companion seta; f, uncinus from setiger 16, frontal view (apical rows of teeth not shown); g, same, lateral view; h, posterior end, lateral view; i, same, dorsal view (Figures a-e, h-i from Light 1974, figs. 1a-c, 2a-d).

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Alabama and Florida (Figure 15-11); 19-35 m; medium to fine-very fine sand, sandy silt.

Genus **Asychis** Kinberg, 1867

TYPE SPECIES: Asychis atlanticus Kinberg, 1867.
REFERENCES:
Day, 1967:645.
Light, 1974:175.
DIAGNOSIS: Cephalic plaque with cephalic rim. Nuchal slits short. Neurosetae absent on setiger 1, present on all subsequent setigers as rostrate uncini with crescentic rows of teeth above main fang. Anal plaque with elongate dorsal lobe; anus dorsal.

Asychis elongatus (Verrill, 1873)
Figures 15-13, 14a-i

Asychis elongata--Light, 1974:175, figs. 1a-c, 2a-d.
Branchioasychis americana Hartman, 1945:40, pl. 9, figs. 1-4; 1951a:105.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8B-11/80 (1 spec., USNM 86887), 8E-5/81 (1 spec., USNM 86886), 18C-4/81 (1 spec., USNM 86885), 25D-11/80 (1 spec., USNM 86884), 25-8/81 (1 spec., USNM 86888); MAFLA 8J-5/74 (1 spec.), 2209B-6/76 (3 spec.), 2209C-6/76 (2 spec.), 2209D-6/76 (3 spec.), 2209E-6/76 (1 spec.), 2209G-6/76 (1 spec.), 2209J-8/77 (1 spec.), 2209K-8/77 (1 spec.), 2210C-6/76 (1 spec.), 2210D-6/76 (2 spec.), 2210F-6/76 (1 spec.), 2210H-6/76 (1 spec.), 2210J-6/76 (1 spec.), 2211G-2/78 (1 spec.), 2316C-7/76 (1 spec.), 2316D-7/76 (1 spec.), 2316E-7/76 (3 spec.), 2316K-7/76 (1 spec.), 2423A-9/75 (1 spec.), 2423G-7/76 (1 spec.), 2423D-11/77 (1 spec.), 2423E-11/77 (2 spec.), 2638K-11/77 (1 spec., USNM 75159), 2645F-9/75 (3 spec.); CTGLF 03-5/78 (1 spec., USNM 86898); STOCS 1/I-4 F/76 (10 spec., USNM 86896), 1/I-6 F/76 (1 spec., USNM 86897), 2/I-1 F/76 (64 spec., USNM 86890), 2/I-3 F/76 (4 spec., USNM 86894), 2/I-6 F/76 (9 spec., USNM 86891), 1/IV-6 F/76 (1 spec., USNM 86893), HR1-3 7/76 (2 spec., USNM 86895), HR1-5 F/76 (3 spec., USNM 86892); IXTOC S49-4 12/79 (1 spec., USNM 86889).
Supplementary Material:
Gulf of Mexico--off Mississippi, COE Sta. 033-1, Apr. 1981, 30°14.90'N, 88°36.60'W, 4.3 m (1 juv.), 261-3, Mar. 1981, 30°05.08'N, 88°42.90'W, 15 m (3 juv.), 364-5, Jan. 1980, 30°10.93'N, 88°38.08'W, 12 m (1 spec.); Alabama--Mobil Oil Sta. 054-C, July 1978 (1 spec.); Florida--IEC Sta. 723TB 002-006, Jan. 1980 (1 spec.).
DESCRIPTION:
Length, to 55.0 mm (previously reported to 215 mm); width, to 3.5 mm (previously reported to 3.0 mm). Largest specimen incomplete with 14 setigers. Number of setigers of complete specimens constant at 19, achaetous preanal segments absent. Cephalic rim low, with pair of deep lateral notches (Figure 15-14a). Cephalic keel broad, arched dorsally; nuchal slits small, crescent-shaped (Figure 15-14b). Setigers 1-3 biannulate, segmentation distinct including junction of peristomium and setiger 1; segmentation indistinct from setiger 4 to about setiger 14,

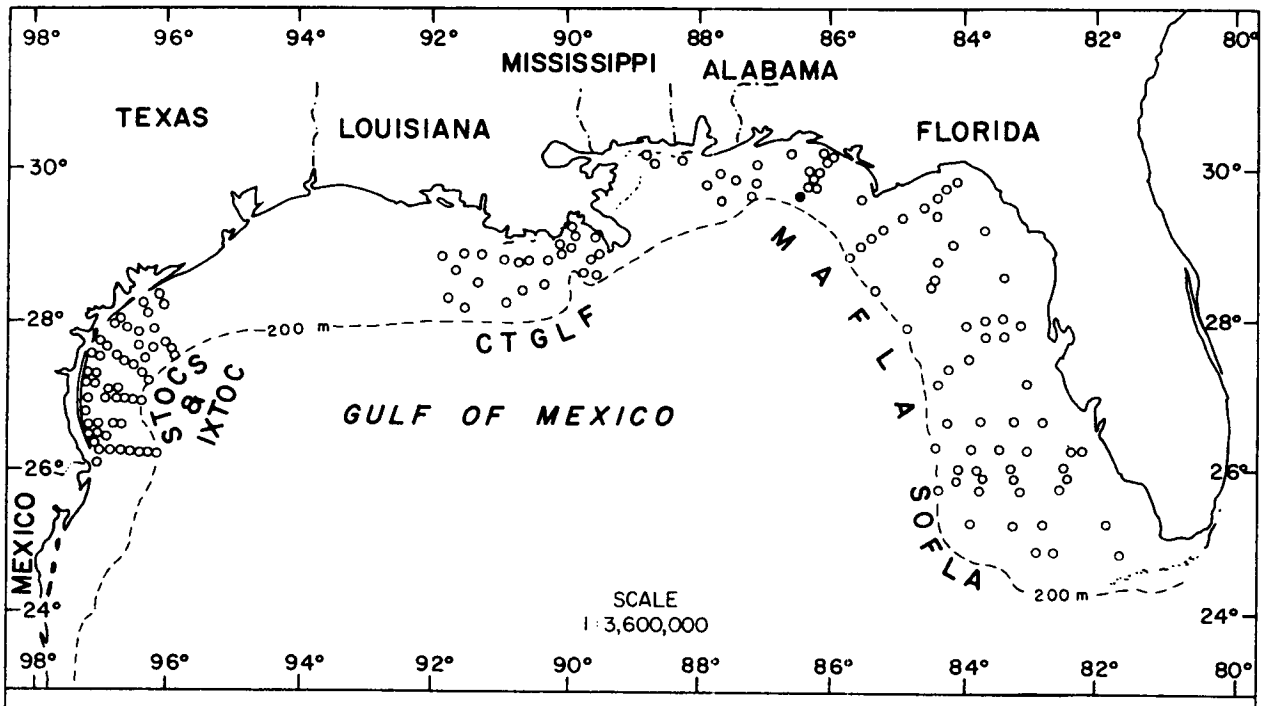

Figure 15-15. Distribution of Maldane sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

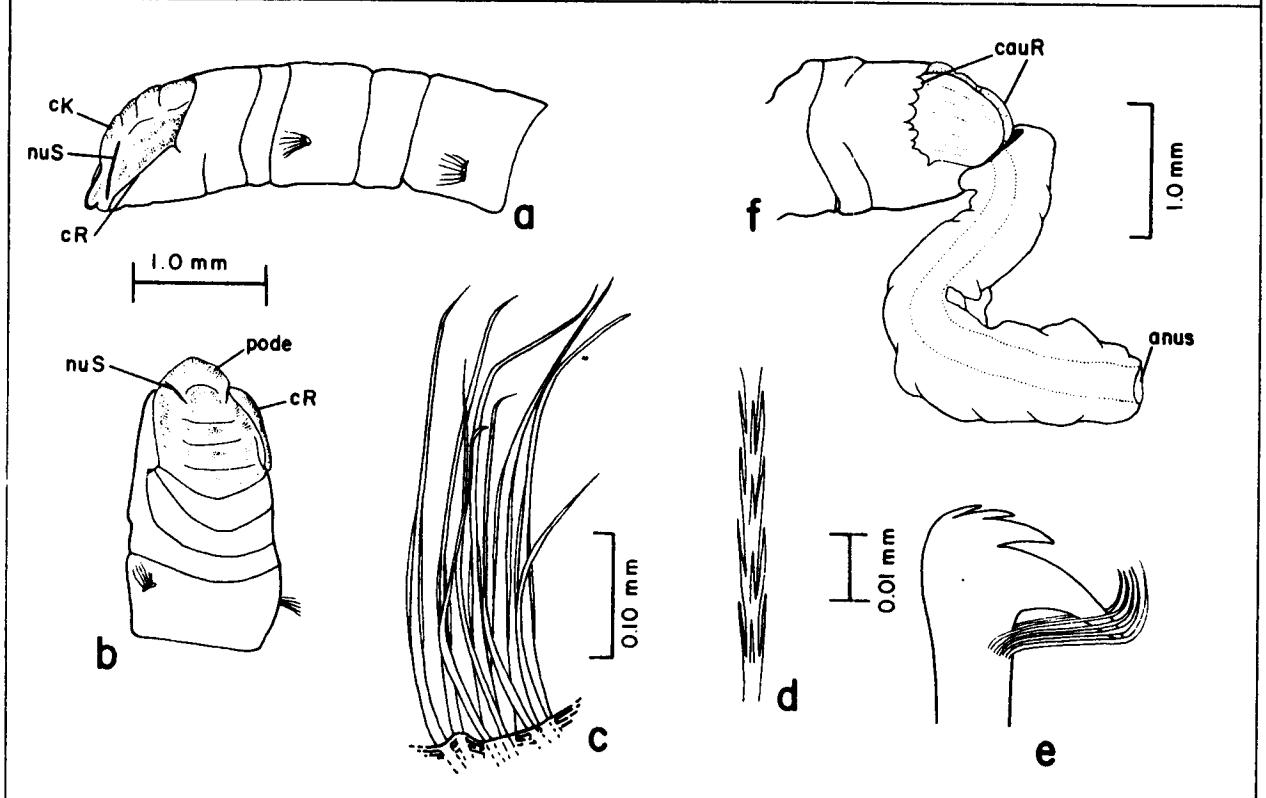

Figure 15-16. Maldane sp. A: a, anterior end, lateral view; b, same, dorsal view; c, notosetae from setiger 3, anterior view; d, distal portion of spinous seta from setiger 17; e, uncinus from setiger 8; f, posterior end with anus protruding, ventral view.

slightly more distinct thereafter. Thick glandular regions encircling setigers 1-3, present laterally and ventrally along entire length of setigers 4-7, at parapodia only of setigers 8-19. Dark pigment spots present dorsally on some specimens from tip of prostomium to setiger 3 or 4. Large to small white tubercles present from setiger 6 in some specimens, randomly arranged. Numerous filaments (branchiae?) present on some specimens from setigers 6-10 or 11, number of filaments highly variable. Notosetae of three kinds: 1) bilimbate setae present on setigers 1-6; 2) spirally fringed setae (Figure 15-14c), present from setiger 7; and 3) companion setae with flattened, spatulate bases tapering to fine, elongate blades (Figure 15-14d), sometimes appearing unilimbate basally, present throughout (Figure 15-14e). Uncini present from setiger 2, with numerous teeth located in four or five crescentic rows surmounting main fang (Figure 15-14f-g). Anal plaque scoop-shaped with long, flared, dorsal lobe separated from shorter, flared, ventral lobe by pair of deep lateral notches (Figure 15-14h). Anus located at terminal end of middorsal mound (Figure 15-14h,i).
REMARKS: Asychis elongatus is similar to A. carolinae Day, 1973, which has 18 setigers instead of 19, and Branchioasychis americana Hartman, 1945. The latter was considered a synonym of A. elongatus by Light (1974:181). Juvenile specimens of A. elongatus from off Mississippi possess a pair of rostrate uncini on setiger 1. These appear to be lost as the worm matures.
PREVIOUSLY REPORTED HABITAT: Clay, silt or mud, intertidal to 37 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread throughout the study areas (Figure 15-13); 10-121 m; primarily silts and clays, some sands.
DISTRIBUTION: Maine to Florida, Gulf of Mexico, British Honduras; San Francisco Bay, California.

Genus **Maldane** Grube, 1860

TYPE SPECIES: Maldane glebifex Grube, 1860a.
REFERENCES:
Arwidsson, 1907:250.
Day, 1967:645.
DIAGNOSIS: Cephalic plaque with cephalic rim. Nuchal slits short. Neurosetae absent from setiger 1, present on all subsequent setigers as rostrate uncini with crescentic rows of teeth above main fang. Anal plaque with low dorsal rim; anus dorsal.

Maldane sp. A
Figures 15-15, 16a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2536D-2/78 (1 spec.).
DESCRIPTION:
Length, 37 mm; width, 1.0 mm. Body with 19 setigers and two achaetous preanal segments; thickened pygidial ring absent. Eyespots absent. Cephalic rim low with pair of deep lateral notches (Figure 15-16a); cephalic keel broad, arched dorsally, rising well above level of cephalic rim; nuchal slits short, divergent anteriorly (Figure 15-16b). Setigers 1-3 biannulate, segmentation distinct; segmentation indistinct from

setigers 4-12 or 13, becoming slightly more distinct thereafter. Thick glandular regions encircling setigers 1-3, present laterally and ventrally along entire length of setigers 4-7, on parapodia only of setigers 8-19. Notosetae of three kinds: 1) bilimbate setae on setigers 1-3 (Figure 15-16c); 2) curved, limbate companion setae arranged anterior to and alternating with larger bilimbate setae throughout (Figure 15-16c); and 3) distally spinous setae beginning on setiger 4, becoming more obviously spinous (Figure 15-16d) and longer on posterior setigers. Uncini present from setiger 2, with numerous teeth arranged in three or four crescentic rows surmounting main fang (Figure 15-16e). Anal plaque flattened ventrally, with slightly chitinized, crenulate ventral rim separated from smooth dorsal rim by pair of lateral notches (Figure 15-16f). Rectum protruding from dorsal opening.

REMARKS: Maldane sp. A is similar to M. glebifex Grube, 1860a. It differs from the latter in having a high cephalic keel rising above the level of the cephalic rim.

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Florida (Figure 15-15); 189 m; clayey silt.

CHAPTER 16

Paul S. Wolf

FAMILY BOGUEIDAE Hartman and Fauchald, 1971

INTRODUCTION

Bogueids are small (up to about 10 mm), thread-like polychaetes, rather nondescript in appearance. The body is divided into three regions. In the genus Boguea, these regions are particularly well-delineated by the degree of segmentation; by the distribution of glandular areas; and by the form, distribution, and number of notosetae. The prostomium is contractile and fused with the peristomium to form the head. The head is dorsally arched due to the presence of a well-developed cephalic keel, flanked laterally by a pair of ciliated nuchal slits similar to those found in the family Maldanidae (Chapter 15). Notosetae are narrow to wide, usually with minute pinnae (hispid setae). Modified notosetae, present posteriorly, can be serrated, channeled, or plumose. Acicular spines may be present on the notopodia of some setigers. Neurosetae are avicular uncini, usually in single rows anteriorly, double rows on middle setigers, and again in single rows posteriorly. The pygidium is simple with a terminal anus.

The family was first erected by Hartman and Fauchald (1971) to include Boguella ornata and Boguea enigmatica (first described by Hartman (1945) as an aberrant member of the Oweniidae). Neither species has been recorded since its original discovery. These are the only species and genera presently recognized for the Bogueidae. B. enigmatica occurred in the Gulf of Mexico BLM-OCS collections along with a possible new species in each genus.

The Bogueidae share many morphological characters with the Maldanidae (Chapter 15), such as a cephalic keel flanked by a pair of nuchal slits, similar body regions, similar notosetae, and similar neurosetae in young Boguea enigmatica and in adult Boguella ornata. Because of these similarities and because of major discrepancies between present published descriptions and the actual type material, the entire Bogueidae have recently been revised by the author (Wolf, 1983), and are now included within the Maldanidae as a new subfamily.

PRINCIPAL DIAGNOSTIC CHARACTERS

Bogueid taxa differ mainly with respect to the noto- and neurosetae. The head and pygidium are described herein, but do not appear diagnostic at either the generic or specific levels.

Notosetae.

The notosetae represent one of the major taxonomic characters within the family. All descriptions of the notosetae given herein are made from observations under oil immersion. Because the bogueids are quite small, setal observations can be done on specimens that are mounted whole.

Anterior notosetae are generally wide and minutely pinnate (hispid setae) (Figures 16-2b, 6b). Additional setae such as acicular spines in

Boguea sp. A (Figure 16-4c) or pubescent setae in Boguella sp. A (Figure 16-6b) may appear on some or all anterior notopodia.

Notosetae of the middle region are also hispid, but much narrower than notosetae of other regions (Figure 16-2c). Plumose setae (Figure 16-6c), formed of translucent, inverted cones similar to those of some species of Polycirrus (Terebellidae), appear in the middle region of Boguella sp. A.

Notosetae of the posterior region of Boguea are channeled capillary setae (Figure 16-2d,e) alternating with curved, serrate setae (Figure 16-2f). Notopodial spines also appear on far posterior setigers of Boguea (Figure 16-2g). In Boguella sp. A, the notosetae of posterior setigers are similar to those of the anterior setigers, and notopodial spines are absent.

Neurosetae.

Bogueid neurosetae are primarily avicular (terebelloid) and appear to be taxonomically important at the generic level. In the genus Boguea, uncini always begin in single rows on setiger 5 with a second row always appearing on setiger 9, and the uncini are similar throughout (Figure 16-2h). In Boguella, however, uncini always begin on setiger 4 but may be arranged in either single or double rows. Also, there are two kinds of uncini where they are arranged in double rows: an anterior row of smaller uncini, each with a long posterior process (Figure 16-6d) similar to the uncini of Rhodine species (Maldanidae); and a posterior row of terebelloid uncini (Figure 16-6e).

BIOLOGICAL NOTES

Boguea enigmatica inhabits clear, weakly chitinized tubes which may have irregular-sized sand grains attached. The author has observed this species with its tube built on the concave side of abandoned pelecypod valves, within abandoned serpulid tubes, or merely within the substratum. Boguella ornata, reported from pteropod ooze in deep water off New England (Hartman and Fauchald, 1971:151), inhabits clear, weakly chitinized tubes built within abandoned pteropod shells. Boguella sp. A, described herein from the Gulf of Mexico, has not been observed with a tube.

Like the maldanids, bogueids have a large, sac-like proboscis, indicating that they are deposit feeders. Gut analysis of Boguea enigmatica by the author revealed tests of diatoms and protozoans such as Radiolaria.

The life history of the Bogueidae is largely unknown, but that of Boguea enigmatica has been studied in detail by the author (Wolf, 1983). Sexes are separate, and reproduction appears to occur year-round in the Gulf of Mexico. The female carries large eggs from which apparently non-ciliated larvae emerge. They remain in the parent tube until they reach about 15-16 setigers. At this point they emerge from the tube to begin life solitarily. While in the parent tube, the young feed off their own store of yolk located within their bodies, and their emergence from the tube appears to correspond with the depletion of their yolk reserves. Young B. enigmatica appear morphologically similar to the adult; however, one major exception concerns the presence of a single rostrate uncinus (Figure 16-2j) in each neuropodium. This uncinus is

gradually lost as the worm matures, leaving only avicular uncini from setiger 5 (except on far posterior setigers of some specimens).

Gravid specimens of Boguea sp. A and Boguella sp. A contained large eggs, indicating benthic development of their young as well.

SPECIES OF BOGUEIDAE RECORDED FROM GULF OF MEXICO BLM-OCS PROGRAMS

	Page
Boguea enigmatica Hartman, 1945	16-3
Boguea sp. A	16-5
Boguella sp. A	16-7

Key to the Genera of Bogueidae from the Gulf of Mexico BLM-OCS Programs

1a. Uncini beginning on setiger 5 . . . . . .Boguea, p. 16-3
1b. Uncini beginning on setiger 4 . . . . . .Boguella, p. 16-7

Genus Boguea Hartman, 1945

TYPE SPECIES: Boguea enigmatica Hartman, 1945.
REFERENCES:
Hartman, 1945:42.
Hartman and Fauchald, 1971:148.
DIAGNOSIS: Nuchal slits short, slightly curved, ciliated. Notopodial spines present on far posterior setigers. Neurosetae as avicular (terebelloid) uncini, beginning in single rows on setiger 5; in double rows from setiger 9.

Key to the Gulf of Mexico BLM-OCS Species of Boguea

1a. Notopodial spines absent on setiger 3. .Boguea enigmatica, p. 16-3
1b. Notopodial spines present on setiger 3 (Figure 16-4c). . . . . .Boguea sp. A, p. 16-5

Boguea enigmatica Hartman, 1945
Figures 16-1, 2a-j

Boguea enigmatica Hartman, 1945:42, pl. 7, figs. 4-6.
Boguea enigmatica--Hartman and Fauchald, 1971:148, pl. 23, figs. h-i.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 24C-11/80 (1 spec., USNM 86839); MAFLA 2101H-2/78 (1 spec., USNM 75162), 2207G-11/77 (1 spec.), 2207K-11/77 (1 spec.), 2318J-11/77 (2 spec.).
Supplementary Material:
North Carolina--Bogue Sound (AHF 81, holotype; AHF 549, 10 paratypes).
Gulf of Mexico--Tampa Bay, Florida, IEC Sta. 713TB 003-004, Oct. 1979,

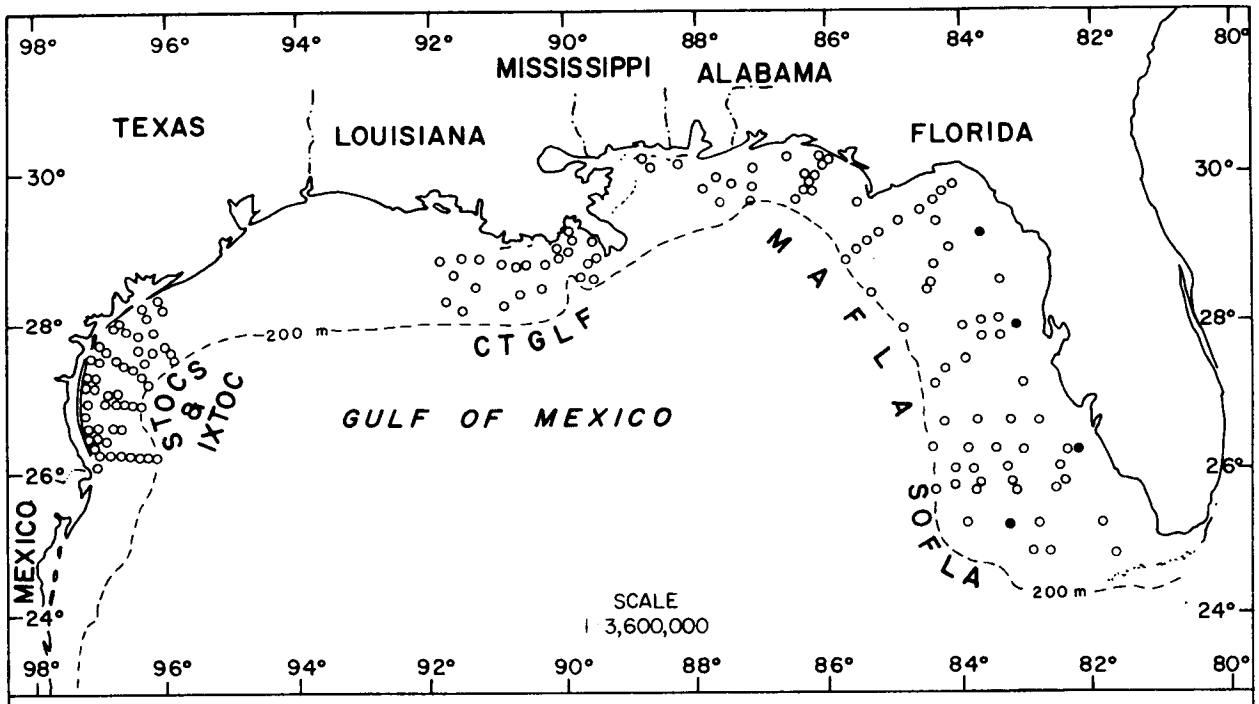

Figure 16-1. Distribution of Boguea enigmatica on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

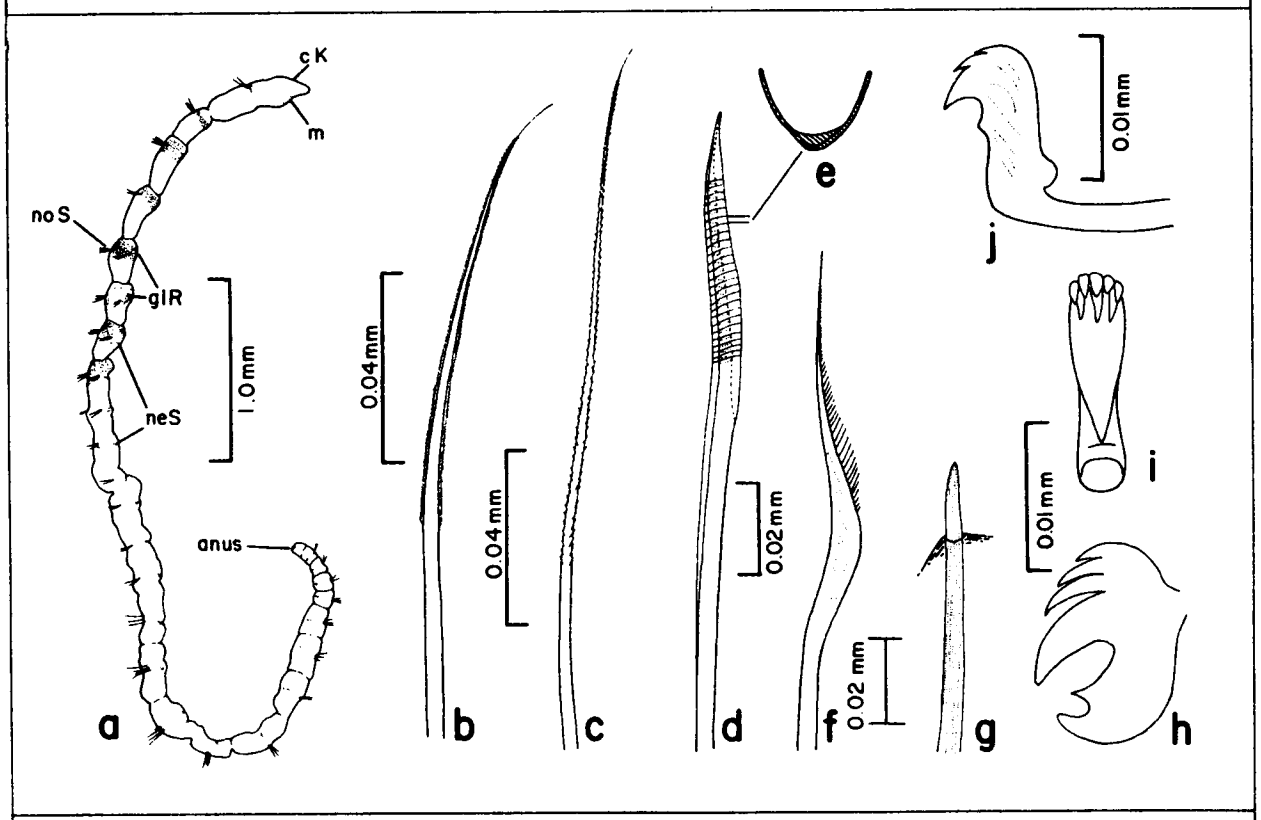

Figure 16-2. Boguea enigmatica: a, whole worm, lateral view; b, notoseta from setiger 2; c, same, from setiger 11; d, same, from setiger 16; e, diagrammatic section of channeled notoseta from same; f, serrate notoseta from same; g, notopodial spine from setiger 27; h, uncinus from setiger 7, lateral view; i, same, frontal view; j, juvenile rostrate uncinus from setiger 2.

27°37.1'N, 82°54.0'W, 12 m (2 gravid spec.); Mississippi Sound, COE Sta. 038-1, Apr. 1981, 30°13.91'N, 88°32.48'W, 3.8 m (9 juv.); Texas Flower Gardens, NMFS-FG, EFG-IV-7-4, Oct. 1981, 27°53.38'N, 93°38.96'W, 101 m (1 juv.).

DESCRIPTION:

Length, to 10 mm (previously reported to 13 mm); width, to 0.5 mm. Body thread-like, with up to 30 setigers. Prostomium rounded anteriorly, arched dorsally (Figure 16-2a). Nuchal slits flanking cephalic keel. Margin of peristomium and setiger 1 indistinct except for slight lateral indentations. Segmentation distinct from setiger 2 to junction of setigers 8-9; thereafter indistinct (Figure 16-2a). Notopodia of setigers 1-8 with hispid setae only (Figure 16-2b). Notosetae of setigers 9-14 more slender, also hispid (Figure 16-2c). Notosetae beginning setiger 15 bilimbate with limbae forming a U-shaped channel (Figure 16-2d,e); alternating with curved, serrate setae (Figure 16-2f). Notosetae gradually replaced by narrow capillary setae and 1-4 acicular spines (Figure 16-2g) about 3-7 setigers anterior to pygidium. Uncini in single rows on setigers 5-8, double rows thereafter except on far posterior setigers. Each uncinus with about 15 teeth arranged in three crescentic rows above main fang (Figure 16-2h,i). Pygidium simple, anus terminal (Figure 16-2a).

REMARKS: The description of Boguea enigmatica given herein differs considerably from that given by Hartman (1945:42) and Hartman and Fauchald (1971:148). Based on examination of type material, the following discrepancies are noted: 1) nuchal slits are present instead of absent, 2) notosetae are of five kinds instead of one, 3) neurosetae begin on setiger 5 instead of 4, and 4) uncini occur in double rows from setiger 9 instead of 8. It is interesting to note that young B. enigmatica possess rostrate uncini (Figure 16-2j) in the superior position of each neuropodial fascicle from setiger 1. As the worm matures, these uncini gradually disappear. B. enigmatica was previously known only from the type-locality, Bogue Sound, North Carolina, and is herein newly reported from the Gulf of Mexico.

PREVIOUSLY REPORTED HABITAT: 1.8-3 m; sand overlaid with shell fragments.

GULF OF MEXICO BLM-OCS OCCURRENCE: Four stations off Florida (Figure 16-1); 11-88 m; medium to fine-very fine sand. Examination of supplementary material extends the range to off Texas.

DISTRIBUTION: North Carolina, Gulf of Mexico.

Boguea sp. A

Figures 16-3, 4a-c

MATERIAL EXAMINED:

Gulf of Mexico BLM-OCS:

MAFLA 2104C-2/78 (1 spec.), 2211D-8/77 (1 spec.), 2211E-8/77 (2 spec.), 2211K-8/77 (1 spec.), 2211E-2/78 (3 spec.), 2531I-2/78 (1 spec.), 2748F-2/78 (2 spec., USNM 86843), 2851C-8/77 (1 spec.), 2853I-8/77 (1 spec., USNM 86842), 2960J-8/77 (1 spec.), 2960J-11/77 (1 spec.).

Supplementary Material:

Gulf of Mexico--Texas Flower Gardens, NMFS-FG, WFG-IV-5-5, July 1981, 27°50.50'N, 93°50.55'W, 88 m (1 spec.); NMFS-FG, WFG-IV-7-2, July 1981, 27°51.13'N, 93°52.63'W, 101 m (1 spec.); NMFS-FG, EFG-IV-1-3, July 1981, 27°59.57'N, 93°35.42'W, 93 m (1 spec.).

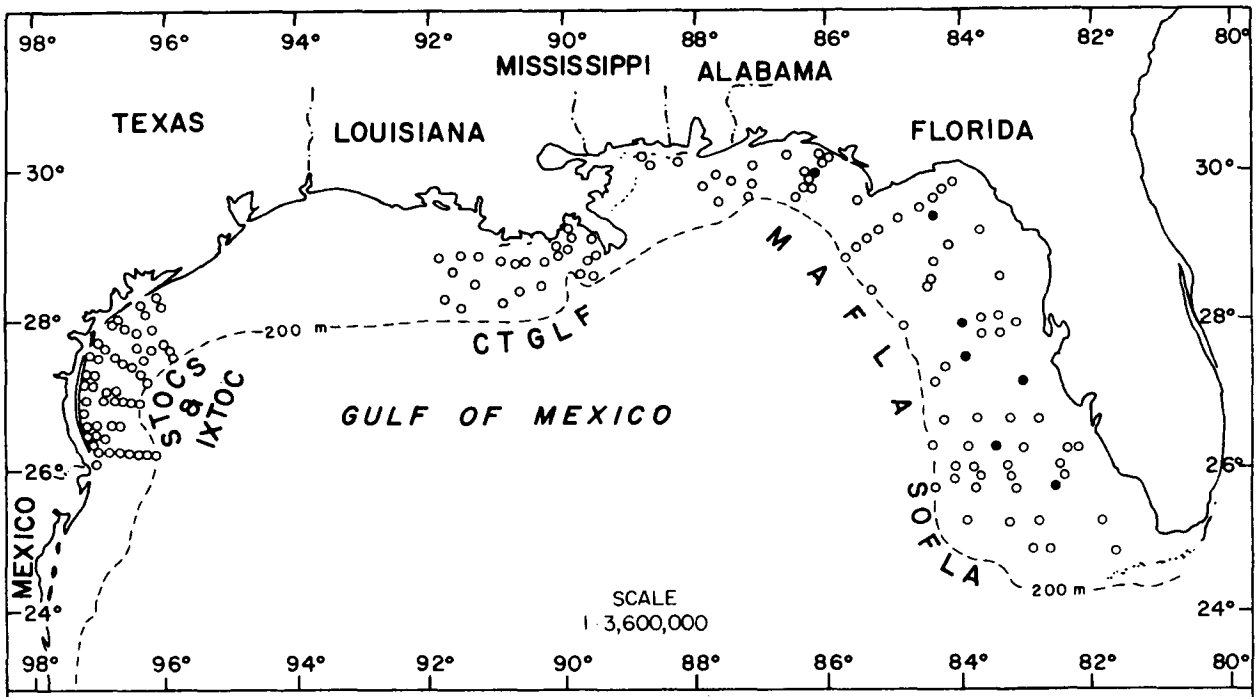

Figure 16-3. Distribution of Boguea sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

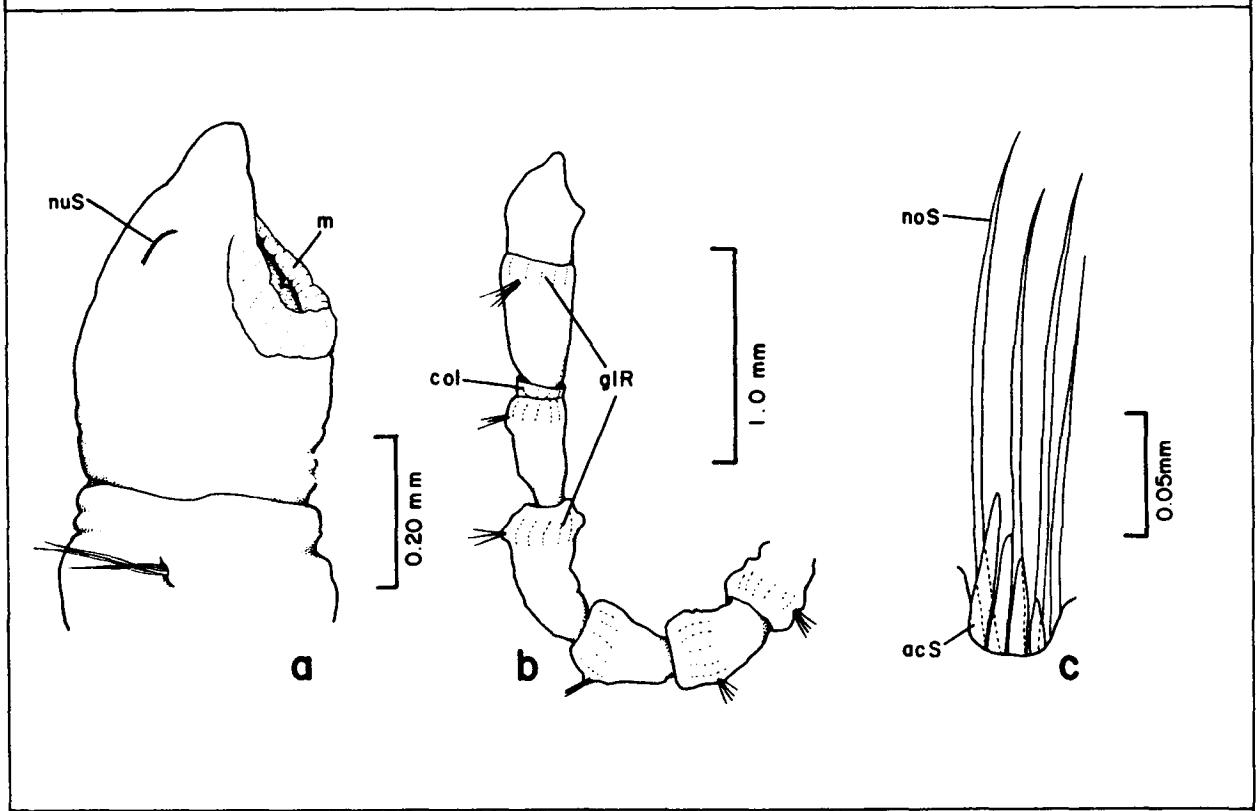

Figure 16-4. Boguea sp. A: a, anterior end, lateral view; b, anterior 6 setigers, lateral view; c, notopodium from setiger 3, anterior view.

DESCRIPTION:
Length, to 10 mm; width, to 0.5 mm. Body thread-like, with up to 32 setigers. Prostomium rounded anteriorly, arched dorsally. Nuchal slits flanking cephalic keel (Figure 16-4a). Segmentation distinct from setiger 1 continuing to junction of setigers 8-9, thereafter indistinct. Anterior margin of setiger 2 produced into small collar in some specimens (Figure 16-4b). Notopodia of setigers 1-8 with hispid setae. Additional anterior row of 4-6 acicular spines present in notopodia of setiger 3 (Figure 16-4c). Notosetae of setigers 9-14 much narrower, finely pinnate. Notosetae beginning setiger 15 bilimbate with limbae forming a U-shaped channel; alternating with curved, serrate setae. Notosetae gradually replaced by narrow capillary setae and 1-4 acicular spines about 3-7 setigers anterior to pygidium. Uncini in single rows on setigers 5-8, double rows thereafter except on far posterior setigers. Each uncinus with about 15 teeth arranged in three crescentic rows above main fang. Pygidium simple, anus terminal.
REMARKS: Boguea sp. A differs from B. enigmatica in having acicular spines in the notopodia of setiger 3. The collar on the anterior margin of setiger 2 (Figure 16-4b) appears in some specimens of Boguea sp. A, but its presence may be an artifact of fixation.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several records off Florida (Figure 16-3); 27-53 m; predominantly coarse sand, also fine sand. Examination of supplementary material extends the range to off Texas.

Genus **Boguella** Hartman and Fauchald, 1971

TYPE SPECIES: Boguella ornata Hartman and Fauchald, 1971.
REFERENCE:
Hartman and Fauchald, 1971:149.
DIAGNOSIS: Nuchal slits present. Plumose notosetae present in middle region. Neurosetae as avicular uncini, both terebelloid and Rhodine-like, beginning on setiger 4 in single or double rows. Pygidium simple or papillose.
REMARKS: The above generic diagnosis is modified from that given by Hartman and Fauchald (1971:149). An emended description of the type species which identifies discrepancies and omissions in the original description has recently been published (Wolf, 1983). It is sufficient for the purposes of this chapter to note that in the holotype and paratypes of Boguella ornata, the uncini begin on setiger 4 in double rows instead of setiger 5 in single rows.

Boguella sp. A
Figures 16-5, 6a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 24A-4/81 (1 spec., USNM 86840); MAFLA 2532E-9/75 (5 spec., USNM 86841), 2746I-2/78 (1 spec.).
Supplementary Material:
Gulf of Mexico--Texas Flower Gardens, NMFS-FG, EFG-IV-6-1, July 1981, 27°53.63'N, 93°39.10'W, 102 m (1 female); WFG-I-5-1, Oct. 1980, 27°50.50'N, 93°50.55'W, 88 m (1 spec.).

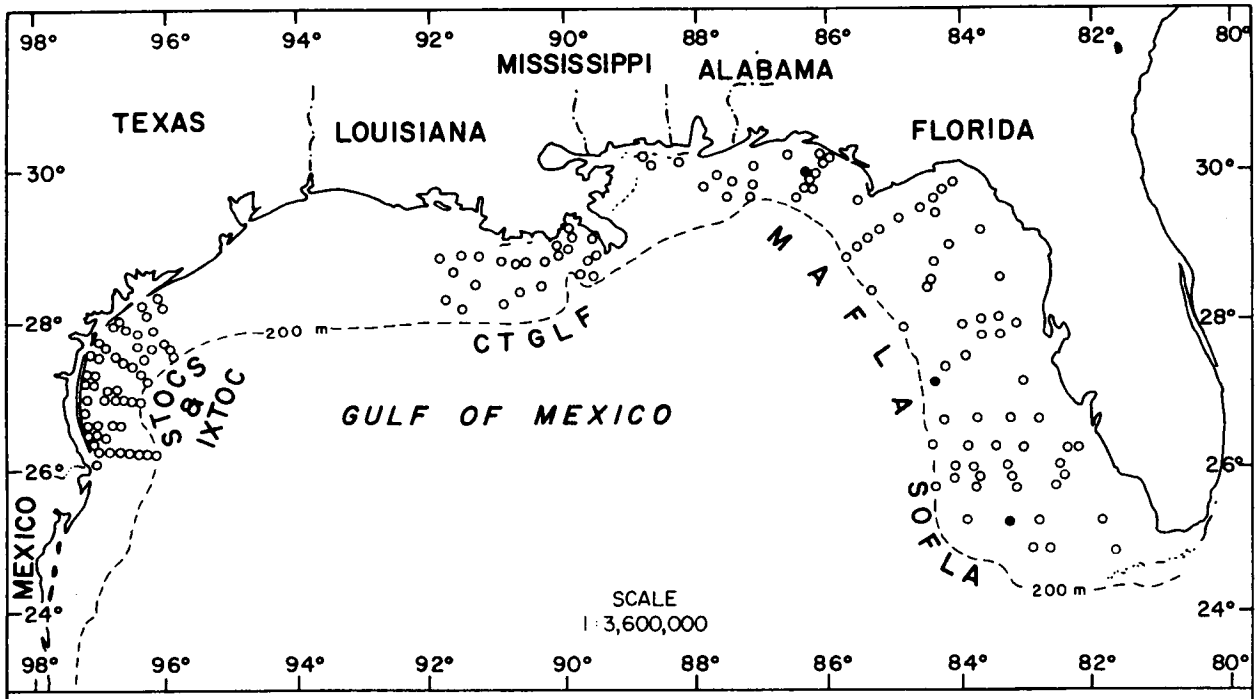

Figure 16-5. Distribution of Boguella sp. A. on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

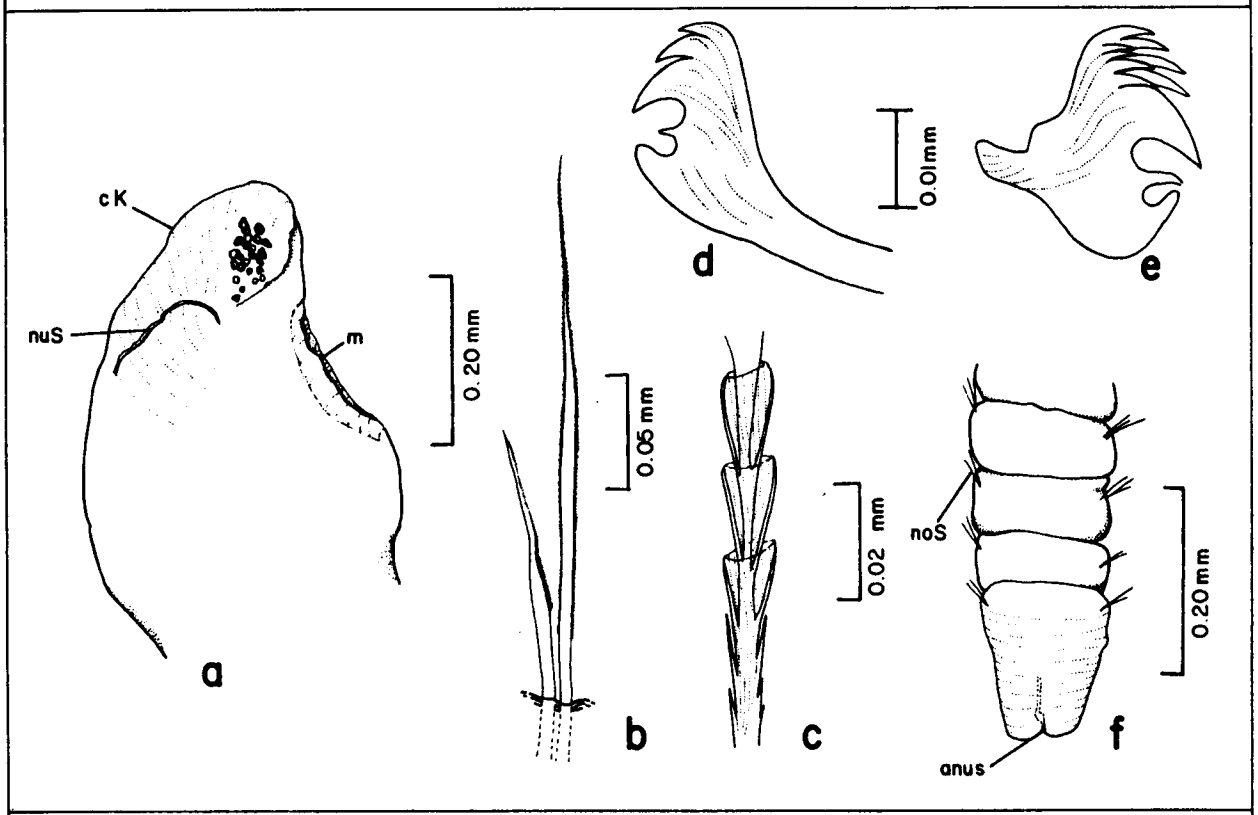

Figure 16-6. Boguella sp. A: a, anterior end, lateral view; b, notosetae from setiger 4; c, portion of plumose notoseta from setiger 12; d, Rhodine-type uncinus from setiger 9; e, terebelloid uncinus from same; f, posterior end, dorsal view.

DESCRIPTION:
Length, to 5.04 mm; width, to 0.25 mm. Body thread-like, with up to 23 setigers. Prostomium rounded anteriorly, arched dorsally, with eyespots along anterolateral margin (Figure 16-6a). Nuchal slits long, curved, flanking cephalic keel. Peristomium followed by one long asetigerous segment. Segmentation distinct anteriorly. Notosetae of setigers 1-6 arranged in two separate rows. Setae of anterior row stout, abruptly tapering, pubescent; setae of posterior row longer, hispid (Figure 16-6b). Notosetae of setigers 7-16 as slender, hispid setae and long, plumose setae (Figure 16-6c); thereafter notosetae as in setigers 1-6. Notopodial spines absent. Uncini beginning on setiger 4 in either single or double rows. Anterior neuropodial fascicles with anterior row of 2-3 Rhodine-like uncini (Figure 16-6d), and posterior row of numerous terebelloid uncini (Figure 16-6e). This arrangement reversed by setiger 15 and continuing for several setigers; thereafter each fascicle composed of single row of terebelloid uncini. Uncini diminishing in number posteriorly, absent on far posterior setigers. Pygidium indistinctly bilobed, anus terminal (Figure 16-6f).
REMARKS: Boguella sp. A differs from B. ornata in having the pygidium indistinctly bilobed instead of papillose. A single row of uncini is present on setiger 4 of Boguella sp. A, except for one specimen with two rows. This could be a variable character.
GULF OF MEXICO BLM-OCS OCCURRENCE: Three stations off Florida (Figure 16-5); 52-121 m, coarse to medium sand, silty very fine sand. Examination of supplementary material extends the range to off Texas.

The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.