MMS 84-0049

TAXONOMIC GUIDE TO THE POLYCHAETES OF THE NORTHERN GULF OF MEXICO

Volume V

Prepared by

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Prepared under MMS Contract 14-12-001-29091
for

Minerals Management Service
U.S. Department of the Interior

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Project Officer

1984

Minerals Management Service
Gulf of Mexico Regional Office
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This report was prepared by Barry A. Vittor & Associates, Inc. and consultants through a contract from the Bureau of Land Management/Minerals Management Service, Department of the Interior. Funding for this project was provided under Bureau of Land Management Contract No. AA551-CT9-35 (Minerals Management Contract No. 14-12-0001-29091). Questions or comments regarding general technical aspects of this project should be directed to the Program Manager, or to the Chief of the Environmental Studies Section of the MMS at the address below (Mail Stop LE-4). Specific taxonomic questions should be directed to the author(s) responsible for the individual family chapters. Information on the availability of the report may be obtained from the Public Records Clerk (Mail Stop OPS-4) at the following address:

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This report should be cited as:

Uebelacker, J. M., and P. G. Johnson (Editors). 1984. Taxonomic Guide to the Polychaetes of the Northern Gulf of Mexico. Final Report to the Minerals Management Service, contract 14-12-001-29091. Barry A. Vittor & Associates, Inc., Mobile, Alabama. 7 vols.

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CHAPTER 31

John L. Taylor

FAMILY NEREIDAE Johnston, 1845

INTRODUCTION

Nereids are long, many-segmented, cylindrical worms that taper gradually toward the posterior end. Size varies considerably; mature worms may range in length from about 10 mm or less up to more than 200 mm. In most species, the head (prostomium and peristomium) has two anterior antennae, a pair of biarticulate anterolateral palps, four eyes, and four pairs of tentacular cirri posteriorly. The muscular pharynx is eversible and consists of an oral ring attached to the mouth, and a distal maxillary ring that bears a pair of jaws. By convention, each of these rings is subdivided along lines of tissue constriction into four dorsal and four ventral areas. These may be plain or variously equipped with soft papillae and/or chitinized paragnaths.

The second body segment is usually the first setigerous segment. Parapodia are uniramous on the first two setigers and usually biramous thereafter. The pygidium bears one or two short to long caudal cirri.

According to Fauchald (1977a), the family comprises 37 genera and 439 recognized species. Twenty species of nereids in ten genera were recorded in this study. Some of these may be new to science, but most have been reported in earlier studies. References that were of particular value in preparation of this chapter included Banse (1977), Day (1967, 1973), Ehlers (1887), Fauchald (1977a,b), Fauchald and Jumars (1979), Fauvel (1923), Gardiner (1976), Harper (1979), Hartman (1940, 1945, 1951a, 1959a, 1968), Imajima (1972), Perkins (1980), Perkins and Savage (1975), Pettibone (1956b, 1963, 1970a, and 1971a), Reish (1957), and Rioja (1946b).

PRINCIPAL DIAGNOSTIC CHARACTERS

As a routine guide to nereid identification, these suggestions offered by Day (1967) should be followed: (1) note any obvious pattern of pigmentation; (2) note any unusual morphological features of the head; (3) observe the pharynx and record the occurrence and distribution of papillae and/or paragnaths; and (4) remove and mount an anterior, median and posterior parapodium, and record features of morphologically different parapodia and setae.

Color patterns often fade in preservative, but in fresh material dark pigment may be characteristically concentrated on the dorsal surface of the head, anterior body, and parapodial lobes.

On the head, characters of diagnostic importance include the number and length of antennae and tentacular cirri, proportions of the palps, head shape, and size and position of the eyes. Antennae usually number two, but there may be only one or none. Furthermore, in some species there may be a marked cleft between the antennal bases. Most species have four pairs of tentacular cirri but a few have only two pairs. The tentacular cirri may be smooth, or wrinkled to appear moniliform. In

may be more evenly rounded, quite angular, or oblong. As a rule, there are four eyes, or none at all. When present, their size, structure, shape, and location may be important diagnostic characteristics. For example, in some species, ocular pigment may be poorly organized; in others a lens is present; and in epitokes the eyes may be outsized. Also, one or both pairs of eyes may be some other shape than round, and the posterior pair may be more or less hidden by the peristomium. Ventrally, there is little of taxonomic importance except for an unusual lip-like forward extension of the peristomium in some species.

The jaws and dentition of the pharynx are important in nereid identification. When extended the pharynx may be observed directly, but more often a midventral incision must be made to expose it. Jaws may be dark, amber in color, or nearly clear; the size, number, and shape of teeth may be distinctive. On the eight pharyngeal areas (Figure 31-36a,b), respective fields may be plain, have tufted or simple papillae, or have chitinous denticles (paragnaths) that vary in size, shape, number, and configuration. Paragnath shapes include cones, rods, bars, and pectinate ridges.

Taxonomically important features of the parapodia include segment of origin; shape, structural composition, and nature of the setae in various body regions. The presence of special features such as branchiae, or occurrence of multiple cirri are also of importance. In most instances, parapodia commence on the fourth body segment, which follows an apodous segment behind the peristomium. On the first two or more setigers, parapodia may appear reduced and incompletely developed. Thereafter, a typical parapodium consists of a dorsal cirrus, two or three notopodial ligules, two neuropodial ligules, and a ventral cirrus. Further examination under high magnification is required to determine features of setae. Commonly, nereid setae are of four kinds: homogomph and heterogomph spinigers, and homogomph and heterogomph falcigers. Simple setae are rare, as are fused or ankylose setae. In some species, setae of the first setiger may be modified relative to subsequent setae.

BIOLOGICAL NOTES

Nereids are one of the more ubiquitous families of polychaetes, having a worldwide distribution in seas at all latitudes from littoral to abyssal depths. They are especially well-represented in coastal waters. A few species have even become adapted to live in fresh water. Most are free-living, motile omnivores that construct temporary dwelling tubes of mucus and sand. Habitats include fine to coarse sediments, rock, reefs, and other firm or hard substrates, seagrasses, and both floating and attached algae. A few species apparently have a commensal mode of life. Trophic levels range from highly specific carnivores or herbivores to more omnivorous scavenger and deposit-feeding modes.

Reproductive patterns vary considerably within the family, but the most common sequence involves: transformation into a sexual, swimming, heteronereid stage; gamete release; external fertilization; a planktonic stage; substrate selection; and maturation. In the heteronereid (epitokous) reproductive stage known to occur in many nereids, parapodia of the gamete-bearing region become modified for swimming. Swarming among swimming epitokes is a dramatic event to observe, and the subsequent demise of spent participants may result in nereid windrows along the tide line. Swarming of Neanthes succinea, a common estuarine species

along the Gulf coast, has been reported to occur in Louisiana near the time of a new moon at the end of January or the beginning of February (Bishop, 1974). This suggested lunar influence has been indicated for a variety of polychaete families (Barnes, 1968; Clark, 1961).

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

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

1a. Some dorsal and ventral cirri double (Figure 31-4b). . . . . Gymnonereis, p. 31-4

1b. All dorsal cirri single; ventral cirri single or double. 2

2a. Some ventral cirri double (Figure 31-6b,c) . . . . . Ceratocephale, p. 31-7

2b. All ventral cirri single 3

3a. Falcigers entirely absent. 4

3b. Falcigers present, at least on posterior setigers. 5

4a. Spinigers homogomph only; maxillary ring with paragnaths; oral ring with paragnaths and papillae. . . . . Genus A, p. 31-11

4b. Spinigers homogomph and heterogomph; maxillary ring without paragnaths; oral ring with papillae only. . . . . Kinberginereis*

5a. Falcigers absent from posterior notopodia. 6

5b. Falcigers present on posterior notopodia 8

6a. Pharynx without paragnaths or papillae. . . . . .**Nicon**, p. 31-11
6b. Pharynx with paragnaths and/or papillae. 7

7a. Pharynx with conical paragnaths; papillae absent . . . . . **Neanthes**, p. 31-13
7b. Pharynx with soft or weakly chitinized papillae; paragnaths absent. . . . . **Websterinereis**, p. 31-19

8a. Paragnaths absent; papillae, if present, on oral ring only . . . . . **Rullierinereis**, p. 31-21
8b. Paragnaths present; papillae absent. 9

9a. Paragnaths including pectinate bars and cones (Figure 31-22b). . . . . .**Platynereis**, p. 31-23
9b. Paragnaths occurring as cones only. 10

10a. Paragnaths present on maxillary ring only. . . . . **Ceratonereis**, p. 31-25
10b. Paragnaths present on both oral and maxillary rings. . . . . **Nereis**, p. 31-33

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

Genus Gymnonereis Horst, 1919

TYPE SPECIES: Gymnorhynchus sibogae Horst, 1918.
REFERENCES:
Hartman, 1959b:241.
Fauchald, 1977a:89.
Banse, 1977:621.
DIAGNOSIS: Prostomium cleft anteriorly; eyes present or absent. Four pairs of short to moderately long tentacular cirri. Pharynx with papillae on oral ring only; pargnaths absent. Jaws without teeth. Parapodia with double dorsal cirri on at least some anterior setigers, and double ventral cirri on most or all setigers.

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

1a. Double dorsal cirri present only on first two setigers (Figure 31-2c). . . . . **Gymnonereis crosslandi**, p. 31-4
1b. Double dorsal cirri present on anterior, middle, and perhaps posterior setigers (Figure 31-4b). . . . .**Gymnonereis** sp., p. 31-7

Gymnonereis crosslandi (Monro, 1933)
Figures 31-1, 2a-d

Chaunorhynchus crosslandi Monro, 1933d:46.
Ceratocephale crosslandi--Hartman, 1952b:16.
Ceratocephale crosslandi americana--Hartman, 1952b:16, pl. 4, figs. 1-3; 1968:497, figs. 1-3.
Gymnonereis crosslandi--Banse, 1977:623.

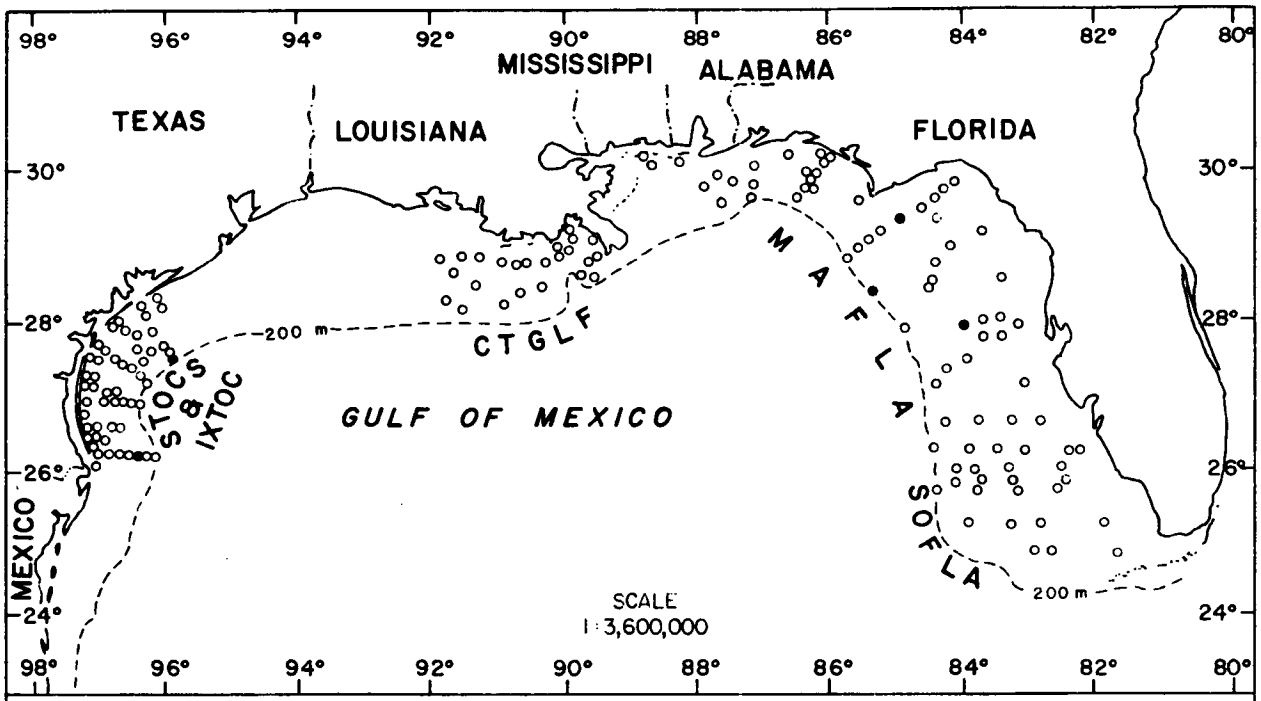

Figure 31-1. Distribution of Gymnonereis crosslandi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

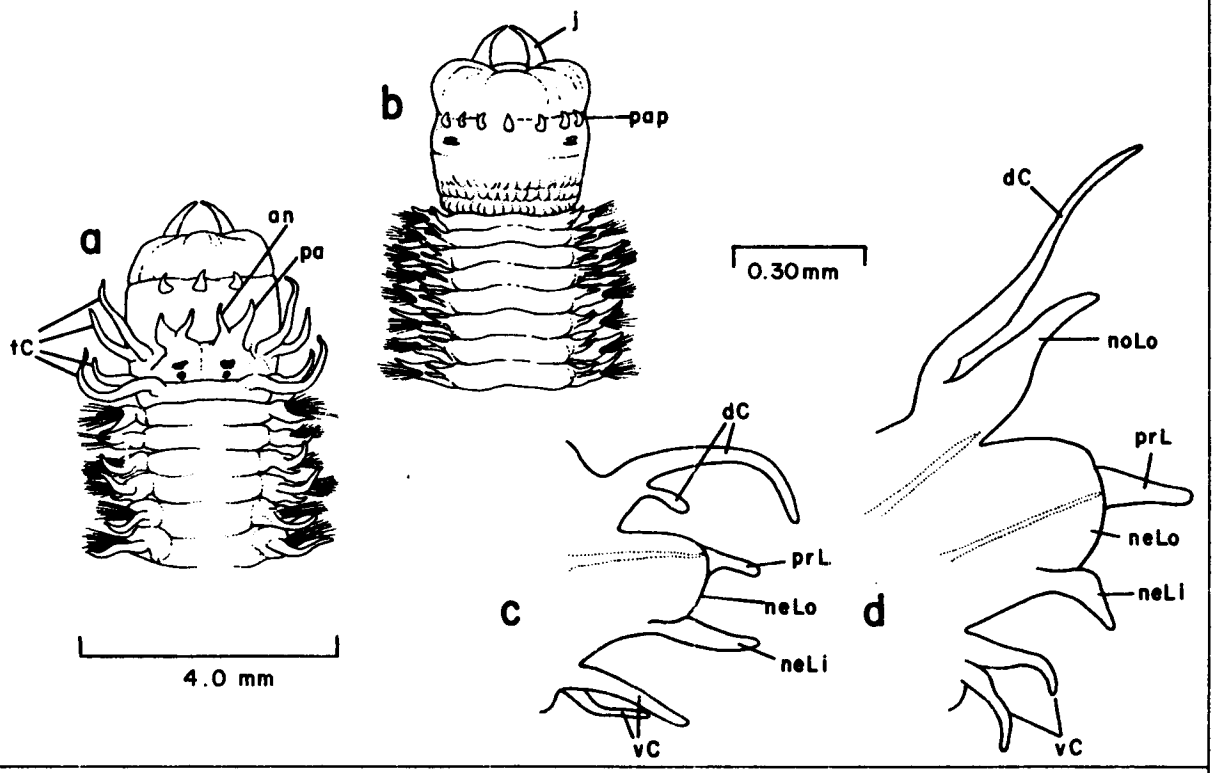

Figure 31-2. Gymnonereis crosslandi: a, anterior end, proboscis everted, dorsal view; b, same, ventral view; c, parapodium from setiger 2, posterior view; d, biramous parapodium from anterior setiger, posterior view (Figures a, b from Hartman 1952b, pl. 4, figs. 1, 2).

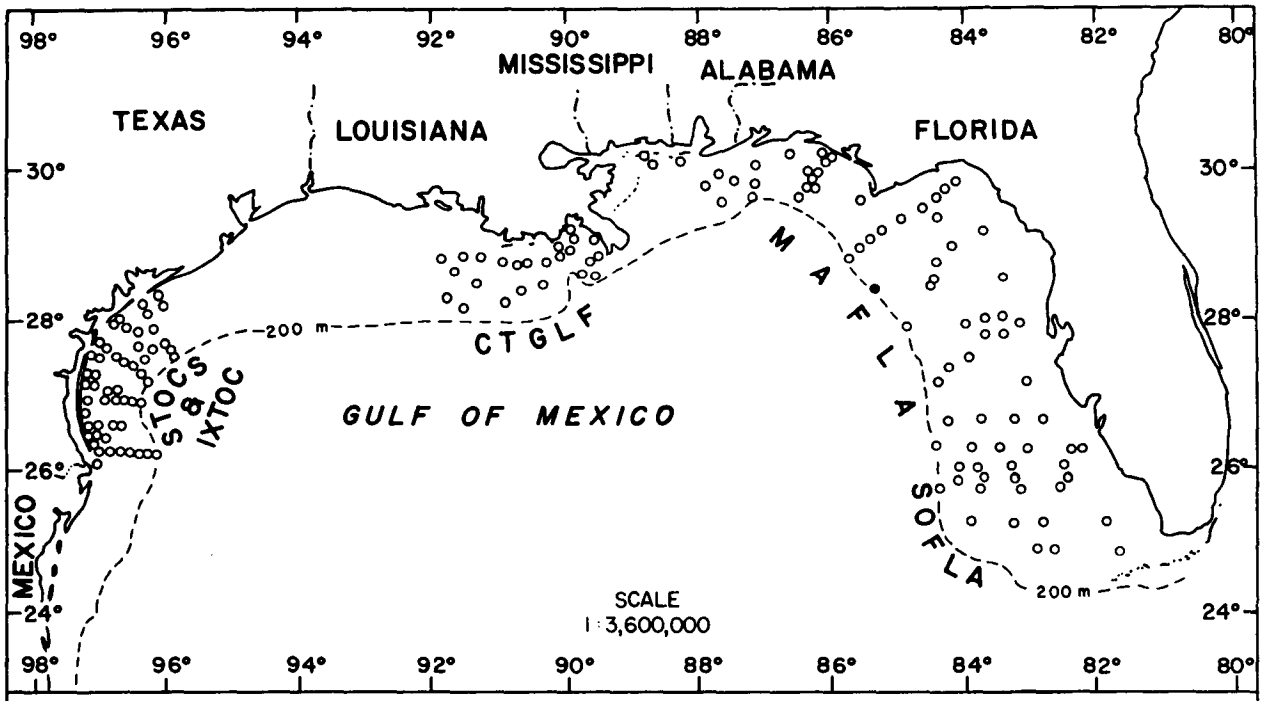

Figure 31-3. Distribution of Gymnonereis sp. on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

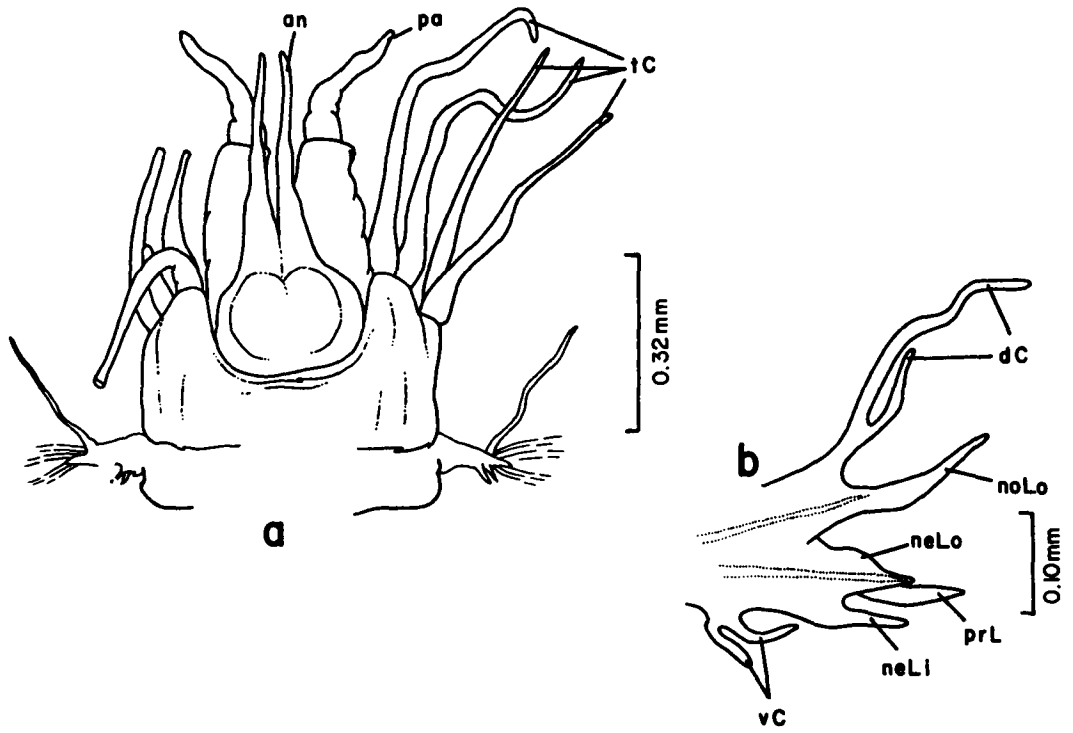

Figure 31-4. Gymnonereis sp.: a, anterior end, dorsal view; b, parapodium from setiger 20, posterior view.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211F-11/77 (1 spec.), 2313C-11/77 (1 spec.), 2313I-2/78 (1 spec.), 2423-7/76 (1 spec., USNM 55839); STOCS 3/I-4 F/76 (1 spec., USNM 90095), 6/IV-3 F/76 (1 spec., USNM 90096).
DESCRIPTION:
Length, to about 40 mm; width, to about 2 mm. Prostomium (Figure 31-2a) short, wide, broadly indented anteriorly between slender antennae and conical palps. Four eyes present, anterior pair crescent-shaped. First two pairs of tentacular cirri set well in front of following two pairs, all rather short. Jaws dark, inner edge smooth. Maxillary ring without denticles or papillae. Oral ring (Figure 31-2a,b) with papillae as sharply pointed fleshy cones and low, rounded protuberances. Pointed papillae numbering three across Areas IV and V, seven across Areas VII and VIII. Each parapodium of first two setigers with long dorsal cirrus having a shorter accessory cirrus on its lower lateral surface; setigerous ligule having long presetal, and shorter rounded postsetal lobes; long ventral ligule; and double ventral cirri (Figure 31-2c). More posterior setigers (Figure 31-2d) without accessory dorsal cirri; parapodia becoming biramous with addition of long, narrowly conical, acicular notopodial lobe. Pygidium with single anal cirrus.
REMARKS: Three double sets of rounded papillae have been reported behind the pointed ones on Areas VII and VIII of the oral ring. G. crosslandi is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Soft sediment to depths of about 478 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and Texas (Figure 31-1); 43-177 m; coarse sand, clayey sand to silty fine sand, clayey sandy silt, silty clay.
DISTRIBUTION: Pacific off southern California and Mexico; Gulf of Mexico.

Gymnonereis sp.
Figures 31-3, 4a,b

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2313I-2/78 (1 spec., USNM 90099).
DESCRIPTION: Prostomium cleft anteriorly, with long antennae and palps; eyes absent (Figure 31-4a). Tentacular cirri fairly long. Pharynx not observed. Anterior and middle parapodia with double dorsal and ventral cirri (Figure 31-4b).
REMARKS: The only specimen was poorly preserved, and many features could not be seen.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 31-3); 177 m; clayey sandy silt.

Genus **Ceratocephale** Malmgren, 1867

TYPE SPECIES: Ceratocephale loveni Malmgren, 1867b.
REFERENCES:
Hartman, 1959b:237.
Fauchald, 1977a:88.
Banse, 1977:613.

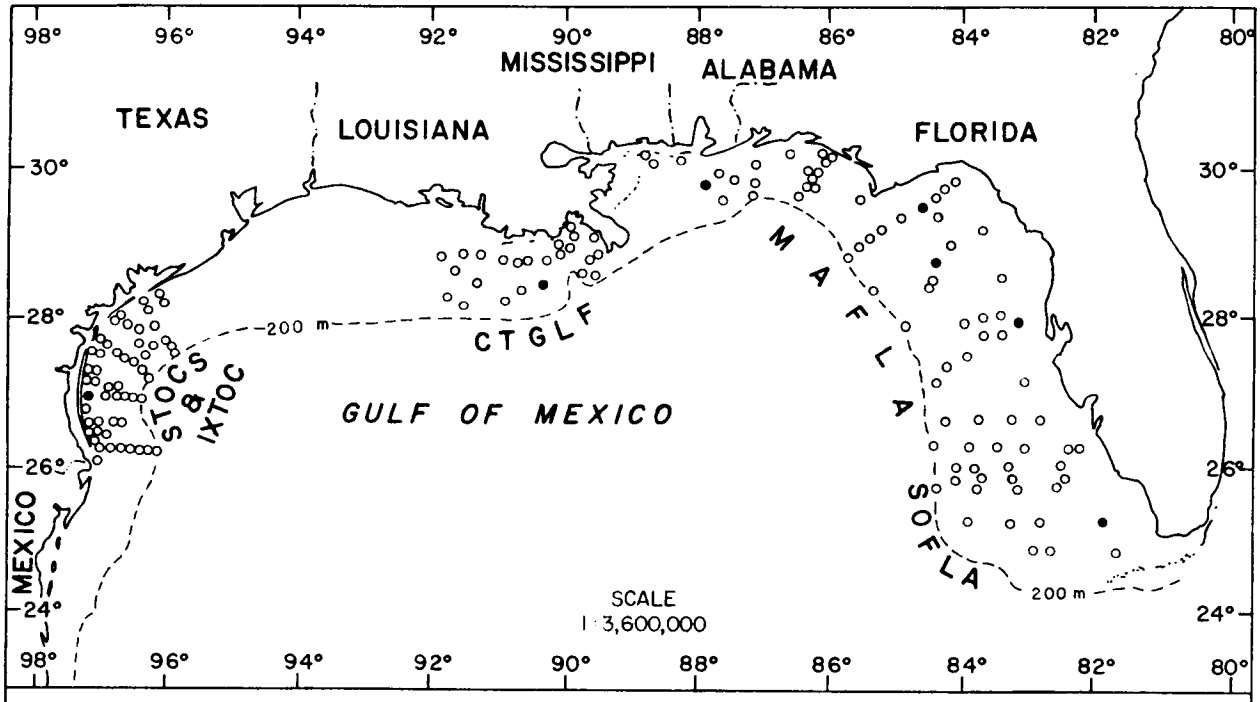

Figure 31-5. Distribution of Ceratocephale oculata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

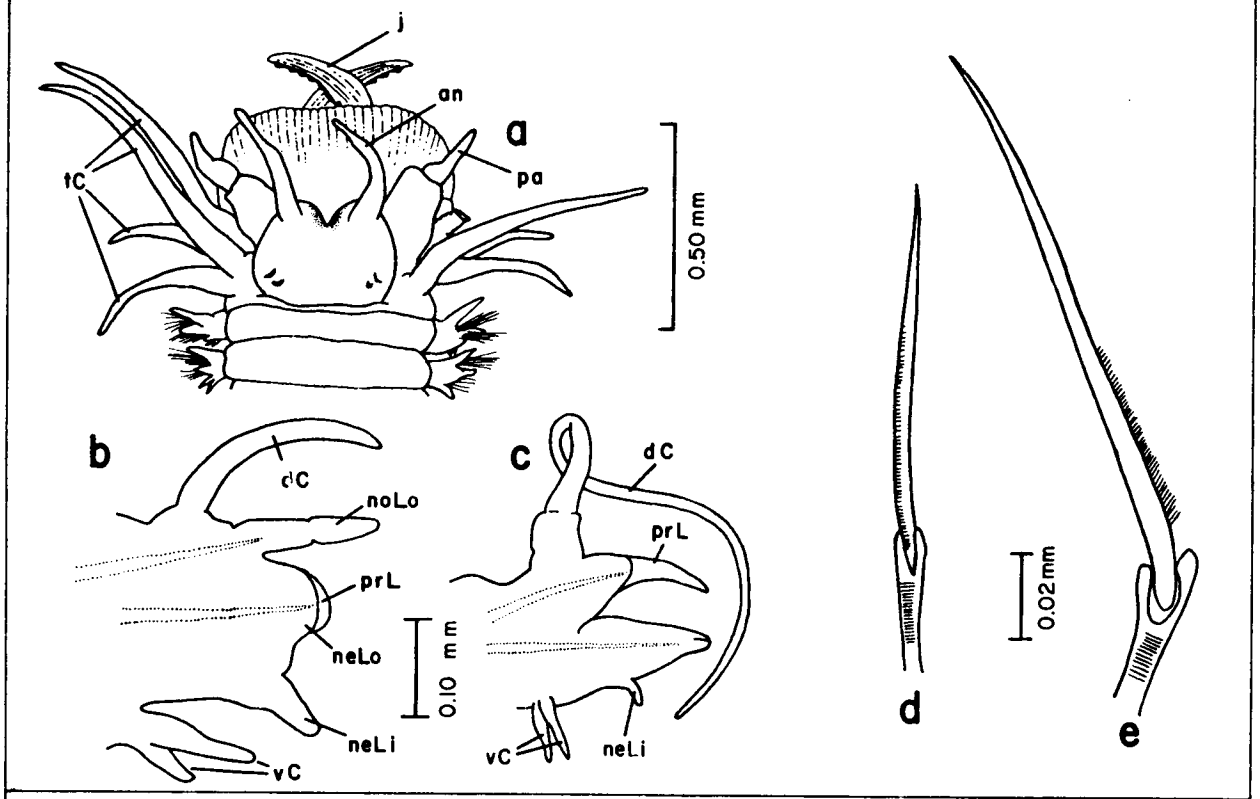

Figure 31-6. Ceratocephale oculata: a, anterior end, proboscis partially extended, dorsal view; b, parapodium from setiger 11, posterior view; c, parapodium from approximately setiger 40, posterior view; d, notopodial homogomph spiniger; e, neuropodial homogomph spiniger (Figure c from Banse 1977, fig. 3d).

DIAGNOSIS: Prostomium short and broad to long and oval, usually cleft anteriorly; eyes present or absent. Two antennae, two palps, and four pairs of tentacular cirri present. Pharynx with toothed or plain jaws; papillae present on oral ring. Paragnaths absent. Dorsal cirri single, borne on large cirrophores on median setigers. Ventral cirri double on most setigers. Following the first few setigers, parapodia with one or more well-developed notopodial and neuropodial ligules. Neuropodial presetal lobes pronounced. Transverse, middorsal fold may appear on some setigers. Setae including homogomph and heterogomph spinigers, more numerous anteriorly.

Ceratocephale oculata Banse, 1977
Figures 31-5, 6a-e

Ceratocephale loveni--Day, 1973:38 [Not Malmgren, 1867b].
Ceratocephale oculata Banse, 1977:620, fig. 3a-f.
Ceratocephale oculata--Gardiner and Wilson, 1979:165.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 20C-7/81 (1 spec., USNM 90052), 26-12/80 (1 spec., USNM 90053); MAFLA 2207G-8/77 (1 spec.), 2316H-8/76 (2 spec.); 2422G-7/76 (1 spec., USNM 90051), 2640F-9/75 (2 spec.); CTGLF 03-5/78 (1 spec., USNM 90054); STOCS 4/III-3 F/76 (1 spec., USNM 90055), 4/III-5 F/77 (1 spec.).
DESCRIPTION:
Length, to about 10 mm (previously reported to 12 mm); width, to about 1 mm (previously reported to 1 mm). Prostomium (Figure 31-6a) cordate, deeply cleft anteriorly. Four eyes present, anterior pair crescent-shaped. Pharynx with amber to nearly clear jaws, each having six teeth. Papillae present on oral ring only, bluntly rounded distally. Ventral cirri double (Figure 31-6b) from setiger 1. Dorsal cirri single, elongate on middle and early posterior parapodia (Figure 31-6c). Notopodia from setiger 3 with single ligule having long presetal lobe. Neuropodia with short, rounded setigerous ligule and long, digitiform ventral ligule anteriorly; setigerous ligule large, ventral ligule small and cirriform posteriorly (Figure 31-6b). Notosetae all homogomph spinigers (Figure 31-6d). Neurosetae similar, with slightly asymmetrical joint, and sometimes with long, coarse teeth near base of blade (Figure 31-6e).
REMARKS: This species may be easily confused with specimens of Gymnonereis crosslandi which are small or poorly preserved. C. oculata is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Sand and shell; 35 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widely scattered throughout northern Gulf (Figure 31-5); shallow water, 15-35 m; coarse to fine-very fine sand, silty fine sand, silty clayey sand.
DISTRIBUTION: North Carolina, Gulf of Mexico.

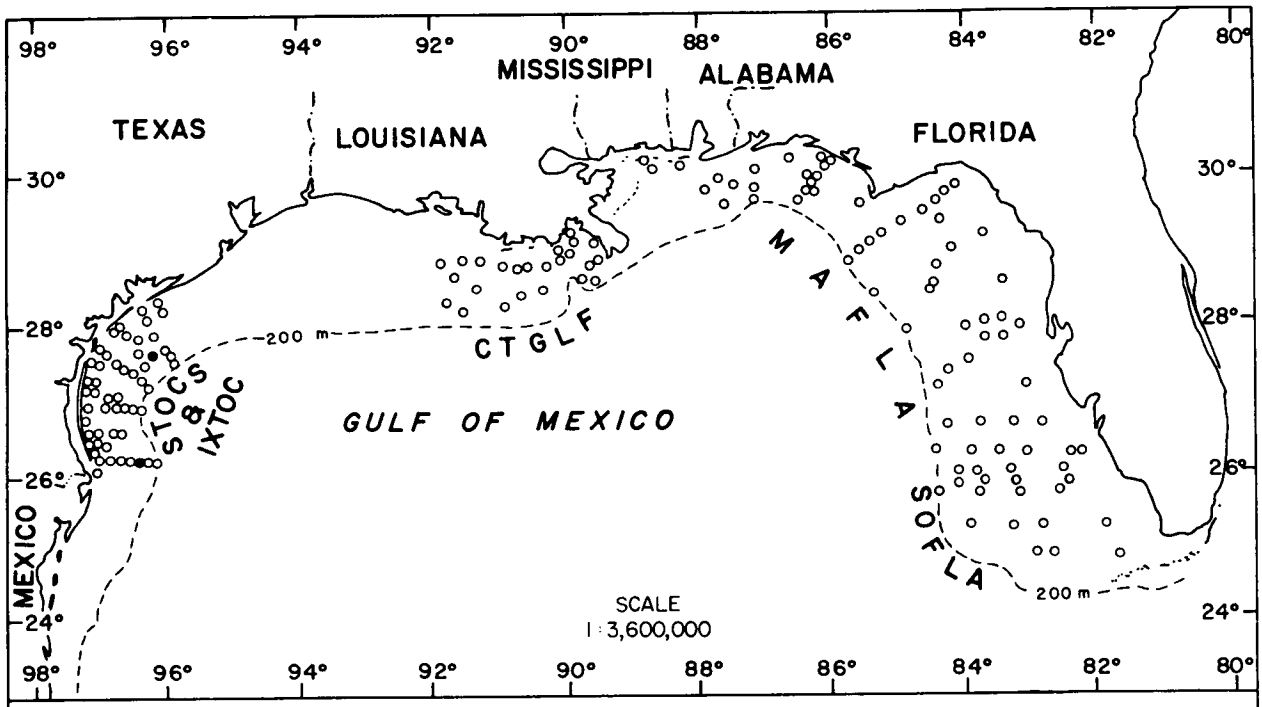

Figure 31-7. Distribution of nereid Genus A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

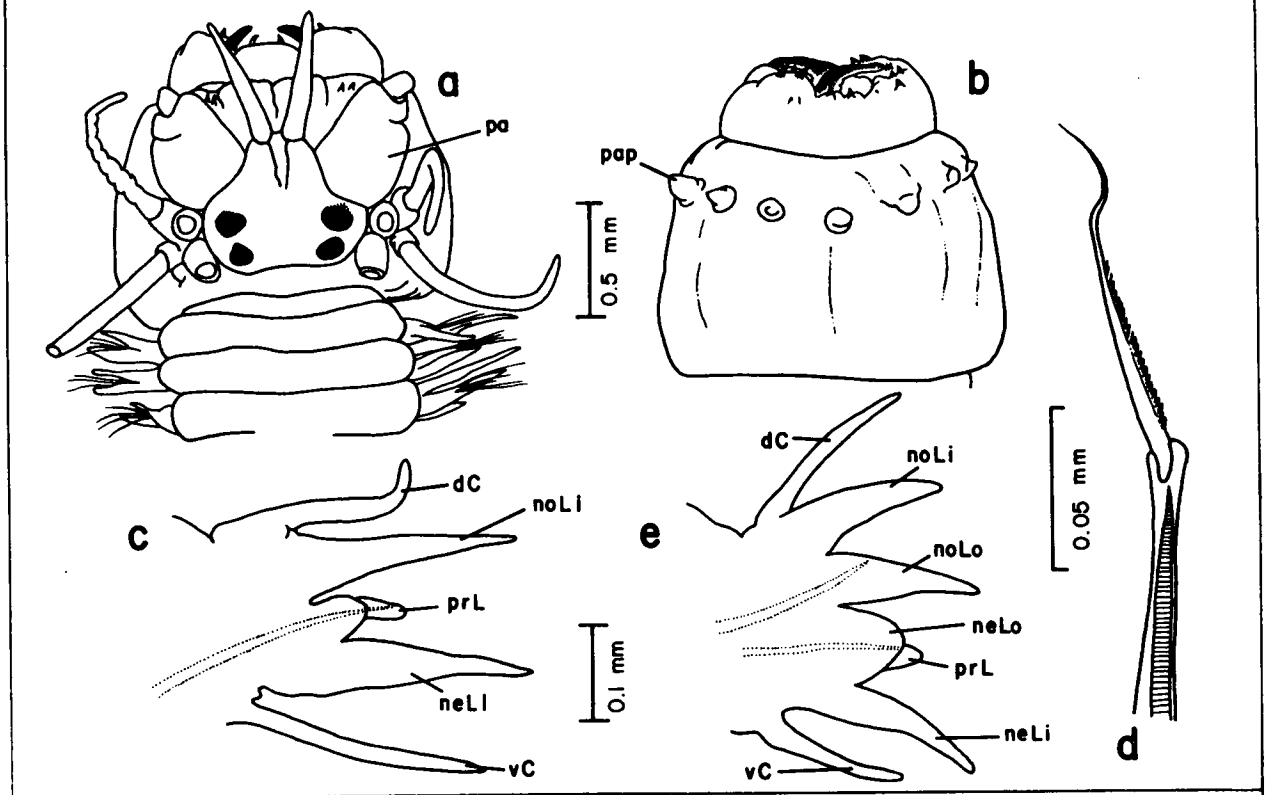

Figure 31-8. Genus A: a, anterior end, proboscis everted, dorsal view; b, proboscis, ventral view; c, parapodium from setiger 2, posterior view; d, lower neuropodial homogomph spiniger; e, parapodium from setiger 22, posterior view.

Genus A
Figures 31-7, 8a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
STOCS 6/IV-2 W/76 (1 spec., USNM 90104), HR4-6 Sp/76 (1 spec., USNM 90103).
DESCRIPTION:
Length, 10+ mm; width, 1 mm. Body incomplete with up to 30 setigers. Prostomium narrowest anteriorly; paired antennae rather long, palps massive (Figure 31-8a). Four large eyes widely set on posterior half of prostomium. Four pairs of tentacular cirri. Pharynx with amber-colored jaws, each bearing about ten teeth. Maxillary ring with paragnaths only; oral ring with both paragnaths and low, rounded papillae (Figure 31-8a,b). Pharyngeal formula: Area I, one cone; II, two cones; III, two cones; IV, about five cones in round group; V, plain; VI, two cones; VII and VIII, two papillae anteriorly on Area VII, and row of seven papillae across both areas. First two setigers uniramous with neuroaciculum only (Figure 31-8c); dorsal cirri long; notopodial ligules single, long, conical; setigerous upper neuropodial ligule with prolonged presetal lobe and shorter, more rounded postsetal lobe; lower neuropodial ligule long, conical; ventral cirri long, slender. Setae above and below neuroaciculum as longer and shorter (Figure 31-8d) homogomph spinigers respectively. All setae possessing curved, whip-like tips. Parapodia developing additional long, conical notopodial ligule, and notosetae from setiger 3 (Figure 31-8e). All notosetae as homogomph spinigers with blades somewhat more finely serrate than those of neurosetae.
REMARKS: According to Fauchald's (1977a) account of nereid genera, there is no known genus that has paragnaths and papillae in the arrangement described here. However, the lobe-like papillae of the oral ring and general shape of the parapodial lobes resemble characters found in many species of Ceratonereis.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two records off Texas (Figure 31-7); 65-76 m; clayey sand, silty clay.

Genus Nicon Kinberg, 1866

TYPE SPECIES: Nicon pictus Kinberg, 1866.
REFERENCES:
Kinberg, 1866a:178.
Hartman, 1959b:273.
Pettibone, 1971a:7.
Fauchald, 1977a:90.
DIAGNOSIS: Prostomium pyriform, with two antennae, two palps and four eyes. Four pairs of tentacular cirri present. Pharynx with toothed jaws; paragnaths and papillae absent. First two setigers with uniramous parapodia each having single notopodial ligule. Following setigers with biramous parapodia each having two well-developed notopodial ligules below long dorsal cirrus; setigerous neuropodial ligule with pre- and postsetal lobes; ventral neuropodial ligule; and ventral cirrus. Notosetae entirely as homogomph spinigers. Neurosetae including homogomph and heterogomph spinigers, and heterogomph falcigers. Pygidium with a pair of caudal cirri.

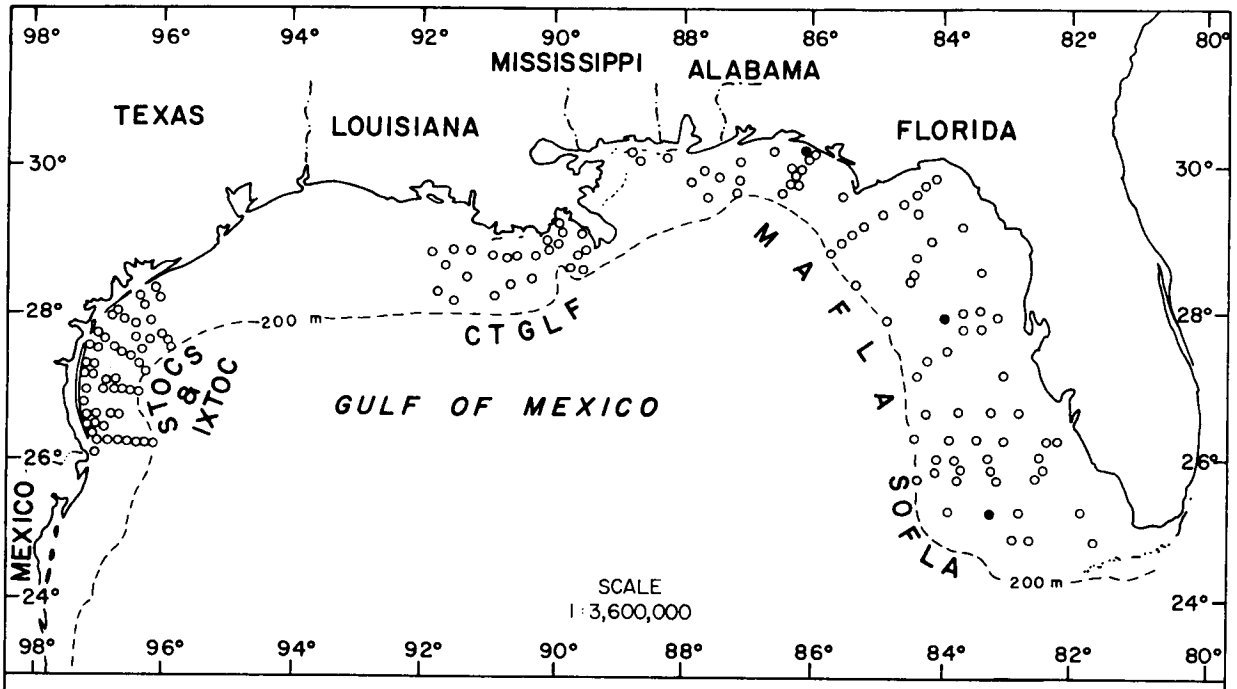

Figure 31-9. Distribution of Nicon moniloceras on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

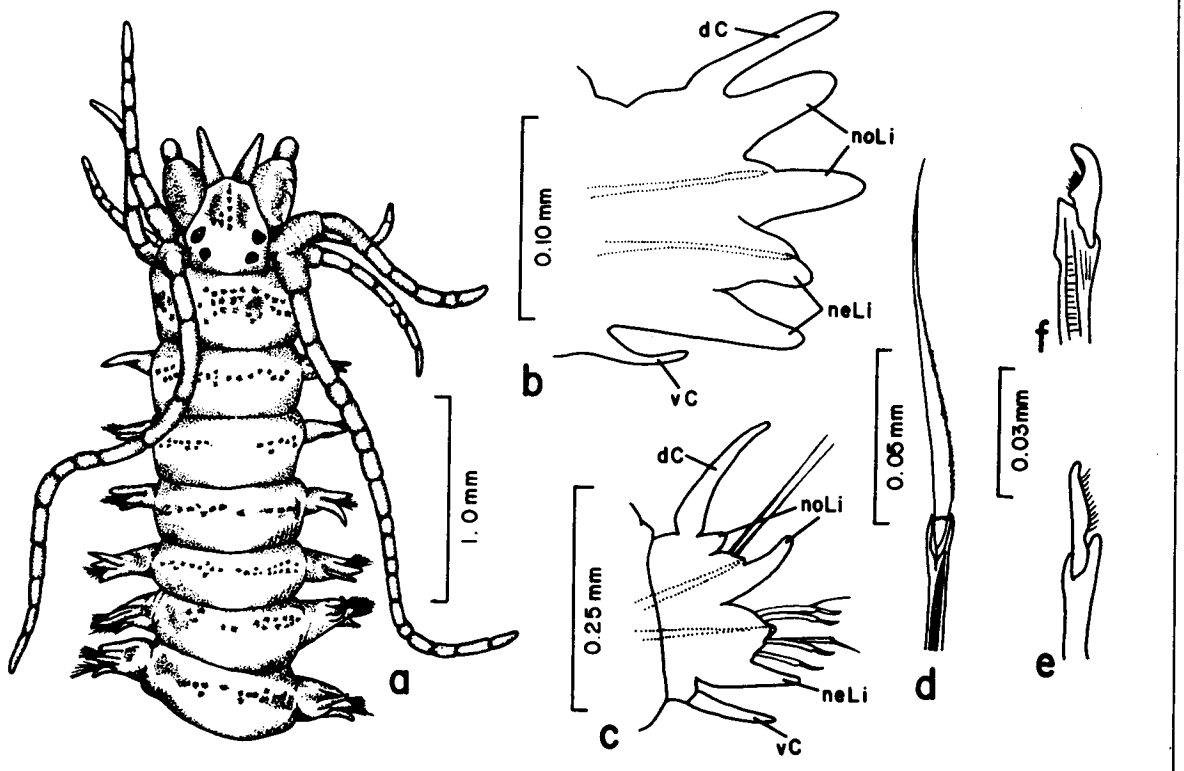

Figure 31-10. Nicon moniloceras: a, anterior end, dorsal view; b, parapodium from anterior setiger, anterior view; c, parapodium from posterior setiger, anterior view; d, notopodial homogomph spiniger; e, neuropodial heterogomph falciger from anterior setiger; f, same, from posterior setiger (Figures a, c, d from Imajima 1972, fig. 8a, d, e).

Nicon moniloceras (Hartman, 1940)
Figures 31-9, 10a-f

Leptonereis glauca moniloceras Hartman, 1940:217, pl. 34, figs. 42-46.
Nicon moniloceras--Hartman, 1968:555, figs. 1-4.
Nicon moniloceras--Imajima, 1972:53, fig. 8a-j.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 24C-4/81 (1 spec., USNM 90056); MAFLA 2211I-8/76 (1 spec.), 2211D-11/77 (1 spec.), 2528-11/77 (2 spec.), 2528E-2/78 (6 spec., USNM 90057).
DESCRIPTION:
Length, to about 30 mm; width, to about 2 mm (previously reported to 1.5 mm). Prostomium pyriform, darkly pigmented (Figure 31-10a), with four large eyes in nearly rectangular arrangement. Tentacular cirri long, moniliform. Jaws light-colored, with several bluntly rounded teeth. Body segments with bands of scattered pigment across dorsum. Notopodia from setiger 3 each with long dorsal cirrus, and two somewhat shorter, narrowly triangular ligules (Figure 31-10b). Neuropodia with setigerous ligule having short, bluntly conical pre- and postsetal lobes; lower ligule of about same length; and slightly shorter, slender ventral cirrus. Dorsal notopodial ligule becoming progressively reduced to rudimentary posteriorly (Figure 31-10c). Notosetae all as homogomph spinigers (Figure 31-10d). Neurosetae of anterior setigers consisting of homogomph spinigers and heterogomph falcigers (Figure 31-10e) dorsally, and only heterogomph falcigers ventrally. Neurosetae of posterior setigers including hetergomph spinigers ventrally, and heterogomph falcigers with strongly hooked blades (Figure 31-10f). Pygidium with pair of anal papillae bearing short caudal cirri.
REMARKS: N. moniloceras is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Coarse sediment, rocky or coralline bottom; nearshore to over 200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widely scattered off Florida (Figure 31-9); 37-88 m; coarse to medium sand.
DISTRIBUTION: Eastern and western Pacific, Gulf of Mexico.

Genus **Neanthes** Kinberg, 1866

TYPE SPECIES: Neanthes vaalii Kinberg, 1866a.
REFERENCES:
Hartman, 1959b:249.
Imajima, 1972:102.
Fauchald, 1977a:89.
DIAGNOSIS: Prostomium generally pyriform, with two antennae, two palps, and four eyes. Four pairs of tentacular cirri present. Pharynx with toothed jaws; paragnaths present on both oral and maxillary rings. Parapodia usually biramous from setiger 3. Notosetae all homogomph spinigers. Neurosetae including heterogomph spinigers and falcigers.

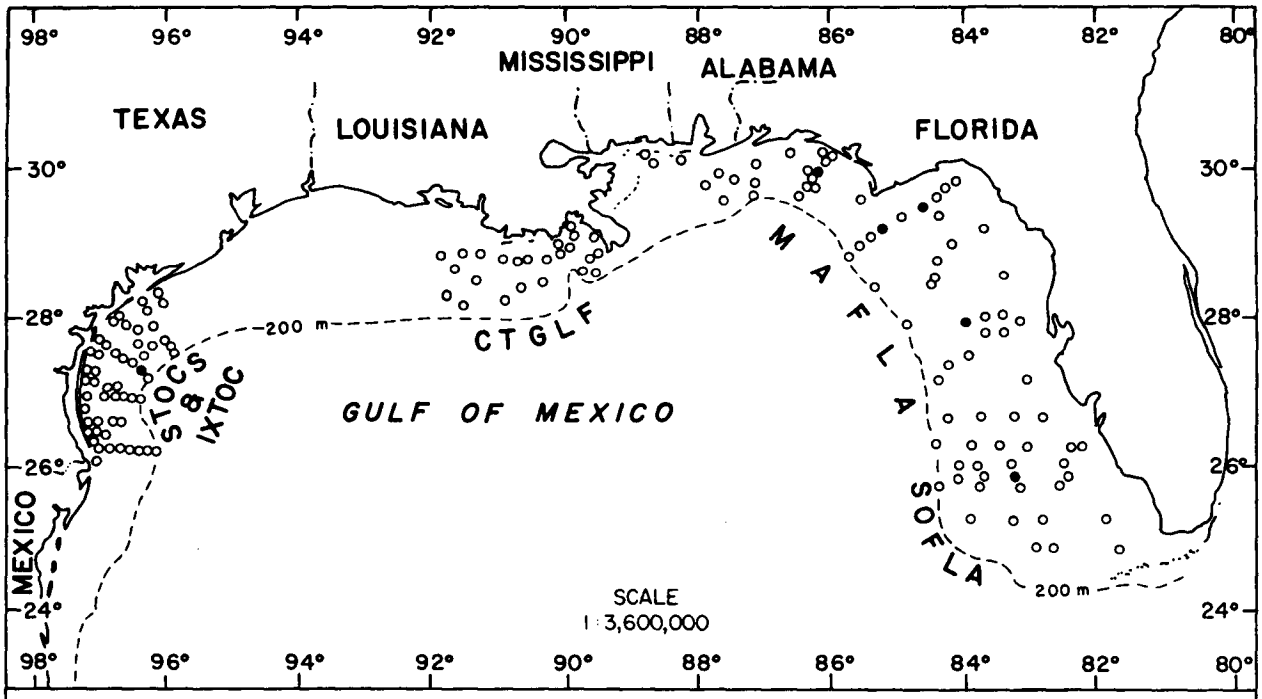

Figure 31-11. Distribution of Neanthes acuminata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

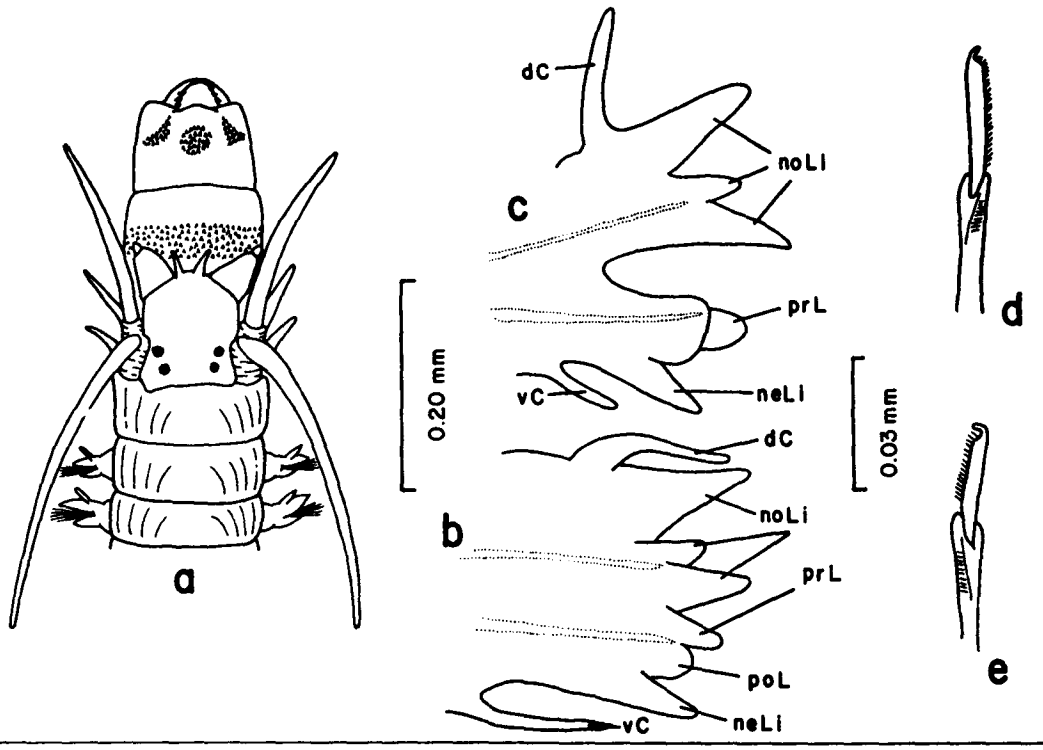

Figure 31-12. Neanthes acuminata: a, anterior end, proboscis extended, dorsal view; b, parapodium from anterior setiger, posterior view; c, parapodium from posterior setiger, posterior view; d, neuropodial heterogomph falciger from posterior setiger; e, neuropodial heterogomph falciger from anterior setiger (Figure a from Pettibone 1963, fig. 45e).

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

1a. Upper notopodial ligules not greatly expanded and enlarged posteriorly; paragnaths of Areas V-VIII forming several continuous, concentric rings (Figure 31-12a). . . **Neanthes acuminata**, p. 31-15

1b. Upper notopodial ligules greatly expanded and enlarged posteriorly; paragnaths of Areas V-VIII not forming concentric rings . . 2

2a. Eyes small (Figure 31-14a); paragnaths few, absent from some pharyngeal areas (Figure 31-14b,c); anterior notopodia each with one ligule. . . . . .**Neanthes micromma**, p. 31-17

2b. Eyes large; paragnaths numerous, present on all pharyngeal areas; anterior notopodia each with three ligules (Figure 31-16d) . . . . . .**Neanthes succinea**, p. 31-17

Neanthes acuminata Ehlers, 1868
Figures 31-11, 12a-e

Neanthes caudata--Renaud, 1956:16, fig. 11a-f.
Neanthes caudata--Reish, 1957:216, figs. 1-9.
Neanthes (Neanthes) arenaceodonta--Pettibone, 1963:162, figs. 44i, 45e.
Nereis (Neanthes) acuminata--Day, 1973:41.
Nereis (Neanthes) acuminata--Gardiner, 1976:149, fig. 15e,f.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16F-11/80 (1 spec., USNM 90058); MAFLA 2211E-8/77 (1 spec.), 2211K-8/77 (1 spec.), 2422B-7/76 (1 spec.), 2424J-7/76 (2 spec.), 2531E-9/77 (2 spec.); STOCS 6/II-4/76 (1 spec., USNM 90059).
DESCRIPTION:
Length, to about 70 mm; width, to about 4 mm. Prostomium short, wide posteriorly, and broadly rounded anteriorly between small antennae and large, widely spaced palps (Figure 31-12a). Tentacular cirri fairly short. Oral ring of pharynx completely encircled by five or more rings of paragnaths. Maxillary ring with oval group of cones on Area I, long curved groups of cones on Area II; wide curved group of cones on Area III, and long curved groups of cones on Area IV. Parapodia similar in all body regions (Figure 31-12b,c). Dorsal cirri same length as large, upper notopodial ligule. Notopodia with well-developed pre- and postsetal lobes, thus giving appearance of three conical lobes. Neuropodia each with longer presetal and shorter postsetal lobes, and narrowly conical ventral ligule. Ventral cirri not extending beyond ventral neuropodial ligule. Neurosetae including homogomph spinigers and heterogomph falcigers (Figure 31-12d,e). Pygidium with two moderately long anal cirri.
PREVIOUSLY REPORTED HABITAT: Fine to coarse sediments, often associated with vegetation, debris, and other submerged objects in coastal waters; littoral zone to 100 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and Texas (Figure 31-11); 24-98 m; coarse to fine sand, silty clay.
DISTRIBUTION: Cosmopolitan in temperate and tropical seas.

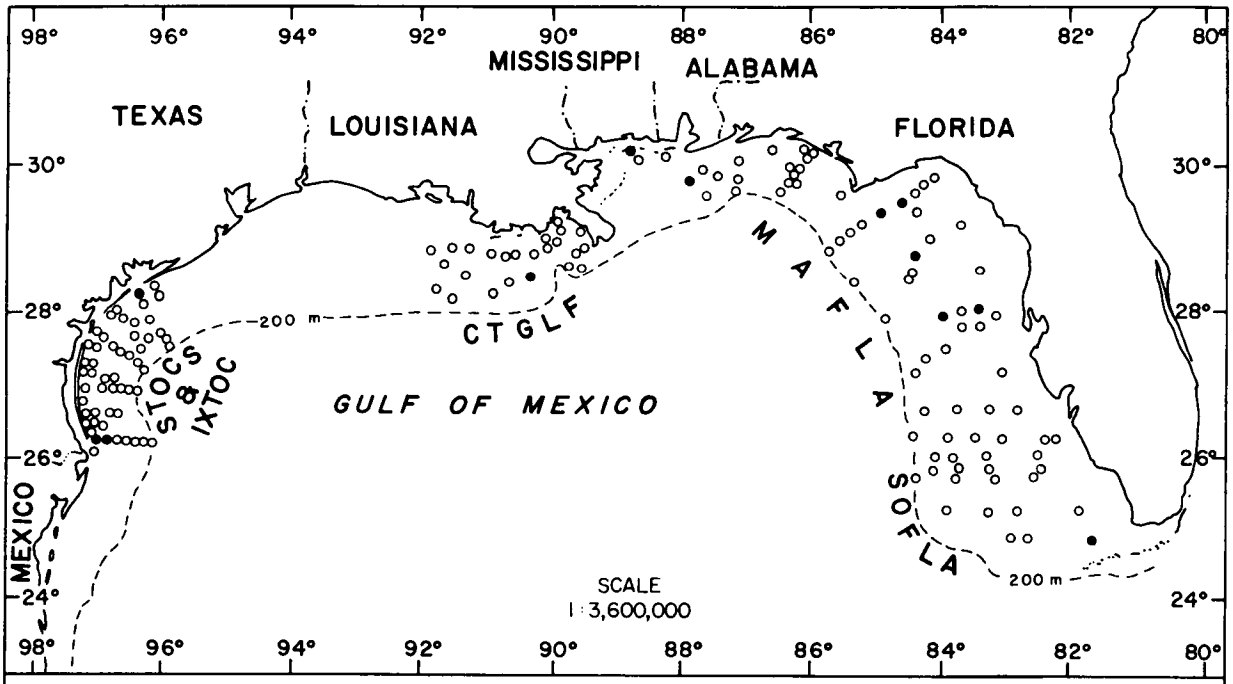

Figure 31-13. Distribution of Neanthes micromma on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

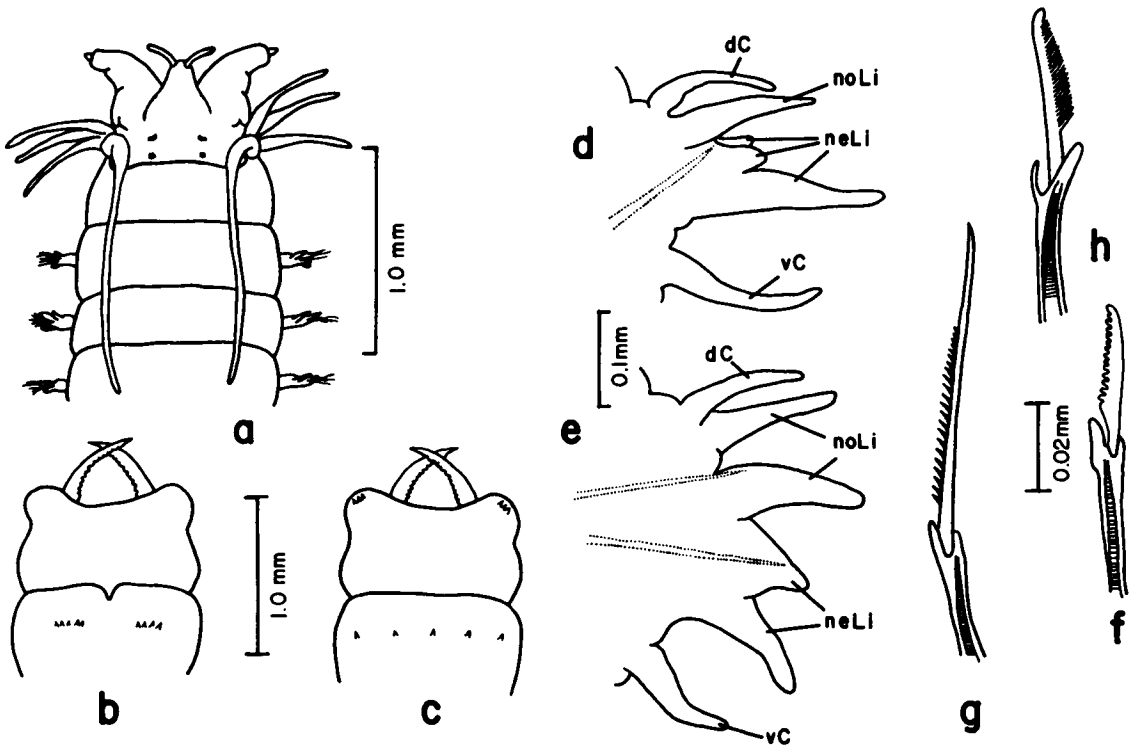

Figure 31-14. Neanthes micromma: a, anterior end, dorsal view; b, proboscis, dorsal view; c, same, ventral view; d, parapodium from setiger 1, posterior view; e, parapodium from setiger 20, anterior view; f, neuropodial heterogomph falciger from setiger 1; g, neuropodial heterogomph spiniger from setiger 2; h, neuropodial heterogomph falciger from posterior setiger (Figures a-c from Harper 1979, fig. 1a-c).

Neanthes micromma Harper, 1979
Figures 31-13, 14a-h

Neanthes micromma Harper, 1979:91, figs. 1-11.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 25A-8/81 (2 spec., USNM 90061); MAFLA 2208H-8/77 (1 spec.), 2211D-7/76 (2 spec.), 2211C-9/77 (1 spec.), 2316H-8/76 (6 spec.), 2422F-7/76 (1 spec.), 2423E-2/78 (1 spec.), 2637F-5/75 (1 spec.), 2640-11/77 (2 spec.); CTGLF 03-5/78 (6 spec., USNM 90062); STOCS 4/I-1 W/76 (1 spec., USNM 90064), 4/IV-5 W/76 (3 spec., USNM 90063); IXTOC S52-4 11/79 (1 spec., USNM 90065).
DESCRIPTION:
Length, to about 100 mm (previously reported to 98+ mm); width, to about 2 mm (previously reported to 1.5 mm). Prostomium (Figure 31-14a) broad posteriorly, narrowly rounded anteriorly, with four small eyes in quadrate arrangement. Antennae short; palps long, often divergent. Pharynx with toothed, amber-colored jaws, and paragnaths as follows (Figure 31-14b,c): Area IV, none or two clumps of three; Area VI, two groups of five or less; Areas VII and VIII, single row of five or fewer. Parapodia of setigers 1 and 2 uniramous (Figure 31-14d); parapodia of first five or more setigers each with single notopodial ligule. Thereafter, each parapodium with dorsal cirrus, upper notopodial ligule; somewhat larger, conical, setigerous notopodial ligule; short, conical, setigerous neuropodial ligule with pre- and postsetal lobes; longer ventral neuropodial ligule; and ventral cirrus extending to middle of ventral ligule (Figure 31-14e). Upper notopodial ligule becoming greatly enlarged posteriorly, with short dorsal cirrus emerging from its anterodorsal margin. Neurosetae of first two setigers including saw-toothed heterogomph falcigers (Figure 31-14f), together with homogomph spinigers on setiger 1, and homogomph and heterogomph spinigers (Figure 31-14g) on setiger 2. Neurosetae including homogomph and heterogomph spinigers from setiger 3; posterior neuropodia also with several heterogomph falcigers (Figure 31-14h). Pygidium with two short caudal cirri.
REMARKS: Examination of BLM-OCS nereid collections indicates that many specimens referred to other genera (Nicon, Ceratocephale, Ceratonereis, and Nereis) are actually Neanthes micromma. In smaller individuals, paragnaths may be difficult to discern due to the light degree of chitinization.
PREVIOUSLY REPORTED HABITAT: Muddy sand; shallow water to about 50 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records throughout northern Gulf (Figure 31-13); shallow water, 10-43 m; sands, silts and clays.
DISTRIBUTION: Northern Gulf of Mexico.

Neanthes succinea (Frey and Leuckart, 1847)
Figures 31-15, 16a-h

Neanthes succinea--Hartman, 1945:17, figs. 1, 2; 1951a:45.
Neanthes succinea--Rioja, 1946b:205, pl. 1, figs. 1, 2.
Nereis (Neanthes) succinea--Pettibone, 1963:165, figs. 44a-e, 45a-d.
Neanthes succinea--Imajima, 1972:108, fig. 32a-k.
Nereis (Neanthes) succinea--Day, 1973:41.
Nereis (Neanthes) succinea--Gardiner, 1976:149, figs. 14p, 15a-d.

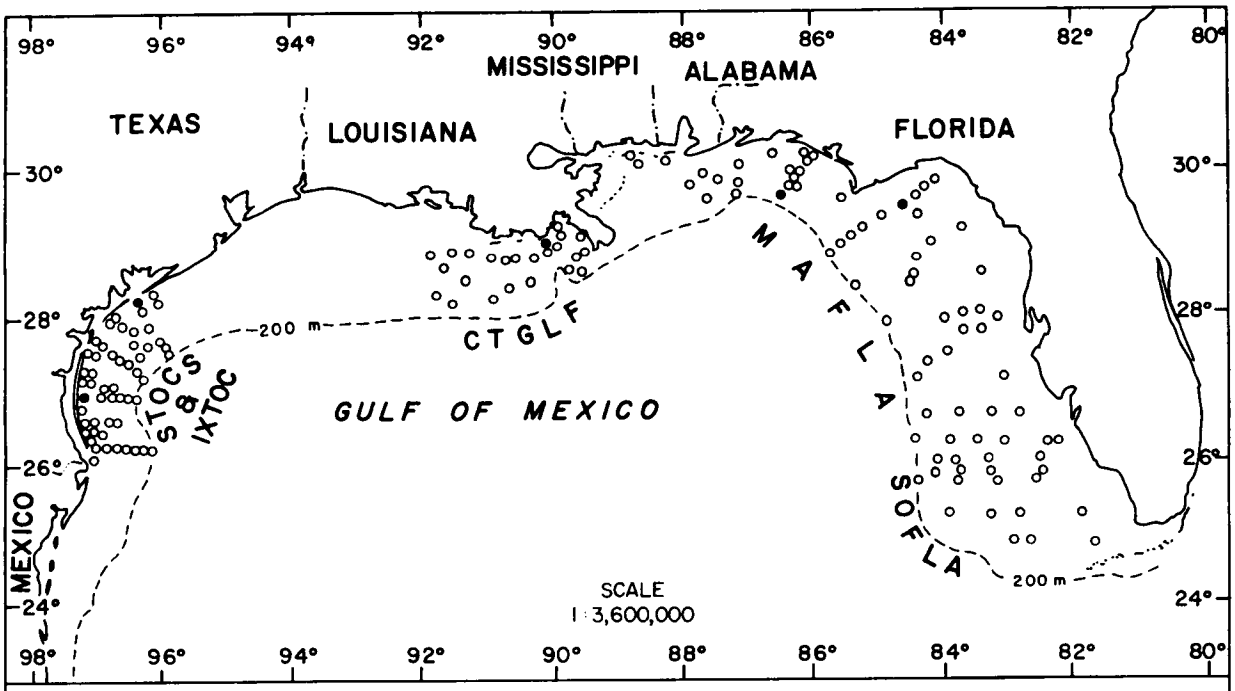

Figure 31-15. Distribution of Neanthes succinea on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

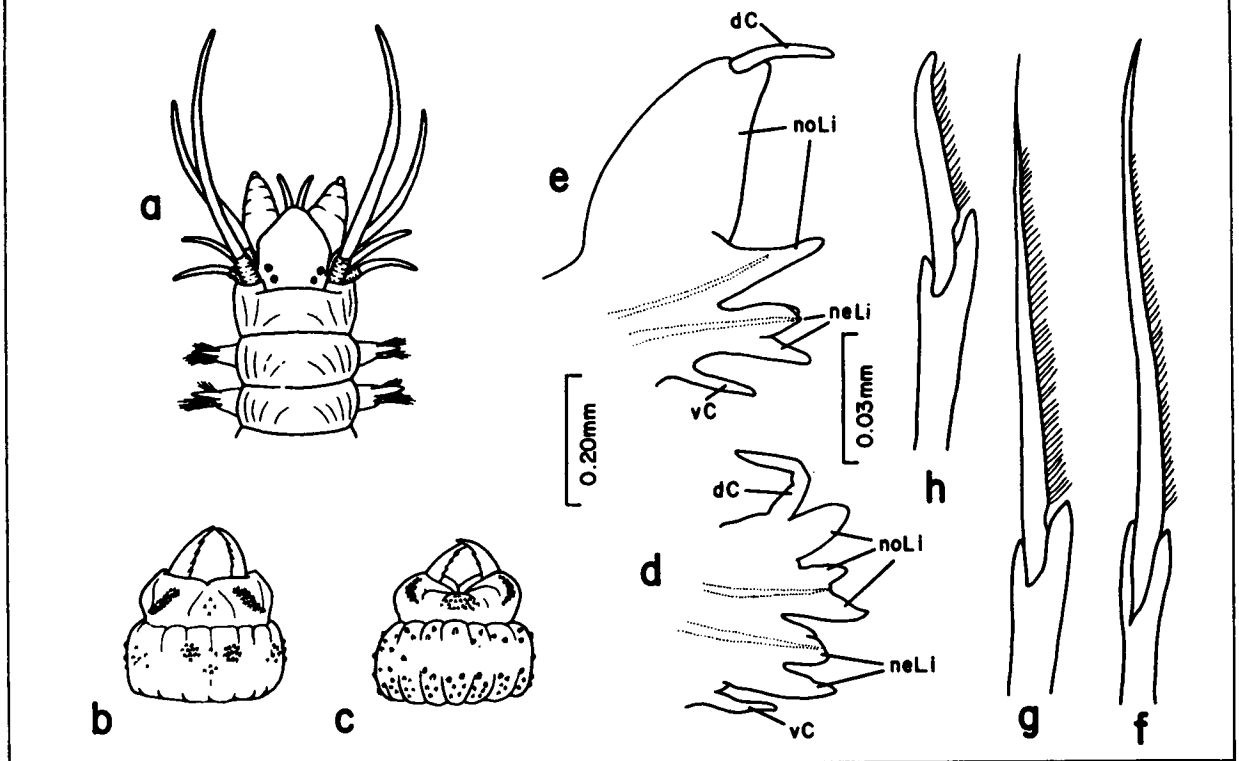

Figure 31-16. Neanthes succinea: a, anterior end, dorsal view; b, extended proboscis, dorsal view; c, same, ventral view; d, anterior parapodium, anterior view; e, posterior parapodium, anterior view; f, notopodial homogomph spiniger; g, neuropodial heterogomph spiniger; h, neuropodial heterogomph falciger (Figures a-c from Pettibone 1963, fig. 45a-c).

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2422G-7/76 (1 spec.), 2536G-9/77 (1 spec., USNM 90069); CTGLF 02-5/78 (2 spec., USNM 90066); STOCS 5/I-6 S/76 (2 spec., USNM 90067), 4/III-F/76 (1 spec., USNM 90068).
DESCRIPTION:
Length, to about 190 mm; width, to about 7 mm. Prostomium pyriform (Figure 31-16a), rounded anteriorly, with four large eyes in trapezoidal arrangement. Antennae small; palps large. Tentacular cirri moderately long. Pharynx with toothed jaws; paragnaths present as follows (Figure 31-16b,c): Area I, 1-6 cones; Areas II and IV, curved groups; Area III, oval group; Area V, up to six; Area VI, oval groups; Areas VII and VIII, several irregular rows. Anterior notopodia trilobed, each with long dorsal cirrus; somewhat shorter, broadly conical upper ligule; and bilobed setigerous ligule having narrowly triangular superior and inferior lobes (Figure 31-16d). Anterior neuropodia each with setigerous ligule having equal pre- and postsetal lobes and digitiform lower ligule. Ventral cirrus extending slightly beyond base of lower ligule. Upper notopodial ligule becoming greatly expanded and enlarged posteriorly, with dorsal cirrus projecting from its tip; upper lobe of acicular ligule becoming vestigial, lower lobe persisting (Figure 31-16e). Notosetae all homogomph spinigers (Figure 31-16f). Neurosetae including both homogomph and heterogomph spinigers (Figure 31-16g) as well as heterogomph falcigers (Figure 31-16h). Pygidium with caudal cirri of moderate length.
REMARKS: Neanthes sucinea is superficially similar to Nereis lamellosa. It differs from the latter in lacking notopodial falcigers posteriorly, a character of the genus Nereis. Incomplete specimens of the two species may be difficult to distinguish.
PREVIOUSLY REPORTED HABITAT: Variety of sediment types, vegetation, and on many types of submerged objects; brackish littoral areas and offshore to depths of 50 m or more.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few records across northern Gulf (Figure 31-15); 10-189 m; medium-fine sand, clayey sand, clayey and sandy silt.
DISTRIBUTION: Cosmopolitan in temperate and tropical waters.

Genus **Websterinereis** Pettibone, 1971

TYPE SPECIES: Nereis tridentata Webster, 1880.
REFERENCES:
Pettibone, 1971a:19.
Fauchald, 1977a:90.
DIAGNOSIS: Prostomium pyriform with two antennae, two palps, and four eyes. Four pairs of tentacular cirri present. Pharynx with toothed jaws, and fleshy or lightly chitinized papillae on oral ring. Parapodia of setigers 1 and 2 each with single notopodial ligule. Thereafter, each parapodium with dorsal cirrus; two notopodial ligules, and sometimes an additional presetal lobe anteriorly; setigerous neuropodial ligule, also sometimes having a presetal lobe; ventral ligule; and short ventral cirrus. Pygidium with a pair of caudal cirri.

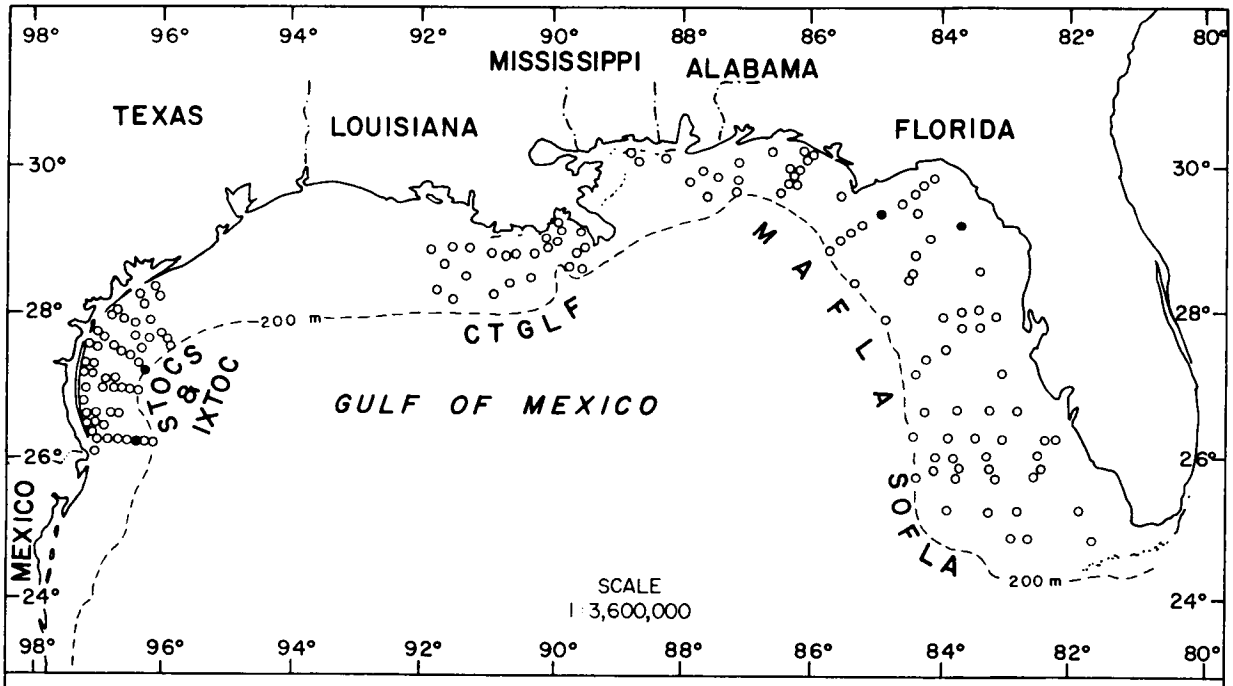

Figure 31-17. Distribution of Websterinereis tridentata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

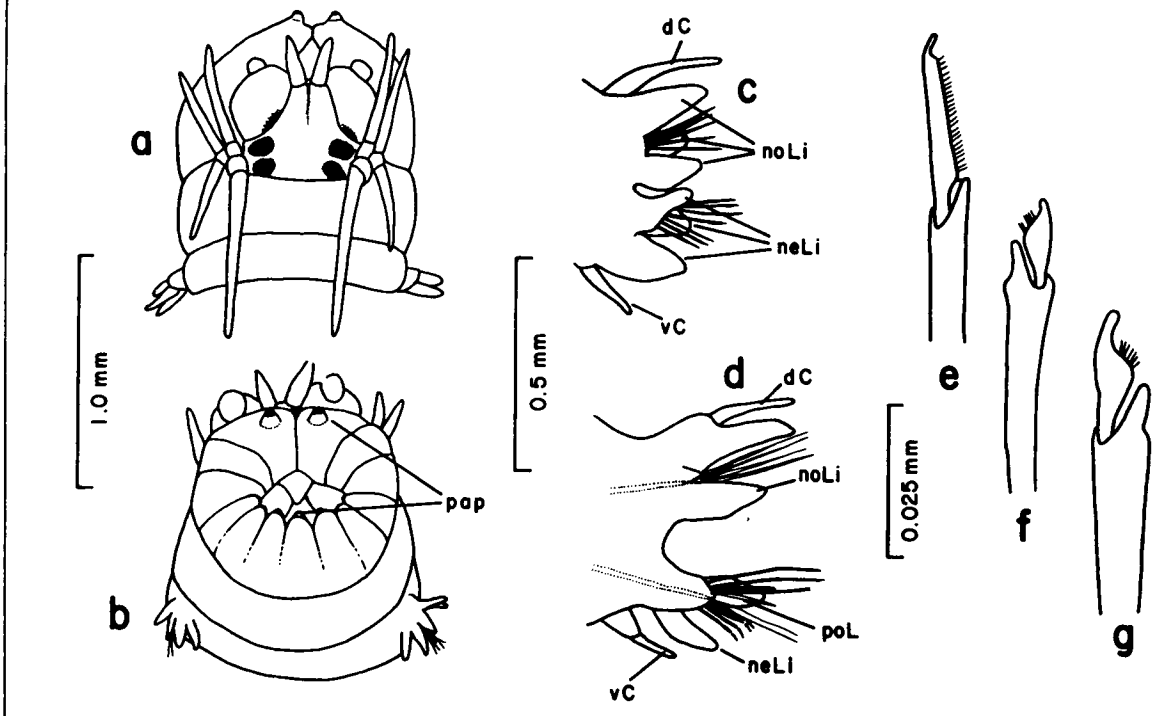

Figure 31-18. Websterinereis tridentata: a, anterior end, proboscis partially everted, dorsal view; b, same, ventral view; c, parapodium from anterior setiger, posterior view; d, parapodium from posterior setiger, posterior view; e, neuropodial heterogomph falciger from anterior setiger; f, same, from middle setiger; g, same, from posterior setiger (All figures from Pettibone 1971a, fig. 8a, b, f; fig. 9c, g-i).

Websterinereis tridentata (Webster, 1880)
Figures 31-17, 18a-g

Nereis tridentata--Webster, 1886:142, pl. 7, figs. 33-40.
Ceratonereis tridentata--Hartman, 1945:21, pl. 3, figs. 3, 4.
Websterinereis tridentata--Pettibone, 1971a:21, figs. 8a-g, 9a-k.
Websterinereis tridentata--Day, 1973:38, fig. 5a-f.
Websterinereis tridentata--Gardiner, 1976:144, fig. 13m-r.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2318I-11/77 (2 spec.), 2318J-11/77 (1 spec.), 2423-7/76 (1 spec., USNM 55840); STOCS 3/II-4 5/77 (1 spec., USNM 90070), 6/IV-5 W/77 (1 spec., USNM 90071).
DESCRIPTION:
Length, to about 65 mm; width, to about 3.5 mm. Prostomium rounded to pyriform (Figure 31-18a), with four large eyes. Antennae, palps, and tentacular cirri short. Jaws finely toothed. Oral ring of pharynx with several fleshy to lightly chitinized papillae (Figure 31-18b) arranged as follows: Area VI having two soft papillae, Areas VII and VIII having band of seven papillae that may be somewhat chitinized. Biramous parapodia of anterior (Figure 31-18c) and middle body regions each with dorsal cirrus and upper notopodial ligule of same length; setigerous notopodial ligule having somewhat shorter upper and lower lobes; setigerous neuropodial ligule having pre- and postsetal lobes equal in length; lower neuropodial ligule; and short ventral cirrus. Posteriorly (Figure 31-18d), middle notopodial lobe disappearing; two remaining lobes triangular, extending beyond neuropodial appendages. Notosetae all homogomph spinigers. Upper neurosetae as homogomph spinigers; lower neurosetae including heterogomph spinigers and falcigers. Shape of falciger blades varying along body (Figure 31-18e-g).
PREVIOUSLY REPORTED HABITAT: On reefs, in fine to coarse sandy sediments; to 40 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few stations off Florida and Texas (Figure 31-17); 19-131 m; medium sand, silty fine sand, clayey sand, silty clay.
DISTRIBUTION: New Jersey to Florida, Gulf of Mexico.

Genus **Rullierinereis** Pettibone, 1971

TYPE SPECIES: Leptonereis zebra Rullier, 1963.
REFERENCES:
Pettibone, 1971a:31.
Fauchald, 1977a:90.
DIAGNOSIS: Prostomium broadest posteriorly, with four eyes, abruptly narrower anterior to eyes. Two antennae, two palps, and four pairs of tentacular cirri present. Pharynx with toothed jaws; paragnaths absent, papillae sometimes present on oral ring. Parapodia of first two setigers each with single notopodial ligule. From setiger 3, parapodia each with dorsal cirrus, upper and lower notopodial ligules (upper notopodial ligule may be fused to dorsal cirrus), setigerous neuropodial ligule having pre- and postsetal lobes, lower neuropodial ligule, and ventral cirrus. Notosetae including homogomph spinigers anteriorly, homogomph spinigers and falcigers posteriorly. Neurosetae as homogomph and

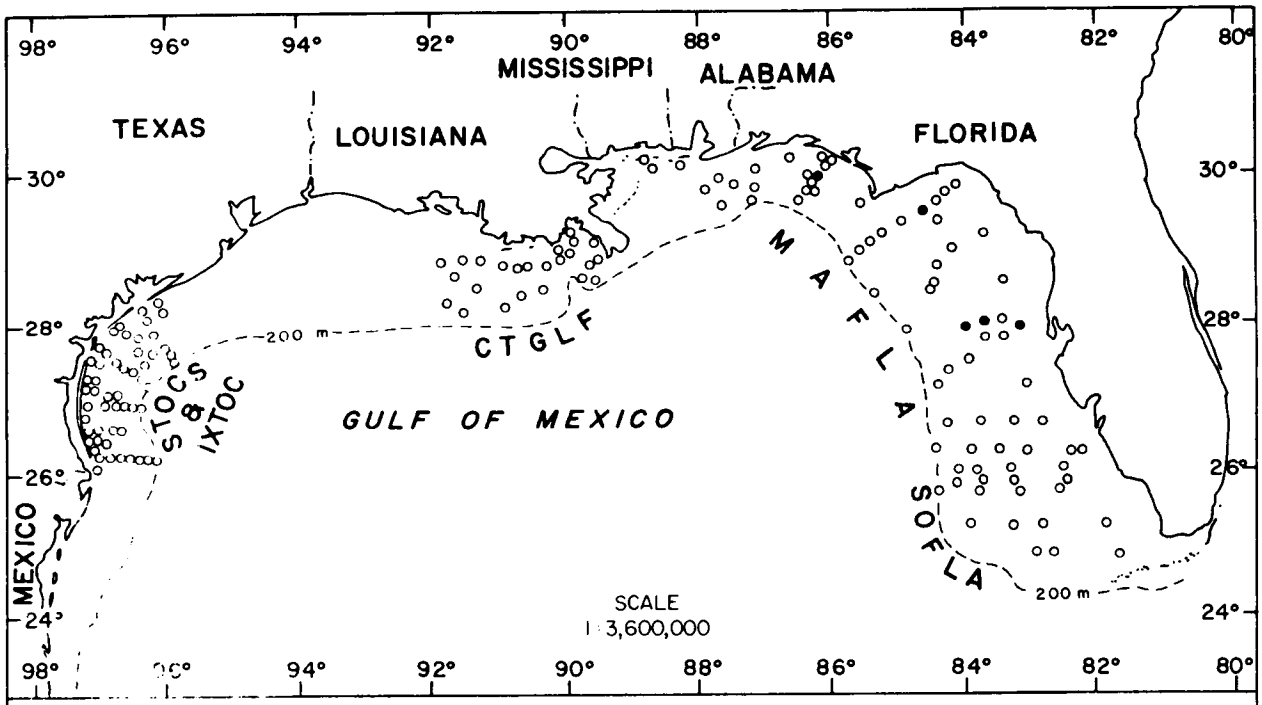

Figure 31-19. Distribution of Rullierinereis sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

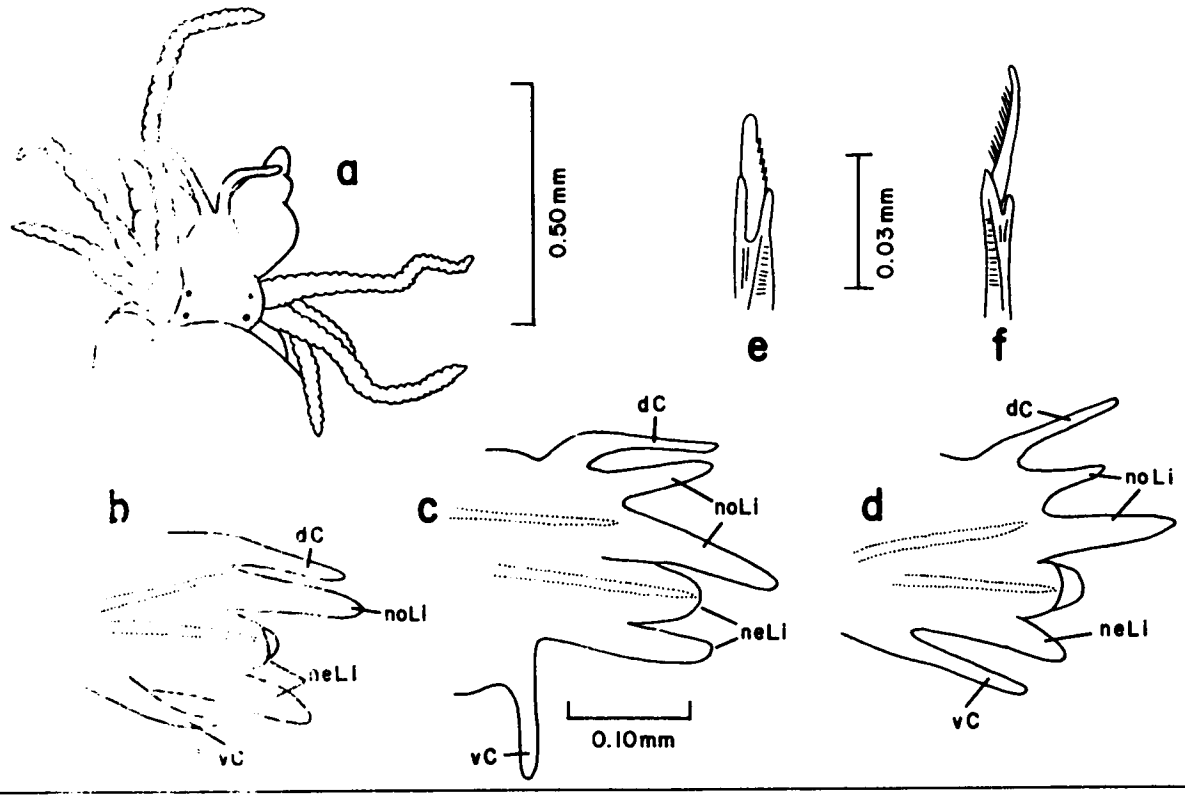

Figure 31-20. Rullierinereis sp. A: a, anterior end, dorsal view; b, parapodium from setiger 5, posterior view; c, parapodium from setiger 15, posterior view; d, parapodium from posterior setiger, posterior view; e, notopodial homogomph falciger; f, neuropodial heterogomph falciger.

heterogomph spinigers and heterogomph falcigers. Pygidium with a pair of caudal cirri.

Rullierinereis sp. A
Figures 31-19, 20a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207J-8/77 (3 spec.), 2210G-7/76 (1 spec.), 2210J-7/76 (1 spec.), 2211J-7/76 (1 spec.), 2422E-7/76 (1 spec.), 2531F-11/77 (2 spec.), 2531-11/77 (1 spec., USNM 56149).
DESCRIPTION:
Length, to about 20 mm; width, to about 1 mm. Prostomium rounded, with four small eyes in rectangular arrangement. Antennae long, palps massive. Tentacular cirri moderately long, moniliform (Figure 31-20a). Pharynx with light brown toothed jaws; paragnaths and papillae absent. Notopodia with single ligule through first eight setigers (Figure 31-20b), thereafter bilobed (Figure 31-20c,d). Dorsal cirri same length as or slightly longer than digitiform notopodial ligules. Setigerous neuropodial ligules shorter than notopodial ligules, with rounded pre- and postsetal lobes; lower neuropodial ligule elongate; ventral cirri extending to near distal end of lower neuropodial ligule. Notosetae as homogomph spinigers; straight, short-bladed, coarsely toothed homogomph falcigers also present posteriorly (Figure 31-20e). Neurosetae consisting of homogomph spinigers and heterogomph falcigers above aciculum, and heterogomph spinigers and falcigers (Figure 31-20f) below aciculum. Caudal cirri moderately long.
REMARKS: Some specimens referred to Rullierinereis sp. A may in fact be R. mexicana Pettibone, 1971a; however, the presence of moniliform tentacular cirri and a different form of notopodial falciger in those examined suggests that BLM-OCS collections represent another and perhaps new species.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several stations off Florida (Figure 31-19); 19-45 m; coarse to fine-very fine sand, silty very fine sand.

Genus **Platynereis** Kinberg, 1866

TYPE SPECIES: Platynereis magalhaenis Kinberg, 1866.
REFERENCES:
Kinberg, 1866a:177.
Hartman, 1959b:277.
Day, 1967:305.
Imajima, 1972:75.
Fauchald, 1977a:90.
DIAGNOSIS: Prostomium with two antennae, two palps and four eyes. Four pairs of tentacular cirri present. Pharynx with toothed jaws and paragnaths consisting of pectinate bars and sometimes cones on both rings. Parapodia biramous after setiger 2. Notosetae consisting of homogomph spinigers and falcigers; falcigers sometimes ankylose. Neurosetae including homogomph and heterogomph spinigers, and heterogomph falcigers. Pygidium with pair of anal cirri.

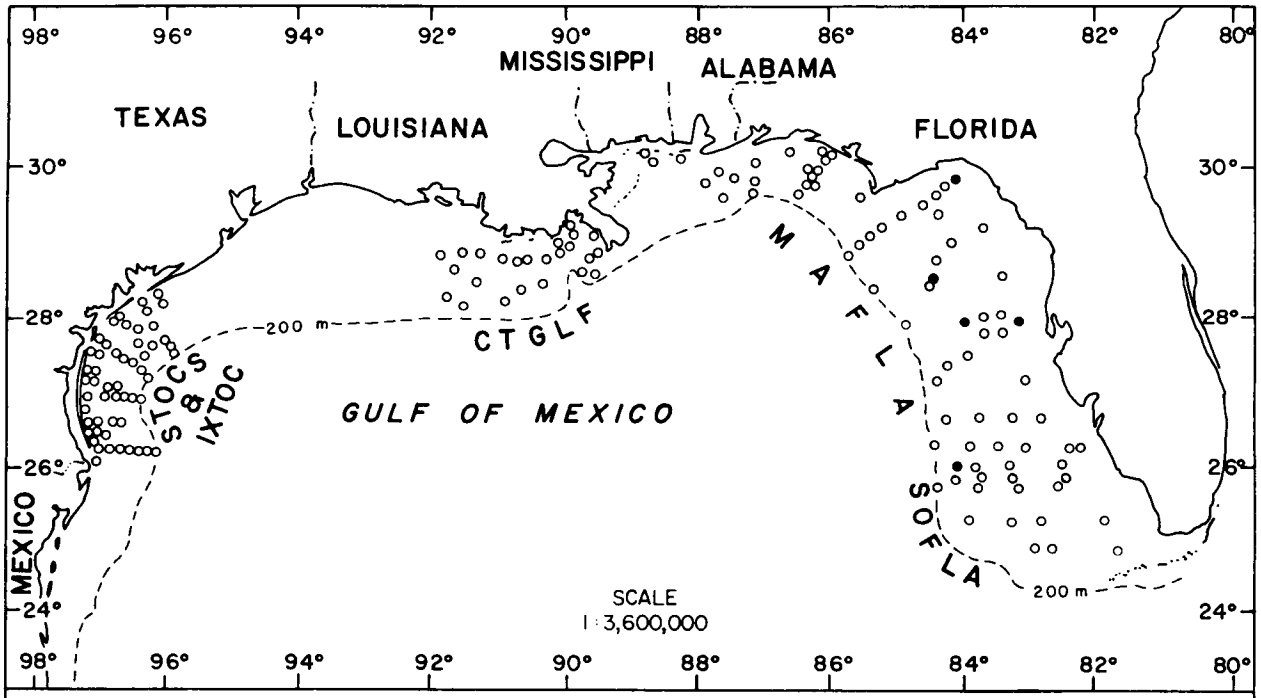

Figure 31-21. Distribution of Platynereis dumerilii on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

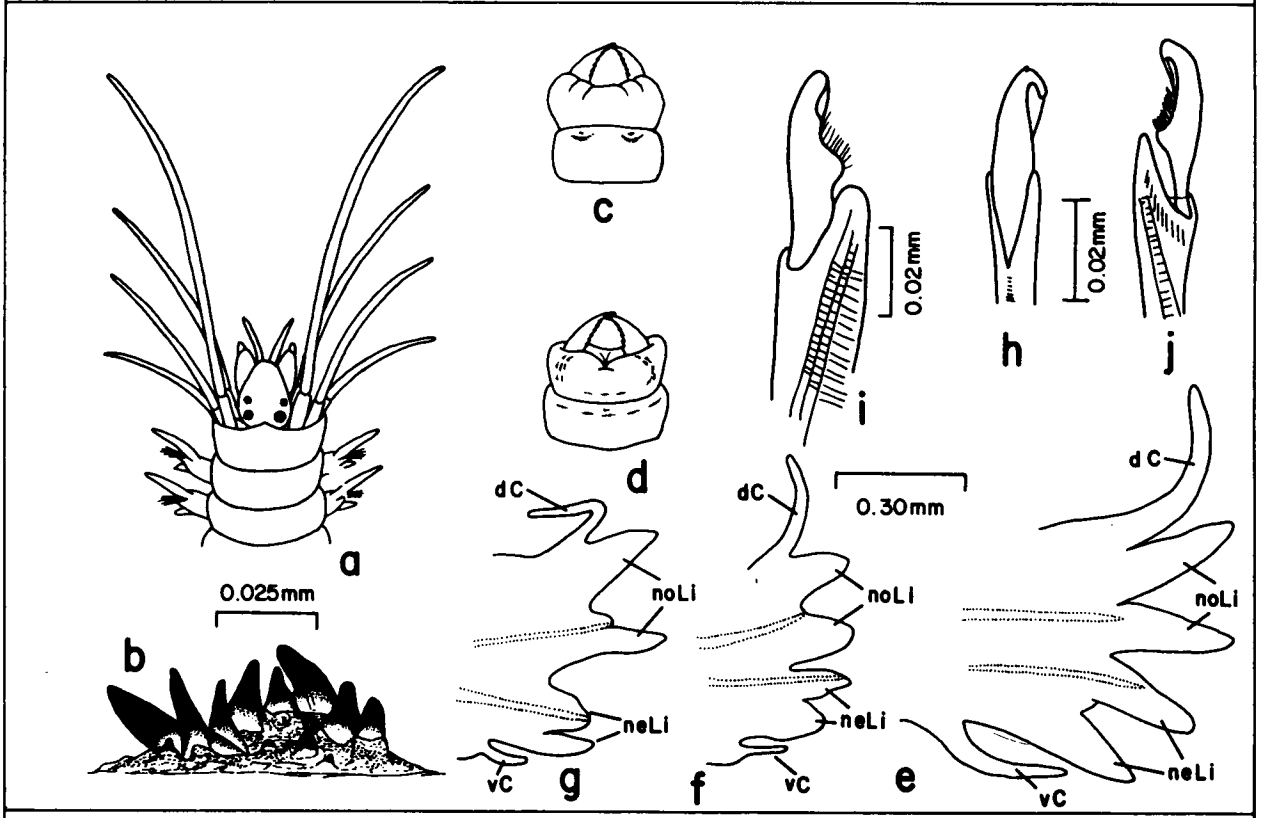

Figure 31-22. Platynereis dumerilii: a, anterior end, dorsal view; b, pectinate paragnaths; c, proboscis, dorsal view; d, same, ventral view; e, parapodium from setiger 3; f, parapodium from setiger 10; g, parapodium from setiger 13; h, notopodial homogomph falciger from posterior setiger; i, neuropodial heterogomph falciger from anterior setiger; j, same, from posterior setiger (Figures a, c, d from Pettibone 1963, fig. 43a, f, g, no scale reported; figures h, j from Fauchald 1977b, fig. 4d,e).

Platynereis dumerilii (Audouin and Milne Edwards, 1834)
Figures 31-21, 22a-j

Platynereis dumerilii--Fauvel, 1923:359, fig. 141a-f.
Platynereis dumerilii--Pettibone, 1963:154, fig. 43a-h.
Platynereis dumerilii--Day, 1967:306, fig. 14.4.d-k.
Platynereis dumerilii--Hartman, 1968:561, figs. 1-5.
Platynereis dumerilii--Gardiner, 1976:145, fig. 14a-e.
Platynereis dumerilii--Fauchald, 1977b:31, fig. 4d-f.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 33D-8/81 (1 spec., USNM 90072); MAFLA 2207G-2/78 (1 spec.), 2211D-11/77 (1 spec.), 2315A-2/78 (1 spec.), 2419F-11/77 (3 spec.), 2419-11/77 (1 spec., USNM 55853).
DESCRIPTION:
Length, to about 75 mm; width, to about 6 mm. Prostomium (Figure 31-22a) oval to pentagonal, notched medially on posterior margin. Antennae and tentacular cirri long; eyes large. Pharynx with light brown toothed jaws, and pectinate paragnaths (Figure 31-22b) on all areas except I, II, and V. Paragnaths arranged as three groups in transverse line on Area III; several longitudinal rows on Area IV; several transverse rows on Area VI; and several linear groups divided into a transverse band on Areas VII and VIII (Figure 31-22c,d). Parapodia with dorsal cirri exceeding length of ligules, and comparatively short ventral cirri. Notopodial and neuropodial ligules paired, long initially (Figure 31-22e), becoming shorter and bluntly rounded on later anterior setigers (Figure 31-22f), and once again prolonged on middle and posterior setigers (Figure 31-22g). Notosetae all homogomph spinigers anteriorly, including several homogomph falcigers (Figure 31-22h) thereafter. Neurosetae consisting of homogomph and heterogomph spinigers, and heterogomph falcigers having sheathed tips (Figure 31-22i,j). Pygidium with long caudal cirri.
PREVIOUSLY REPORTED HABITAT: Generally associated with algae, seagrasses, and other attached organisms commonly found on reefs and rocky bottom; coastal zone to depths in excess of 4,000 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida (Figure 31-21); 10-151 m; coarse to fine-very fine sand, silty fine sand.
DISTRIBUTION: Cosmopolitan in temperate and tropical waters.

Genus **Ceratonereis** Kinberg, 1866

TYPE SPECIES: Ceratonereis mirabilis Kinberg, 1866a.
REFERENCES:
Hartman, 1959b:237.
Fauchald, 1977a:88.
Perkins, 1980:2.
DIAGNOSIS: Prostomium oblong to pyriform or hexagonal, with two antennae, two palps, and four eyes; cleft or entire between antennal bases. Four pairs of tentacular cirri present. Pharynx with toothed jaws and conical paragnaths on maxillary ring. Parapodia biramous after first two setigers, with two or three notopodial lobes and two neuropodial lobes. Notosetae including homogomph spinigers and usually a few

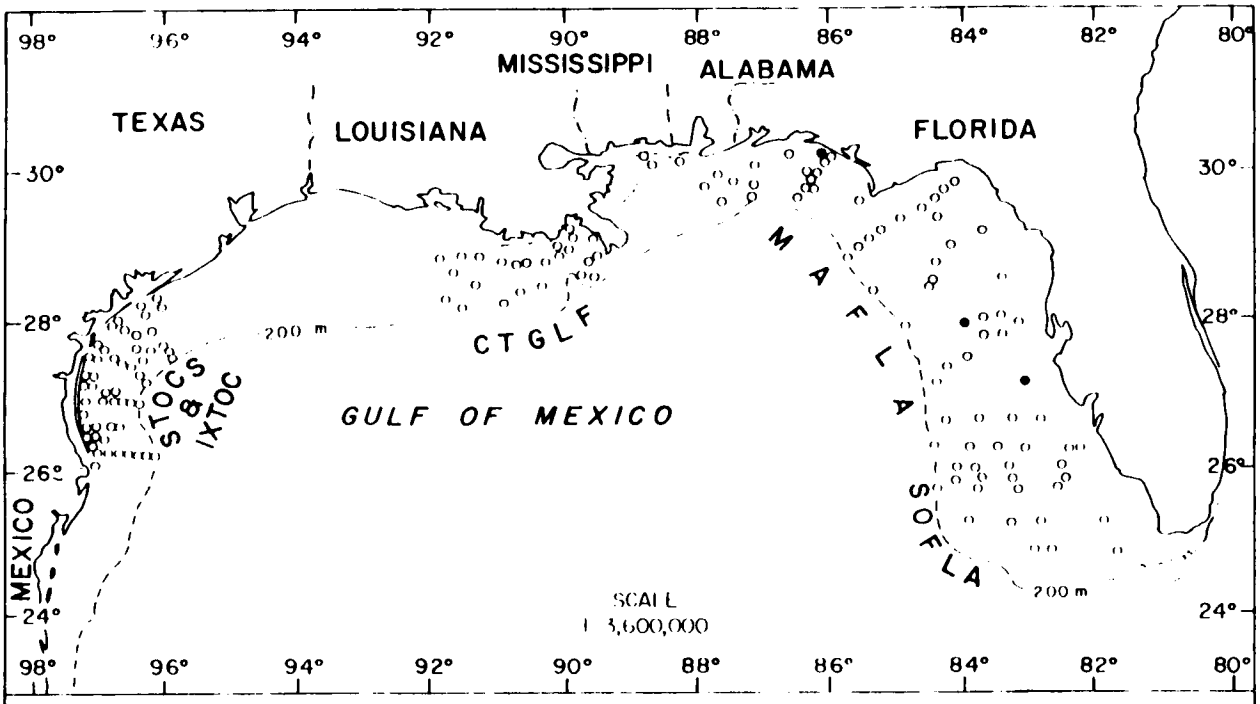

Figure 31-23. Distribution of Ceratonereis versipedata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

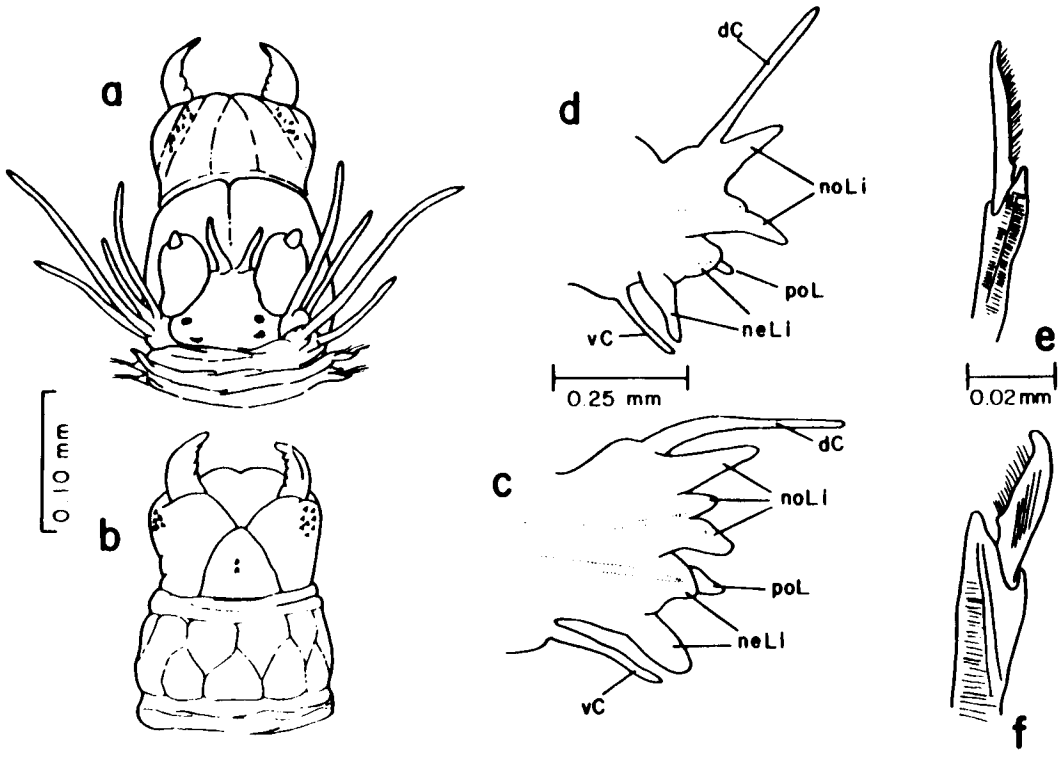

Figure 31-24. Ceratonereis versipedata: a, anterior end, proboscis fully extended, dorsal view; b, proboscis, ventral view; c, parapodium from setiger 5, anterior view; d, parapodium from setiger 27, anterior view; e, neuropodial heterogomph falciger from anterior setiger; f, neuropodial heterogomph falciger from posterior setiger (Figures a, b from Ehlers 1887, pl. 36, figs. 5, 6).

homogomph falcigers. Neurosetae including both homogomph and heterogomph spinigers as well as heterogomph falcigers.

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

1a. Anterior parapodia with three well-developed notopodial lobes (Figure 31-24c). . . . . .**Ceratonereis versipedata**, p. 30-27
1b. Anterior parapodia with two notopodial lobes, upper one may be somewhat reduced 2

2a. Dorsal cirri not extending beyond notopodial lobes (Figure 31-26b,c). . . . . **Ceratonereis irritabilis**, p. 30-30
2b. Dorsal cirri extending far beyond notopodial lobes 3

3a. Dorsal notopodial lobes well-developed anteriorly, small posteriorly (Figure 31-28c). . . . . **Ceratonereis mirabilis**, p. 30-30
3b. Dorsal notopodial lobes small anteriorly, absent posteriorly (Figure 31-30c). . . . . **Ceratonereis longicirrata**, p. 30-32

Ceratonereis versipedata (Ehlers, 1887)
Figures 31-23, 24a-f

Nereis (Ceratonereis) versipedata Ehlers, 1887:116, pl. 36, figs. 5-10.
Ceratonereis versipedata--Day, 1973:39.
Ceratonereis versipedata--Gardiner, 1976:148, fig. 14o.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211C-7/76 (1 spec.), 2211E-7/76 (1 spec.), 2528G-11/77 (1 spec., USNM 90100), 2851F-7/76 (5 spec.).
DESCRIPTION:
Length, to about 20 mm (previously reported to 18 mm); width, to about 2 mm. Prostomium (Figure 31-24a) generally hexagonal in outline, narrowing sharply along anterolateral margins, not indented anteriorly. Antennae and palps about equal in length. Eyes large, located near posterolateral margins of prostomium. Tentacular cirri moderately long. Jaws dark, toothed. Maxillary paragnaths absent from Area I, present as eight or more cones on Areas II and IV, but only two cones on Area III (Figure 31-24a,b). Anterior notopodia after setiger 2 with long dorsal cirri and three distinct lobes (Figure 31-24c). Neuropodia consisting of upper ligule having rounded presetal and somewhat longer postsetal lobes, and conical lower ligule. Notopodia of posterior segments (Figure 31-24d) with long dorsal cirri; middle ligule small. Notosetae entirely as homogomph spinigers. Neurosetae including homogomph spinigers and heterogomph falcigers; falcigers from anterior setigers (Figure 31-24e) more slender than those of posterior setigers (Figure 31-24f). Pygidium with two long caudal cirri.
PREVIOUSLY REPORTED HABITAT: Sand and shell, various submerged objects; from near shore to depths of about 40 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few scattered records off Florida (Figure 31-23); 36-43 m; coarse to fine sand.
DISTRIBUTION: North Carolina, Caribbean, Gulf of Mexico.

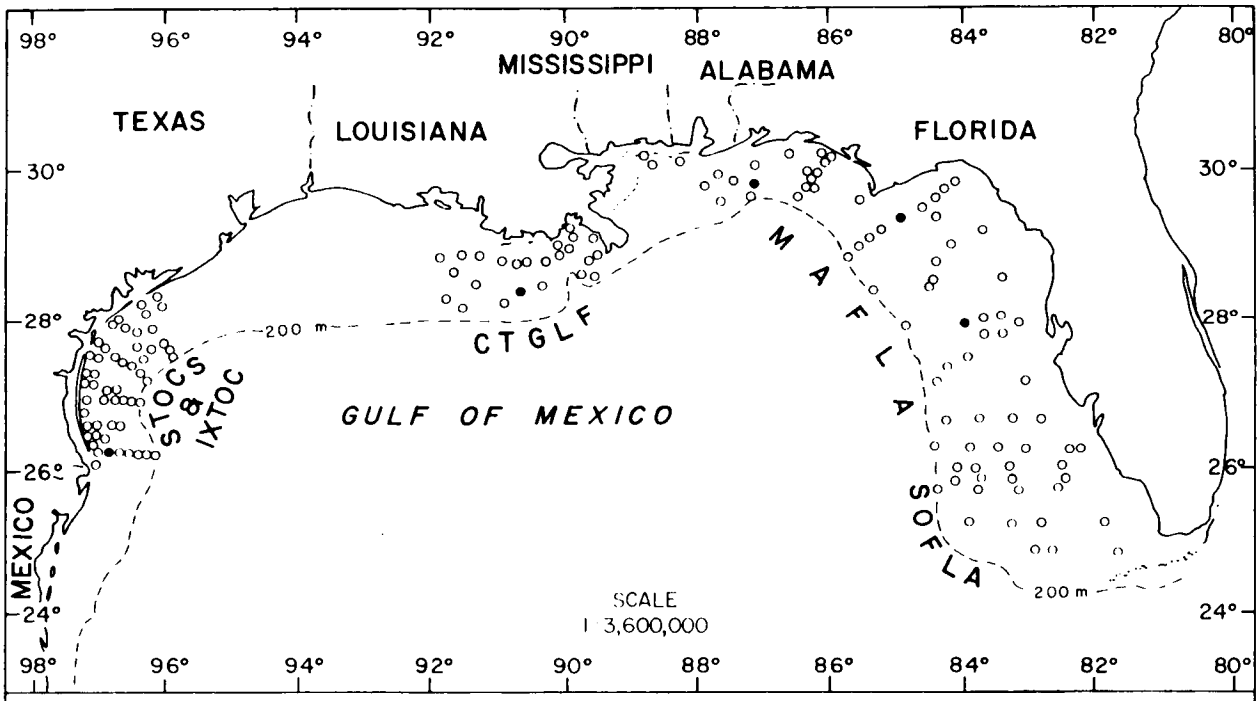

Figure 31-25. Distribution of Ceratonereis irritabilis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

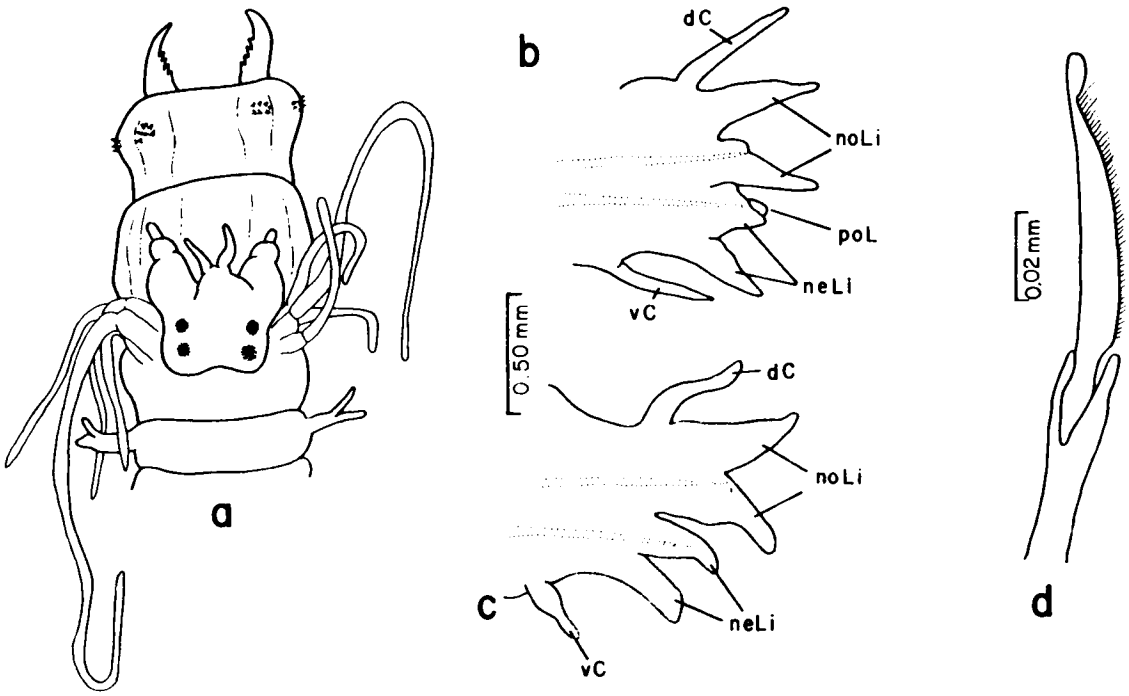

Figure 31-26. Ceratonereis irritabilis: a, anterior end, proboscis fully extended, dorsal view; b, parapodium from setiger 8, anterior view; c, parapodium from posterior setiger, anterior view; d, neuropodial homogomph falciger from posterior setiger.

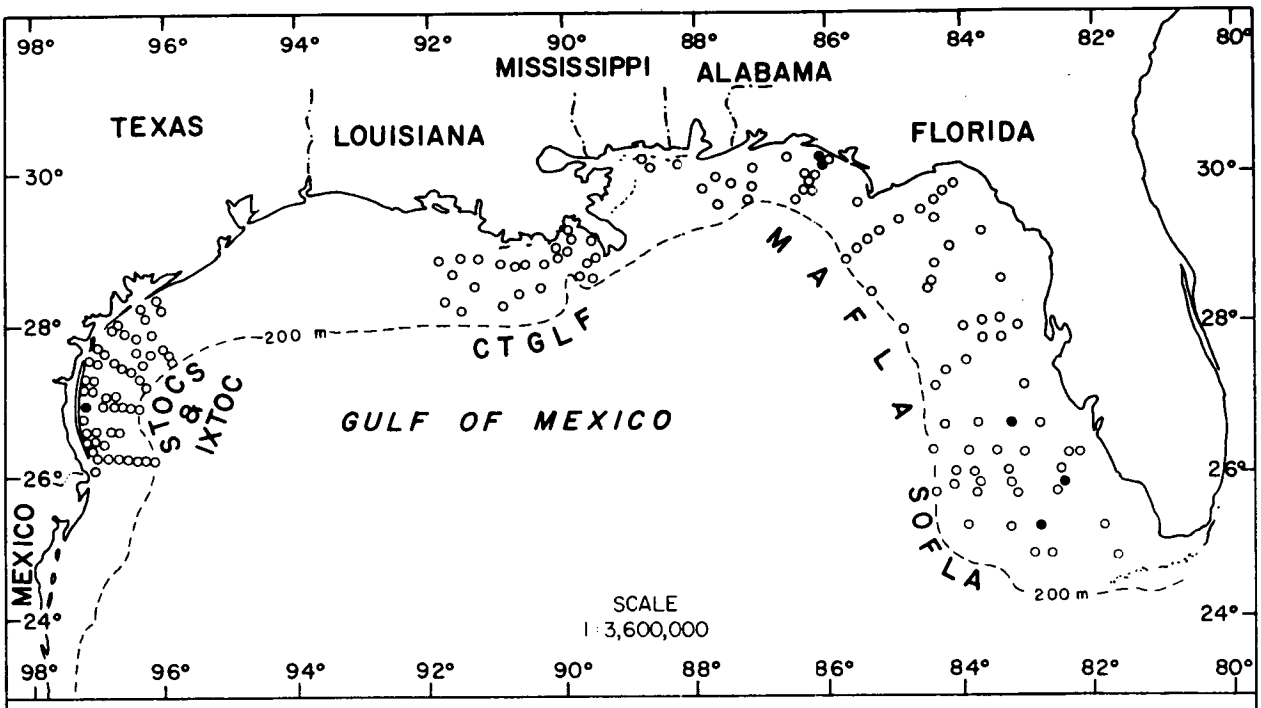

Figure 31-27. Distribution of Ceratonereis mirabilis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

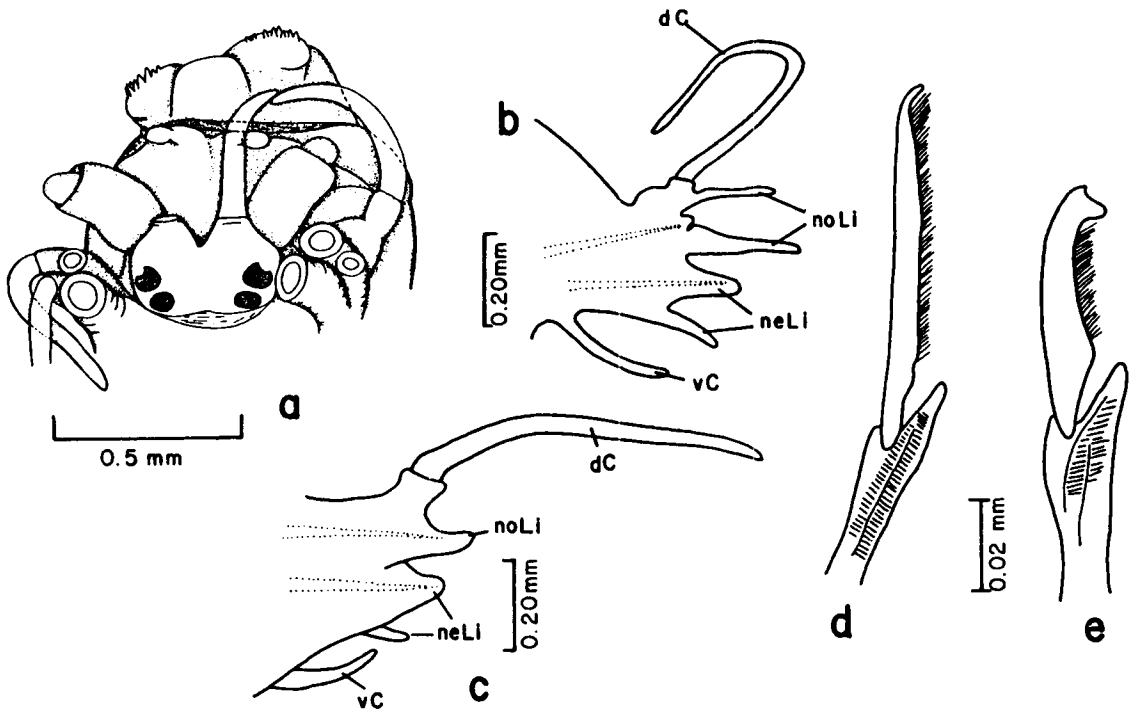

Figure 31-28. Ceratonereis mirabilis: a, anterior end, dorsal view; b, parapodium from anterior setiger, anterior view; c, parapodium from posterior setiger, anterior view; d, neuropodial heterogomph falciger from anterior setiger; e, same, from posterior setiger (Figure a from Perkins 1980, fig. 1a).

Ceratonereis irritabilis (Webster, 1879)
Figures 31-25, 26a-d

Nereis irritabilis Webster, 1879:231, figs. 56-69.
Ceratonereis irritabilis--Hartman, 1945:20, pl. 3, figs. 7-9; 1951a:48.
Ceratonereis irritabilis--Day, 1973:38.
Ceratonereis irritabilis--Gardiner, 1976:147, fig. 14k-n.
Ceratonereis irritabilis--Fauchald, 1977b:23.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 22111-7/76 (1 spec.), 22110-11/77 (1 spec.), 2423C-7/76 (2 spec.), 2423-7/76 (1 spec., USNM 55840), 2642E-5/75 (1 spec.); CTGLF 04-6/78 (1 spec., USNM 90073); STOCS 1/IV-1 F/76 (5 spec., USNM 90075); TXTOC S52-4 11/79 (1 spec., USNM 90074).
DESCRIPTION:
Length, 160+ mm (previously reported to 160 mm); width, 6+ mm (previously reported to 5.6 mm). Prostomium (Figure 31-26a) broad posteriorly, narrower and smoothly rounded in front. Jaws dark, toothed. Maxillary paragnaths absent from Area I, present as six or more cones in a cluster on Area II, numerous small cones in 1-3 rows on Area III, and six or more cones in a cluster on Area IV. Anterior parapodia after setiger 2 each with short dorsal cirrus; conical upper and lower notopodial ligules similar in size, lower ligule having small presetal lobe; upper neuropodial ligule having pre- and postsetal lobes similar in size; lower, elongate neuropodial ligule; and short ventral cirrus (Figure 31-26b). Notopodia extending beyond neuropodia, notopodial presetal and neuropodial postsetal lobes becoming less apparent posteriorly (Figure 31-26c). All notosetae and anterior neurosetae as homogomph spinigers. Neurosetae of middle and posterior regions consisting of homogomph spinigers and falcigers (Figure 31-26d). Pygidium with a pair of caudal cirri.
PREVIOUSLY REPORTED HABITAT: Commonly found in fine, coarse, or mixed sediments; littoral and shelf depths.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widely scattered across northern Gulf (Figure 31-25); moderately shallow water, 19-45 m; coarse to medium sand, silty fine sand, clayey sand, clayey silt.
DISTRIBUTION: Virginia to Caribbean, Gulf of Mexico.

Ceratonereis mirabilis Kinberg, 1866a
Figures 31-27, 28a-e

Ceratonereis mirabilis--Perkins, 1980:4, figs. 1-4.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4-12/80 (1 spec., USNM 90076), 14D-8/81 (1 spec., USNM 90077); 22-12/80 (2 spec., USNM 90078); MAFLA 2528C-1/76 (2 spec.), 2530C-2/76 (1 spec.); STOCS 4/IV-1 W/76 (1 spec., USNM 90079).
DESCRIPTION:
Length, to about 40 mm; width, to about 3 mm. Prostomium (Figure 31-28a) deeply incised between antennae, widely rounded laterally, squared posteriorly. Antennae and palps equal in length. Tentacular cirri long. Pharynx with dark, toothed jaws, and conical paragnaths on all

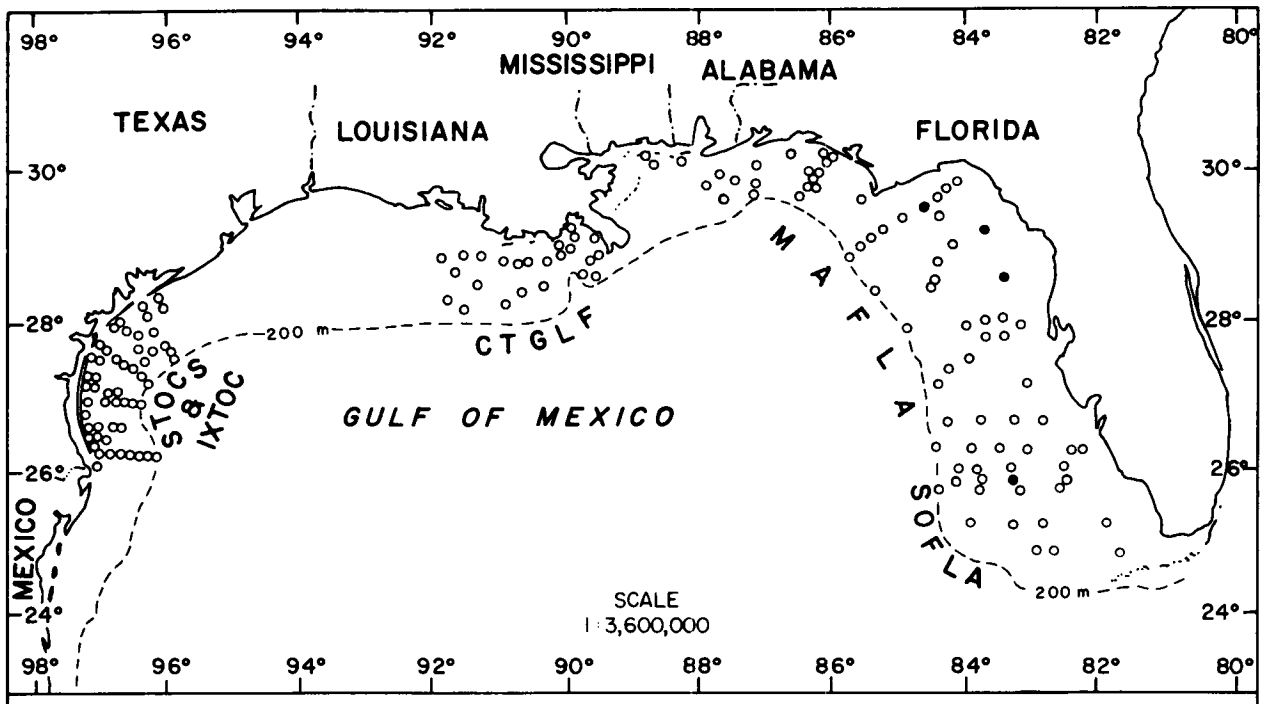

Figure 31-29. Distribution of Ceratonereis longicirrata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

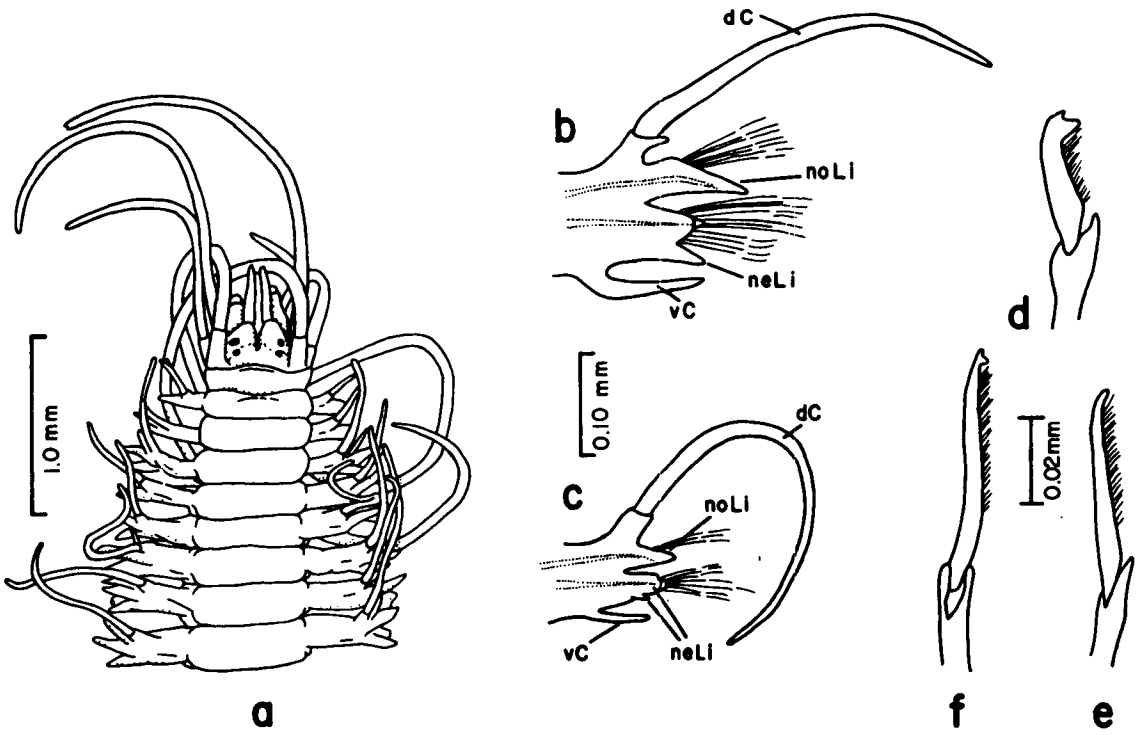

Figure 31-30. Ceratonereis longicirrata: a, anterior end, dorsal view; b, parapodium from setiger 6, anterior view; c, posterior parapodium, anterior view; d, notopodial hemigomph falciger from posterior setiger; e, neuropodial heterogomph falciger from setiger 6; f, same, from far posterior setiger (Figure a from Perkins 1980, fig. 11a).

maxillary areas except Area I. Areas II and IV with round to oval groups of up to 14 cones, Area III with up to 11 cones. Notopodia reduced to single ligule on first two setigers. Thereafter, dorsal cirri becoming quite long through middle and posterior regions. Upper and lower notopodial lobes narrowly conical and long through ten or more setigers (Figure 31-28b); upper lobe becoming much smaller by middle setigers (Figure 31-28c). Neuropodia with setigerous ligule having rounded to elongate pre- and postsetal lobes; lower, digitiform ligule about equal in length to setigerous ligule anteriorly, becoming shorter posteriorly. Ventral cirri extending about midway along lower neuropodial ligule. Notosetae including hemigomph spinigers anteriorly and additional bifid hemigomph falcigers on middle and posterior setigers. Neurosetae including upper bundle of hemigomph spinigers and falcigers (Figure 31-28d), and lower bundle of heterogomph spinigers and falcigers. Falcigers of lower bundle unidentate anteriorly, becoming bidentate on median and posterior setigers (Figure 31-28e). Pygidium with a pair of long caudal cirri.

PREVIOUSLY REPORTED HABITAT: Generally associated with coarse to very coarse sediments, reef material, algae and seagrasses, and a variety of other submerged objects; littoral depths to about 30 m.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and Texas (Figure 31-27); moderately shallow water, 15-56 m; coarse to fine sand.

DISTRIBUTION: Brazil, Caribbean, Gulf of Mexico, east coast of Florida, Bahamas, Bermuda.

Ceratonereis longicirrata Perkins, 1980
Figures 31-29, 30a-f

Ceratonereis longicirrata Perkins, 1980:26, figs. 11a-e, 12a-i.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16F-11/80 (2 spec., USNM 90081); MAFLA 2318K-8/76 (1 spec.), 2422F-7/76 (1 spec.), 2852-8/77 (2 spec., USNM 55841).

DESCRIPTION:
Length, to about 30 mm (previously reported to 28 mm); width, to about 2 mm (previously reported to 1.7 mm). Prostomium (Figure 31-30a) deeply cleft between antennae, rounded laterally, partially covered posteriorly by leading edge of tentacular segment. Antennae long, extending well beyond tips of palps. Pharyngeal jaws toothed, light brown in color. Paragnaths occurring on maxillary ring in all areas except Area I; Area II with about ten cones in two rows; Area III with about eight cones in rounded group; Area IV with eight or more cones in oval group. Parapodia of first two setigers small. Following anterior parapodia (Figure 31-30b) each with long dorsal cirrus; diminutive upper notopodial ligule; long, conical, lower notopodial ligule; upper neuropodial ligule having rounded pre- and postsetal lobes; small digitiform lower neuropodial ligule; and ventral cirrus extending to tips of neuropodial ligules. Posteriorly (Figure 31-30c), dorsal cirri becoming long, filiform; upper notopodial ligules gradually disappearing. Notosetae consisting of hemigomph spinigers anteriorly, additionally hemigomph falcigers with bifid tips (Figure 31-30d) in middle and posterior regions. Neurosetae of upper bundle consisting of hemigomph spinigers and

heterogomph falcigers; those of lower bundle, heterogomph spinigers and falcigers. Neuropodial falcigers all unidentate anteriorly (Figure 31-30e), becoming bidentate (Figure 31-30f) on middle and posterior setigers. Pygidium with a pair of long caudal cirri.
REMARKS: Gulf of Mexico BLM-OCS specimens of C. longicirrata were originally referred to C. mirabilis.
PREVIOUSLY REPORTED HABITAT: Variety of coarse sediments; on submerged objects; intertidal to 73 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida (Figure 31-29); 20-54 m; medium to fine sand.
DISTRIBUTION: East coast of Florida, Gulf of Mexico, Caribbean.

Genus **Nereis** Linnaeus, 1758

TYPE SPECIES: Nereis pelagica Linnaeus, 1758.
REFERENCES:
Hartman, 1959b:251.
Day, 1967:307.
Imajima, 1972:118.
Fauchald, 1977a:90.
DIAGNOSIS: Prostomium broadest posteriorly, with two frontal antennae, two palps, and four eyes. Four pairs of tentacular cirri present. Jaws toothed; paragnaths present on at least some areas of both pharyngeal rings. Parapodia biramous after setiger 2. Notosetae all homogomph spinigers anteriorly, joined or replaced by homogomph falcigers on posterior setigers. Neurosetae consisting of homogomph and heterogomph spinigers, and heterogomph falcigers.

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

1a. Anterior notopodia with three distinct lobes (Figure 31-32c) . . . . . **Nereis lamellosa**, p. 31-35
1b. Anterior notopodia with two distinct lobes. 2

2a. Dorsal cirri shorter than upper notopodial ligule (Figure 31-34c); paragnaths present only on Areas II, IV and VI . . . . . **Nereis grayi**, p. 31-35
2b. Dorsal cirri at least as long as upper notopodial ligule; paragnaths present on additional areas besides II, IV and VI. 3

3a. Lobes of all anterior notopodia sharply triangular (Figure 31-36c). . . . . .**Nereis riisei**, p. 31-38
3b. Lobes of some or most anterior notopodia bluntly rounded. . . . 4

4a. Blades of notopodial falcigers moderately long, finely serrate (Figure 31-38f). . . . . .**Nereis falsa**, p. 31-40
4b. Blades of notopodial falcigers short, smooth or coarsely serrate (Figure 31-40f). . . . . **Nereis pelagica**, p. 31-42

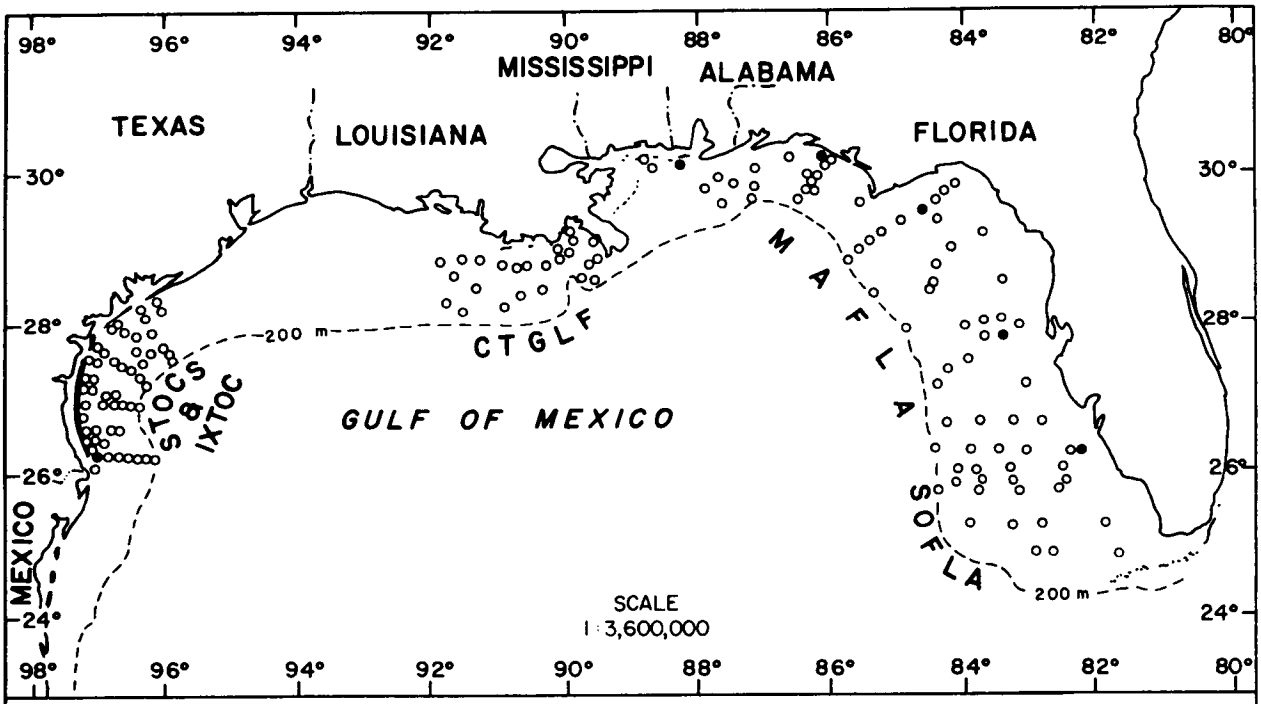

Figure 31-31. Distribution of Nereis lamellosa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

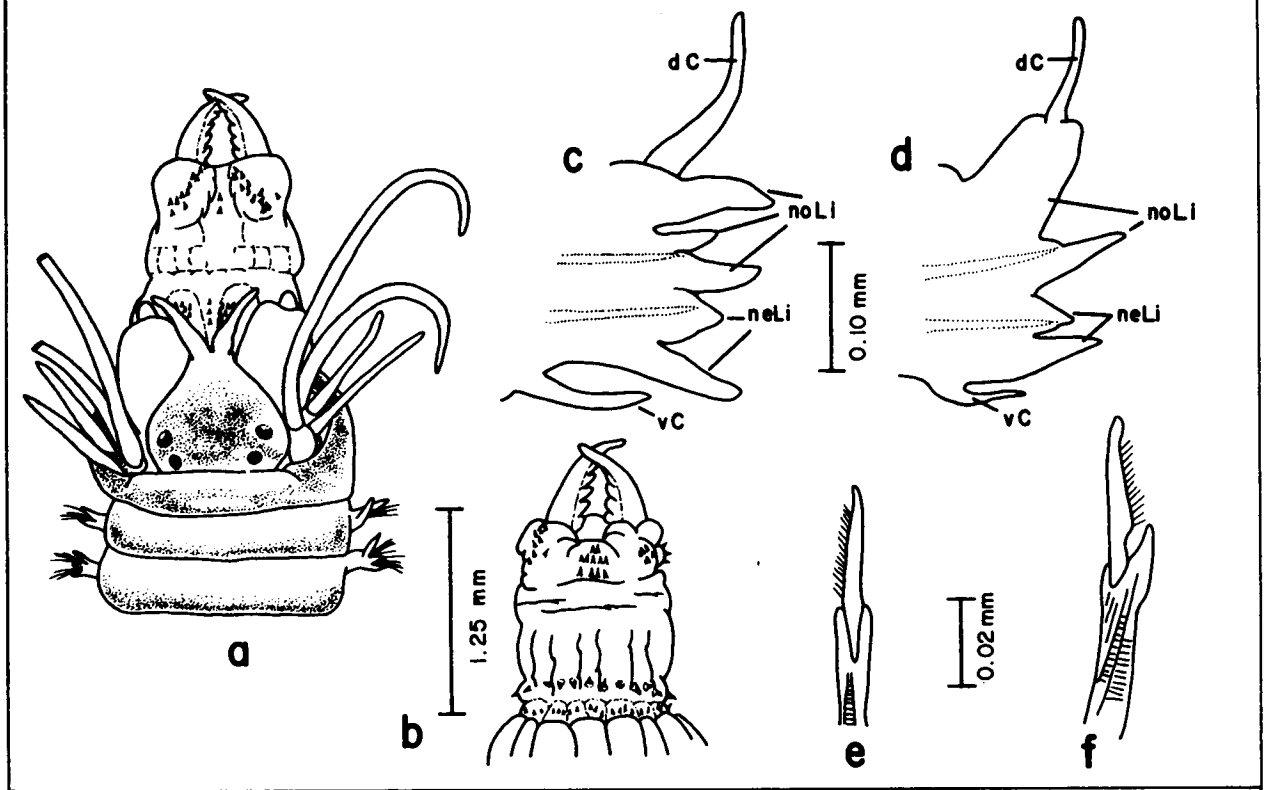

Figure 31-32. Nereis lamellosa: a, anterior end, proboscis extended, dorsal view; b, proboscis, ventral view; c, parapodium from anterior setiger, anterior view; d, parapodium from posterior setiger, anterior view; e, notopodial homogomph falciger; f, neuropodial heterogomph falciger.

Nereis lamellosa Ehlers, 1868
Figures 31-31, 32a-f

Nereis lamellosa Ehlers, 1868:564, pl. 22, figs. 10-17.
Nereis (Nereis) lamellosa--Day, 1967:314, fig. 14.7.a-e; 1973:39, fig. 5k-o.
Nereis (Nereis) lamellosa--Gardiner, 1976:151, fig. 15g-k.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2101D-2/78 (1 spec.), 2422G-7/76 (1 spec.), 2528I-9/77 (1 spec., USNM 90098), 2639A-11/77 (1 spec.), 2749C-11/77 (1 spec.); STOCS 4/IV-1 W/76 (2 spec., USNM 90097).
DESCRIPTION:
Length, to about 30 mm; width, to about 2 mm. Prostomium pyriform, narrowly rounded anteriorly (Figure 31-32a), with moderately large eyes. Paragnaths occurring on all eight pharyngeal areas (Figure 31-32a,b). Area I with one or two cones; Area II with numerous cones in two short rows; Area III with oval group of about ten cones; Area IV with numerous cones in triangular arrangements; Area V with up to four cones; Area VI with circular groups of about ten cones; Areas VII and VIII with three or four irregular rows of cones. Anterior parapodia (Figure 31-32c) each with long dorsal cirrus, three notopodial lobes, short setigerous neuropodial ligule having pre- and postsetal lobes equal in length, somewhat longer ventral ligule, and short ventral cirrus. Posteriorly (Figure 31-32d), notopodial ligules reduced to two; upper one greatly expanded, bearing short dorsal cirrus distally; lower one slightly asymmetrical dorsally from vestige of supra-acicular lobe. Notosetae all homogomph spinigers anteriorly, additionally including several homogomph falcigers in middle and posterior regions (Figure 31-32e). Neurosetae including homogomph and heterogomph spinigers along with heterogomph falcigers (Figure 31-32f). Pygidium with a pair of short anal cirri.
REMARKS: This species is superficially similar to Neanthes succinea but differs from the latter in possessing notopodial falcigers.
PREVIOUSLY REPORTED HABITAT: Variety of sediments; on reefs and other submerged objects; coastal waters to about 150 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widely scattered records off Florida, Alabama and Texas (Figure 31-31); shallow water, 11-37 m; coarse to fine-very fine sand, sandy silt.
DISTRIBUTION: Temperate waters on both sides of Atlantic; Gulf of Mexico.

Nereis grayi Pettibone, 1956
Figures 31-33, 34a-f

Nereis grayi Pettibone, 1956b:282, fig. 3a-g.
Nereis (Nereis) grayi--Day, 1973:39.
Nereis (Nereis) grayi--Gardiner, 1976:151, fig. 15 l-n.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8A-11/80 (2 spec., USNM 90082); MAFLA 2207K-8/77 (3 spec.), 2316D-8/76 (1 spec.), 2316H-8/76 (1 spec.), 2316C-11/77 (1 spec., USNM 90088),

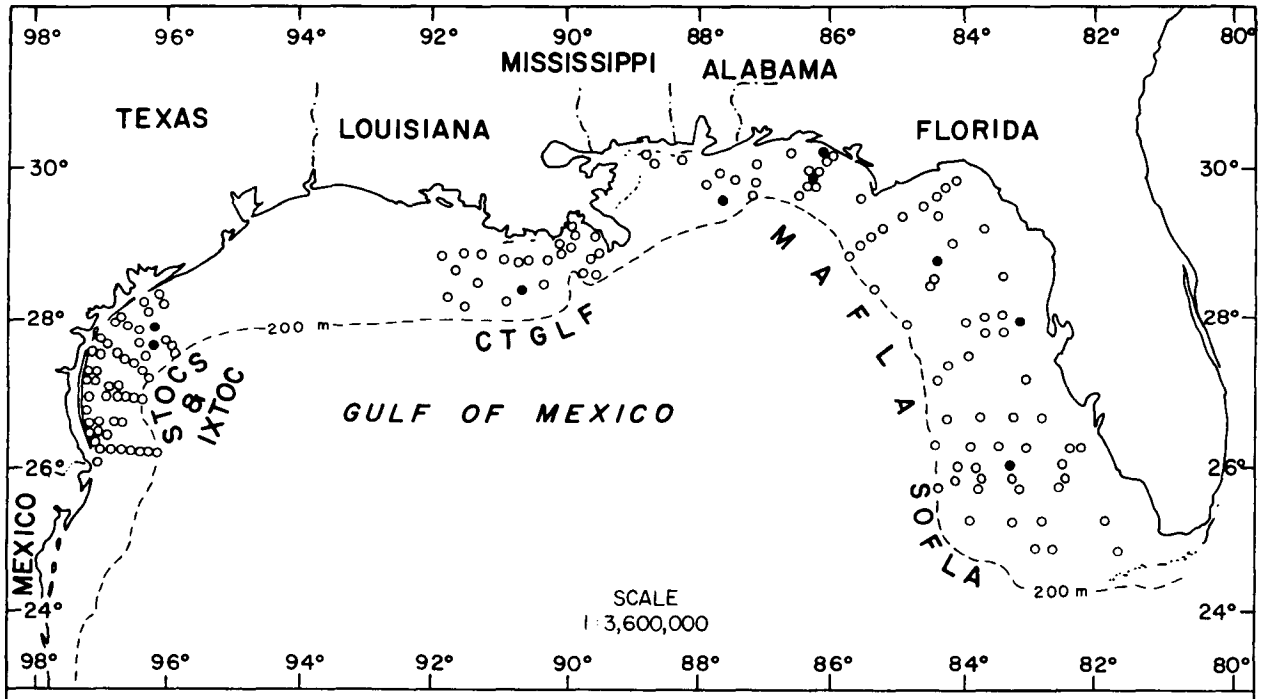

Figure 31-33. Distribution of Nereis grayi on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

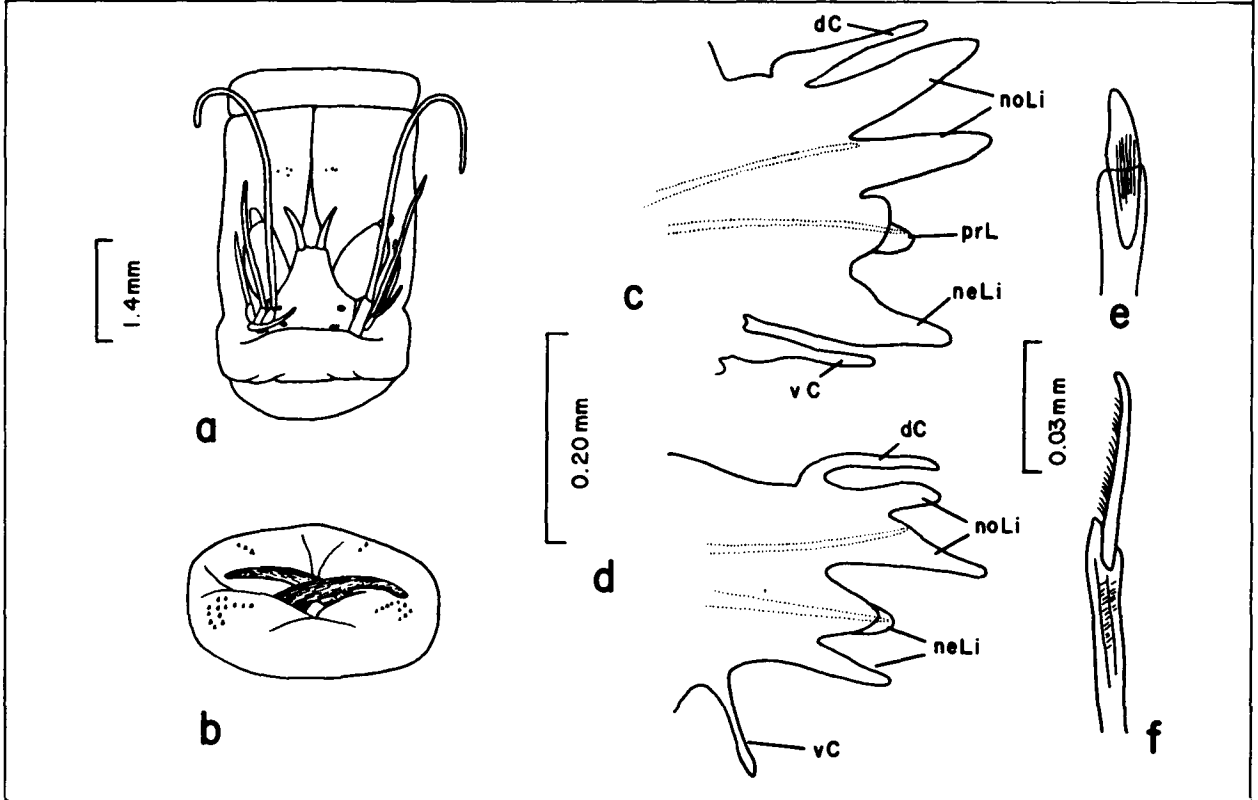

Figure 31-34. Nereis grayi: a, anterior end, proboscis partially extended, dorsal view; b, extended proboscis, frontal view; c, parapodium from anterior setiger, posterior view; d, parapodium from posterior setiger, posterior view; e, notopodial homogomph falciger; f, neuropodial heterogomph falciger from posterior setiger (Figure a, b from Pettibone 1956b, fig. 3a,b).

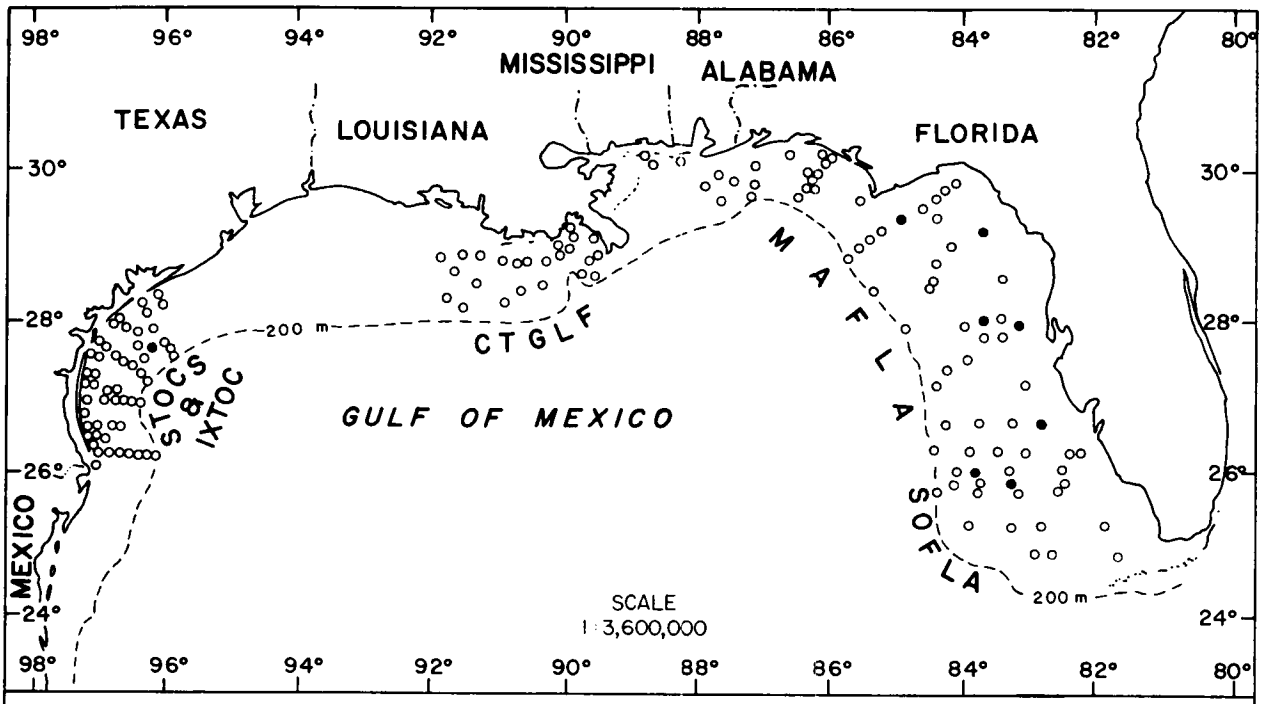

Figure 31-35. Distribution of Nereis riisei on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

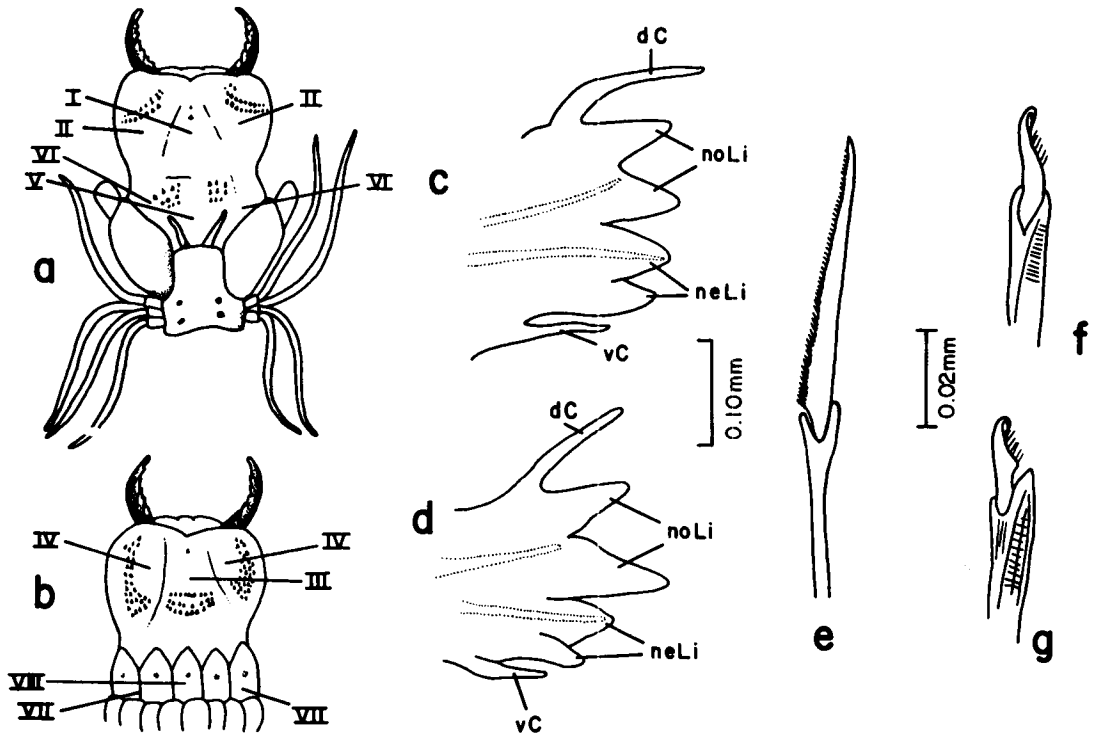

Figure 31-36. Nereis riisei: a, anterior end, proboscis extended, dorsal view; b, proboscis, ventral view; c, parapodium from anterior setiger; d, parapodium from posterior setiger; e, notopodial homogomph spiniger; f, notopodial homogomph falciger; g, neuropodial heterogomph falciger (Figures a, b from Renaud 1956, fig. 10a,b, courtesy of the American Museum of Natural History; no scale reported).

2316D-11/77 (1 spec.), 2528C-8/77 (1 spec.), 2533-7/76 (1 spec.), 2643A-9/75 (1 spec.); CTGLF 04-5/78 (1 spec., USNM 90083); STOCS 3/IV-4 W/76 (1 spec., USNM 90086), 2/I-6 F/76 (1 spec., USNM 90085), HR4-1 12/76 (1 spec., USNM 90087); IXTOC N39-5 12/79 (1 spec., USNM 90084).
Supplementary Material:
Massachusetts--Hadley Harbour, Uncatena Island, in tubes of Maldanopsis elongata (Verrill), S. Gray coll. (1 paratype, USNM 27782).
DESCRIPTION:
Length, to about 60 mm; width, to about 5 mm. Prostomium (Figure 31-34a) widest posteriorly, abruptly narrower anterior to small eyes, frontal margin bluntly rounded. Paragnaths few, restricted to three pharyngeal areas (Figure 31-34a,b). Area II with two or three cones; Area IV with cluster of up to 13 cones; Area VI with three or four cones. Anterior biramous parapodia (Figure 31-34c) each with short dorsal cirrus; two conical notopodial ligules equal in length; shorter, conical upper neuropodial ligule with longer and shorter pre- and postsetal lobes; conical lower neuropodial ligule resembling those of notopodia; and short ventral cirrus. Posteriorly (Figure 31-34d), notopodial ligules gradually extending beyond neuropodial ligules. Notosetae consisting of homogomph spinigers anteriorly; additionally including few straight, smooth, short-bladed homogomph falcigers (Figure 31-34e) in middle and posterior regions. Neurosetae including homogomph and heterogomph spinigers, and heterogomph falcigers (Figure 31-34f). Pygidium with two short caudal cirri.
PREVIOUSLY REPORTED HABITAT: Fine sediments of sand, silt, and clay; intertidal depths to about 160 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Widespread occurrences across northern Gulf (Figure 31-33); 19-91 m; sands, silts and clays.
DISTRIBUTION: New England, North Carolina, Gulf of Mexico.

Nereis riisei Grube, 1857
Figures 31-35, 36a-g

Nereis riisei Grube, 1857:162.
Nereis riisei--Hartman, 1940:221, pl. 33, fig. 37; 1951:46.
Nereis (Nereis) riisei--Day, 1973:39, fig. 5g-j.
Nereis (Nereis) riisei--Gardiner, 1976:152, fig. 15o-r.
Nereis riisei--Fauchald, 1977b:31, fig. 8c-e.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2-11/80 (2 spec., USNM 90089), 12-11/80 (1 spec., USNM 90090), 16C-11/80 (2 spec., USNM 90091); MAFLA 2207J-8/77 (5 spec.), 2210B-7/76 (5 spec.), 2318K-8/76 (1 spec.), 2318D-11/77 (3 spec.), 2318H-11/77 (6 spec.), 2423F-7/76 (1 spec., USNM 90094), 2423H-7/76 (2 spec.); STOCS HR1-2 7/76 (1 spec., USNM 90092), HR1-3 F/76 (1 spec., USNM 90093).
DESCRIPTION:
Length, to about 30 mm (previously reported to 13 mm); width, to about 3 mm (previously reported to 1.5 mm). Prostomium pyriform, narrowing abruptly anterior to eyes (Figure 31-36a). Tentacular cirri moderately long. Jaws dark brown. Paragnaths (Figure 31-36a,b) arranged as follows: Area I, several in a line; Area II, short, double rows; Area III, cluster; Area IV, triangular groups; Area V, none; Area VI, groups of ten or less; Areas VII and VIII, less than ten in a single row.

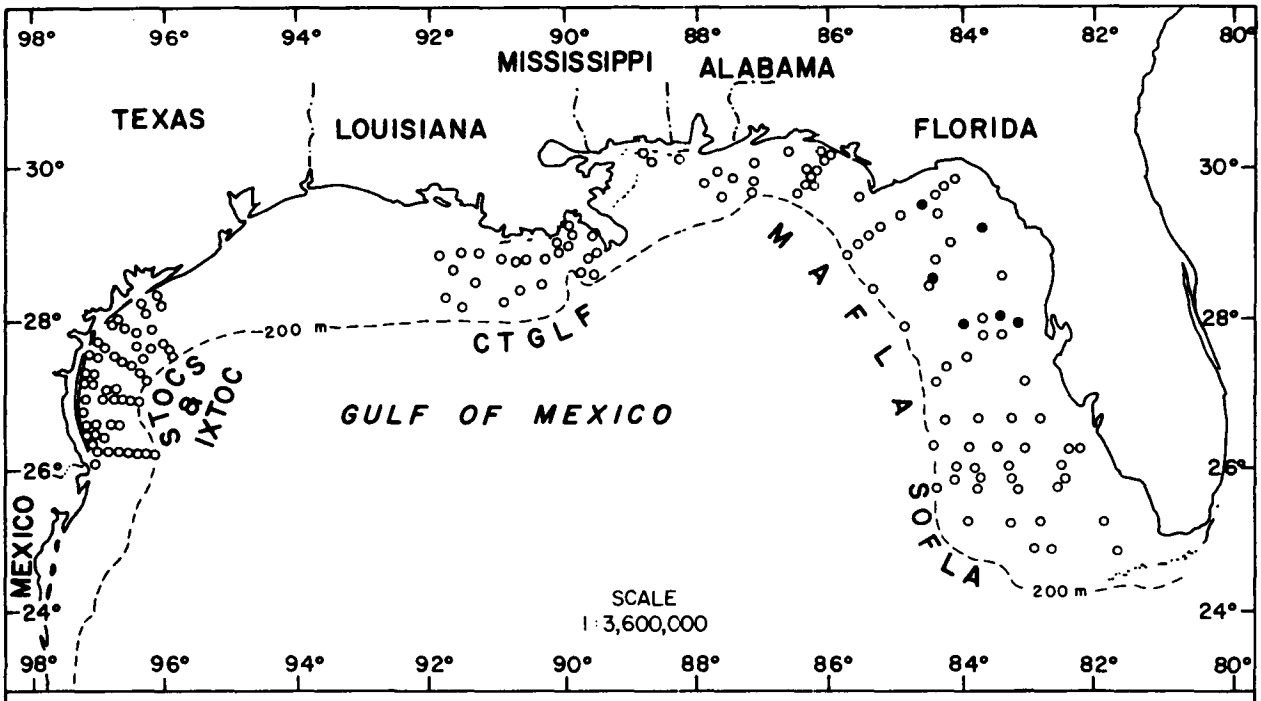

Figure 31-37. Distribution of Nereis falsa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

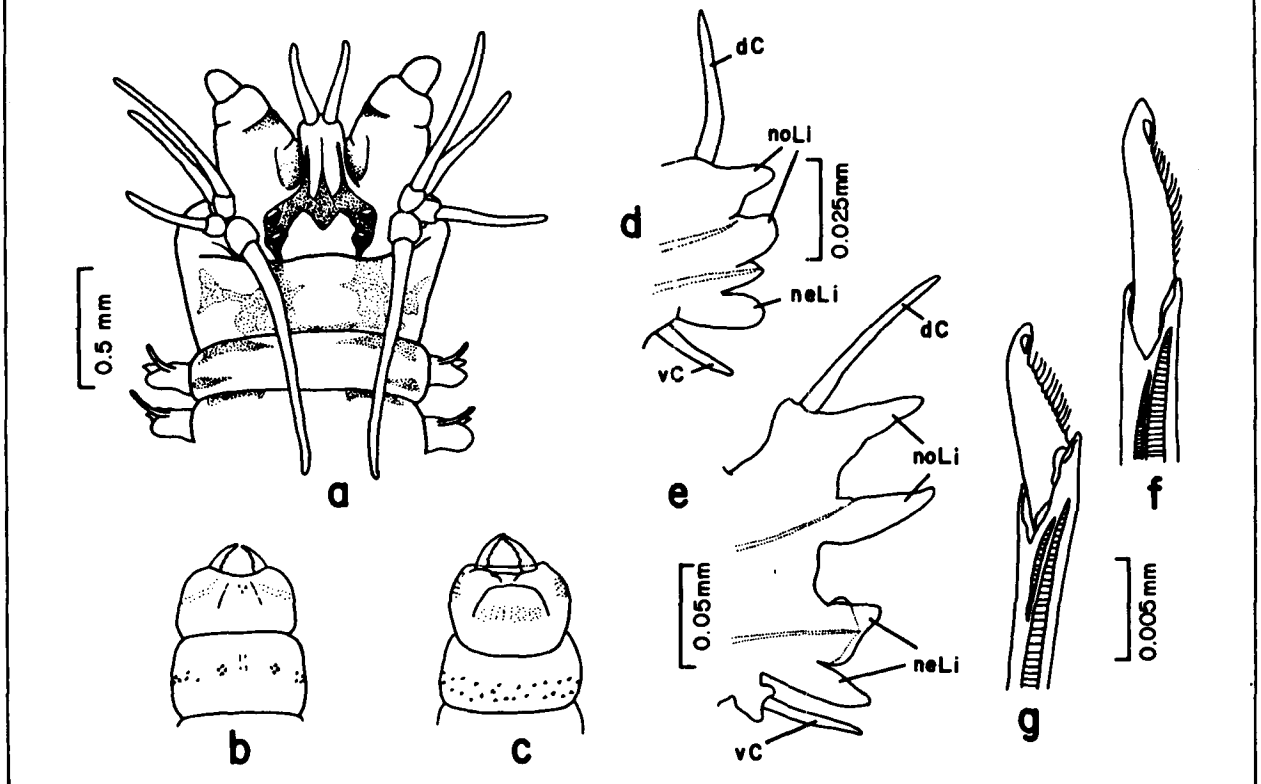

Figure 31-38. Nereis falsa: a, anterior end, dorsal view; b, extended proboscis, dorsal view; c, same, ventral view; d, parapodium from anterior setiger; e, parapodium from posterior setiger; f, notopodial homogomph falciger; g, neuropodial heterogomph falciger (Figures a-c, e-g from Hartman 1945, pl. 4, figs. 1-6; figure d from Gardiner 1976, fig. 15s).

Biramous parapodia similar in shape throughout body (Figure 31-36c,d). Dorsal cirri longer than notopodial lobes; notopodial ligules triangular; setigerous neuropodial ligule somewhat broader and longer than lower neuropodial ligule, both roughly triangular in outline; ventral cirri shorter than lower neuropodial ligule. Notosetae all homogomph spinigers anteriorly (Figure 31-36e), additionally including few homogomph falcigers (Figure 31-36f) in middle and posterior setigers. Neurosetae consisting of homogomph and heterogomph spinigers, and heterogomph falcigers (Figure 31-36g). Pygidium with two moderately long anal cirri.
PREVIOUSLY REPORTED HABITAT: Coarse sediments and on hard bottoms associated with reefs; to depths of about 100 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records off Florida and Texas (Figure 31-35); 19-90 m; medium to fine-very fine sand, silty fine to very fine sand.
DISTRIBUTION: Temperate and tropical waters of western Atlantic and eastern Pacific.

Nereis falsa Quatrefages, 1865
Figures 31-37, 38a-g

Nereis falsa--Fauvel, 1923:337, fig. 129e-m.
Nereis pelagica occidentalis Hartman, 1945:20, pl. 4, figs. 1-6; 1951a:46.
Nereis (Nereis) occidentalis--Pettibone, 1956b:291, figs. 7a-d, 8a-g.
Nereis falsa--Day, 1967:317, fig. 14.7.k-o; 1973:41.
Nereis (Nereis) falsa--Gardiner, 1976:152, fig. 15s-u.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207J-8/77 (4 spec., USNM 90101), 2208E-8/77 (1 spec.), 2211G-11/77 (1 spec.), 2315A-2/78 (1 spec.), 2318K-8/76 (9 spec.), 2422F-7/76 (1 spec.).
DESCRIPTION:
Length, to about 50 mm (previously reported to 40 mm); width, to about 4 mm (previously reported to 3 mm). Prostomium (Figure 31-38a) broad posteriorly, abruptly narrower in front of large eyes. Paragnaths arranged as follows (Figure 31-38b,c): Area I, few cones; Area II, curved rows; Area III, oval group; Area IV, curved rows; Area V, none; Area VI, groups of four or fewer cones; Areas VII and VIII, several irregular rows. Anterior notopodia each with two short, rounded to truncate notopodial ligules, and longer dorsal cirrus (Figure 31-38d); ligules becoming somewhat more conical posteriorly (Figure 31-38e). Setigerous and lower neuropodial ligules similar to notopodial ligules, ventral cirri not extending beyond tip of lower neuropodial ligule. Notosetae all homogomph spinigers anteriorly, accompanied by few homogomph falcigers (Figure 31-38f) having moderately long, curved, finely serrate blades in middle and posterior regions. Neurosetae including homogomph and heterogomph spinigers, and heterogomph falcigers (Figure 31-38g). Caudal cirri long, filamentous.
REMARKS: Due to the small size and poor condition of specimens, some confusion may still exist between N. falsa and N. riisei in BLM-OCS collections.

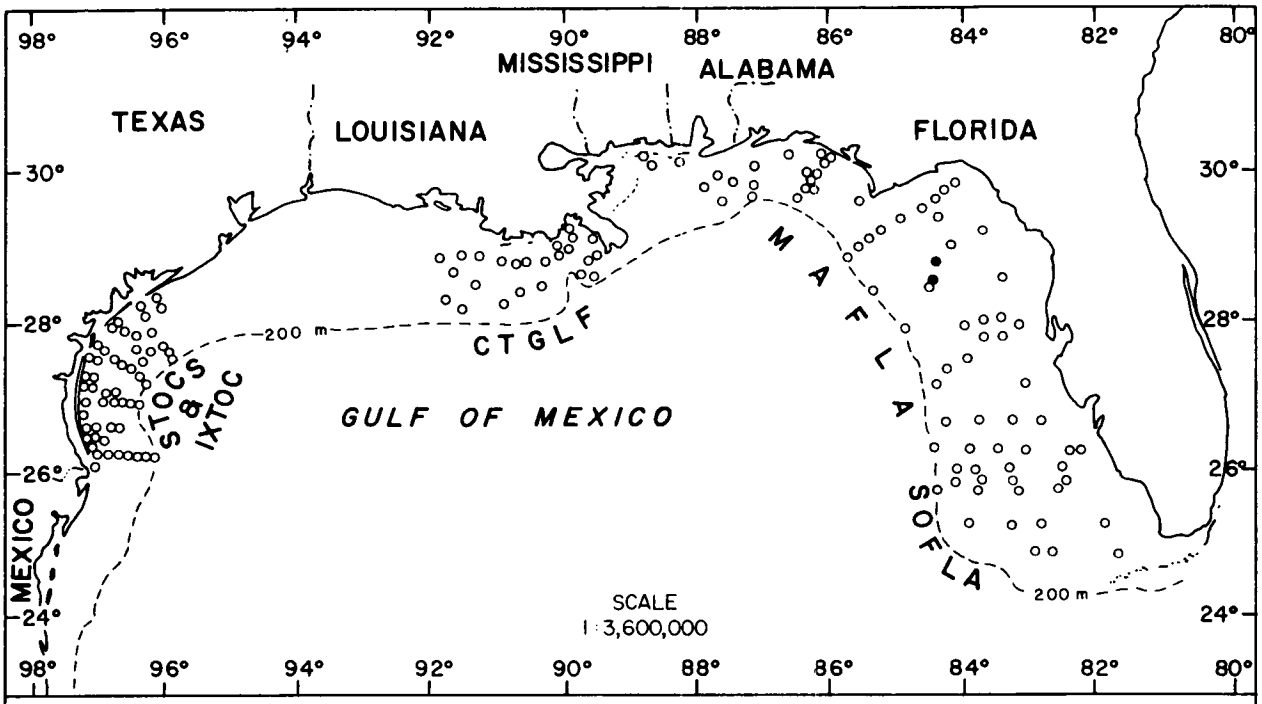

Figure 31-39. Distribution of Nereis pelagica on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

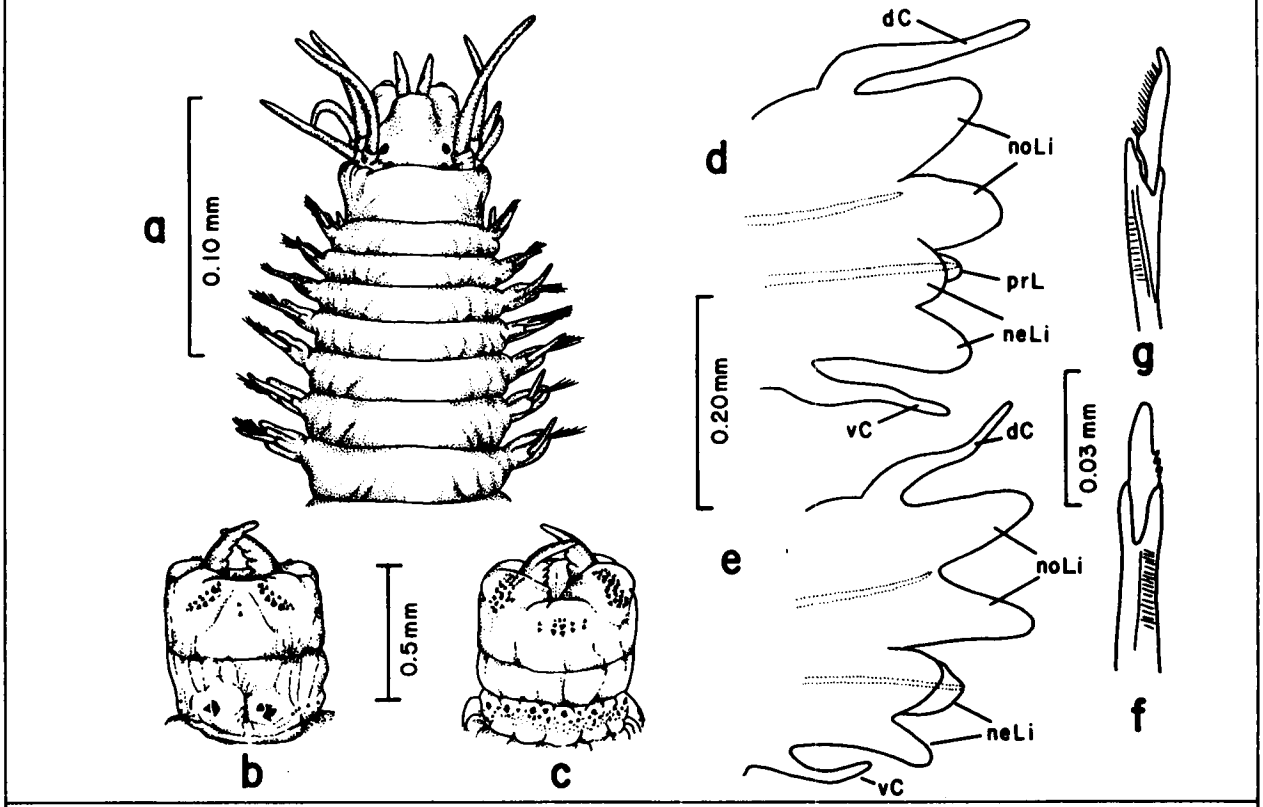

Figure 31-40. Nereis pelagica: a, anterior end, dorsal view; b, proboscis, dorsal view; c, same, ventral view; d, parapodium from anterior setiger, posterior view; e, parapodium from posterior setiger, posterior view; f, notopodial homogomph falciger from median parapodium; g, neuropodial heterogomph falciger (Figures a-c from Imajima 1972, fig. 48a-c).

PREVIOUSLY REPORTED HABITAT: Coarse sediments and on submerged objects; near shore to depths of 30 m or more.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several stations off central Florida (Figure 31-37); moderately shallow water, 19-43 m; coarse to fine-very fine sand, silty fine sand, clayey sandy silt.
DISTRIBUTION: Temperate and tropical waters of Atlantic and Caribbean, Gulf of Mexico.

Nereis pelagica Linnaeus, 1758
Figures 31-39, 40a-g

Nereis pelagica Linnaeus, 1758:654.
Nereis pelagica--Fauvel, 1923:336, fig. 130a-f.
Nereis pelagica--Hartman, 1940:225, pl. 35, fig. 52.
Nereis (Nereis) pelagica--Pettibone, 1963:179, fig. 42d-h.
Nereis (Nereis) pelagica--Day, 1967:315, fig. 14.7.f-j.
Nereis pelagica--Imajima, 1972:142, fig. 48a-m.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2315A-11/77 (1 spec., USNM 90102), 2316I-11/77 (1 spec.).
DESCRIPTION:
Length, to about 160 mm; width, to about 14 mm. Prostomium (Figure 31-40a) pyriform, with four eyes in rectangular arrangement posteriorly. Jaws dark. Paragnaths arranged as follows (Figure 31-40b,c): Area I, several in line; Area II, numerous cones in several rows; Area III, up to 15 in compact group; Area IV, four in characteristic diamond patterns; Areas VII and VIII, several rows of various-sized denticles. Anterior parapodia (Figure 31-40d) each with long dorsal cirrus extending well beyond short, bluntly conical noto- and neuropodial ligules, ventral cirrus as long as ligules. Notopodial ligules becoming somewhat more conical posteriorly (Figure 31-40e), especially on small specimens; ventral cirrus shorter than ligules. Notosetae all homogomph spinigers anteriorly, accompanied by several homogomph falcigers having short blades with several coarse teeth near the base (Figure 31-40f) on middle and posterior setigers. Blades of notopodial falcigers becoming smooth or nearly so in posterior region. Neurosetae including homogomph and heterogomph spinigers, and heterogomph falcigers (Figure 31-40g). Caudal cirri moderately long.
REMARKS: N. pelagica was confused with N. falsa in Gulf of Mexico BLM-OCS collections.
PREVIOUSLY REPORTED HABITAT: Fine to coarse sediments and on a variety of submerged objects; near shore to depths in excess of 200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two records off central Florida (Figure 31-39); 35-38 m; silty fine sand.
DISTRIBUTION: Cosmopolitan in boreal to tropical waters.

CHAPTER 32

Katherine M. Gilbert

FAMILY GLYCERIDAE Grube, 1850

INTRODUCTION

Glycerids are short to long (29-800 m), slender, cylindrical polychaetes. The body is tapered at both ends and widest at the internal placement of the jaw. Segments may be uni- or biannulate. The prostomium is slender and conical, usually twice as long as wide, with 3-21 often indistinct annulations. The basal annulation, which is fused with the peristomium, bears a pair of nuchal organs dorsolaterally and sometimes a pair of small eyes. Two pairs of small antennae arise from the distal annulation which may also possess a pair of minute eyes. The first two or three setigers are small and fused ventrally with the peristomium to form a mouth. The remaining setigers are generally either all uniramous (Hemipodus) or all biramous (Glycera, Glycerella). Parapodia possess 1-2 presetal and postsetal lobes. Notosetae, when present, are finely serrate simple capillaries. Neurosetae are compound, either falcigerous or spinigerous, with finely serrate blades. Dorsal cirri are small and either digitiform or globular. Ventral cirri are conical with a wide base. Branchiae, when present, may be retractile and are either branched, simple and elongate, or saccate. The pygidium is smooth and round, and bears a pair of slender caudal cirri. The pharynx is approximately one-fifth the body length. It is eversible and terminates with an armed jaw. The jaw consists of four large chitinous fangs, equidistantly arranged. Laterally, a support or aileron is attached to each fang. Distinctive papillae cover the proboscidial surface.

The superfamily Glycerea was established by Grube (1850) to include the two families Glyceridae and Goniadidae. Fauvel (1923), recognizing only generic distinctions, combined the two families into the single family Glyceridae. Hartman (1950) resurrected the superfamily Glycerea and supported the family distinctions. Pettibone (1982) followed this scheme. Day (1967) chose to align with Fauvel, citing similarity in structure and the small number of genera represented as a basis for combining the families. However, Day designated two subfamilies Glycerinae and Goniadinae.

Fauchald (1977a) placed the family Glyceridae in the order Phyllodocida, suborder Glyceriformia, which also includes the families Goniadidae and Lacydoniidae. The family Glyceridae is here considered to consist of three genera: Glycera Savigny, Hemipodus Quatrefrages and Glycerella Arwidsson. Only Glycera was represented in the Gulf of Mexico BLM-OCS collections. Of the 55 species described for Glycera, six are found on the northern Gulf of Mexico outer continental shelf, along with six additional species potentially new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

The number of acicula, the number of prostomial annulations, and the presence of either uni- or biramous parapodia have been used to

distinguish genera. Formerly, with the exception of the first two or three rudimentary parapodia, glycerids were thought to possess either all uniramous or all biramous parapodia. However, examination of specimens from the Gulf of Mexico and off North Carolina has revealed two species with uniramous parapodia on setigers 7-14, followed by biramous parapodia throughout the remaining body length (Figure 32-2b,c). One of these species is reported herein, designated Glycera sp. A. Due to this occurrence of uniramous parapodia anteriorly, parapodia from anterior (setigers 1-10), medial, and posterior regions should be examined when available, for changes in number of acicula and lobe structure.

Species are separated by characteristics of the pre- and postsetal lobes of the parapodia, proboscidial papillae, and ailerons (jaw supports). Similarity among species necessitates examination of all three characters. Parapodia possess either one or two presetal and postsetal lobes. Presetal lobes are generally paired, long and slender (Figure 32-8a), with conical or rounded tips. In a few species the superior lobe is either reduced (Figure 32-6a) or may disappear along the body length (Figure 32-4b). Postsetal lobes may be entire (Figure 32-2d), slightly notched or recessed (Figure 32-22c), or deeply cut (Figure 32-12d) with rounded, conical or truncate (Figure 32-20d) tips.

The proboscidial papillae may be inflated, pyriform or slender, and vary in length. They may possess rounded ridges completely encircling the papillae (Figure 32-2g) or only on the oral side (Figure 32-20h). Often a thin longitudinal groove occurs across some (Figure 32-10f) or all (Figure 32-18f) of the ridges. Sometimes longitudinal furrows formed by internal ligaments (Figure 32-24f) may be visible. The surface of the papillae is granular or smooth in appearance. All papillae possess a subdistal apical pore on the oral side, which may be surrounded by fine, stiff sensory cilia (Figure 32-22d,e). Unless otherwise stated, all proboscidial papillae are drawn from the oral view.

The ailerons are asymmetrical, consisting of two processes, either separate and divergent from the base (Figure 32-8g), or laterally united by a central chitinous region (Figure 32-18g) sometimes referred to as the "web." The central area may be thick and opaque or thin and translucent. Translucent areas also occur along the margins of the processes in juveniles or subadults. The outline of the entire aileron structure along with the forms of the parapodial lobes and proboscidial papillae should in most cases allow proper identification.

Another character useful in species identification is the branchiae. If present, branchiae may be retractile or nonretractile, and occur as branched (Figure 32-12b), long and slender (Figure 32-8a), or saccate (Figure 32-18a,c) forms. When the presence of retractile or saccate branchiae is suspected, the dorsal parapodial areas of the entire body length should be scanned for evidence of branchial pores or patches of loose epidermis.

If the proboscis is not fully extended, dissection is necessary to examine the papillae and ailerons. The characters of the papillae are most distinctive on the distal area of the proboscis, near the jaws. A short incision alongside and anterior to the jaws allows aileron examination and access to the papillae. The papillae may be more readily distinguished if detached from the underlying layer of longitudinal muscle. Clearing the papillae with a mounting medium, such as Hoyer's, reveals their structure. This method is also useful for examination of acicula and postsetal lobes. High magnification using oil immersion is necessary to examine the structure of the papillae.

BIOLOGICAL NOTES

Glycerids occur from intertidal to abyssal depths (Gardiner, 1976). They are found free-living on rocks and algal mats, or actively burrowing into sand or mud substrates (Fauchald and Jumars, 1979). Reportedly, the proboscis can be shot out with considerable force to aid burrowing activity (Pettibone, 1963). They are able to drill into the substrate by coiling their bodies, then rotating rapidly. Some burrowing species form semi-permanent burrow systems with several openings to the surface. Based on observations of Glycera alba by Ockelman and Vahl (1970), Fauchald and Jumars (1979) have suggested that the primary purpose of burrow construction is for prey capture. G. alba is sensitive to hydrostatic pressure changes within the burrows. Active prey such as motile polychaetes or crustaceans alter the pressure as they move across a surface opening or into the burrow system. The glycerid, detecting their presence, will move to a position in the burrow where it can grasp the prey with a rapid eversion of the proboscis. Glands situated at the base of each fang produce a toxin which is injected into the prey via a central canal opening at the tip of the fang. G. alba appears to prefer motile to sessile prey and will not attack tubicolous animals. These results are supported by observations of G. robusta (Ronan, 1977). Some glycerids, such as those in bathyal and abyssal depths, may also be detritivores. It is believed that direct uptake of dissolved organic matter occurs as a supplement, especially in nutrient-rich environments.

Glycerids are dioecious (Pettibone, 1963). Their bodies undergo varying degrees of epitoky. Internal atrophy occurs and the proboscis is lost. The body becomes filled with gametes which are extruded through the mouth. Adults die after spawning. Spawning occurs on the bottom as well as at the water surface, depending on the species. Trochophore larvae are produced. These appear to be bottom dwellers as they are seldom found in plankton collections.

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

Key to the Genera of Glyceridae from the Gulf of Mexico

1a. Parapodia all uniramous; setae as compound spinigers only. . . . . **Hemipodus***

1b. Parapodia biramous at least from medial setigers; setae including finely serrate capillaries and compound spinigers. . . . . **Glycera**, p. 32-4

*Not represented in BLM-OCS collections but known to occur from shallow, sandy areas of the Gulf of Mexico (Johnson, 1980; Vittor & Assoc., unpubl. reports).

Genus **Glycera** Savigny, 1818

TYPE SPECIES: Glycera unicornis Savigny, 1818.
REFERENCES:
Day, 1967:355.
Gardiner, 1976:161.
DIAGNOSIS: Prostomium conical, at least twice as long as wide with at least eight often indistinct annulations, distal annulation bearing four small biarticulate antennae. Parapodia biramous, at least from setiger 15, with 1-2 presetal and 1-2 postsetal lobes. Notosetae as finely serrate simple capillaries. Neurosetae as compound spinigers with finely serrate blades. Proboscidial surface covered with papillae. Proboscis distally bearing four large, curved, chitinous teeth, each with an asymmetrical chitinous support (aileron).

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

1a. Postsetal lobes entire (Figure 32-2d-f). 2

1b. Postsetal lobes bilobed, shallowly (Figure 32-8c) or deeply (Figure 32-12d) notched. 5

2a. Anterior 7-9 setigers uniramous (Figure 32-2b); superior presetal lobes of anterior parapodia greatly reduced or absent. . . . . **Glycera sp. A**, p. 32-6

2b. Anterior 2-3 setigers uniramous; superior presetal lobes of anterior parapodia well-developed. 3

3a. Superior presetal lobes absent from medial and posterior parapodia (Figure 32-4b,c). . . . . **Glycera sp. B**, p. 32-8

3b. Superior presetal lobes present throughout 4

4a. Distal margin between aileron processes concave (Figure 32-6e) . . . . . **Glycera papillosa**, p. 32-10

4b. Distal margin between aileron processes truncate or convex (as in Figure 32-18g) . . . . . **Glycera capitata***

5a. Branchiae non-retractile, elongate (Figure 32-8a). 6

5b. Branchiae retractile (Figure 32-12b,d), saccate (Figure 32-20c-f) or absent. 7

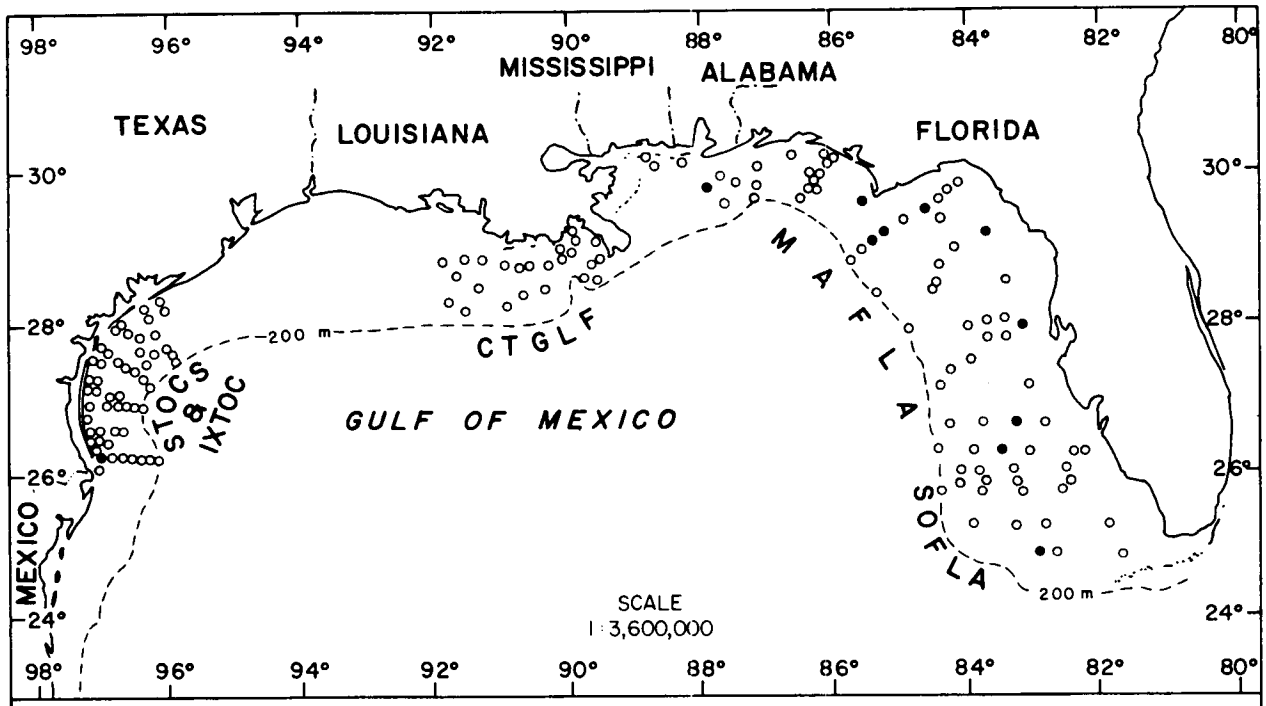

Figure 32-1. Distribution of Glycera sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

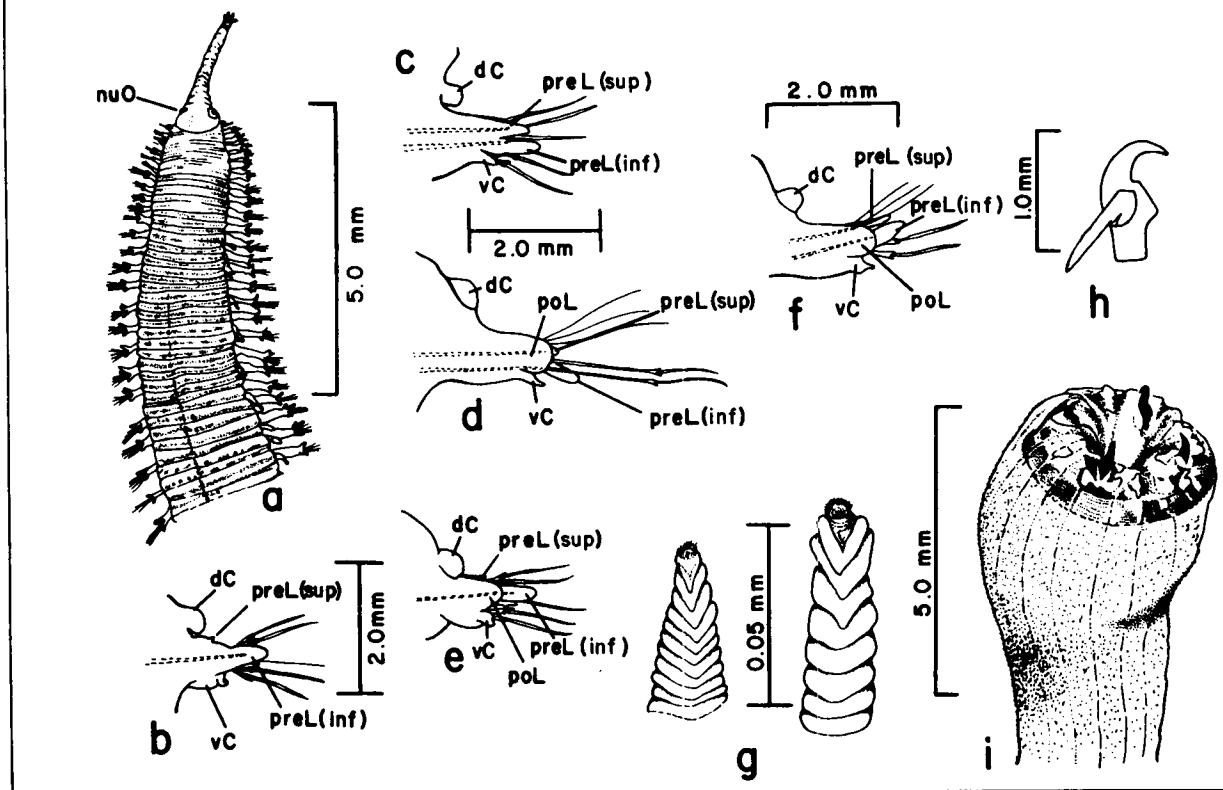

Figure 32-2. Glycera sp. A: a, anterior end; b, anterior parapodium from setiger 7, anterior view; c, medial parapodium anterior view; d, posterior parapodium, posterior view; e, anterior parapodium, posterior view; f, medial parapodium, posterior view; g, proboscidial papillae; h, fang with aileron; i, everted proboscis showing jaw structure.

6a. Each branchial parapodium with one dorsally placed branchia (Figure 32-8a). . . . . **.Glycera sphyrabrancha**, p. 32-13
6b. Each branchial parapodium with two branchiae, one dorsal and one ventral (Figure 32-10a) . . . . . **Glycera dibranchiata**, p. 32-13

7a. Aileron processes joined laterally (Figure 32-12g). 8
7b. Aileron processes widely divergent from base (Figure 32-22g). . 12

8a. Proboscidial papillae appearing smooth (Figure 32-4g,h) 9
8b. Proboscidial papillae with distinct ridges (Figure 32-16e). . . 10

9a. Postsetal lobes separated by a deep notch (Figure 32-12d). . . . . **.Glycera americana**, p. 32-15
9b. Postsetal lobes separated by a shallow recess (Figure 32-14c). . . . . **.Glycera sp. C**, p. 32-17

10a. Proboscidial papillae with completely encircling ridges (Figure 32-16e). . . . . **Glycera sp. D**, p. 32-17
10b. Proboscidial papillae with ridges on oral side only (Figure 32-20h). 11

11a. Oral side of proboscidial papillae undercut below ridges (Figure 32-18e). . . . . **Glycera sp. E**, p. 32-20
11b. Oral side of proboscidial papillae continuous to base (Figure 32-20h). . . . . **.Glycera robusta**, p. 32-22

12a. Proboscidial papillae short to moderate in length, often pyriform with 9-10 distinct ridges (Figure 32-22d,e); smooth inflated forms (Figure 32-22f) numerous . . . . . **Glycera abranchiata**, p. 32-24
12b. Proboscidial papillae long, slender, with 15-16 often indistinct ridges (Figure 32-24e,f); smooth inflated forms (Figure 32-24g) occasionally present . . . . . **Glycera sp. F**, p. 32-26

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

Glycera sp. A
Figures 32-1, 2a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4-11/80 (2 spec., USNM 89775), 28-11/80 (2 spec., USNM 89763); MAFLA 2207I-8/77 (1 spec., USNM 89765), 2207K-11/77 (1 spec., USNM 89766), 2209I-8/77 (1 spec.), 2318F-7/76 (1 spec., USNM 89771), 2318K-7/76 (1 spec.), 2318D-2/78 (1 spec., USNM 89767), 2419G-9/75 (4 spec., USNM 89770), 2422C-7/76 (1 spec., USNM 89772; 4 spec., USNM 89774), 2424J-7/76 (1 spec., USNM 89769), 2640A-6/75 (4 spec.), 2640G-6/76 (4 spec., USNM 89768), 2854D-8/77 (1 spec., USNM 89773); STOCS 4/IV-6 Sp/77 (2 spec., USNM 89762).
Supplementary Material:
Gulf of Mexico--off Alabama, COE Sta. 691-5, Nov. 1980, 30°05.42'N, 87°57.50'W, 16.8 m, sand (1 spec.).
North Carolina--Beaufort, Apr. 1965, 10 m, sand and broken shell, J. H. Day coll./ID. (20+ spec., USNM 51111).

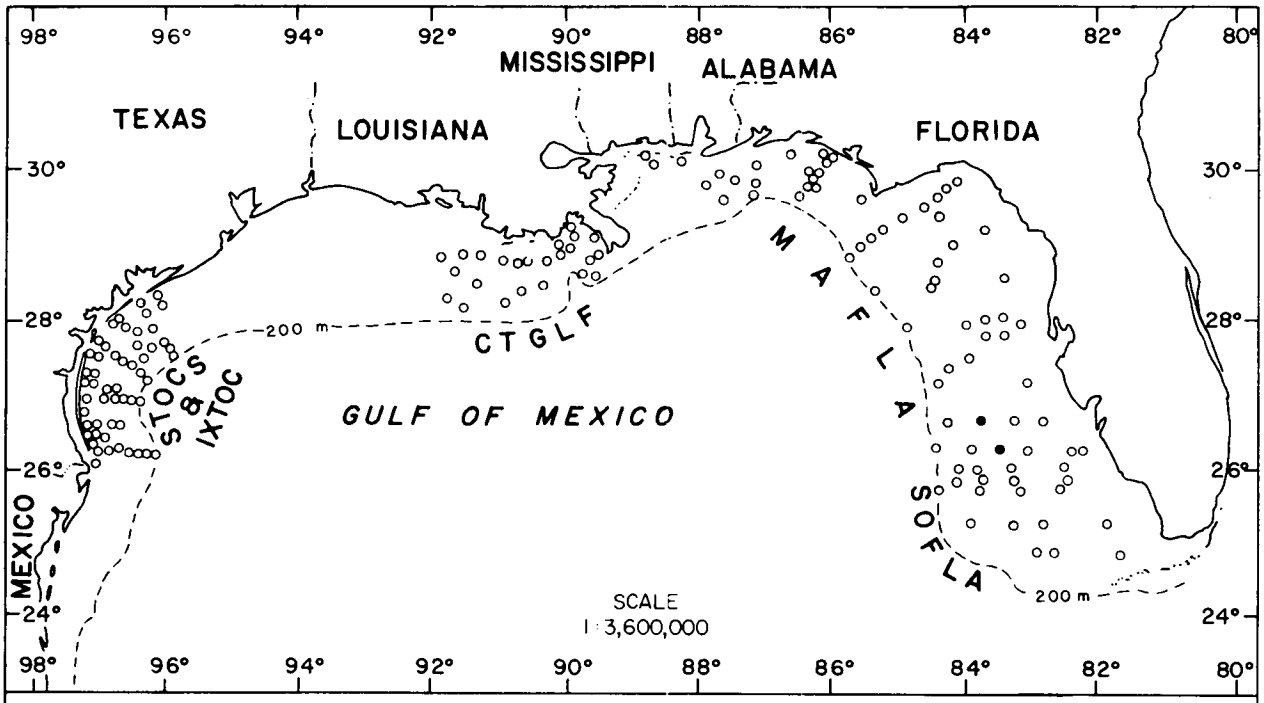

Figure 32-3. Distribution of Glycera sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

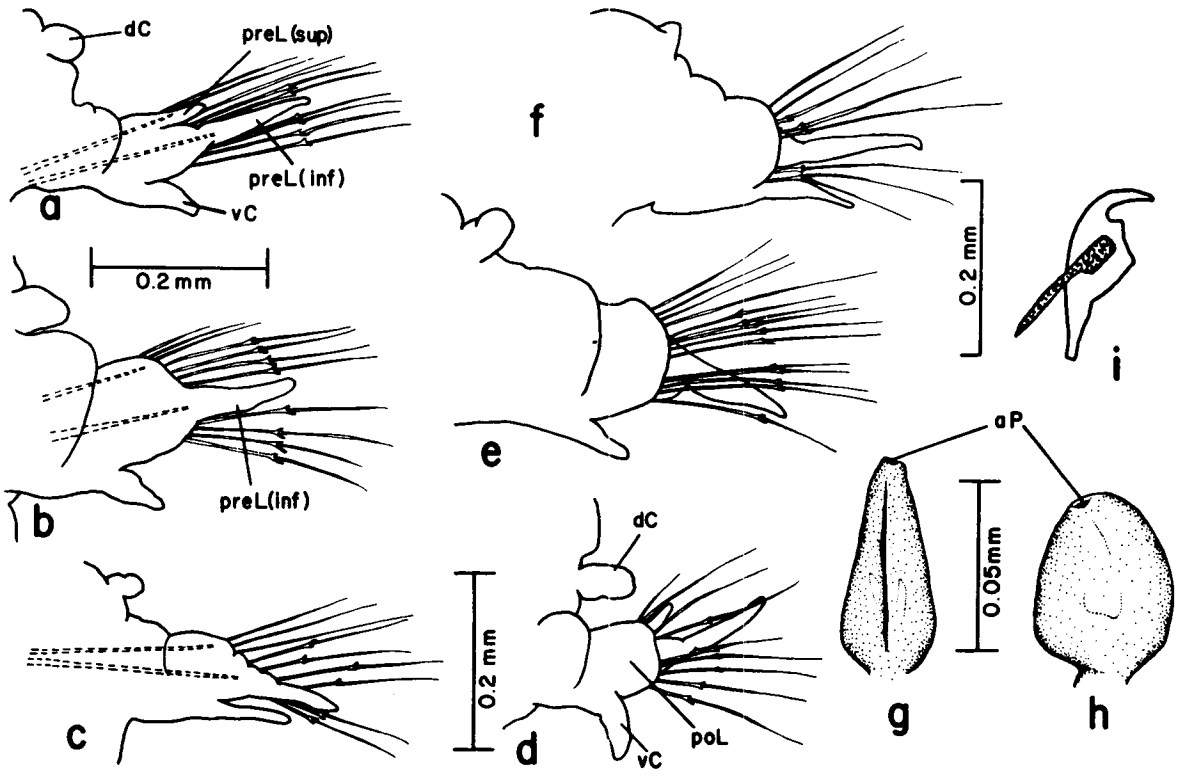

Figure 32-4. Glycera sp. B: a, anterior parapodium, anterior view; b, medial parapodium, anterior view; c, posterior parapodium, anterior view; d, anterior parapodium, posterior view; e, medial parapodium, posterior view; f, posterior parapodium, posterior view; g, proboscicial papilla, conical form; h, proboscidial papilla, inflated form; i, fang with aileron.

DESCRIPTION:
Length, to 32.5 mm; width, to 1 mm. Body long, slender; complete specimens with up to 106 segments (Figure 32-2a), all biannulate. Prostomium long, slender, with 15-19 sometimes indistinct annulations; antennae not equal in length. Eyes absent. Parapodia of first 7-14 setigers uniramous, notoacicula absent (Figure 32-2b); remaining setigers with biramous parapodia. Presetal lobes long with rounded tips; superior lobe more slender than inferior lobe, reduced or absent on anterior uniramous setigers (Figure 32-2b), shorter than inferior lobe on medial and posterior setigers (Figures 32-2c,d). Postsetal lobes entire, rounded throughout (Figure 32-2d-f). Dorsal cirri small, globular. Ventral cirri short with wide base. Branchiae absent. Proboscidial papillae conical to elongate with 9-10 ridges (Figure 32-2g); apical pore surrounded by stiff hairs (not always visible). Aileron asymmetrical (Figure 32-2h); outer process long, slender; inner process shorter, rounded.
REMARKS: All Gulf of Mexico specimens examined had uniramous parapodia on the first 7-9 setigers. North Carolina specimens possessed uniramous parapodia through setiger 14. It appears that there may be two similar species with anterior uniramous parapodia. The BLM-OCS specimens differ from Gardiner's (1976) figures of G. oxycephala in possessing a wider inner process on the aileron. The ailerons from the Mississippi Sound specimens are similar to Gardiner's figures but there are consistently only six ridges on the proboscidial organs. USNM specimen vials from N. Carolina contained both distinctive morphotypes. Only the kind found in the BLM-OCS collections has been described in this text. The form described herein agrees with Hartman's (1940, 1950) descriptions of G. oxycephala. Due to Ehler's incomplete description of G. oxycephala and the appearance of the two morphotypes, the identification of this species remains in doubt until type material is examined. Further examinations of anterior uniramous parapodia may justify the erection of a new genus of Glyceridae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous stations in northeastern Gulf and one off southern Texas (Figure 32-1); 19-153 m; coarse to very fine sand.

Glycera sp. B
Figures 32-3, 4a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 5D-7/81 (3 spec., USNM 89776); MAFLA 2104F-5/75 (1 spec., USNM 89764).
DESCRIPTION:
Length, to 44 mm; width, to 1 mm. Body long, slender; complete specimens with up to 117 segments, all biannulate. Prostomium with 19-21 annulations; antennae unequal, longer pair equal in length to two distalmost prostomial annulations. Eyes absent. Parapodia biramous from setiger 3 or 4; with two presetal lobes, superior lobe conical, short on anterior setigers (Figure 32-4a), becoming reduced then absent on medial and posterior setigers (Figures 32-4b,c); inferior lobe conical, long, slender. Postsetal lobes entire, rounded throughout (Figures 32-4d-f). Dorsal cirri small, digitiform. Ventral cirri long and conical, becoming more so posteriorly (Figure 32-4f). Branchiae absent. Proboscidial

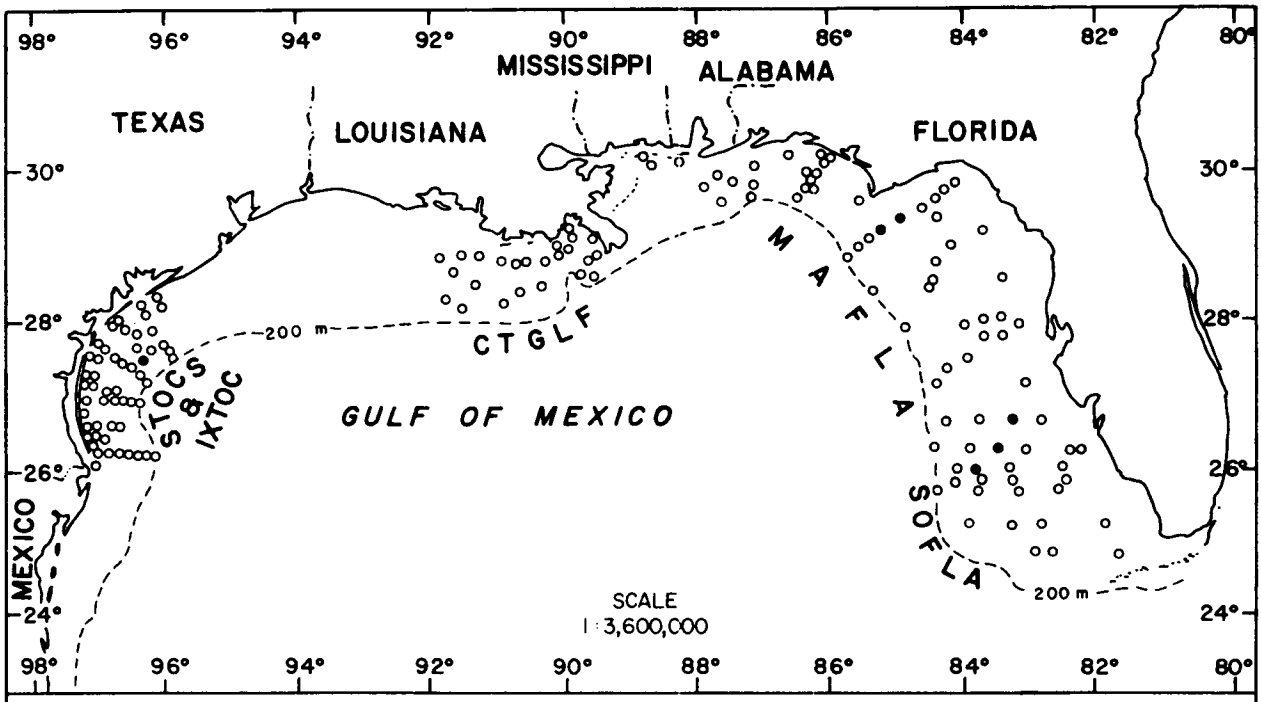

Figure 32-5. Distribution of Glycera papillosa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

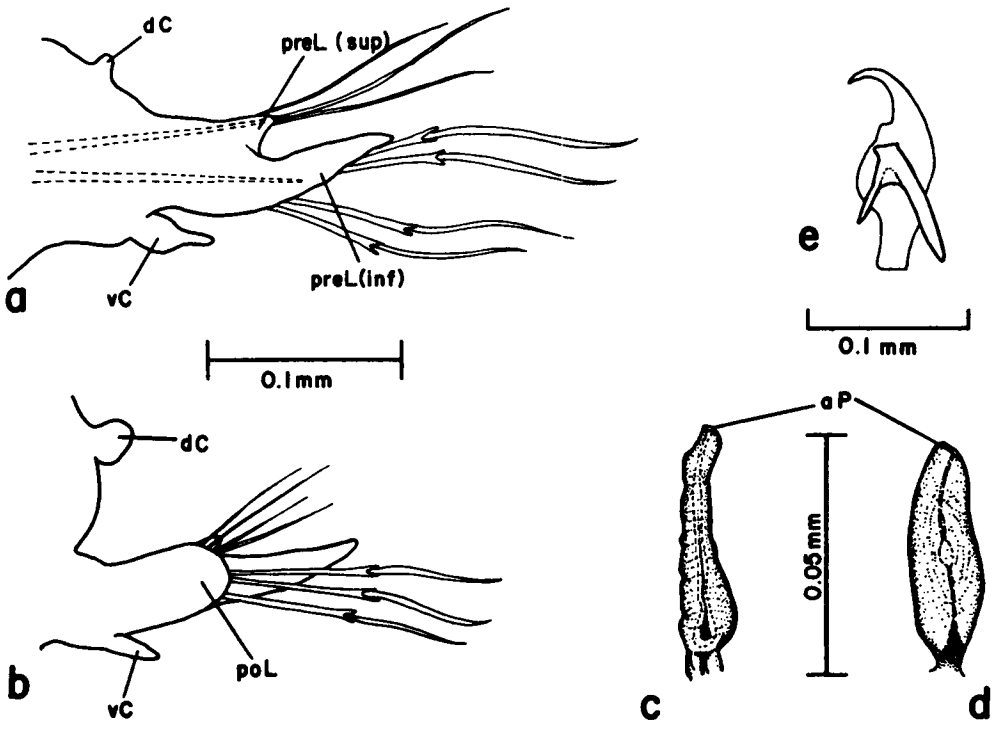

Figure 32-6. Glycera papillosa: a, anterior parapodium, anterior view; b, same, posterior view; c, d, proboscidial papillae; e, fang with aileron.

papillae smooth, bluntly conical (Figure 32-4g) to inflated (Figure 32-4h). Aileron asymmetrical, consisting of a long, slender outer process with adjacent inner process of same width, extending from the base for one-third the aileron length (Figure 32-4i).
REMARKS: Due to the absence of the superior presetal lobe on anterior setigers, and the entire margin of the postsetal lobes, this species has previously been reported as Glycera papillosa, which possesses greatly reduced superior presetal lobes and entire postsetal lobes. The smooth proboscidial organs are also similar to those of G. papillosa but the nearly rod-like structure of the ailerons and the elongate prostomium render Glycera sp. B quite distinctive. Similar aileron structure and anterior parapodial appearances occur for the genus Hemipodus, with which Glycera sp. B may also be confused.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations in eastern Gulf (Figure 32-3); 53-91 m; coarse sand.

Glycera papillosa Grube, 1857
Figures 32-5, 6a-e

Glycera papillosa--Day, 1967:358, fig. 16.1.j-l; 1973:45.
Glycera papillosa--Gardiner, 1976:163, fig. 18k,l.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4-11/80 (1 spec., USNM 89743), 12A-8/81 (5 spec., USNM 89744); MAFLA 2104B-5/75 (1 spec., USNM 89742), 2104F-5/75 (1 spec.), 2423I-7/76 (1 spec.), 2424H-7/76 (1 spec.); STOCS SB3-1 F/76 (2 spec.-gravid, USNM 89741).
Supplementary Material:
North Carolina--Beaufort, Apr. 1965, 130 m, sandy mud, J. H. Day coll./ID. (5 spec., USNM 51109).
DESCRIPTION:
Length, 18+ mm (previously reported to 30 mm); width, to 0.9 mm. Body small, slender; all specimens incomplete with up to 60 segments, all biannulate. Prostomium with 8-12 annulations; antennae equal, longer than combined length of two distal prostomial annulations. Eyes not observed. Presetal lobes unequal in length (Figure 32-6a); superior lobe short, inconspicuous anteriorly; inferior lobe conical, elongate. Postsetal lobes entire, rounded (Figure 32-6b). Dorsal cirri small. Ventral cirri conical, short. Branchiae absent. Proboscidial papillae with at least 30 often indistinct, closely set ridges; appearing smooth; slender to slightly expanded in width (Figure 32-6c,d). Aileron with two divergent prongs separated by shallow translucent area (Figure 32-6e), inner prong less than half the size of elongate outer prong.
REMARKS: Due to its small size, juveniles of other species were often reported as G. papillosa in the BLM-OCS collections. This species may be discerned by the reduced superior presetal lobes, the presence of smooth proboscidial papillae, and the concave distal margin of the aileron web.
PREVIOUSLY REPORTED HABITAT: Intertidal to 200 m; fine to coarse sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records throughout northern Gulf (Figure 32-5); 19-90 m; coarse to fine sand, silty fine sand.
DISTRIBUTION: South Africa, North Carolina, Gulf of Mexico, Peru, Chile.

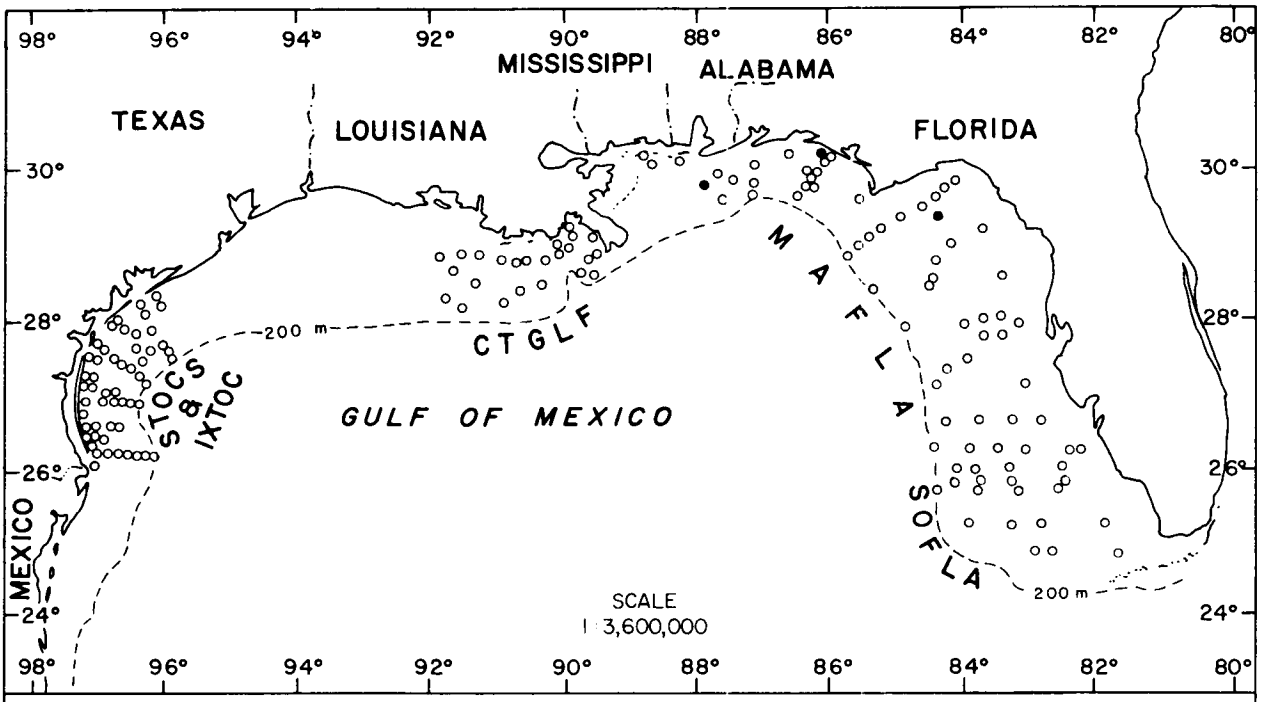

Figure 32-7. Distribution of Glycera sphyrabrancha on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

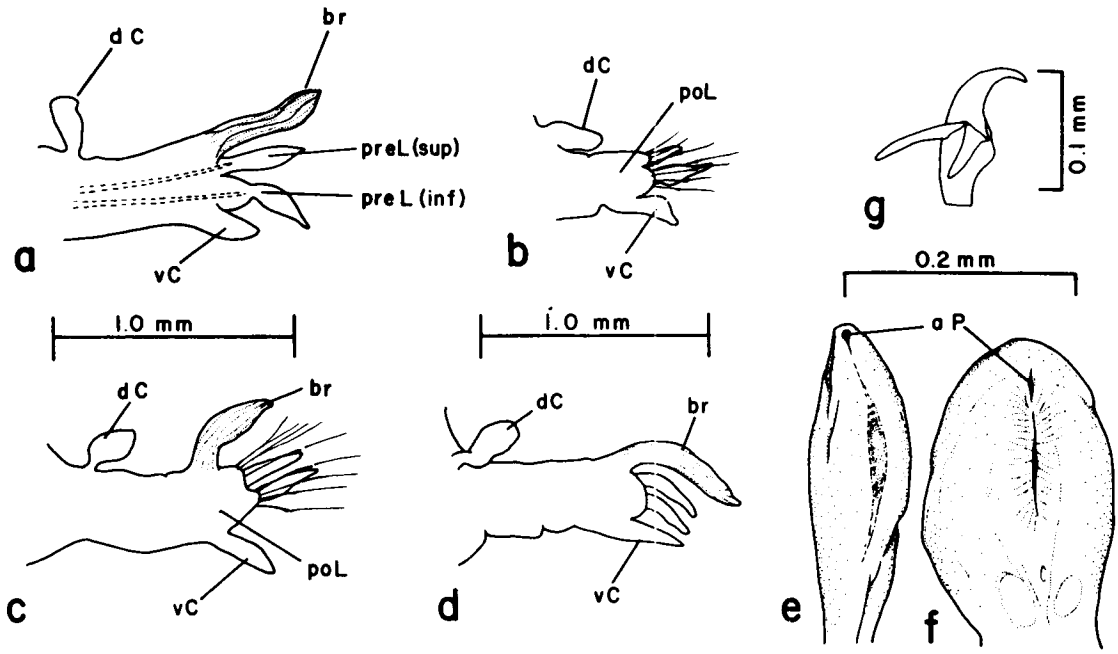

Figure 32-8. Glycera sphyrabrancha: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, posterior parapodium, posterior view; e, proboscidial papilla, slender form; f, proboscidial papilla, inflated form; g, fang with aileron.

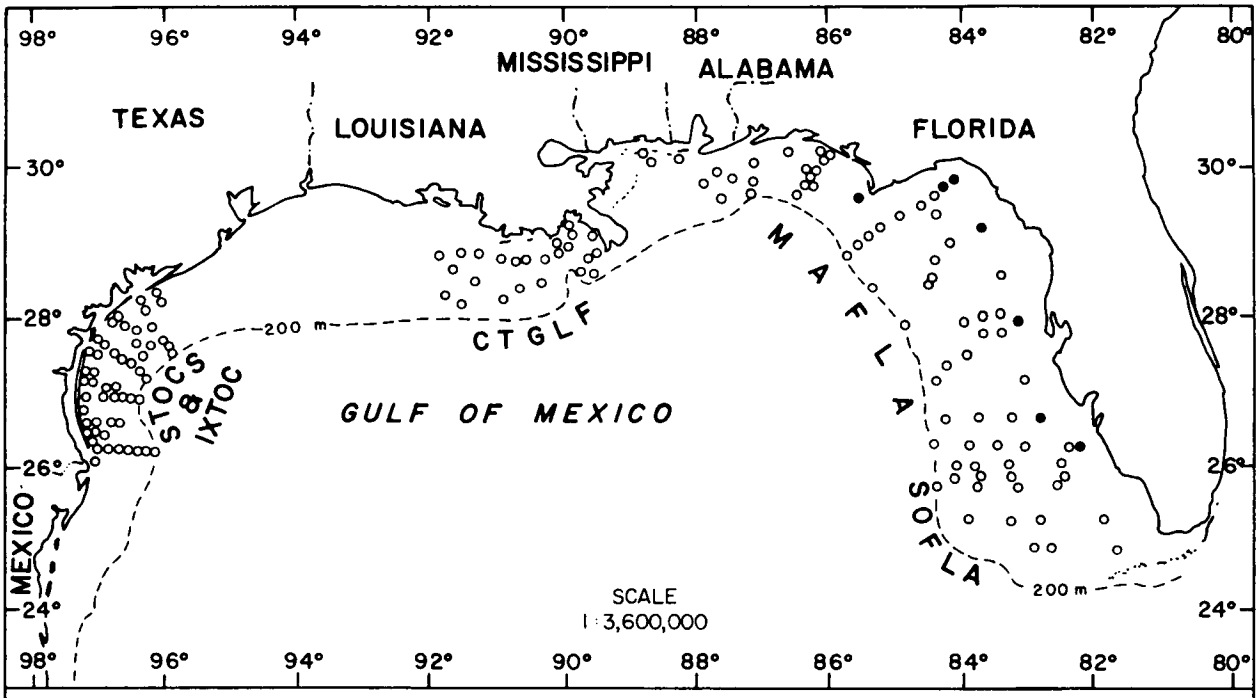

Figure 32-9. Distribution of Glycera dibranchiata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

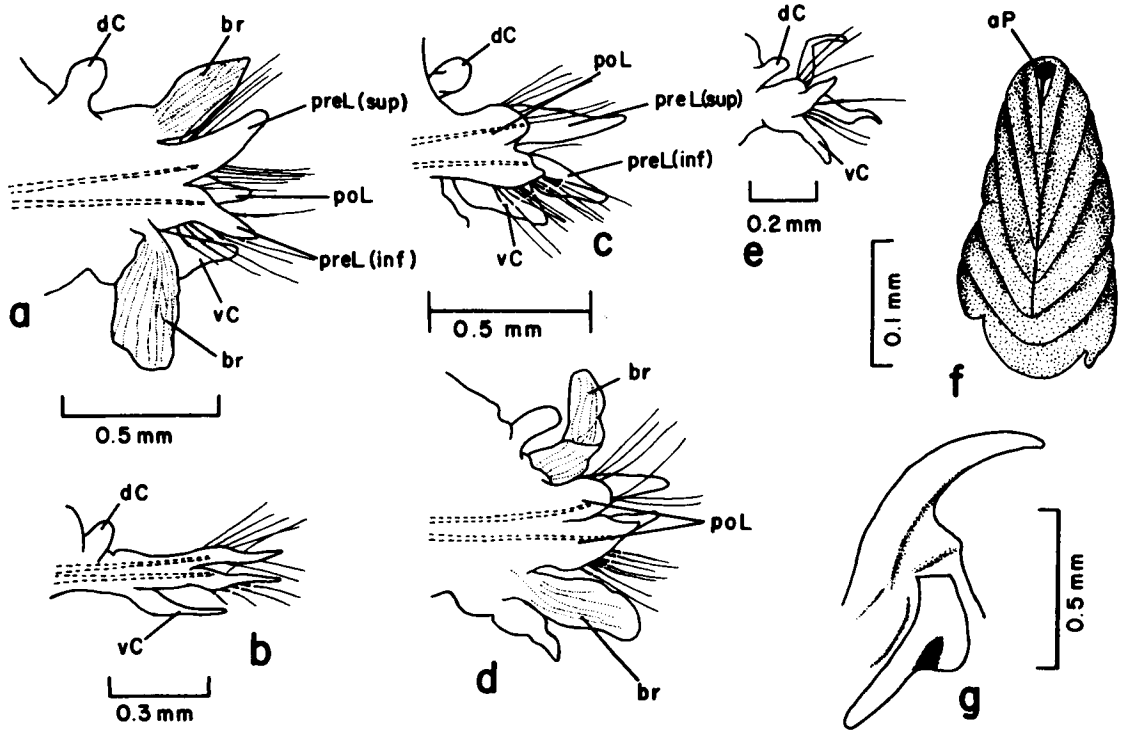

Figure 32-10. Glycera dibranchiata: a, medial parapodium, anterior view; b, posterior parapodium, anterior view; c, anterior parapodium, posterior view; d, medial parapodium, posterior view; e, posterior parapodium, posterior view; f, proboscidial papilla; g, fang with aileron.

Glycera sphyrabrancha Schmarda, 1861
Figures 32-7, 8a-g

Glycera sphyrabrancha--Augener, 1925:29, fig. 1.
Glycera asymmetrica--Day, 1973:47, fig. 6d-g.
Glycera sphyrabrancha--Gardiner, 1976:162, fig. 18b-g.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2528B-6/75 (1 spec.), 2528E-8/77 (1 spec.), 2640-7/76 (1 spec.), 2853E-8/77 (1 spec., USNM 89761).
DESCRIPTION:
Length, 56+ mm (previously reported to 79 mm); width, to 4.5 mm (previously reported to 5 mm). Body long, slender; all specimens incomplete with up to 115 segments, all biannulate. Prostomium with 15 annulations; antennae equal in length. Eyes not observed. Presetal lobes long, slender, similar to each other in length (Figure 32-8a). Postsetal lobes short, rounded, slightly separate along most of body length (Figure 32-8b,c), fused on medial and posterior segments (Figure 32-8d). Dorsal cirri digitiform with basal constriction. Ventral cirri long, conical, extending beyond postsetal lobes. Dorsal and ventral cirri similar in size (Figure 32-8b). Branchiae nonretractile, somewhat translucent, variously inflated (Figure 32-8a); situated dorsally on parapodia beginning on setigers 29-30. Proboscidial organs smooth, slender (Figure 32-8e) to inflated (Figure 32-8f). Aileron deeply forked with unequal processes (Figure 32-8g); outer process long, slender, with narrow base and bulge along inner margin near base; inner process one-half to two-thirds length of outer process, conical with broad base.
PREVIOUSLY REPORTED HABITAT: 15-20 m; coarse sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations in northeastern Gulf; (Figure 32-7); 35-37 m; coarse to medium sand.
DISTRIBUTION: North Carolina to West Indies, Gulf of Mexico, ?Indo-Pacific.

Glycera dibranchiata Ehlers, 1868
Figures 32-9, 10a-g

Glycera dibranchiata--Hartman, 1950:70, pl. 10, figs. 9, 10.
Glycera dibranchiata--Pettibone, 1963:215, fig. 55a-h.
Glycera dibranchiata--Gardiner, 1976:162, fig. 18a.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2F-11/80 (1 spec., USNM 89746); MAFLA 2101K-2/78 (1 spec., USNM 89745), 2207I-11/77 (1 spec.), 2207H-2/78 (1 juv.), 2318E-2/78 (1 spec.), 2419G-9/75 (1 juv.), 2420H-7/76 (1 spec.), 2854D-8/77 (1 spec.).
DESCRIPTION:
Length, 73+ mm (previously reported to 370+ mm); width, to 2 mm (previously reported to 11 mm). Body long, robust, cylindrical; all specimens incomplete with up to 148 segments, all biannulate. Prostomium with 14-15 annulations; antennal pairs unequal. Eyes not observed. Presetal lobes equal, conical, elongate, similar throughout (Figure 32-10a,b). Postsetal lobes paired, shorter, unequal (Figure 32-10c-e);

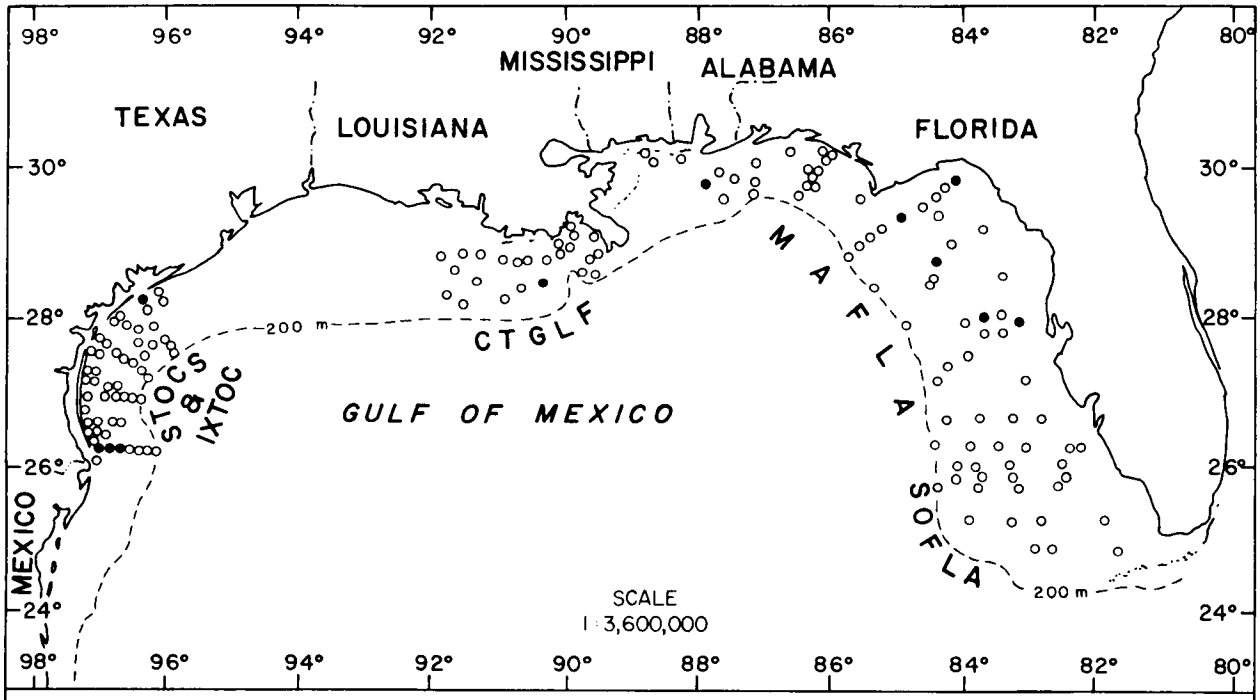

Figure 32-11. Distribution of Glycera americana on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

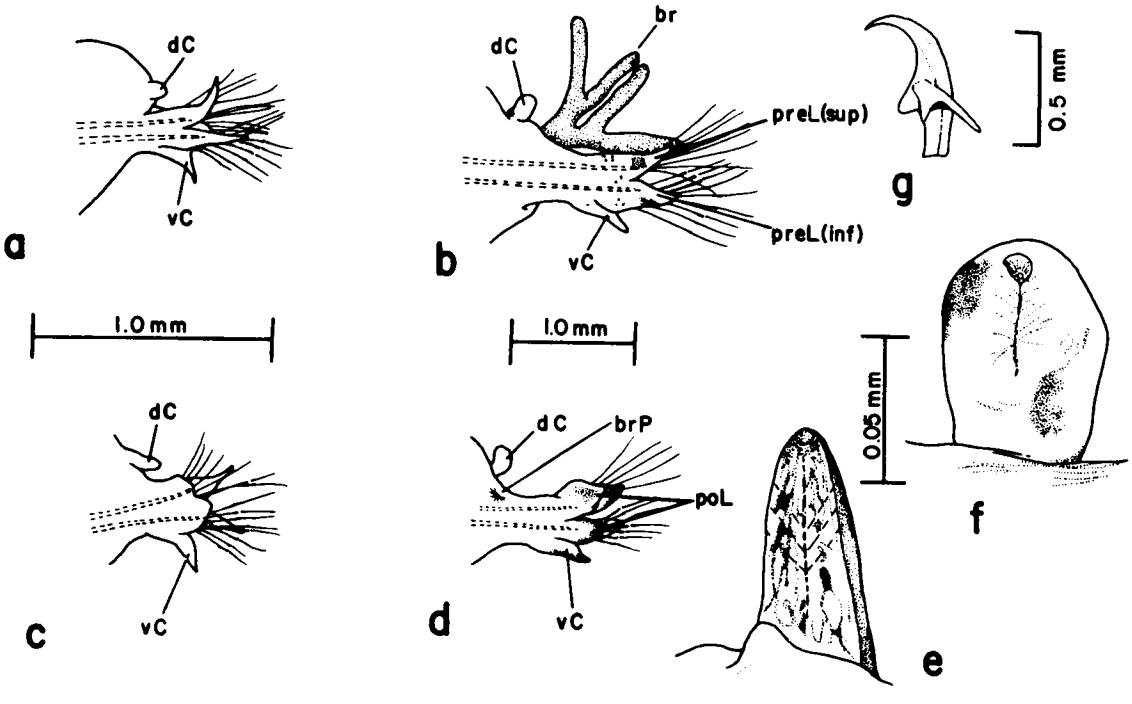

Figure 32-12. Glycera americana: a, anterior parapodium, anterior view; b, medial parapodium, anterior view; c, anterior parapodium, posterior view; d, medial parapodium, posterior view; e, proboscidial papilla, slender form; f, same, inflated form; g, fang with aileron.

superior lobe rounded; inferior lobe long, conical, becoming more elongate posteriorly. Dorsal cirri small, digitiform. Ventral cirri long, conical. Branchiae paired, nonretractile, somewhat transparent, variously inflated (Figure 32-10a,d); beginning on setigers 15-20, continuing to within 15 setigers of posterior end. Proboscidial organs with six ridges and a midrib extending across second through fourth ridges (Figure 32-10f). Aileron asymmetrical (Figure 32-10g), outer process long, slender; inner process rounded, one-half length of outer process.

REMARKS: The shape of the proboscidial organs and the distinctness of the ridges show a slight variation along the length of the proboscis. Distally the shape is more pyriform and the ridges more obvious. Hartman (1968) noted that eyes may be present on the basal annulation of the prostomium. On juvenile specimens (25 mm in length) the branchiae appear as a small boss.

PREVIOUSLY REPORTED HABITAT: Low water to 660 m; swift currents; muds mixed with sand, gravel and organic matter.

GULF OF MEXICO BLM-OCS OCCURRENCE: Off Cape San Blas and along west coast of Florida (Figure 32-9); shallow water, 11-42 m; medium to very fine sand.

DISTRIBUTION: West Atlantic from Gulf of St. Lawrence to Florida, Gulf of Mexico, central California to Mexico.

Glycera americana Leidy, 1855
Figures 32-11, 12a-g

Glycera americana--Hartman, 1950:73.
Glycera americana--Pettibone, 1963:213, fig. 54a-e.
Glycera americana--Gardiner, 1976:161, fig. 17 1-n.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207E-2/78 (1 spec.), 2210I-7/76 (1 spec., USNM 89740), 2316D-8/76 (1 spec.), 2316K-8/76 (1 spec.), 2419C-8/77 (1 spec.), 2423I-7/76 (1 spec.), 2640I-6/75 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 89733); STOCS 4/I-1 S/76 (1 spec., USNM 89737), 4/I-2 S/76 (1 spec., USNM 89738), 4/I-4 F/76 (1 spec., USNM 89739), 4/I-5 F/76 (1 spec., USNM 89735), 4/IV-6 W/76 (1 spec., USNM 89736), 5/IV-4 Sp/76 (1 spec.); IXTOC S52-4 11/79 (1 spec., USNM 89734).

DESCRIPTION:
Length, 150+ mm (previously reported to 350+ mm); width, to 4.5 mm (previously reported to 15 mm). Body long, cylindrical, slender; larger specimens stout anteriorly; all specimens incomplete with up to 253 setigers, all biannulate. Prostomium with 9-11 annulations; antennae equal in length. Eyes not observed. Presetal lobes long, conical, equal in length, separated by deep notch (Figure 32-12a,b). Postsetal lobes similar to each other in shape, conical, shorter than presetal lobes, separated by small notch on anterior segments (Figure 32-12c), deeply cut on medial to posterior segments (Figure 32-12d). Dorsal cirri small, globular. Ventral cirri long, conical. Branchiae retractile, transparent, branched with 2-6 filaments; longest filaments equal in length to presetal lobes (Figure 32-12b). Branchial pore situated posterodorsally on parapodia below dorsal cirri (Figure 32-12d). Branchiae present from setigers 9-11 through most of the rest of the body.

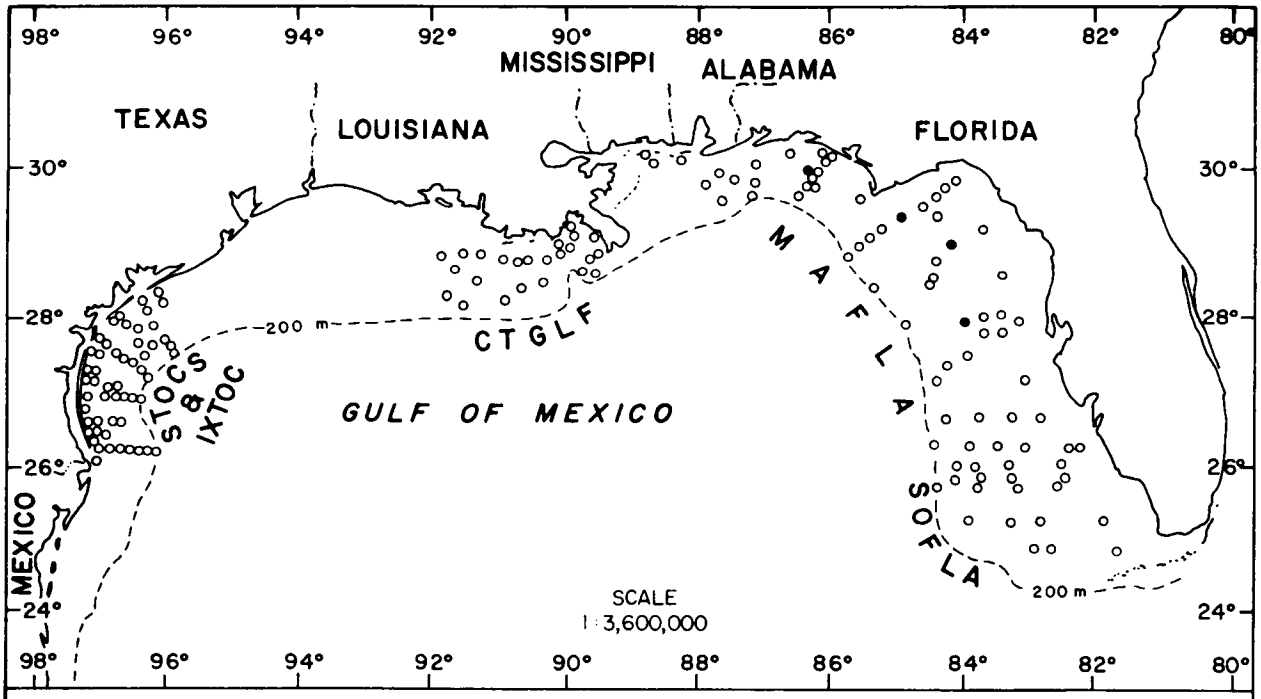

Figure 32-13. Distribution of Glycera sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

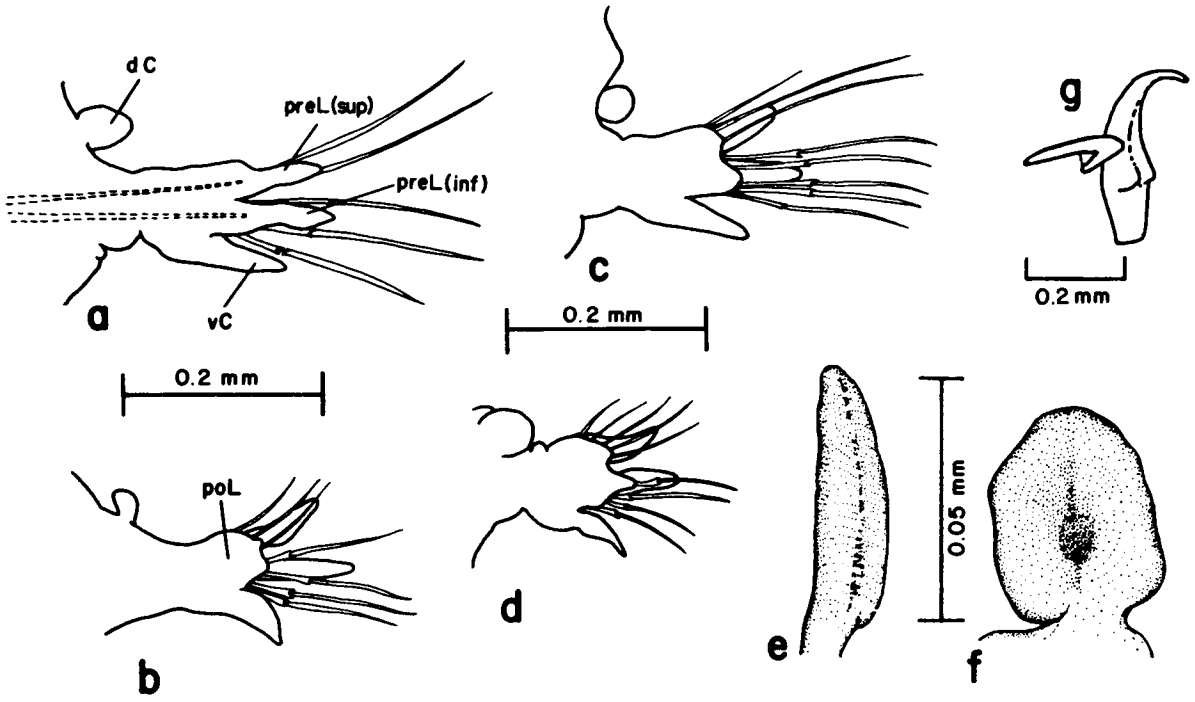

Figure 32-14. Glycera sp. C: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, posterior parapodium, posterior view; e, proboscidial papilla, slender form; f, proboscidial papilla, inflated form; g, fang with aileron.

Proboscidial papillae mostly smooth but occasionally with two transverse ridges (Figure 32-12e); shapes varying from bluntly conical to inflated (Figure 32-12f). Aileron asymmetrical (Figure 32-12g), outer process long and slender, inner process widely conical, short, diverging away and down from outer process.
REMARKS: Branchiae were filled with conspicuous red blood cells (Figure 32-12b).
PREVIOUSLY REPORTED HABITAT: Intertidal to 530 m; sand mixed with mud, gravel and shell particles, especially common in sheltered areas.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records throughout northern Gulf (Figure 32-11); 10-37 m; medium to very fine sand, silty fine to very fine sand, silty clayey sand, clayey sand.
DISTRIBUTION: Both sides of North and South America, Gulf of Mexico, New Zealand, southern Australia.

Glycera sp. C
Figures 32-13, 14a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211H-7/76 (1 spec., USNM 89777), 2211D-2/78 (1 spec., USNM 89778), 2317A-7/76 (1 spec., USNM 89779), 2423F-7/76 (1 spec.), 2532C-6/76 (1 spec., USNM 89780).
DESCRIPTION:
Length, 9.5+ mm; width, to 1.5 mm. Body small, slender; all specimens incomplete with up to 49 setigers, all biannulate. Prostomium with 12 annulations; antennae equal in length. Eyes not observed. Presetal lobes long, slender, with rounded tips (Figure 32-14a), similar throughout body length. Postsetal lobes rounded, barely distinctive anteriorly (Figure 32-14b), separated by shallow recess on medial setigers (Figure 32-14c). Inferior postsetal lobe slightly elongate and conical on posterior setigers (Figure 32-14d). Dorsal cirri small, globular. Ventral cirri long, slender, conical. Proboscidial papillae appearing smooth or with at least 30 fine ridges; slender (Figure 32-14e) to inflated (Figure 32-14f). Aileron processes connected by thin, chitinous area (Figure 32-14g); outer process long, slender; inner process slender, less than half length of outer process.
REMARKS: This species differs from Glycera capitata primarily in possessing two postsetal lobes, and in having 12 prostomial annulations as opposed to nine.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few stations from northwestern coast of Florida (Figure 32-13); 10-52 m; coarse sand, silty fine to very fine sand, silty clayey sand, clayey sand.

Glycera sp. D
Figures 32-15, 16a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207J-8/77 (2 spec.), 2207K-8/77 (2 spec., USNM 89781), 2960K-8/77 (1 spec., USNM 89782).

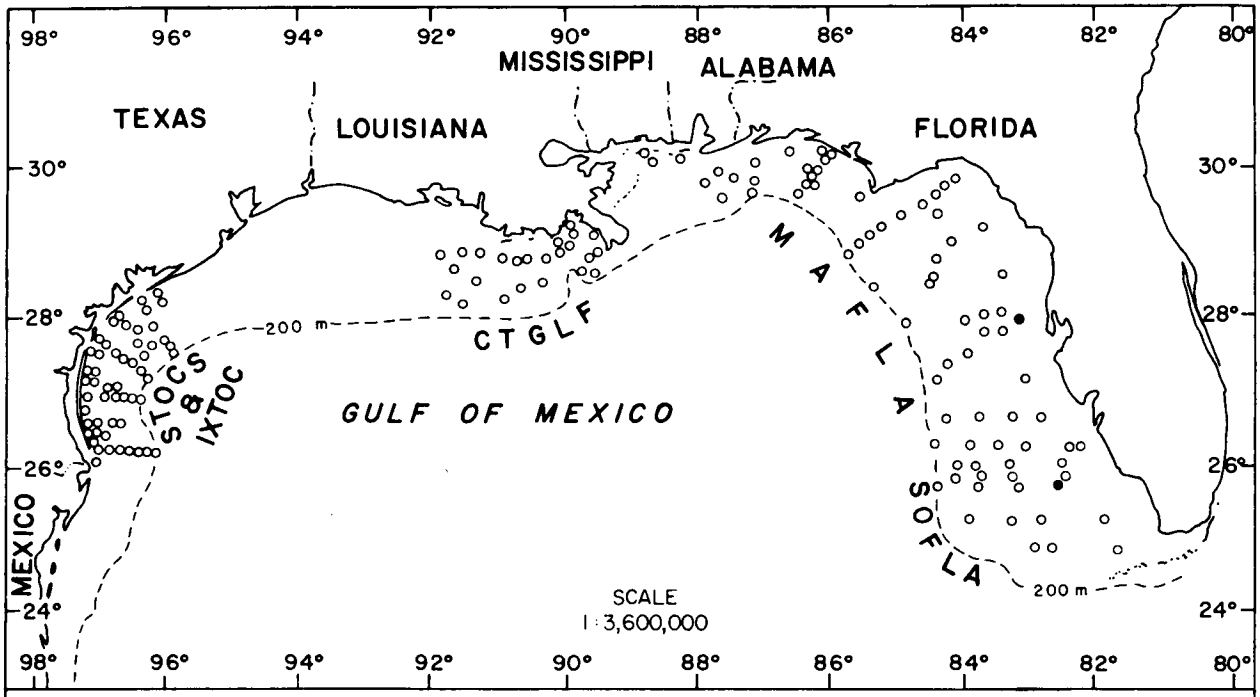

Figure 32-15. Distribution of Glycera sp. D on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

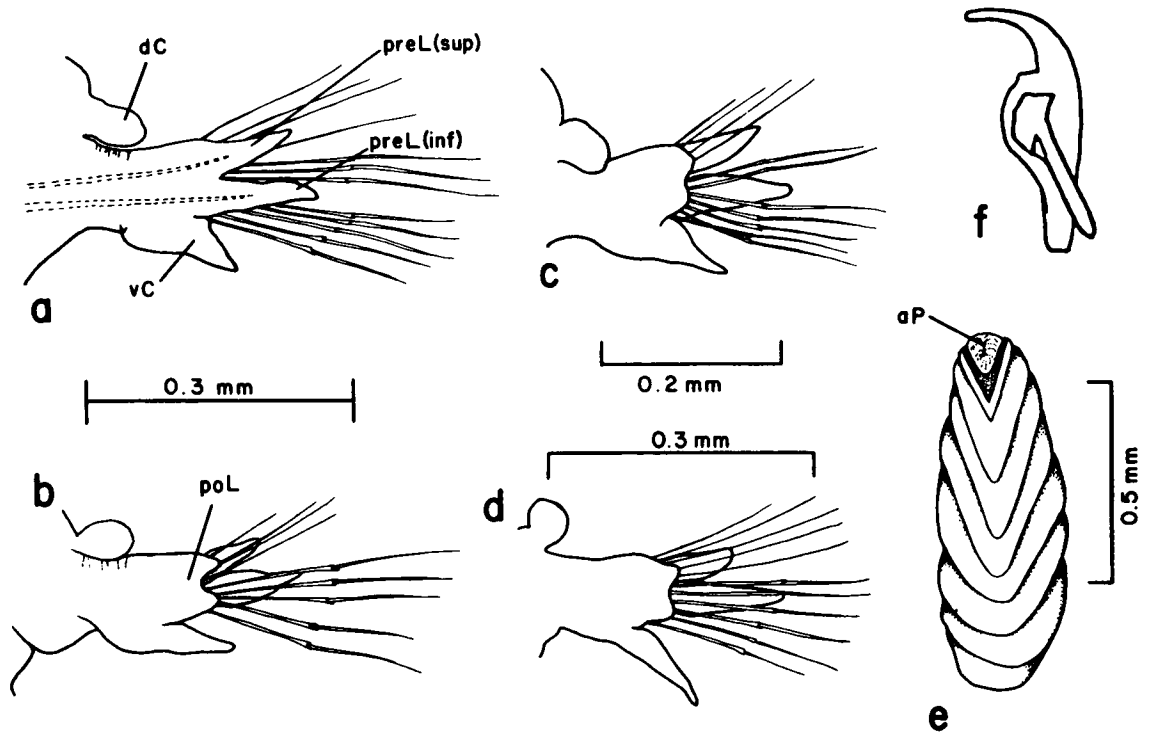

Figure 32-16. Glycera sp. D: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, posterior parapodium, posterior view; e, proboscidial papilla; f, fang with aileron.

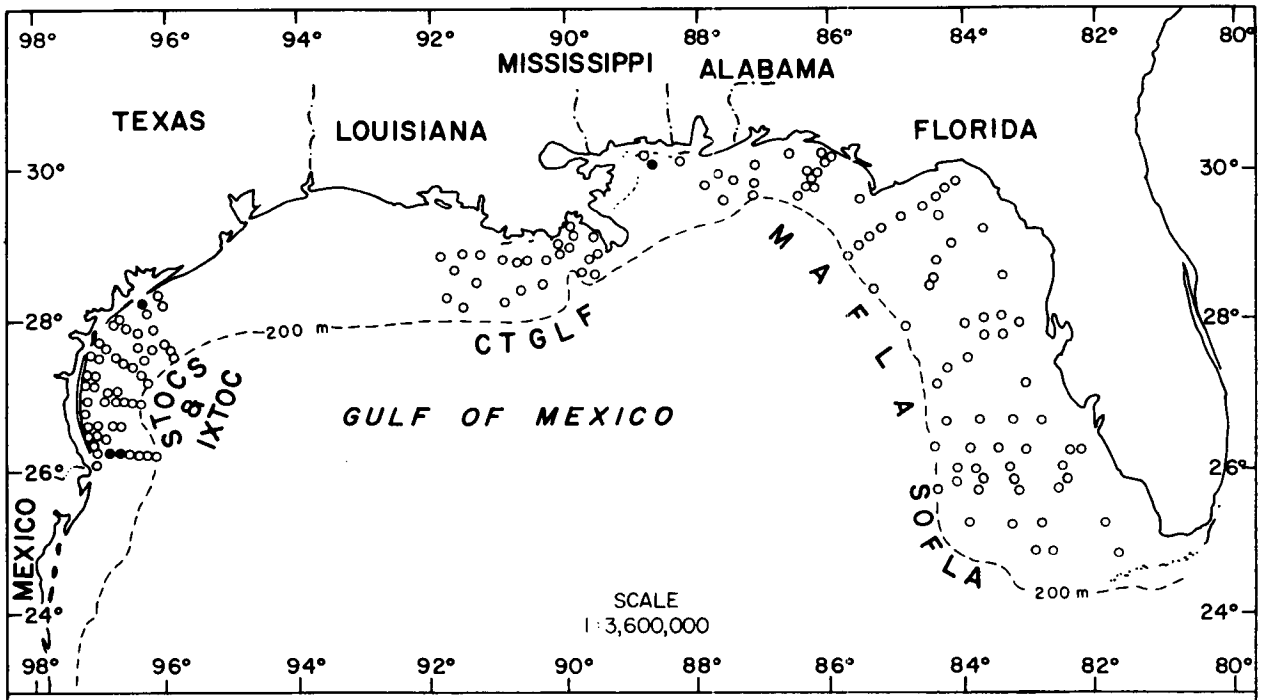

Figure 32-17. Distribution of Glycera sp. E on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

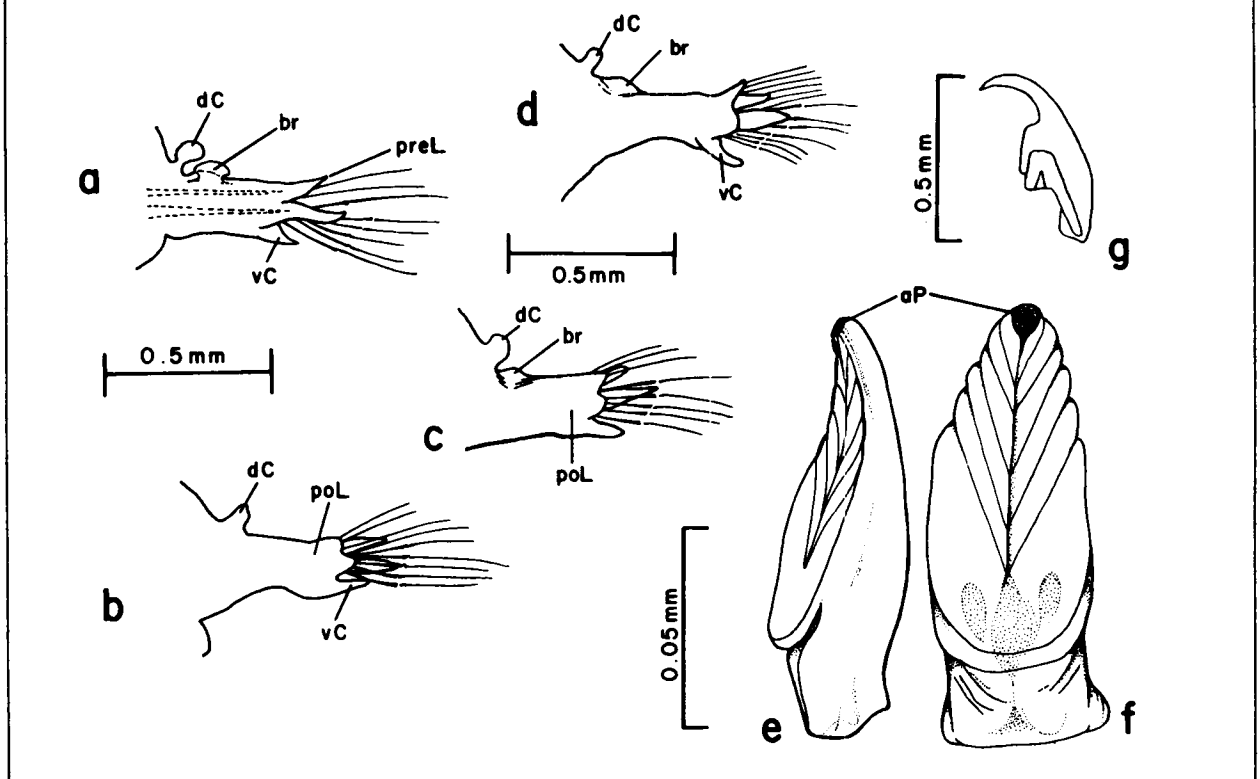

Figure 32-18. Glycera sp. E: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, posterior parapodium, posterior view; e, proboscidial papilla, lateral view; f, same, oral view; g, fang with aileron.

DESCRIPTION:
Length, to 290 mm; width, to 1.1 mm. Body long, slender; complete specimens with up to 131 segments, all biannulate. Prostomium with ten annulations, antennae equal in length. Eyes not observed. Presetal lobes long, slender, with rounded tips; superior lobe at least two-thirds as long as inferior lobe (Figure 32-16a,b). Postsetal lobes short, similar in shape (Figure 32-16b-d), separated by shallow recess; superior lobe slightly longer than inferior lobe through medial setigers (Figure 32-16c,d). Dorsal cirri small, globular. Ventral cirri long, conical with a wide base. Branchiae absent. Proboscidial papillae pyriform, with 7-8 ridges (Figure 32-16e). Aileron asymmetrical (Figure 32-16f); outer process long, slender; inner process one-third length of outer process, rounded to slightly conical.
REMARKS: This species may be the same as Gardiner's (1976:165, fig. 18o-g) Glycera sp. It differs from the latter in possessing 7-8 ridges on the proboscidial organs instead of 9-10 proboscidial ridges. According to Gardiner (1976; pers. comm.), there may be some variability in this character. Also there is a slight difference in the shapes of the ailerons which may be accounted for by differences in illustrative techniques.
GULF OF MEXICO BLM-OCS OCCURRENCE: West coast of Florida (Figure 32-15); 19-27 m; fine to very fine sand.

Glycera sp. E
Figures 32-17, 18a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2638K-11/77 (1 spec., USNM 89783); STOCS 4/I-3 S/76 (1 spec., USNM 89784), 4/I-3 F/76 (1 spec., USNM 89785), 1/IV-2 W/76 (1 spec., USNM 89786), 5/IV-4 Sp/76 (1 spec., USNM 89787; 1 spec., USNM 89791), 5/IV-6 Sp/76 (1 juv., USNM 89790), 5/IV-3 S/76 (1 spec., USNM 89789), 5/IV-1 F/76 (1 spec., USNM 89788).
Supplementary Material:
Gulf of Mexico--Mobile Bay, IEC Sta. 732 004-004, June 1980, 30°09.5'N, 88°03.7'W, 14 m, sand (1 spec.).
DESCRIPTION:
Length, 101+ mm; width, to 8 mm. Body long, robust; all specimens incomplete with up to 155 setigers, all biannulate. Prostomium short, stout, with ten annulations; antennae unequal. Eyes not observed. Presetal lobes long, slender, conical (Figure 32-18a); superior lobe at least two-thirds as long as inferior lobe. Postsetal lobes short; superior lobe rounded, shorter than inferior lobe anteriorly (Figure 32-18b), becoming conical and extending beyond inferior lobe on medial and posterior segments (Figures 32-18c,d). Inferior postsetal lobes rounded, similar throughout. Dorsal cirri small, globular. Ventral cirri conical, somewhat elongate. Branchiae nonretractile, saccate, expandable; distinct from setigers 20-24, situated on dorsal surface of parapodia next to body wall. Proboscidial papillae with plaque on oral surface extending two-thirds length from apical pore, undercut basally (Figure 32-18e); five ridges with midrib situated on the plaque (Figure 32-18f). Aileron asymmetrical (Figure 32-18g); outer process long, slender; inner process one-third length of outer process, angled outward with straight distal margin.

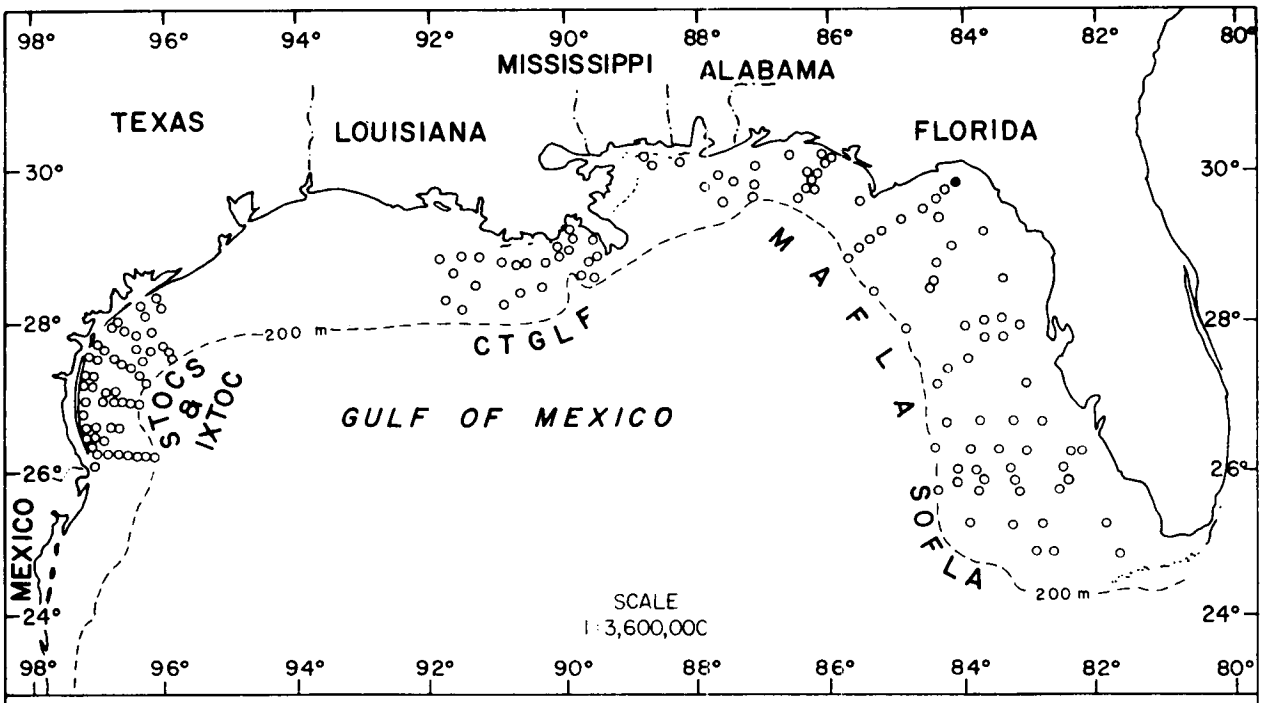

Figure 32-19. Distribution of Glycera robusta on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

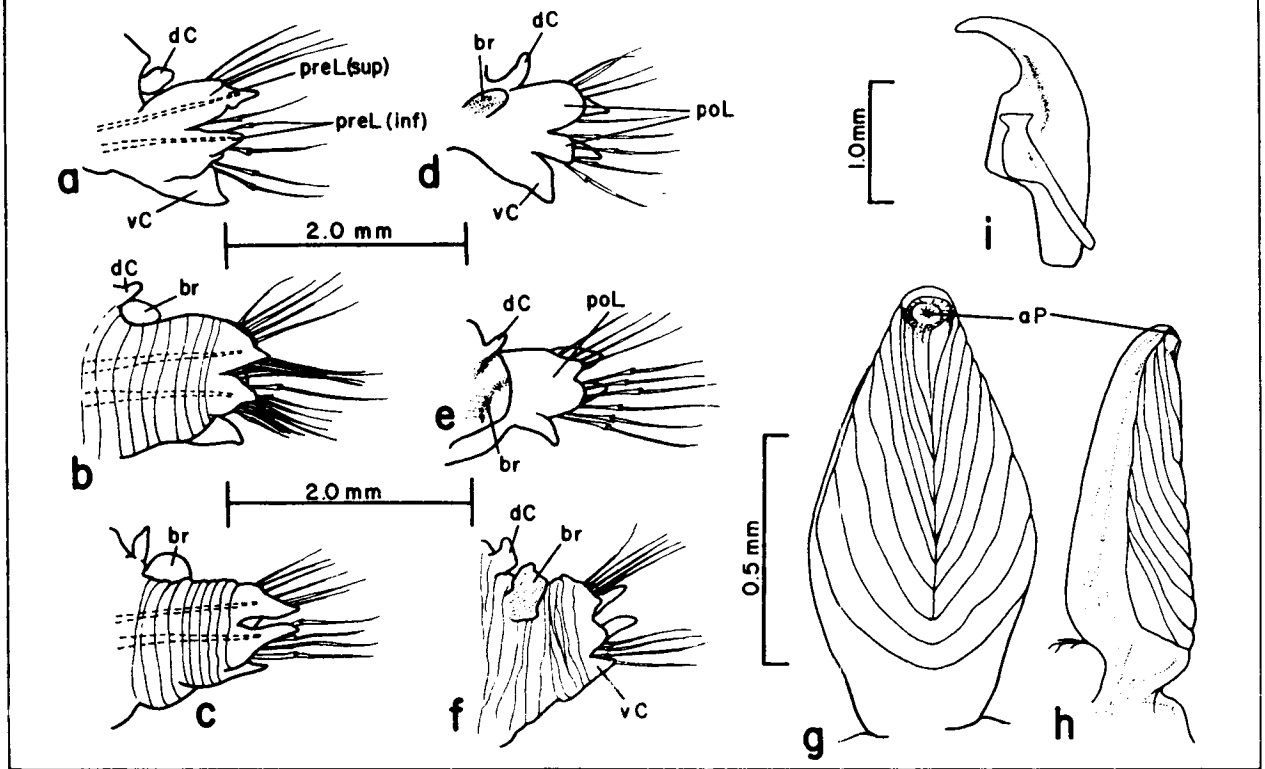

Figure 32-20. Glycera robusta: a, anterior parapodium, anterior view; b, medial parapodium, anterior view; c, posterior parapodium, anterior view; d, anterior parapodium, posterior view; e, medial parapodium, posterior view; f, posterior parapodium, posterior view; g, proboscidial papilla, oral view; h, same, lateral view; i, fang with aileron.

REMARKS: Branchiae are not apparent on young specimens. Juveniles possess a thin, translucent central area between the aileron processes; this area is completely darkened and thick on adults. The parapodia of this species closely resemble those of G. robusta, with a slight difference in the length of the superior presetal lobe. The main distinction between these two species is the appearance of the proboscidial organs. Glycera sp. E possesses five ridges with a basal undercut on the oral proboscidial surface (Figure 32-18e,f), whereas G. robusta has 9-10 ridges and the oral surface is continuous to the base of the organ (Figure 32-20g,h).
GULF OF MEXICO BLM-OCS OCCURRENCE: Few records off southern Texas and one off Mississippi (Figure 32-17); 10-37 m; clayey sand to silty clayey sand.

Glycera robusta Ehlers, 1868
Figures 32-19, 20a-i

Glycera robusta--Hartman, 1950:69, pl. 10, figs. 7, 8.
Glycera robusta--Pettibone, 1963:218, fig. 54f,g.
Glycera robusta--Gardiner, 1976:162, fig. 17o.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2419H-11/77 (1 spec.).
Supplementary Material:
Gulf of Mexico--Mobile Bay, Alabama, Mobil Oil Sta. 054-A, July 1978, 30°15'13"N, 88°03'08"W, 5 m, silty clay (1 spec.).
DECRIPTION:
Length, 57 mm (previously reported to 800 mm); width, 8 mm (previously reported to 22 mm). Body long, robust; nearly complete with 240 setigers, all biannulate. Prostomium with ten annulations; minute pair of eyes present on distal annulation. Antennae equal in length. Presetal lobes conical, moderate in length, separated by deep notch (Figure 32-20a-c). Postsetal lobes short, separated by deep notch anteriorly (Figure 32-20d), with round superior lobe and truncate inferior lobe; separated by shallow notch on medial and posterior segments, with lobes becoming conical (Figure 32-20e,f). Dorsal cirri small, digitiform. Ventral cirri triangular to conical, similar in size to postsetal lobes. Branchiae nonretractile, saccate, expandable, situated on posterodorsal surface of parapodia beginning on setigers 13-19 (Figure 32-20d-f). Proboscidial papillae pyriform with 9-10 ridges on oral surface (Figure 32-20g,h). Aileron asymmetrical with constriction above base (Figure 32-20i); outer process long, slender; inner process rounded, one-third length of outer process.
REMARKS: Branchiae are not always apparent on young specimens.
PREVIOUSLY REPORTED HABITAT: Intertidal to 380 m; mud, sand, and sand mixed with gravel and shell.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off northwestern Florida (Figure 32-19); 10 m; medium-fine sand.
DISTRIBUTION: Gulf of St. Lawrence to Florida, Gulf of Mexico, central California to Mexico.

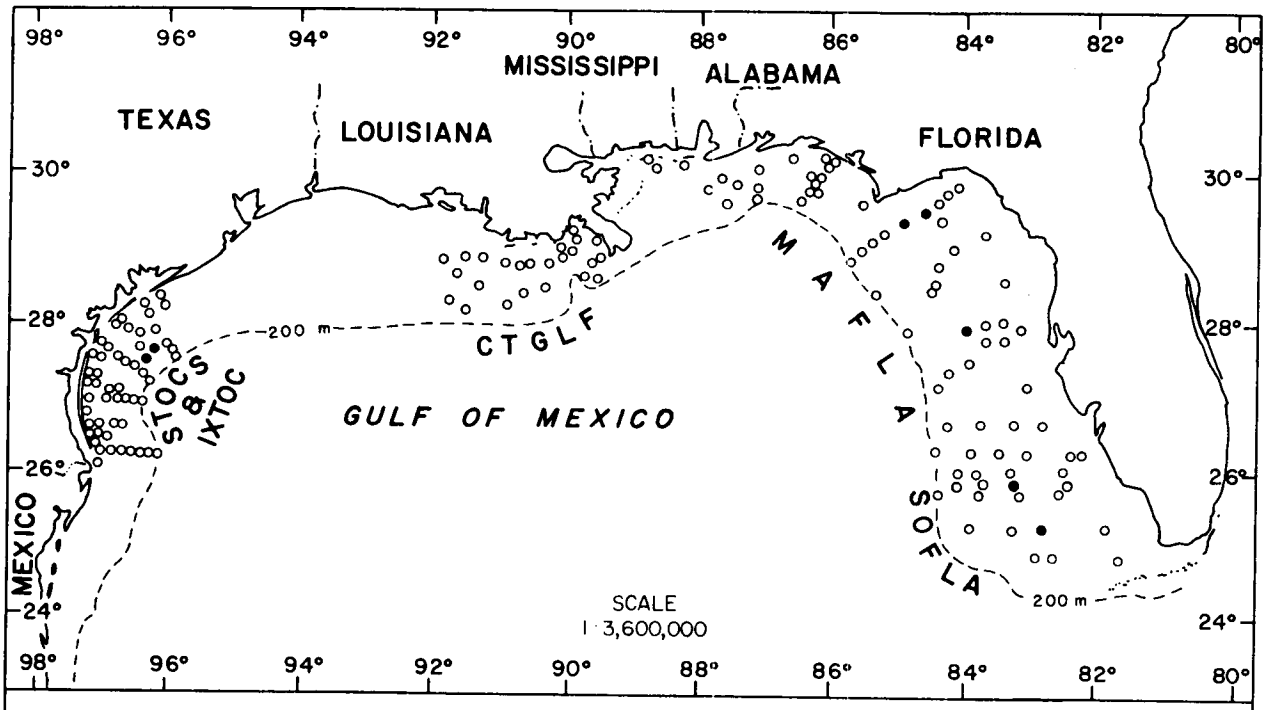

Figure 32-21. Distribution of Glycera abranchiata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

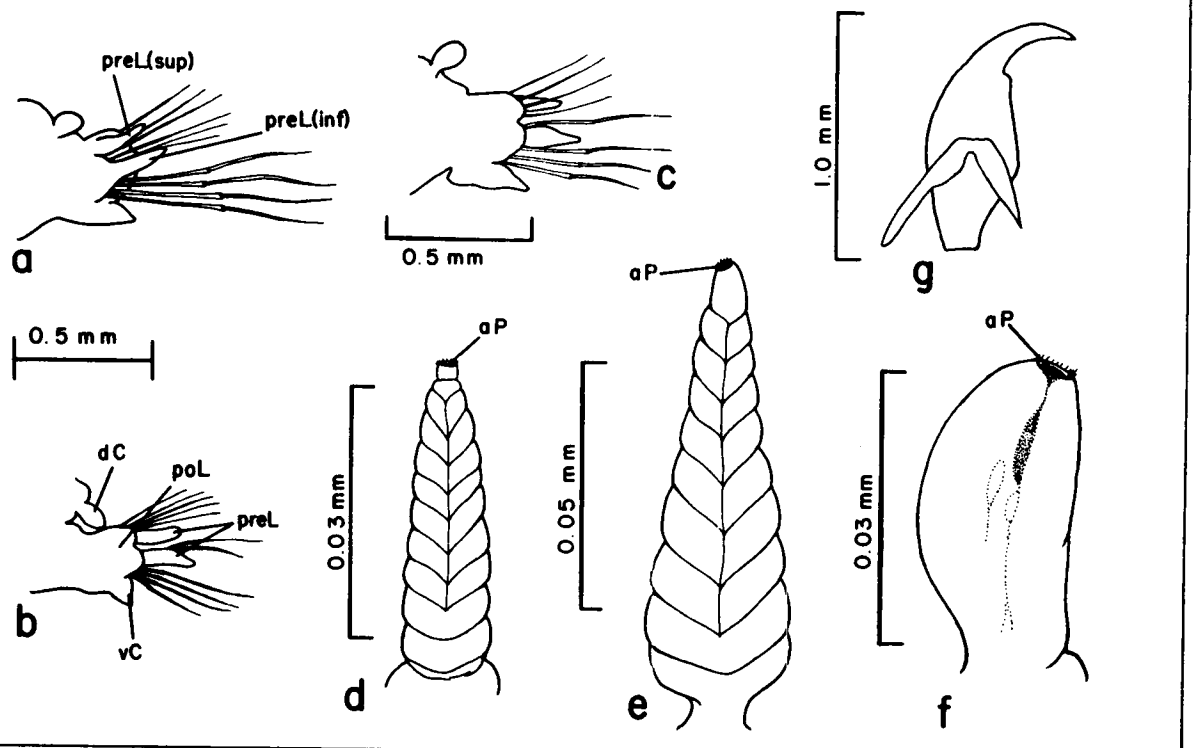

Figure 32-22. Glycera abranchiata: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, proboscidial papilla, slencer form; e, same, pyriform form; f, same, inflated form; g, fang with aileron.

Glycera abranchiata Treadwell, 1901
Figures 32-21, 22a-g

Glycera abranchiata--Treadwell, 1901:200, fig. 47.
Glycera abranchiata--Jones, 1962:183, figs. 41-48.
Glycera tesselata--Gardiner, 1976:166, fig. 19a,b [in part; not Grube, 1863].

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16C-8/81 (1 spec., USNM 89754), 22D-11/80 (1 spec., USNM 89753); MAFLA 2211C-7/76 (2 spec., USNM 89752), 2211D-7/76 (2 spec.), 2422I-7/76 (1 spec.), 2423-7/76 (1 spec.); STOCS SB1-3 3/76 (1 spec., USNM 89747), SB3-4 4/76 (1 spec., USNM 89751), HR1-2 3/76 (1 spec., USNM 89748), HR3-6 4/76 (1 spec., USNM 89749), HR4-1 Sp/76 (1 spec., USNM 89750).
Supplementary Material:
North Carolina--Banks Channel, Apr. 1972, intertidal, muddy sand with shell, S. Gardiner coll. (1 spec., USNM 52965); Beaufort, 10 m, J. H. Day coll. (1 spec., USNM 51114).
DESCRIPTION:
Length, to 72 mm (previously reported to 109 mm); width, to 2.7 mm (previously reported to 1.5 mm). Body long, slender; complete specimens with up to 131 segments, all biannulate. Prostomium with generally 12, but up to 16 annulations; antennae equal in length. Eyes not observed. Presetal lobes similar in shape, superior lobe slightly shorter than inferior lobe (Figure 32-22a). Postsetal lobes short, equal, separated by shallow notch (Figure 32-22b,c). Dorsal cirri small, digitiform. Ventral cirri short, conical, basally broad. Branchiae absent. Proboscidial papillae either slender to pyriform, with ten ridges and a midrib from ridges 2-6 (Figure 32-22d,e); or inflated and smooth (Figure 32-22f), with apical pore surrounded by fine stiff hairs. Aileron deeply forked, with unequal processes (Figure 32-22g); outer prong long, slender, with bulge on inner margin near narrow base, inner process conical with broad base, half to two-thirds length of outer process.
REMARKS: Glycera abranchiata has been reported as G. tesselata in Gulf of Mexico collections and USNM collections from N. Carolina (see "MATERIAL EXAMINED"). The two species possess very similar external and aileron characteristics. Jones (1962) presented an adequate account of the differences between the proboscidial organs of both species. G. abranchiata possesses both smooth inflated proboscidial organs and slender forms with 9-10 distinct ridges. G. tesselata has only one form which is smooth, slender and longer than those of G. abranchiata. The latter is also strikingly similar to a previously undescribed species, Glycera sp. F, from the BLM-OCS collections. Refer to the Glycera sp. F "REMARKS" section for further discussion.
PREVIOUSLY REPORTED HABITAT: None reported.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 32-21); 19-82 m; coarse to fine sand, silty fine sand.
DISTRIBUTION: Jamaica, Puerto Rico, Lesser Antilles, Gulf of Mexico, North Carolina.

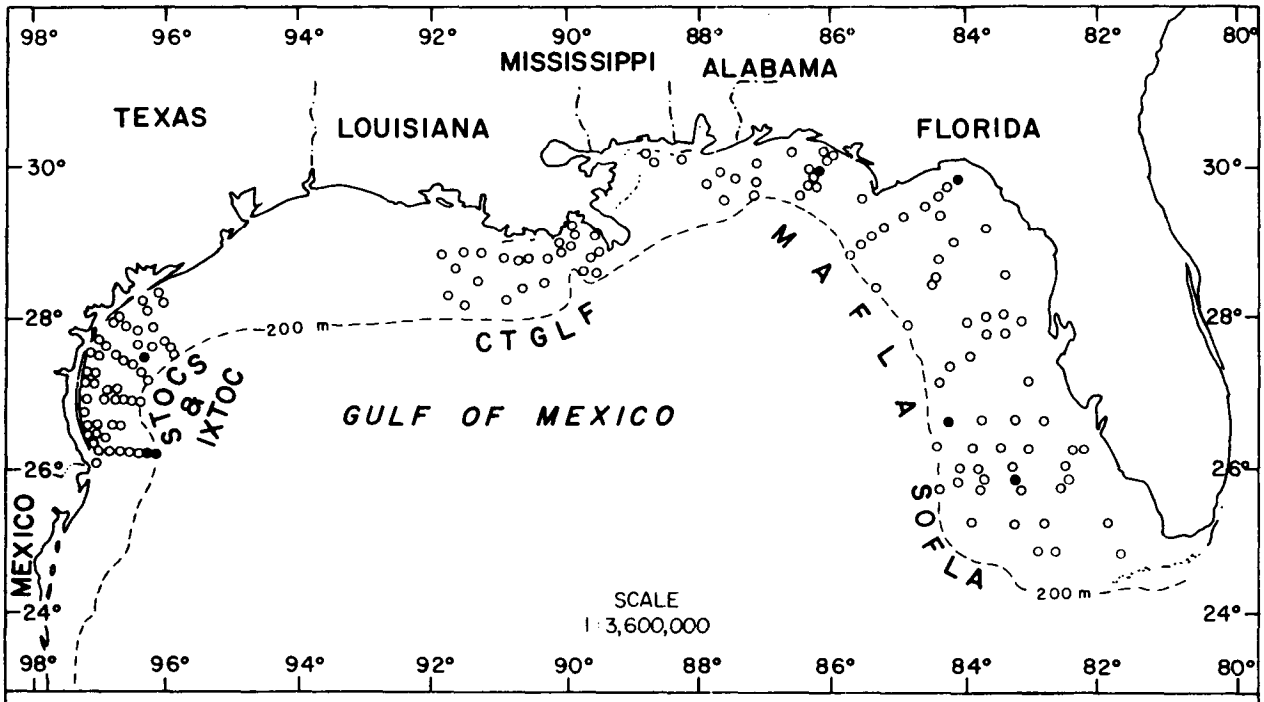

Figure 32-23. Distribution of Glycera sp. F on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

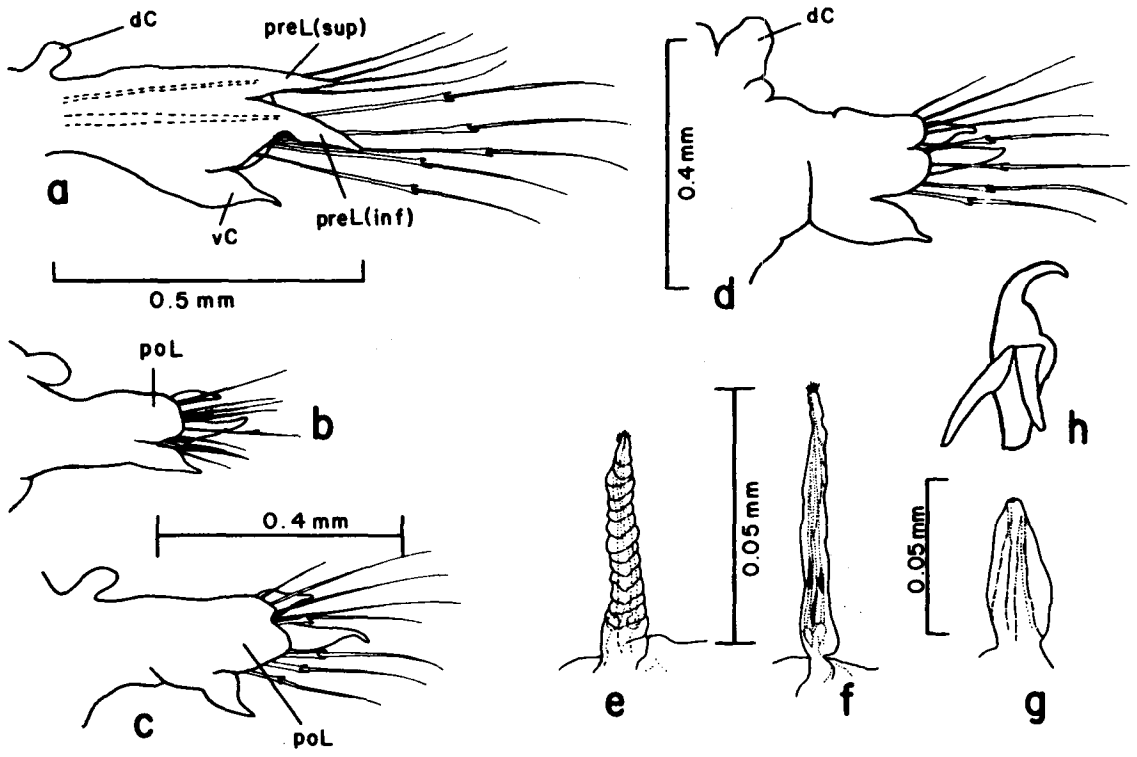

Figure 32-24. Glycera sp. F: a, medial parapodium, anterior view; b, anterior parapodium, posterior view; c, medial parapodium, posterior view; d, mid-posterior parapodium, posterior view; e, proboscidial papilla with obvious rings; f, same, with indistinct rings and longitudinal furrows; g, same, smooth inflated form; h, fang with aileron.

Glycera sp. F
Figures 32-23, 24a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 31C-8/81 (1 spec., USNM 89757); MAFLA 2419C-9/75 (1 spec.), 2531F-6/75 (3 spec.); STOCS 3/IV-1 Sp/76 (3 juv., USNM 89760), 7/IV-1 S/76 (1 juv., USNM 89759), SB1-2 3/76 (1 spec., USNM 89758), SB3-1 8/76 (2 spec., USNM 89756).
DESCRIPTION:
Length, 40+ mm; width, to 2.6 mm. Body long, slender; all specimens incomplete with up to 68 setigers, all biannulate. Prostomium with 12-15 annulations; antennae unequal. Eyes not observed. Presetal lobes long, slender (Figure 32-24a-c); superior lobe one-half to two-thirds as long as inferior lobe. Postsetal lobes short, rounded, similar in size and shape; fused anteriorly (Figure 32-24b), separated by shallow notch and equal in size posteriorly (Figure 32-24d). Dorsal cirri small, globular. Ventral cirri conical with wide base. Branchiae absent. Proboscidial papillae long, slender, with 15-16 often indistinct ridges (Figure 32-24e,f), with occasional short inflated forms (Figure 32-24g) along longitudinal muscle lines behind distal proboscidial region; apical pore surrounded by fine stiff hairs. Aileron deeply forked with unequal processes (Figure 32-24h); outer process long, slender, with narrow base and bulge along inner margin near base; inner process one-half to two-thirds length of outer process, conical with broad base, outer margin slightly convex.
REMARKS: Externally, Glycera sp. F and G. abranchiata may not be distinguishable. There was a difference noted in the antennal lengths but this character is often difficult to discern. As a result, Glycera sp. F was also reported as G. tesselata in the BLM-OCS collections. Internally, both BLM-OCS species have similar aileron structures (Figures 32-22g, 24h). Fauvel (1923:388, fig. 152c) showed the aileron structure of G. tesselata as possessing a sharp projection on the inner margin of the shorter prong. Type specimens need to be examined to verify its occurrence. The projection does not appear on the ailerons of Gulf of Mexico or North Carolina specimens. The primary difference among these three species is the appearance of the proboscidial organs. Glycera sp. F possesses two forms of proboscidial organs--a slender, elongate form with 15-16 often indistinct ridges, and a smooth, shorter, inflated form which occurs only on the basal two-thirds of the proboscis along the striations of longitudinal muscle bands in adults. The ridged forms of proboscidial organs of G. abranchiata are slender to pyriform with 9-10 ridges, and are similar in length to the inflated forms which occur throughout the proboscidial length. G. tesselata has only the long, slender form without ridges. Fauchald (pers. comm.) confirmed the distinction of the G. tesselata morphotype.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 32-23); 10-153 m; coarse to fine sand, clayey sand, silty clay.

CHAPTER 33

Katherine M. Gilbert

FAMILY GONIADIDAE Kinberg, 1866b

INTRODUCTION

Goniadids are slender, generally cylindrical worms from 8-140 mm long. Typically, they possess 2-3 body regions equipped with uniramous parapodia anteriorly, transitional parapodia medially, and biramous parapodia posteriorly. Where the biramous parapodia begin, some species having well-separated noto- and neuroacicula show a change in body shape from cylindrical to dorsoventrally ovoid. A single genus, Progoniada, has all uniramous parapodia. The prostomium of goniadids is conical with 8-11 annulations. Small dermal eyes may appear either in the basal, distal, or subdistal annulations. Two pairs of biarticulate antennae arise from the distal annulation. The peristomium and basal annulation are fused and ventrally form a mouth. Dorsolaterally, this segment possesses a pair of nuchal organs. The first segment following the peristomium may be setigerous or may have only a single pair of lateral cirri. Neuropodia are present throughout, and possess 1-2 presetal lobes and a single postsetal lobe. Notopodia, when present, may be single, bilobed, or represented only by an aciculum. Dorsal and ventral cirri are generally long and tapering but may become short on posterior setigers. Branchiae are absent. Notosetae are simple capillaries or straight or modified acicular setae. When notopodial lobes are absent, the notosetae arise directly from the body wall above the dorsal cirri. Neurosetae are simple lyrate setae or compound spinigers or falcigers. The pygidium is simple, rounded, and has a pair of slender caudal cirri. The proboscis is eversible and possesses proboscidial organs of various shapes and sizes throughout its length. The distal jaws consist of lateral macrognaths having 2-6 teeth, along with dorsal and ventral arcs of micrognaths having 2-5 teeth. Bilateral rows of chitinous, V-shaped chevrons may occur near the base of the proboscis.

Grube (1850) established the superfamily Glycerea which included genera of the families Goniadidae and Glyceridae. Ehlers (1868), followed by Fauvel (1923), recognizing only generic distinctions, displaced these families to the subfamily position, naming them Goniadinae and Glycerinae. This scheme was followed by Day (1967). Hartman (1950) supported and discussed the family distinctions and reinstated the original families. Fauchald (1977a) and Pettibone (1982) supported the latter scheme.

Fauchald (1977a) placed the family Goniadidae in the order Phyllodocida, suborder Glyceriformia, which also includes the families Glyceridae and Lacydoniidae. Presently, the family consists of nine genera, of which five are known from the Gulf of Mexico. Of the 73 species recognized for the family, eight occur on the northern Gulf of Mexico outer continental shelf, including six previously described species and two species potentially new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

The presence of chevrons (Figure 33-2f) is an initial clue to generic identification. When present, these dark structures are situated internally within the first few setigers when the proboscis is withdrawn, and are visible through the body wall. The number of neuropodial presetal lobes, the presence of notopodial lobes, and the kinds of setae (spinigerous, falcigerous, lyrate, or possessing a subdistal boss) occurring in certain body regions also constitute generic characters.

The initial appearance of biramous parapodia is the main basis for species distinction. Other reliable features include the kind of notosetae, form of proboscidial organs, number of chevron pairs, and number of micrognaths in the dorsal and ventral arcs of the jaws (Figure 33-2k). Notosetae are simple with fine serrations (Figure 33-6f); straight (Figure 33-2c) or falcate (Figure 33-4f) and acicular; or basally stout with a subdistal bulbous projection and distal serration (Figure 33-10c). The proboscidial organs may be of one or several forms. Their shape varies from small and cordate (Figure 33-8i,j), denticulate (Figure 33-10e-j) or knobbed (Figure 33-16j,k), to large and beaked (Figure 33-6i). Organ placement may be random or aligned along the longitudinal proboscidial axis. Generally, the size of the organs decreases from dorsal to ventral positions (Figure 33-14f). All proboscidial organs possess an abgnathal apical pore (Figure 33-4k-n). Chevrons generally have rounded tips (Figure 33-4j), but may have a flared tip (Figure 33-6h). To position the jaws for micrognath counts after dissection, note that the teeth of the macrognaths point dorsally. Some micrognaths have the appearance of a small denticle overlapping a larger denticle. These groupings of 2-5 teeth are counted as a single micrognath. Variable characters such as the presence of eyes and the number of transitional setigers are difficult to use as specific characters.

Prostomial annulations were counted from the basal to the distal ring (Figure 33-2f). Body length was measured from the tip of the prostomium to the anal segment; width, between opposing parapodial tips in the midbody region near the internal position of the jaws when the proboscis was fully withdrawn.

BIOLOGICAL NOTES

Goniadids commonly occur from intertidal to abyssal depths in a variety of substrates. They are motile, but it is not clear to what extent, if any, burrowing may occur (Fauchald and Jumars, 1979). Reportedly, their movement, including rapid coiling, is similar to that of glycerids (Pettibone, 1963). Their feeding mode is predominantly carnivorous, utilizing the eversible proboscis in prey capture. Some species are also capable of absorbing dissolved organic matter (Fauchald and Jumars, 1979).

Both sexual and asexual reproduction occur within the family. Ophioglycera is known to reproduce by schizogamy, i.e., the posterior end becomes modified and separates from the remaining body, producing a new individual without detrimental effect to the parent (Schroeder and Hermans, 1975). Other genera become epitokous, i.e., the anterior region remains unchanged and the proboscis intact, while the posterior

region, including the posterior intestine, undergoes modification and produces the sex products. After surface spawning, the adults die.

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

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

1a. Chevrons present (Figure 33-2f) 2
1b. Chevrons absent 3

2a. Neuropodial presetal lobes single throughout body length (Figure 33-2b). . . . . .**Goniadella**, p. 33-3
2b. Neuropodial presetal lobes single on anterior setigers, double on remaining setigers (Figure 33-4a). . . . . .**Goniada**, p. 33-5

3a. Notosetae with subdistal bulbous projections (Figure 33-10c) . . . . . **Glycinde**, p. 33-13
3b. Notosetae without subdistal bulbous projections (Figure 33-14c). 4

4a. Notosetae arising directly from body wall above dorsal cirri (Figure 33-14b); neuropodial presetal lobes single. . . . . **Goniadides**, p. 33-15
4b. Notosetae arising from behind notopodial lobes below dorsal cirri; neuropodial presetal lobes double. . . . . .**Ophioglycera**, p. 33-17

Genus **Goniadella** Hartman, 1950

TYPE SPECIES: Eone gracilis Verrill, 1873.
REFERENCES:
Hartman, 1950:41.
Pettibone, 1963:220.
Day, 1967:367.
Fauchald, 1977a:93.
DIAGNOSIS: Body small, slender. Prostomium with eight annulations; eyes present in basal, fifth and/or sixth annulations. Posterior region externally distinguished from anterior region only by presence of acicular notosetae projecting directly from body wall above dorsal cirri. Presetal lobes single. Neurosetae including compound spinigers and

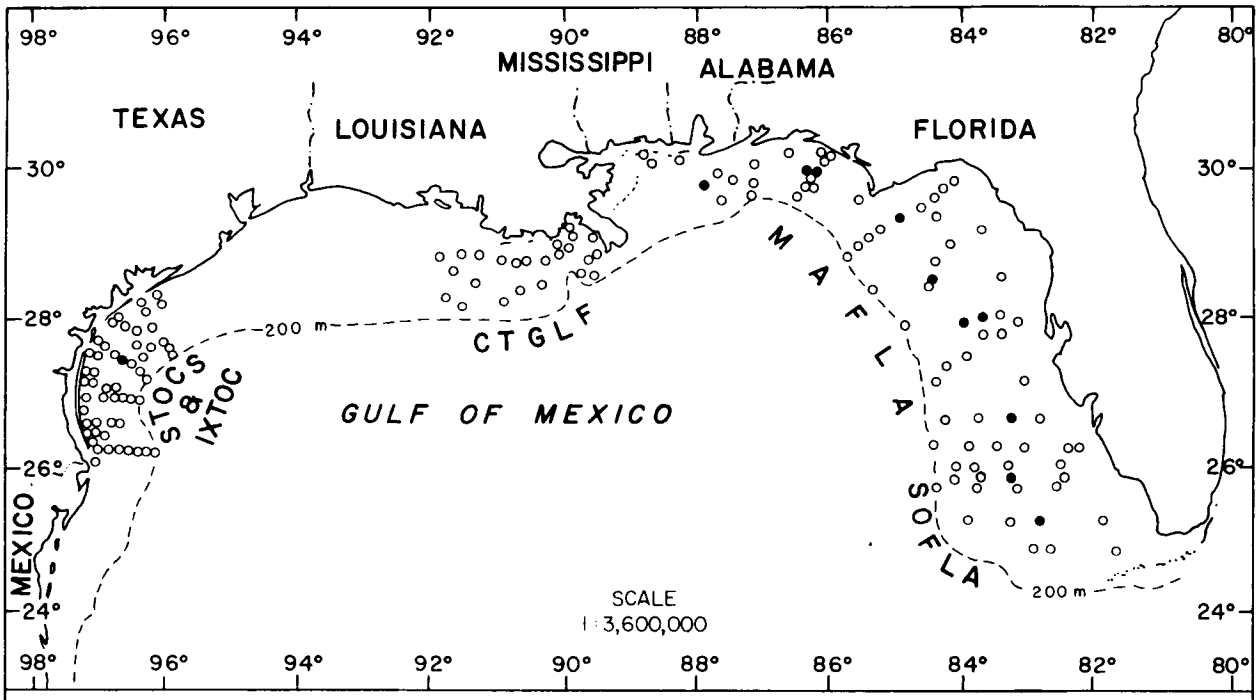

Figure 33-1. Distribution of Goniadella sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

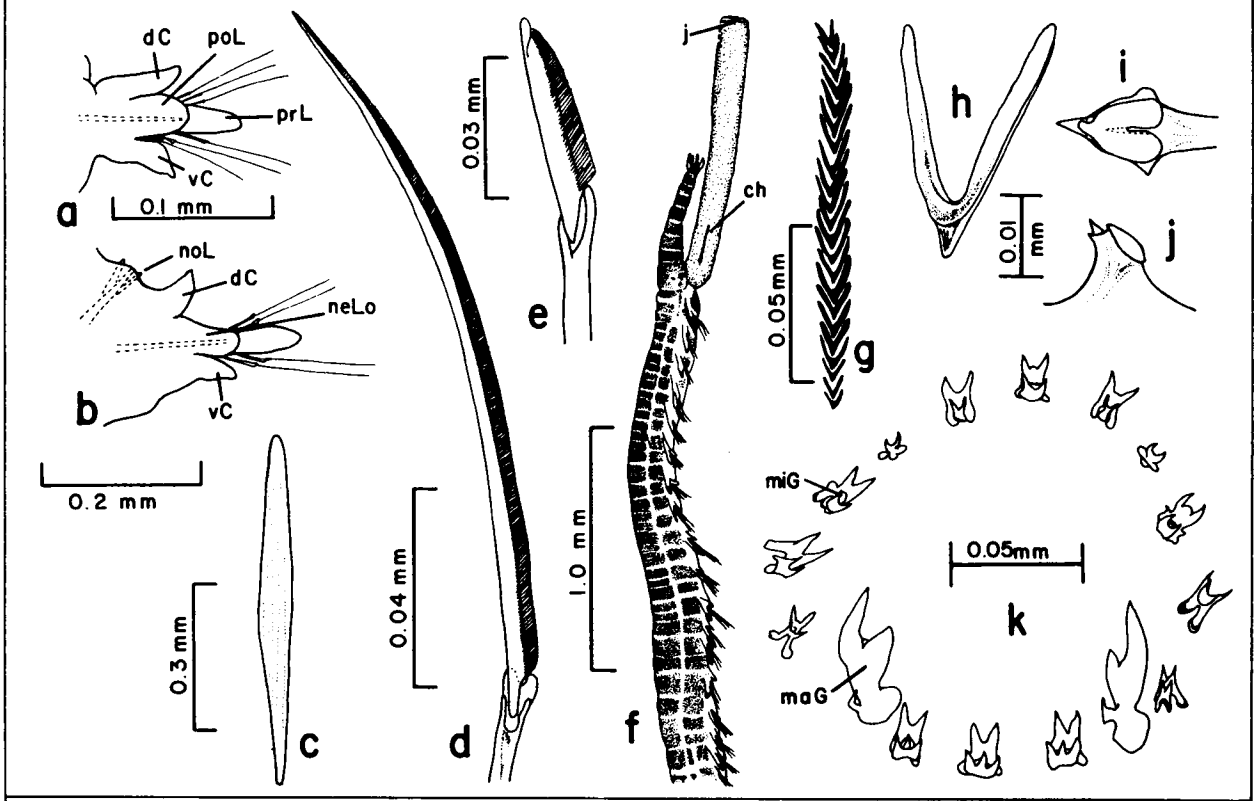

Figure 33-2. Goniadella sp. A: a, uniramous parapodium, posterior view; b, biramous parapodium, posterior view; c, notoseta; d, spinigerous neuroseta; e, falcigerous neuroseta; f, anterior end, lateral view (diagrammatic representation of everted proboscis); g, h, chevrons; i, proboscidial organ, dorsal view; j, same, lateral view; k, jaws, cross-section.

falcigers. Proboscis with chevrons and one form of proboscidial organs. Macrognaths with 2-4 teeth; microgniths in dorsal and ventral arcs.

Goniadella sp. A
Figures 33-1, 2a-k

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4A-11/80 (5 spec., USNM 89862), 16C-11/80 (3 spec., USNM 89863), 22-11/80 (8 spec., USNM 89864); MAFLA 2210B-7/76 (1 spec., USNM 89872), 2211F-7/76 (2 spec., USNM 89871), 2315A-8/76 (1 spec., USNM 89870), 2423C-7/76 (20 spec.), 2423D-7/76 (19 spec., USNM 89867), 2531K-8/77 (9 spec., USNM 89869), 2532F-1/76 (1 spec.), 2640H-2/78 (1 spec., USNM 89861; 4 spec., USNM 89866); STOCS 2/II-6 11/77 (1 spec., USNM 89865).
DESCRIPTION:
Length, to 24.5 mm; width, to 0.8 mm. Body long; complete specimens with up to 113 segments. First segment with single pair of dorsal cirri only. Anterior 14-15 setigers uniramous (Figure 33-2a). Biramous parapodia with notopodial lobe as an indistinct boss above dorsal cirrus (Figure 33-2b); notoaciculum subdermal or projecting to one-third length of dorsal cirrus. Presetal lobe of neuropodia long, bluntly conical; postsetal lobe shorter, entire. Notosetae acicular (Figure 33-2c); neurosetae as compound spinigers (Figure 33-2d) and falcigers (Figure 33-2e). Proboscis with 17-23 pairs of chevrons (Figure 33-2f-h); proboscidial organs of one form (Figure 33-2i,j). Macrognaths each with two large teeth (Figure 33-2k); microgniths numbering 11 in dorsal arc, 3-4 in ventral arc.
REMARKS: Goniadella sp. A has been identified as Goniadella sp. and G. gracilis in the Gulf of Mexico BLM-OCS collections. It differs from descriptions of G. gracilis in having the notopodia beginning on setigers 14-15 rather than 27-30, in having 17-23 pairs of chevrons rather than 25-30 pairs, and in having two rather than 3-4 large teeth on the macrognaths.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 33-1); 19-56 m; coarse to fine sand, silty fine to very fine sand, silty clay.

Genus **Goniada** Audouin and Milne Edwards, 1833a

TYPE SPECIES: Goniada emerita Audouin and Milne Edwards, 1833a.
REFERENCES:
Fauvel, 1923:391.
Hartman, 1950:13.
Pettibone, 1963:225.
Gardiner, 1976:167.
Fauchald, 1977a:93.
DIAGNOSIS: Prostomium with 8-11 annulations; eyes sometimes present in distal and basal annulations. Body divided into anterior region with uniramous parapodia, middle transitional region, and posterior region with biramous parapodia. One presetal lobe on anterior few setigers, two on remaining setigers. Notosetae acicular, or capillary and serrate. Neurosetae compound, spinigerous; additional inferior falcigers present on anterior few setigers. Proboscis with chevrons; proboscidial

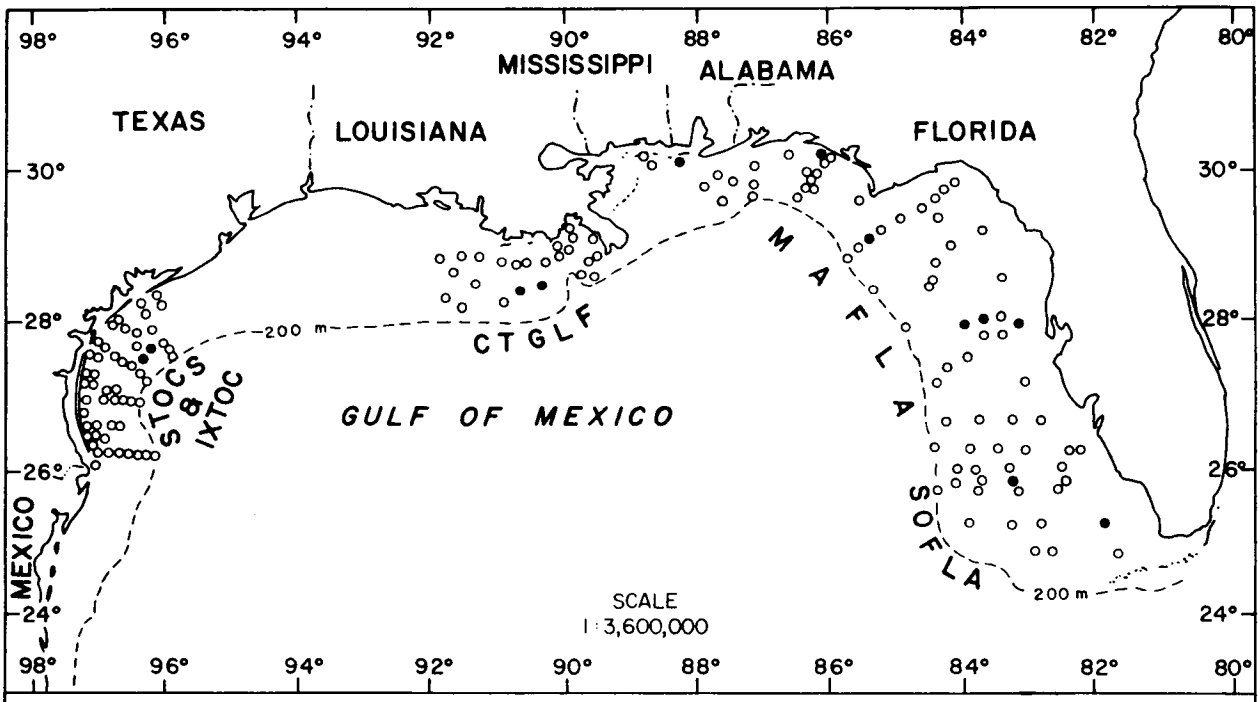

Figure 33-3. Distribution of Goniada teres on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

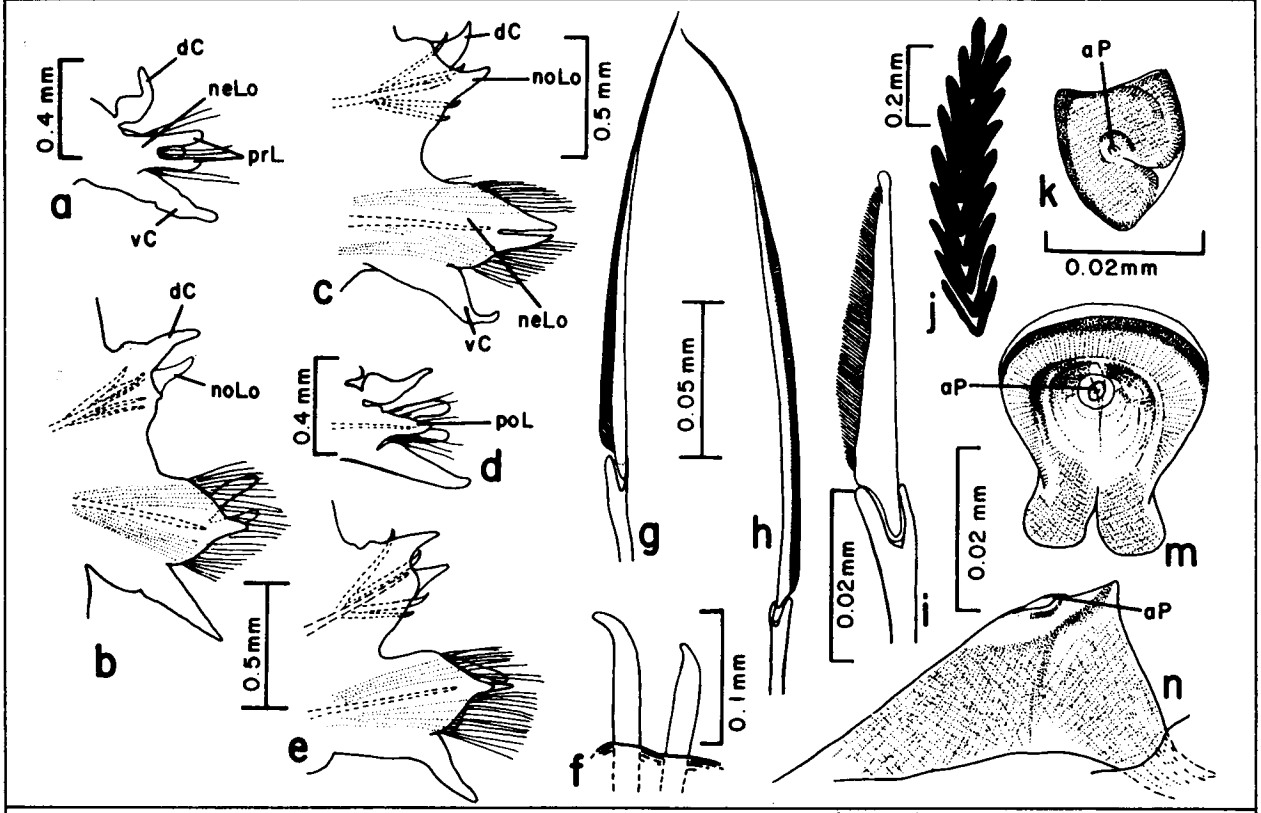

Figure 33-4. Goniada teres: a, uniramous parapodium, anterior view; b, transitional parapodium, posterior view; c, biramous parapodium, anterior view; d, uniramous parapodium, posterior view; e, biramous parapodium, posterior view; f, notosetae; g, anterior spiniger; h, posterior spiniger; i, falciger; j, chevrons; k, proboscidial organ (small form), dorsal view; m, proboscidial organ (large form), dorsal view; n, same, lateral view.

organs of one or two forms arranged regularly or irregularly along entire length of proboscis. Macrognaths with 3-5 teeth; microgaths numerous in dorsal and ventral arcs.

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

1a. Notosetae acicular (Figure 33-4f). . . . . .Goniada teres, p. 33-7
1b. Notosetae serrate, capillary. 2

2a. Chevrons with flanged tips (Figure 33-6i), numbering 15 pairs; proboscidial organs with large apical beaks (Figure 33-6j) . . . . . .Goniada littorea, p. 33-9
2b. Chevrons with rounded tips (Figure 33-8h), numbering 7-11 pairs; proboscidial organs cordate with small dorsolateral beaks (Figure 33-8i,j). . . . . Goniada maculata, p. 33-11

Goniada teres Treadwell, 1931
Figures 33-3, 4a-n

Goniada teres Treadwell, 1931:6, figs. 19-22.
Goniada teres--Hartman, 1950:33.
Goniada teres--Day, 1973:51, fig. 7 1-n.
Goniada teres--Gardiner, 1976:169, fig. 19g,h.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16D-11/80 (1 spec., USNM 89809), 20D-8/81 (1 spec., USNM 89806); MAFLA 20E-5/74 (1 spec., USNM 89807), 2207F-2/78 (1 spec.), 2210A-8/77 (1 spec.), 2211C-8/77 (1 spec.), 2211H-7/76 (1 spec.), 2425J-7/76 (1 spec.), 2528I-2/78 (1 spec., USNM 89811), 2528K-2/78 (1 spec.), 2639H-6/75 (2 spec., USNM 89810); CTGLF 03-5/78 (2 spec.-1 juv., USNM 89813), 03-5/78 (1 spec., USNM 89814), 04-5/78 (1 spec., USNM 89812); STOCS HR1-2 3/76 (1 spec., USNM 89817), HR1-3 3/76 (1 juv., USNM 89818), HR1-5 F/76 (1 spec., USNM 89819), SB3-3 4/76 (1 juv., USNM 89815), SB3-5 8/76 (1 spec., USNM 89816).
DESCRIPTION:
Length, to 140 mm (previously reported to 80 mm); width, to 2.5 mm. Body long, robust; complete with 298 segments. Prostomium with 9-10 annulations; basal annulation with eyes. Parapodia uniramous through setigers 40-76, followed by up to five transitional setigers. Parapodia of first two setigers with single digitiform presetal lobe; those of remaining setigers with two similar neuropodial presetal lobes (Figure 33-4a,b), becoming conical on biramous parapodia (Figure 33-4c). Postsetal lobes bluntly conical with small dorsal accessory lobe near base in anterior body region (Figure 33-4d); basally inflated with short acuminate tip in posterior body region (Figure 33-4e). Notopodial lobes small, digitiform on transitional setigers (Figure 33-4b), becoming triangular on remaining setigers (Figure 33-4c). Dorsal cirri large, basally inflated, distally tapered on uniramous parapodia; triangular, equal in size to notopodial lobes on biramous parapodia. Ventral cirri large, conical, long throughout. Notosetae acicular with curved tips (Figure 33-4f), numbering 2-4 per parapodium. Neurosetae including compound spinigers (Figure 33-4g,h) throughout and 2-3 falcigers (Figure

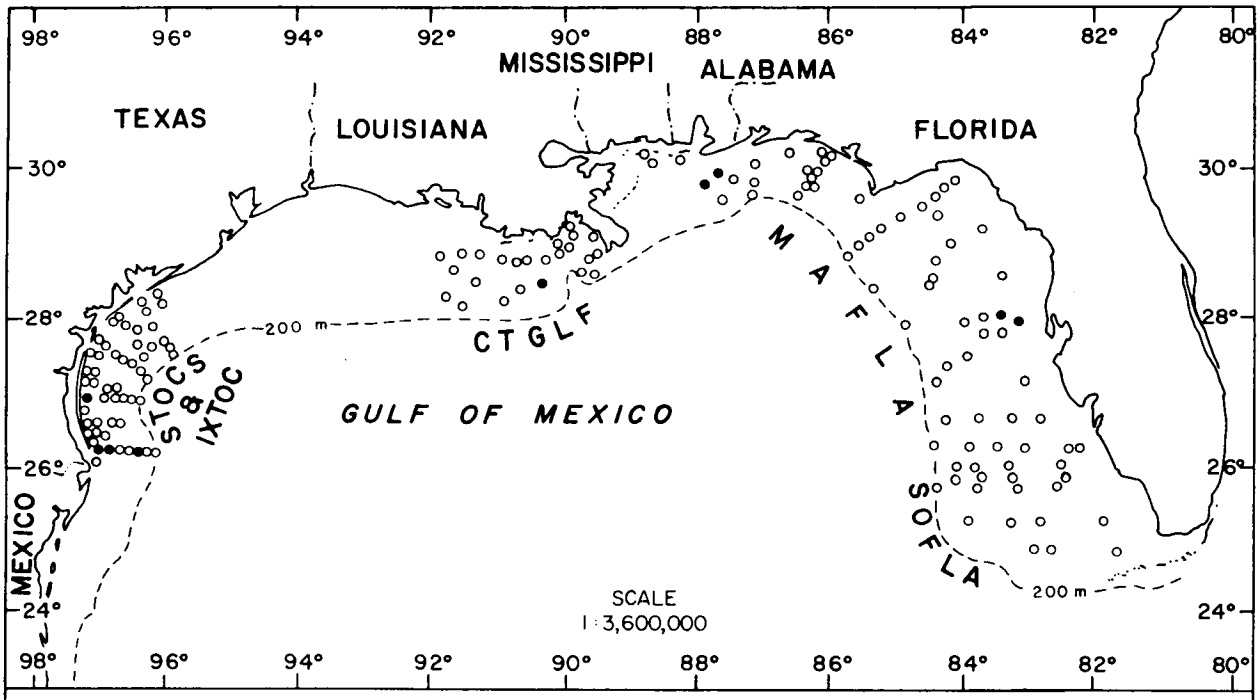

Figure 33-5. Distribution of Goniada littorea on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

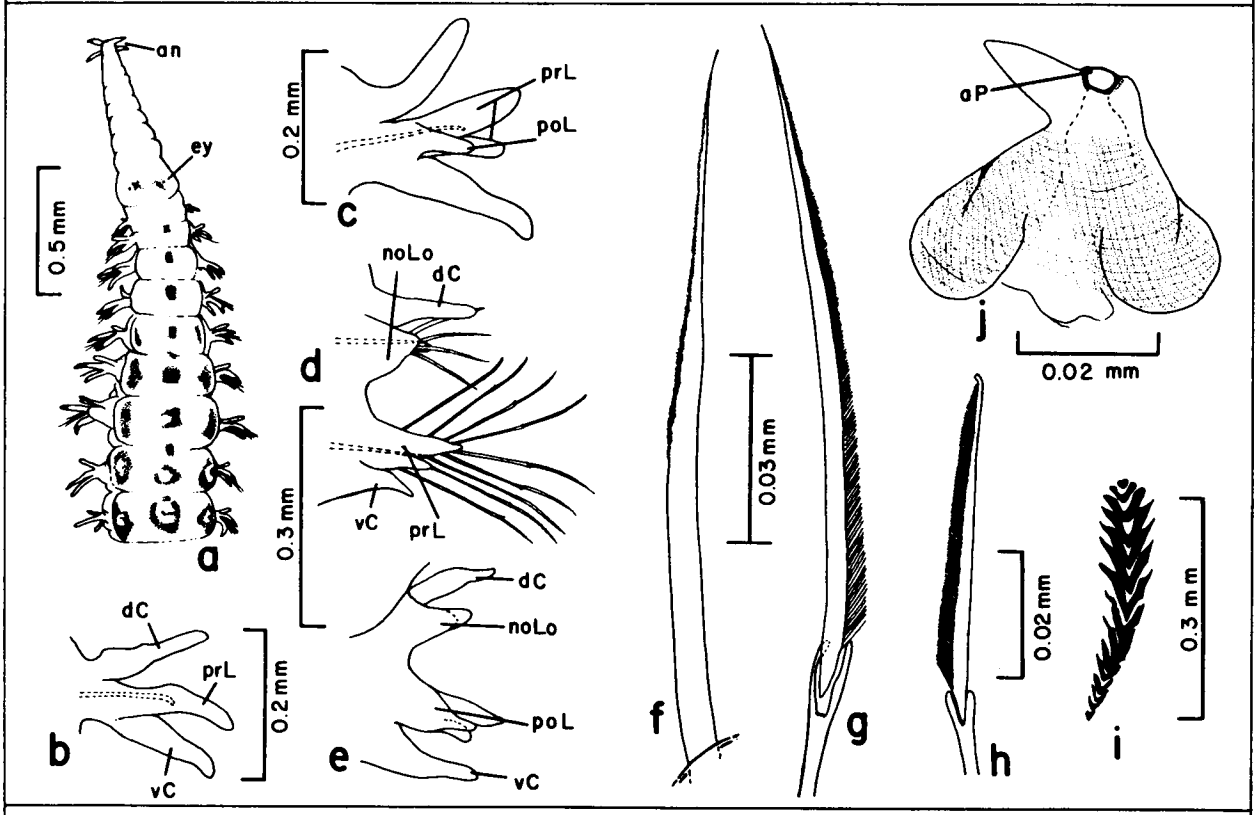

Figure 33-6. Goniada littorea: a, anterior end, dorsal view; b, uniramous parapodium (setiger 8), anterior view; c, uniramous parapodium (setiger 25), posterior view; d, biramous parapodium, anterior view; e, same, posterior view; f, notoseta; g, spiniger; h, falciger; i, chevrons; j, proboscidial organ.

33-4i) in inferior position on anterior few setigers. Proboscis with 8-12 pairs of chevrons (Figure 33-4j). Proboscidial organs including small, asymmetrical forms (Figure 33-4k) and larger, more symmetrical forms (Figure 33-4m,n). Macrognaths with four teeth; microgmaths numbering 14 in dorsal arc, 5-9 in ventral arc.
REMARKS: Falcigers have not previously been reported for species of Goniada. Large adult specimens possessed falcigers on the first 2-3 setigers. Juvenile specimens possessed falcigers through setiger 42 immediately prior to the start of the biramous parapodia. Notopodial lobes were less developed and biramous parapodia less numerous on juveniles than on adults.
PREVIOUSLY REPORTED HABITAT: 20-200 m; sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 33-3); 19-82 m; coarse to very fine sand, silty very fine sand, silty clayey sand, sandy silt, clayey silt.
DISTRIBUTION: North Carolina, Gulf of Mexico, Jamaica, British West Indies.

Goniada littorea Hartman, 1950
Figures 33-5, 6a-j

Goniada littorea Hartman, 1950:23, pl. 3, figs. 1-10.
Goniada littorea--Gardiner, 1976:169, fig. 19i-l.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2207E-8/77 (1 spec., USNM 89802), 2208J-8/77 (2 spec.), 2640C-6/75 (3 spec.), 2641A-6/75 (6 spec.), 2641F-6/75 (1 spec.); CTGLF 03-9/79 (1 spec., USNM 89805); STOCS 4/III-3 5/76 (1 spec., USNM 89803), 4/III-3 F/76 (2 spec., USNM 89797), 4/III-4 F/76 (1 spec., USNM 89798), 1/IV-2 F/76 (1 spec., USNM 89801), 4/IV-3 W/76 (1 spec., USNM 89804), 4/IV-6 W/76 (1 spec., USNM 89796), 4/IV-3 Spr/76 (5 spec., USNM 89795), 4/IV-6 F/76 (4 spec., USNM 89800), 6/IV-1 W/76 (2 spec., USNM 89799); IXTOC S53-11/79 (1 spec., USNM 89794).
DESCRIPTION:
Length, 20.5+ mm (previously reported to 70 mm); width, to 0.6 mm (previously reported to 1.5 mm). Body long, slender, with large ovoid pigment areas both dorsally and ventrally (medially and laterally), and on tips of parapodial lobes (Figure 33-6a); all specimens incomplete with up to 96 setigers. Prostomium with nine annulations; basal annulation with eyes. Parapodia uniramous through setigers 36-42; those of anterior 10-14 setigers with single, long, slender presetal lobe (Figure 33-6b); parapodia of following setigers with additional, slightly smaller inferior presetal lobe (Figure 33-6c). Postsetal lobe bluntly conical, one-half to two-thirds length of presetal lobe. Neuropodial lobes similar throughout remaining body length. Notopodia bilobed, postsetal lobe extending beyond presetal lobe (Figure 33-6d,e). Notosetae serrate, capillary (Figure 33-6f). Neurosetae predominantly compound spinigers (Figure 33-6g); falcigers (Figure 33-6h) present on first 2-3 parapodia. Chevrons with flanged tips (Figure 33-6i), numbering 15 pairs. Proboscidial organs of one form (Figure 33-6j), with large apical projection or beak. Macrognaths with four teeth; microgmaths numbering 10-12 in dorsal arc, three in ventral arc.

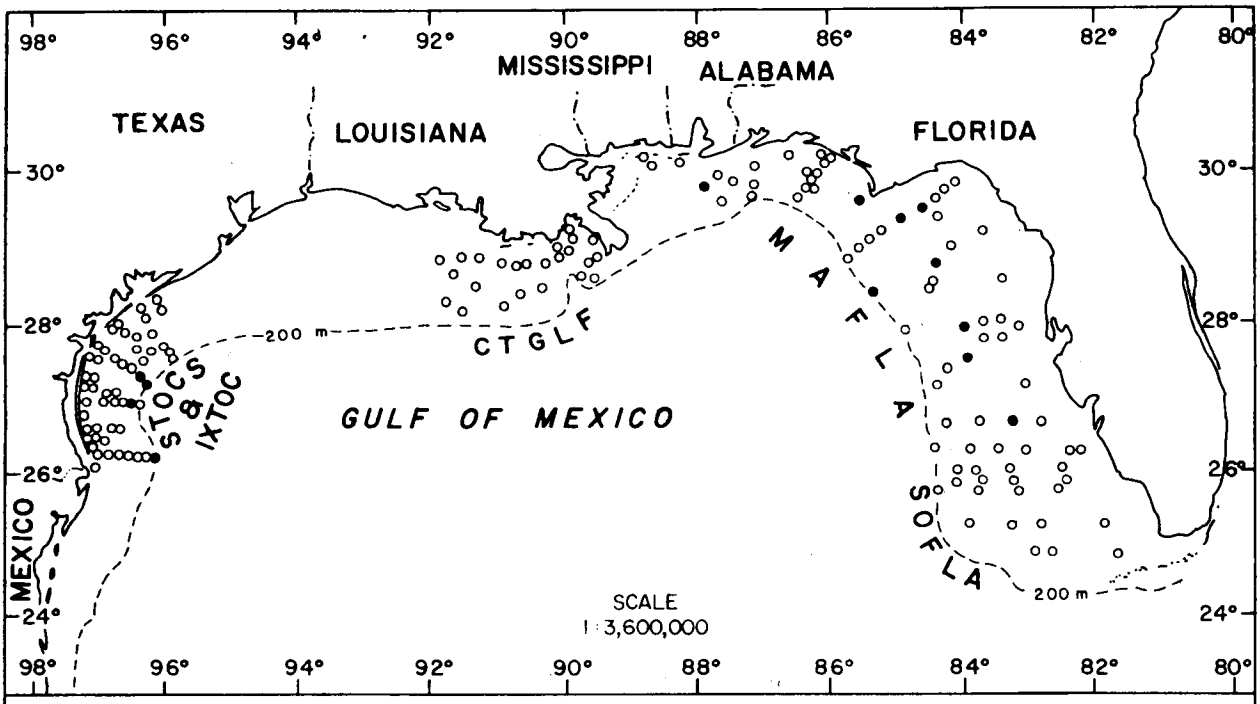

Figure 33-7. Distribution of Goniada maculata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

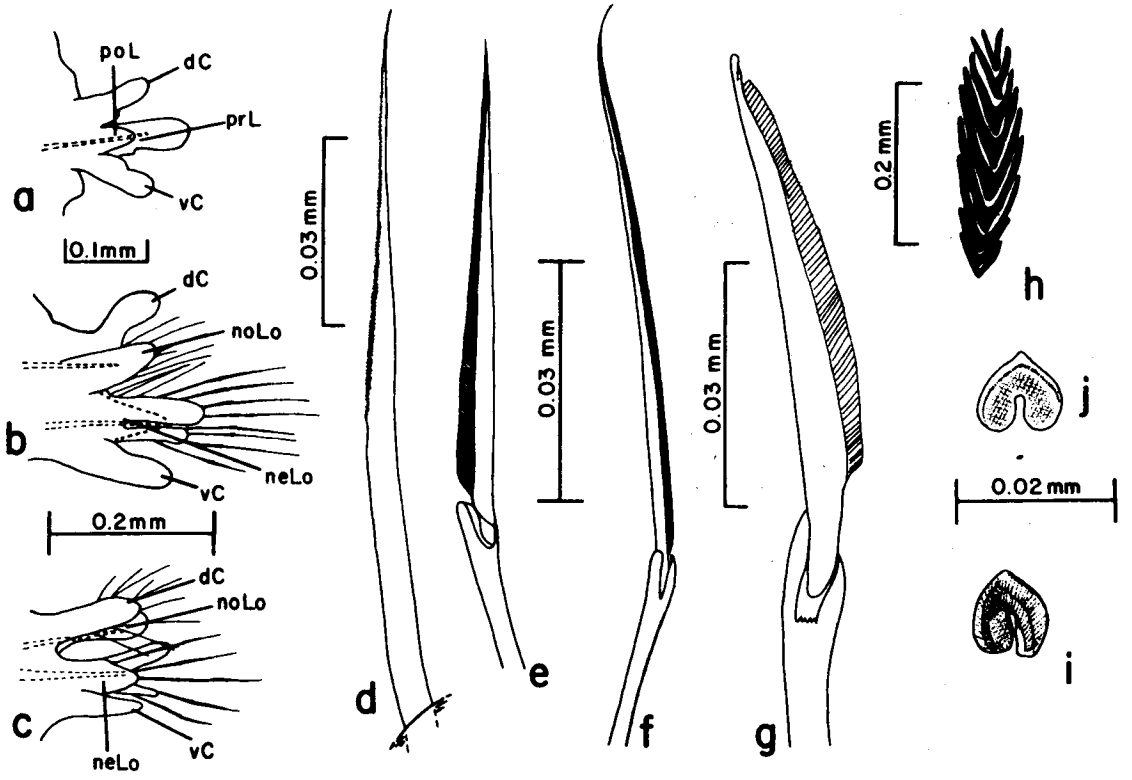

Figure 33-8. Goniada maculata: a, uniramous parapodium (setiger 28), posterior view; b, biramous parapodium, anterior view; c, same, posterior view; d, notoseta; e, anterior spiniger; f, posterior spiniger; g, falciger; h, chevrons; i, proboscidial organ, dorsolateral view; j, same, dorsal view.

PREVIOUSLY REPORTED HABITAT: Intertidal to 160 m; sand, muddy sand or sand mixed with shell particles.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 33-5); 15-65 m; medium to very fine sand, silty and clayey sand, clayey sandy silt.
DISTRIBUTION: North Carolina, Gulf of Mexico, southern California.

Goniada maculata Oersted, 1843
Figures 33-7, 8a-j

Goniada maculata--Hartman, 1940:251; 1950:20, pl. 1, figs. 7, 8.
Goniada maculata--Pettibone, 1963:225, fig. 58.
Goniada maculata--Day, 1967:367, fig. 16.4.k-n; 1973:51.
Goniada maculata--Gardiner, 1976:167, fig. 19c-f.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4E-8/81 (3 spec., USNM 89824); MAFLA 2211B-7/76 (1 spec.), 2313D-11/77 (1 spec.), 2313K-11/77 (1 spec.), 2316C-11/77 (4 spec.), 2422I-7/76 (1 spec.), 2423D-7/76 (1 spec., USNM 89825), 2640-11/77 (1 spec.), 2748G-2/78 (1 spec., USNM 89827), 2854J-8/77 (1 spec.); STOCS 3/II-5 7/76 (1 spec., USNM 89823), 3/II-1 W/77 (1 spec., USNM 89826), 6/II-2 7/76 (1 spec., USNM 89822), 3/III-3 F/76 (1 spec., USNM 89820), 7/IV-5 F/76 (2 spec., USNM 89821).
DESCRIPTION:
Length, to 32 mm (previously reported to 100 mm); width, to 0.9 mm (previously reported to 1 mm). Body slender; complete specimens with up to 131 segments. Prostomium with ten annulations; eyes not observed. Parapodia uniramous through setigers 23-37. Parapodia of anterior 19-23 setigers with single digitiform presetal lobe; postsetal lobe short, fused to presetal lobe. Following uniramous parapodia with small ventral accessory presetal lobe, equal in length to postsetal lobe (Figure 33-8a). Biramous parapodia with digitiform notopodial lobes (Figure 33-8b). Neuropodia of biramous parapodia with two similar digitiform presetal lobes, inferior lobe more slender than superior lobe; postsetal lobe bluntly conical, shorter than presetal lobes (Figure 33-8c). Dorsal and ventral cirri digitiform, similar in length. Notosetae serrate, capillary (Figure 33-8d). Neurosetae mostly as compound spinigers (Figure 33-8e,f); falcigers (Figure 33-8g) present in inferior position on a few anterior setigers. Proboscis with 8-9 pairs of chevrons (Figure 33-8h). Proboscidial organs of one form (Figure 33-8i,j). Macrognaths with five teeth each; microgaths numbering 3-4 in dorsal arc, three in ventral arc.
REMARKS: Hartman (1950) reported uniramous parapodia occurring up to setiger 56 and a chevron count of 7-11 pairs.
PREVIOUSLY REPORTED HABITAT: Intertidal to 3020 m; shelly sand and silt.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 33-7); 19-177 m; coarse to medium-fine sand, silty fine sand, clayey sandy silt, sandy clayey silt, silty clay.

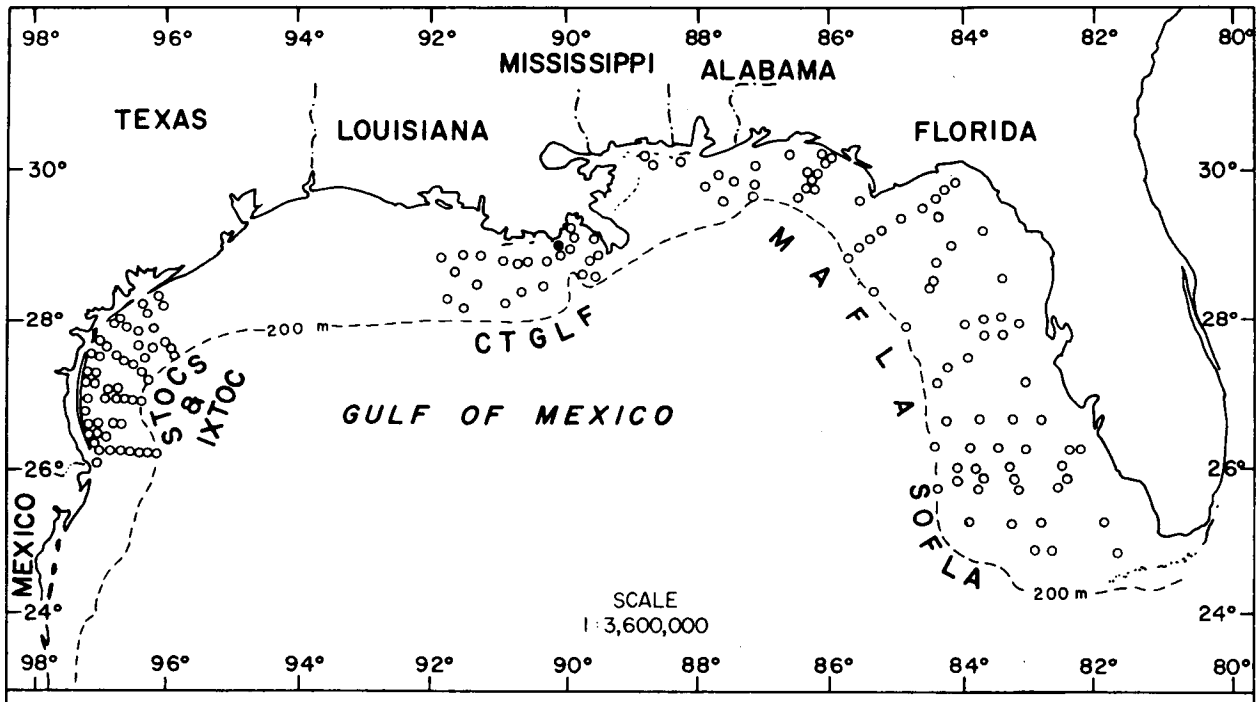

Figure 33-9. Distribution of Glycinde solitaria on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

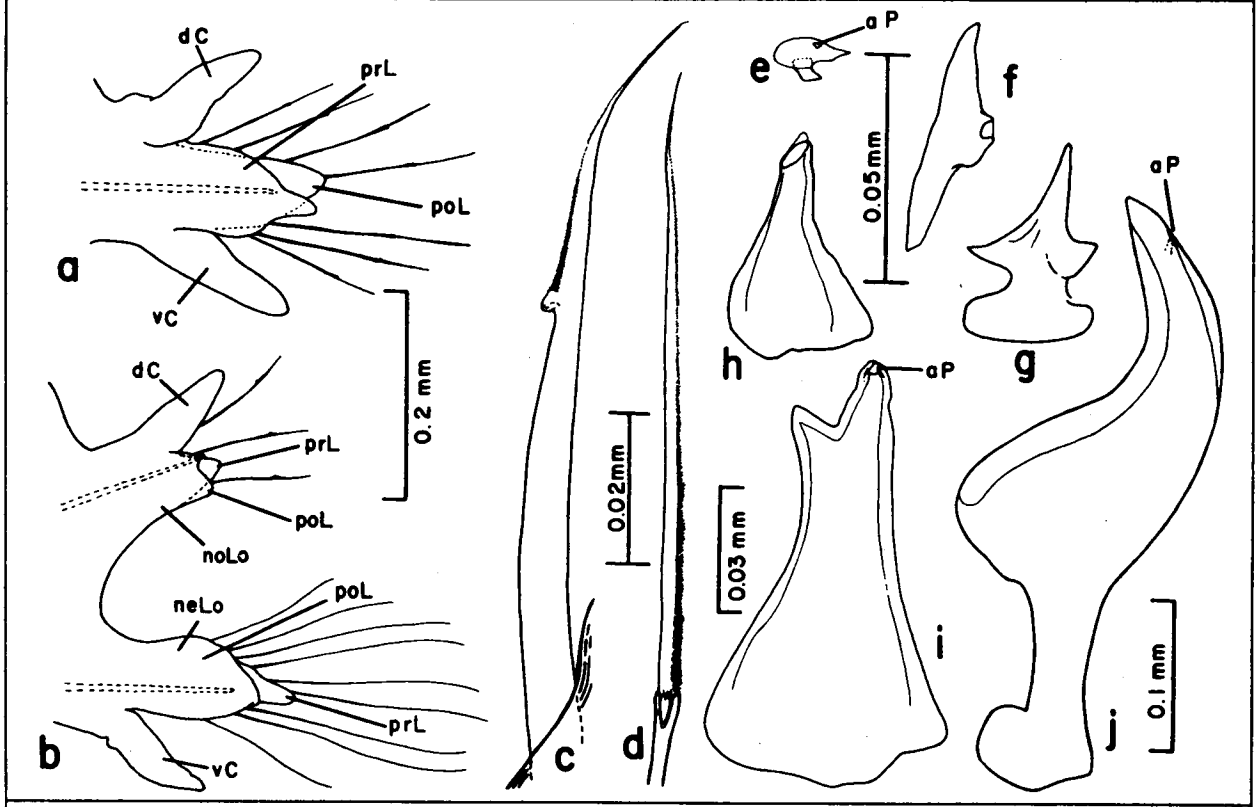

Figure 33-10. Glycinde solitaria: a, uniramous parapodium, anterior view; b, biramous parapodium, posterior view; c, notoseta; d, neuroseta; e-j, proboscidial organs.

Genus **Glycinde** F. Müller, 1858

TYPE SPECIES: Glycinde multidens F. Müller, 1858.
REFERENCES:
Hartman, 1950:44.
Gardiner, 1976:171.
Fauchald, 1977a:93.
DIAGNOSIS: Prostomium with 9-10 annulations; antennae unequal in length, distalmost pair shorter; eyes present in basal and distal or subdistal annulations. Notosetae with finely serrate tips and bulbous projection at base of serrations. Neurosetae compound, spinigerous. Proboscis without chevrons; proboscidial organs sclerotinized, of several shapes and sizes, arranged in longitudinal rows. Jaws without ventral arc of micrognaths.

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

1a. Parapodia uniramous through setigers 23-24; jaws with ten micrognaths in dorsal arc . . . . . .**Glycinde solitaria**, p. 33-13
1b. Parapodia uniramous through setigers 36-37; jaws with 17-25 micrognaths in dorsal arc . . . . . .**Glycinde nordmanni**, p. 33-15

Glycinde solitaria (Webster, 1879)
Figures 33-9, 10a-j

Glycinde solitaria--Hartman, 1950:54, pl. 7, figs. 1-15.
Glycinde solitaria--Pettibone, 1963:222, fig. 56h-n.
Glycinde solitaria--Gardiner, 1976:173, fig. 20i-o.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
CTGLF 02-1/79 (1 spec., USNM 89852; 1 spec., USNM 89853).
Supplementary Material:
Gulf of Mexico--Mobile Bay, Alabama, Mobil Oil Sta. 154-B, 30°15'13"N, 88°03'08"W, 8.2 m, sandy clay, July 1978 (1 spec.).
DESCRIPTION:
Length, 9.5+ mm (previously reported to 35 mm); width, to 0.8 mm (previously reported to 1.3 mm). Body small, slender; all specimens incomplete with up to 60 segments. Prostomium with ten annulations; eyes present on basal and ninth annulations. Parapodia uniramous through setiger 23, with single, similar pre- and postsetal lobes (Figure 33-10a); both lobes bluntly conical, presetal lobe distally tapered. Notopodia of biramous parapodia bilobed; presetal lobe triangular, extending beyond blunt postsetal lobe (Figure 33-10b); notoaciculum projecting slightly at dorsal edge of postsetal lobe. Neuropodia of biramous setigers similar to those of anterior setigers; postsetal lobe shorter than presetal lobe. Dorsal and ventral cirri similar, bluntly conical. Notosetae acicular with bulbous projection below tapered, finely serrate edge (Figure 33-10c). Neurosetae all compound, spinigerous (Figure 33-10d). Proboscidial organs of several forms (Figures 33-10e-j), arranged in longitudinal rows, largest form dorsally located, smallest ventrally located. Macrognaths ventrally positioned, with five teeth; micrognaths numbering ten in dorsal arc.

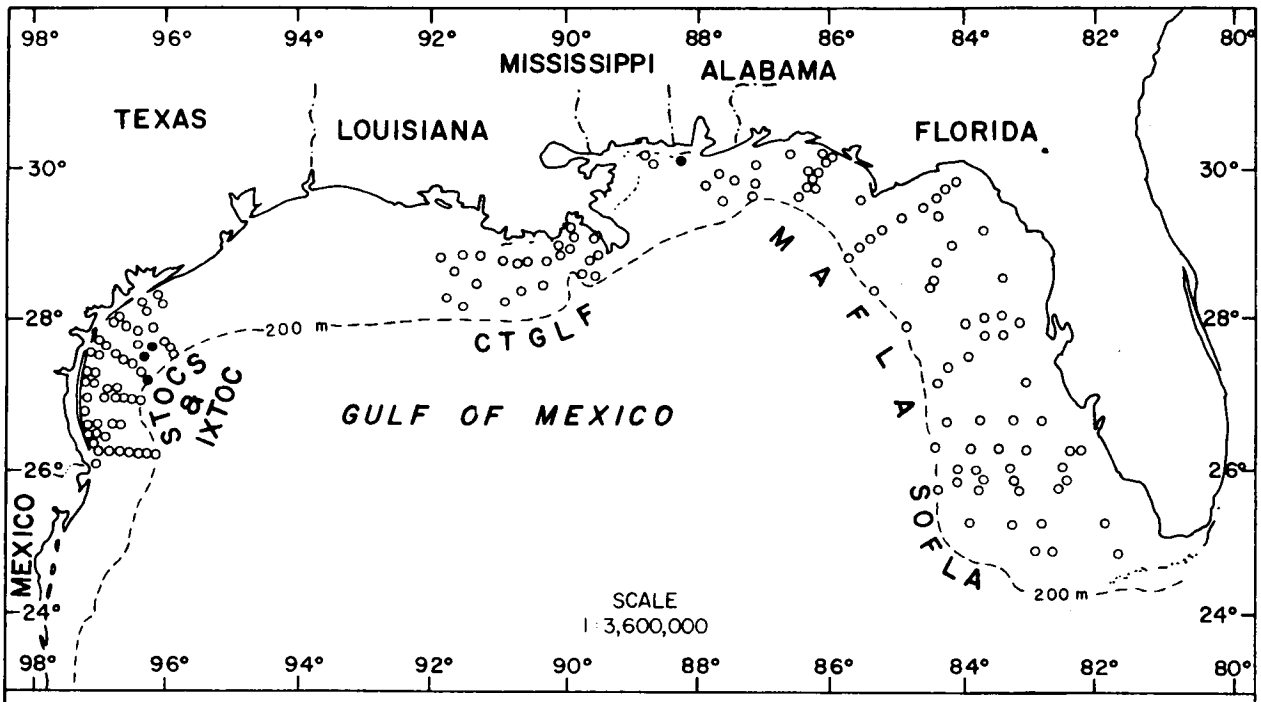

Figure 33-11. Distribution of Glycinde nordmanni on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

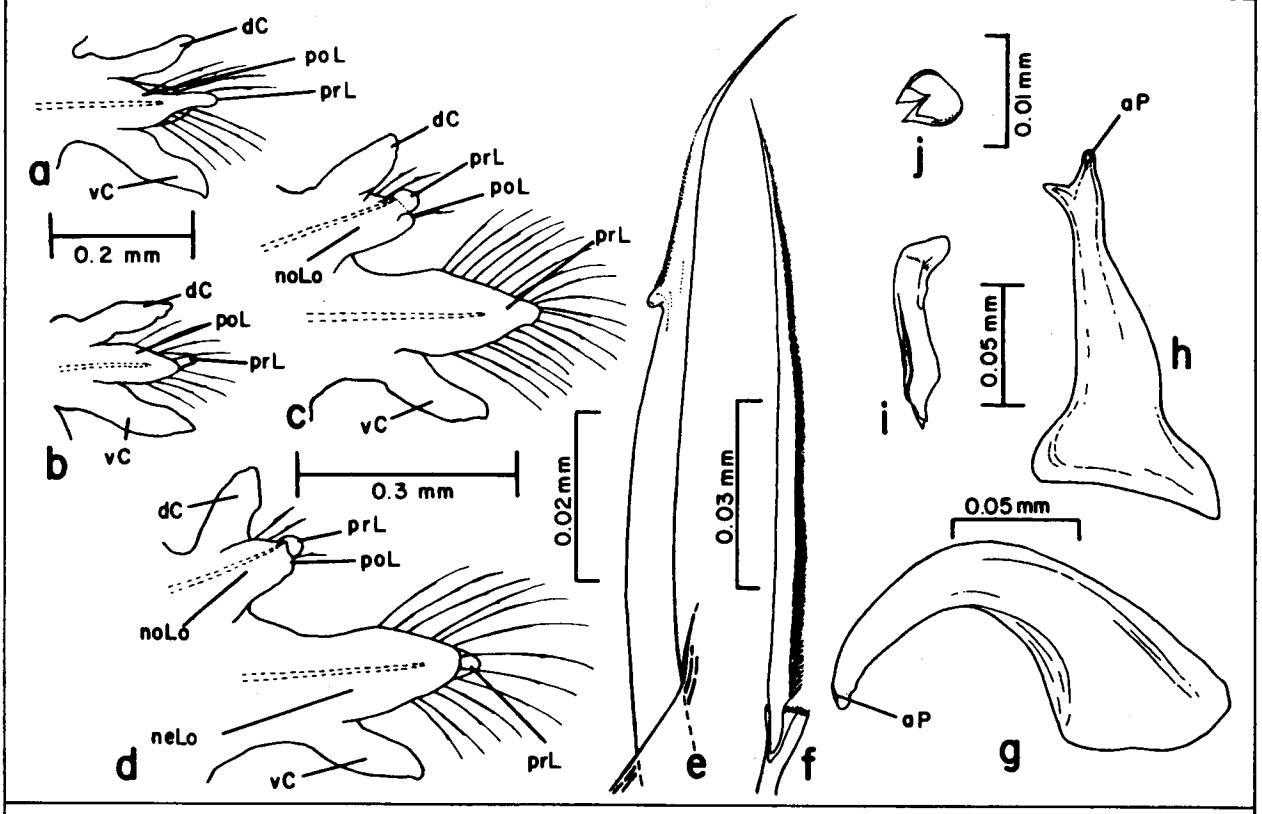

Figure 33-12. Glycinde nordmanni: a, uniramous parapodium, anterior view; b, same, posterior view; c, biramous parapodium, anterior view; d, same, posterior view; e, notoseta; f, neuroseta; g-j, proboscidial organs.

REMARKS: The notosetae of Glycinde have been previously described as possessing hoods (Hartman, 1950) and distal guards (Gardiner, 1976). The distal region of the notosetae from material examined was composed of setal strands, continuous from the basal region of the setae, terminating in a fringe above the bulbous projection (Figure 33-10c). The projection appeared to be composed of a "boss" of setal strands.
PREVIOUSLY REPORTED HABITAT: Intertidal to 47 m; sand mixed with mud or shell particles.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station from north-central Gulf (Figure 33-9); 12 m; sandy clayey silt.
DISTRIBUTION: New Jersey to North Carolina, Gulf of Mexico, Puerto Rico.

Glycinde nordmanni (Malmgren, 1865c)
Figures 33-11, 12a-j

Eone nordmanni--Fauvel, 1923:394, fig. 155h-n.
Glycinde nordmanni--Day, 1973:49, fig. 7i-k.
Glycinde nordmanni--Gardiner, 1976:173, fig. 20p-r.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2639A-11/77 (1 spec.); STOCS 3/II-2 Sp/77 (1 spec., USNM 89857), SB1-5 7/76 (1 spec., USNM 89855), SB3-1 8/76 (1 spec., USNM 89856), SB3-3 4/76 (2 spec., USNM 89854), SB3-5 5/76 (1 spec., USNM 89859), HR1-5 7/76 (1 spec., USNM 89858).
DESCRIPTION:
Length, 29+ mm (previously reported to 60 mm); width, to 1.2 mm. Body long, slender; all specimens incomplete with up to 126 segments. Prostomium with ten annulations; basal, seventh and eighth annulations may each possess a pair of eyes. Parapodia uniramous through setigers 36-37; presetal lobe long, basally broad, distally tapered (Figure 33-12a), extending beyond bluntly conical postsetal lobe (Figure 33-12b). Notopodia of biramous setigers bilobed; presetal lobe rounded, extending beyond blunt postsetal lobe (Figure 33-12c); notoaciculum projecting slightly at dorsal edge of postsetal lobe (Figure 33-12d). Dorsal and ventral cirri long, bluntly conical; dorsal cirri becoming broader posteriorly. Notosetae acicular, distal region with bulbous projection below tapered, serrate tip (Figure 33-12e). Neurosetae compound, spinigerous (Figure 33-12f). Proboscidial organs of several forms (Figure 33-12g-j), arranged in longitudinal rows, largest form dorsally located, smallest ventrally located. Macrognaths ventrally positioned, with five teeth; microgaths numbering 17-25 in dorsal arc.
PREVIOUSLY REPORTED HABITAT: 5-139 m; fine to medium sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Few records in western and central Gulf (Figure 33-11); 32-131 m; sandy silt, silty clay.
DISTRIBUTION: Western Europe, North Carolina, Gulf of Mexico.

Genus **Goniadides** Hartmann-Schröder, 1960

TYPE SPECIES: Goniadides aciculata Hartmann-Schröder, 1960.
REFERENCES:
Hartmann-Schröder, 1962:132.

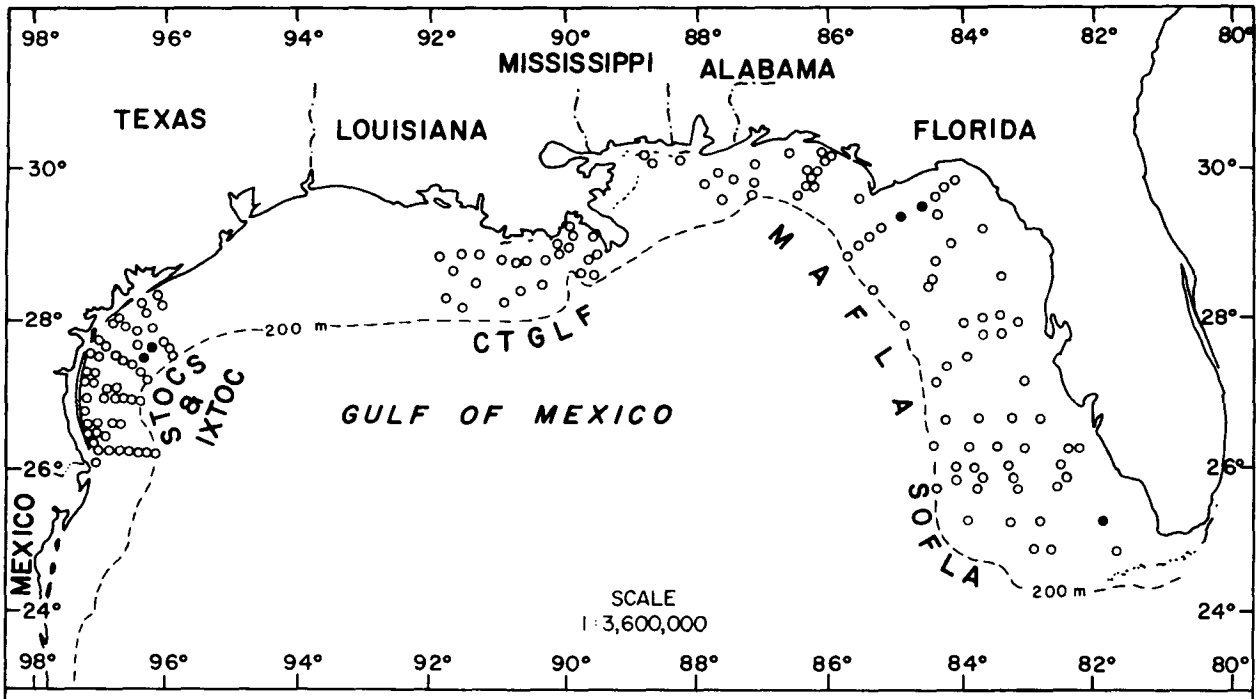

Figure 33-13. Distribution of Goniadides carolinae on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

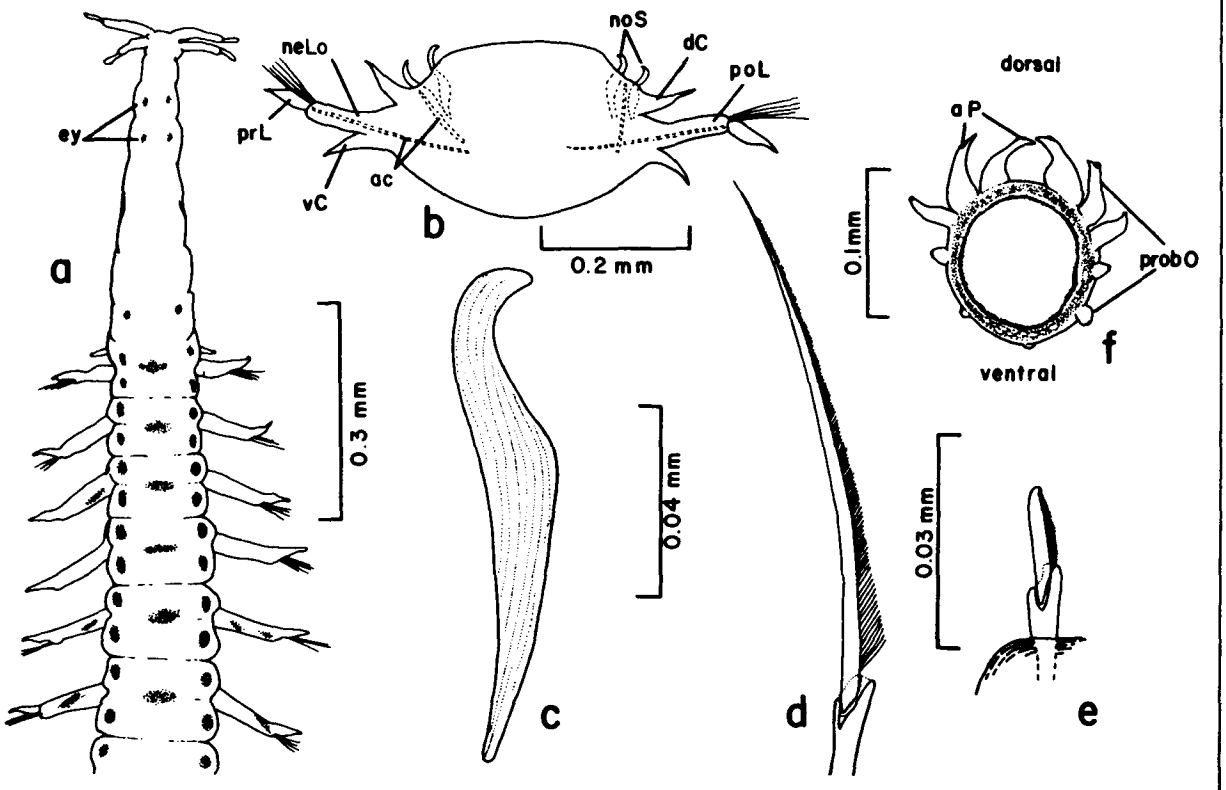

Figure 33-14. Goniadides carolinae: a, anterior end, dorsal view; b, anterior segment, cross-section, showing biramous parapodia; c, notoseta; d, spinigerous neuroseta; e, falcigerous neuroseta; f, cross-section of proboscis showing proboscidial organs.

Day, 1973:49.
Fauchald, 1977a:93.
DIAGNOSIS: Body small, slender, segments biannulate; pigmentation patterns distinctive. Prostomium with eight annulations; antennae at least as long as two distalmost annulations. Eyes often present on basal, distal, and subdistal annulations. First segment with single pair of lateral cirri only. Notopodial lobes absent. Notosetae acicular, arising from body wall above dorsal cirri. Proboscis without chevrons.

Goniadides carolinae Day, 1973
Figures 33-13, 14a-f

Goniadides carolinae Day, 1973:48, fig. 7a-h.
Goniadides carolinae--Gardiner, 1976:171, fig. 20c-h.

MATERIAL EXAMINED:
SOFLA 20D-8/81 (3 spec., USNM 89846), 20E-8/81 (6 spec., USNM 89842); MAFLA 2422C-7/76 (29 spec., USNM 89851), 2422E-7/76 (15 spec.), 2422I-7/76 (1 spec.), 2423E-7/76 (1 spec.); STOCS SB3-3 Sp/76 (5 spec., USNM 89849), SB3-6 Sp/76 (5 spec., USNM 89850), HR1-5 F/76 (4 spec., USNM 89848).
DESCRIPTION:
Length, to 24 mm (previously reported to 16 mm); width, to 0.7 mm (previously reported to 0.5 mm). Body small, slender, segments biannulate; complete specimens with up to 122 segments. Dorsal and ventral pigmented areas present along midlines and lateral edges of segments, also scattered areas on parapodial lobes (Figure 33-14a). Prostomial antennae equal, at least as long as two distalmost annulations; eyes sometimes present on basal, fifth and sixth annulations. Parapodia uniramous through setigers 8-9. Biramous parapodia (Figure 33-14b) with 1-2 curved acicular notosetae (Figure 33-14c). Notopodial lobes absent. Neuropodial lobes long, slender; presetal lobe conical, postsetal lobe short, truncate. Superior neurosetae compound, spinigerous (Figure 33-14d); inferior neurosetae falcigerous (Figure 33-14e). Proboscidial organs of two general forms (Figure 33-14f), dorsalmost form long, basally inflated, distally tapered with a beak; ventralmost form short, rounded; both forms decreasing in size ventrally. Macrognaths with 5-6 teeth; micrognaths numbering nine in dorsal arc, and one positioned ventrally between the macrognaths.
PREVIOUSLY REPORTED HABITAT: 10-20 m; common on sand.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered stations throughout northern Gulf (Figure 33-13); 19-82 m; coarse to medium-fine sand, silty fine sand.
DISTRIBUTION: North Carolina, Gulf of Mexico.

Genus **Ophioglycera** Verrill, 1885

TYPE SPECIES: Ophioglycera gigantea Verrill, 1885.
Hartman, 1950:35.
Fauchald, 1977a:94.
DIAGNOSIS: Body long, cylindrical anteriorly, dorsoventrally flattened from start of biramous parapodia. Prostomium with 9-10 annulations;

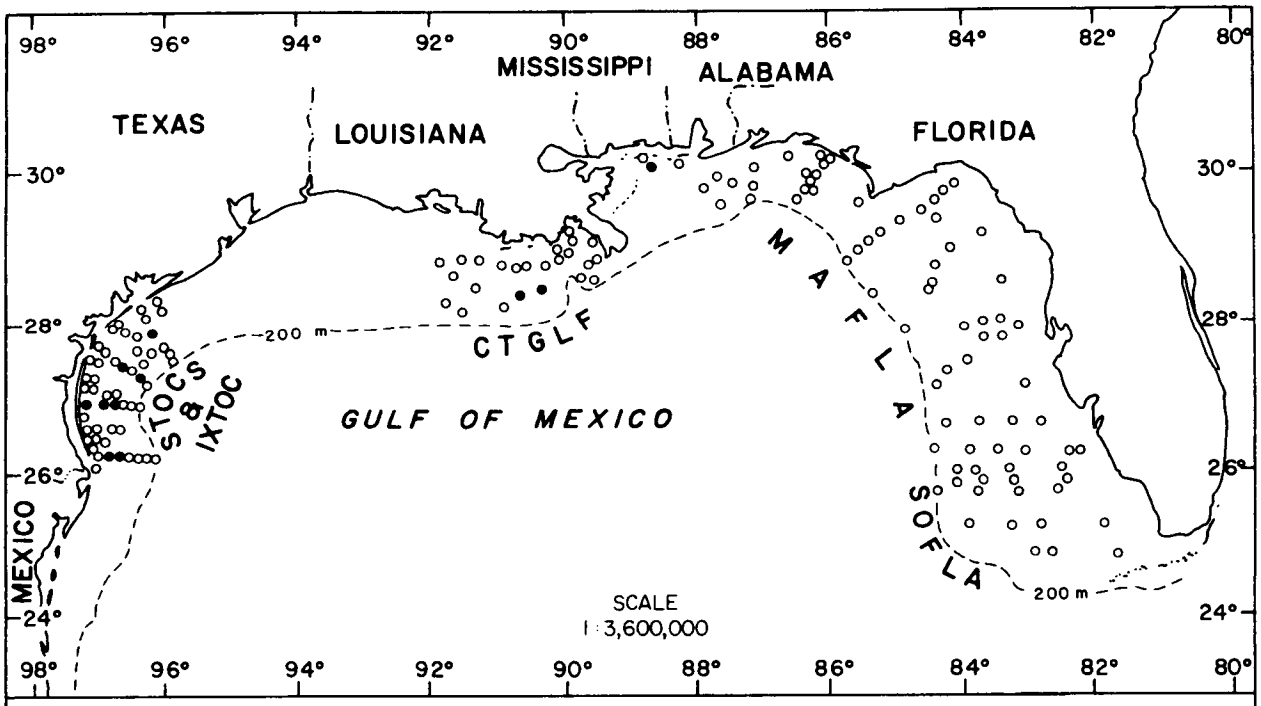

Figure 33-15. Distribution of Ophioglycera sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

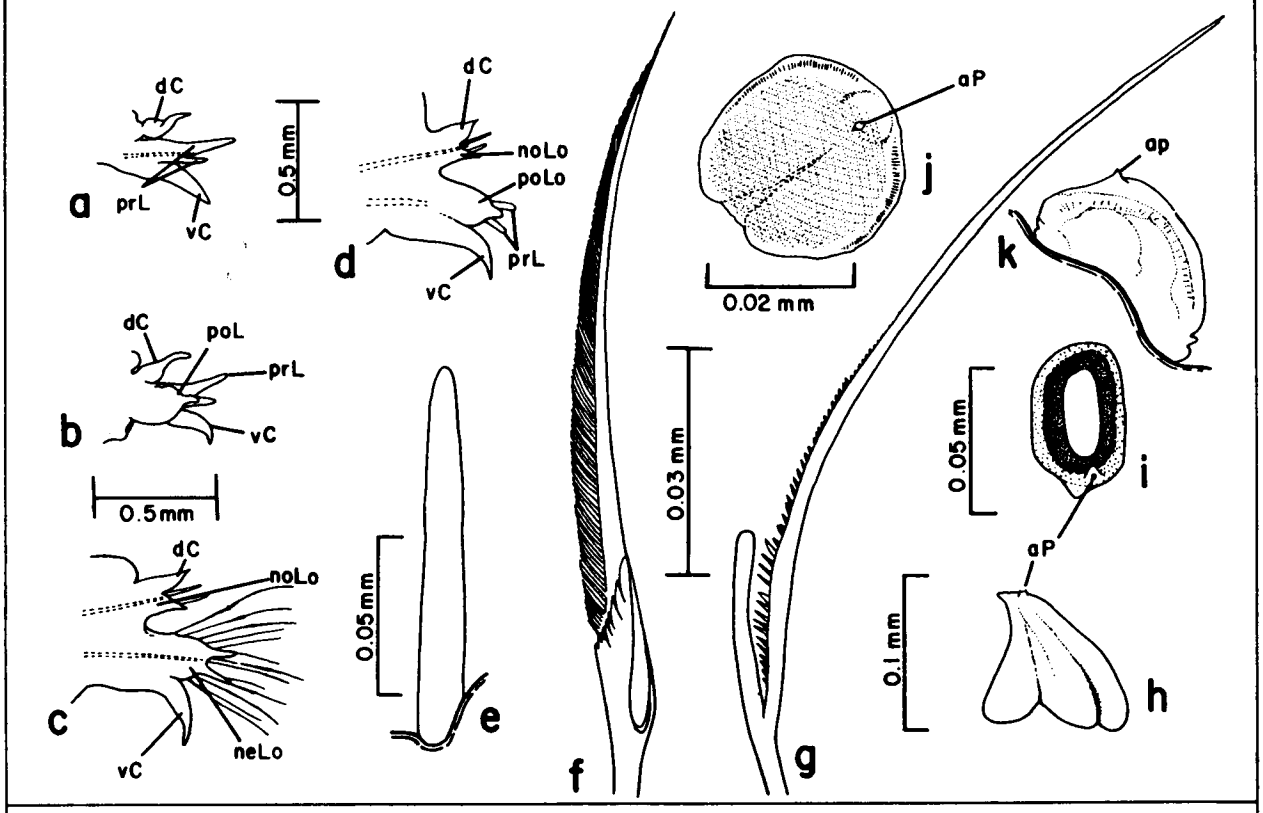

Figure 33-16. Ophioglycera sp. A: a, uniramous parapodium, anterior view; b, same, posterior view; c, biramous parapodium, anterior view; d, same, posterior view; e, notoseta; f, spinigerous neuroseta; g, lyrate neuroseta; h, proboscidial organ, large form, lateral view; i, same, dorsal view; j, proboscidial organ, small form, dorsal view; k, same, lateral view.

antennae equal in length; eyes absent. Notosetae acicular. Neurosetae predominantly spinigerous. Proboscis without chevrons.

Ophioglycera sp. A
Figures 33-15, 16a-k

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2638D-11/77 (1 spec., USNM 89839), 2638I-11/77 (2 spec., USNM 89838); CTGLF 03-1/78 (1 spec., USNM 89828), 04-1/78 (1 spec., USNM 89860); STOCS 2/I-2 W/77 (1 spec., USNM 89836), 2/II-5 11/76 (1 spec., USNM 89835), 2/II-1 W/77 (1 spec., USNM 89834), 6/II-1 11/76 (1 spec.), 1/III-2 F/77 (2 spec., USNM 89830), 4/III-3 F/76 (1 spec.), 5/III-4 W/76 (1 spec., USNM 89844), 1/IV-2 Sp/77 (1 spec., USNM 89842), 1/IV-1 F/77 (1 spec., USNM 89843), 5/IV-4 F/76 (1 spec., USNM 89841), 5/IV-2 Sp/77 (1 spec., USNM 89833); IXTOC S52-1 11/79 (2 spec., USNM 89845), S52-4 11/79 (1 spec., USNM 89829).
DESCRIPTION:
Length, 79+ mm; width, to 1.9 mm. Body long, slender, broad at start of biramous parapodia; largest specimen nearly complete with 197 segments. Prostomium with ten annulations; antennae dissimilar in length, distal pair shorter. First segment with a pair of small dorsolateral cirri. Following 50-54 segments uniramous. First two setigers with single presetal lobe; remaining setigers with additional smaller, inferior presetal lobe (Figure 33-16a). Postsetal lobe broad basally, tapered distally, shorter than presetal lobes (Figure 33-16b), similar throughout body length. Biramous setigers preceded by 0-3 transitional setigers with developing notopodial lobes. Thereafter, notopodial lobes short, conical, with slightly projecting aciculum (Figure 33-16c,d). Neuropodial lobe twice as long as notopodial lobe, with bluntly conical presetal lobes. Dorsal cirri with bulbous base and tapered tip on uniramous setigers, triangular on biramous setigers. Ventral cirri long, conical, extending beyond neuropodial lobes. Notosetae acicular (Figure 33-16e), numbering two per parapodium. Neurosetae including compound spinigers (Figure 33-16f) throughout, and 1-2 lyrate setae (Figure 33-16g) in superior position on biramous setigers. Proboscidial papillae of two forms, including large, elongate form with distal gnathal beak (Figure 33-16h,i), situated along ventral side of proboscis; and smaller, rounded form (Figure 33-16j,k). Macrognaths with 3-5 teeth; micrognaths numbering 20-27 in dorsal arc, 7-8 in ventral arc.
REMARKS: This species is most similar to Ophioglycera distorta (Moore, 1903b) in possessing uniramous parapodia through setigers 50-53. However, unlike O. distorta, which has elongate, digitiform notopodial lobes and capillary notosetae, Ophioglycera sp. A possesses short, triangular notopodial lobes and acicular notosetae. Ophioglycera sp. A also possesses previously undescribed lyrate setae. The presence of these setae could not be determined for O. distorta due to the damaged condition of the type specimen examined.
GULF OF MEXICO BLM-OCS OCCURRENCE: Predominantly in northwestern Gulf with a few records from north-central Gulf (Figure 33-15); 15-98 m; sand, silty sand, silty clayey sand, clayey sand, sandy and clayey silt, sandy silty clay, silty clay.

CHAPTER 34

Jerry M. Gathof

FAMILY **LACYDONIIDAE** Bergström, 1914

INTRODUCTION

Lacydoniids externally resemble glycerids in the structure of the prostomium and setal morphology, but also resemble nephtyids in the shape of the parapodia. The body is long, slightly convex dorsally, with distinct segments. The prostomium may be rounded or trapezoidal in shape, and possesses biannulate or filiform frontal antennae. Eyes, when present, occur as one pair and are subepidermal. A single apodous segment follows the prostomium and may possess a pair of tentacular cirri. Parapodia of the first setiger are uniramous with neurosetae only; those of setigers 2-4 may be uniramous or biramous, and the remaining setigers have biramous parapodia. Noto- and neuropodia consist of distinct lobes separated by a ciliated furrow posteriorly. Notosetae are simple and limbate with minute serrations along the convex margin. Neurosetae include compound serrate spinigers and occasionally limbate setae as well. The pygidium has two anal cirri. The proboscis is eversible; jaws are absent.

Recent revisions of the family include Pettibone (1963:185) who erected a separate family, Paralacydoniidae, to contain Paralacydonia paradoxa, and maintained Lacydoniidae to include Lacydonia and Pseudolacydonia. Ushakov (1972:226) and Fauchald (1977a:94) preferred to retain P. paradoxa in the family Lacydoniidae. The latter classification is followed herein.

Three genera and eight species were recognized by Fauchald (1977a:94) for the family. Two genera and two species have been identified from the Gulf of Mexico BLM-OCS material.

PRINCIPAL DIAGNOSTIC CHARACTERS

Characters important in separating genera of the Lacydoniidae include the shape of the prostomium (rounded or trapezoidal), the shape of the frontal antennae (biannulate or filiform), and the presence of tentacular cirri. Important specific characters include the presence of eyes, the number of anterior setigers bearing uniramous parapodia, and the presence of modified foliaceous parapodial lobes.

BIOLOGICAL NOTES

Lacydoniids are errant, motile polychaetes found on mud bottoms with gravel and shell hash (Pettibone, 1963:186). They are also reported among bryozoans and algae (Fauvel, 1923:198). No studies have reported feeding strategies in the Lacydoniidae but they may be motile carnivores or omnivores using their eversible proboscis to capture prey. No information on reproduction in the family could be found.

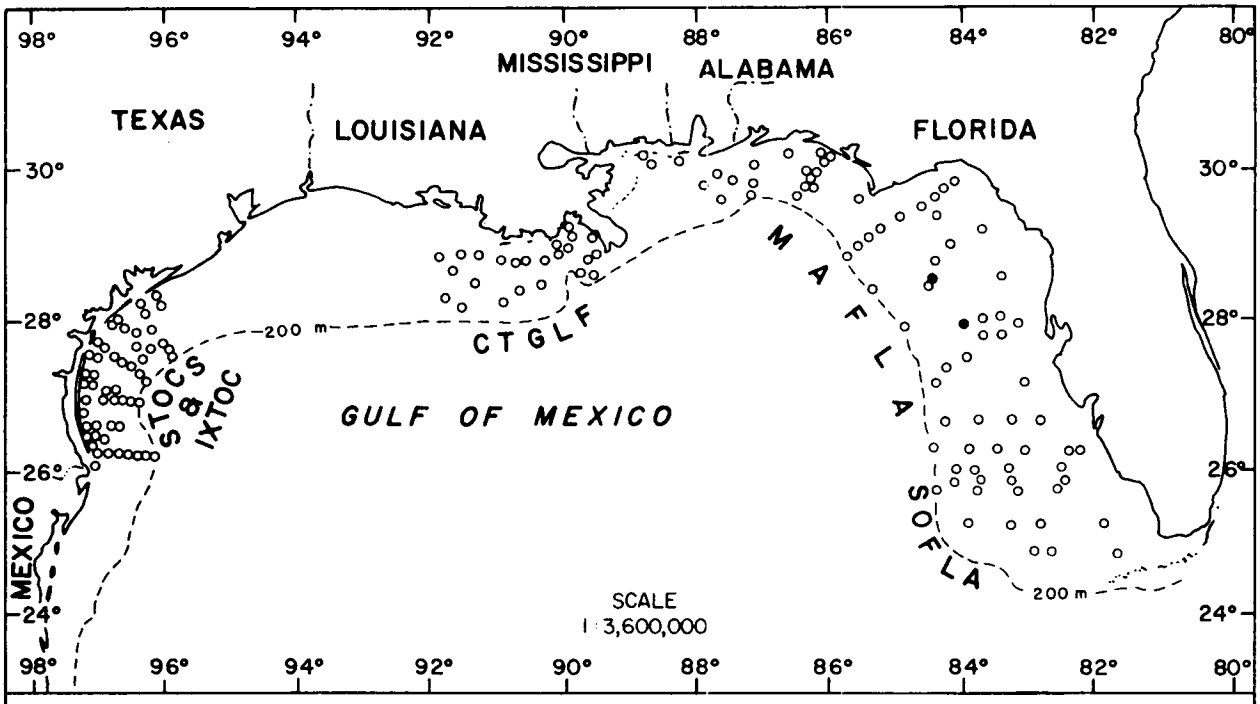

Figure 34-1. Distribution of Lacydonia miranda on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

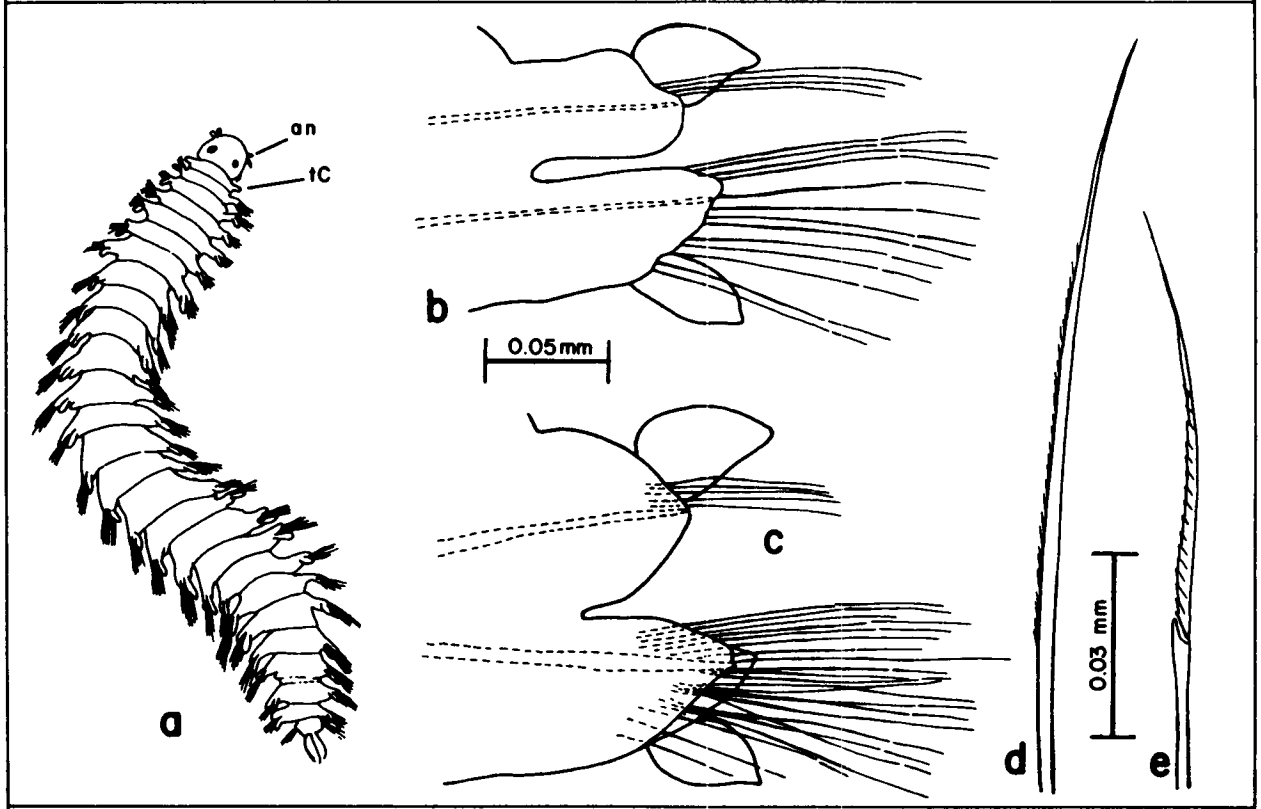

Figure 34-2. Lacydonia miranda: a, whole worm, dorsal view; b, parapodium from setiger 5, anterior view; c, parapodium from setiger 25, anterior view; d, simple notoseta; e, spinigerous neuroseta.

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

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

1a. Peristomium with tentacular cirri; parapodia biramous from setiger 4. . . . . .**Lacydonia**, p. 34-3

1b. Peristomium without tentacular cirri; parapodia biramous from setiger 2. . . . . .**Paralacydonia**, p. 34-5

Genus **Lacydonia** Marion and Bobretzky, 1875

TYPE SPECIES: Lacydonia miranda Marion and Bobretzky, 1875.
REFERENCES:
Ushakov, 1972:227.
Fauchald, 1977a:94.
DIAGNOSIS: Prostomium rounded with four small, filiform, frontal antennae. Peristomium achaetous, with one pair of tentacular cirri. Setigers 1-3 with neuropodia only; remaining parapodia distinctly biramous. Dorsal and ventral cirri digitiform or foliose. Notosetae limbate, finely serrate; neurosetae as compound, serrate spinigers. Pygidium with 2-4 anal cirri.

Lacydonia miranda Marion and Bobretzky, 1875
Figures 34-1, 2a-e

Lacydonia miranda--Fauvel, 1923:198, fig. 74a-d.
Lacydonia miranda--Ushakov, 1972:227.
Lacydonia miranda--Hartmann-Schröder, 1971:122.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2211I-8/77 (1 spec., USNM 89727), 2315A-11/77 (1 spec.).
DESCRIPTION:
Length, to 8 mm (previously reported to 5 mm); width, to 1 mm. Body with scattered brown pigment dorsally, distinctly segmented; larger specimen complete with 26 setigers. Prostomium with frontal antennae attached at anterolateral margins, and one pair of large, black eyes (Figure 34-2a). Anterior parapodia with two distinct lobes (Figure 34-2b); dorsal and ventral cirri foliose. Posterior parapodia similar to anterior parapodia, setal lobes slightly broader (Figure 34-2c). Capillary notosetae with faintly serrate cutting edge (Figure 34-2d). Neurosetae as compound spinigers with serrate cutting edge (Figure 34-2e).
REMARKS: Lacydonia miranda is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Found among bryozoans.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off western Florida (Figure 34-1); 38-43 m; coarse sand, silty fine sand.

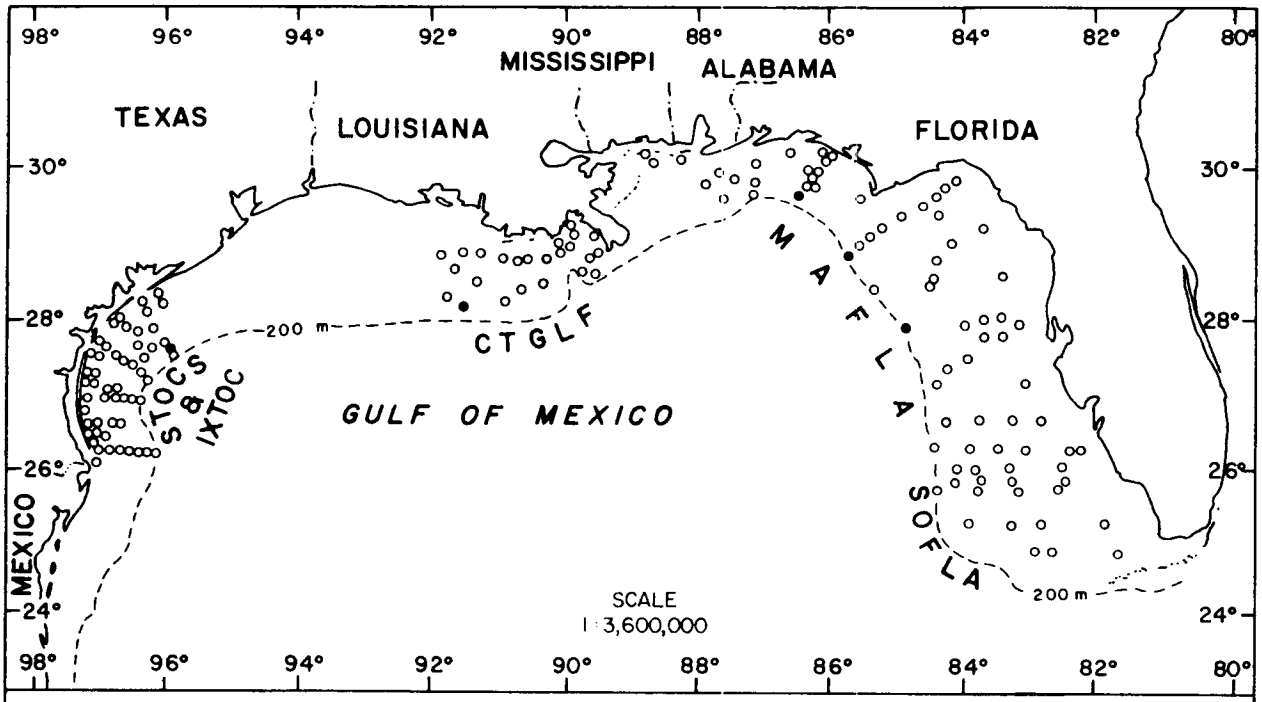

Figure 34-3. Distribution of Paralacydonia paradoxa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

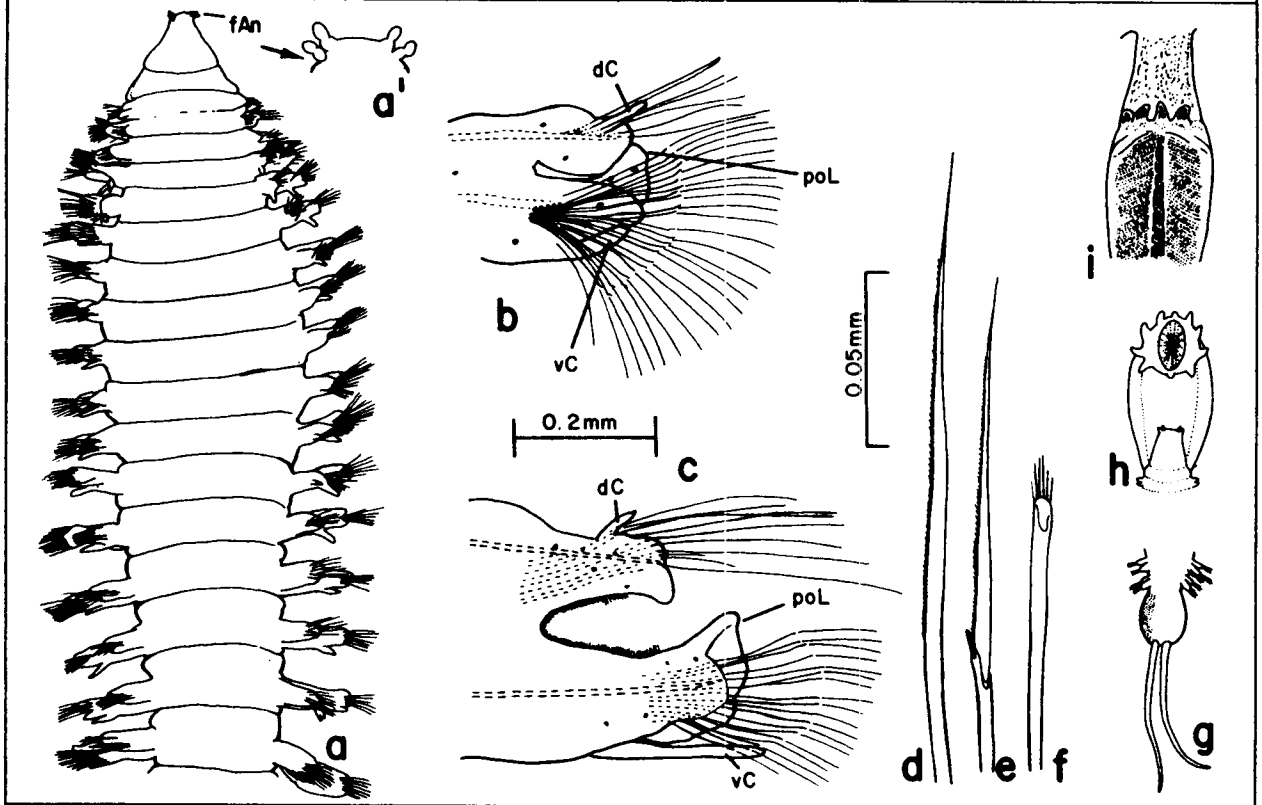

Figure 34-4. Paralacydonia paradoxa: a, anterior end, dorsal view; a', enlargement of tip of prostomium and frontal antennae; b, parapodium from setiger 5, anterior view; c, parapodium from setiger 25, anterior view; d, simple notoseta; e, spinigerous neuroseta; f, shaft head of neuroseta (blade removed); g, pygidium; h, everted proboscis; i, longitudinal section of proventricle (figures g-i after Ushakov 1972, pl. 34, figs. 4-6).

DISTRIBUTION: Mediterranean, English Channel, Ireland, Gulf of Mexico.

Genus **Paralacydonia** Fauvel, 1913

TYPE SPECIES: Paralacydonia paradoxa Fauvel, 1913:54.
REFERENCES:
Ushakov, 1972:228.
Fauchald, 1977a:94.
DIAGNOSIS: Prostomium trapezoidal to triangular, with four biannulate frontal antennae. Peristomium apodous, without tentacular cirri. Setiger 1 with uniramous parapodia; remaining setigers with distinct noto- and neuropodia. Dorsal and ventral cirri digitiform. Notosetae simple with minutely serrate margin; neurosetae including compound spinigers and simple setae with minutely serrate margin. Pygidium with two anal cirri.

Paralacydonia paradoxa Fauvel, 1913
Figures 34-3, 4a-i

Paralacydonia paradoxa--Fauvel, 1923:198, fig. 74a-d.
Paralacydonia paradoxa--Ushakov, 1958:416, fig. 1a-d; 1972:228.
Paralacydonia paradoxa--Pettibone, 1963:184, fig. 46.
Paralacydonia paradoxa--Day, 1967:350, fig. 15.3.e-h.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2212D-8/77 (1 spec.), 2427F-8/77 (1 spec.), 2536F-6/75 (2 spec., USNM 89728); CTGLF 15-8/78 (1 spec., USNM 89730); STOCS 6/I-1 W/76 (1 spec., USNM 89729).
DESCRIPTION:
Length, to 10 mm (previously reported to 15 mm); width, to 1.5 mm. Body distinctly segmented, with scattered pigment spots dorsally; complete specimens with up to 43 setigers. Prostomium triangular, frontal antennae small (Figure 34-4a,a'). Eyes absent. Peristomium without setae or tentacular cirri. Setiger 1 with neuropodia only; notosetae absent. Parapodia biramous from setiger 2. Anterior parapodia with digitiform noto- and neuropodial lobes and dorsal and ventral cirri; neuropodial postsetal lobes foliose (Figure 34-4b). Posterior parapodia similar to anterior parapodia, setal lobes slightly longer (Figure 34-4c). Capillary notosetae with serrate cutting edge (Figure 34-4d). Neurosetae including compound spinigers having serrate blades (Figure 34-4e) and 5-6 long spines on shaft head (Figure 34-4f), and single capillary seta in inferior position. Pygidium with two long anal cirri (Figure 34-4g). Proboscis with long distal papillae (Figure 34-4h); posteriorly connected with thick, muscular pharynx (Figure 34-4i).
REMARKS: Some Gulf of Mexico BLM-OCS specimens possessed faint eyespots on the prostomium.
PREVIOUSLY REPORTED HABITAT: 7-5498 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in northern Gulf along edge of outer continental shelf (Figure 34-3); 98-189 m; silty very fine sand, silt, clayey and sandy silt, silty clay.
DISTRIBUTION: Yellow Sea, South China Sea, Mediterranean, South Africa, east and west coasts of North America, Gulf of Mexico.

CHAPTER 35

John L. Taylor

FAMILY NEPHTYIDAE Grube, 1850

INTRODUCTION

Nephtyids are long, deep-bodied worms, nearly rectangular in cross-section. They are narrow in front, reach maximum width in anterior segments, and narrow abruptly through far posterior segments. Specimens observed in Gulf of Mexico BLM-OCS collections average 10 mm in length and at least 0.5 mm in width, but may range up to ten times that size. Preserved specimens are usually colorless, but in some species, dark pigment patterns on the dorsal surface of the head and some anterior segments will persist in preservative.

The prostomium (head) is somewhat narrower than the anterior setigers; its posterior half lies above and within the lateral borders of the first one or more segments. In dorsal view, the head is flat and generally rectangular or pentagonal in outline. At each anterolateral angle is a short, conical antenna (except in the genus Inermonephtys); a second pair of ventrolateral antennae may be visible from above. One or two pairs of eyes may be present, often evident in juveniles but not in adults of the same species. A pair of nuchal organs lies near the posterolateral borders of the prostomium; in Inermonephtys each nuchal organ has an eversible, cirriform process. The eversible pharynx (proboscis), when extended, exposes subterminal, longitudinal rows of papillae and a terminal circlet of bifid papillae (absent in Inermonephtys). Midway along the inner lining of the pharynx is a pair of opposing paragnaths with triangular, spindle-shaped, or more evenly elongate teeth. In most species, the neuropodial lobe of the first setiger (tentacular segment) is broadly expanded and supports a conspicuous, laterally directed ventral cirrus. The notopodial lobe may have a dorsal cirrus which, if present, is usually smaller than the ventral one. On subsequent segments, notopodia and neuropodia become more widely separated. In most species, an interramal cirrus (branchia) gradually becomes evident. This process is usually cirriform in shape, extends downward from the notopodia, and curls inward (involute) or outward (recurved) at the free end. At its base, the branchia may appear enlarged and often has a comparatively short accessory cirrus that points outward. Notopodia and neuropodia typically have rounded to triangular acicular lobes, with pre- and postacicular lamellae. Other parapodial structures generally include a dorsal cirrus just above the branchia, and a ventral cirrus at the base of the postacicular neuropodial lamella. Noto- and neurosetae usually show great similarity. Preacicular setae (absent from the neuropodia of setiger 1) are faintly to strongly laddered capillaries; postacicular setae include smooth or toothed capillaries, as well as lyrate setae in some species. The pygidium has a dorsally directed anus, with a single, extremely long and thread-like caudal cirrus in medial position.

The family contains only four genera and roughly 100 described species. Nephtys is the largest genus with some 50 species, followed by the genus Aglaophamus with about 45 species. Eight species in all four genera are known from Gulf of Mexico BLM-OCS collections. Useful

references to the Nephtyidae and to species recorded from the Gulf of Mexico include the following: Dales, 1963; Day, 1967 and 1973; Ehlers, 1887; Fauchald, 1968a and 1977a; Fauchald and Jumars, 1979; Fauvel, 1923; Gardiner, 1976; Hartman, 1940, 1945, 1948, 1950, and 1951a; McIntosh, 1885; Perkins, 1980; and Pettibone, 1963.

PRINCIPAL DIAGNOSTIC CHARACTERS

Interspecific variation occurs in the shape of the prostomium (Figures 35-2a; 4a; 10a,d); the size and shape of the anterolateral and ventrolateral antennae; the presence of eyes or some pattern of superficial pigmentation; and the position, size, and structure of the nuchal organs. Regardless of whether the pharynx is fully extended, a midventral incision must be made to determine the shape of the paragnaths. On the outer surface of the pharynx, papillae are generally present (Figure 35-4b); observations of these should include their arrangement, number, shape, and relative size.

Diagnostic features of the tentacular segment include the presence of a dorsal cirrus; size and shape of the neuropodial lobe; and size, shape, and position of the ventral cirrus. Interramal cirri (branchiae) (Figure 35-4d) first appear between the second and about the fifteenth setigers. Their shape is often species specific, and though usually cirriform, may be lobate, vestigial, or absent entirely. Other important diagnostic features of the parapodia include size and shape of the acicular lobe, the pre- and postacicular lamellae, and the dorsal and ventral cirri.

Acicula and setae may be important diagnostically. Acicula may have evenly tapered, finely pointed or rounded tips, greatly expanded tips, or hooked tips. Among the various kinds of capillary and lyrate setae found within the family, differences among species tend to be subtle and difficult to discern. In laddered capillaries (Figure 35-8d), there may be differences in length and internal structure; in dentate capillaries (Figures 35-2e, 6c), there may be differences in size, configuration, and distribution of teeth; and in lyrate setae (Figures 35-12c, 16c), overall shape and comparative length of the prongs may be helpful in species separation.

BIOLOGICAL NOTES

Nephtyids are a commonly collected, cosmopolitan group, which occur in most sediment types that have a fairly generous percentage of sand. They have a broad bathymetric range, and inhabit estuarine, coastal, and offshore waters where they are known to feed as predators and omnivores. These worms are active swimmers and burrowers and do not construct permanent tubes. In many community studies, nephtyids have been considered as a characterizing taxon of level-bottom habitats.

In this family, the sexes are separate and gametes are released freely into the sea to accomplish fertilization. There is some evidence that certain species may undergo epitoky during their reproductive period (Schroeder and Hermans, 1975:32), developing modified parapodial lobes and setae.

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

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

1a. Pre- and postacicular lobes vestigial or absent (Figure 35-2b,c) . . . . . **Micronephthys**, p. 35-3

1b. Pre- and postacicular lobes present, flattened and expanded as lamellae (Figure 35-4d). 2

2a. Interramal branchiae recurved (Figures 35-6b, 10c) . . . . . **Nephtys**, p. 35-5

2b. Interramal branchiae involute (Figures 35-12b, 16b). 3

3a. Anterolateral antennae present (Figure 35-12a); pharynx with subterminal and terminal papillae . . . . . **Aglaophamus**, p. 35-13

3b. Anterolateral antennae absent (Figure 35-16a); pharynx without papillae. . . . . **Inermonephtys**, p. 35-19

Genus **Micronephthys** Friedrich, 1937

TYPE SPECIES: Micronephthys minuta (Théel, 1879).
REFERENCES:
Hartman, 1950:130.
Pettibone, 1963:188.
Fauchald, 1968a:7; 1977a:97.
DIAGNOSIS: Prostomium with anterolateral and ventrolateral antennae. Pharynx with 14 longitudinal rows of subterminal papillae, additional cirriform papillae near pharyngeal opening, and a pair of long paragnaths. Tentacular segment with small notopodia lacking dorsal cirri, and larger, laterally expanded neuropodia with well-developed ventral cirri. Following parapodia with conical acicular lobes and rudimentary pre- and postacicular lamellae. Dorsal and ventral cirri present. Branchiae cirriform and few in number, or absent. Neurosetae all smooth capillaries; notosetae including preacicular laddered capillaries and postacicular smooth capillaries; lyrate setae occasionally present.

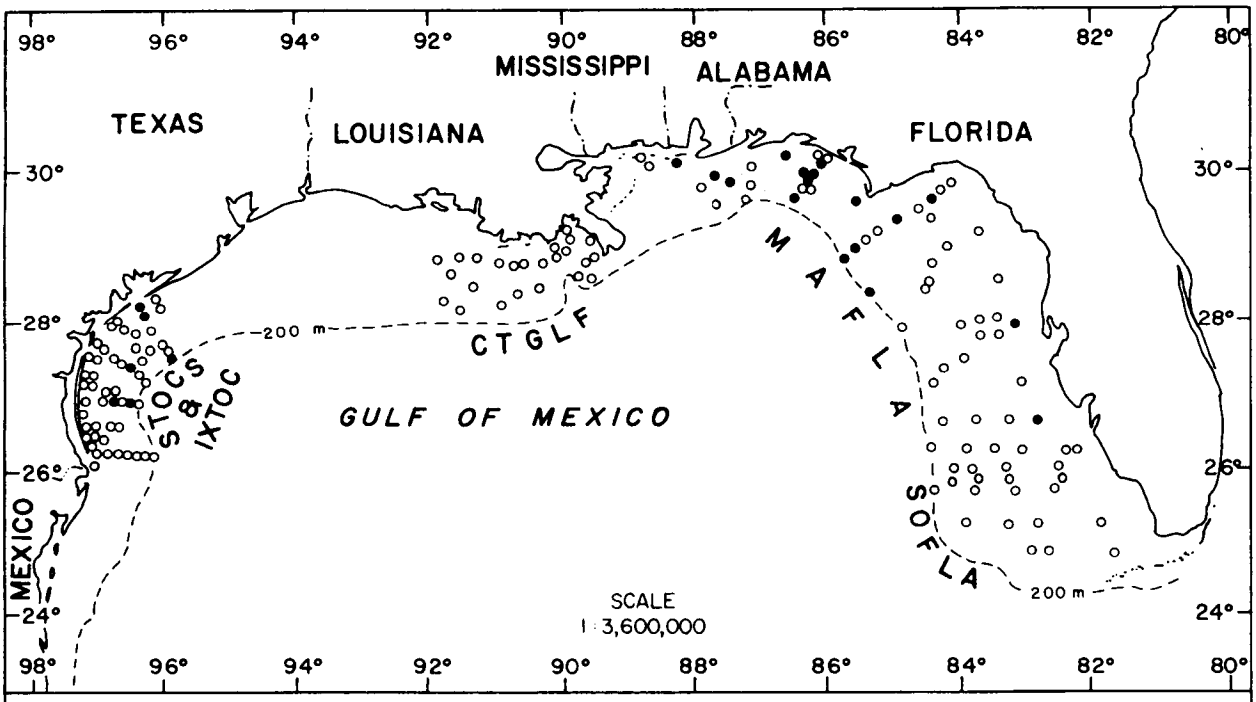

Figure 35-1. Distribution of Micronephthys minuta on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

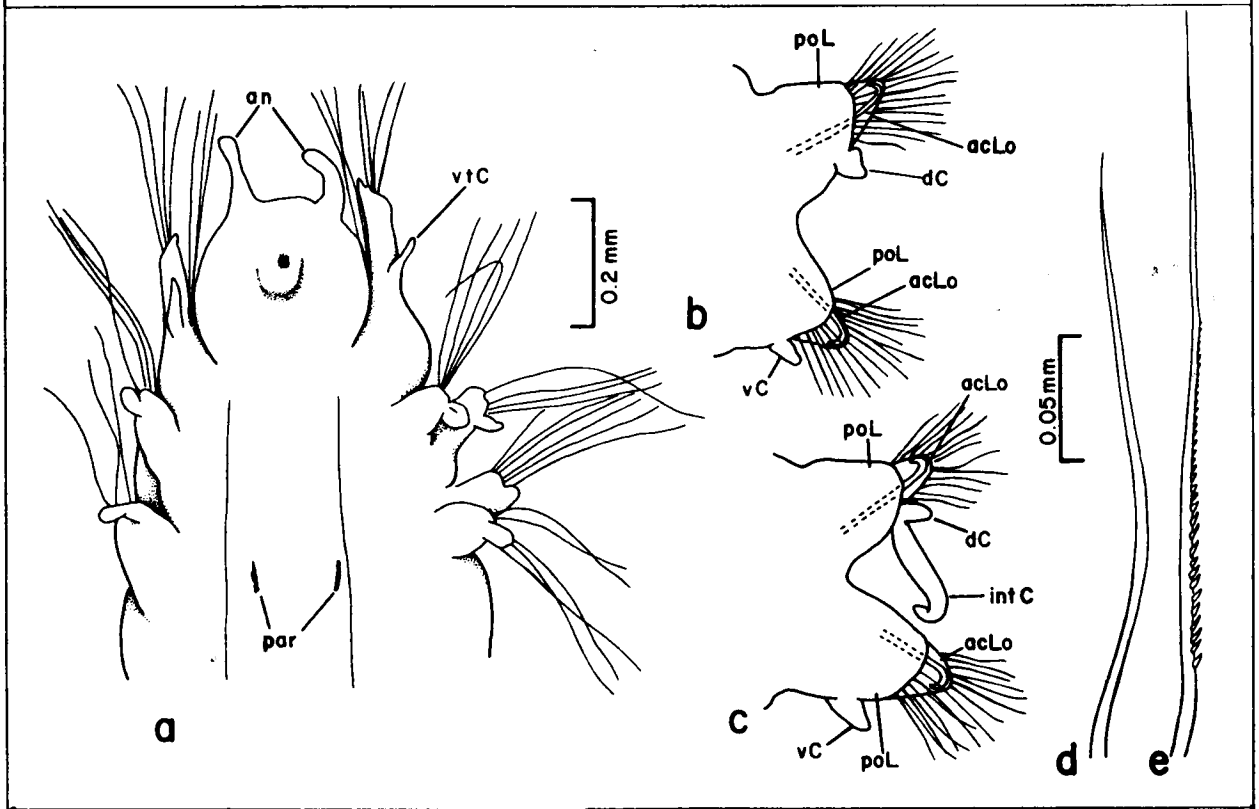

Figure 35-2. Micronephthys minuta: a, anterior end, dorsal view; b,c, parapodia, posterior view (showing rudimentary postacicular lobes); d, smooth postacicular seta; e, toothed postacicular seta (Figures b, c from Pettibone 1963:189, fig. 47b, c).

Micronephthys minuta (Théel, 1879)
Figures 35-1, 2a-e

Nephthys minuta Théel, 1879:28, pl. 2, fig. 18.
Micronephthys minuta--Hartman, 1950:130.
Nephthys minuta--Ushakov, 1955:218, fig. 68g.
Micronephthys minuta--Pettibone, 1963:188, fig. 47b,c.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2B-5/81 (6 spec., USNM 89608), MAFLA 2207E-11/77 (3 spec., USNM 89609), 2313K-11/77 (1 spec.), 2423K-8/77 (3 spec.), 2641H-6/75 (1 spec.), 2642C-6/75 (1 spec.); STOCS 3/III-1 F/76 (1 spec., USNM 89610).
DESCRIPTION:
Length, to 5 mm (previously reported to about 20 mm); width, to 1 mm (previously reported to about 3 mm). Prostomium (Figure 35-2a) rounded, with anterolateral antennae somewhat larger than ventrolateral pair. Eyes absent. Parapodia (Figure 35-2b,c) without pre- and postacicular lamellae. Dorsal and ventral cirri short, triangular. Interramal cirri short, digitiform, with free end straight or variously curved; first appearing about setiger 10. Acicula curved, pointed. Postacicular setae including smooth (Figure 35-2d) and faintly to strongly toothed (Figure 35-2e) capillaries. Lyrate setae absent.
REMARKS: The small size of Gulf of Mexico specimens of Micronephtys minuta may result in confusion with juveniles of species of Nephtys. M. minuta is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Coastal and offshore in sand, mud, and foraminiferan ooze.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in northeastern and western Gulf (Figure 35-1); 10-189 m; coarse to fine-very fine sand with moderate mixtures of silt and clay.
DISTRIBUTION: Cosmopolitan in boreal, temperate, and tropical seas.

Genus **Nephtys** Cuvier, 1817

TYPE SPECIES: Nephtys hombergii Savigny, 1818.
REFERENCES:
Savigny In Lamarck, 1818:314.
Hartman, 1950:84.
Pettibone, 1963:193.
Day, 1967:340.
Fauchald, 1968a:7; 1977a:97.
DIAGNOSIS: Prostomium with anterolateral and ventrolateral antennae. Pharynx with 22 longitudinal rows of subterminal papillae posterior to mid-dorsal and mid-ventral papillae; a circlet of terminal, bifid papillae; and a pair of triangular paragnaths. Tentacular segment with ventral cirri; dorsal cirri present or absent. Subsequent parapodia with well-developed pre- and postacicular lamellae. Dorsal and ventral cirri present; branchiae usually cirriform and recurved. Neurosetae all smooth capillaries; notosetae including preacicular laddered and postacicular smooth to toothed capillaries, and occasionally lyrate setae.

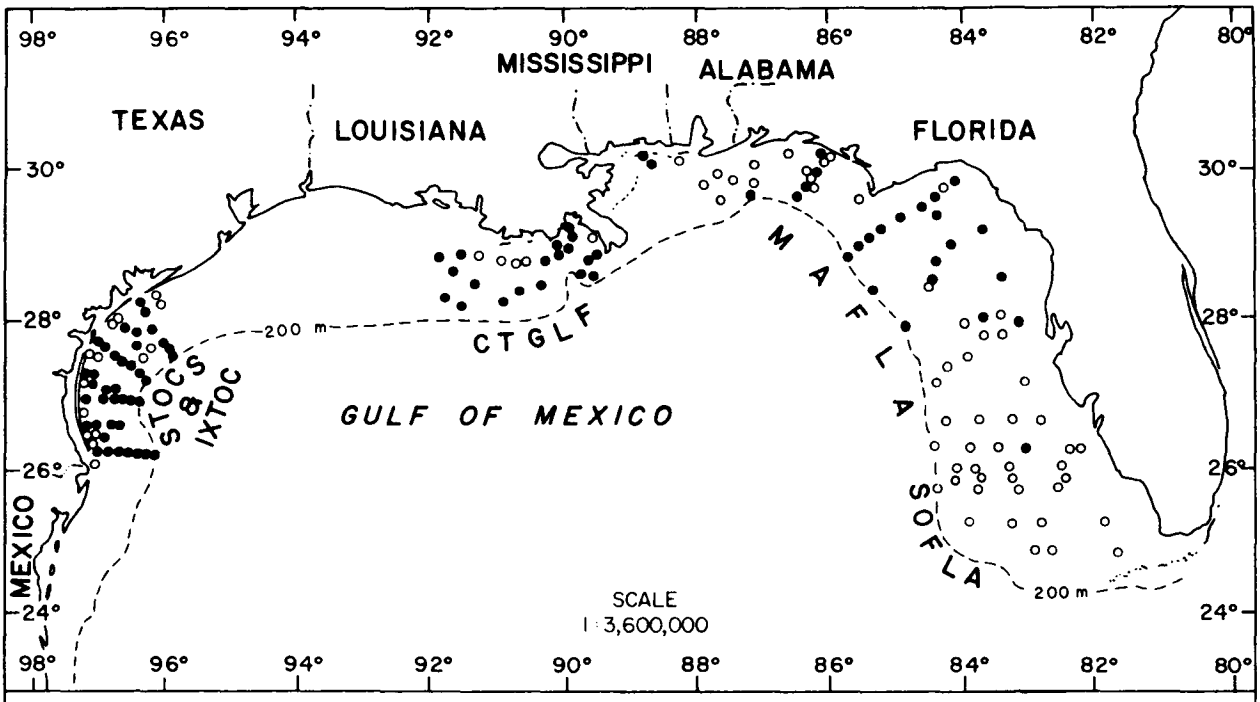

Figure 35-3. Distribution of Nephtys incisa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

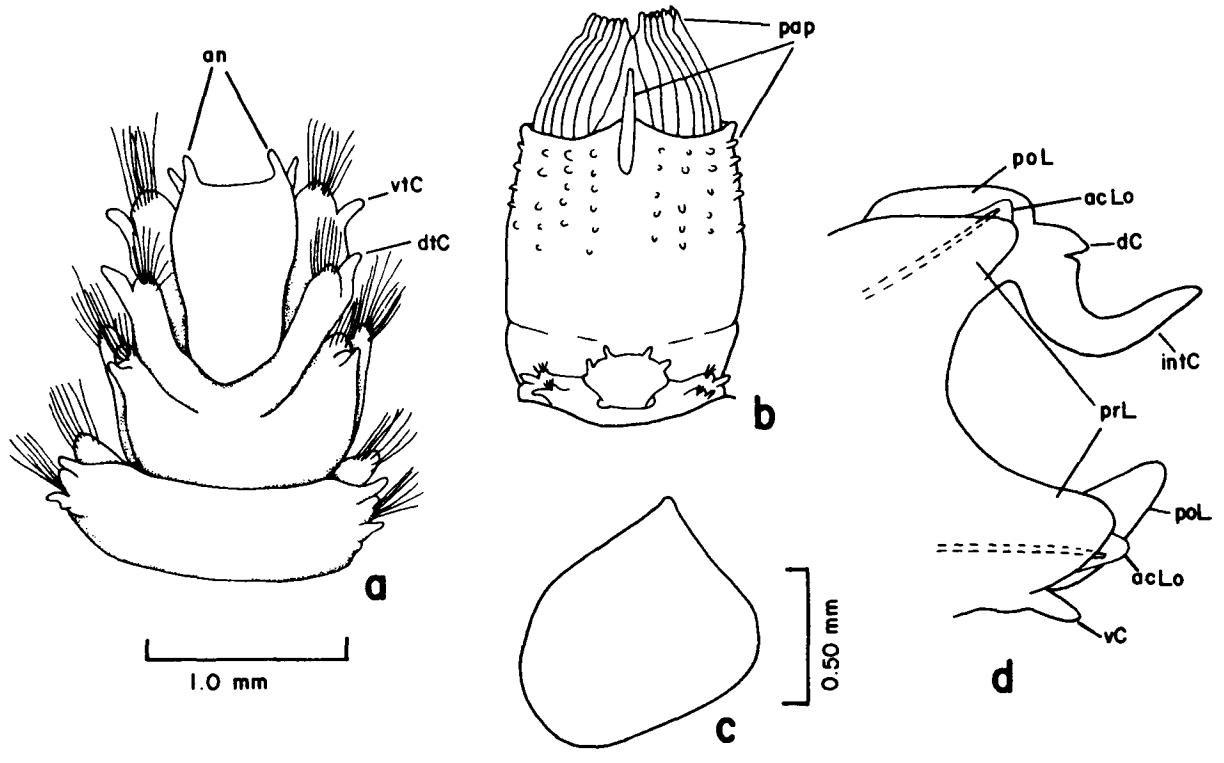

Figure 35-4. Nephtys incisa: a, anterior end, dorsal view; b, same, pharynx everted; c, paragnath; d, left parapodium from setiger 20, anterior view (Figure b from Pettibone 1963:197, fig. 49b).

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

1a. Tentacular segment with dorsal cirri (Figure 35-4a). 2
1b. Tentacular segment without dorsal cirri (Figure 35-8a) 3

2a. Preacicular lamellae of parapodia at least as large as acicular lobes (Figure 35-4d). . . . . .**Nephtys incisa**, p. 35-7
2b. Preacicular lamellae of parapodia smaller than acicular lobes (Figure 35-6b). . . . . .**Nephtys simoni**, p. 35-9

3a. Middle and posterior segments with large dorsal lamellae (Figure 35-8c) in addition to pre- and postacicular lamellae . . . . . **Nephtys squamosa**, p. 35-11
3b. Middle and posterior segments without large dorsal lamellae. . . 4

4a. Neuropodia of tentacular segment broadly expanded (Figure 35-10d); ventral tentacular cirri arising no further forward than anterior limit of notopodial lobes . . . . . .**Nephtys bucera***
4b. Neuropodia of tentacular segment moderately expanded; ventral tentacular cirri arising well forward of anterior limit of notopodial lobe (Figure 35-10a). . . . . **Nephtys picta**, p. 35-11

*Known from Gulf of Mexico inshore areas; not found in BLM-OCS collections.

Nephtys incisa Malmgren, 1865
Figures 35-3, 4a-d

Nephtys incisa Malmgren, 1865a:105, pl. 12, fig. 21.
Nephtys incisa--Fauvel, 1923:369, fig. 144a,b.
Nephtys incisa--Pettibone, 1963:198, fig. 49a,b, 51a.
Nephtys incisa--Day, 1973:43.
Nephtys incisa--Gardiner, 1976:154, fig. 16c,d.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2638D-7/76 (1 spec., USNM 89611); CTGLF 03-5/78 (4 spec., USNM 89612); STOCS 6/IV-1 S/76 (3 spec., USNM 89613); IXTOC S51-12/79 (2 spec., USNM 89614).
DESCRIPTION:
Length, 150+ mm; width, 15+ mm. Prostomium long, rectangular. Ventrolateral antennae arising well forward of setiger 1, similar in length to anterolateral antennae (Figure 35-4a). Eyes and pigmentation absent. Pharynx (Figure 35-4b) with 22 short, longitudinal rows of about 5-6 low, rounded tubercles, posterior to large, cirriform, mid-dorsal and mid-ventral papillae and terminal circlet of 20 bifid papillae. Paragnaths roughly triangular (Figure 35-4c). Tentacular segment with well-developed notopodia and neuropodia; dorsal and ventral cirri conspicuous, somewhat larger than prostomial antennae. Subsequent segments with conical acicular lobes, similar in size to rounded preacicular lamellae (Figure 35-4d). Postacicular lamellae high and ridge-like dorsally, lower and more elongate ventrally. Dorsal and ventral cirri moderately sized, triangular to digitiform. Interramal cirri recurved, with enlarged base lacking accessory cirri, separated from dorsal cirri by

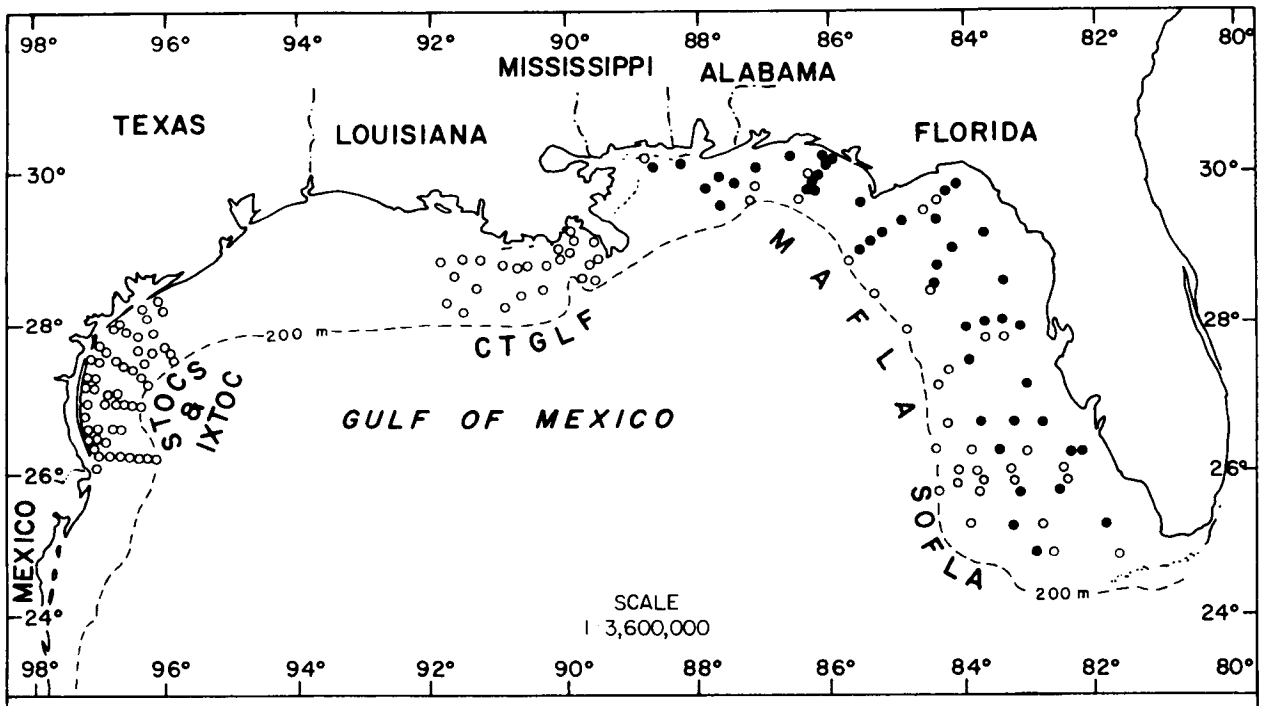

Figure 35-5. Distribution of Nephtys simoni on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

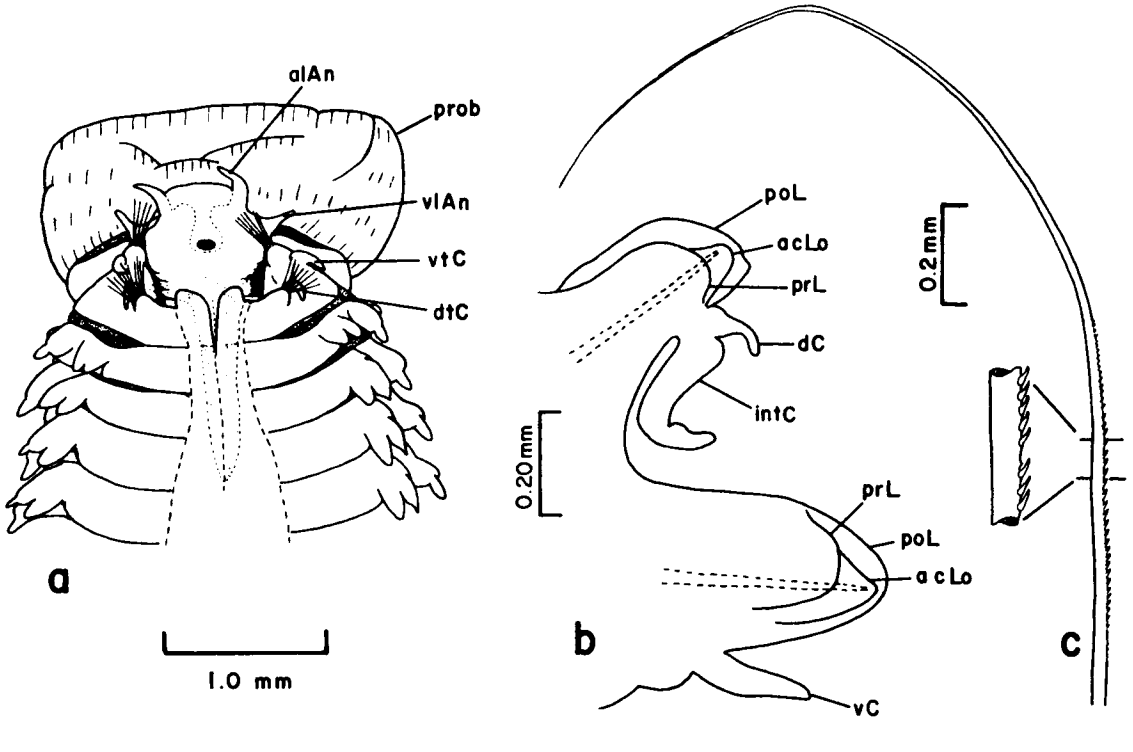

Figure 35-6. Nephtys simoni: a, anterior end, dorsal view, proboscis partially everted; b, right parapodium from middle region, anterior view; c, postacicular seta from middle region showing prominent teeth near base (Figures a, c from Perkins 1980:38, figs. 15a, 16e, h).

narrow cleft; first appearing by setiger 6 or 7. Acicula with fine, rounded or expanded, cap-like tips. Lyrate setae absent.
REMARKS: This species is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Mud and sand, sometimes mixed with shell, gravel, and bits of coral; estuarine, nearshore, and offshore to depths of at least 1,800 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records throughout western and northern Gulf, rare off southwestern Florida (Figure 35-3); 4.5-189 m; medium to fine-very fine sand, clayey silt, various sand-silt-clay combinations.
DISTRIBUTION: Both sides of the North Atlantic, Mediterranean Sea, Gulf of Mexico.

Nephtys simoni Perkins, 1980
Figures 35-5, 6a-c

Nephtys simoni Perkins, 1980:37, figs. 15, 16.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2F-11/80 (1 spec., USNM 89616), 20B-11/80 (3 spec., USNM 89617), 20C-7/81 (1 spec., USNM 89618), 28A-7/81 (1 spec., USNM 89619); MAFLA 2426K-8/77 (2 spec., USNM 89615), 2531F-8/77 (1 spec.), 2642I-5/75 (1 spec.), 2856D-8/77 (1 spec.).
DESCRIPTION:
Length, 75+ mm (previously reported to 75 mm); width, 3+ mm (previously reported to 3 mm). Prostomium with anterior margin straight to slightly convex, sides curved outward, posterior margin prolonged back between dorsal muscle bands (Figure 35-6a). Anterolateral antennae digitiform, ventrolateral pair more conical, somewhat longer, arising beneath mid-lateral margins of prostomium. Eyes absent. Reddish pigment patch usually evident dorsally near center of prostomium. Pharynx with 22 short, longitudinal rows of about eight cirriform, subterminal papillae per row, posterior to larger, cirriform, mid-dorsal and mid-ventral papillae, and terminal circlet of 22 bifid papillae. Paragnaths triangular. Tentacular segment with low, rounded notopodial lobes bearing minute dorsal cirri and larger, broadly flattened neuropodial lobes with well-developed ventral cirri arising well forward along lateral border. Subsequent segments with obliquely truncate acicular lobes and rudimentary preacicular lamellae (Figure 35-6b). Postacicular lamellae higher and longer than acicular lobes. Interramal cirri recurved, widest toward base, with inconspicuous accessory cirrus; first appearing on setiger 3. Acicula evenly tapered, pointed. Postacicular notosetae including few centrally located capillaries with large, prominent teeth near base (Figure 35-6c).
PREVIOUSLY REPORTED HABITAT: Estuarine, coastal, and offshore waters; sandy sediments often containing fragments of shell and coral.
GULF OF MEXICO BLM-OCS OCCURRENCE: Apparently restricted to eastern Gulf (Figure 35-5); 9-189 m; predominately coarse to very fine sand, clayey silt, sandy silty clay.
DISTRIBUTION: Temperate and subtropical waters of the western Atlantic; Gulf of Mexico; eastern Pacific from California to South America.

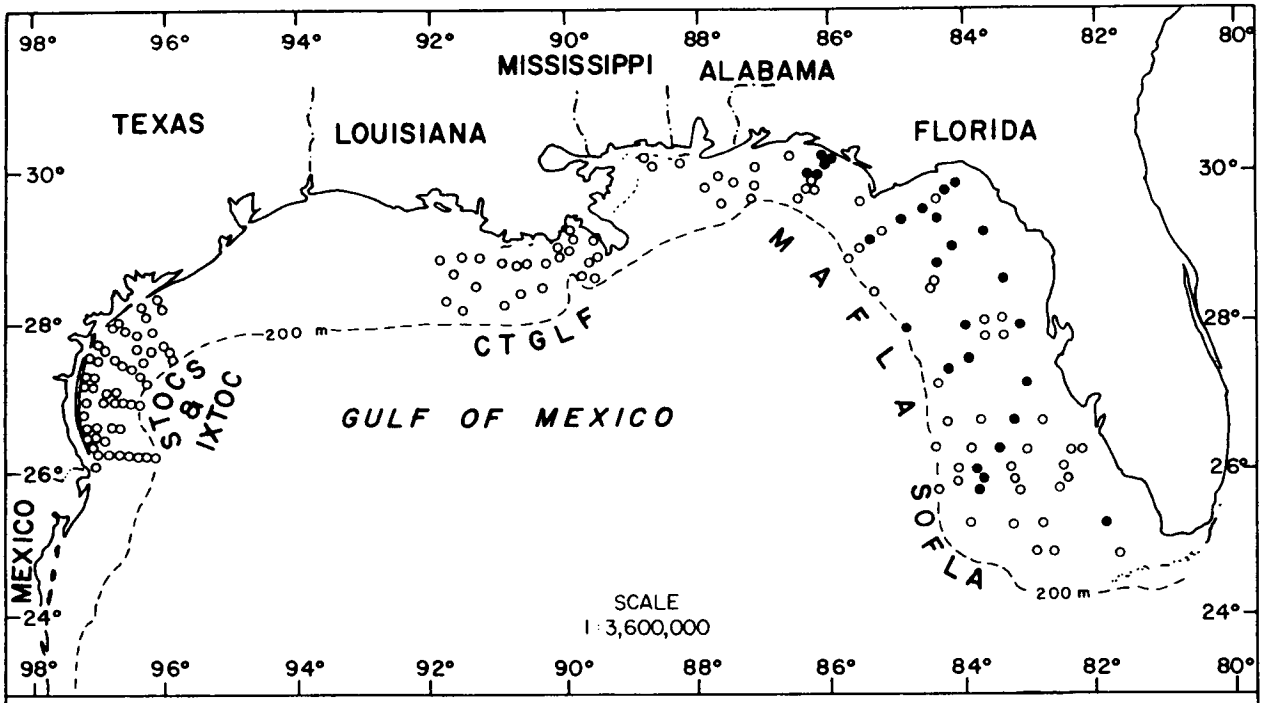

Figure 35-7. Distribution of Nephtys squamosa on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

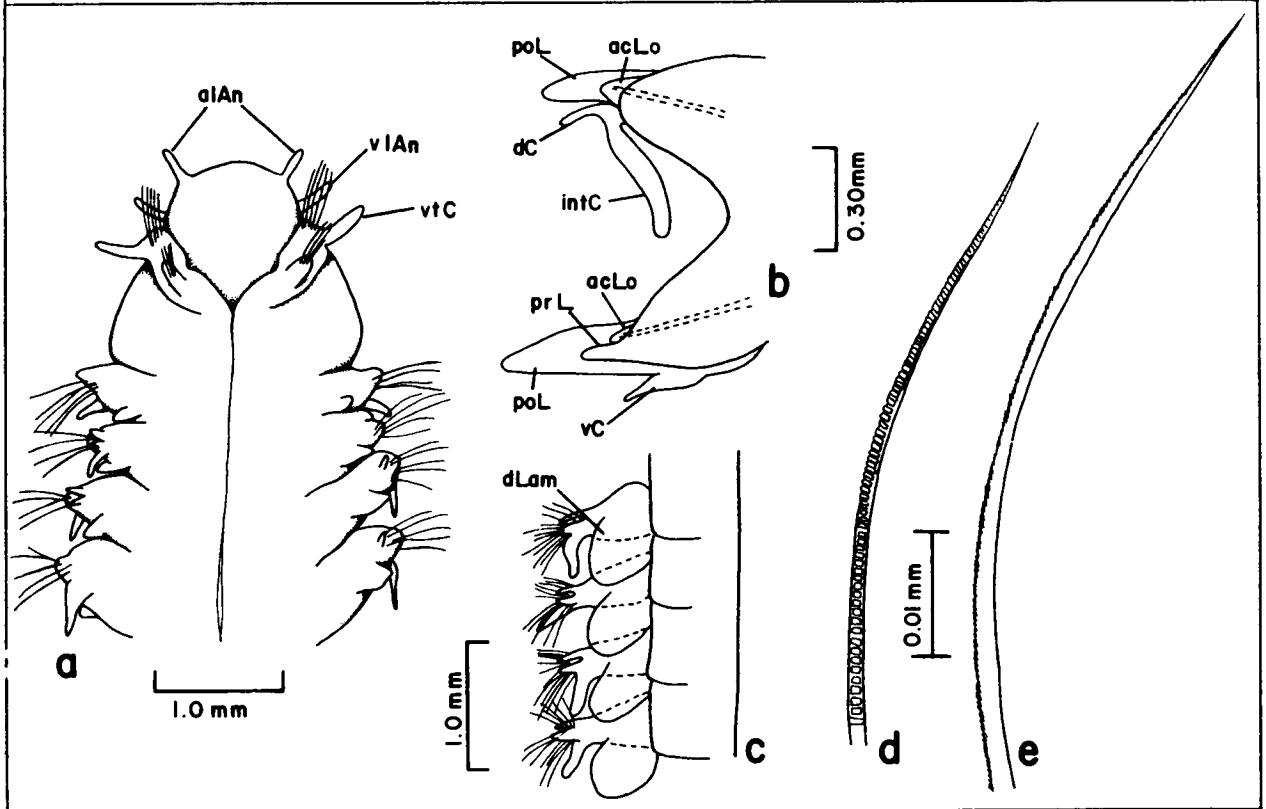

Figure 35-8. Nephtys squamosa: a, anterior end, dorsal view; b, parapodium from setiger 20, anterior view; c, right middle parapodium, anterior view; d, preacicular seta; e, postacicular seta.

Nephtys squamosa Ehlers, 1887
Figures 35-7, 8a-e

Nephtys squamosa Ehlers, 1887:128, pl. 37, figs. 7-10.
Nephtys squamosa--Hartman, 1940:237, pl. 41, figs. 98, 99.
Nephtys squamosa--Pettibone, 1963:194, fig. 47e.
Nephtys squamosa--Fauchald, 1972a:92, pl. 16, fig. g.
Nephtys squamosa--Day, 1973:43.
Nephtys squamosa--Gardiner, 1976:154, fig. 16a,b.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 12C-7/81 (1 spec., USNM 89621), 20B-7/81 (1 spec., USNM 89622); MAFLA 2422D-7/76 (1 spec.), 2423C-7/76 (2 spec., USNM 89620), 2423G-7/76 (1 spec.), 2528D-6/75 (1 spec.).
DESCRIPTION:
Length, 80+ mm (previously reported to 80 mm); width, 4+ mm (previously reported to 4 mm). Prostomium (Figure 35-8a) pentagonal, broadly rounded anteriorly. Antennae all similar in size, ventrolateral pair extending laterally just anterior to setiger 1, visible from above. Eyes and pigmentation absent. Pharynx with 22 short rows of about 5-6 cirriform papillae, posterior to longer, cirriform, mid-dorsal and mid-ventral papillae, and terminal circlet of 20 bifid papillae. Paragnaths triangular. Tentacular segment with low, rounded notopodial lobes lacking dorsal cirri. Neuropodia much larger, with anterolateral ventral cirri roughly twice the size of prostomial antennae. Subsequent parapodia with well-developed, narrowly rounded acicular lobes, larger than notopodial preacicular lamellae, smaller than digitiform neuropodial preacicular lamellae (Figure 35-8b). Postacicular lamellae long, narrow, extending much further than acicular or preacicular processes. Additionally, notopodia with large, flattened, posteriorly directed lamellae partially covering successive segments in shingle-like arrangement (Figure 35-8c). Interramal cirri without basal swelling or accessory cirri, first appearing on setiger 3 or 4. Acicula evenly tapered with slightly curved and rounded tips. Preacicular notosetae as short, laddered capillaries (Figure 35-8d); postacicular notosetae as long, finely toothed capillaries (Figure 35-8e).
PREVIOUSLY REPORTED HABITAT: Sand, mud; coastal waters and offshore to depths of at least 200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Apparently restricted to eastern Gulf (Figure 35-7); 10-189 m; coarse to fine-very fine sand, silty fine sand.
DISTRIBUTION: Temperate and tropical waters of Atlantic and Pacific; Gulf of Mexico.

Nephtys picta Ehlers, 1868
Figures 35-9, 10a-d

Nephtys picta Ehlers, 1868:632, pl. 23, figs. 9, 35.
Nephtys picta--Hartman, 1950:103; 1951a:49, pl. 10, fig. 4.
Nephtys picta--Pettibone, 1963:195, figs. 49c, 50c-f.
Nephtys picta--Day, 1973:43.
Nephtys picta--Gardiner, 1976:155, fig. 16i,j.

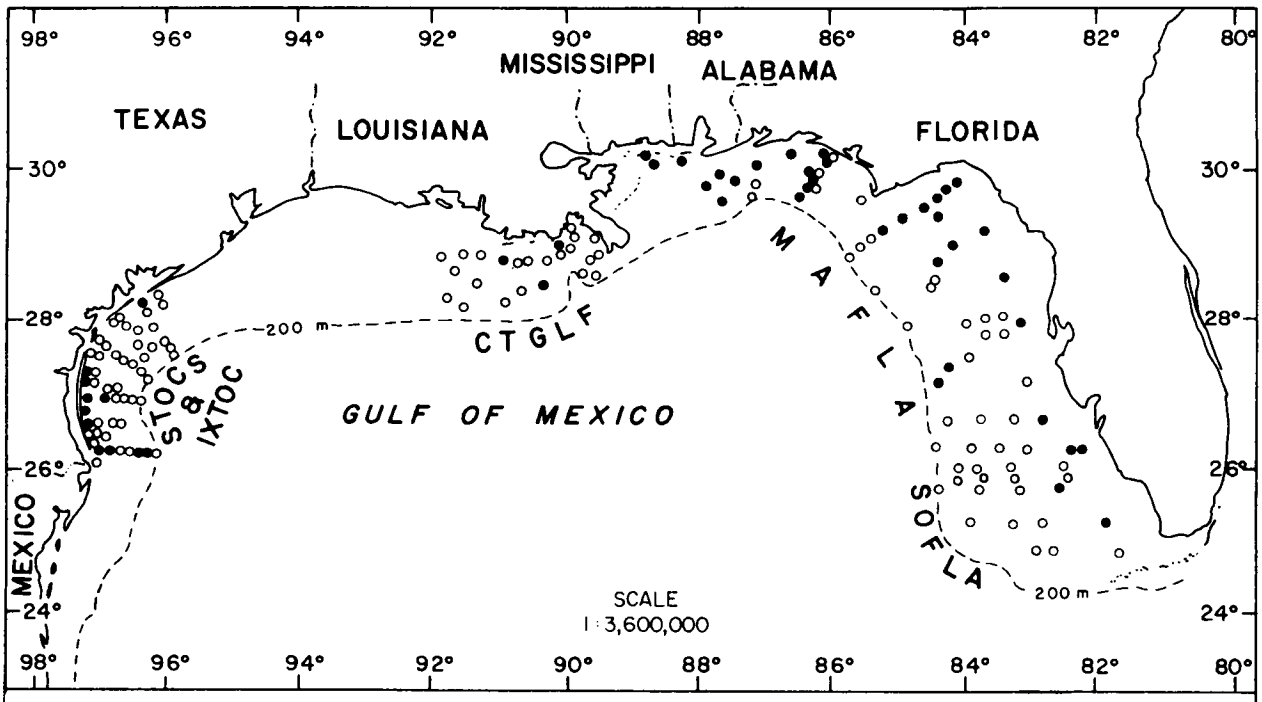

Figure 35-9. Distribution of Nephtys picta on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

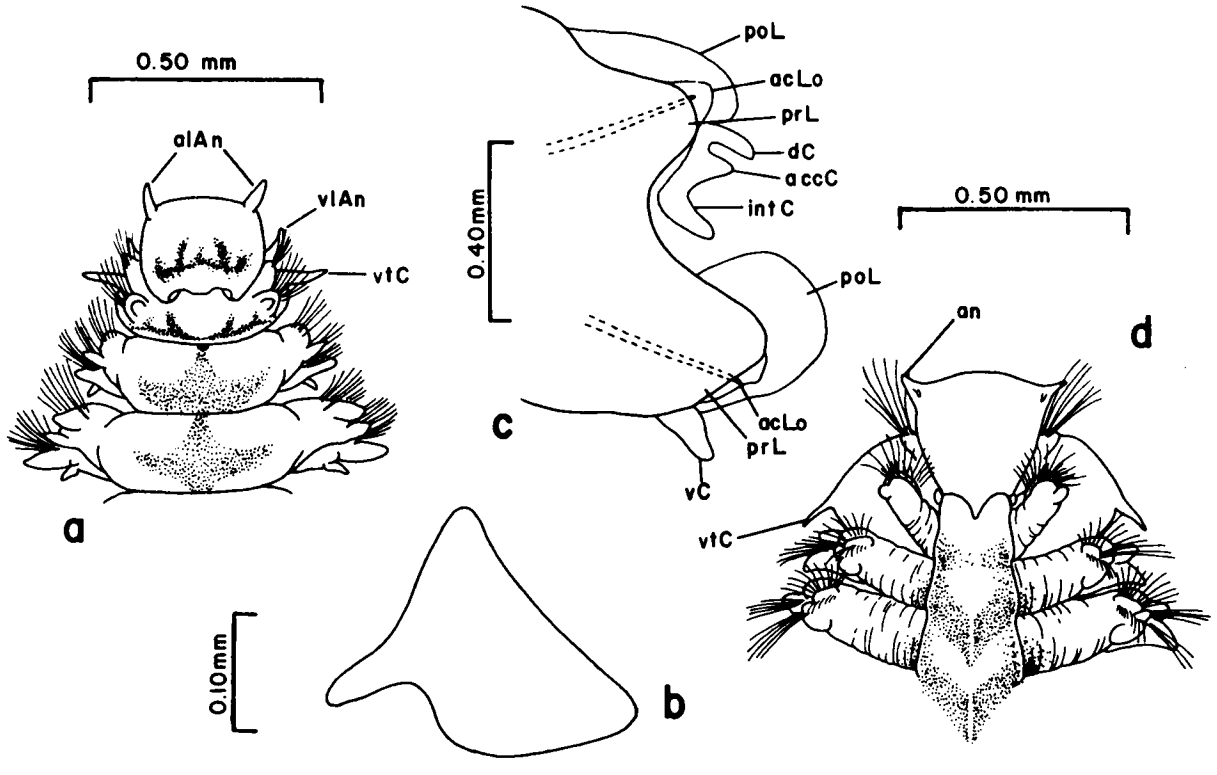

Figure 35-10. Nephtys picta: a, anterior end, dorsal view; b, paragnath; c, middle parapodium, anterior view; d, anterior end Nephtys bucera, dorsal view (Figure d from Pettibone 1963:197, fig. 49d).

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 2C-11/80 (1 spec., USNM 89624), 20C-5/81 (1 spec., USNM 89625), 20D-5/81 (1 spec., USNM 89626); MAFLA 13G-5/74 (2 spec.), 2422C-7/76 (6 spec., USNM 89627), 2422G-7/76 (1 spec.), 2423D-7/76 (3 spec.), 2423F-7/76 (3 spec.), 2423G-7/76 (1 spec.), 2423I-7/76 (3 spec.), 2423D-2/78 (2 spec.), 2424C-7/76 (5 spec., USNM 89628), 2424J-7/76 (4 spec., USNM 89629); CTGLF 03-5/78 (3 spec., USNM 89631, 89632, 89633), 03-8/78 (1 spec., USNM 89630); STOCS 4/I-5 F/76 (2 spec., USNM 89634), 4/III-5 F/76 (2 spec., USNM 89636), 4/IV-4 F/76 (1 spec., USNM 89635); IXTOC S50-11/79 (1 spec., USNM 89623).
DESCRIPTION:
Length, 80+ mm (previously reported to 300 mm); width, 4+ mm (previously reported to 4 mm). Prostomium (Figure 35-10a) straight to slightly convex anteriorly, curved outward laterally. Ventrolateral antennae arising beneath middle or posterior half of prostomium, mostly hidden by first setiger. Eyes absent. Pattern of dark pigment may be present over posterior half of prostomium and on dorsum of variable number of anterior segments (Figure 35-10a). Pharynx with 22 short, longitudinal rows of 5-6 cirriform papillae, posterior to mid-dorsal and mid-ventral cirriform papillae, and terminal circlet of 22 bifid papillae. Paragnaths triangular (Figure 35-10b). Tentacular segment with small notopodial lobes lacking dorsal cirri, neuropodial lobes obliquely broadened and widest posteriorly, with well-developed ventral cirri on anterolateral margin. Subsequent parapodia with acicular lobes and preacicular lamellae similar in size (Figure 35-10c); postacicular lamellae larger, rounded. Interramal cirri recurved, basally expanded, with conical to digitiform accessory cirri separated from dorsal cirri by marked cleft; first appearing around setiger 4. Acicula evenly tapered with narrowly rounded or pointed tips. Postacicular notosetae including smooth to weakly toothed capillaries together with more heavily toothed setae toward middle of each fascicle.
REMARKS: Nephtys bucera Ehlers, 1868, a closely related species, was not represented in the BLM-OCS collections but commonly occurs in clean sandy beaches along the Gulf coast. It is best recognized by the shape of the prostomium (Figure 35-10d) and long pre- and postacicular setae.
PREVIOUSLY REPORTED HABITAT: Common in sandy substrates; intertidal to 200 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous records throughout Gulf (Figure 35-9); predominately moderate depths (10-65 m) down to 189 m; coarse to fine-very fine sand, silty fine sand.
DISTRIBUTION: Eastern coast of North America from Canada to Florida; Gulf of Mexico.

Genus **Aglaophamus** Kinberg, 1866b

TYPE SPECIES: Aglaophamus lyratus Kinberg, 1866b.
REFERENCES:
Kinberg, 1866b:240.
Hartman, 1948:50, pl. 7, fig. 1; 1950:116.
Fauchald, 1968a:7; 1977a:97.
DIAGNOSIS: Prostomium with or without eyes, with pair of anterolateral antennae. Pharynx with 14, 16 or 22 longitudinal rows of subterminal papillae, circlet of bifid terminal papillae, and internal pair of

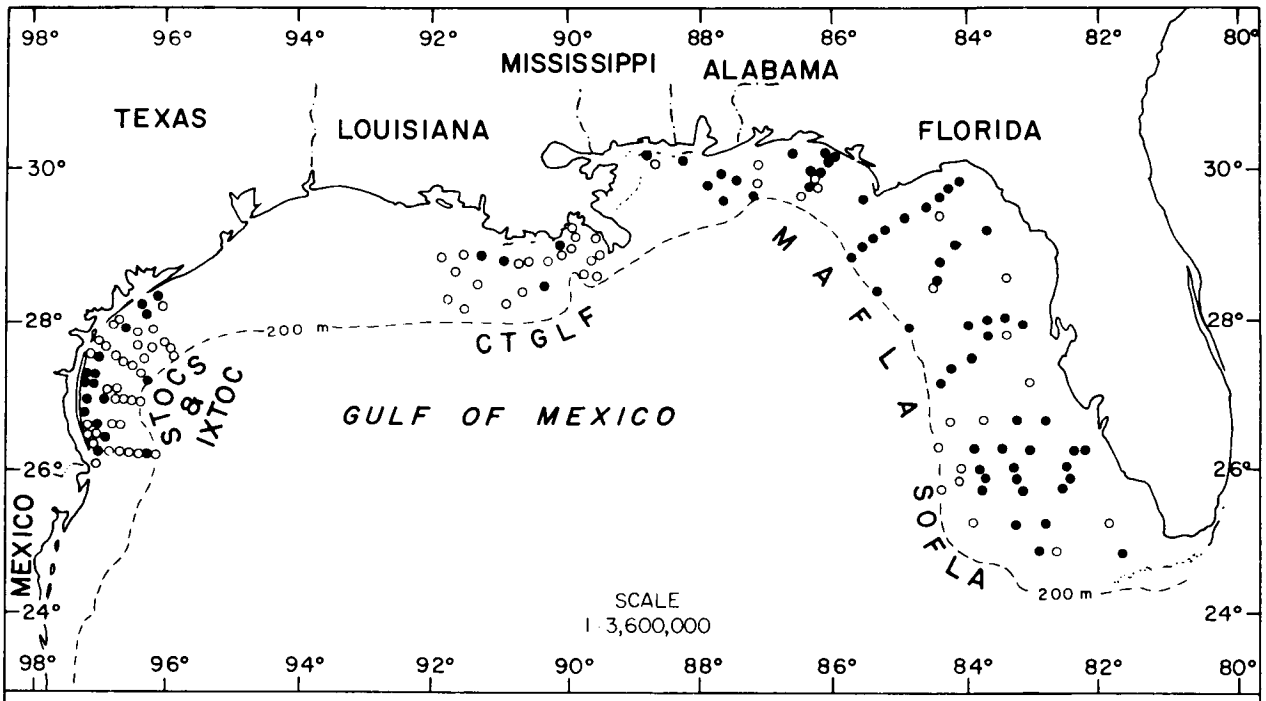

Figure 35-11. Distribution of Aglaophamus verrilli on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

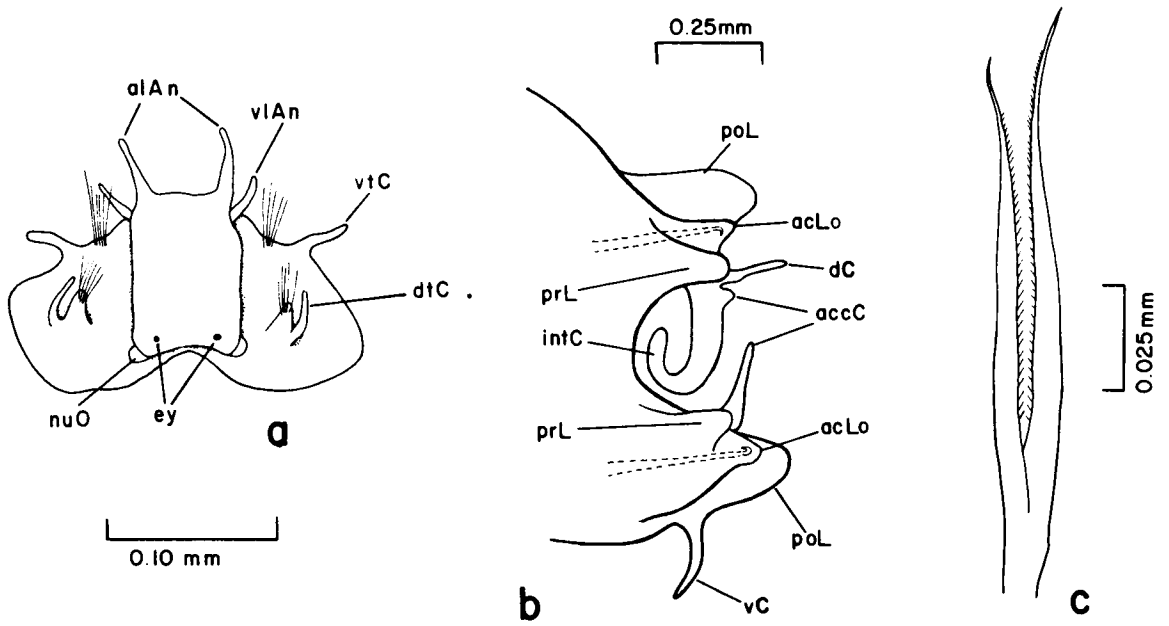

Figure 35-12. Aglaophamus verrilli: a, anterior end, dorsal view; b, left parapodium from middle region, anterior view; c, lyrate seta.

triangular paragnaths. Tentacular segment with broadly expanded neuropodial lobes; dorsal cirri present or absent. Parapodia with poorly- to well-developed pre- and postacicular lamellae. Interramal cirri involute; dorsal and ventral cirri present.

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

1a. Prostomium with eyes (Figure 35-12a); neuropodia with accessory, digitiform cirrus on upper margin of postacicular lamella (Figure 35-12b). . . . . .**Aglaophamus verrilli**, p. 35-15

1b. Prostomium without eyes; neuropodia without accessory cirrus on upper margin of postacicular lamella (Figure 35-14b) . . . . . .**Aglaophamus circinata**, p. 35-17

Aglaophamus verrilli (McIntosh, 1885)
Figures 35-11, 12a-c

Nephtys verrilli McIntosh, 1885:163, pl. 26, figs. 6-7, pl. 32A, fig. 8.
Aglaophamus verrilli--Pettibone, 1963:190, fig. 48c,d.
Aglaophamus verrilli--Day, 1973:42.
Aglaophamus verrilli--Gardiner, 1976:155, figs. 16k, 17a,b.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 6A-7/81 (9 spec., USNM 89641), 6D-7/81 (3 spec., USNM 89643), 6E-7/81 (3 spec., USNM 89642); MAFLA 2209-7/76 (1 spec.), 2313C-11/77 (1 spec.), 2313D-11/77 (1 spec.), 2423C-7/76 (4 spec., USNM 89637), 2423F-7/76 (1 spec.), 2423J-7/76 (1 spec.), 2531E-8/77 (1 spec.), 2854C-8/77 (1 spec.); CTGLF 03-5/78 (1 spec., USNM 89638); STOCS 4/IV-3 W/76 (4 spec., USNM 89639); IXTOC S53-11/79 (2 spec., USNM 89640).
DESCRIPTION:
Length, 60+ mm (previously reported to 55 mm); width, 4+ mm (previously reported to 4 mm). Prostomium rectangular, about twice as long as wide, with two eyes near posterior margin (Figure 35-12a). Anterolateral and ventrolateral antennae cirriform, similar in length. Pigmentation absent. Pharynx with 22 longitudinal rows of up to nine cirriform papillae, posterior to mid-dorsal and mid-ventral papillae and 22 bifid terminal papillae. Paragnaths triangular, with broad, rounded base deeply incised along posteroventral margin. Tentacular segment with small, rounded notopodia having conspicuous dorsal cirri and both smooth and laddered capillary setae. Neuropodial rami much larger, broadly expanded and flattened, with long, smooth capillary setae. Ventral tentacular cirri similar in length to dorsal ones. Following setigers with triangular acicular lobes and somewhat higher, longer, pre- and postacicular lamellae in both rami (Figure 35-12b). Neuropodia with ventral cirri slightly larger than dorsal cirri, plus additional cirri directed upward from dorsal margin of neuropodial postacicular lamellae. Interramal cirri involute, basally enlarged, with low, rounded accessory cirri just below dorsal cirri, separated from dorsal cirri by a deep cleft; first appearing between setigers 5 and 9. Acicula with hooked tips. Notosetae and neurosetae similar, including preacicular laddered capillaries, and postacicular smooth and toothed capillaries together with a few lyrate setae (Figure 35-12c).

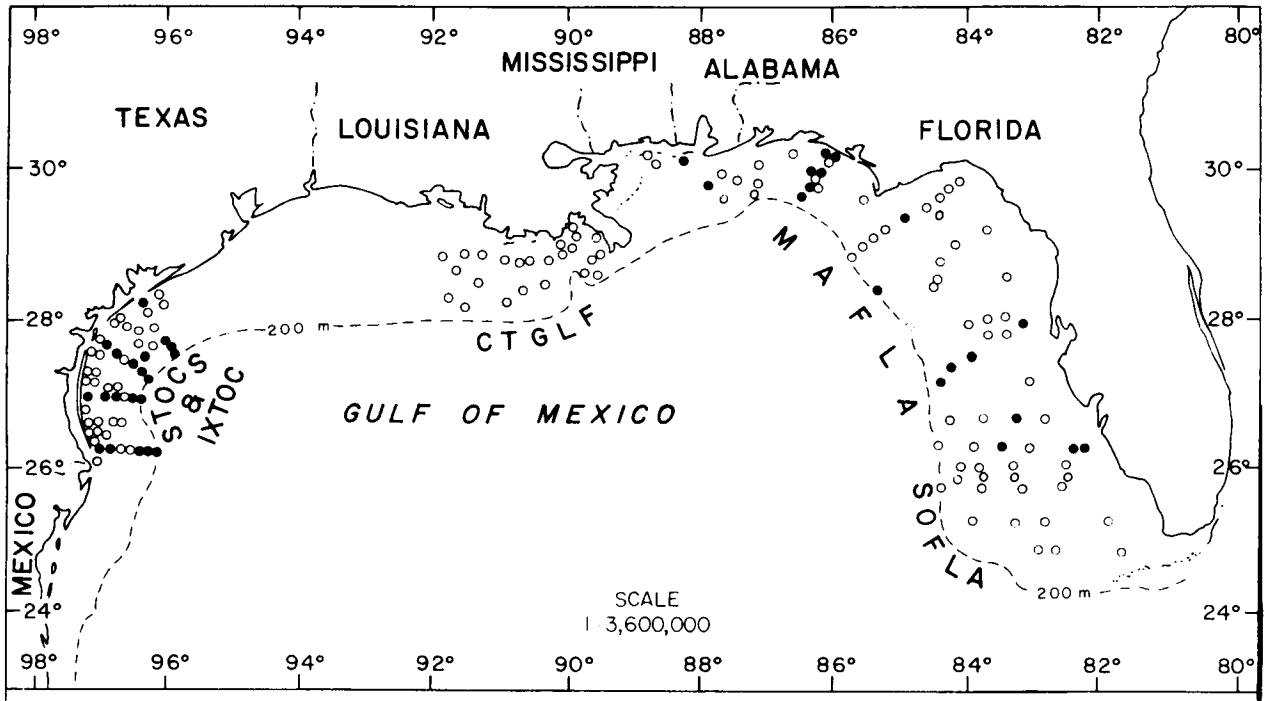

Figure 35-13. Distribution of Aglaophamus circinata on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

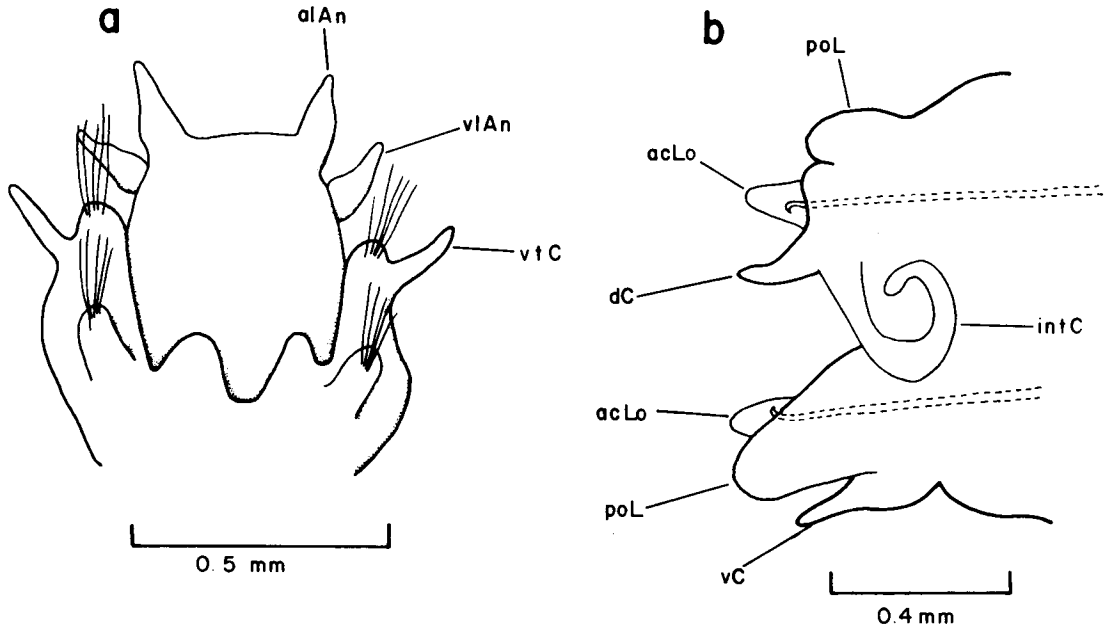

Figure 35-14. Aglaophamus circinata: a, anterior end, dorsal view; b, left parapodium from middle region, posterior view.

PREVIOUSLY REPORTED HABITAT: Estuarine, coastal, and offshore waters in sediments consisting of sand, sandy mud, and sand mixed with coarser particles such as shell and fragments of coral.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous stations throughout northern Gulf (Figure 35-11); 4.5-189 m; predominately silty fine to very fine sand, also coarse sand and silty clay.
DISTRIBUTION: Temperate and subtropical waters of the western Atlantic and Gulf of Mexico.

Aglaophamus circinata (Verrill, 1874)
Figures 35-13, 14a,b

Nephthys circinata Verrill, 1874b:38.
Aglaophamus circinata--Pettibone, 1963:192, fig. 48a.
Nephtys (Aglaophamus) circinata--Day, 1973:43, fig. 5p,q.
Aglaophamus circinata--Gardiner, 1976:157, fig. 17c.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4B-10/80 (1 spec., USNM 89644); MAFLA 2313D-2/78 (2 spec.), 2313J-2/78 (1 spec.), 2423K-8/77 (3 spec., USNM 89645), 2427G-9/77 (1 spec.), 2536-11/77 (2 spec.); STOCS SB3-6 4/76 (1 spec., USNM 89646).
DESCRIPTION:
Length, 50+ mm (previously reported to 50 mm); width, 5+ mm (previously reported to 5 mm). Prostomium somewhat longer than wide, broadest near center, anterior edge nearly straight. Eyes and pigmentation absent. Anterolateral antennae broadly triangular, similar in size to laterally directed ventrolateral antennae (Figure 35-14a). Pharynx with 14 longitudinal rows of subterminal papillae posterior to cirriform mid-dorsal and mid-ventral papillae, and 22 bifid terminal papillae. Paragnaths triangular. Tentacular segment with relatively small notopodial rami having both smooth and laddered capillary setae; dorsal cirri absent. Neuropodial rami of tentacular segment broadly expanded and flattened, with ventral cirri on anterolateral margins; neurosetae all long, smooth capillaries. Subsequent setigers with well-developed, distinctly triangular acicular lobes in both rami. Preacicular lamellae low, rounded. Notopodial postacicular lamellae higher and longer; partially divided by marginal indentation. Neuropodial postacicular lamellae similar but with margins entire. Dorsal and ventral cirri thinly triangular, similar in length. Interramal cirri not basally enlarged, without cleft between base and dorsal cirri (Figure 35-14b), present from setiger 2, becoming fully developed and involute about setiger 10. Neuropodia without accessory cirrus on margin of postacicular lamella. Acicula with hooked tips. Setal bundles with preacicular laddered capillaries, and both smooth and lightly toothed postacicular capillaries. Lyrate setae absent.
REMARKS: Absence of Aglaophamus circinata from central Gulf collections may reflect confusion in identification with other species of nephtyids.
PREVIOUSLY REPORTED HABITAT: Offshore waters below about 15 m within a variety of sediments.
GULF OF MEXICO BLM-OCS OCCURRENCE: Numerous stations in western Gulf, scattered in eastern Gulf (Figure 35-13); 10-189 m; coarse to fine-very fine sand, clayey silt, silty clay, sand-silt-clay combinations.

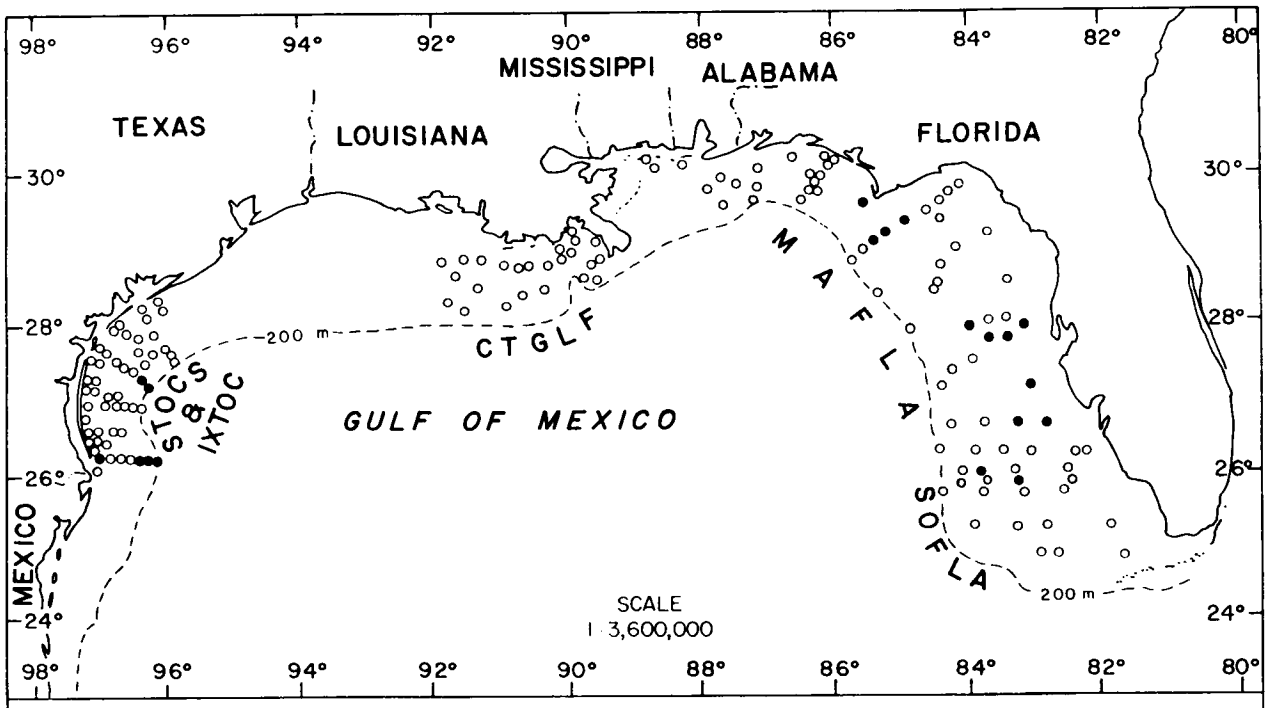

Figure 35-15. Distribution of Inermonephtys inermis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

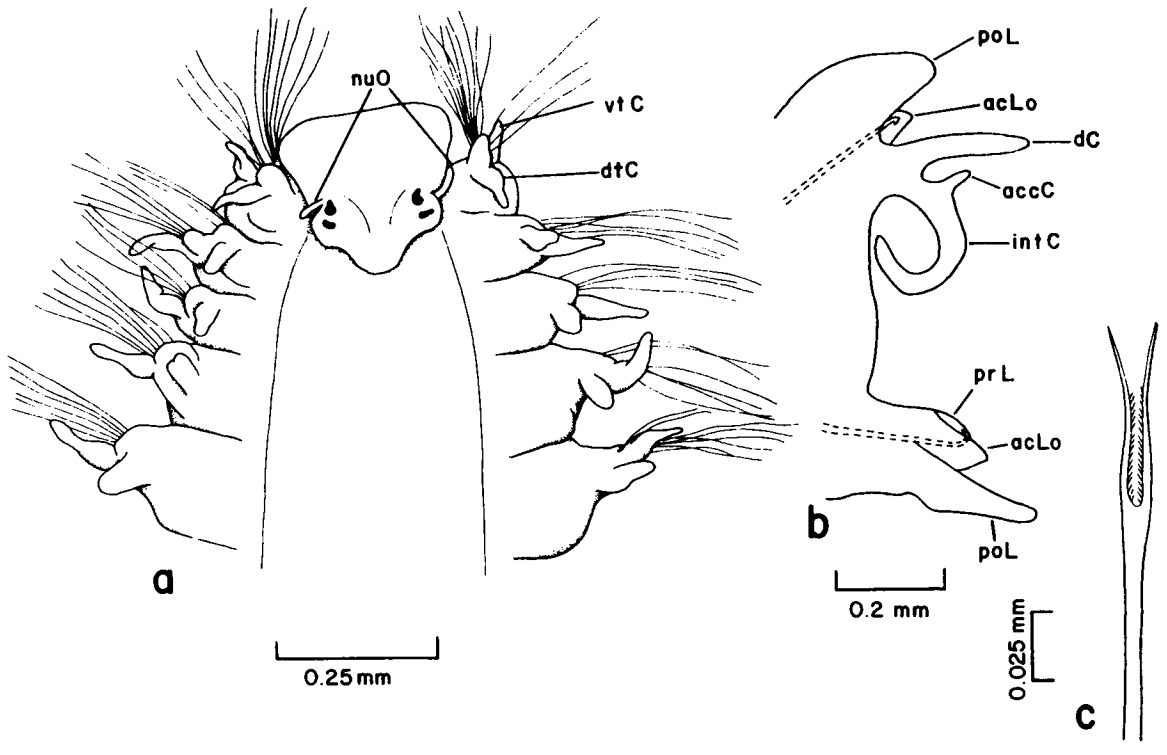

Figure 35-16. Inermonephtys inermis: a, anterior end, dorsal view; b, right parapodium from middle region, posterior view; c, lyrate seta.

DISTRIBUTION: Boreal and temperate waters of the western Atlantic; Gulf of Mexico.

Genus **Inermonephtys** Fauchald, 1968a

TYPE SPECIES: Nephtys (Aglaophamus) inermis Ehlers, 1887.
REFERENCES:
Fauchald, 1968a:7; 1977a:97.
DIAGNOSIS: Prostomium without anterolateral antennae, with posteroventrally directed ventrolateral antennae. Nuchal organs with eversible cirriform process. Pharynx with spindle-shaped paragnaths but no papillae. Tentacular segment with notopodial and neuropodial rami similar in size; dorsal and ventral cirri present. Parapodia with dorsal cirri, with or without ventral cirri. Interramal cirri involute. Preacicular setae as laddered capillaries; postacicular setae including toothed capillaries and lyrate setae.

Inermonephtys inermis (Ehlers, 1887)
Figures 35-15, 16a-c

Nephthys (Aglaophamus) inermis Ehlers, 1887:125, pl. 38, figs. 1-6.
Nephthys inermis--Fauvel, 1923:375, fig. 147.
Nephtys inermis--Hartman, 1940:234, pl. 39, figs. 84-86, pl. 40, fig. 95.
Inermonephtys inermis--Fauchald, 1968a:16, pl. 4, figs. 13-35.
Inermonephtys inermis--Day, 1973:42.
Inermonephtys inermis--Gardiner, 1976:157, fig. 17d-f.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4E-7/81 (1 spec., USNM 89647); MAFLA 2211I-11/77 (1 spec.), 2422D-7/76 (1 spec.), 2425G-7/76 (1 spec.), 2851H-7/76 (1 spec.), 2851I-7/76 (2 spec., USNM 89648); STOCS 4/IV-1 5/76 (2 spec., USNM 89649), 6/IV-3 F/76 (1 spec., USNM 89650).
Supplementary Material:
Florida--TI/BLM 6C-2/20/77, 30°23'N, 80°51'W, 2 m, sand and shell frag. (2 spec.).
DESCRIPTION:
Length, 75+ mm (previously reported to more than 50 mm); width, 5+ mm (previously reported to 5 mm). Prostomium pentagonal, with ventrolateral antennae arising in front of setiger 1, generally not visible from above. Eyes present as two pairs in rectangular arrangement (Figure 35-16a), or absent. Nuchal organs lateral to anterior pair of eyes, with eversible, cirriform process often extended in preserved material. Tentacular segment with dorsal and ventral cirri similar in length. Setae of tentacular segment including smooth capillaries, with additional faintly laddered setae in notopodia. Subsequent parapodia with long, narrowly triangular acicular lobes, and low, short, evenly rounded preacicular lamellae. Postacicular lamellae high and foliaceous in notopodia, triangular and elongate in neuropodia (Figure 35-16b). Ventral cirri absent. Interramal cirri with basal digitiform accessory cirrus separated from dorsal cirrus by deep, evenly rounded indentation; first appearing on setigers 3-4. Acicula with hooked tips. Setae

including lightly laddered and weakly toothed capillaries in preacicular position, and weakly toothed capillaries and lyrate setae (Figure 35-16c) in postacicular position.

REMARKS: Absence of Inermonephtys inermis in central Gulf collections may represent confusion in identification with other species of nephtyids.

PREVIOUSLY REPORTED HABITAT: Sandy sediments of coastal and offshore waters; intertidal zone to shelf depths and beyond.

GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in western and eastern Gulf (Figure 35-15); 12-131 m; variety of sediment types.

DISTRIBUTION: Cosmopolitan in temperate, subtropical, and tropical seas.

CHAPTER 36

Jerry D. Kudenov

FAMILY SPHAERODORIDAE Malmgren, 1867

INTRODUCTION

Sphaerodorids represent a relatively small errantiate family of benthic polychaetes. They are generally characterized morphologically by rows of epidermal processes distributed over their dorsal and normally also ventral surfaces. The body is either short and grub-like for around 30 segments, or long and slender for up to 50 or more segments. The prostomium, peristomium and anterior body segments are not obviously separated morphologically from one another. The prostomium has a median unpaired antenna plus two or three pairs of lateral antennae. The peristomium normally has one pair of peristomial cirri. The pharynx is unarmed, and a muscular proventriculus is present. Parapodia are uniramous, with a single aciculum usually present. Dorsal cirri are absent. Ventral cirri are present. Setae are either simple or compound, and simple hooks may be present on anteriormost setigers.

The family Sphaerodoridae embraces around 62 species distributed amongst nine genera (Fauchald, 1974; 1977a; Hartmann-Schröder, 1979b; Desbruyères, 1980; Pettibone, 1982). The most important taxonomic paper on this family is that of Fauchald (1974), whose global study resulted in generic revisions, diagnoses, descriptions of one new genus and 12 new species, and keys to the known genera and species of sphaerodorids. Additional references were also discussed and cited by Fauchald (1974). Pettibone (1982:8) characterized this family in a systematically restricted sense in that only four genera were recognized (Ephesiella, Commensodorum, Sphaerodoridium, Sphaerodorum). Refer to Fauchald (1974) for a discussion of synonymies. It is difficult to confuse sphaerodorids with any other polychaetes except possibly Sphaerosyllis (Syllidae). Members of this genus have dorsal cirri resembling macrotubercles arrayed in dorsal longitudinal rows. However, the setal structures of Sphaerosyllis are quite different (Fauchald, 1977a:97). The present chapter reports on four sphaerodorid species representing as many genera from the Gulf of Mexico BLM-OCS collections. All four of these species appear to be new to science (Kudenov, in prep.).

PRINCIPAL DIAGNOSTIC CHARACTERS

The primary diagnostic characters used to identify sphaerodorid genera include the presence of macrotubercles or their absence as in Levidorum Hartman, 1967. The form and number of rows of macrotubercles is also important. For example, the presence of stalked macrotubercles is characteristic in such genera as Clavodorum (Figure 36-6g) and Sphaerodoridium (Figure 36-8a,e), while sessile macrotubercles are characteristic of Sphaerephesia (Figure 36-2e) and Sphaerodoropsis (Figure 36-4a,d). Another generic trait is the presence of terminal papillae on the macrotubercles in such genera as Ephesiella and Sphaerephesia (Figure 36-2e). The relative lengths of the median and lateral prostomial antennae are also important in such genera as Clavodorum and

Sphaerodoridium (Figures 36-6a, 8a), as are the kinds of setae present. In the latter case, composite falcigers (Figure 36-2g), simple capillaries or large recurved hooks may be present. Usually only one kind of seta is represented. For example, Sphaerodorum Oersted and Commensodorum Fauchald have only simple setae while other genera such as Sphaerephesia, Clavodorum, Sphaerodoropsis and Sphaerodoridium have only composite falcigers (Figures 36-2g, 4e, 6h, 8c).

Primary specific characters include the number of rows of dorsal macrotubercles, which in species of Sphaerodoropsis range from 4-18, while species of Clavodorum have 6-8 such rows. The degree of fusion, if any, between the macro- and microtubercles is also an important feature, particularly in species of Ephesiella. The distribution of body papillae is also of specific importance. For example, Sphaerodoridium claparedii (Greeff, 1866) has numerous dorsal papillae while Sphaerodoridium sp. A from the Gulf of Mexico lacks them (Figure 36-8a). There are usually two pairs of lateral prostomial antennae, although some species of Sphaerodoridium and Sphaerephesia (Figure 36-2b) have three pairs. The presence or absence of eyes is another specific criterion (Figure 36-8a). The presence and development of superior, pre- and postsetal lobes are extremely important features requiring careful examination (Figures 36-2c,d; 4b,c; 6b-f; 8c,d). The number and distribution of parapodial papillae are normally species-specific characters as described for species in this chapter. Another feature is the length of the ventral cirrus relative to the acicular lobe. This character is a primary consideration in such taxa as Sphaerephesia (Figure 36-2c,d). Finally, the presence of simple hooks on anterior segments is typically encountered in species of Ephesiopsis, Sphaerodorum and most species of Ephesiella.

Perhaps one of the most demanding aspects of sphaerodorid identifications is distinguishing between the various prostomial antennae, peristomial cirri, and papillae. Careful and repeated observations tend to minimize this apparent difficulty, provided suitably well-preserved materials are available. However, there are times when retraction of the prostomium into the peristomial segment during preservation tends to obscure important details.

BIOLOGICAL NOTES

Most sphaerodorids have been recorded either from polar seas or deep water (Fauchald, 1974:262), and commonly inhabit sandy or muddy sediments, although some species occur in hard bottoms from shallow depths (Fauchald, 1974:262).

Little is known about the feeding biology of sphaerodorids (Fauchald and Jumars, 1979:247). They are hypothesized to be free-living deposit-feeders that probably ingest surface layers of mud with their unarmed muscular proboscides. Such a feeding strategy is reasonable in view of their typically bathyal and abyssal distributions. Sphaerodorids may generally have demersal larvae, with females tending to have rather large ova. Pettibone (1963:205) indicated that eggs have either "...smooth or granular shells." Some examples of ovigerous females no longer than 1.2 mm are reported (Fauchald, 1974), although one species exhibits lengths to 50 mm (Hartman, 1967:85). At least one species is thought to be hermaphroditic (Schroeder and Hermans, 1975:18).

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

Key to the Genera of Sphaerodoridae from the
Gulf of Mexico BLM-OCS Programs (after Fauchald, 1974)

1a. Macrotubercles with terminal papillae (Figure 36-2e) 2
1b. Macrotubercles without terminal papillae (Figure 36-4d). 3

2a. Macrotubercles present in four rows; terminal papillae short (Figure 36-2e); simple hooks absent from setiger 1 . . . . . **Sphaerephesia**, p. 36-3
2b. Macrotubercles present in two rows; terminal papillae long; simple hooks present on setiger 1. . . . . .**Ephesiella***

3a. Macrotubercles sessile (Figure 36-4d). . .**Sphaerodoropsis**, p. 36-5
3b. Macrotubercles stalked (Figure 36-6g). 4

4a. Median antenna equal to or longer than lateral antennae (Figure 36-6a). . . . . .**Clavodorum**, p. 36-9
4b. Median antenna shorter than lateral antennae (Figure 36-8a). . . . . .**Sphaerodoridium**, p. 36-11

*Not represented in Gulf of Mexico BLM-OCS collections, but found in collections off Louisiana.

Genus **Sphaerephesia** Fauchald, 1972

TYPE SPECIES: Sphaerephesia longisetis Fauchald, 1972.
REFERENCES:
Fauchald, 1972a:97; 1974:261, 281.
DIAGNOSIS: Macrotubercles sessile, with short terminal papillae, arrayed in four dorsal rows. Prostomium with median antenna and 2-3 pairs of lateral antennae. All setae composite.

Sphaerephesia sp. A
Figures 36-1, 2a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 16B-4/81 (1 spec., ovig. female).
DESCRIPTION:
Length, 2.2 mm; width, 0.6 mm without parapodia, 0.8 mm with parapodia. Body short, grub-like, widest anteriorly, complete with 16 setigers; translucent to white in alcohol. Prostomium truncate anteriorly; median antenna large, stout, distally blunt (Figure 36-2a,b). Superior lateral

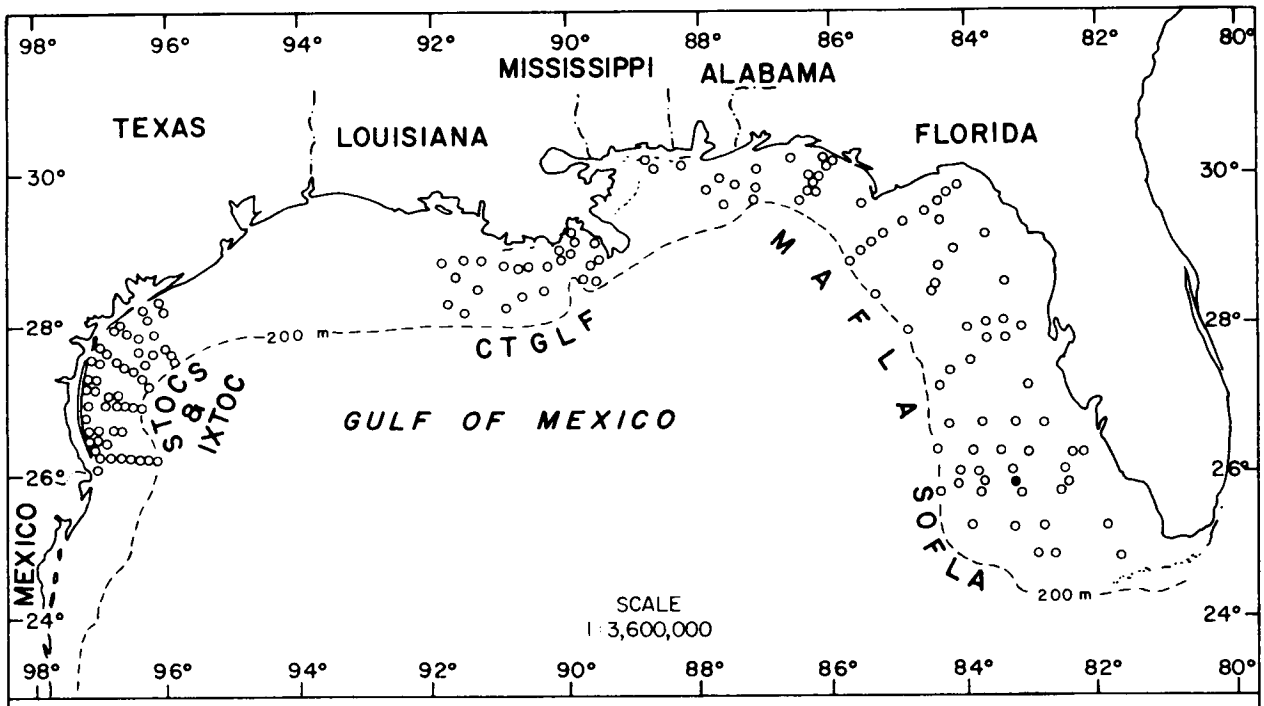

Figure 36-1. Distribution of Sphaerephesia sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

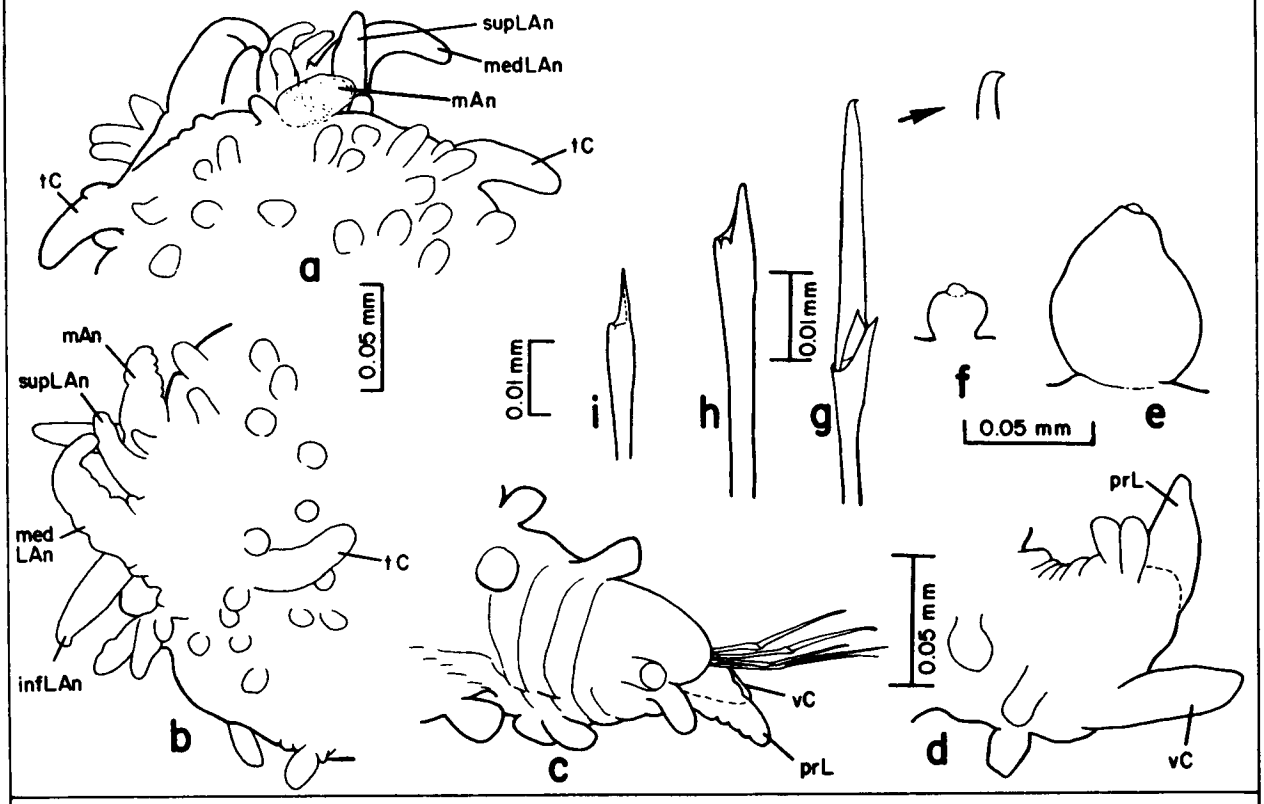

Figure 36-2. Sphaerephesia sp. A: a, anterior end, dorsal view; b, same, left lateral view; c, parapodium, left setiger 9, dorsal view; d, same, left setiger 12, oblique anterolateral view; e, macrotubercle; f, dorsal papilla; g, composite falciger, lateral view, with enlargement of blade tip (not to scale); h, same, shaft tip, lateral ventral view; i, same, ventrolateral view.

antennae short, slender; medial and inferior pairs each two times longer than superior pair, cylindrical, inflated basally; all antennae lacking proximal papillar spurs (Figure 36-2a,b). Eyes absent. Peristomial cirri digitiform, distally blunt, about as long as medial and inferior antennae (Figure 36-2a,b). Proboscis short, muscular, extending posteriorly to setiger 4. Eight papillae encircled by prostomial antennae; papillae otherwise present on peristomium. Parapodia uniramous, up to two times longer than wide; acicular lobes rounded, with presetal lobe large, conical, projecting beyond acicular lobe; postsetal lobes absent (Figure 36-2c,d). Ventral cirri digitiform, inserted on distal third of parapodial lobes, extending beyond acicular lobes (Figure 36-2c,d). Parapodial papillae numbering eight, including four on anterior parapodial surfaces; two on posterior surfaces; and two on superior dorsal edges including one inserted distally; ventral inferior edges lacking papillae (Figure 36-2c,d). Dorsal macrotubercles sessile, arranged in four longitudinal rows, each macrotubercle spherical with a small terminal papilla (Figure 36-2e). Dorsum otherwise with approximately 12 irregular rows of papillae, each resembling macrotubercles in form (Figure 36-2f). Ventral papillae appearing to be arranged in 12 irregular longitudinal rows, generally resembling dorsal papillae. Composite falcigers numbering 5-7 per fascicle anteriorly, increasing up to 16 posteriorly; blades long, smooth, with falcate unidentate tips (Figure 36-2g). Shaft tips of setae not inflated, with dorsal superior branch entire, spike-shaped, and ventral inferior branch medially notched, forming socket for blades (Figure 36-2h,i).

REMARKS: Sphaerephesia sp. A is most closely allied to S. chilensis Fauchald, 1974, in having eight papillae encircled by three pairs of similarly shaped prostomial antennae (which could not be illustrated), and similar composite falcigers. Sphaerephesia sp. A differs from S. chilensis in having eight instead of 1-2 parapodial papillae, and in having 12 rows of dorsal papillae. These two species are zoogeographically and probably also evolutionarily related. S. chilensis is known from the southeastern Pacific (Chile), while Sphaerephesia sp. A occurs in the northeastern Gulf of Mexico. It is probable that these species may have diverged from a more widely distributed ancestral stock present in these regions prior to the Miocene closure of the Panama Isthmus.

GULF OF MEXICO BLM-OCS OCCURRENCE: Western Gulf (Figure 36-1); 54 m; fine sand.

Genus **Sphaerodoropsis** Hartman and Fauchald, 1971

TYPE SPECIES: Sphaerodorum sphaerulifer Moore, 1909.

REFERENCES:

Moore, 1909b:336 (as Sphaerodorum).

Lützen, 1961:415 (as Sphaerodoridium).

Hartman, 1968:608 (as Sphaerodoridium).

DIAGNOSIS: Macrotubercles sessile, lacking terminal papillae, arrayed in up to 18 dorsal rows. Prostomium with short median antenna and 2-3 pairs of lateral antennae. All setae composite.

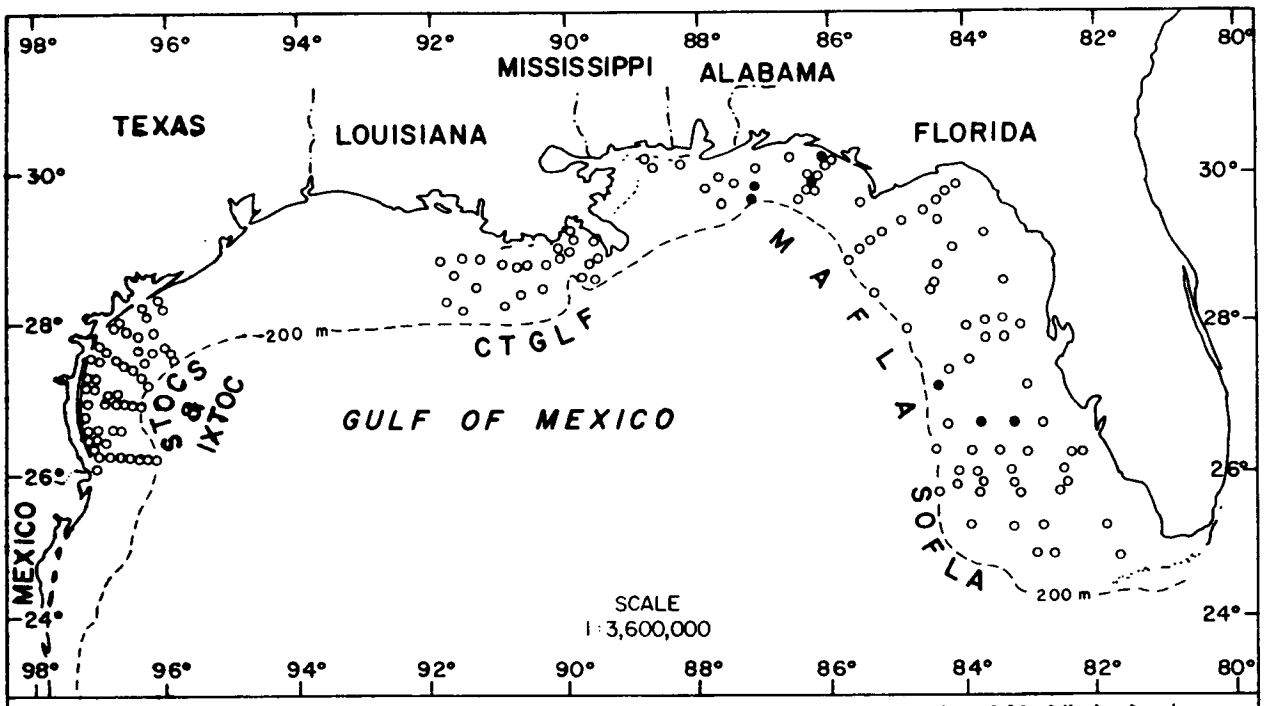

Figure 36-3. Distribution of Sphaerodoropsis sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

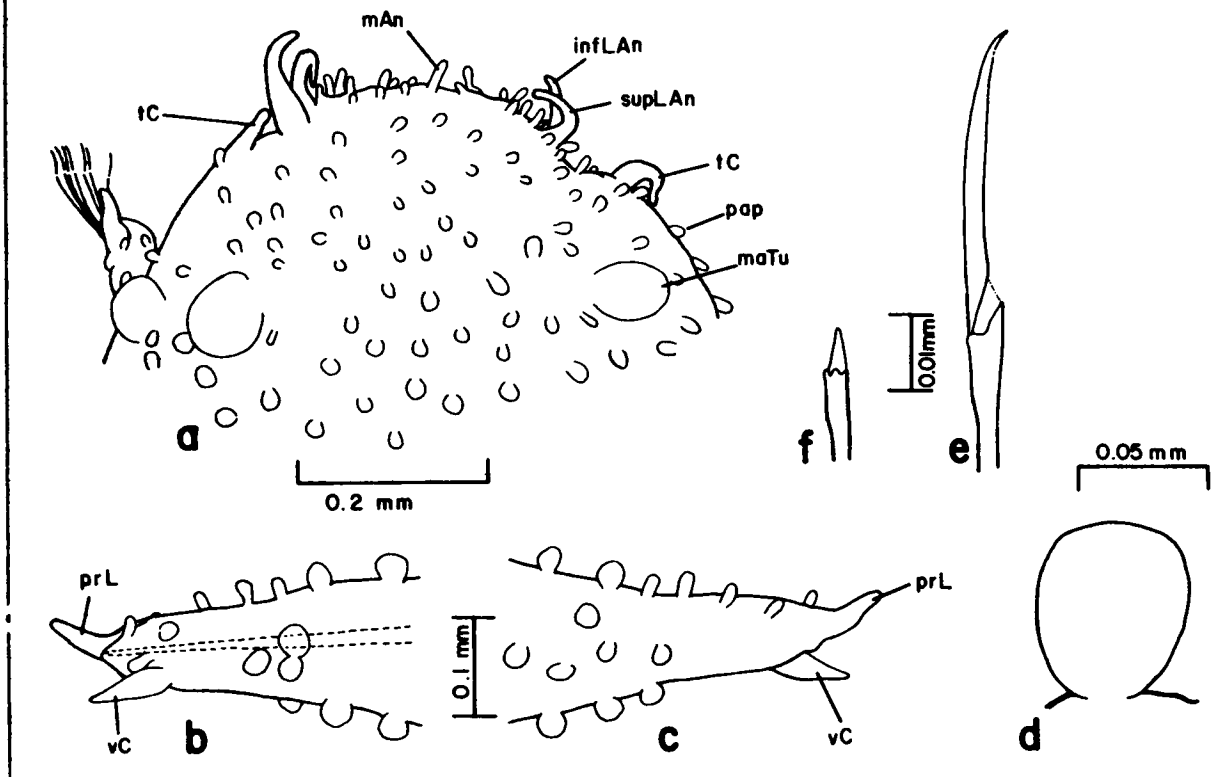

Figure 36-4. Sphaerodoropsis sp. A: a, anterior end, oblique dorsal view from posterior perspective (angle of illustration incorrectly suggesting lateral prostomial antennae of equal lengths); b, parapodium, left setiger 13, posterior view; c, same, anterior view; d, macrotubercle; e, composite falciger, lateral view; f, same, shaft tip, ventrolateral view.

Sphaerodoropsis sp. A
Figures 36-3, 4a-f

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4C-5/81 (1 spec.), 5A-5/81 (1 spec.); MAFLA 19C-5/74 (1 spec.), 2528F-9/77(1 spec.), 2528G-9/77 (1 spec.), 2533C-7/76 (1 spec.), 2644I-6/75 (1 spec.), 2645I-11/77 (1 spec.), 2746D-2/78 (1 spec.).
DESCRIPTION:
Length, to 3.5 mm; width, to 1 mm without parapodia, 1.2 mm with parapodia. Body grub-like, widest anteriorly, complete specimens with up to 32 setigers; light brown to white in alcohol. Anterior end truncate; median antenna short, digitiform; two pairs of cirriform lateral antennae present, superior lateral antennae shorter than inferior lateral antennae (Figure 36-4a; angle of illustration distorts this relationship). Eyes absent. Peristomial cirri digitiform, longer and larger than median antenna. Proboscis large, muscular, extending posteriorly to setiger 8. Prostomium and peristomium studded with small papillae, including a cluster of three near base of inferior lateral antennae (Figure 36-4a). Parapodia uniramous, short, up to three times longer than wide; acicular lobes conical; presetal lobes long, digitiform; postsetal lobes absent (Figure 36-4b,c). Parapodial papillae stout, numbering 20, including a postsetal superior papilla inserted on acicular lobe (Figure 36-4b); six on anterior surfaces (Figure 36-4c); five on posterior surfaces (Figure 36-4b); five on dorsal superior edges (Figure 36-4c); and three on ventral inferior edges (Figure 36-4c). Ventral cirri subulate, projecting beyond acicular lobes. Dorsal macrotubercles sessile (Figure 36-4d), arranged in four longitudinal rows, each macrotubercle spherical. Dorsum and ventrum densely covered by short, randomly arranged papillae. Composite falcigers numbering up to ten per fascicle; blades long, smooth, distally recurved, unidentate (Figure 36-4e), decreasing in length ventrally within a fascicle. Shafts of setae long; shaft tips inflated, with dorsal superior branch long, spike-shaped, distally entire or sometimes bifid, and ventral inferior branch medially notched, forming socket for blade (Figure 36-4f).
REMARKS: Sphaerodoropsis sp. A is most closely allied to S. triplicata Fauchald, 1974, from the Indian Ocean, in having four rows of dorsal macrotubercles, two pairs of lateral prostomial antennae, a presetal parapodial lobe, dorsal superior parapodial papillae and ventral cirri projecting well beyond the acicular lobes. Sphaerodoropsis sp. A differs from S. triplicata in having only one superior parapodial papilla instead of two large ones, in having up to 18 additional stout parapodial papillae rather than smooth and wrinkled parapodia otherwise lacking papillae, and a cluster of three prostomial papillae near the base of each inferior lateral antenna. Sphaerodoropsis sp. A is also related to S. philippii Fauvel, 1911, from the Arctic Ocean, in having numerous parapodial papillae. However, it differs from S. philippii in having 20 stout parapodial papillae rather than 10-11 slender ones, in having dorsal superior, distal parapodial papillae, and in having ventral cirri projecting beyond the acicular lobes.
GULF OF MEXICO BLM-OCS OCCURRENCE: Northeastern and eastern Gulf (Figure 36-3); 37-106 m; coarse sand to silty very fine sand.

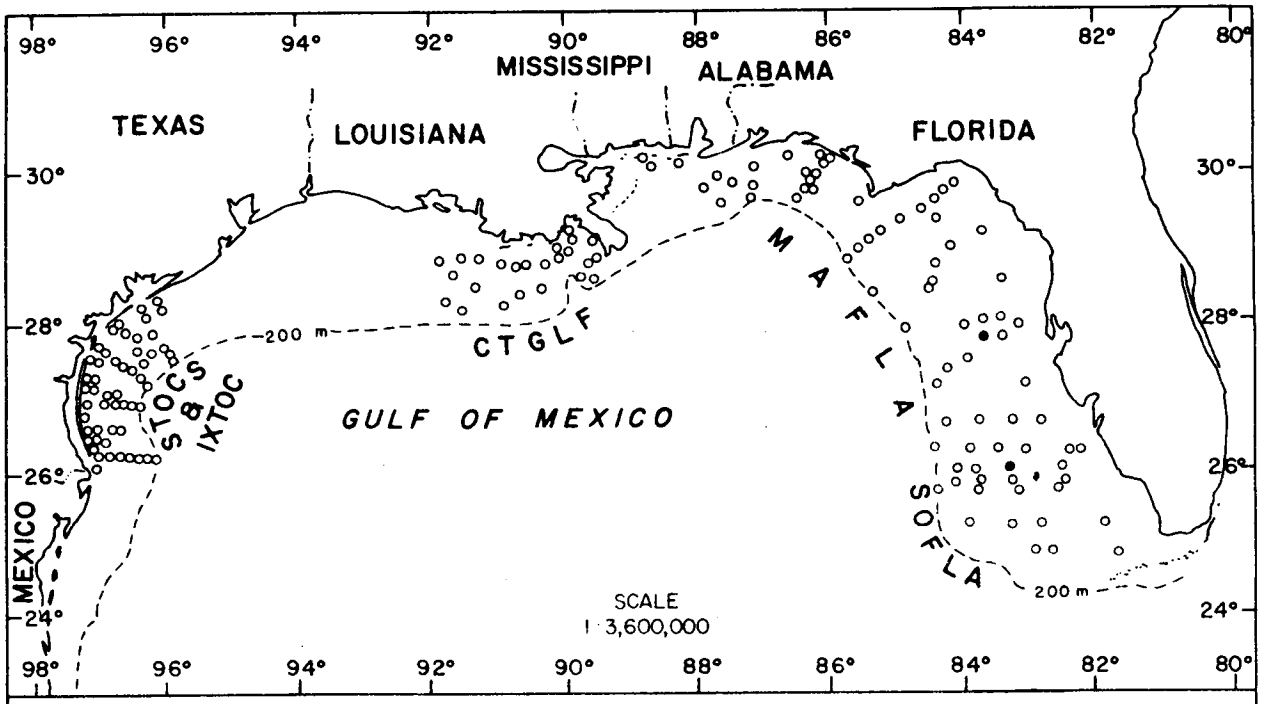

Figure 36-5. Distribution of Clavodorum sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

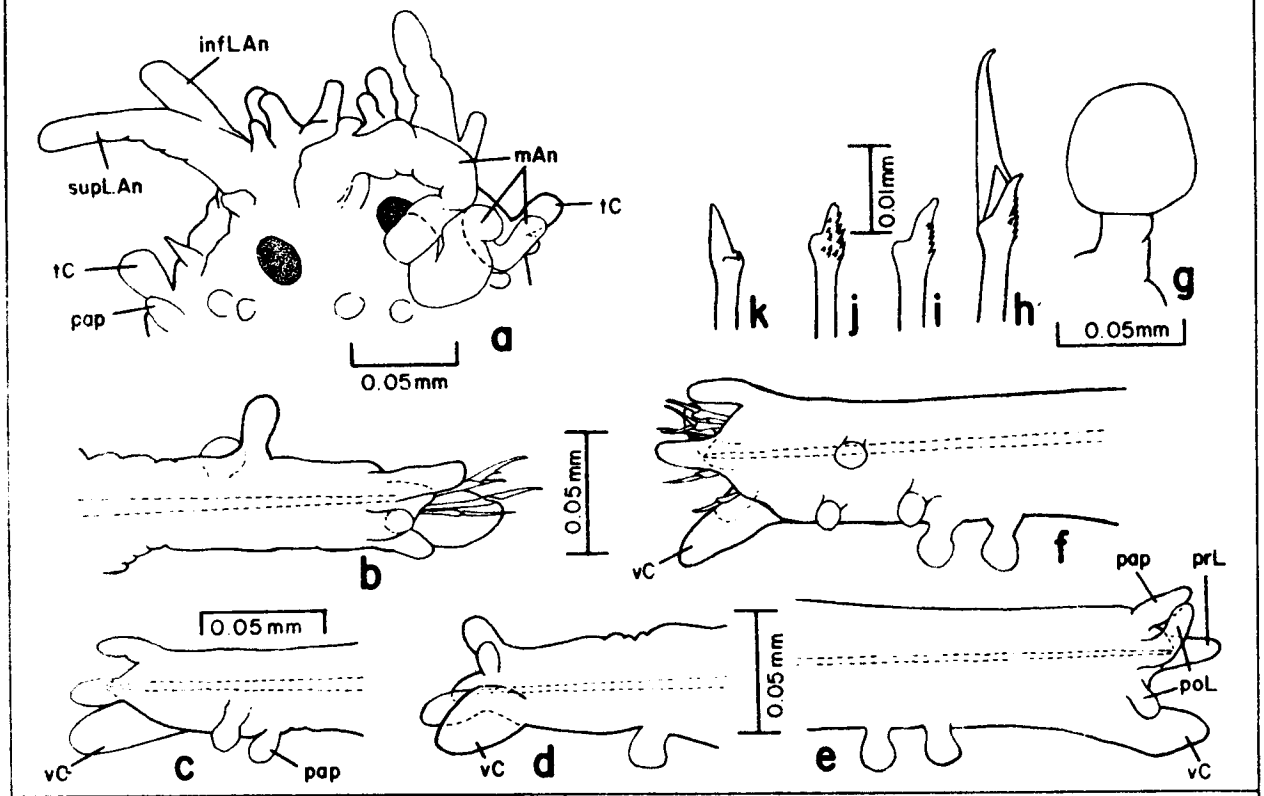

Figure 36-6. Clavodorum sp. A: a, anterior end, dorsal view (right superior lateral antenna missing); b, parapodium, right setiger 9, dorsal view; c, same, right setiger 14, anterior view; d, same, left setiger 7, posterior view; e, same, right setiger 8, posterior view; f, same, anterior view; g, macrotubercle; h, composite falciger, lateral view; i, same, shaft tip, lateral view; j, same, ventrolateral view; k, same, dorsolateral view.

Genus **Clavodorum** Hartman and Fauchald, 1971

TYPE SPECIES: Clavodorum atlanticum Hartman and Fauchald, 1971.
REFERENCES:
Hartman and Fauchald, 1971:63.
Fauchald, 1974:263.
DIAGNOSIS: Macrotubercles stalked, lacking terminal papillae, arrayed in six or eight dorsal rows. Prostomium with long median antenna and two pairs of shorter lateral antennae. All setae composite.

Clavodorum sp. A
Figures 36-5, 6a-k

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 8C-11/80 (1 spec.); MAFLA 2209H-2/78 (1 spec.).
Supplementary Material:
Gulf of Mexico--Off Alabama, COE Sta. 477-8, Mar. 1981, 30°09.89'N, 88°27.63'W, 23.8 m, sand (1 spec.).
DESCRIPTION:
Length, to 2.1 mm; width, to 0.6 mm without parapodia, 1 mm with parapodia. Body short, grub-like, widest anteriorly, complete specimens with 21 setigers; brown to white in alcohol. Prostomium truncate; median antenna long, gradually tapering, extending posteriorly to setiger 1 (Figure 36-6a). Superior lateral antennae cylindrical, distally blunt, each with two proximal spurs. Inferior lateral antennae similar to superior ones, shorter, lacking proximal spurs. A pair of eyes present at level of peristomial cirri, the latter papilliform. Proboscis short, muscular, extending posteriorly to setiger 6. Parapodia uniramous, up to four times longer than wide, not elongate posteriorly; acicular lobes conical, with a presetal lobe and one or two postsetal lobes which are absent from the last 3-4 setigers; all pre- and postsetal lobes digitiform (Figure 36-6b-f). Ventral cirri stout, digitiform, inserted terminally on parapodia, extending beyond acicular lobes. Parapodial papillae numbering 3-6, depending on body size; a 16-setiger specimen having one papilla each on anterior and ventral parapodial surfaces, and inferior and dorsal superior distal edges (Figure 36-6b-d); a 20-setiger specimen having three papillae on anterior parapodial surfaces, two on ventral inferior edges, and one on dorsal superior distal edge (Figure 36-6e,f). Papillae absent from dorsal superior edges and posterior surfaces (Figure 36-6b,d,e). Dorsal macrotubercles stalked (Figure 36-6g), arranged in six longitudinal rows, each macrotubercle having a slender column and spherical head. Ventral papillae arranged in a zigzag pattern of ten alternating rows, each papilla ellipsoidal. Composite falcigers numbering up to six per fascicle; blades smooth, unidentate (Figure 36-6h), decreasing slightly in length inferiorly within a fascicle (Figure 36-6f). Shaft tips of setae inflated, with dorsal superior branch long, conical and spinous (Figure 36-6h-j), and ventral inferior branch medially notched, forming socket for blade (Figure 36-6k).
REMARKS: Clavdorum sp. A is most closely allied to C. atlanticum Hartman and Fauchald, 1971, from deep water off Bermuda, in having six rows of dorsal macrotubercles and in lacking elongate parapodia posteriorly. Clavodorum sp. A differs from C. atlanticum in lacking

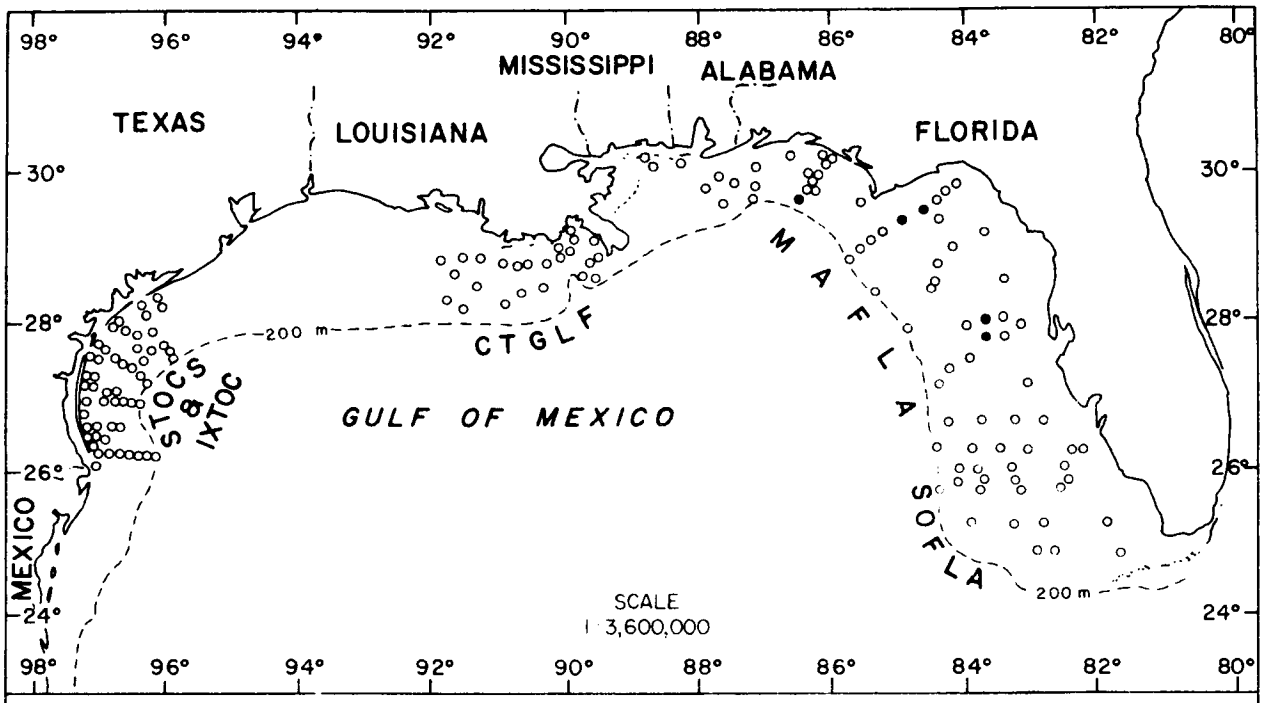

Figure 36-7. Distribution of Sphaerodoridium sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

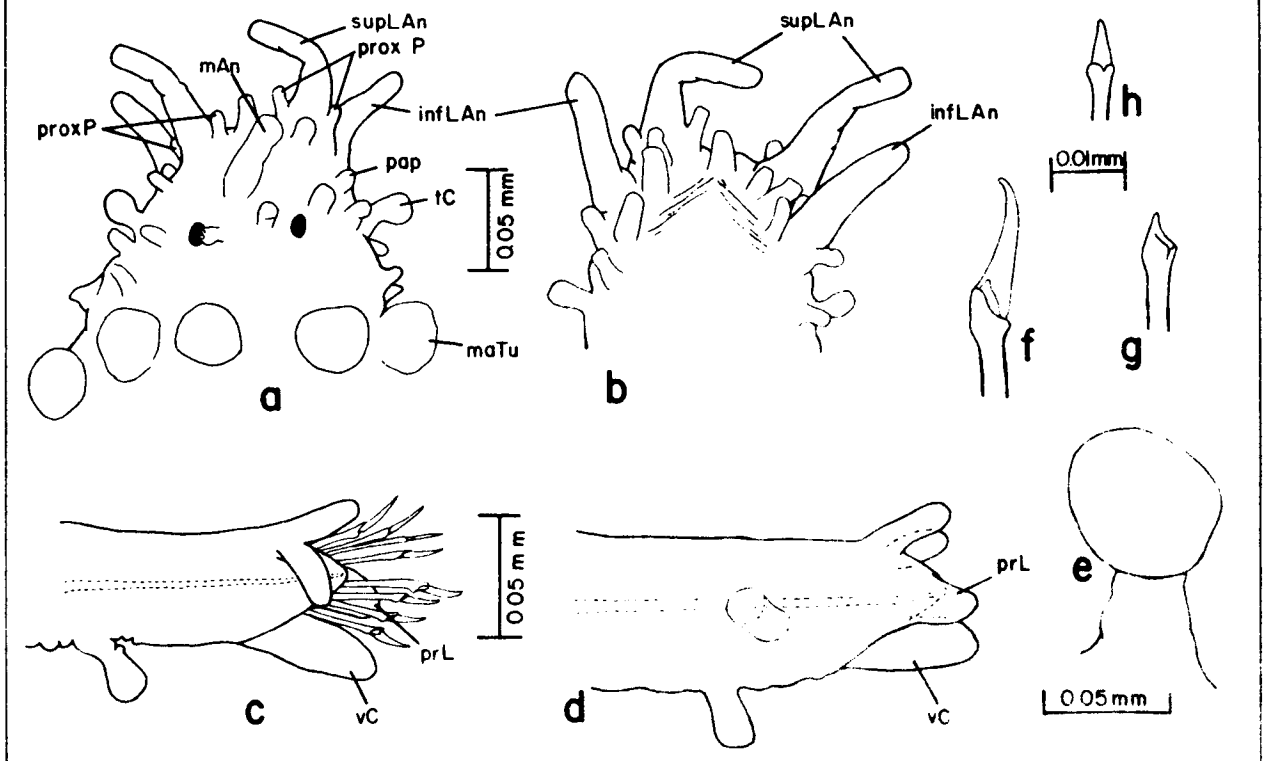

Figure 36-8. Sphaerodoridium sp. A: a, anterior end, dorsal view; b, same, ventral view; c, parapodium, right setiger 8, posterior view; d, same, left setiger 5, anterior view; e, ma[illegible] compos[illegible] falciger[illegible] lateral view; g, same, shaft tip, lateroventral view; h, same, ventral view.

accessory papillae on the superior lateral antennae, in lacking postsetal lobes on the last 3-4 setigers, in having eyes, in having two postsetal lobes instead of one, and in having ten ventral rows of papillae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Northeastern Gulf (Figure 36-5); 34-48 m; fine sand, clayey sandy silt.

Genus **Sphaerodoridium** Lützen, 1961, restricted sensu Fauchald, 1974

TYPE SPECIES: Sphaerodorum claparedii Greeff, 1866.
REFERENCES:
Greeff, 1866:338 (as Sphaerodorum).
Lützen, 1961:415.
Day, 1973:36 (as Ephesiella).
Fauchald, 1974:270.
DIAGNOSIS: Macrotubercles stalked, lacking terminal papillae, arrayed in six dorsal rows. Prostomium with short median antenna and two pairs of longer lateral antennae. All setae composite.

Sphaerodoridium sp. A
Figures 36-7, 8a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2209C-8/77 (1 spec.), 2209G-8/77 (1 spec.), 2210C-7/76 (1 spec.), 2422F-7/76 (1 spec.), 2423C-11/77 (2 spec.), 2536B-7/76 (2 spec.).
DESCRIPTION:
Length, to 2.5 mm; width, to 0.5 mm without parapodia, 0.8 mm with parapodia. Body grub-like, complete with up to 15 setigers; body wall transparent and macrotubercles white in alcohol. Anterior end bluntly rounded; median antenna short, digitiform; superior lateral antennae long, digitiform, each with two proximal papillae (Figure 36-8a); inferior lateral antennae similar to median antenna in shape and size, each with a single proximal papilla (Figure 36-8b). A pair of eyes present at level of peristomial cirri (Figure 36-8a). Peristomial cirri digitiform, shorter than median antenna (Figure 36-8a). Proboscis large, extending posteriorly to setiger 5. Papillae present on prostomium and peristomium. Parapodia uniramous, up to four times longer than wide; acicular lobes conical, with presetal lobes large, digitiform, projecting beyond acicular lobe; postsetal lobes absent (Figure 36-8c,d). Parapodial papillae numbering four, including one on anterior surfaces (Figure 36-8d); one on ventral inferior edges (Figure 36-8c,d); and two on dorsal superior distal edges, the superiormost of these largest (Figure 36-8c,d). Ventral cirri large, thick, digitiform, inserted distally on parapodial lobes, equaling length of presetal lobes, extending beyond acicular lobes (Figure 36-8c,d). Dorsal macrotubercles stalked, arranged in up to six longitudinal rows, each macrotubercle having stout columns and spherical heads (Figure 36-8e). Ventral papillae arranged in a zig-zag pattern of six alternating rows. Papillae otherwise absent from dorsal and lateral surfaces. Composite falcigers numbering up to ten per fascicle; blades smooth, recurved, unidentate (Figure 36-8f), decreasing in length only slightly inferiorly within a

fascicle. Shaft tips inflated, with dorsal superior branch long, conical, and ventral inferior branch medially notched, forming socket for blade (Figure 36-8g,h).

REMARKS: Sphaerodoridium sp. A differs from the only other described species of the genus, S. claparedii (Greeff, 1866), in having inferior lateral prostomial antennae each with a single proximal papilla, in lacking ventral transverse rows of papillae, in lacking papillae on the dorsal and lateral body surfaces, in having a regular zig-zag pattern of six alternating rows of ventral papillae, and in having four instead of two parapodial papillae. It is highly probable that the specimen of Sphaerodoridium (Ephesiella) claparedii sensu Day (1973:36) is referable to Sphaerodoridium sp. A since it lacks dorsal papillae.

GULF OF MEXICO BLM-OCS OCCURRENCE: Northeastern Gulf (Figure 36-7); 19-189 m; medium-fine sand to clayey silt.

CHAPTER 37

Jerry M. Gathof

FAMILY AMPHINOMIDAE Savigny, 1818

INTRODUCTION

Amphinomids are small to large (up to 500 mm) errant polychaetes with oval (Figure 37-6a) or fusiform (Figure 37-4a) bodies tapering abruptly at both ends. Most members of the family are characterized by the presence of a dorsal prostomial caruncle extending posteriorly over a variable number of anterior segments; arborescent or bipinnate branchiae; 1-2 dorsal cirri and one ventral cirrus per parapodium; and brittle, calcareous, hollow notosetae.

The prostomium (Figure 37-4b) is well-developed, usually rounded anteriorly, with a median antenna, one pair of lateral antennae and a pair of palps. The proboscis consists of an eversible, ventral muscular sac. Eyes, when present, usually number two pairs. The caruncle may be reduced to a small pad behind the prostomium, as in Paramphinome (Figure 37-4b); or it may be long, extending posteriorly over 1-4 setigers, as in Eurythoe (Figures 37-8a, 10a). The peristomium is setigerous, sometimes having hooks in front of the dorsal cirri (Figures 37-2a,b; 4b,c). Parapodia are biramous and well-developed. Notosetae are arranged in dorsal tufts and may include harpoon-shaped setae (Figure 37-6c); stout, furcate setae (Figure 37-6d); and modified, "stepped" capillary setae (Figure 37-10e). Neurosetae may be bifurcate (Figure 37-10g), basally spurred (Figure 37-2f), or acicular (Figure 37-10f), and extend laterally from the body. Dorsal cirri are present on all setigers. Ventral cirri are usually short, not exceeding the length of the neuropodial lobe. The pygidium usually consists of two terminal oval lobes.

The family Amphinomidae was first erected by Savigny in 1818. Gustafson (1930) conducted a comprehensive anatomical review of the family, concentrating on the morphological characters used in identification. Seventeen genera and 114 species were recognized for the family by Fauchald (1977a:100). Of these, three genera and five species have been identified from the Gulf of Mexico BLM-OCS material, and four of these species may be new to science.

PRINCIPAL DIAGNOSTIC CHARACTERS

Characters used to diagnose amphinomid genera include structure of the caruncle, number and location of branchiae, and body shape (elongate or oval). The caruncle may be entirely absent (Hipponoa), reduced to a small pad (Paramphinome) or elongate (Chloeia, Eurythoe). The branchiae may be bipinnate or arborescent, and may be restricted to anterior segments or present on nearly all segments.

The prostomium is usually divided into anterior and posterior lobes. A median antenna, a pair of lateral antennae and a pair of palps are present on the anterior lobe. The entire prostomium may be retracted into the first few setigers upon fixation, as in the genus Paramphinome. A dorsomedial incision along the first four setigers is often required to examine the prostomium in this genus. The presence of

clear hooks embedded in the notopodia of setiger 1 is another important generic character. To view these hooks, it may be necessary to remove a parapodium from setiger 1, and place it on a slide with a drop of full-strength chlorine bleach for about 30 seconds to dissolve the tissue. The bleach is then displaced by a drop of alcohol.

Specific differences among amphinomids include location and number of branchiae, and the kinds of noto- and neurosetae. The branchiae usually begin between setigers 2 and 5. They may be restricted to the anterior portion of the worm or may extend throughout its length. While the same kinds of setae may be found in more than one genus, it is usually the combination of the different kinds of noto- and neurosetae that constitute species specificity. Amphinomids have been reported to acquire swimming setae at sexual maturity (Hartman, 1951a:21), which could complicate specific identification due to setal modifications.

BIOLOGICAL NOTES

Amphinomids are typically slow-moving polychaetes inhabiting mud, sand or coral bottoms. Some species are found attached to floating logs. They are common in tropical waters and are associated with warm water currents such as the Gulf Stream at more northern latitudes. They are often brilliantly colored, especially in tropical regions where color patterns provide species-specific characters on live specimens. These patterns, however, fade rapidly in alcohol and are useless in preserved material.

When disturbed, the worm characteristically curls up, exposing the sharp hollow notosetae for defense. These worms are commonly called "fireworms" because of the irritation occurring when the sharp notosetae break off in the skin. Some workers have reported the presence of a mild toxin associated with the hollow notosetae of some species (Day, 1967:120; Gardiner, 1976:101).

Fauchald and Jumars (1979:198) reported that amphinomids may be predators or carrion feeders, depending on the species. Those which live on sand bottoms in tropical regions are typically carnivorous, using their bulbous proboscis to browse on coral polyps, sponges and anemones. Lizama and Blanquet (1975:442) found that semi-digested coral material released into the water from one amphinomid feeding will attract others to the food source. Marsden (1962:594) reported amphinomids as being least active at midday and more active at dawn and dusk. Eurythoe complanata usually remains concealed during the day and Hermodice carunculata will forage in the open in the late afternoon and early morning. Members of the genus Hipponoa may be parasitic on the pelagic barnacle Lepas (Fauchald and Jumars, 1979:197). Little has been reported on reproduction in amphinomids. Dales (1963:164) stated that amphinomids do acquire specialized (natatory?) setae during periods of reproductive activity. Asexual reproduction has been reported in Eurythoe complanata (Schroeder and Hermans, 1975:4).

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

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

1a. Hooks present in notopodia of setiger 1 (Figures 37-2a, 4b). . . . . .**Paramphinome**, p. 37-3
1b. Hooks absent from notopodia of setiger 1. 2

2a. Single branchial trunk per parapodium 3
2b. Two branchial trunks per parapodium. . . . . .**Hermodice***

3a. Branchiae pinnate (Figure 37-6a,b); caruncle long, composed of median crest and two lateral lobes . . . . . .**Chloeia**, p. 37-8
3b. Branchiae filiform (Figure 37-8a,b); caruncle composed of a single lobe (Figure 37-8a). . . . . .**Eurythoe**, p. 37-10

*Not represented in BLM-OCS collections but Hermodice carunculata is a common inhabitant of littoral grass beds and coral reefs in the Gulf (Johnson and Vittor, 1982:139).

Genus **Paramphinome** Sars, 1869

TYPE SPECIES: Hipponoe jeffreysii McIntosh, 1868.
REFERENCES:
Fauvel, 1932:51.
Fauchald, 1977a:102.
DIAGNOSIS: Body small, long, quadrangular in cross-section. Prostomium wide, smooth anteriorly, narrowing into a small caruncle posteriorly; sometimes withdrawn into the first three setigers. Median antenna, one pair of lateral antennae and one pair of palps present. Eyes present or absent. Peristomium armed with 1-2 pairs of stout hooks. Branchiae occurring in tufts, limited to anterior setigers. One dorsal and one ventral cirrus per parapodium; cirri long on setiger 1.

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

1a. Subdistally swollen neurosetae acicular (Figure 37-2g). . . . . .**Paramphinome sp. A**, p. 37-6
1b. Subdistally swollen neurosetae bifurcate (Figure 37-4g). . . . . .**Paramphinome sp. B**, p. 37-6

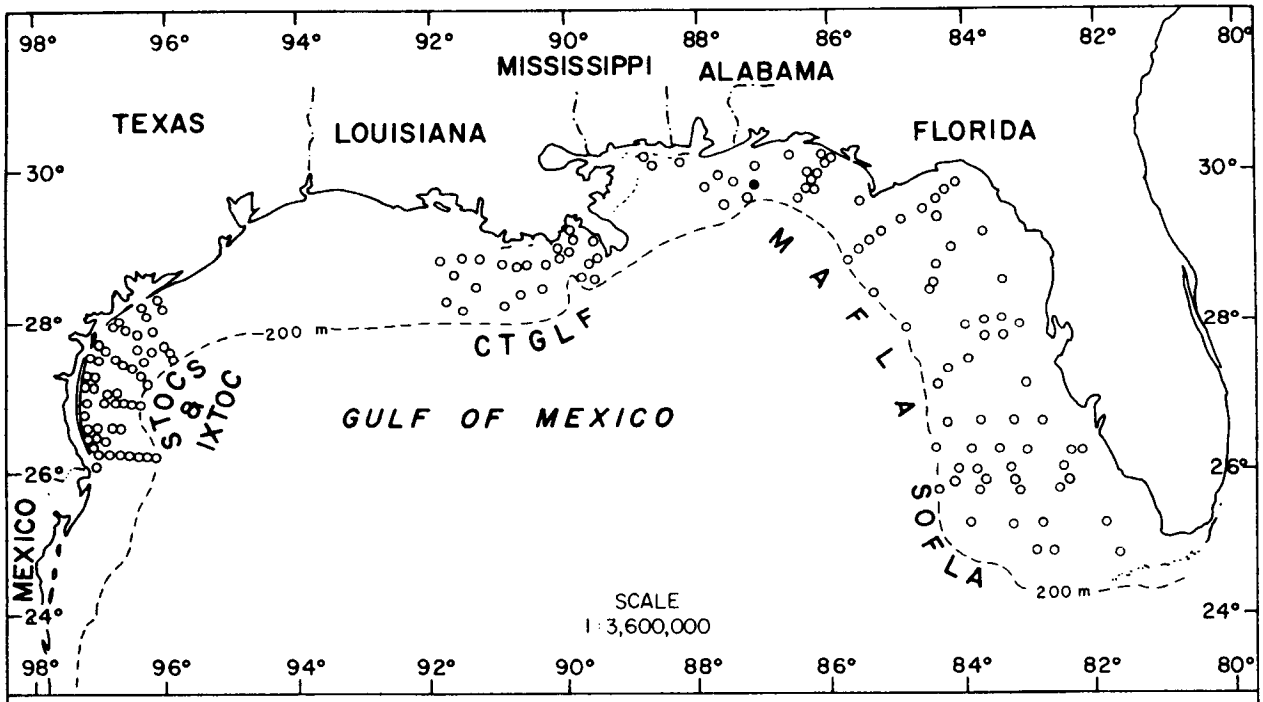

Figure 37-1. Distribution of Paramphinome sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

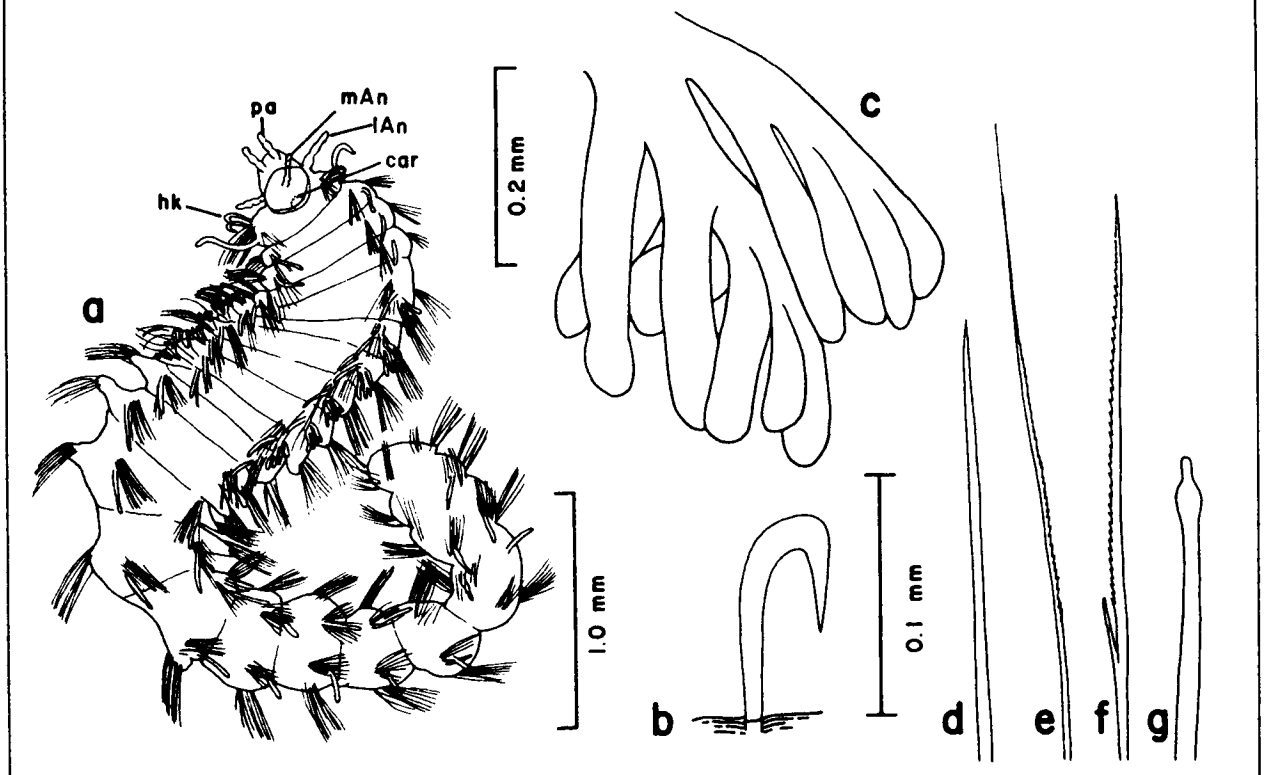

Figure 37-2. Paramphinome sp. A: a, whole worm, dorsal view; b, notopodial hook of setiger 1; c, branchia; d, smooth notopodial spine; e, serrate capillary notoseta; f, basally spurred serrate neuroseta; g, subdistally swollen acicular neuroseta.

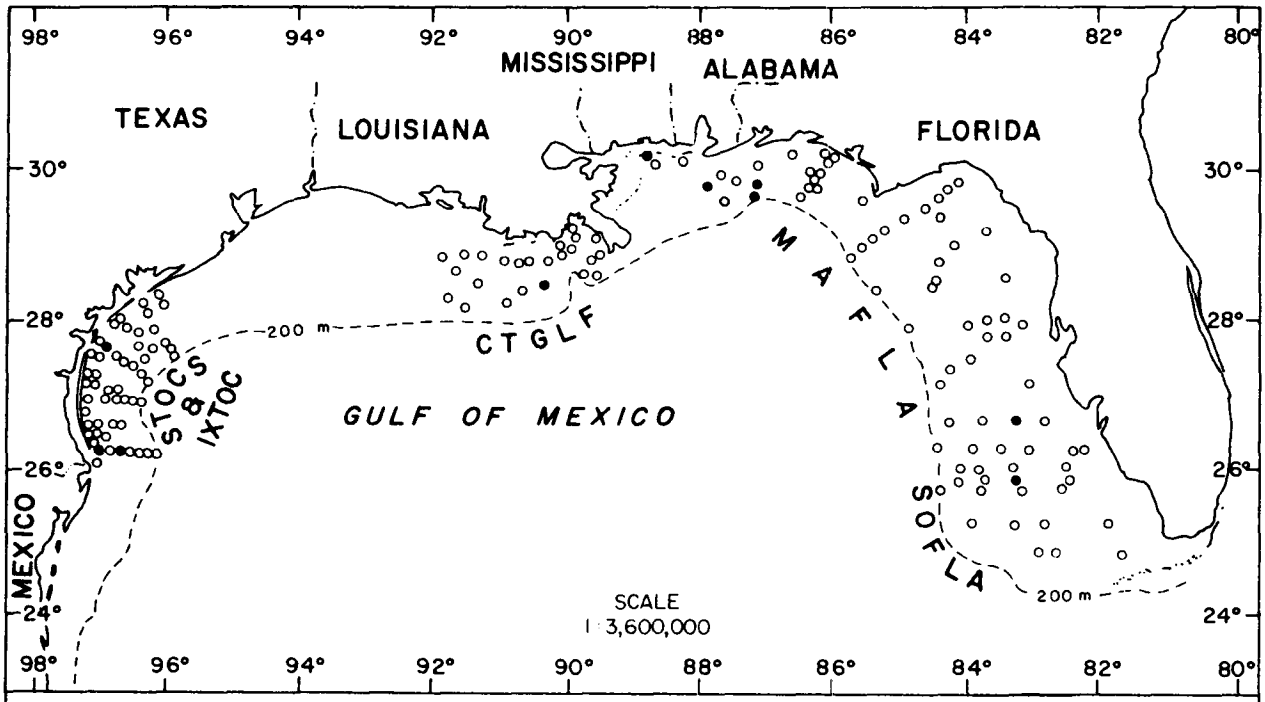

Figure 37-3. Distribution of Paramphinome sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

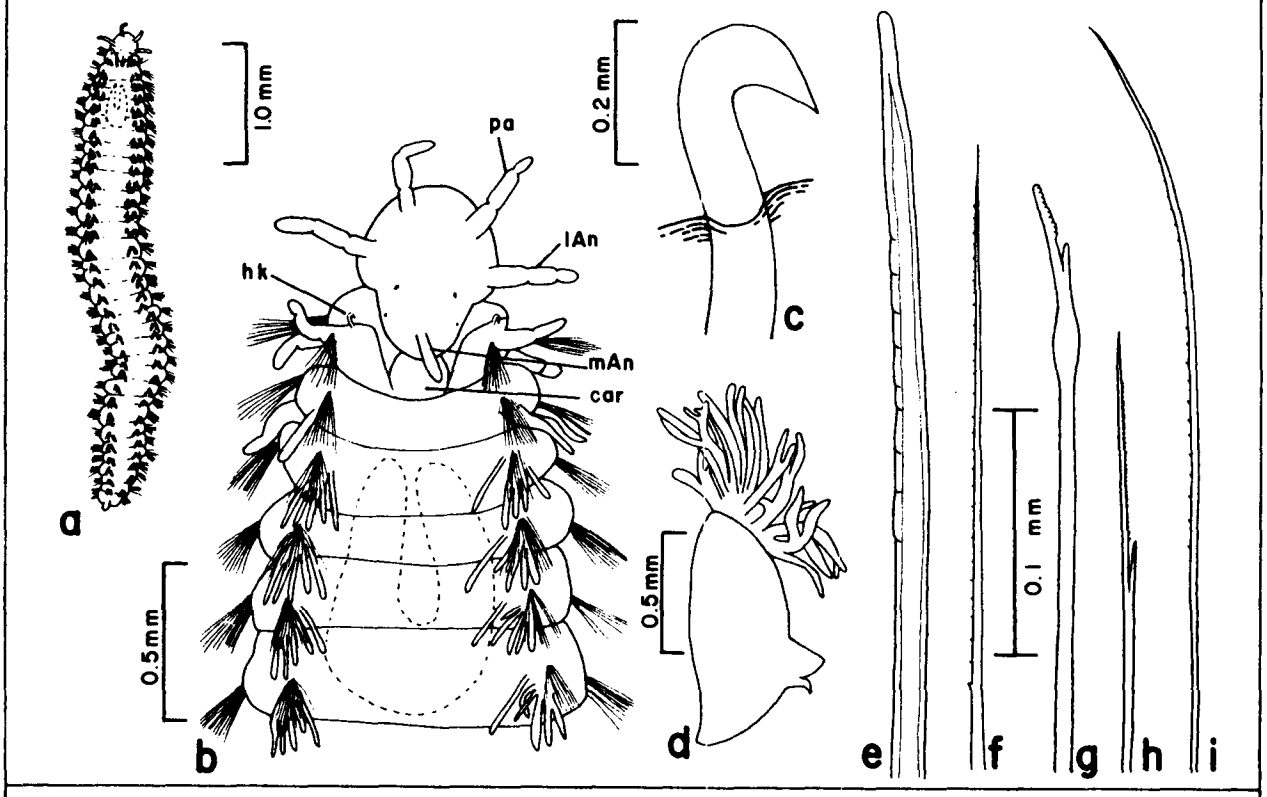

Figure 37-4. Paramphinome sp. B: a, whole worm, dorsal view; b, anterior end, dorsal view; c, large, recurved notopodial hook of setiger 1; d, typical branchial parapodium, setae removed; e, stout, dentate notopodial spine; f, stepped serrate capillary notoseta; g, subdistally swollen bifid neuroseta; h, basally spurred neuroseta; i, serrate capillary neuroseta.

Paramphinome sp. A
Figures 37-1, 2a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2644C-6/75 (1 spec.).
Supplementary Material:
Gulf of Mexico--Texas Flower Gardens, EFG-I-1-4-10/80, 27°59.57'N, 93°35.42'W, silty sand (3 spec.); EFG-VI-6-3-5/82, 27°53.63'N, 93°39.10'W, silty sand (1 spec.); EFG-VI-7-5-5/82, 27°57.76'N, 93°38.96'W, silty sand (1 spec.); EFG-VI-8-1-5/82, 27°57.76'N, 93°38.50'W, silty sand (1 spec., USNM 75115).
DESCRIPTION:
Length, to 6 mm; width, to 0.5 mm. Body slender (Figure 37-2a); all specimens incomplete with up to 23 setigers. Prostomium rounded anteriorly; antennae and palps annulated. Eyes absent. Caruncle present as a small knob, partially covered by peristomium. Peristomium with 1-2 pairs of large, clear, recurved hooks (Figure 37-2b) located anterior to dorsal cirri and projecting anteriorly. Dorsal and ventral cirri of setiger 1 longest; those from setiger 12 about one-third body width. Six pairs of arborescent branchiae, beginning on setiger 5 (Figure 37-2c), located posterolateral to dorsal cirri. Notosetae including stout, smooth, pointed spines (Figure 37-2d), and serrate capillary setae (Figure 37-2e); notoacicula tapering to a point. Neurosetae basally spurred with long tine about six times length of short tine, and coarsely serrate along inner margin (Figure 37-2f); acicular neurosetae subterminally inflated (Figure 37-2g).
REMARKS: Paramphinome sp. A closely resembles Paramphinome indica (Fauvel, 1932) from the Arabian Sea, but lacks the closely toothed furcate neurosetae (Fauvel, 1932:fig. 10d), and has serrate rather than smooth capillary notosetae (Figure 37-2e).
GULF OF MEXICO BLM-OCS OCCURRENCE: One station in northern Gulf (Figure 37-1); 75 m; medium sand.

Paramphinome sp. B
Figures 37-3, 4a-i

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
SOFLA 4-12/80 (2 spec.), 4B-8/81 (3 spec.), 16-12/80 (4 spec.); MAFLA 2637F-6/75 (1 spec.), 2640J-9/77 (1 spec.), 2640K-11/77 (2 spec.), 2644C-6/75 (3 spec., USNM 75177), 2645D-11/77 (2 spec.); CTGLF 03-5/78 (5 spec.); STOCS 1/II-3 7/76 (2 spec., USNM 89491), 1/IV-3 F/76 (1 spec., USNM 89492); IXTOC S53-2 11/79 (1 spec., USNM 89493).
DESCRIPTION:
Length, to 22 mm; width, to 2 mm. Body slender (Figure 37-4a); complete specimens with up to 32 setigers. Prostomium expanded anteriorly (Figure 37-4b); antennae and palps annulated. Two pairs of eyes in trapezoidal arrangement, anterior pair slightly larger. Single pair of small, clear hooks (Figure 37-4c) present on peristomium anterior to dorsal cirrus, often embedded in parapodial lobe. Dorsal and ventral cirri of setigers 1 and 2 larger than those following. Branchiae arborescent (Figure 37-4d), numbering 11-15 pairs beginning on setiger 3. Notosetae including stout, dentate spines (Figure 37-4e), and "stepped",

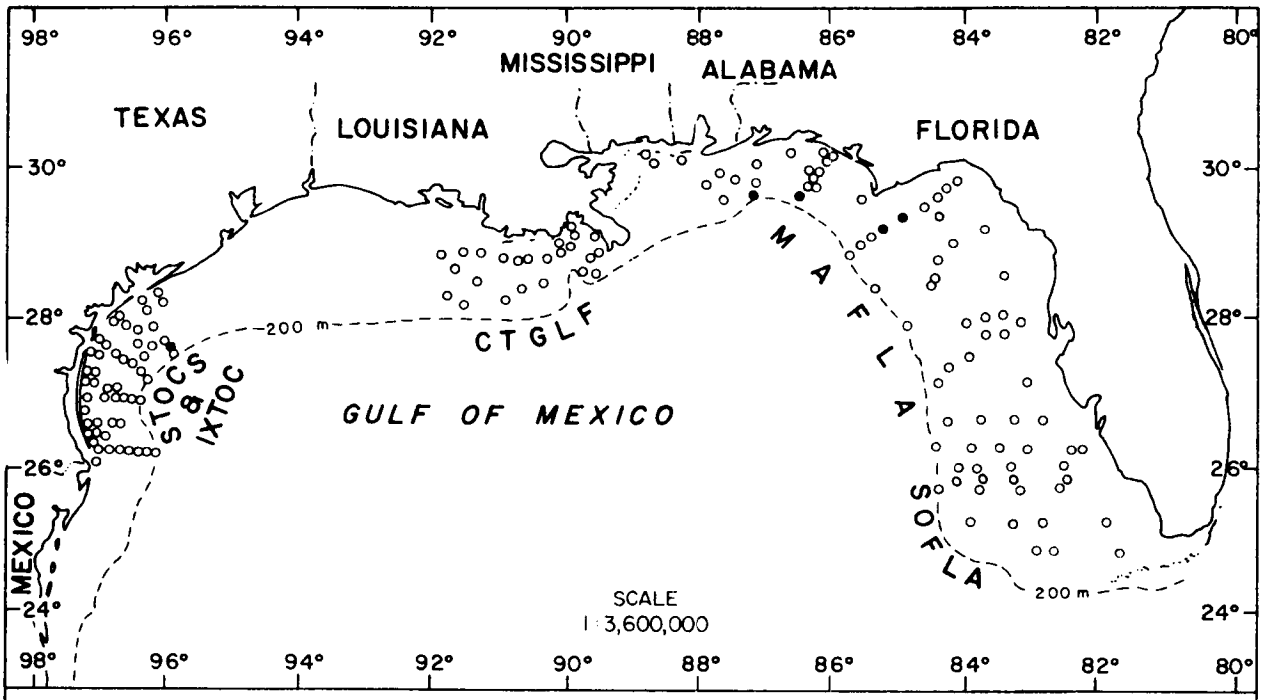

Figure 37-5. Distribution of Chloeia viridis on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

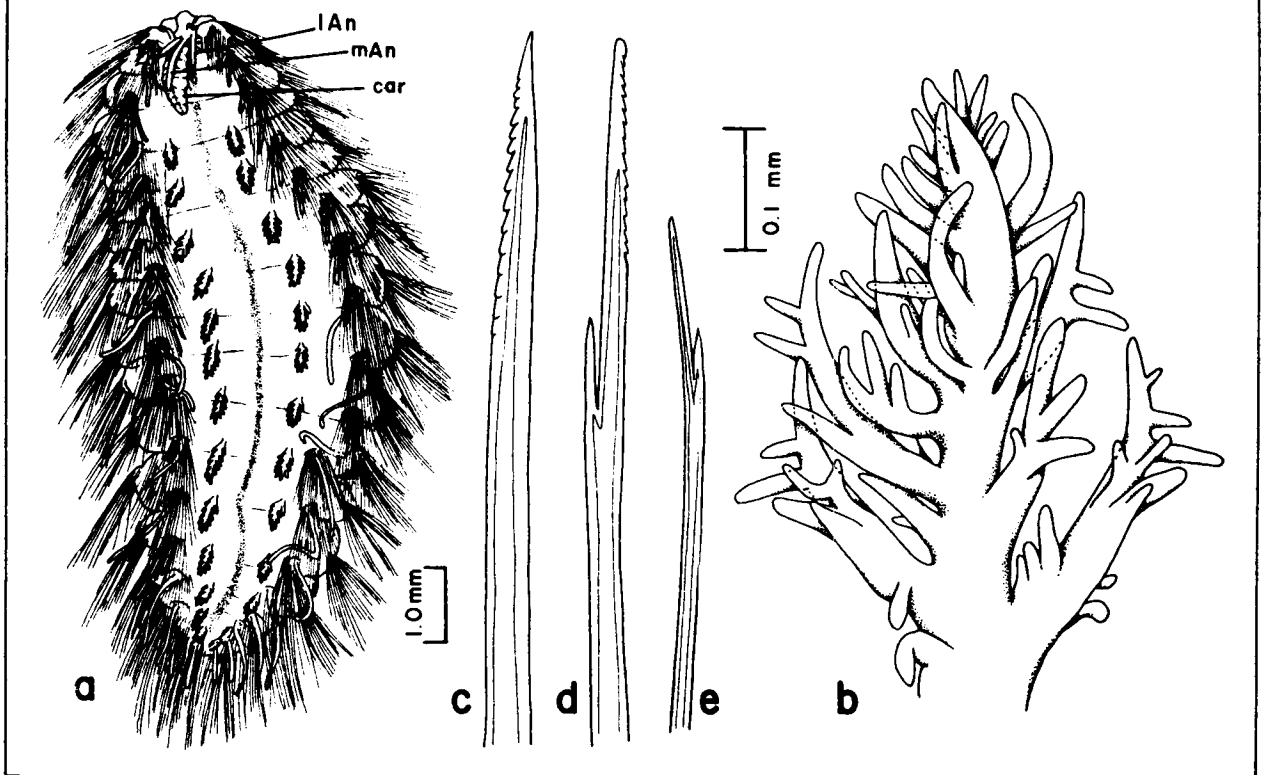

Figure 37-6. Chloeia viridis: a, whole worm, dorsal view; b, typical branchia; c, harpoon notoseta; d, bifid serrate notoseta; e, smooth bifid neuroseta.

serrate capillaries (Figure 37-4f). Neurosetae including subterminally inflated bifid setae with serrate long tine (Figure 37-4g); modified capillary setae with basal spur, long tine serrate (Figure 37-4h); and serrate capillary setae (Figure 37-4i).
REMARKS: The hooks on setiger 1 of Paramphinome sp. B are extremely difficult to see. Dissection of setiger 1 and careful dissolution of the tissue in bleach may be necessary to confirm their presence. Paramphinome sp. B closely resembles P. indica (Fauvel, 1932), but has ventral cirri on setiger 2 and lacks the hastate acicula. It differs from P. pulchella (Sars, 1872) in the number of branchiae and shape of the bifid neurosetae.
GULF OF MEXICO BLM-OCS OCCURRENCE: Scattered records in northern Gulf (Figure 37-3); 15-106 m; coarse to fine sand, silty and clayey sand, sandy silt, sandy silty clay.

Genus **Chloeia** Savigny, 1818

TYPE SPECIES: Aphrodita flava Pallas, 1766.
REFERENCES:
Monro, 1933d:9.
Hartman, 1948:37; 1951a:29.
Fauchald, 1977a:102.
DIAGNOSIS: Body large, ovate. Prostomium small, usually cleft anteriorly, forming two ventral pads. Caruncle large, with distinct lateral folds. Branchiae pinnate beginning on setiger 4. Two dorsal cirri on anterior abranchiate setigers.

Chloeia viridis Schmarda, 1861
Figures 37-5, 6a-e

Chloeia viridis--Monro, 1933d:9, fig. 4.
Chloeia viridis--Hartman, 1948:37; 1951a:29.
Chloeia viridis--Day, 1973:15.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2423H-7/76 (1 spec.), 2424G-2/78 (2 spec.), 2536C-11/77 (1 spec., USNM 75175), 2645E-6/75 (2 spec.); STOCS 6/I-3 W/76 (1 spec., USNM 89494).
DESCRIPTION:
Length, to 25 mm (previously reported to 117 mm); width, to 6 mm. Body elongate to oval (Figure 37-6a); complete specimens with up to 34 setigers. Prostomium small, globular. Eyes numbering two pairs, in trapezoidal arrangement, anterior pair larger. Antennae cirriform. Caruncle extending from posterior margin of prostomium to setiger 3 or 4. Two pairs of dorsal cirri on each of first three setigers; one ventral cirrus throughout. Branchiae pinnate (Figure 37-6b), beginning on setiger 4 and continuing to end of body. Notosetae including thick harpoon setae with proximally directed dentition (Figure 37-6c), and basally spurred setae with proximally directed dentition on outer margin of long tine (Figure 37-6d). Neurosetae all smooth, unequally bifid (Figure 37-6e).

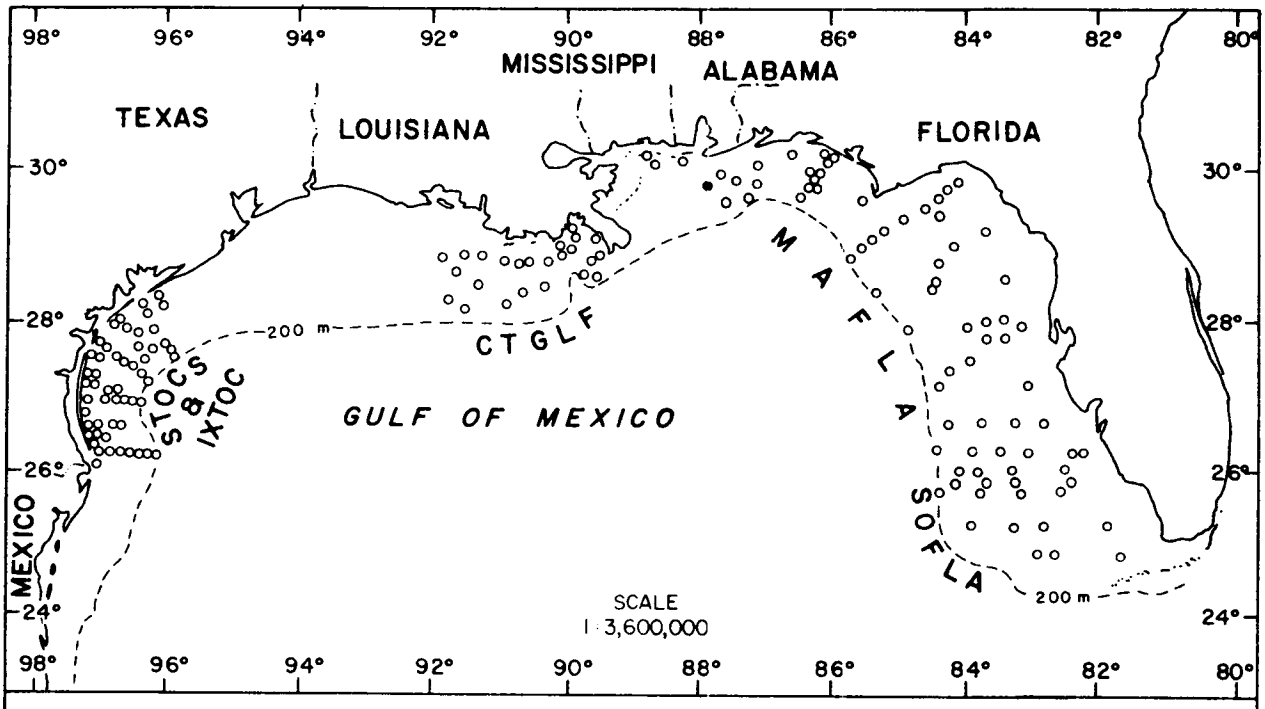

Figure 37-7. Distribution of Eurythoe sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

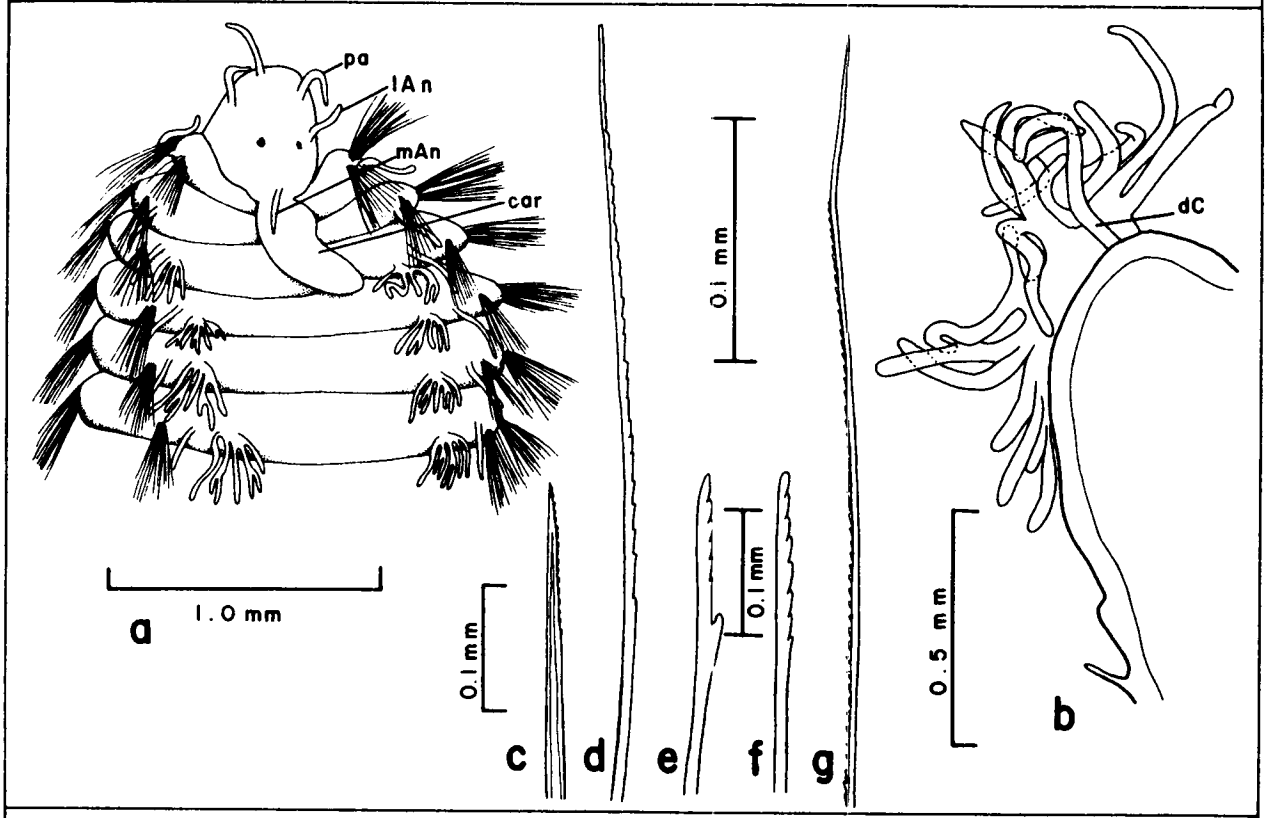

Figure 37-8. Eurythoe sp. A: a, anterior end, dorsal view; b, typical branchial parapodium; c, harpoon notoseta; d, stepped notopodial capillary seta; e, bifid, serrate neuroseta; f, serrate neuroseta; g, serrate capillary neuroseta.

REMARKS: This species agrees with previous descriptions of Chloeia viridis. Hartman (1948) was the first to report the presence of double dorsal cirri on anterior abranchiate setigers. Some Gulf of Mexico BLM-OCS specimens of C. viridis were previously referred to C. euglochis and C. cf. rosea.
PREVIOUSLY REPORTED HABITAT: 24-120 m; soft bottom mud, on Sargassum.
GULF OF MEXICO BLM-OCS OCCURRENCE: Four stations off northwestern Florida and one off Texas (Figure 37-5); 19-189 m; coarse to medium sand, silty fine sand, clayey silt, silty clay.
DISTRIBUTION: West Indies, Brazil, North Carolina, Gulf of Mexico.

Genus Eurythoe Kinberg, 1857

TYPE SPECIES: Eurythoe capensis Kinberg, 1857.
REFERENCES:
Johnson, 1897:159.
Bindra, 1927:1.
Monro, 1933d:4.
Hartman, 1948:42; 1951a:25.
DIAGNOSIS: Body elongate. Prostomium large, globular, with median antenna, one pair of lateral antennae and one pair of palps. Caruncle long, sinuous, extending posteriorly to setigers 3-4. Branchiae dendritically branched. One dorsal and ventral cirrus per parapodium.

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

1a. Bifurcate neurosetae serrate (Figure 37-8e). . . . . Eurythoe sp. A, p. 37-10

1b. Bifurcate neurosetae smooth (Figure 37-10g). . . . . Eurythoe sp. B, p. 37-12

Eurythoe sp. A
Figures 37-7, 8a-g

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2640D-6/75 (1 spec., USNM 75176), 2640-11/77 (1 spec.).
DESCRIPTION:
Length, to 15 mm; width, to 2 mm. Body slender; both specimens incomplete with up to 29 setigers. Prostomium globular, not expanded anteriorly (Figure 37-8a). Antennae and palps similar in length. One pair of distinct eyes. Caruncle smooth, inserted at posterior margin of prostomium near median antenna, extending to setiger 3 or 4. Multifilamentous branchiae present (Figure 37-8b) on setigers 3 to at least 29. Notosetae including stout, harpoon setae (Figure 37-8c); and slender, stepped, serrate capillary setae (Figure 37-8d). Neurosetae including stout, serrate spines with a basal spur (Figure 37-8e); stout, serrate spines without a basal spur (Figure 37-8f), and serrate capillary setae (Figure 37-8g).
REMARKS: This species most closely resembles Eurythoe complanata (Bindra, 1927:10), but differs from the latter in lacking basally spurred notosetae. These specimens could be juveniles.

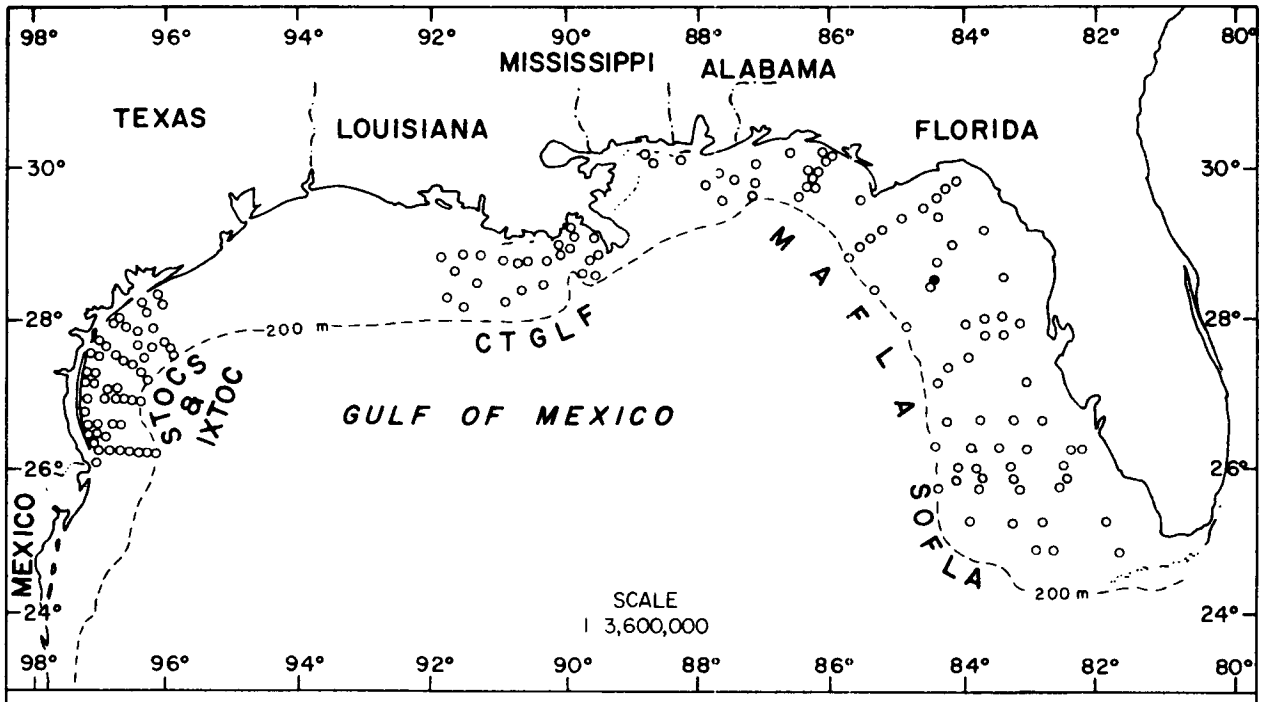

Figure 37-9. Distribution of Eurythoe sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

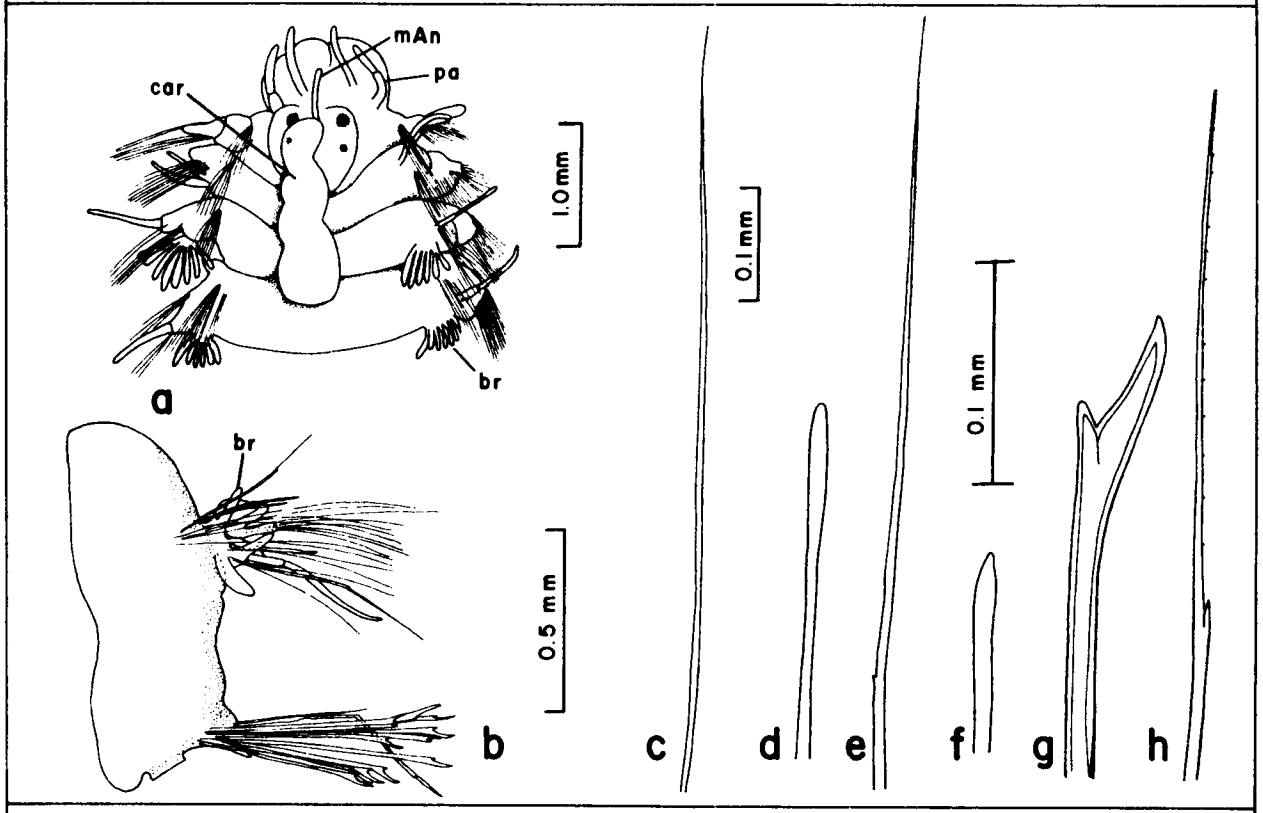

Figure 37-10. Eurythoe sp. B: a, anterior end, dorsal view; b, typical branchial parapodium; c, capillary notoseta; d, acicular notoseta; e, stepped notoseta; f, acicular neuroseta; g, stout bifurcate neuroseta; h, serrate bifurcate neuroseta.

GULF OF MEXICO BLM-OCS OCCURRENCE: One station in northern Gulf (Figure 37-7); 35 m; medium sand.

Eurythoe sp. B
Figures 37-9, 10a-h

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2315D-11/78 (3 spec.).
DESCRIPTION:
Length, to 10 mm; width, to 2 mm. Body slender; largest specimen complete with 42 setigers. Prostomium globular, distinctly bilobed along anterior margin (Figure 37-10a). Two pairs of distinct eyes, anterior pair larger. Caruncle smooth, inserted at base of median antenna and extending posteriorly to setiger 4. Multifilamentous branchiae (Figure 37-10b) present from setiger 2 to end of body. Notosetae including simple capillary setae (Figure 37-10c), stout acicular spines (Figures 37-10d), and "stepped" setae (Figure 37-10e). Neurosetae including stout acicular spines (Figure 37-10f), stout bifurcate setae (Figure 37-10g), and capillary setae with basal spur and faint serrations along distal portion (Figure 37-10h).
REMARKS: This species also closely resembles Eurythoe complanata but differs from the latter in lacking both the harpoon-shaped notosetae and the serrate, bifid neurosetae. These specimens could be juveniles.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station in northeastern Gulf (Figure 37-9); 38 m; silty fine sand.

CHAPTER 38

Jerry M. Gathof

FAMILY EUPHROSINIDAE Williams, 1851

INTRODUCTION

Euphrosinids are small (usually less than 25 mm), oval-bodied polychaetes with numerous segments. Members of the family are characterized by the presence of branchiae and bifurcate notosetae in transverse rows across the dorsum, giving the worm a bristly appearance from above. The prostomium is small, slender and inconspicuous, often buried between the crowded anterior segments. It extends over the anterior margin of the worm onto the ventrum and possesses two pairs of eyes (one dorsal and one ventral), a median and two ventrolateral antennae, and a pair of small palps. A caruncle is usually present behind the prostomium and extends posteriorly over a variable number of segments. Branchiae occur in transverse rows behind the notosetae and vary in shape from simple filaments to elaborate branching structures. Dorsal cirri occur medial to the dorsalmost branchiae as one or two filaments. A small dorsolateral cirrus is present between the branchial trunks. Parapodia are well-developed with the larger notopodia possessing numerous bifurcate notosetae. Neurosetae are also generally bifurcate but more slender.

Members of the family Euphrosinidae have been included with the Amphinomidae by some workers (Ushakov, 1955; Day, 1967); however, most authors maintain the separate family designation as used herein. Two genera, Euphrosine and the tenuously placed Palmyreuphrosyne, were recognized for the family by Fauchald (1977a), who reported 42 species of euphrosinids worldwide. Two previously described and four potentially new species of Euphrosine have been identified among the BLM-OCS Gulf of Mexico voucher specimens.

PRINCIPAL DIAGNOSTIC CHARACTERS

The principal diagnostic characters used in the identification of euphrosinids include the width of the middorsal strip left uncovered by the notosetae, the arrangement of the eyes on the prostomium, the length and shape of the caruncle, the number and shape of the branchiae, the number of dorsal cirri and position of the dorsolateral cirrus, and the morphology of the noto- and neurosetae.

The notosetae are arranged in transverse rows across the dorsum (Figure 38-4a), but rarely meet at the midline. This leaves an exposed middorsal strip, whose width in relation to the total body width may be used as a secondary character for species recognition. All measurements should be made in the midbody region to avoid areas of rapid tapering both anteriorly and posteriorly.

The prostomium is relatively small and slender, extending posteriorly through the first couple setigers and anteriorly around the front of the worm onto the ventrum. The dorsal pair of eyes is usually located near the junction of the caruncle and the prostomium in close proximity to the median antenna (Figure 38-4a). They are variable in

size and may be fused at the dorsal midline. The ventral eyes usually lie between the neuropodia of the anteriorly directed first setiger (Figure 38-2b), and are usually smaller than the dorsal pair. They may also be fused, sometimes appearing as a single black streak. The small lateral antennae are located lateral or just anterior to the ventral eyes and are easily overlooked. Small oval or pear-shaped palps occur ventral to the eyes just anterior to the buccal opening.

The caruncle extends posteriorly from the prostomium and may be digitiform (Figure 38-10a), crested (Figure 38-2a) or trilobed (Figure 38-4a). Longitudinal grooves may be present along the dorsal crest (Figure 38-2a). The general shape of, and number of setigers traversed by the caruncle, are often diagnostic.

The branchiae may be digitiform, elaborately branched, or entirely absent. When present, they number 4-12 per parapodium, arranged in a transverse row (Figure 38-12a) behind the notosetae. Branching may be dendritic or dichotomous, resulting in many branchlets. The branchlets may be long or short, ending in filiform tips (Figure 38-2c); or subterminally swollen with acuminate tips (Figure 38-10b).

The dorsal cirri are located medial to the dorsalmost branchiae, and may be single or bifid. The number of filaments and their length relative to the dorsalmost branchiae are often used as specific characters. The location and relative length of the dorsolateral cirri (Figure 38-2c) are also diagnostic.

Notosetae occur in 3-4 transverse rows across the dorsum. They are all bifid and may have straight (Figure 38-2d) or curved (Figure 38-4c) (sickle-shaped) tines depending on the species and on the row of insertion. The occurrence of ringent setae (Figures 38-2d, 4c), in which the inner margins of the tines are serrate, and the degree of serration are often good specific characters.

Neurosetae project laterally from well-defined neuropodia and are similar in shape to the smooth, bifurcate notosetae, but are more slender. They may be deeply forked (Figure 38-4e) or only basally spurred (Figure 38-10d). In some species the tip of the long tine may be bifid (Figure 38-10d).

BIOLOGICAL NOTES

Euphrosinids are typically epibenthic, found among coral, rocks, sponges, and on sandy or shelly bottoms. They occur intertidally to over 600 meters in depth. Euphrosinids characteristically coil up when irritated, probably as a defense mechanism against predation, exposing the sharp notosetae to every angle of attack.

Euphrosinids were reported by Fauchald and Jumars (1979:211) to be carnivorous. They feed mainly by scraping sponges off rocks, but will also feed on bryozoans and corals. One deep water species from the Atlantic feeds exclusively on foraminiferans. Little work has been reported on the reproductive biology of this family. Several specimens examined in the BLM-OCS material contained eggs.

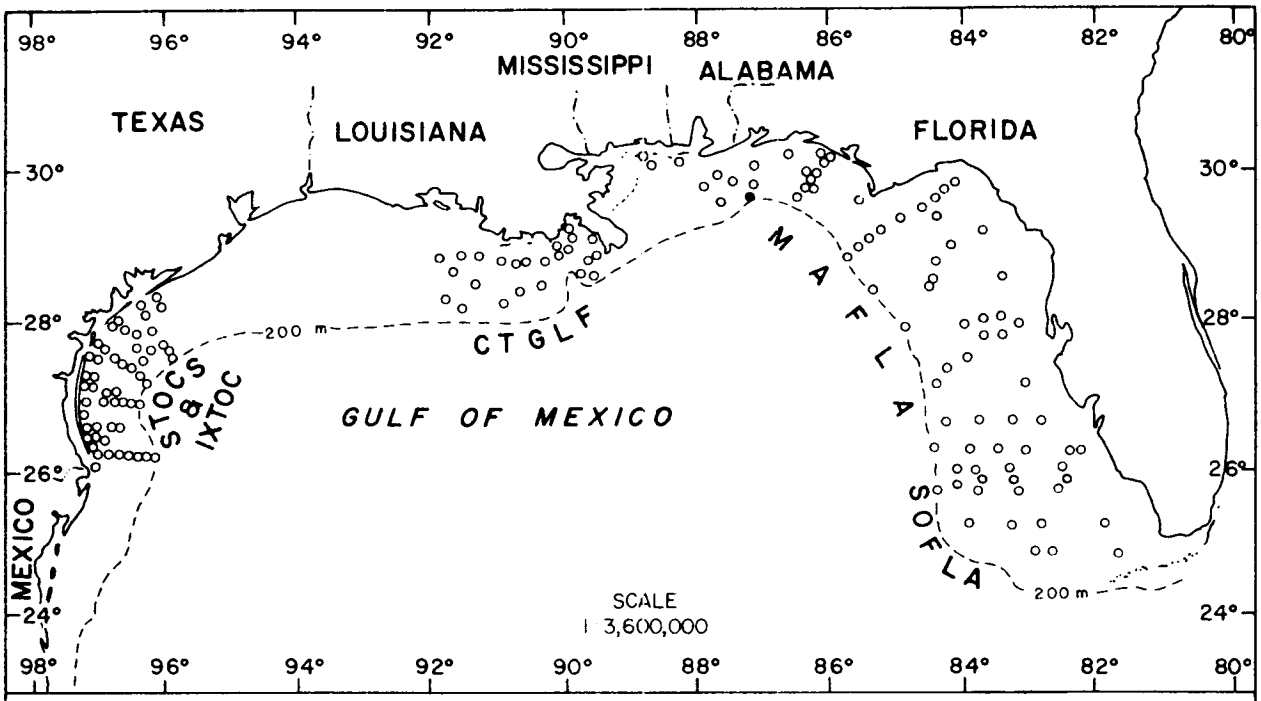

Figure 38-1. Distribution of Euphrosine sp. A on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

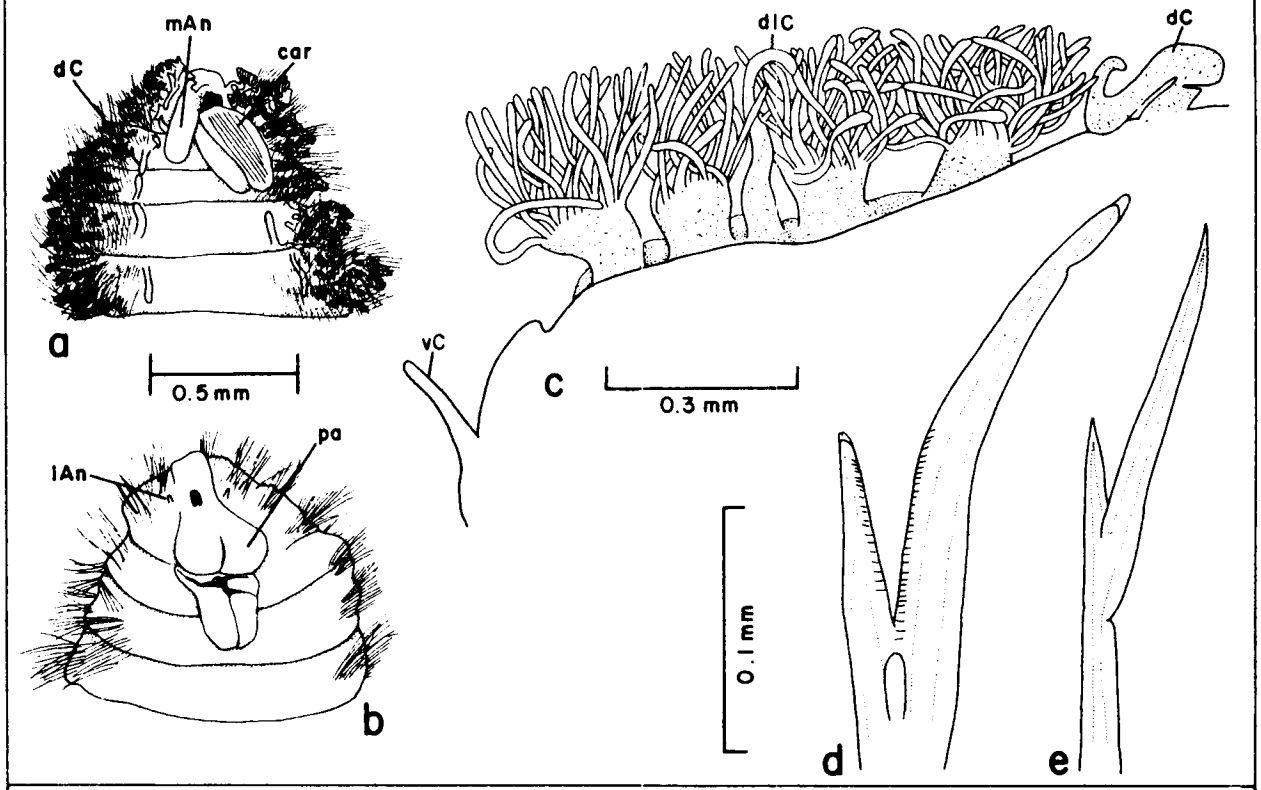

Figure 38-2. Euphrosine sp. A: a, anterior end, dorsal view; b, same, ventral view; c, 11th parapodium (setae removed); d, ringent notoseta; e, neuroseta.

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

Genus **Euphrosine** Savigny, 1818

TYPE SPECIES: Euphrosine myrtosa Savigny, 1818.
REFERENCES:
Treadwell, 1939b:178.
Berkeley and Berkeley, 1948:28.
Ushakov, 1955:223.
Day, 1967:126.
Fauchald, 1977a:103.
DIAGNOSIS: Dorsum covered with branchiae and notosetae except for middorsal naked strip. Caruncle long, with or without longitudinal ridges, entire or trilobed. Palps small. Each parapodium with one or two dorsal cirri and one dorsolateral cirrus inserted among branchiae, and one ventral cirrus. Notosetae bifurcate, straight or sickle-shaped, smooth or ringent (serrate). Neurosetae bifurcate, smooth. Pygidium with two rounded lobes; anus dorsal.

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

1a. Notopodia with ringent setae. 2
1b. Notopodia without ringent setae 4

2a. Ringent setae with straight tines (Figure 38-2d) . . . . . .**Euphrosine sp. A**, p. 38-6
2b. Ringent setae with curved tines (Figure 38-4c). 3

3a. Caruncle trilobed; ringent setae with serrations restricted to opening of inner margin (Figure 38-4c) . . . . . .**Euphrosine cf. triloba**, p. 38-6
3b. Caruncle with single lobe; ringent setae with serrations along entire inner margin of short tine (Figure 38-6b) . . . . . .**Euphrosine sp. B**, p. 38-8

4a. Two dorsal cirri per parapodium; branchiae absent (Figure 38-8b) . . . . . .**Euphrosine sp. C**, p. 38-8
4b. One dorsal cirrus per parapodium; branchiae present 5

5a. Long tine of neurosetae minutely bifid (Figure 38-10d); branchial tips subterminally expanded and foliaceous (Figure 38-10b) . . . . . **Euphrosine armadilloides**, p. 38-11

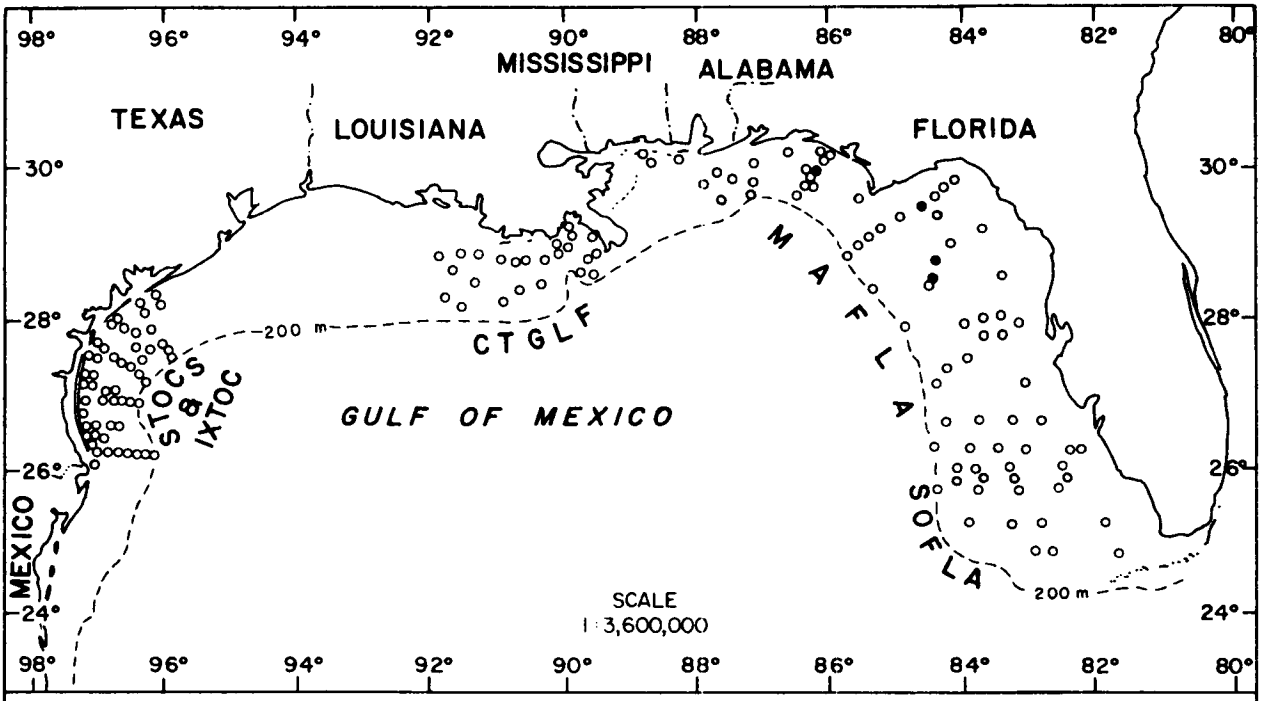

Figure 38-3. Distribution of Euphrosine cf. triloba on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

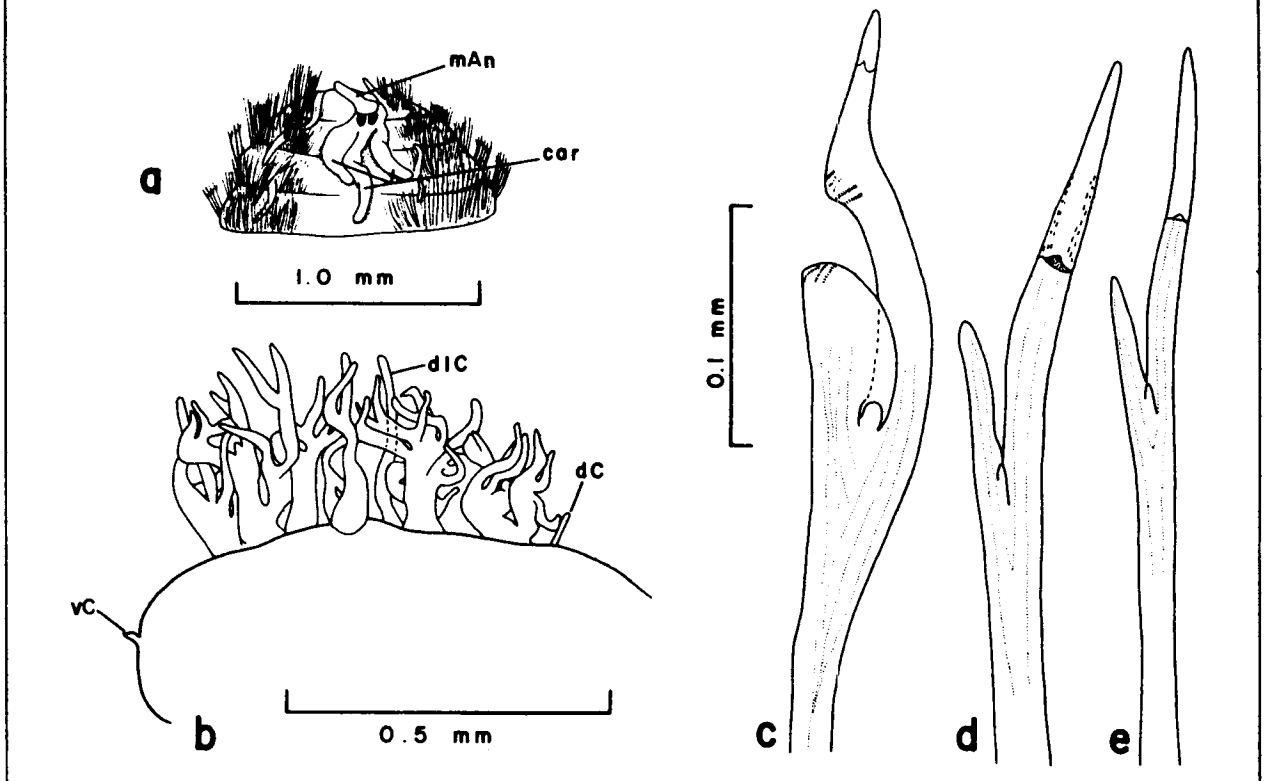

Figure 38-4. Euphrosine cf. triloba: a, anterior end, dorsal view (branchiae not shown); b, eighth parapodium (setae removed); c, ringent, sickle-shaped notoseta; d, smooth bifurcate notoseta; e, neuroseta.

5b. Long tine of neurosetae entire (Figure 38-12d); branchial tips rounded, not subterminally expanded or foliaceous (Figure 38-12b) . . . . . **Euphrosine sp. D**, p. 38-13

Euphrosine sp. A
Figures 38-1, 2a-e

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 18C-5/74 (1 spec.).
DESCRIPTION:
Length, 3 mm, complete with 15 setigers; width, 1 mm. Exposed middorsum one-half width of body; caruncle extending to setiger 4 as a longitudinally grooved median crest superimposed upon a wider, lower lobe (Figure 38-2a). Two pairs of eyes, dorsal pair located posterior to median antenna, contiguous at midline; ventral pair smaller (Figure 38-2b), fused at ventral midline into one long, dark spot. Median antenna extending about one-third length of caruncle. Lateral antennae small, inserted lateral to ventral eyes. Palps pyriform, extending to setiger 3 or 4. Branchiae numbering 4-5 pairs on median setigers (Figure 38-2c), thick-trunked with numerous undivided cirriform branches. Dorsal cirri single, longer than branchiae. Ventral cirri half length of neurosetae. Dorsolateral cirrus between second and third branchial trunk, extending beyond adjacent branchiae. Notosetae ringent, deeply forked, with serrations along inner margins of both tines (Figure 38-2d). Long tine 2.5 times length of short tine. Neurosetae similar to notosetae but more slender (Figure 38-2e).
REMARKS: This species is close to Euphrosine arctia but differs from the latter in the shape of the ringent notosetae and branchiae.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 38-1); 106 m; coarse sand.

Euphrosine cf. **triloba** Ehlers, 1887
Figures 38-3, 4a-e

Euphrosine triloba Ehlers, 1887:31, pl. 4, figs. 1-7.
Euphrosine triloba--Treadwell, 1939b:179, fig. 12.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2316C-9/75 (1 spec., USNM 75178), 2422G-9/75 (1 spec.), 2528F-9/77 (1 spec., USNM 55808).
DESCRIPTION:
Length, to 12.2 mm (previously reported to 17.0 mm); width, to 4.0 mm (previously reported to 6.0 mm). Largest complete specimen with 24 setigers. Exposed middorsum one-third width of body. Caruncle trilobed with lateral lobes about two-thirds length of median lobe, the latter extending to anterior margin of setiger 5 (Figure 38-4a). Two pairs of eyes, dorsal pair large, black; ventral pair smaller, contiguous at ventral midline. Median antenna inserted between dorsal pair of eyes, extending about two-thirds length of lateral lobes of caruncle. Lateral antennae small, easily overlooked, inserted above ventral pair of eyes. Palps oval, extending to setiger 4. Branchiae thick-trunked,

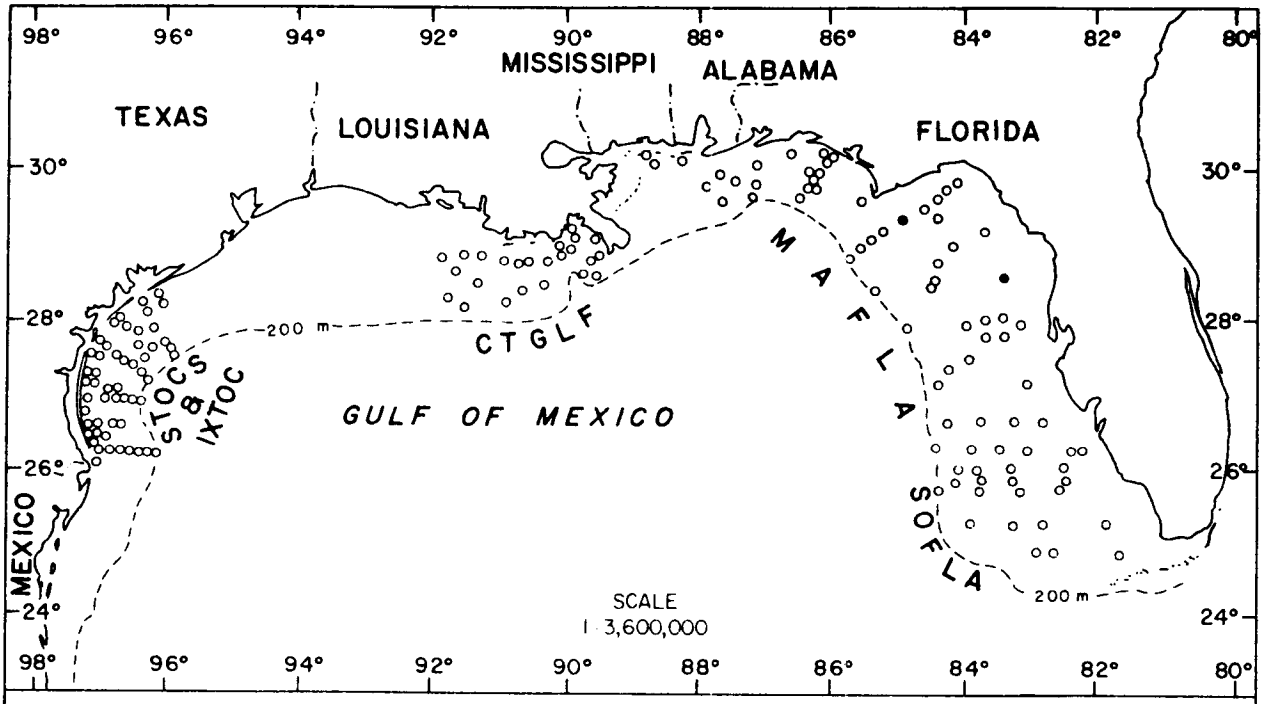

Figure 38-5. Distribution of Euphrosine sp. B on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

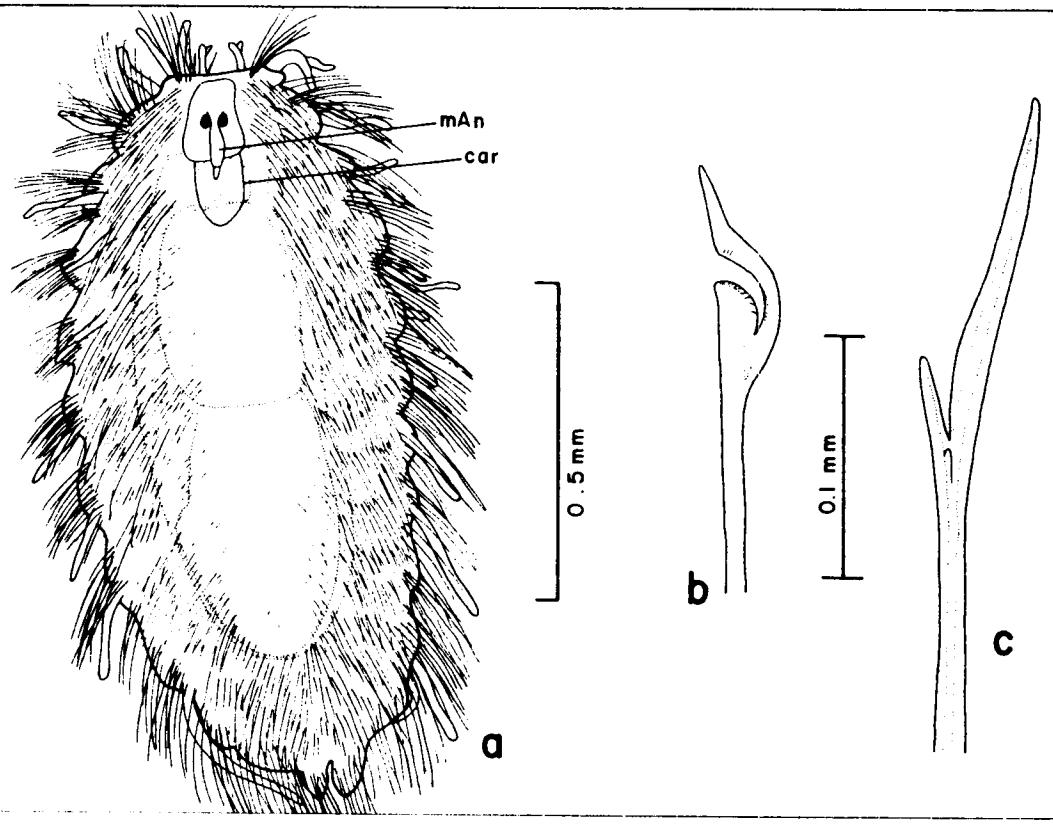

Figure 38-6. Euphrosine sp. B: a, entire worm, dorsal view; b, ringent, sickle-shaped notoseta; c, neuroseta.

dichotomously branched 4-5 times (Figure 38-4b), filaments distally cirriform; numbering up to eight pairs on median setigers. Ventralmost branchiae may be clumped close together above neuropodium. Dorsal cirri single, shorter than branchiae. Ventral cirri small, not exceeding length of neurosetae. Dorsolateral cirrus located between second and third branchial trunks, longer than adjacent branchiae. Notosetae including ringent and bifurcate forms. Ringent setae (Figure 38-4c) laterally flattened, sickle-shaped, distally tapered; with slight, easily overlooked serrations restricted to opening of inner margin. Bifurcate notosetae (Figure 38-4d) deeply forked, smooth, with long tine about three times length of short tine. Neurosetae similar to bifurcate notosetae but more slender (Figure 38-4e).
REMARKS: These specimens differ from the description by Ehlers (1887) in the degree of dentition along the inner margin of the ringent setae and in possessing cirriform rather than swollen branchial tips. Treadwell (1939) also described dentition along the entire margin of the ringent setae.
PREVIOUSLY REPORTED HABITAT: Sand and reef areas; 26 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: Several stations in northeastern Gulf (Figure 38-3); 24-45 m; coarse sand, silty fine sand.
DISTRIBUTION: Puerto Rico, Florida Keys, ?northern Gulf of Mexico.

Euphrosine sp. B
Figures 38-5, 6a-c

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2423I-8/77 (1 spec., USNM 75179), 2852E-8/77 (1 spec.).
DESCRIPTION:
Length, to 1.5 mm; width, to 0.5 mm. Larger specimen complete with 12 setigers. Exposed middorsum one-fourth width of body. Caruncle with single lobe, extending to setiger 4 (Figure 38-6a). Two pairs of eyes; dorsal pair large, oval; ventral pair smaller, contiguous at ventral midline. Median antenna small, biarticulate, about two-thirds length of caruncle. Lateral antennae not observed. Palps oval, extending to setiger 4. Dorsal cirri single, long, filiform. Notosetae ringent, sickle-shaped (Figure 38-6b), with serrations along inner margin of short tine. Neurosetae laterally spurred, smooth (Figure 38-6c), long tine about four times length of short tine.
REMARKS: Due to the small size of these specimens, the dorsolateral cirri, ventral cirri, and number and shape of the branchiae were not observed. These may be juvenile specimens, but the shape and serration of the notosetae are different from previously described species of Euphrosine.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off Florida (Figure 38-5); 19-22 m; medium sand, silty fine sand.

Euphrosine sp. C
Figures 38-7, 8a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2315A-11/77 (1 spec.).

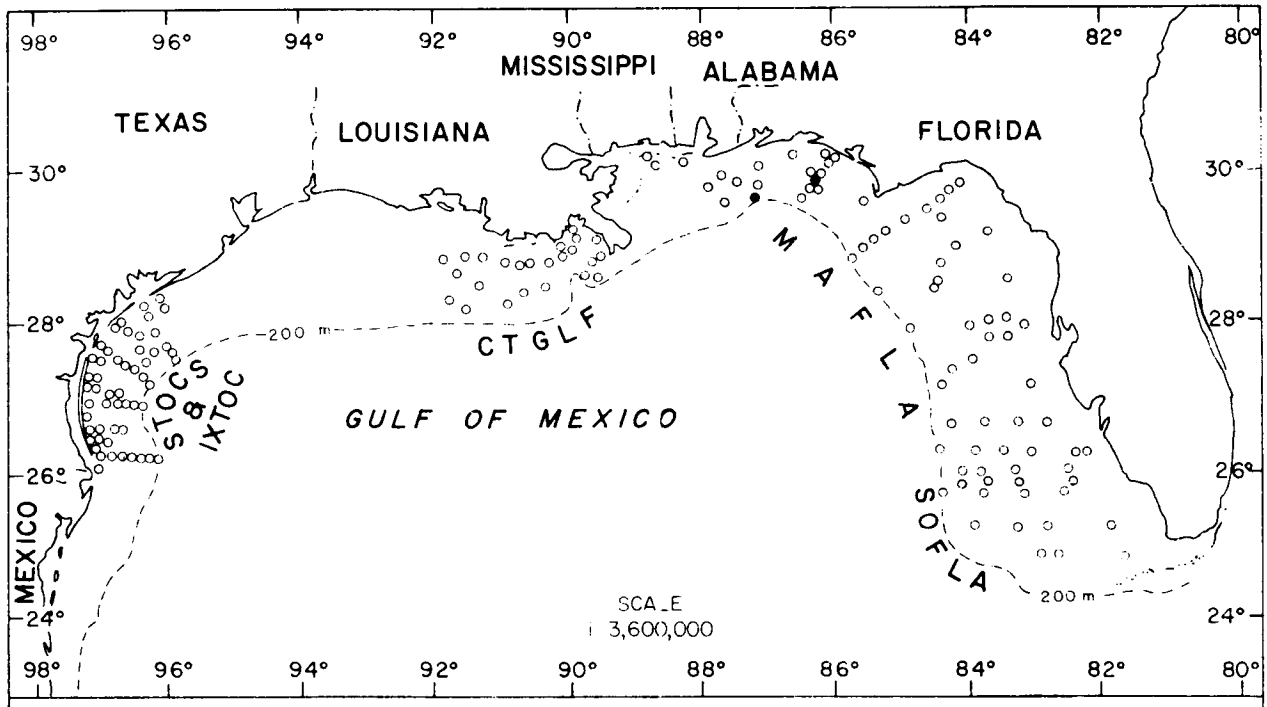

Figure 38-7. Distribution of Euphrosine sp. C on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

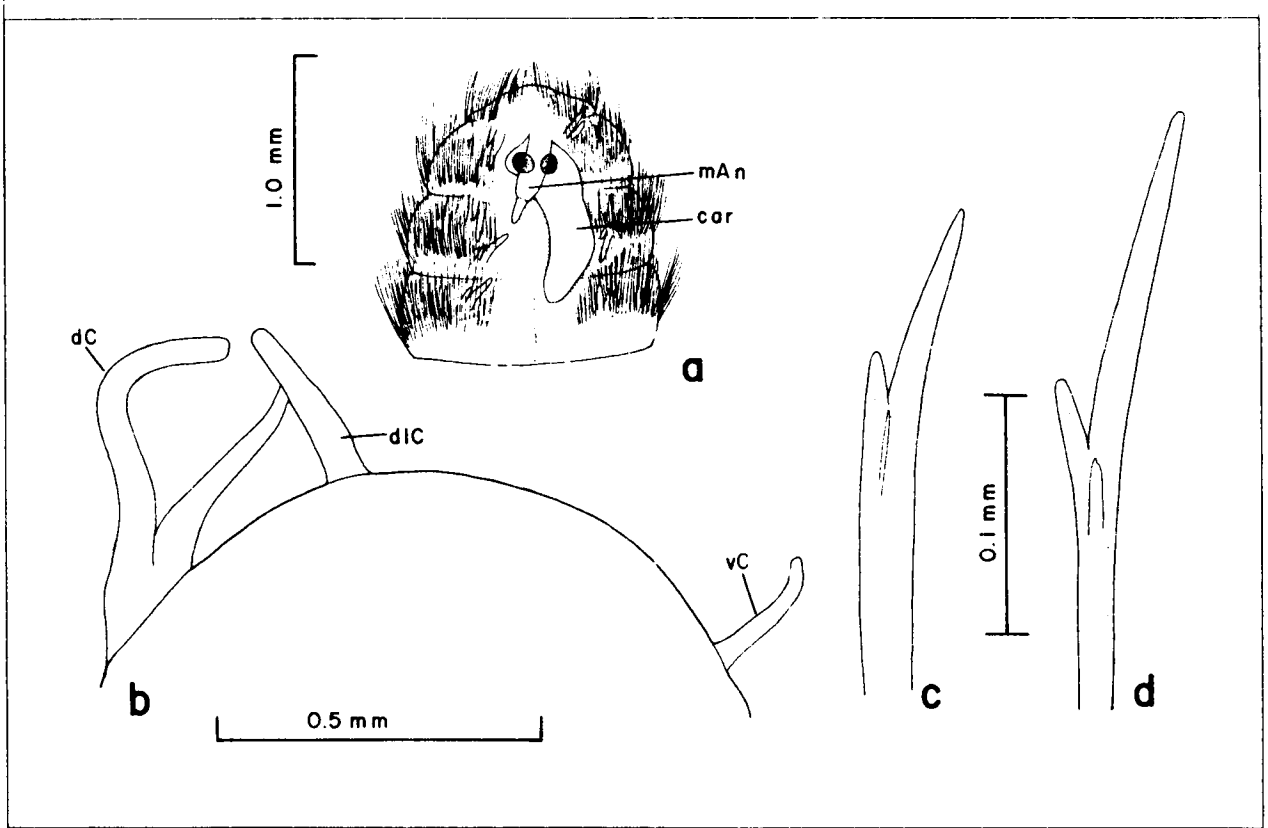

Figure 38-8. Euphrosine sp. C: a, anterior end, dorsal view; b, eighth parapodium (setae removed); c, bifurcate, smooth notoseta; d, neuroseta.

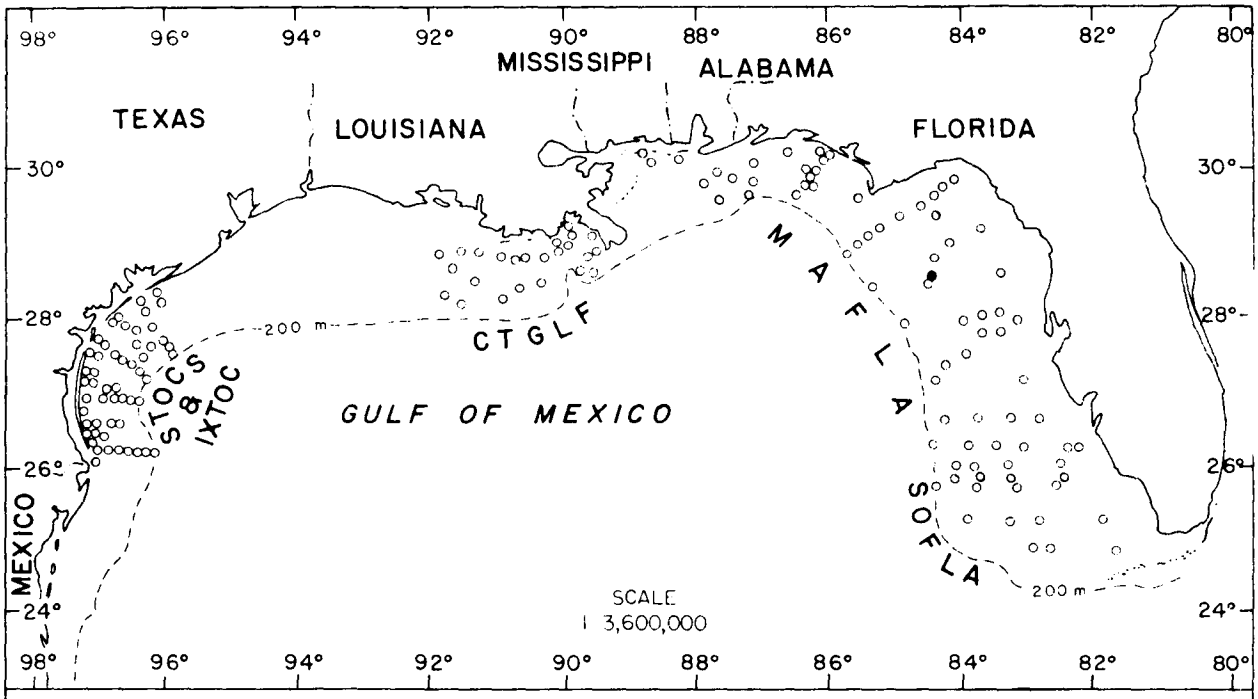

Figure 38-9. Distribution of Euphrosine armadilloides on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

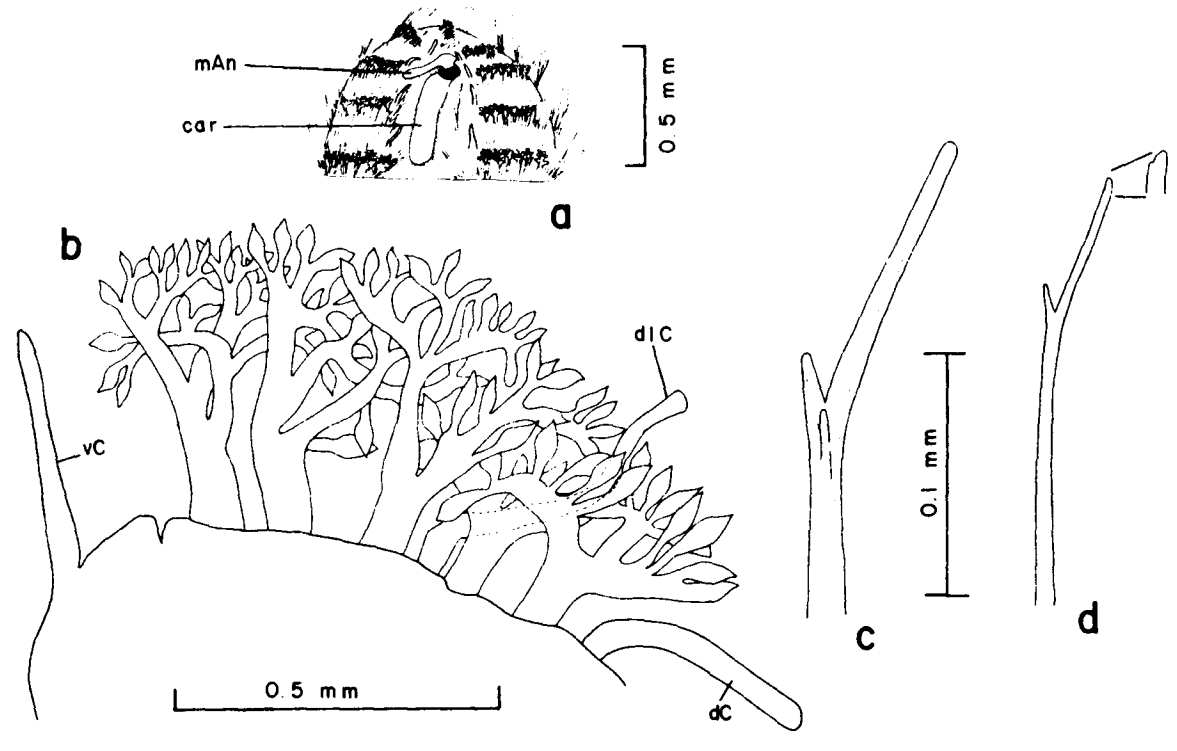

Figure 38-10. Euphrosine armadilloides: a, anterior end, dorsal view; b, eighth parapodium (setae removed); c, smooth bifurcate notoseta; d, neuroseta.

DESCRIPTION:
Length, 1.0 mm, complete with 13 setigers; width, 1.5 mm. Exposed middorsum one-third width of body. Caruncle short, rounded, extending to setiger 4 (Figure 38-8a). Two pairs of eyes; dorsal pair small, separate; ventral pair about same size as dorsal pair, separate. Median antenna short, biarticulate, inserted between dorsal eyes, extending one-third length of caruncle. Palps pyriform, extending to setiger 4. Branchiae entirely absent. Dorsal cirri with two filaments, joined basally (Figure 38-8b). Ventral cirri about half length of neurosetae. Dorsolateral cirri about two-thirds length of dorsal cirri. Notosetae thick, bifurcate, smooth (Figure 38-8c). Neurosetae deeply bifurcate, smooth, with long tine 4.5 times length of short tine (Figure 38-8d).
REMARKS: The lateral antennae were not observed due to the small size of the specimen. This specimen is close to Euphrosine bicirrata, but differs from the latter in lacking branchiae and ringent setae, and in having double dorsal cirri. It is possibly a juvenile.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 38-7); 38 m; silty fine sand.

Euphrosine armadilloides Ehlers, 1900
Figures 38-9, 10a-d

Euphrosine armadilloides--Orensanz, 1972:497, pl. 6, figs. 1-5.

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2315F-2/75 (1 spec.).
DESCRIPTION:
Length, 2 mm (previously reported to 19.1 mm), complete with 18 setigers; width, 1 mm (previously reported to 6.6 mm). Exposed middorsum one-third width of body. Caruncle with single lobe extending to setiger 5 (Figure 38-10a). Two pairs of eyes; dorsal pair medium in size, black, located at base of median antenna; ventral pair smaller, fused at ventral midline. Median antenna inserted between dorsal pair of eyes, extending about one-fourth length of caruncle. Lateral antennae small, inserted lateral to ventral eyes. Palps pyriform, extending to setiger 3. Branchiae numbering up to five pairs on median setigers; thin-trunked, dendritically branched, with subterminally swollen tips (Figure 38-10b). Dorsal cirri longer than branchiae. Ventral cirri about half length of neurosetae. Dorsolateral cirri located between second and third branchial trunks, longer than adjacent branchiae. Notosetae bifurcate only, smooth, distally blunt (Figure 38-10c). Neurosetae similar to notosetae but more slender, long tine minutely bifid distally (Figure 38-10d).
REMARKS: This specimen matches the description of Orensanz (1972) in every respect. E. armadilloides is newly reported from the Gulf of Mexico.
PREVIOUSLY REPORTED HABITAT: Commonly found in cracks or crevices in rocks; 30-604 m.
GULF OF MEXICO BLM-OCS OCCURRENCE: One station off Florida (Figure 38-9); 38 m; silty fine sand.
DISTRIBUTION: Chile, Argentina, Antarctic, Gulf of Mexico.

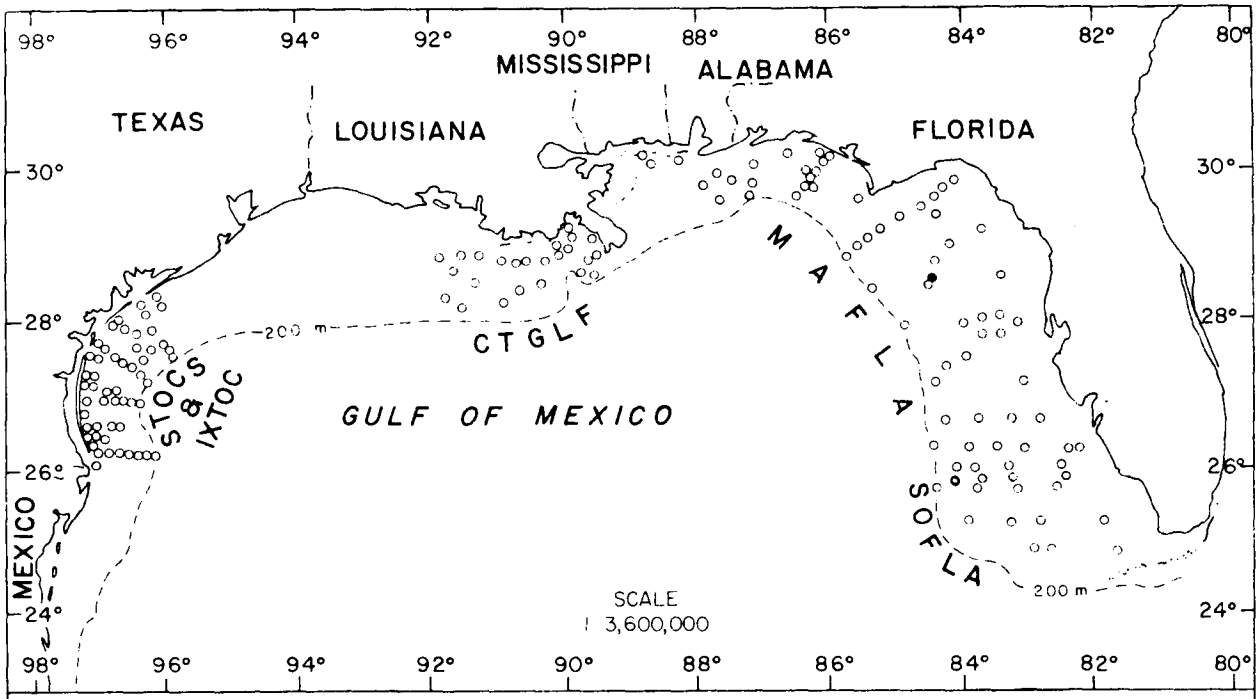

Figure 38-11. Distribution of Euphrosine sp. D on the outer continental shelf of the northern Gulf of Mexico based on its occurrence (●) in BLM-OCS monitoring programs.

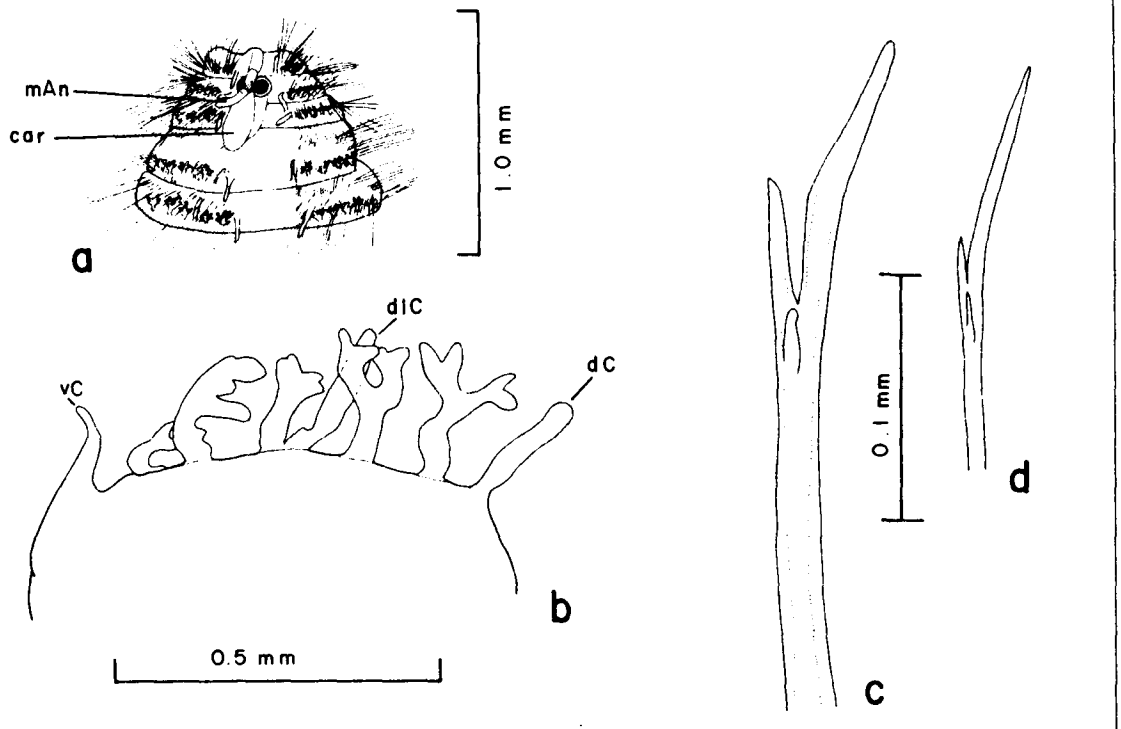

Figure 38-12. Euphrosine sp. D: a, anterior end, dorsal view; b, seventh parapodium (setae removed); c, smooth bifurcate notoseta; d, neuroseta.

Euphrosine sp. D
Figures 38-11, 12a-d

MATERIAL EXAMINED:
Gulf of Mexico BLM-OCS:
MAFLA 2533A-6/75 (1 spec., USNM 75180), 2645D-6/75 (1 spec.), 2645J-11/77 (1 spec.).
DESCRIPTION:
Length, to 1.5 mm; width, to 0.8 mm. Largest complete specimen with 12 setigers. Exposed middorsum one-fourth width of body. Caruncle with median crest superimposed upon lower lobe, extending to middle of setiger 4 (Figure 38-12a). Two pairs of large, dark, eyes; dorsal pair fused middorsally; ventral pair smaller, fused midventrally. Median antenna inserted anterior to dorsal eyes, extending half length of caruncle. Palps pyriform, extending to setiger 3. Branchiae numbering up to six pairs on median setigers; with thin trunks and rounded tips branching 1-2 times (Figure 38-12b). Dorsal cirri same length as branchiae. Ventral cirri one-third length of neurosetae. Dorsolateral cirri located between second and third branchial trunks, same length as adjacent branchiae. Notosetae smooth, bifurcate, long tine 2.5 times length of short tine (Figure 38-12c). Neurosetae similar to notosetae but more slender (Figure 38-12d).
REMARKS: Euphrosine sp. D closely resembles E. calypta (Hartman, 1968) in the shape of the setae, but differs in the structure of the branchiae. The notosetae differ from those of all other species of Euphrosine represented in the BLM-OCS collections. Due to the small size of the specimens, the lateral antennae could not be observed.
GULF OF MEXICO BLM-OCS OCCURRENCE: Two stations off Florida (Figure 38-11); 67-106 m; coarse sand.

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.