

Table S72. Cephalopods of the deep Gulf of Mexico that, as adults, are presumed to live at least part of their lives on or near the bottom. (Data from Gallaway, Martin, and Howard 1988; Lipka 1975; and W. Pequegnat 1983.)

Sepioidea

Neorossia sp.
Rossia antillensis
Rossia bullisi
Rossia tortugaensis
Semirossia equalis
Semirossia tenera

Teuthoidea

Abralia veranyi
Architeuthis dux
Bathothauma lyromma
Cranchia scabra
Grimalditeuthis bonplandi
Grimpoteuthis sp.
Heliocranchia pfefferi
Histioteuthis dofleini
Lycoteuthis springeri

Mastigoteuthis grimaldi
Octopoteuthis megaptera
Onychoteuthis banksii
Pholidoteuthis adami
Selenoteuthis scintillans

Octopoda

Allopsis mollis
Benthooctopus januari
Danoctopus schmidti
Eledonella pygmaea
Octopus burryi
Octopus defilippe
Octopus joubini
Opisthoteuthis agassizi
Pterooctopus tetracirrhus
Tetracheledone spinicirrhus
Tremooctopus violaceus

Table S73. Representative shrimps of the family Penaeidae known or presumed to inhabit bottom or near-bottom waters of the deep Gulf of Mexico and their reported depth distributions.

(Data from L. Pequegnat 2000).

| Species | Depth range (m) | Species | Depth range (m) |
|--------------------------------|-----------------|-----------------------------------|-----------------|
| <i>Aristaeomorpha foliacea</i> | 464–521 | <i>Parapenaeus longirostris</i> | 92–732 |
| <i>Aristaeus antillensis</i> | 550–915 | <i>Penaeopsis megalops</i> | 183–732 |
| <i>Benthescymus bartletti</i> | 732–2,074 | <i>Penaeus duorarum</i> | 0–329 |
| <i>Benthescymus carinatus</i> | 1,000–1,400 | <i>Pleoticus robustus</i> | 183–915 |
| <i>Benthescymus cereus</i> | 1,464–3,750 | <i>Plesiopenaeus armatus</i> | 1,740–3,750 |
| <i>Benthonectes filipes</i> | 1,350 | <i>Plesiopenaeus coruscans</i> | 2,200 |
| <i>Funchalia taaningi</i> | 350 | <i>Plesiopenaeus edwardsianus</i> | 621–1,135 |
| <i>Hadropenaeus affinis</i> | 165–570 | <i>Sicyonia brevirostris</i> | 6–329 |
| <i>Hadropenaeus modestus</i> | 150–550 | <i>Sicyonia burkenroadi</i> | 33–118 |
| <i>Hemipenaeus carpenteri</i> | 2,074–3,750 | <i>Sicyonia dorsalis</i> | 5–161 |
| <i>Hepomadus tener</i> | 1,375–3,750 | <i>Sicyonia stimpsoni</i> | 73–441 |
| <i>Hymenopenaeus aphoticus</i> | 950–3,300 | <i>Solenocera atlantidis</i> | 6–130 |
| <i>Hymenopenaeus debilis</i> | 300–2,163 | <i>Solenocera necopina</i> | 60–550 |
| <i>Mesopenaeus tropicalis</i> | 30–915 | <i>Solenocera vioscai</i> | 35–240 |
| <i>Metapenaeopsis goodei</i> | 18–329 | | |

Table S74. Caridean shrimps known or presumed to inhabit bottom or near-bottom waters of the deep Gulf of Mexico and their reported depth distributions. (From Abele and Martin 1989; L. Pequegnat 2000.)

| Species | Depth range (m) | Species | Depth range (m) |
|---------------------------------------|-----------------|------------------------------------|-----------------|
| Bathypalaemonellidae | | Oplophoridae | |
| <i>Bathypalaemonella serratipalma</i> | 732–1,830 | <i>Acanthephyra acutifrons</i> | 732–1,281 |
| <i>Bathypalaemonella texana</i> | 1,464 | <i>Acanthephyra armata</i> | 732–915 |
| | | <i>Acanthephyra eximia</i> | 915–1,830 |
| | | <i>Acanthephyra microphthalma</i> | 2,745–3,750 |
| Crangonidae | | <i>Ephyrina benedicti</i> | 275–732 |
| <i>Metacrangon jacqueti</i> | 965 | <i>Systellaspis affinis</i> | 275–732 |
| <i>Pontocaris caribbaeus</i> | 366–550 | | |
| <i>Pontophilus brevirostris</i> | 12–366 | Palaemonidae | |
| <i>Pontophilus gracilis</i> | 353–1,464 | <i>Periclimenes pandionis</i> | 632 |
| <i>Pontophilus talismani</i> | 234–373 | | |
| <i>Prionocrangon pectinata</i> | 613–1,206 | Pandalidae | |
| <i>Sabinea tridentata</i> | 366–544 | <i>Heterocarpus ensifer</i> | 220–458 |
| | | <i>Heterocarpus laevis</i> | 663 |
| Eugonatonotidae | | <i>Heterocarpus oryx</i> | 732–1,830 |
| <i>Eugonatonotus crassus</i> | 183–550 | <i>Parapandalus longicauda</i> | 55–458 |
| | | <i>Parapandalus willisi</i> | 275–458 |
| Glyphocrangonidae | | <i>Plesionika acanthonotus</i> | 458–915 |
| <i>Glyphocrangon aculeata</i> | 732–1,750 | <i>Plesionika edwardsii</i> | 183–366 |
| <i>Glyphocrangon altispina</i> | 549–1,050 | <i>Plesionika ensis</i> | 366–732 |
| <i>Glyphocrangon haematonotus</i> | 183–915 | <i>Plesionika holthuisi</i> | 36–900 |
| <i>Glyphocrangon longirostris</i> | 1,181–2,697 | <i>Plesionika longipes</i> | 348–403 |
| <i>Glyphocrangon longleyi</i> | 275–824 | <i>Plesionika martia</i> | 45–732 |
| <i>Glyphocrangon nobilis</i> | 700–2,100 | <i>Plesionika polyacanthomerus</i> | 458–915 |
| <i>Glyphocrangon sculpta</i> | 2,100–2,190 | <i>Plesionika tenuipes</i> | 183–476 |
| <i>Glyphocrangon spinicauda</i> | 275–732 | | |

Hippolytidae

| | |
|-------------------------------|-----------|
| <i>Bythocaris gorei</i> | 531–1,460 |
| <i>Bythocaris miserabilis</i> | 220–805 |
| <i>Bythocaris nana</i> | 79–1,175 |

Nematocarcinidae

| | |
|---------------------------------------|-------------|
| <i>Nematocarcinus acanthitelsonis</i> | 2,660–3,750 |
| <i>Nematocarcinus cursor</i> | 366–939 |
| <i>Nematocarcinus ensifer</i> | 1,647–3,750 |
| <i>Nematocarcinus rotundus</i> | 512–1,830 |

Pasiphaeidae

| | |
|------------------------------|-----------|
| <i>Pasiphaea merriami</i> | 366–1,830 |
| <i>Psathyrocaris infirma</i> | 458–824 |

Processidae

| | |
|--------------------------|---------|
| <i>Processa profunda</i> | 367–368 |
|--------------------------|---------|

Psalidopodidae

| | |
|----------------------------|---------|
| <i>Psalidopus barbouri</i> | 550–915 |
|----------------------------|---------|

Table S75. Representative macrurans known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|------------------------------|-----------------|-----------------------------|-----------------|
| Callianassidae | | <i>Polycheles typhlops</i> | 350–800 |
| <i>Callianassa latispina</i> | 200 | <i>Polycheles validus</i> | 1,300–3,350 |
| <i>Callianassa marginata</i> | 200–650 | <i>Stereomastis sculpta</i> | 500–2,750 |
| | | <i>Willemoesia forceps</i> | 3,250 |
| Nephropidae | | Scyllaridae | |
| <i>Acanthacaris caeca</i> | 500–900 | <i>Scyllarus americanus</i> | 0–329 |
| <i>Nephropsis aculeata</i> | 350–1,350 | <i>Scyllarus chacei</i> | 16–183 |
| <i>Nephropsis agassizi</i> | 900–1,600 | <i>Scyllarus depressus</i> | 200 |
| <i>Nephropsis rosacea</i> | 500–750 | <i>Scyllarus nearctus</i> | 55–183 |
| Polychelidae | | | |
| <i>Polycheles crucifer</i> | 1,000–1,400 | | |

Table S76. Representative anomurans known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|---------------------------------|-----------------|----------------------------------|-----------------|
| Chirostylidae | | <i>Munidopsis riveroi</i> | 1,000 |
| <i>Gastroptychus spinifer</i> | 500 | <i>Munidopsis robusta</i> | 342 – 1,000 |
| <i>Uroptychus nitidus</i> | 550 – 1,350 | <i>Munidopsis rostrata</i> | 2,050 – 2,250 |
| | | <i>Munidopsis serratifrons</i> | 550 – 663 |
| Diogenidae | | <i>Munidopsis sigsbei</i> | 479 – 1,600 |
| <i>Cancellus ornatus</i> | shelf – 160 | <i>Munidopsis simplex</i> | 850 – 1,800 |
| <i>Dardanus insignis</i> | 18 – 600 | <i>Munidopsis spinoculata</i> | 871 – 1,350 |
| <i>Paguristes oxyophthalmus</i> | 150 – 700 | <i>Munidopsis spinosa</i> | 751 – 1,050 |
| <i>Paguristes planatus</i> | 600 | <i>Munidopsis subspinoculata</i> | 800 |
| <i>Paguristes spinipes</i> | 134 – 640 | <i>Munidopsis sundi</i> | 3,300 |
| | | <i>Munidopsis tridentata</i> | 400 – 800 |
| Galatheidae | | Lithodidae | |
| <i>Munida constricta</i> | 612 – 627 | <i>Lithodes agassizi</i> | 900 – 1,350 |
| <i>Munida evermanni</i> | 668 | | |
| <i>Munida flinti</i> | 200 | Paguridae | |
| <i>Munida forceps</i> | 150 – 500 | <i>Agaricochirus boletifer</i> | shelf – 150 |
| <i>Munida iris</i> | 500 | <i>Anisopagurus bartletti</i> | shelf – 150 |
| <i>Munida irrasa</i> | 150 – 300 | <i>Catapaguroides microps</i> | 1,000 – 1,500 |
| <i>Munida longipes</i> | 150 – 1,135 | <i>Pagurus bullisi</i> | 82 – 200 |
| <i>Munida microphthalma</i> | 964 – 2,401 | <i>Pagurus rotundimanus</i> | 300 – 400 |
| <i>Munida miles</i> | 345 | <i>Pylopagurus corallinus</i> | 13 – 119 |
| <i>Munida sculpta</i> | 150 | <i>Pylopagurus discoidalis</i> | 46 – 930 |
| <i>Munida valida</i> | 450 – 1,170 | <i>Rhodochirus rosaceus</i> | shelf – 150 |
| <i>Munidopsis abbreviata</i> | 550 – 1,170 | <i>Solenopagurus lineatus</i> | shelf – 150 |
| <i>Munidopsis alaminos</i> | 479 – 800 | | |

| | | | |
|---------------------------------|---------------|------------------------------|-------------|
| <i>Munidopsis bahamensis</i> | 423 – 663 | | |
| <i>Munidopsis bermudezi</i> | 3,300 | Parapaguridae | |
| <i>Munidopsis columbiana</i> | 3,300 | <i>Sympagurus pictus</i> | 500 |
| <i>Munidopsis erinaceus</i> | 474 – 774 | <i>Sympagurus pilimanus</i> | 500 – 900 |
| <i>Munidopsis geyeri</i> | 3,000 | | |
| <i>Munidopsis gulfensis</i> | 1,400 | Porcellanidae | |
| <i>Munidopsis impolita</i> | 345 – 663 | <i>Pachycheles rugimanus</i> | shelf – 145 |
| <i>Munidopsis longimanus</i> | 350 – 1,203 | <i>Porcellana sigsbeiana</i> | 27 – 950 |
| <i>Munidopsis nitida</i> | 1,100 – 2,100 | | |
| <i>Munidopsis polita</i> | 342 – 1,120 | Pylochelidae | |
| <i>Munidopsis ramahtaylorae</i> | 342 – 1,120 | <i>Pylocheles scutata</i> | 400 |

Table S77. Representative brachyuran crabs known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|-----------------------------------|-----------------|----------------------------------|-----------------|
| Calappidae | | Majidae | |
| <i>Acanthocarpus alexandri</i> | 57 – 400 | <i>Collodes leptocheles</i> | 124 – 400 |
| <i>Calappa angusta</i> | 15 – 275 | <i>Podocheila sidneyi</i> | 150 – 200 |
| <i>Osachila tuberosa</i> | 73 – 200 | <i>Pyromaia arachna</i> | 150 – 700 |
| | | <i>Pyromaia cuspidata</i> | 27 – 549 |
| Dorippidae | | <i>Rochinia crassa</i> | 400 – 750 |
| <i>Cyclodorippe antennaria</i> | 200 – 400 | <i>Rochinia umbonata</i> | 900 – 950 |
| <i>Ethusa microphthalma</i> | 150 – 732 | <i>Stenocionops spinimana</i> | 20 – 227 |
| <i>Ethusina abyssicola</i> | 900 – 3,750 | <i>Stenocionops spinosissima</i> | 48 – 549 |
| Geryonidae | | Palicidae | |
| <i>Chaceon quinquedens</i> | 400 – 2,000 | <i>Palicus dentatus</i> | 150 |
| | | <i>Palicus gracilis</i> | 300 – 600 |
| Goneplacidae | | <i>Palicus obesus</i> | 150 – 250 |
| <i>Bathyplox typhla</i> | 450 – 950 | <i>Palicus sicus</i> | 150 – 400 |
| <i>Chasmocarcinus cylindricus</i> | 100 – 200 | Parthenopidae | |
| <i>Euphrosynoplax clausa</i> | 200 – 250 | <i>Parthenope agona</i> | 46 – 400 |
| <i>Goneplax barbata</i> | 100 – 300 | <i>Parthenope pourtalesii</i> | 150 |
| <i>Thalassoplax angusta</i> | 200 – 400 | Portunidae | |
| Homolidae | | <i>Benthochascon schmitti</i> | 183 – 650 |
| <i>Homologenus rostratus</i> | 1,000 – 1,350 | Raninidae | |
| Homolodromidae | | <i>Lyreidus bairdii</i> | 200 – 800 |
| <i>Dicranodromia ovata</i> | 400 | | |

Homolodromia paradoxa 1,050 – 1,250 *Ranilia constricta* 100 – 350

Leucosiidae

Iliacantha subglobosa 27 – 395

Myropsis quinquespinosa 44 – 250

Xanthidae

Euciatoides agassizi 200

Tetraxanthus rathbunae 27 – 458

Table S78. Representative bryozoans known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|---------------------------------|-----------------|--------------------------------|-----------------|
| Calloporidae | | Lekythoporidae | |
| <i>Retevirgula tubulata</i> | 37 – 128 | <i>Lekythopora longicollis</i> | 55 – 128 |
| Cellariidae | | Onychocellidae | |
| <i>Euginoma cavadierei</i> | 366 – 2,161 | <i>Floridina parvicella</i> | 15 – 117 |
| Chaperiidae | | Savignyellidae | |
| <i>Chaperia patula</i> | 51 – 214 | <i>Fedora nodosa</i> | 40 – 415 |
| Crepidacanthidae | | Schizoporellidae | |
| <i>Crepidacantha poissoni</i> | 69 – 128 | <i>Arthropoma ceciliai</i> | 20 – 128 |
| | | <i>Cleidochasma contracta</i> | 7 – 128 |
| Crisiidae | | <i>Cribellopora trichotoma</i> | 69 – 128 |
| <i>Crisulipora occidentalis</i> | 15 – 128 | | |
| Cupuladriidae | | Scrupocellariidae | |
| <i>Cupuladria biporosa</i> | 50 – 750 | <i>Caberea boryi</i> | 42 – 128 |
| <i>Discoporella umbellata</i> | 83 – 750 | | |
| Exochellidae | | Setosellidae | |
| <i>Exochella longirostris</i> | 128 | <i>Setosella vulnerata</i> | 146 – 223 |
| Farciminariidae | | Smittinidae | |
| <i>Nellia oculata</i> | 43 – 3,000 | <i>Parasmittina signata</i> | 11 – 128 |
| | | <i>Phoceana acadiana</i> | 143 – 275 |
| | | <i>Smittoidea reticulata</i> | 128 |

Hincksinidae*Antropora typica*

62 – 306

Setosenella goësi

22 – 359

Tubuliporidae*Idmidronella flexuosa*

176 – 275

Table S79. Representative asteroids known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| Asteriidae | | Goniasteridae | |
| <i>Ampheraster alaminos</i> | 183 – 330 | <i>Anthenoides piercei</i> | 91 – 329 |
| <i>Coronatus briareus</i> | 150 | <i>Ceramaster grenadensis</i> | 200 – 1,438 |
| <i>Sclerasterias contorta</i> | 464 | <i>Circeaster americanus</i> | 485 – 672 |
| | | <i>Goniaster tessellatus</i> | 37 – 100 |
| | | <i>Litonaster intermedius</i> | 2,074 – 2,500 |
| | | <i>Litonaster rotundigranulum</i> | 1,203 |
| Astropectinidae | | <i>Nymphaster arenatus</i> | 351 – 3,300 |
| <i>Astropecten alligator</i> | 350 | <i>Paragonaster subtilis</i> | 3,000 – 3,250 |
| <i>Astropecten americanus</i> | 300 – 1,050 | <i>Plinthaster dentatus</i> | 366 – 2,750 |
| <i>Astropecten antillensis</i> | 1,850 | <i>Pseudarchaster grandis</i> | 550 – 2,400 |
| <i>Astropecten cingulatus</i> | 18 – 183 | <i>Rosaster alexandri</i> | 150 – 300 |
| <i>Astropecten comptus</i> | 18 – 329 | <i>Tosia parva</i> | 60 – 1,313 |
| <i>Astropecten duplicatus</i> | 18 – 200 | | |
| <i>Astropecten nitidus</i> | 91 – 200 | | |
| <i>Dytaster insignis</i> | 800 – 3,740 | | |
| <i>Persephonaster echinulatus</i> | 474 – 950 | Goniopectinidae | |
| <i>Plutonaster agassizi</i> | 774 | <i>Goniopecten demonstrans</i> | 600 – 1,050 |
| <i>Plutonaster intermedius</i> | 750 – 2,504 | | |
| <i>Psilaster cassiope</i> | 650 – 900 | Luididae | |
| <i>Psilaster pantagiatus</i> | 800 – 950 | <i>Luidia barbadensis</i> | 150 – 400 |
| <i>Tethyaster grandis</i> | 42 – 250 | <i>Luidia barimae</i> | 98 – 200 |
| | | <i>Luidia clathrata</i> | 0 – 250 |
| | | <i>Luidia elegans</i> | 183 – 238 |
| Benthopectinidae | | | |
| <i>Benthopecten simplex</i> | 2,000 – 3,300 | | |
| <i>Cheiraster echinulatus</i> | 150 – 800 | Odontasteridae | |
| <i>Cheiraster enoplus</i> | 550 – 700 | <i>Odontaster hispidus</i> | 342 – 1,050 |
| <i>Cheiraster mirabilis</i> | 650 – 950 | <i>Odontaster setosus</i> | 345 – 842 |
| <i>Pectinaster gracilis</i> | 603 – 850 | | |
| <i>Pectinaster mixtus</i> | 113 | Pterasteridae | |

| | | | |
|---------------------------------|-------------|--------------------------------|---------------|
| | | <i>Calyptraster coa</i> | 2,150 |
| Brisingidae | | <i>Calyptraster personatus</i> | 1,725 |
| <i>Brisinga costata</i> | 549 – 1,300 | <i>Hymenaster anomalus</i> | 2,000 |
| <i>Brisingella verticillata</i> | 750 | <i>Hymenaster modestus</i> | 551 – 2,150 |
| <i>Midgardia xandaros</i> | 500 – 1,100 | <i>Hymenaster rex</i> | 2,100 – 2,250 |
| <i>Odina antillensis</i> | 366 | <i>Pteraster abyssorum</i> | 1,400 |
| | | <i>Pteraster acicula</i> | 1,200 – 1,450 |
| Echinasteridae | | <i>Pteraster militaroides</i> | 600 |
| <i>Echinaster serpentarius</i> | 60 – 247 | <i>Pteraster personatus</i> | 1,750 – 2,250 |
| <i>Henricia antillarum</i> | 366 – 465 | | |
| <i>Henricia sexradiata</i> | 220 | Zoroasteridae | |
| <i>Verrillaster spinulosus</i> | 60 – 121 | <i>Doraster constellatus</i> | 348 – 1,050 |
| | | <i>Mammaster sigsbei</i> | 1,000 |
| | | <i>Zoroaster fulgens</i> | 366 – 2,750 |

Table S80. Representative echinoids known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|---------------------------------|-----------------|----------------------------------|-----------------|
| Aeropsidae | | Echinothuriidae | |
| <i>Aceste bellidifera</i> | 615 – 3,350 | <i>Araeosoma fenestratum</i> | 400 |
| | | <i>Hygrosoma petersii</i> | 2,100 – 2,150 |
| Arbaciidae | | <i>Phormosoma placenta</i> | 185 – 2,350 |
| <i>Coelopleurus floridanus</i> | 75 – 530 | Fibulariidae | |
| <i>Podocidaris sculpta</i> | 400 – 663 | <i>Echinocyamus grandiporus</i> | 612 – 2,100 |
| Aspidodiadematidae | | <i>Echinocyamus macrostomus</i> | 1,064 |
| <i>Aspidodiadema jacobyi</i> | 1,064 | Hemiasteridae | |
| <i>Plesiadiadema antillarum</i> | 700 – 2,250 | <i>Hemiaster expergitus</i> | 750 |
| Asterostomatidae | | <i>Sarsiaster griegi</i> | 2,750 |
| <i>Palaeobrissus hilgardi</i> | 400 | Loveniidae | |
| Brissidae | | <i>Echinocardium cordatum</i> | 0 – 150 |
| <i>Brissopsis alta</i> | 150 – 615 | <i>Homolampas fragilis</i> | 615 – 700 |
| <i>Brissopsis atlantica</i> | 150 – 400 | Schizasteridae | |
| <i>Brissopsis elongata</i> | 200 | <i>Agassizia excentrica</i> | 300 – 500 |
| Cidaridae | | <i>Hypselaster brachypetalus</i> | 900 |
| <i>Cidaris rugosa</i> | 663 | <i>Hypselaster limicolus</i> | 150 – 300 |
| <i>Stylocidaris affinis</i> | 150 – 400 | Temnopleuridae | |
| Echinidae | | <i>Genocidaris maculata</i> | 12 – 420 |
| <i>Echinus alexandri</i> | 1,050 | | |

Echinus tylodes

1,735

Toxopneustidae

Lytechinus euerces

55 – 777

Echinolampadidae

Conolampas sigsbei

130 – 800

Echinolampas depressa

150 – 800

Table S81. Representative ophiuroids known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|----------------------------------|-----------------|---------------------------------|-----------------|
| Amphilepidae | | Ophi dermatidae | |
| <i>Amphilepis norvegicus</i> | 3,000 – 3,250 | <i>Bathypectinura heros</i> | 366 – 3,250 |
| | | <i>Bathypectinura lacertosa</i> | 600 |
| Amphiuridae | | Ophioleucidae | |
| <i>Amphioplus daleus</i> | 450 – 2,400 | <i>Ophiernus adspersus</i> | 423 – 1,350 |
| <i>Amphioplus incisus</i> | 630 – 1,350 | <i>Ophiernus vallinicola</i> | 2,074 – 2,400 |
| <i>Amphioplus tumidus</i> | 450 | | |
| <i>Amphitarsus mirabilis</i> | 615 | Ophiuridae | |
| <i>Amphitarsus nike</i> | 500 | <i>Amphiophiura sculptilis</i> | 618 – 1,440 |
| <i>Amphiura otteri</i> | 1,350 | <i>Homalophiura abyssorum</i> | 450 – 1,850 |
| <i>Amphiura semiermis</i> | 350 – 834 | <i>Homalophiura inornata</i> | 850 – 2,504 |
| <i>Ophiophragmus filograneus</i> | 150 | <i>Ophiolepis agassizi</i> | 329 – 850 |
| <i>Ophiostigma isacanthum</i> | 150 | <i>Ophiomusium acuferum</i> | 345 – 354 |
| Ophiacanthidae | | <i>Ophiomusium eburneum</i> | 346 – 3,250 |
| <i>Ophiacantha echinulata</i> | 612 – 1,203 | <i>Ophiomusium monoplax</i> | 750 |
| <i>Ophiacantha valenciennesi</i> | 663 | <i>Ophiomusium planum</i> | 2,750 – 3,750 |
| <i>Ophioplinthaca dipsacos</i> | 900 – 950 | <i>Ophiomusium spinigerum</i> | 2,100 |
| Ophiochitonidae | | <i>Ophiomusium testudo</i> | 850 – 2,857 |
| <i>Ophiochiton grandis</i> | 423 – 1,170 | <i>Ophiosphalma armigerum</i> | 612 – 2,504 |
| | | <i>Ophiura acervata</i> | 329 |
| | | <i>Ophiura falcifera</i> | 612 – 812 |
| | | <i>Ophiura lepida</i> | 750 |

Table S82. Representative holothuroids known to inhabit bottom waters of the deep Gulf of Mexico and their reported depth distributions.

| Species | Depth range (m) | Species | Depth range (m) |
|--------------------------------|-----------------|----------------------------------|-----------------|
| Cucumariidae | | Psychropotidae | |
| <i>Echinocucumis hispida</i> | 618 – 1,500 | <i>Benthodytes lingua</i> | 860 – 3,250 |
| <i>Sphaerothuria talismani</i> | 350 – 625 | <i>Benthodytes sanguinolenta</i> | 700 – 2,250 |
| | | <i>Benthodytes typica</i> | 315 – 3,750 |
| Deimatidae | | <i>Psychropotes depressa</i> | 1,750 – 3,750 |
| <i>Deima valida</i> | 914 – 2,780 | <i>Psychropotes semperiana</i> | 3,300 – 3,740 |
| Holothuriidae | | Synallactidae | |
| <i>Holothuria imperator</i> | 200 | <i>Amphigymna bahamensis</i> | 439 – 663 |
| | | <i>Bathyplores natans</i> | 408 – 950 |
| | | <i>Bathyplores pourtalesi</i> | 650 |
| Molpadiidae | | <i>Mesothuria lacteal</i> | 447 – 2,100 |
| <i>Molpadia barbouri</i> | 200 – 2,400 | <i>Mesothuria verrilli</i> | 699 – 2,750 |
| <i>Molpadia blakei</i> | 550 – 3,350 | <i>Paroriza prouhoi</i> | 1,100 – 2,150 |
| <i>Molpadia cubana</i> | 24 – 1,200 | | |
| <i>Molpadia musculus</i> | 183 – 2,400 | Synaptidae | |
| <i>Molpadia oolitica</i> | 500 – 3,450 | <i>Protankyra abyssicola</i> | 750 – 950 |
| | | <i>Protankyra brychia</i> | 1,464 – 2,450 |
| | | <i>Protankyra sluitei</i> | 750 |

Table S83. Representative tunicates of bottom waters of the deep Gulf of Mexico and their reported depth distributions. (After Monniot and Monniot 1987.)

| Species | Depth range (m) | Species | Depth range (m) |
|-------------------------------------|--------------------|-----------------------------|--------------------|
| Polyclinidae | | Pyuridae | |
| <i>Synoicum daucum</i> | 624 – 848 | <i>Boltenia pilosa</i> | 618 |
| Cionidae | | Molgulidae | |
| <i>Araneum sigma</i> | 1,386 | <i>Minipera papillosa</i> | 750 – 1,444 |
| <i>Pseudodiazona abyssa</i> | 1,390 – 1,444 | <i>Minipera pedunculata</i> | 2,853 |
| | | <i>Hexacrobylus indicus</i> | 847 – 2,853 |
| Styelidae | | | |
| <i>Dicarpa simplex</i> | 550 – 2,124 | | |
| <i>Polycarpa pseudoalbatrossi</i> | 748 – 761 | | |
| <i>Bathystyelloides enderbyanus</i> | 2,400 | | |
| <i>Bathystyelloides mexicanus</i> | 845 – 1,444 | | |

Table S84. Orders and families of fishes known to inhabit bottom or near-bottom waters of the deep Gulf of Mexico. Groups that normally inhabit the continental shelf and extend onto the continental slope are not included, and some of the less important families are omitted.

Myxiniformes

Myxinidae – hagfishes

Chimaeriformes

Chimaeridae – ratfishes

Lamniformes

Lamnidae – mackerel sharks

Scyliorhinidae – cat sharks

Hexanchiformes

Hexanchidae – six- and seven-gill sharks

Squaliformes

Squalidae – dogfish sharks

Squatinidae – angel sharks

Rajiformes

Rajidae – skates

Albuliformes

Halosauridae – halosaurs

Notacanthidae – notacanthid eels

Anguilliformes

Congridae – conger eels

Nemichthyidae – snipe eels

Nettastomatidae – duckbill eels

Ophichthidae – snake eels

Synphobranchidae – cut-throat eels

Osmeriformes

Alepocephalidae – smoothheads

Ateleopodiformes

Ateleopodidae – ateleopodids

Aulopiformes

Chlorophthalmidae – greeneyes

Ipnopidae – ipnopids

Synodontidae – lizardfishes

Gadiformes

Aphyonidae – aphyonids

Bythitidae – viviparous brotulids

Gadidae – cods

Macrouridae – grenadiers

Moridae – moras

Ophidiidae – cusk-eels

Lophiiformes

Lophiidae – goosefishes

Table S85. Brief sketches of important families of demersal fishes inhabiting bottom waters of the deep Gulf of Mexico. Some less important families mentioned in the text are also included.

Myxinidae. The hagfishes have scaleless, eel-like bodies without paired fins. A single low fin runs along the middorsal and midventral lines. There are no jaws, but a tongue-like structure in the open mouth is equipped with four rows of rasping teeth. Several small barbels are located near the single middorsal nostril and around the mouth. The eyes are rudimentary and not visible at the surface. Five to 16 pairs of gill openings are present along the sides of the body. Mucus pores located around the body produce copious quantities of slime. Hagfishes feed on soft-bodied invertebrates and carrion that falls to the bottom. They are found on the upper and middle continental slopes to a depth of nearly 800 m. Representative genera in the Gulf include *Eptatretus* and *Myxine*.

Chimaeridae. The ratfishes have large pointed heads and bodies tapering to a long ratlike tail. The single nostril is located in the center of the fleshy upper lips. The mouth is subterminal, and the eyes are large. The first dorsal fin is high and preceded by a single sharp spine. The second dorsal is low and longer than the first. The pectoral fins are expanded and winglike. Ratfishes inhabit the upper and middle continental slopes to a depth of about 1,000 m. They feed on invertebrates and small fishes. Within the Gulf there is a single genus, *Hydrolagus*.

Lamnidae. The mackerel sharks were discussed earlier in the present chapter. All members of the family are epipelagic and/or mesopelagic, but the white shark sometimes feeds on or near the bottom and has been recorded from depths of over 1,200 m. All species are carnivorous and feed primarily on squids, crustaceans, fishes, and other marine vertebrates. The single deepwater representative of this group is the genus *Carcharodon*.

Scyliorhinidae. The cat sharks were also taken up earlier in this chapter. Most species are epipelagic and/or mesopelagic, but some have been recorded at depths of over 1,400 m. They consume cephalopods, crustaceans, and fishes and are known to feed occasionally on the bottom. A representative deepwater genus of the Gulf is *Apristurus*.

Hexanchidae. Six-gill and seven-gill sharks have long slender bodies and six or seven gill slits in front of the pectoral fins. The mouth is subterminal and extends back behind the eye. The single dorsal fin is located far back near the base of the tail, and the anal fin is smaller than the dorsal fin. The dorsal lobe of the caudal fin is long and has a subterminal notch, and the ventral lobe is small or absent. These sharks are found to depths of over 1,800 m. Although most are pelagic, some, such as the six-gill shark, are known to feed on bottom-living crustaceans and fishes. Genera in the Gulf include *Hexanchus* and *Notorynchus*.

Squalidae. The dogfish sharks have been described earlier in the present chapter. The various species of this family range from continental shelves to depths of 6,000 m. Although some species are pelagic, many are demersal, where they feed primarily on squids and fishes. Representative genera of the deep Gulf include *Centrophorus*, *Deania*, *Etmopterus*, and *Isistius*.

Squatinae. The angel sharks have flattened bodies and expanded pectoral and pelvic fins. The mouth is terminal. The eyes and spiracles are on top of the head, but the gill slits are located below. A single species of the genus *Squatina* is present in the Gulf and it lives in benthic waters of the continental slope to a depth of over 1,200 m. Food consists of mollusks, crustaceans, and fishes.

Rajidae. The skates have very flattened and laterally expanded bodies. The snout is often acutely pointed, and the tail may be moderately or very slender. The eyes and spiracles are on top of the head, and the mouth and gill slits are located below. The pectoral fins are positioned on either

side of the tail base. Skates are found on the bottom from the outer shelf to a depth of 3,000 m. They consume a variety of invertebrates and small fishes. Common genera of the deep Gulf include *Acanthobatis*, *Fenestraja*, and *Rajella*.

Halosauridae. The halosaurids are strange eel-like fishes with pointed snouts and long, tapering tails. The mouth is subterminal. The eyes are degenerate and covered with transparent skin. The dorsal fin, which is short and high, is located in advance of the anal fin. The anal fin itself is long and continues to the posterior tip of the tail. The halosaurids live in bottom waters along the lower continental slope to a depth of 2,600 m. They consume a variety of benthic invertebrates (anthozoans, polychaetes, gastropods, bivalves, squids, crustaceans, and echinoderms). Representative genera in the deep Gulf include *Aldrovandia* and *Halosaurus*.

Notacanthidae. The notacanthid eels, like their relatives, the halosaurids, have elongated bodies and tapering tails. The snout may be somewhat pointed, and the mouth is subterminal. The eyes are degenerate and covered with a layer of transparent skin. The dorsal fin consists of separated, spinelike rays (although the last one may have a spine followed by a few short soft rays). The anal fin is long and continues to the tip of the tail. Notacanthids inhabit the continental slope to a depth of about 2,000 m. Their food consists of small invertebrates, such as hydrozoans, sea anemones, polychaetes, copepods, amphipods, and bryozoans. Genera present in the deep Gulf include *Notacanthus* and *Polyacanthonotus*.

Congridae. The conger eels have long, scaleless, eel-like bodies with tapering tails. Both the dorsal and anal fins are confluent with the caudal fin. The snout may be short and blunt or long and slender. The anterior nostrils are located near the tip of the snout and are tubular in shape. The eyes are large. The gill slits are on the sides in advance of the base of the pectoral fins (when these fins are present). Pelvic fins are absent. Conger eels inhabit the bottom and are found on

continental shelves and slopes to a depth of about 1,600 m. They are carnivorous and feed on benthic invertebrates and fishes. Representative deepwater genera include *Bathyroconger* and *Pseudophichthys*.

Nemichthyidae. The snipe eels have short or quite elongated, scaleless bodies, and the tail may be truncated or long and threadlike. This group is unique in that the upper and lower jaws of females and immature males are elongate, slender, diverging beaks. The jaws of mature males resemble those of other eels. The eyes are large, and the dorsal and anal fins are long and, in most species, confluent with the caudal fin. The pectoral fins are well developed, and the anus is positioned far forward near the pectoral fins. Pelvic fins are absent. Although some species of snipe eels are pelagic, others appear to inhabit bottom or near-bottom waters. They have been collected to depths of around 2,000 m. Representative genera include *Avocetina*, *Labichthys*, and *Nemichthys*.

Nettastomatidae. The duckbill eels have elongate, scaleless bodies with long, narrow snouts and slender tails. The upper jaw projects beyond the lower jaw. The anterior nostril is tubular and located near the tip of the snout. The eyes are well developed. Pectoral fins are sometimes lacking, but the pelvic fins are always absent. The dorsal and anal fins continue to the tail tip. Duckbill eels have been taken on continental shelves and slopes to a depth of over 1,600 m. Representative genera of the deep Gulf include *Nettastoma* and *Venefica*.

Ophichthidae. The snake eels may have rounded or laterally compressed bodies. The snout is short to moderately long. The posterior nostrils are usually situated within the mouth, or they pierce the upper lips. Within the pharynx, the bony rays (gill rakers) of the gill arches form a basketlike structure so that the outside of the throat is often expanded and of greater diameter than the following body. Pectoral fins are present, but pelvic fins are absent. The caudal fin is

generally absent, and the tail terminates in a hardened tip. Many members of this family are common on the continental shelves and upper slopes, but representatives of the genus *Ophichthus* extend down to about 1,400 m.

Synaphobranchidae. The cutthroat eels have short, stout, eel-like bodies with blunt or elongated snouts, large mouths, and well-developed pectoral fins. The anterior nostrils are extended as short tubes located near the fleshy lips. The gill openings are situated at or below the insertions of the pectoral fins. The dorsal, anal, and caudal fins are confluent. Cutthroat eels occur on continental shelves and slopes to depths of over 4,000 m. Genera with representatives in the deep Gulf include *Haptenchelys*, *Ilyophis*, and *Synaphobranchus*.

Alepocephalidae. The smoothheads have been discussed earlier in the present chapter. These fishes are characteristic of the open Gulf, where some species are pelagic, but most appear to be associated with near-bottom waters. They are common below 1,000 m and have been taken from over 5,000 m. Representative benthopelagic genera of the Gulf include *Alepocephalus*, *Bathytroctes*, and *Conocara*.

Atelepodidae. The atelepodids or jellynose fishes have large ovoid bodies, tall dorsal fins, and long, tapering tails. The mouth is positioned beneath a protruding snout. The pectoral fins are located near the midline, and the pelvic fins (consisting of a single free ray followed by several shorter rays) are situated below or in advance of the pectoral fins. The long anal fin originates near midbody and runs to the tip of the tail. These are benthic fishes and have been taken from the outer continental shelf to a depth of about 700 m. In the Gulf, they are represented by a single genus, *Ijimaia*.

Chlorophthalmidae. The greeneyes were taken up earlier in the present chapter. Fishes of this group live in close association with the bottom of the outer continental shelf and slope to a depth

of around 1,000 m. They are predatory and consume polychaetes, squids, crustaceans, and fishes. Genera represented in the deep Gulf include *Chlorophthalmus* and *Parasudis*.

Ipnopidae. The ipnopids were discussed earlier in the present chapter. They are generally associated with the bottom, where they extend from about 500 m to 6,000 m. Their known foods are squids, crustaceans, and fishes. In most species, the eyes are greatly reduced, and in one species, *Ipnops murrayi*, they are absent. In some species, the anterior rays of the pectoral fins are very long and filamentous, and in members of the genus *Bathypterois* (the tripod fishes), the anterior rays of the pelvic and anal fins are long and stiffened. These provide support above the bottom and may be used to probe the sediments for food items. Representative genera include *Bathypterois*, *Bathytyphlops*, and *Ipnops*.

Synodontidae. The lizardfishes are elongate, slender fishes with large, oblique mouths that extend back beyond the eyes. A dorsal adipose fin is usually present anterior to the caudal fin. The pectoral fins are inserted midway up the sides of the body, and the pelvic fins are located anterior to the dorsal fin. Most species are closely associated with the bottom habitat. They are common on the continental shelves and upper slopes, but some species are found to depths of about 4,800 m. They feed on crustaceans and fishes. One species of the genus *Bathysaurus* extends from 1,500 m to the deepest parts of the Gulf.

Aphyonidae. The aphyonids have large heads, poorly developed eyes, and somewhat flattened bodies that taper to a point. The dorsal, caudal, and anal fins are confluent. The large mouth may be oblique or horizontal. The fins lack spines. The pectoral fins are located around the midline, and the pelvic fins, when present, are situated on the throat and consist of a single ray. All species live on the bottom or in near-bottom waters. The aphyonids occur on the lower

continental slope and the abyssal plain. Representative genera of the deep Gulf include *Aphyonus*, *Barathronus*, and *Sciadonus*.

Bythitidae. The bythitids, often called "viviparous brotulids," have elongated, tapering bodies. The long dorsal and anal fins may be free or confluent with the small caudal fin. The snout is often blunt, and the fins lack spines. The pectoral fins are positioned at or below the midline of the body, and the pelvic fins, when present, consist of one or a few rays and are set close together below the throat. Bythitids are benthic. They inhabit continental shelves and slopes, and some species extend to depths of nearly 3,000 m. The deep-water genus *Cataetyx* is limited to waters below 1,000 m in the Gulf.

Ophidiidae. The cusk-eels have slender or robust bodies and tapering tails. The dorsal, anal, and caudal fins are confluent. The snout is usually blunt, and the mouth is large, with the upper jaw extending to or beyond the level of the eyes. In some species, a chin barbel is present. Spines sometimes occur on the gill covers. The fins lack spines. The pectoral fins are located at or below the midline of the body, and the pelvic fins, when present, are situated on the throat and contain only one or two filamentous rays. Cusk-eels are benthic or benthopelagic. They are distributed around continental shelves and slopes and have been recorded to depths of around 8,000 m. Representative deepwater genera of the Gulf include *Acanthonus*, *Bassogigas*, and *Porogadus*.

Macrouridae. The grenadiers or rat tails have compact heads and bodies with long, tapering tails. The dorsal, caudal, and anal fins are confluent. The snout may be blunt or sharply pointed. The mouth may be large or small, and a chin barbel is usually present. The eyes are moderate to large. The pectoral fins are narrow and inserted high on the flank. The pelvic fins are inserted on or near the throat and have narrow fin bases. Most species of macrourids are associated with the

bottom, and they extend from the outer continental shelves, across the slopes and abyssal plain, to a depth of around 4,000 m. They feed on a variety of invertebrates and fishes. Representative deepwater genera of the Gulf include *Bathygadus*, *Coryphaenoides*, and *Gadomus*.

Moridae. The morids are spindle-shaped fishes that taper posteriorly. The mouth is large and there may be a chin barbel. The eyes are moderate to large. The fins lack spines. There are two or three dorsal fins, with the first being higher and shorter than the rest. The pectoral fins are moderately long, and the pelvic fins are situated on or near the throat and consist of few rays, some of which may be elongated. The small caudal fin is separated from the dorsal and anal fins. Morids live on or near the sea bottom on the outer continental shelf and slope to a depth of about 2,500 m. Representative genera of the deep Gulf include *Gadella* and *Laemonema*.

Gadidae. The gadids are moderately slender to spindle shaped. There are two dorsal fins and one anal fin, and both are separated from the caudal fin. The mouth is large and may be horizontal to somewhat oblique. Several barbels are often present on the snout, and a chin barbel may be present or absent. The fins lack spines. The first dorsal fin may be short and triangular, or it may consist of a single high ray followed by a number of short fleshy rays. The pectoral fins are located high on the flanks. The pelvic fins are generally inserted anterior to the pectoral fin bases, and they may be short or long and filamentous. Gadids live on the continental shelves and upper slopes to depths of over 600 m. On the continental slopes of the Gulf, they are represented by the genera *Enchelyopus* and *Urophycis*.

Lophiidae. The goosefishes are dorsoventrally flattened and have massive heads with numerous spines and very large mouths with projecting lower jaws. The body is covered with loose, scaleless skin, which on the head, jaws, and body bears numerous fleshy protuberances. The first dorsal fin consists of separated spines, the first of which is an angling device fitted with a

terminal fleshy bait used to attract prey. The gill openings are reduced and extend behind and below the pectoral fins. The pelvic fins are located at or near the throat. Both the pectoral and pelvic fins are wide and brushlike at the tip. All species live on the bottom. In the Gulf, the goosefishes are found on the outer continental shelves and slopes to a depth of over 800 m. Representative genera include *Lophiodes* and *Lophius*.
