

ANCISTROCHEIRIDAE

Sharpear enope squid

Diagnostic characters: To 25 cm mantle length. Funnel-mantle locking apparatus a simple, straight groove and ridge. **Arms with hooks. Tentacular clubs with hooks in 2 series on manus;** suckers absent from manus; dactylus reduced. Mantle with fleshy tail. **Photophores on head and mantle in 2 distinct size classes. Generally 22 large photophores on ventral surface of mantle arranged in fixed pattern of twos and fours.** Large photophores on head, funnel, bases of dorsolateral arms and tentacular stalk. Numerous very small photophores on fins, mantle, funnel, head and ventral arms. No photophores on eyeballs or viscera. Buccal membrane pigmented; buccal-membrane connectives attach dorsally to the ventral arms. Nuchal folds present on head. The photophores have a distinctive arrangement and appearance. **Colour:** not distinctive.

Habitat, biology, and fisheries: This mesopelagic squid occupies tropical and subtropical waters of the world's oceans.

Remarks: Until recently, this family was considered to be a subfamily of the Enoploteuthidae. Although only a single species is recognized in the family, differences in paralarval morphology between Atlantic and Pacific specimens suggests that more than 1 species exists (Young, et al., 1992).

Similar families occurring in the area

Octopoteuthidae: lacks tentacles beyond the paralarval stage; has buccal membrane connectives attached ventrally to the ventral arms.

Enoploteuthidae: has photophores on the ventral surface of the eyeball; lacks distinctive large photophores of this family.

Thysanoteuthidae: has a complex funnel locking apparatus; lacks arm hooks and large photophores on head and mantle.

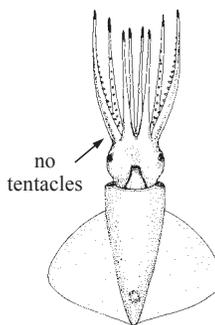
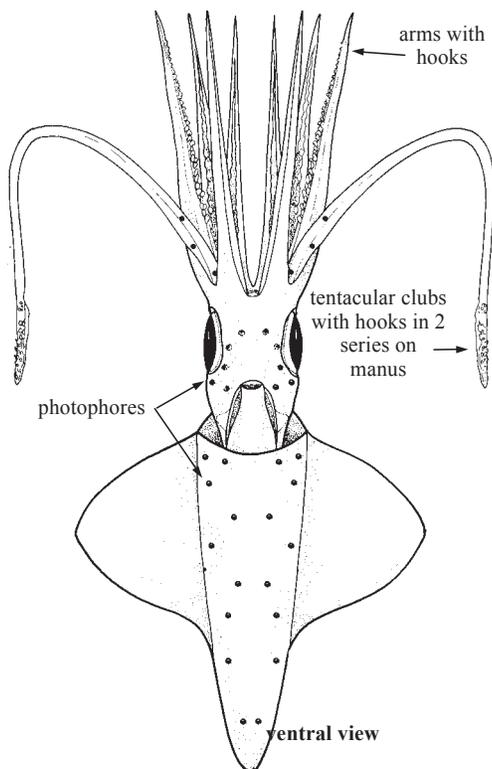
Cycloteuthidae: has buccal membrane connectives attached ventrally to the ventral arms; has a complex funnel locking apparatus; lacks arm hooks and large photophores on head and mantle.

List of species occurring in the area

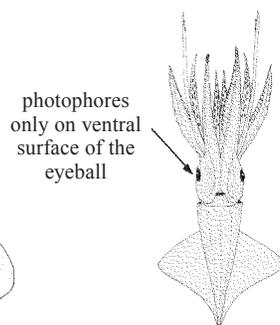
Ancistrocheirus lesueurii (Orbigny, 1842).

References

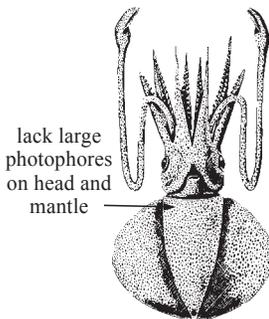
Young, R.E., K. Mangold, and M. Vecchione. 1992. The enoploteuthid group of families. In "Larval and Jubenile Cephalopods. A Manual for Their Identification, edited by M.J. Sweeney, C.F.E. Roper, K.M. Mangold, M.R. Clarke, and S.V. Boletzky. *Smithson. Contr. Zool.*, 12:91-112.



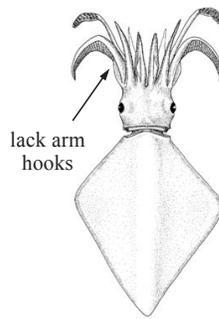
Octopoteuthidae



Enoploteuthidae



Cycloteuthidae



Thysanoteuthidae

ARCHITEUTHIDAE

Giant squids

Diagnostic characters: The largest cephalopods. Known specimens attain mantle lengths up to 5 m and total lengths up to 18 m; most records, however, are in the 6 to 12 m total length range. **Tentacular clubs elongate, narrow, with suckers in four longitudinal series except for carpal region. Manus with enlarged suckers along medial 2 series. Carpal region with dense cluster of suckers, 6 or 7 irregular series;** suckers paired with interspersed hemispherical knobs. Alternating pairs of suckers and knobs distributed along nearly entire length of tentacle, becoming more closely-set from proximal to distal. **Fins proportionally small, ovoid, without free anterior or posterior lobes;** posterior edges of fins concave. Arms with suckers in 2 series. Buccal connectives attach to dorsal borders of ventral arms. No photophores. **Colour:** not distinctive.

Habitat, biology, and fisheries: Until the 1980s, captures of specimens in fishing nets were very rare. Recent increase in deep-water commercial trawling on continental slopes and seamounts has resulted in capture of numerous specimens, some in very good condition. The flesh contains ammonium ions and therefore has a bitter taste.

Remarks: The huge size of these animals has resulted in numerous myths and mysteries, both concerning their dimensions and their antagonistic, violent behaviour towards ships, sailors and fishermen. Twenty nominal species have been described in the family, but the systematics of the group is so poorly known that the actual number of valid species is uncertain. Many, if not most, species of *Architeuthis* have been described from a single specimen that was discovered stranded on shore, floating on the surface, or taken from the stomach of a sperm whale. Nesis (1987) stated that only 3 are likely to be valid.

Similar families occurring in the area

Neoteuthidae: the posterior borders of the fins are convex rather than concave; carpal knobs are in a single row or absent rather than in a cluster, alternating with carpal suckers.

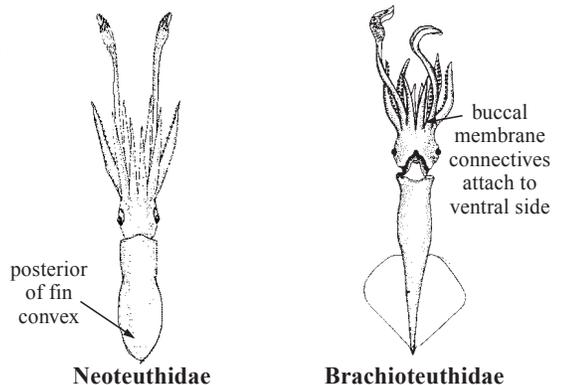
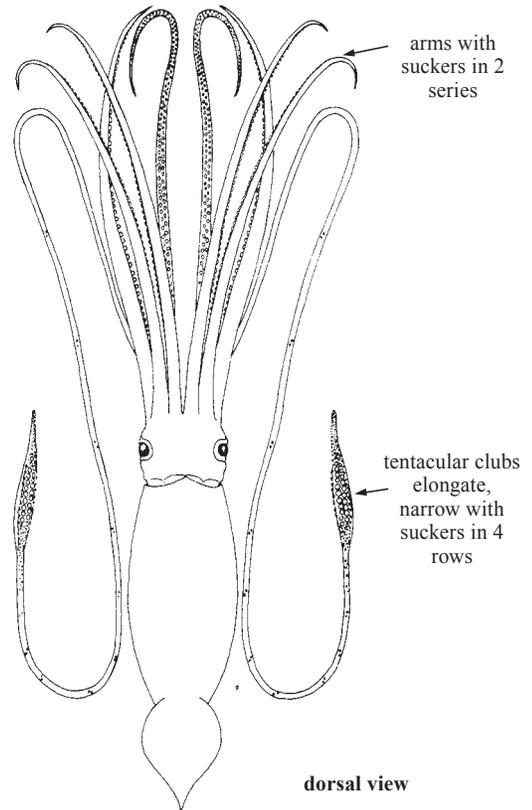
Brachiotteuthidae: have buccal membrane connectives attaching to the ventral, rather than dorsal, sides of the ventral arms; neither of these families attain gigantic size.

List of species occurring in the area

Architeuthis dux Steenstrup, 1857.

Reference

Nesis, K.N. 1987. *Cephalopods of the World. Squids, Cuttlefishes, Octopuses, and Allies*. Neptune, New Jersey, TFH Publications, 351 p.



BATHYTEUTHIDAE**Deepsea squids**

Diagnostic characters: Small (less than 80 mm mantle length) and compact. **Arms short, joined by a low, fleshy web.** Dorsal 6 arms with 2 series of suckers proximally, increasing to 4 series of irregularly placed suckers distally in adults. Dorsal 3 pairs of arms with a single, simple photophore embedded in the subcutaneous aboral tissue at the bases. Tentacular club short, unexpanded, with 8 to 10 series of numerous, minute suckers. Buccal connectives attach to dorsal border of ventral arms; **oral surfaces of buccal lappets bear minute suckers.** Eyes semitubular, anteriorly directed. **Fins small, separate, round with anterior and posterior lobes.** The funnel is embedded in head tissue. **Colour:** deep reddish maroon pigmentation.

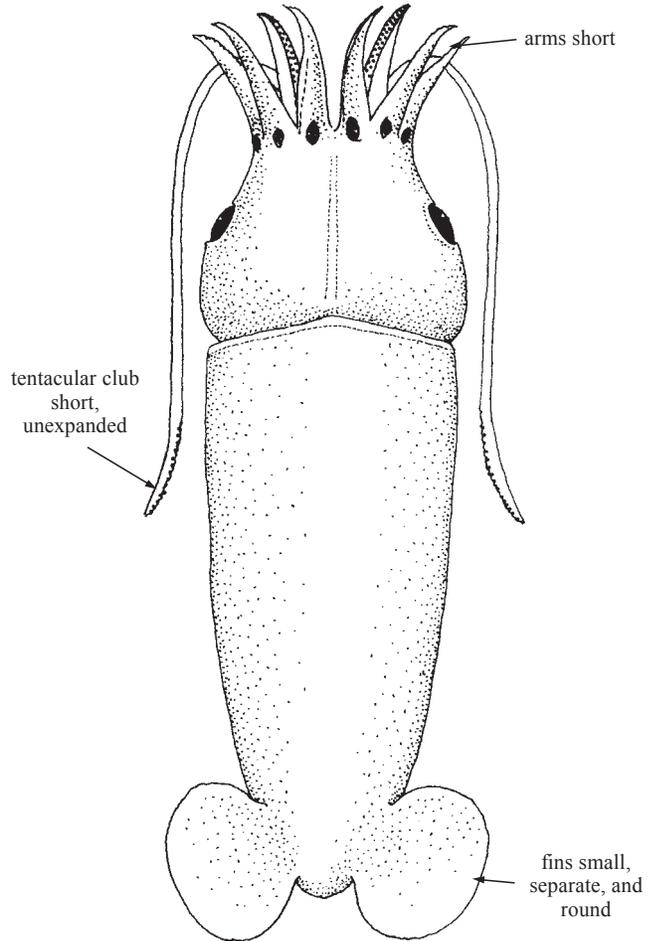
Habitat, biology, and fisheries: Deep sea, occupying the lower mesopelagic to bathypelagic depth zones throughout the world's oceans.

Similar families occurring in the area

None, there are no other deepsea squids with suckers on oral surfaces of buccal lappets.

List of species occurring in the area

Bathyteuthis abyssicola Hoyle, 1885



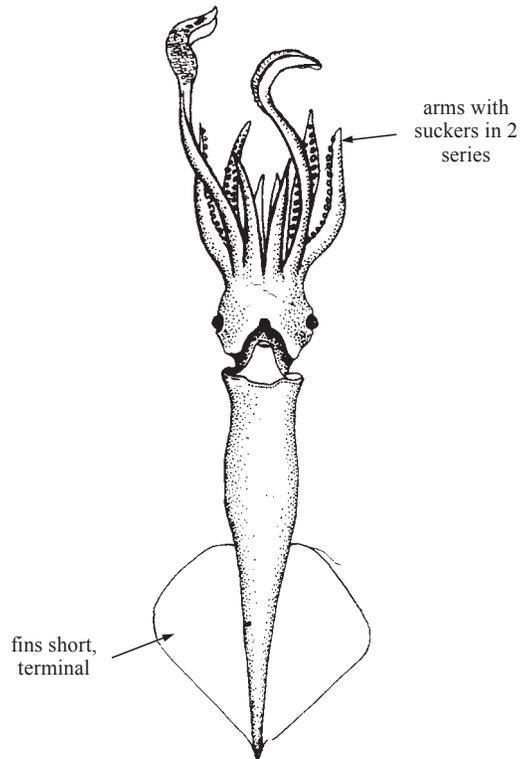
BRACHIOTEUTHIDAE

Arm squids

Diagnostic characters: Small- to medium-sized squids (ca. 15 cm mantle length). The mantle is muscular but generally thin. **Dactylus region of tentacular clubs with 4 sucker series but the proximal part of the manus is greatly expanded and carries numerous small suckers in many series.** Arm suckers in 2 series. Digestive gland located well posterior to cephalic cartilage. Fins short, terminal, with free anterior lobes. Straight groove in funnel locking cartilage. Buccal connectives attach to the ventral margins of ventral arms. Photophores known only on eyes where a single ventral photophore may be present. **Colour:** not distinctive.

Habitat, biology, and fisheries: Little is known about the biology of brachioteuthids although Roper and Vecchione (1996) describe an aggregation observed from a submersible near the ocean floor at a depth of about 800 m.

Remarks: While only 2 genera are presently recognized in this family, many species exist, most of which are undescribed.



Similar families occurring in the area

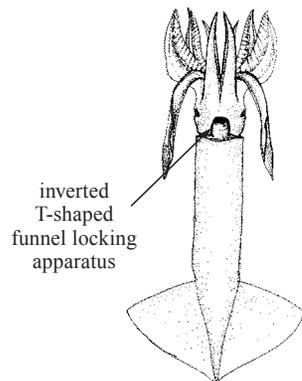
Ommastrephidae and Loliginidae: Ommastrephidae has T-shaped funnel locking apparatus; in Loliginidae the eye lens is covered by a cornea; neither of those families have numerous series of suckers in the carpal region of the tentacular clubs, a character shared with the Architeuthidae and the Neoteuthidae; in Neoteuthidae, the posterior edges of the fins are convex whereas in architeuthids the digestive gland abuts the cephalic cartilage.

List of species occurring in the area

Brachioteuthis sp.

References

Roper, C.F.E. and M. Vecchione. 1997. *In-situ* observations test hypotheses of functional morphology in *Mastigoteuthis*. *Vie et Milieu*, 47:87-93.



Ommastrephidae

CHIROTEUTHIDAE

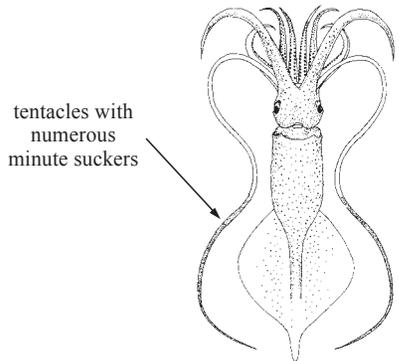
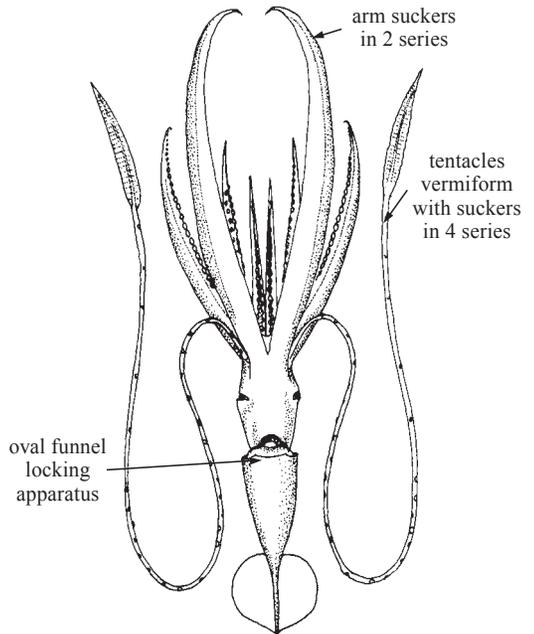
Chiroteuthids

Diagnostic characters: Small to medium in size (up to 78 cm mantle length), gelatinous. **Funnel locking apparatus oval, generally with 1 or 2 knobs directed toward the centre of the concavity.** Neck elongate. **Ventral arms generally elongate.** Tentacle suckers usually in 4 series (suckers absent in *Grimalditeuthis*; suckers in 6 series in an undescribed genus). Arm suckers in 2 series. Numerous chambers in the arms, head and mantle filled with a light-weight fluid, ammonium chloride, that provides near-neutral buoyancy for the squids. **Most species have extremely long, slender tentacles.** **Colour:** not distinctive.

Habitat, biology, and fisheries: Slow moving, deepsea squids usually with elongate necks and slender bodies. Considerable morphological differences exist among genera, 3 of which in the past were placed in separate families. However, they all share a very distinctive paralarva, known as the doratopsis stage, with an elongate neck and brachial pillar. The presence of a doratopsis paralarva is the only character that is unique to the family.

Similar families occurring in the area

Mastigoteuthidae: tentacles have very numerous minute suckers in more than 6 series; necks are not elongate.



Mastigoteuthidae

Key to the genera of Chiroteuthidae occurring in the area

- 1a. Funnel fused to mantle; tentacle clubs lack suckers *Grimalditeuthis*
- 1b. Funnel locks to mantle with cartilaginous apparatus; tentacle clubs with suckers → 2
- 2a. Arms subequal in length in adults (ventral arms much longer in young); tentacular club small, compact, and with or without keel; low protective membranes along both borders *Planctoteuthis*
- 2b. Ventral arms greatly elongate and thickened; adult tentacular clubs elongate, without keel, protective membranes form 2 or 3 distinct regions. *Chiroteuthis*

List of species occurring in the area

Chiroteuthis capensis Voss, 1967.

Chiroteuthis joubini Voss, 1967.

Chiroteuthis veranyi (Ferussac, 1835).

Grimalditeuthis bomplandi (Verany, 1839).

Planctoteuthis danae (Joubin, 1931).

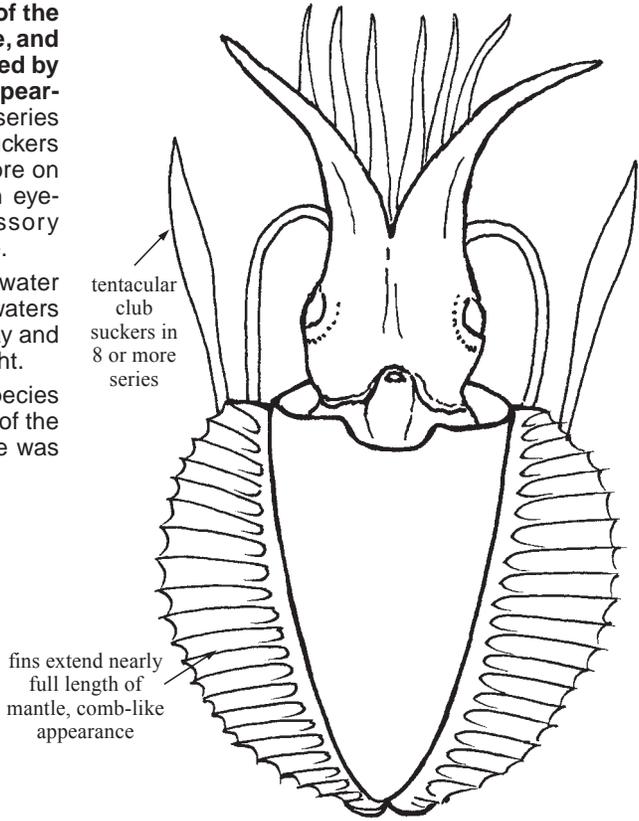
CHTENOPTERYGIDAE

Combfin squids

Diagnostic characters: Small, muscular. Fins extend nearly the full length of the mantle, attach to lateral walls of mantle, and have slender muscle bundles connected by membranes, producing a comb-like appearance. Dorsal 6 arms with up to 6 suckers series at some point on arms. Tentacular-club suckers in 8 or more series. Large oval photophore on viscera. Large photogenetic patches on eyeball. Mature females with an accessory nidamental gland. **Colour:** not distinctive.

Habitat, biology, and fisheries: Midwater squids occupying tropical to subtropical waters at depths of 500 to 1 000 m during the day and migrating into near-surface waters at night.

Remarks: A number of undescribed species are present in this genus. Little is known of the biology of any species. The genus name was formerly spelled *Ctenopteryx*.



Similar families occurring in the area

None, no other family has comb-like muscle bundles in fins.

List of species occurring in the area

Ctenopteryx sicula (Verany, 1851).

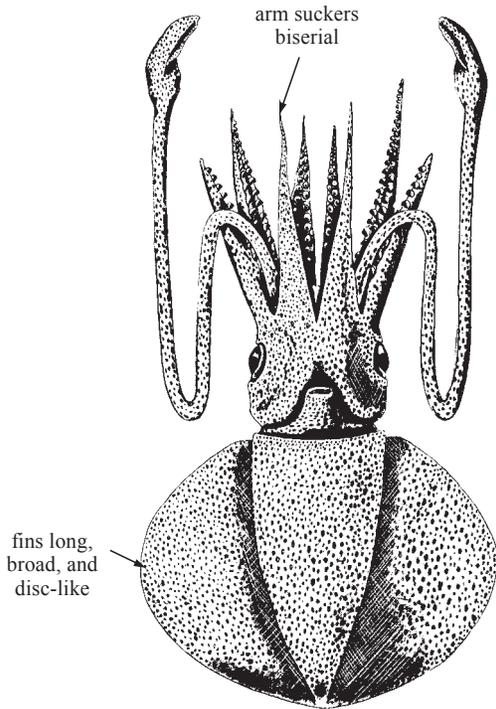
CYCLOTEUTHIDAE

Cycloteuthids

Diagnostic characters: Moderately-sized, the largest reaches about 60 cm mantle length. Fins long, broad, and disc-like. **Funnel component of funnel/mantle locking apparatus subtriangular**; mantle component does not reach anterior mantle margin. Arm suckers biserial. Tentacle club suckers tetraserial. Buccal connectives attach to ventral borders of ventral arms. **Colour:** not distinctive.

Habitat, biology, and fisheries: Mesopelagic squids with a cosmopolitan distribution in tropical and subtropical waters. Very little is known about the biology of any species in the family.

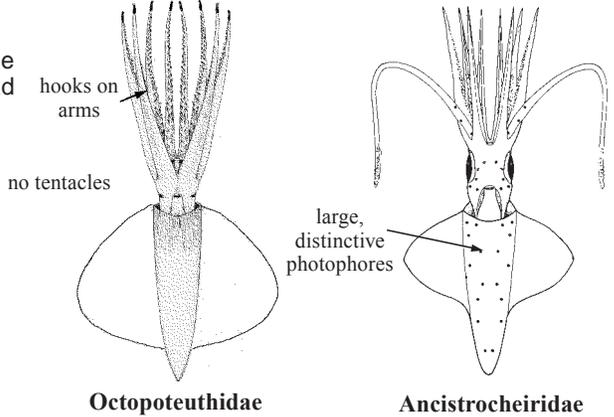
Remarks: The family contains 2 rather dissimilar genera.



Similar families occurring in the area

Octopoteuthidae: lacks tentacles and has hooks rather than suckers on the arms.

Ancistrocheiridae: has large, distinctive photophores on the ventral surfaces of the head and mantle.



Key to the genera of Cycloteuthidae occurring in the area

- 1a. Mantle and fins drawn out into a slender tail *Cycloteuthis*
- 1b. No tail; large, oval (disc-like) combined fins extend virtually full length of mantle *Discoteuthis*

List of species occurring in the area

- Cycloteuthis sirventi* Joubin, 1919.
- Discoteuthis discus* Young and Roper, 1969.
- Discoteuthis laciniosa* Young and Roper, 1969.

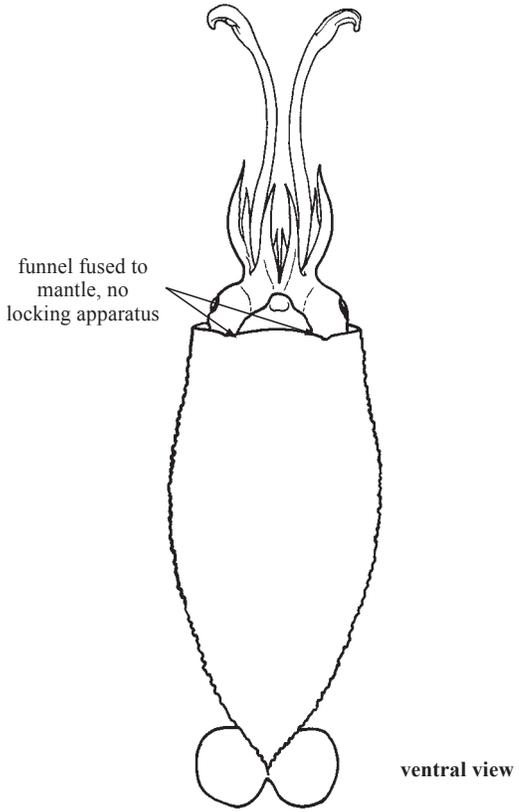
CRANCHIIDAE

Bathyscaphoid squids

Diagnostic characters: Small (about 100 mm mantle length in *Helicocranchia*) to large (about 2 000 mm mantle length in *Mesonychoteuthis*) squids that possess a large buoyancy chamber and, hence, the common name 'bathyscaphoid squid'; they often appear to have bloated bodies and short arms. Mantle is generally thin but muscular. **Head fused to mantle at nuchal cartilage. Funnel fused to mantle; locking apparatus absent.** Digestive gland well posterior to cephalic cartilage. Funnel retractor muscles form broad, horizontal membrane dividing mantle cavity into ventral and dorsal chambers; large buoyancy chamber present in area of viscera, extending full length of mantle. Buccal connectives attach to ventral borders of ventral arms.

Habitat, biology, and fisheries: Several species have been observed in deep water from submersibles to exhibit a peculiar posture (cock-atoe posture) with the arms and tentacles folded back over the head (Vecchione and Roper, 1991). Cranchiid paralarvae are common in near-surface waters and many remain in this habitat until reaching a rather large size (ca. 50 to 100 mm mantle length). Most species occupy progressively deeper waters as they grow larger (ontogenetic descent).

Remarks: This family contains 13 genera with approximately 60 species, many of which are poorly described or undescribed.



Similar families occurring in the area

None, no other family has both head and funnel fused to mantle.

Key to the genera of Cranchiidae occurring in the area

(modified from Voss, 1980)

- 1a. Ventral surface of mantle with 1 or 2 cartilaginous strips extending posteriorly from anterior apex of funnel-mantle fusion; funnel fused to head laterally; eyes with 4 or more small round to oval photophore (Subfamily Cranchiinae) → 2
- 1b. Ventral surface of mantle without cartilaginous strips; funnel free from head laterally; eyes with 1 (usually large) photophore, or 2 or 3 markedly dissimilar-sized photophores with the largest usually crescent-shaped (Subfamily Taoniinae) → 4
- 2a. Ventral mantle with 2 pairs of cartilaginous strips in inverted V-shaped pattern extending posteriorly from anterior apex of funnel-mantle fusion; funnel valve present; dorsal pad of funnel organ with 3 longitudinal triangular flaps; gladius with short conus → 3
- 2b. Ventral mantle with 1 cartilaginous strip extending posteriorly from each anterior apex of funnel-mantle fusions; funnel valve absent; dorsal pad of funnel organ with 3 to 7 narrow papillae; gladius with long, slender conus *Leachia*

- 3a.** Mantle covered with cartilaginous tubercles; brachial end-organs (possibly a photophore) present on all arms in near-mature and mature females; suckers in 4 series on midportion of hectocotylized right ventral arm in males *Cranchia*
- 3b.** Mantle without cartilaginous tubercles except on ventral cartilaginous strips and sometimes on dorsal median line; brachial end-organs present on ventrolateral arms in near-mature and mature females; suckers in 2 series on midportion of hectocotylized right ventral arm in males *Liocranchia*
- 4a.** Eyes with 1 (usually large) photophore; fins small, paddle-shaped, subterminal → 5
- 4b.** Eyes with 1 large and 1 or 2 small photophores; fins not paddle-shaped, short to long, combined fins round to spear-head-shaped, terminal or terminal-lateral → 6
- 5a.** Fins fused posteriorly, insert on short rostrum of gladius which projects dorsally free of end of mantle; eyes small to medium-sized *Helicocranchia*
- 5b.** Fins widely separated posteriorly; insert on lateral expanded ends of transverse extensions of posterior gladius; eyes large to huge *Bathothauma*
- 6a.** Gladial conus short; fins short (less than 25% mantle length), oval to round; digestive gland long, narrow, spindle-shaped → 7
- 6b.** Gladial conus medium to long, narrow, or needle-like to filiform; fins medium to long (30 to 60% mantle length), narrow, spear-point-shaped to ovate; digestive gland stout, spindle-shaped or rounded → 8
- 7a.** Posterior fin insertion anterior to tip of gladius; no tubercles on funnel-mantle fusion cartilages; dorsal pad of funnel organ with large triangular lobe on each lateral arm; eyes with small round anterior photophore indented into median anterior margin of large, round posterior photophore *Sandalops*
- 7b.** Posterior fin inserts at tip of gladius; 2 small tubercles present at anterior end of funnel-mantle fusion cartilages; dorsal pad of funnel organ with large, spatulate papilla on each lateral arm; eyes with small crescent-shaped photophore lying within concavity of large, crescent-shaped posterior photophore *Liguriella*
- 8a.** Anterior-fin insertions on lateral margins of gladius → 9
- 8b.** Anterior-fin insertions on mantle musculature → 10
- 9a.** Tentacular club with hooded hooks; marginal suckers of manus lost or greatly reduced in size; ventral arms longest in juveniles, approximately equal in length to ventrolateral arms in adults *Galiteuthis*
- 9b.** Tentacular club without hooks (enlarged suckers with 1 or 2 large, hook-like central teeth on distal margin); marginal suckers of manus not lost or greatly reduced in size; ventrolateral arms longest in juveniles, longer or equal in length to dorsolateral arms in adults. *Taonius*
- 10a.** Funnel valve present; dorsal pad of funnel organ with triangular flap on each lateral arm; eyes with 2 photophores; carpal suckers in 2 series on tentacular stalk → 11
- 10b.** Funnel valve absent; dorsal pad of funnel organ with long spatulate papilla on each lateral arm; eyes with 3 photophores; carpal suckers in 4 zigzag series on tentacular stalk . . . *Teuthowenia*
- 11a.** Photophores absent on ventral surface of stout, spindle-shaped digestive gland; digestive-gland ducts fused into long, single duct *Egea*
- 11b.** Large compound photophore present on ventral surface of rounded digestive gland; 2 short digestive-gland ducts separate *Megalocranchia*

List of species occurring in the area

- Bathothauma lyromma* Chun, 1906.
Cranchia scabra Leach, 1817.
Egea inermis Joubin, 1933.
Galiteuthis armata Joubin, 1898.
Helicocranchia papillata (Voss, 1960).
Helicocranchia pfefferi Massy, 1907.
Leachia atlantica (Degner, 1925).
Leachia cyclura LeSueur, 1821.
Leachia lemur (Berry, 1920).
Liguriella podophtalma Issel, 1908.
Liocranchia reinhardti (Steenstrup, 1856).
Megalocranchia sp.
Sandalops melancholicus Chun, 1906.
Taonius pavo (LeSueur, 1821).
Teuthowenia micalops (Prosch, 1847).

References

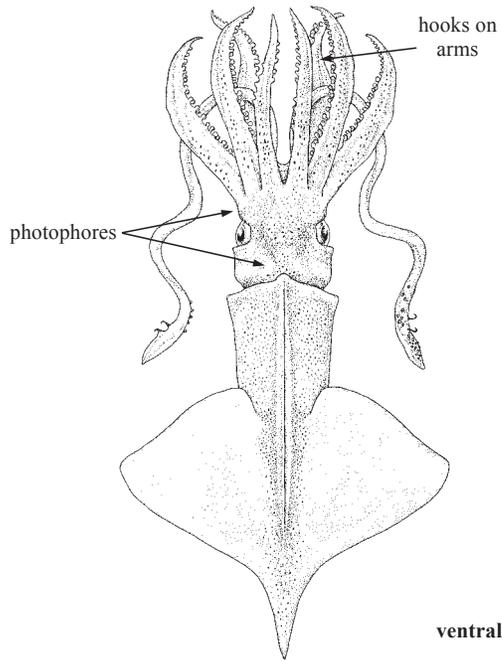
- Vecchione, M. and C.F.E. Roper. 1991. Cephalopods observed from submersibles in the western North Atlantic. *Bull Mar. Sci.*, 49:433-445.
- Voss, N. A. 1980. A generic revision of the Cranchiidae (Cephalopoda: Oegopsida). *Bull. Mar. Sci.*, 30:365-412.

ENOPLOTEUTHIDAE

Enope squids

Diagnostic characters: Squid in this family are small, 3 to 13 cm mantle length. Hooks present on all arms. Tentacle clubs with 1 or 2 series of hooks on manus; armature on manus in 2 or 3 series. Photophores present on mantle, funnel, head, eyeballs, and arms; on eyeballs in single line; anterior and posterior-most photophores generally largest; photophores absent from tentacles, viscera, and most of fins. Tail with vesicles, broad and extends well beyond conus of gladius. Nidamental glands absent. **Colour:** colourful array of photophores, distributed primarily over the ventral surfaces of the head, arms, funnel, and mantle.

Habitat, biology, and fisheries: All open-ocean species occupy the upper mesopelagic. In the regions where the mesopelagic zone intersects the slopes of land masses (i.e., the mesopelagic boundary zone) some species may occur at shallower depths. Many species are known to undergo extensive daily vertical migrations and this habit may be characteristic of all species in the family.



Similar families occurring in the area

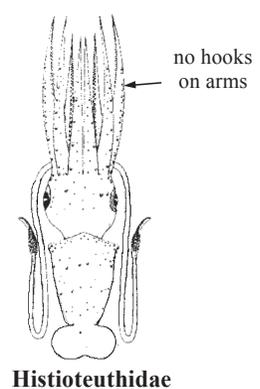
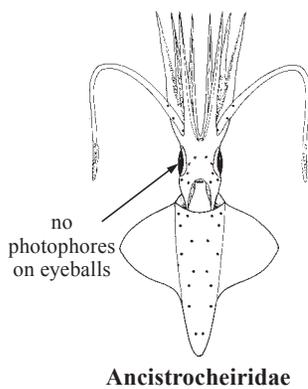
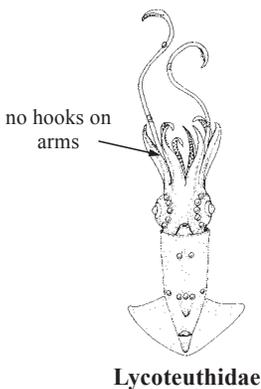
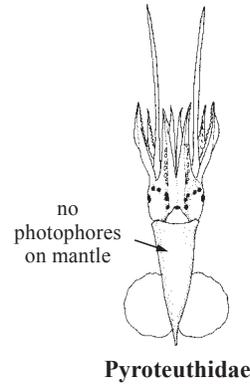
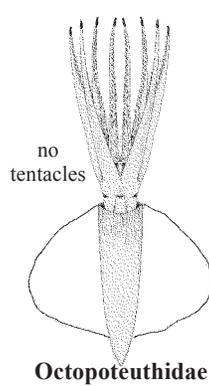
Octopoteuthidae: lacks tentacles and, together with Pyroteuthidae and Lycoteuthidae, possesses visceral photophores.

Pyroteuthidae: lacks photophores on mantle or surface of head or arms.

Lycoteuthidae and Onychoteuthidae: has suckers rather than hooks on arms.

Ancistrocheiridae: has photophores on tentacles but not on eyeballs.

Histioteuthidae: has normal suckers rather than hooks on arms.



Key to the genera of Enoploteuthidae occurring in the area

- 1a.** Posterior-fin insertion anterior to tail *Enoploteuthis*
1b. Fins extend along lateral sides of tail → 2
- 2a.** One to 3 large, dark photophores at tips of ventral arms *Abrialiopsis*
2b. No large dark photophores at tips of ventral arms *Abralia*

List of species occurring in the area

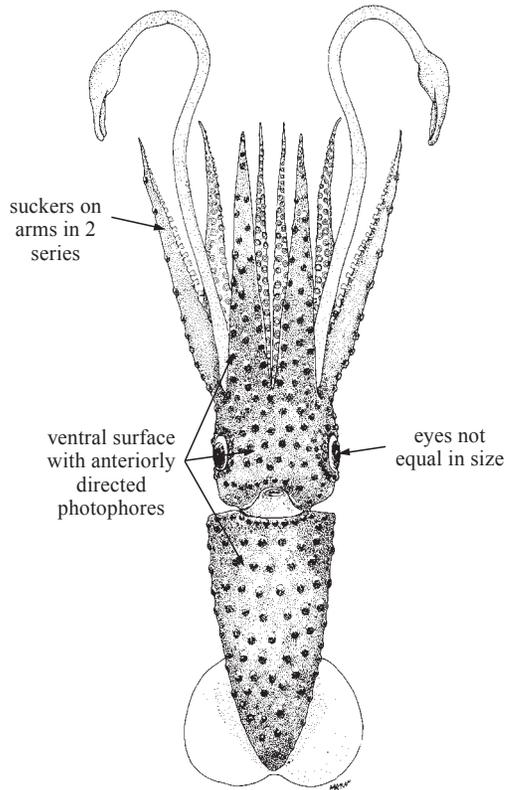
- Abralia grimpei* Voss, 1959.
Abralia redfieldi Voss, 1955.
Abralia veranyi (Rüppell, 1844).
Abrialiopsis atlantica Nesis, 1982.
Abrialiopsis hoylei pfefferi Joubin, 1896.
Enoploteuthis anapsis Roper, 1964.
Enoploteuthis leptura (Leach, 1817).

HISTIOTEUTHIDAE

Strawberry squids

Diagnostic characters: Weakly-muscled species of moderate size (up to 28 cm mantle length). In general they have comparatively long, thick arms and short mantles with small, rounded fins. **Ventral surfaces of mantle, head, and arms with anteriorly directed photophores with red colour filters.** Suckers on club in 4 or more irregular series. **Left eye larger than right eye.** Suckers on arms in 2 series. Buccal connectives attach to dorsal borders of ventral arms. **Colour:** red, with very distinctive photophores.

Habitat, biology, and fisheries: Ranges from epipelagic to bathypelagic and from subarctic to subantarctic. Some species appear to be found most frequently near continental slopes and islands. Histioteuthids comprise an important component of the diet of many oceanic toothed whales.

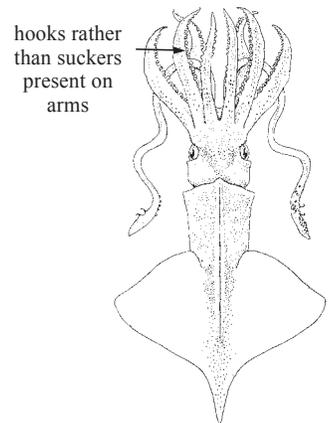


Similar families occurring in the area

Enoploteuthidae: have hooks rather than normal suckers on arms.

List of species occurring in the area

- Histioteuthis bonnellii* (Ferussac, 1834).
- Histioteuthis celetaria* (Voss, 1960).
- Histioteuthis corona* (Voss and Voss, 1962).
- Histioteuthis dofleini* (Pfeffer, 1912).
- Histioteuthis meleagroteuthis* (Chun, 1910).
- Histioteuthis reversa* (Verrill, 1880).



Enoploteuthidae

JOUBINITEUTHIDAE

Joubiniteuthids

Diagnostic characters: Dorsal 6 arms extremely long (greater than 2 times mantle length) with suckers in 6 series and joined by low web. Ventral arms short (length 1/3 or less than length of other arms) with suckers in 4 series. Tentacles much thinner than arms; tentacular club laterally compressed; bears suckers in 5 to 12 series. Tail long (longer than the mantle) and slender. Funnel locking apparatus with oval depression. Photophores absent. **Colour:** not distinctive.

Habitat, biology, and fisheries: Meso- to bathypelagic squids found circumglobally in tropical and subtropical regions. Little is known about the biology of this squid.

Remarks: This family contains a single species.

Similar families occurring in the area

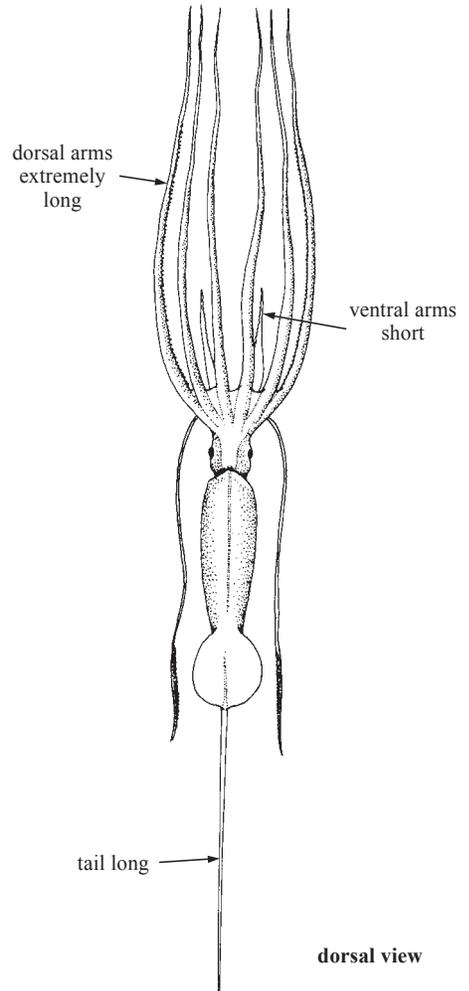
Squids of undetermined family (possibly Magnapinnidae) have recently been videotaped on at least 2 occasions in the deep water (greater than 1 000 m) of the Gulf of Mexico (Vecchione et al., 2001). These unidentified squid have extremely long arms and could be confused with joubiniteuthids (e.g., Norman, 2000). However, the fins are very large and all arms are extremely long and the tentacles are practically indistinguishable from the arms, making the undetermined squid appear to have 10 identical arms.

List of species occurring in the area

Joubiniteuthis portieri (Joubin, 1916).

References

- Normin, M. 2000. *Cephalopods. A World Guide*. Hackenheim, Germany, Conchbooks, 320 pp.
- Vecchione, M., C.F.E. Roper, E.A. Widder, and T.M. Frank. in press. *In-situ* observations on three species of large-finned deep-sea squids. *Bull. Mar. Sci.*
- Vecchione, M., R.E. Young, A. Guerra, D.J. Lindsay, D.A. Clague, J.M. Bernhard, W.W. Sager, A.F. Gonzalez, F.J. Rocha, and M. Segonzac. 2001. Worldwide Observations of remarkable deep-sea squids. *Science*, 294:2505-2506.



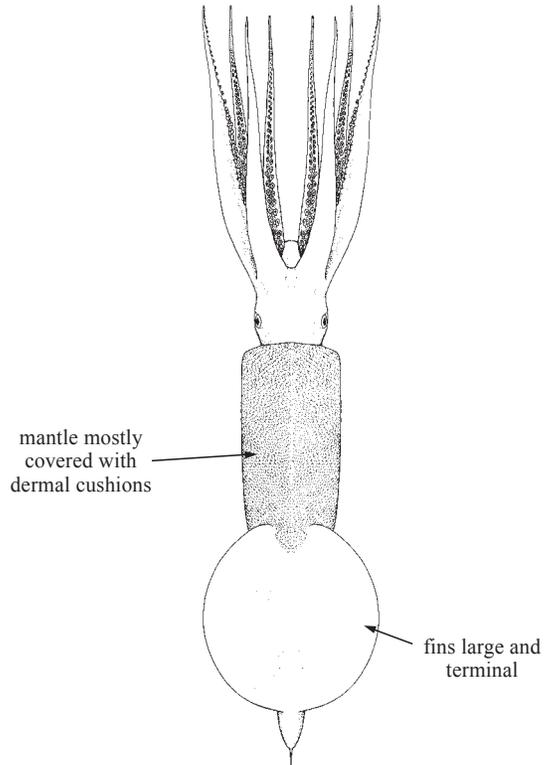
LEPIDOTEUTHIDAE

Scaled squids

Diagnostic characters: Medium-sized squid (100 cm mantle length) whose tentacles fail to grow much beyond the paralarval stage and are lost in subadults. **Mantle mostly covered with dermal cushions (= 'scales')**. Tentacles absent in subadults and adults, greatly reduced in juveniles. Arm suckers present; hooks absent. Fins large, terminal. Photophores absent. **Colour:** not distinctive.

Habitat, biology, and fisheries: This squid is rarely captured and little is known of its biology.

Remarks: This family contains a single species.



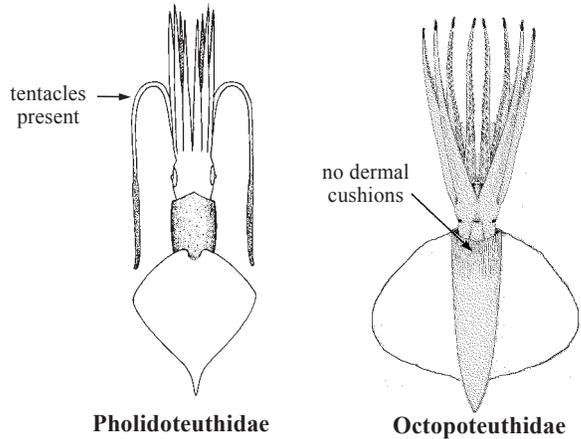
Similar families occurring in the area

Pholidoteuthidae: tentacles present.

Octopoteuthidae: lacks dermal cushions.

List of species occurring in the area

Lepidoteuthis grimaldii Joubin, 1895.

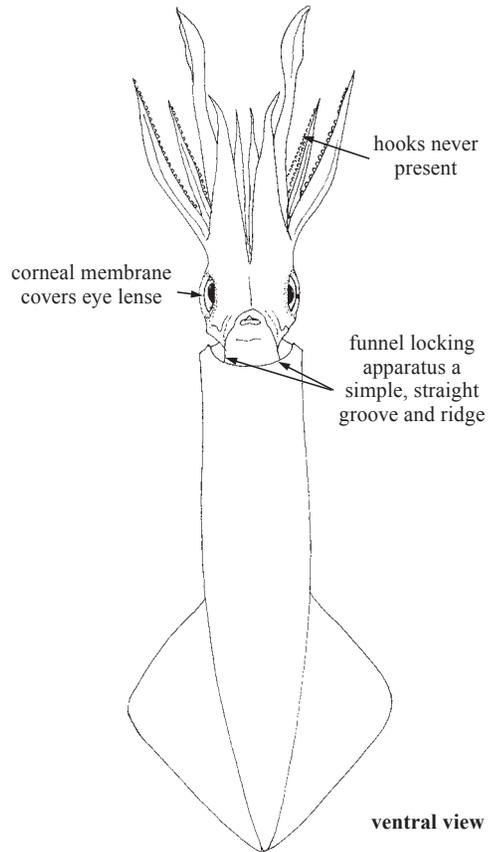


LOLIGINIDAE

Inshore squids

Diagnostic characters: **Transparent skin (corneal membrane) covers eye lens.** Funnel locking apparatus a simple, straight groove and ridge. Fins attach to lateral regions of mantle. Arms with suckers in 2 series. Tentacular club with suckers usually in 4 series (2 series in at least manal region of *Pickfordiateuthis* clubs). Hooks never present. Buccal connectives attach to ventral margins of ventral arms. Seven buccal lappets possess small suckers (except in *Pickfordiateuthis* and *Sepioteuthis*). Usually the left arm of the ventral pair is hectocotylized in males; structure of the modified portion of the hectocotylus is useful in most species as a diagnostic character. **Eggs spawned in finger-like egg masses attached to substrate.** **Colour:** usually reddish brown, darker dorsally, but quite variable depending on behaviour.

Habitat, biology, and fisheries: Loliginids are small to medium-sized squids (to about 40 cm mantle length) occurring along the coastal margins and continental shelf, primarily in warm to temperate waters worldwide. They form one of the major groups of commercially utilized cephalopods. Various species occur from very shallow water in bays and estuaries, over grass flats and coral reefs, to water as deep as 400 m (during seasonal offshore migrations). Eggs usually are attached to hard surfaces in large, finger-like masses ('sea-mops'); paralarvae resemble the adults. Certain species support extensive fisheries in several parts of the world, as the flesh is of excellent quality. The cephalopod fisheries of Venezuela (ca. 1 500 to 7 000 t per year in 1993 to 1998; FAO) is dominated by loliginid squid, primarily *Loligo plei* (Arocha, 1989).



Similar families occurring in the area

Other squid families which include commercial-sized species that present potential interest to fisheries (Ommastrephidae, Thysanoteuthidae, Onychoteuthidae) all lack suckers on the buccal lappets and have eye lenses open to the sea, not covered by a transparent corneal membrane. The funnel locking apparatus is not straight in Ommastrephidae and Thysanoteuthidae. Hooks are found on the arms or tentacular clubs in Onychoteuthidae, Enoploteuthidae, Pyroteuthidae, Ancistrocheiridae, Octopoteuthidae. The mantle in Lepidoteuthidae and Pholidoteuthidae is covered with small integumentary scales. Brachioteuthidae, Architeuthidae, Neoteuthidae, and Joubiniteuthidae can all be distinguished by more than 4 rows of suckers on the proximal tentacular clubs. Chiroteuthidae and Mastigoteuthidae generally have greatly enlarged ventral arms, modified to hold the worm-like tentacles. The mantle is fused to the funnel and head in Cranchiidae.

Key to the genera of Loliginidae occurring in the area

- 1a. Suckers in 2 rows on proximal tentacular clubs; fins not joined posteriorly, with rounded posterior lobes *Pickfordiateuthis*
- 1b. Suckers in 4 rows on proximal tentacular clubs; fins extend to posterior end of mantle, without rounded posterior lobes → 2
- 2a. Fins in adults occupy more than 85% mantle length, broadly elliptical; buccal supports without suckers *Sepioteuthis*
- 2b. Fins in adults occupy less than 70% mantle length, round or rhomboidal; buccal lobes with small suckers → 3

- 3a. Fins in adults wider than long, round or auriform, not rhomboidal; mantle short, stout, broadly rounded posteriorly *Lolliguncula*
- 3b. Fins in adults rhomboidal, longer than broad, not round; mantle elongate, pointed posteriorly. *Loligo*

Key to the species of *Loligo* in the area

(modified from Cohen, 1976)

- 1a. Left ventral arm hectocotylized (mature males) → 2
- 1b. Left ventral arm not hectocotylized → 6

- 2a. Hectocotylus extends to tip of arm; diameter of distal suckers of dorsal row less than 1/2 that of their ventral counterparts → 3
- 2b. Hectocotylus does not extend to tip of arm; diameter of distal suckers of dorsal row equal or nearly equal to that of their ventral counterparts → 4

- 3a. Hectocotylus occupies less than 1/2 of arm (26 to 50% of arm length; 52 to 69% of total number of suckers on arm); suckers on ventral buccal lappets *Loligo plei*
- 3b. Hectocotylus occupies greater than 1/2 of arm (57 to 62% of arm length; 77 to 89% of total number of suckers on arm); no suckers on ventral buccal lappets *Loligo roperi*

- 4a. Eye unusually large (diameter of externally visible eyeball 15 to 21% of mantle length; lens diameter 6 to 8% of mantle length) *Loligo ocula*
- 4b. Eye not unusually large (diameter of externally visible eyeball 8 to 18% of mantle length; lens diameter 2 to 6% of mantle length) → 5

- 5a. Bases of at least some modified suckers of hectocotylus narrowly triangular; sucker rings on ventral arms with blunt teeth *Loligo pealeii*
- 5b. Bases of modified suckers of hectocotylus broad; sucker rings on ventral arms with sharp teeth *Loligo surinamensis*

- 6a. No suckers on ventral buccal lappets; total number of suckers for all buccal lappets less than 7; less than 25 transverse rows of suckers on tentacular club *Loligo roperi*
- 6b. Suckers present on ventral buccal lappets; total number of suckers for all buccal lappets greater than 15; greater than 26 transverse rows of suckers on tentacular club → 7

- 7a. Ratio of greatest width of vane of gladius to greatest width of free rachis 1.5 to 2.4; lateral margin of vane usually thickened; fin length less than 1/2 mantle length in specimens less than 95 mm mantle length, often less than 1/2 mantle length in specimens less than 190 mm mantle length *Loligo plei*
- 7b. Ratio of greatest width of vane of gladius to greatest width of free rachis 2.4 to 3.7; lateral margin of vane usually thin although often slightly darkened; fin length greater than 1/2 mantle length in specimens greater than 55 mm mantle length → 4

List of species occurring in the area

The symbol ♀ is given when species accounts are included.

- ♀ *Loligo ocula* Cohen, 1976.
- ♀ *Loligo pealeii* LeSueur, 1821.
- ♀ *Loligo plei* Blainville, 1823.
- ♀ *Loligo roperi* Cohen, 1976.
- ♀ *Loligo surinamensis* Voss, 1974.
- ♀ *Lolliguncula brevis* (Blainville, 1823).
- ♀ *Pickfordiateuthis bayeri* Roper and Vecchione, 2001.
- ♀ *Pickfordiateuthis pulchella* Voss, 1953.
- ♀ *Sepioteuthis sepioidea* (Blainville, 1823).

References

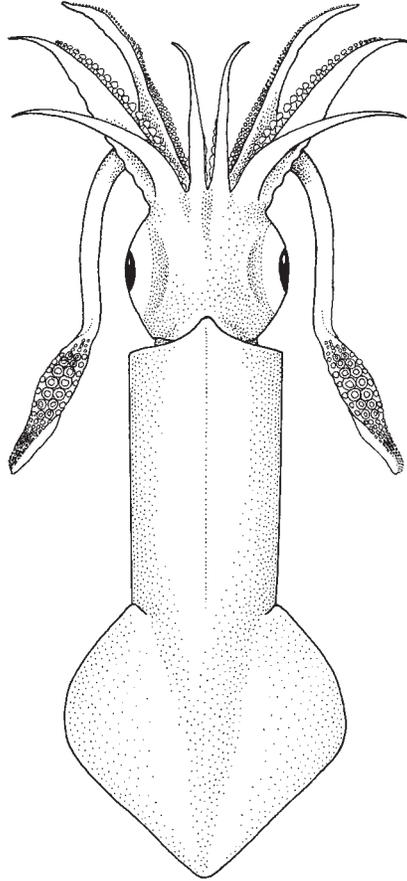
- Arocha, F. 1989. Cephalopod resources of Venezuela. *Mar. Fish. Rev.*, 51:47-51.
- Brakoniecki, T.F. 1996. A revision of the genus *Pickfordiateuthis* Voss, 1953 (Cephalopoda: Myopsida). *Bull. Mar. Sci.*, 58:9-28.
- Cohen, A. 1976. The systematics and distribution of *Loligo* (Cephalopods: Myopsida) in the western North Atlantic, with description of two new species. *Malacologia*, 15: 299-367.

Loligo ocula Cohen, 1976

OJL

Frequent synonyms / misidentifications: None / *Loligo pealeii* LeSueur, 1821.

FAO names: **En** - Bigeye inshore squid; **Fr** - Calmar à gros yeux; **Sp** - Calamar ojigrande.



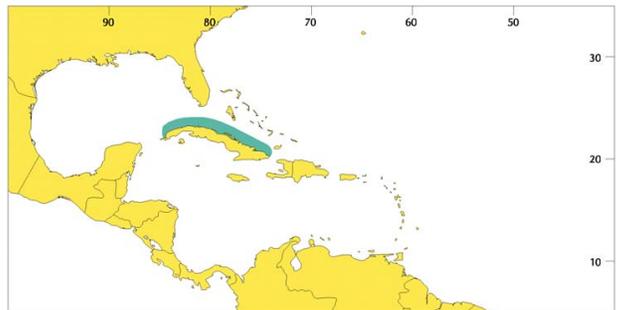
Diagnostic characters: Eyes very large; visible part 15 to 21% mantle length. Left ventral arm hectocotylized; modified in distal 1/3 to 1/4 but not to tip; the 10 to 12 suckers in dorsal row less than 1/2 diameter of ventral counterparts; the 2 to 5 suckers proximal to reduced suckers are enlarged; all modified suckers on swollen, triangular bases. Mantle bluntly pointed; fin length 45 to 55% mantle length.

Size: To 13 cm mantle length.

Habitat, biology, and fisheries: A demersal species in depths of 250 to 360 m. Its biology is unknown.

Distribution: Western Atlantic, Caribbean Sea around Cuba.

Remarks: This small loliginid is only known from the original description, but because it is easily confused with *Loligo pealeii* may be more widespread than current records indicate.



Loligo pealeii LeSueur, 1821

SQL

Frequent synonyms / misidentifications: None / *Loligo plei* Blainville, 1823.

FAO names: **En** - Longfin inshore squid; **Fr** - Calmar totam; **Sp** - Calamar comun.

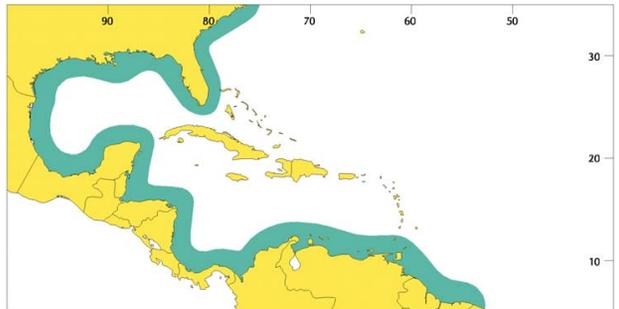
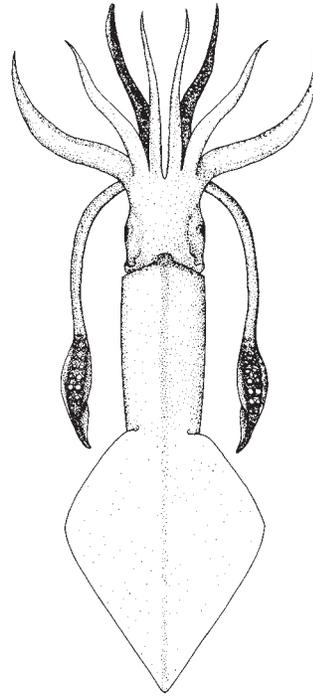
Diagnostic characters: Mantle long, moderately slender, cylindrical, the posterior end bluntly pointed; fins rhomboid, their sides nearly straight. **Gladius long, rather wide, feather-shaped, ratio of greatest width of vane of gladius to greatest width of rachis 2.7 to 3.7 in females, 2.4 to 2.9 in males; edge of vane curved (sometimes straight in males), thin, rarely ribbed.** Eyes not unusually large, diameter of externally visible eyeball 8 to 18% mantle length, and diameter of dissected lens 2 to 6% mantle length. Left ventral arm of mature males hectocotylized by modification of the distal third to fourth of arm, but the **modification does not extend to arm tip**; fewer than 12 of the suckers in dorsal row usually smaller than half the size of their counterparts in the ventral row; bases or pedicels of some of the modified suckers rounded, narrowly triangular. **Colour:** reddish brown, darker and more vivid dorsally, lighter, less pigmented ventrally.

Size: Maximum: 47 cm mantle length (male); males grow larger than females; sizes in Western Central Atlantic are considerably smaller than in northern waters - males: 30 cm maximum, less than 20 cm average; females: less than 13 cm mantle length.

Habitat, biology, and fisheries: Few data are available on biology of populations in the Western Central Atlantic. Optimum temperatures 10 to 14°C, minimum 8°C. North of Cape Hatteras there is a summer-inshore-northerly spawning migration to shallow coastal and shelf waters, followed by an offshore-southerly retreat in autumn and winter to continental slope waters; restricted in summer to surface and shallow water, but from 28 to 366 m depth in winter (peak concentrations at 100 to 193 m); adults are found on the bottom during the day but leave the bottom at night, dispersing into the water column, and may appear at the surface (in summer or warm water). Eggs are laid in gelatinous finger-like strands, many of which are attached together in large masses ("sea mops") to a solid substrate (rock, shells, shipwrecks) at depths from a few to 250 m; planktonic paralarvae and juveniles are abundant in surface waters. Food includes crustaceans (e.g. euphausiids), fishes, and squids. Fished primarily north of Cape Hatteras. Caught principally by otter trawls and inshore trapnets. Catches occur in the northern Gulf of Mexico, Yucatán, Colombia and Venezuela. Reliable statistics are unavailable because catch is not separated by species.

Distribution: Western Atlantic continental shelf and upper slope waters from Nova Scotia to Venezuela, including the Gulf of Mexico and the Caribbean Sea. Not occurring around islands, except as rare strays at islands close to continental shelf or slope.

Remarks: Utilized as food and for bait. Medical research conducted on giant nerve fibres.



Loligo plei Blainville, 1823

OJO

Frequent synonyms / misidentifications: *Doryteuthis plei* (Blainville, 1823) / *Loligo pealeii* LeSueur, 1821.

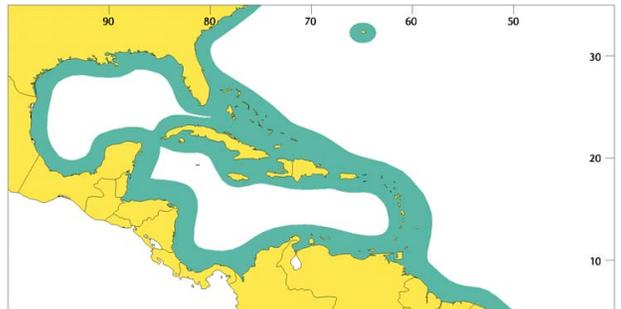
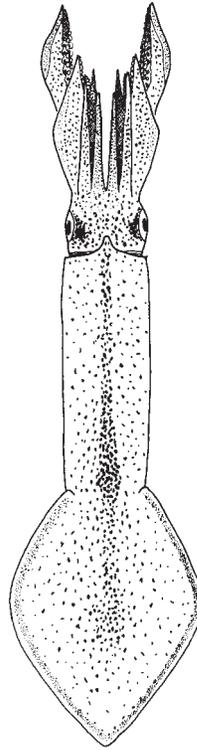
FAO names: **En** - Slender inshore squid; **Fr** - Calmar flèche; **Sp** - Calamar flecha.

Diagnostic characters: Mantle long, slender, cylindrical, the posterior end acutely pointed; fins rhomboid, their sides fairly straight. **Left ventral (fourth) arm hectocotylized in mature males by a modification of distal 1/2 to 1/4 of arm that extends to arm tip;** 1/2 to 3/4 of suckers (42 to 82) in dorsal row much smaller than half the size of their ventral counterparts; modified (small) suckers on small, narrow, triangular pedicels. **Gladius slender, feather-shaped; ratio of greatest width of vane of gladius to greatest width of rachis 1.5 to 2.4; edge of vane straight (often slightly curved in females), thick, and ribbed or rod-like (especially mature males).** Suckers on ventral buccal lappets. Eye not unusually large; diameter of externally visible eyeball 14 to 19% mantle length, diameter of dissected lens 2 to 7% mantle length. **Colour:** dark reddish brown dorsally, darkest along dorsal midline of mantle; lighter, more yellowish background colour ventrally with reddish brown overlay; often with reddish brown longitudinal stripes on anterior ventrolateral mantle of males.

Size: Males to 35 cm, females to 22 cm mantle length.

Habitat, biology, and fisheries: Occurs from the surface to 366 m depth, mostly shallower than 200 m; apparently concentrates near the bottom during the day and disperses into the water column at night, when it can be dipnetted at the surface. Matures over a broad range of sizes depending on season and locality: males 3.8 to 35 cm, females 4.2 to 20.3 cm mantle length, whereas they can remain immature up to 14 cm (males) and 9 cm (females); immature and mature specimens across a broad range of sizes maybe caught in the same net-haul. Gravid specimens are found the year round; all may not die after spawning. Eggs are laid in gelatinous, finger-like strands attached together and cemented to a hard substrate (rock, coral, shell) in large masses ("sea mops"). Feeds on crustaceans, small fishes, and probably squids. Comprises most of cephalopod fishery in Venezuela (Arocha, 1989). A small fishery occurs in Yucatán, and probably *Loligo plei* is caught throughout its range of occurrence, but separate statistics are not kept where it may co-occur with *Loligo pealeii*. In the Bahamian and Caribbean Islands undoubtedly it is the most frequently captured commercial species of Loliginidae. Principle gear includes otter trawls and dipnets. Used as food and bait.

Distribution: Western Atlantic, Gulf of Mexico, Caribbean Sea in continental shelf and upper slope waters from Cape Hatteras (36°N), (very rarely to southern New England) to Fortaleza, Brazil (4°S); and Bermuda, Bahamian and Caribbean Islands.

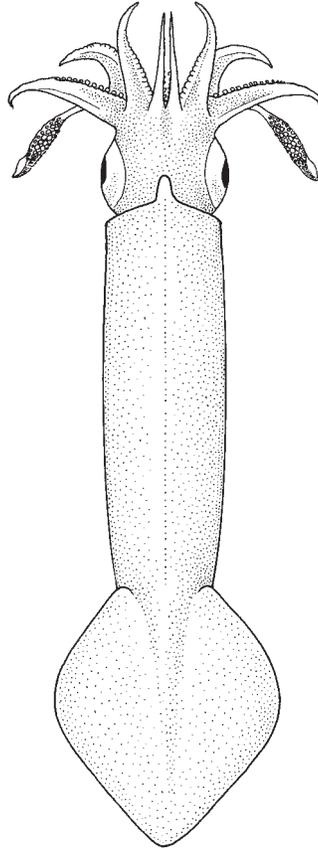


Loligo roperi Cohen, 1976

OJR

Frequent synonyms / misidentifications: None / *Loligo plei* Blainville, 1823.

FAO names: **En** - Island inshore squid; **Fr** - Calmar créole; **Sp** - Calamar insular.



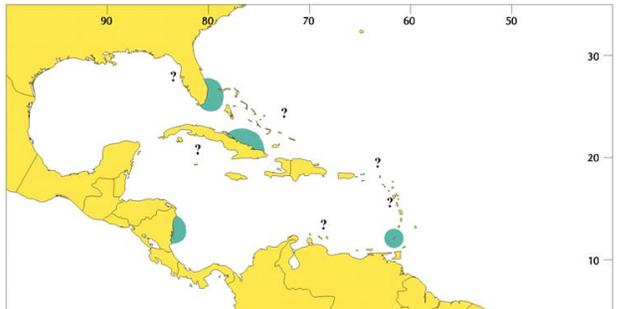
Diagnostic characters: A small species with long, slender mantle; fin length 33 to 39% mantle length. Tentacles short, 14 to 21% mantle length, clubs with less than 25 transverse rows of suckers. **Left ventral arm hectocotylized for more than 50% of arm length**; modification extends to arm tip; 80% of suckers in dorsal series modified to minute size, set on broadly triangular bases.

Size: To 7.2 cm mantle length.

Habitat, biology, and fisheries: Apparently associated with islands. Maturity is attained at 4.3 cm mantle length.

Distribution: Caribbean Sea; Gulf of Mexico.

Remarks: This small loliginid is very seldom reported, but because it is easily confused with *Loligo plei* may be more widespread than current records indicate.



Lolliguncula brevis (Blainville, 1823)

IUB

Frequent synonyms / misidentifications: None / *Loligo* spp.

FAO names: **En** - Western Atlantic brief squid; **Fr** - Calmar doigtier commun; **Sp** - Calamar dedal.

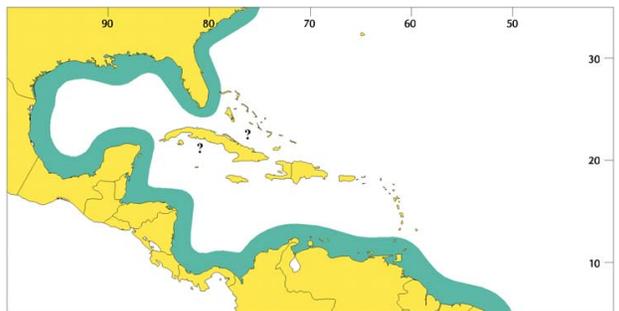
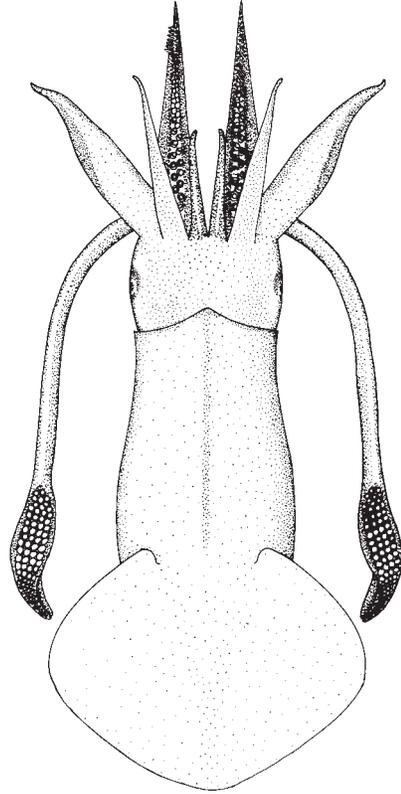
Diagnostic characters: Mantle stout, bluntly rounded posteriorly, widest in midportion. **Fins short (50 to 55 % mantle length), broad, wider than long (fin width 75% mantle length), very rounded.** Modified portion of hectocotylized (left ventral) arm occupies distal third of arm and extends to arm tip; about 24 suckers in dorsal row modified, the proximal 1 to 3 greatly reduced in diameter, the remaining pedicels distally greatly enlarged into long, slightly flattened papillae that gradually diminish in size distally; no large, puffy, glandular enlargement of basal area of arm between sucker rows.

Colour: dark reddish brown to brownish yellow with chromatophores over nearly entire animal; chromatophores most dense on ventral surface of mantle and head, except in very large specimens, in which the opposite occurs.

Size: Females 11 cm; males 8.5 cm mantle length.

Habitat, biology, and fisheries: Entirely coastal and generally limited to very shallow water of less than 18 m depth. Occurs in bays and estuaries and is associated with low salinity water, although it is not excluded from coastal salinities; normal salinity range 17 to 30‰. Temperatures of captures range from 15° to 32°C. Small eggs are laid in elongate, terminally rounded, gelatinous capsules attached to the bottom in shallow waters. Food consists of small crustaceans and fishes. Currently no specific commercial fisheries exists in spite of the great abundance of this species in several areas. Apparently a high potential for a sustained fishery exists in the northern and eastern Gulf of Mexico. Caught sometimes in large quantities as bycatch in otter-trawl fisheries for shrimps and fishes.

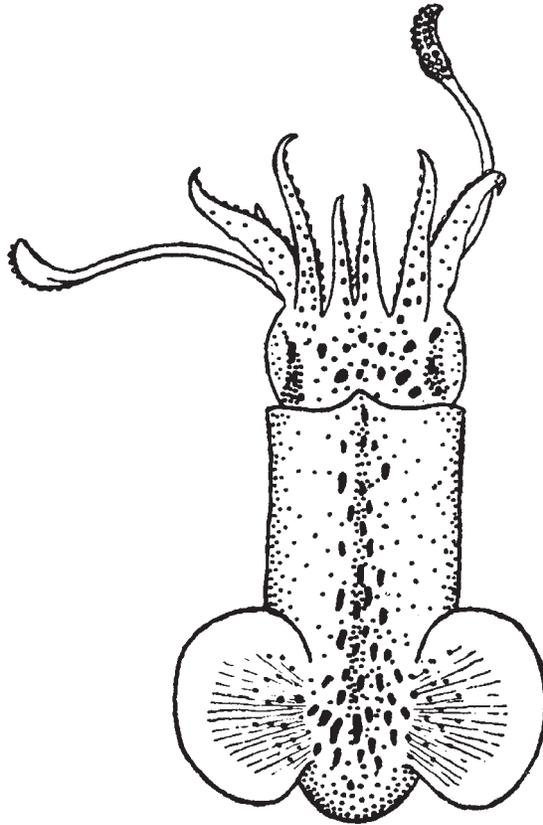
Distribution: Western Atlantic from New Jersey and Delaware Bay, southward to Rio de Janeiro, Brazil; Gulf of Mexico, Caribbean mainland and coast of northeastern South America (about 40°N to 23°S); excluded from the Bahamas and Caribbean Islands except Cuba and Curaçao.



Pickfordiateuthis pulchella Voss, 1953

Frequent synonyms / misidentifications: None / None.

FAO names: En - Grass squid.



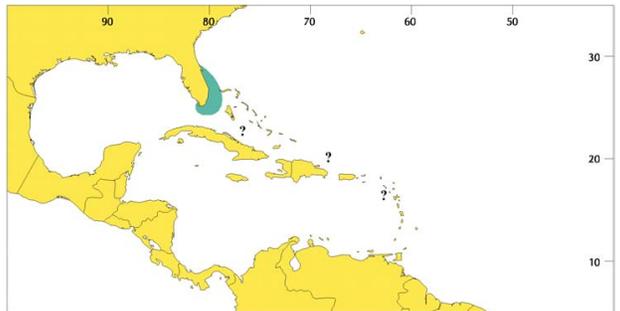
Diagnostic characters: Mantle short, bluntly pointed posteriorly. **Fins large, elliptical to round, not connected posteriorly; sepiolid-like. Manus of tentacular clubs with suckers in 2 series.** Buccal membrane lacking suckers. **Colour:** not distinctive.

Size: To 22 mm mantle length.

Habitat, biology, and fisheries: Shallow tropical waters on patch reefs and seagrass beds.

Distribution: Tropical western Atlantic Ocean off Florida.

Remarks: *Pickfordiateuthis pulchella* was considered to comprise the monospecific family Pickfordiateuthidae until Brakoniecki (1996) described a second species from the eastern Pacific and sub-merged the family into the older family of myopsid squids, Loliginidae. At least 2 other species of *Pickfordiateuthis* are known from the western Central Atlantic. One was designated by Brakoniecki (1996) as *Pickfordiateuthis* species A. A second, more elongate species *Pickfordiateuthis bayeri*, was recently described by Roper and Vecchione. It seems likely that other species will be discovered in the vicinity of the Caribbean Islands.



Sepioteuthis sepioidea (Blainville, 1823)

UHS

Frequent synonyms / misidentifications: None / *Sepia* sp.

FAO names: **En** - Caribbean reef squid; **Fr** - Calmar ris; **Sp** - Calamar de arrecife.

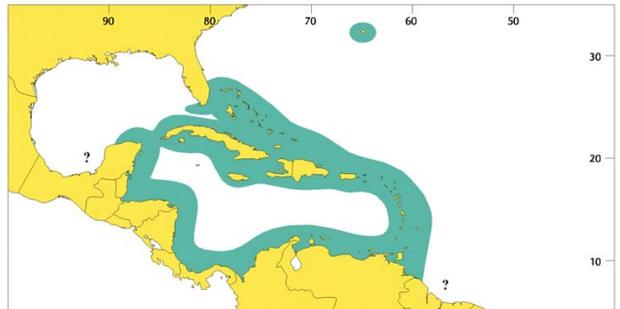
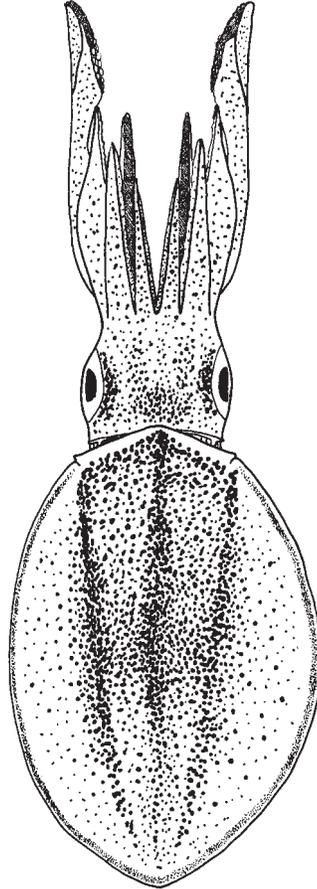
Diagnostic characters: Mantle broad, relatively stout, tapered to a blunt posterior end, widest at anterior opening. **Fins occupy nearly entire length of mantle (90% in adults, 75% in juveniles)** and are elliptical to weakly rhomboidal, their width about 65% mantle length. **Buccal lappets without suckers;** modified portion of hectocotylized (left ventral) arm occupies distal fourth of arm length and is characterized by a sudden reduction in size of 1 or 2 pairs of suckers, the complete absence of suckers in both rows from the remaining distal portion of the arm, and the increase in size of the pedicels into large, fleshy papillae. **Colour:** quite varied in life from translucent with iridescent sheen, through greenish brown to deep reddish brown, depending on location and situation; may show "eye-spots", bands, or stripes on mantle, these sometimes outlined in white.

Size: To 20 cm mantle length.

Habitat, biology, and fisheries: A truly tropical species that is limited in distribution by the distribution of coral reefs (primarily) and grass flats (*Thalassia testudinum*). It occurs at depths of 0 to 20 m, mostly 3 to 7 m. As shallow coral reefs are absent from most of the Gulf of Mexico, *Sepia sepioidea* also appears to be excluded from the Gulf.

Occurs in schools of 4 to 50 individuals of about equal size that cruise around the reefs, about the reef flats, or through/in grass beds behind the reefs. Specimens are mature at about 9 cm mantle length (hectocotylus visible on males at 3 cm mantle length). Eggs are very yolky and large, about 5 to 6 mm long; only 3 or 4 eggs are laid in each large, gelatinous capsule, several of which are attached together at their bases; these small clusters are laid under rocks or in conch shells (*Strombus gigas*); breeding apparently occurs year round. Feeds on fishes and shrimps. Presently not fished commercially but other species of *Sepioteuthis* in the Indo Pacific are fished extensively and are of excellent quality for eating.

Distribution: Tropical western Atlantic from Cape Canaveral, Florida, Bermuda and the Bahamas, Florida Keys, Caribbean Islands, Campeche, and Yucatán to Venezuela.

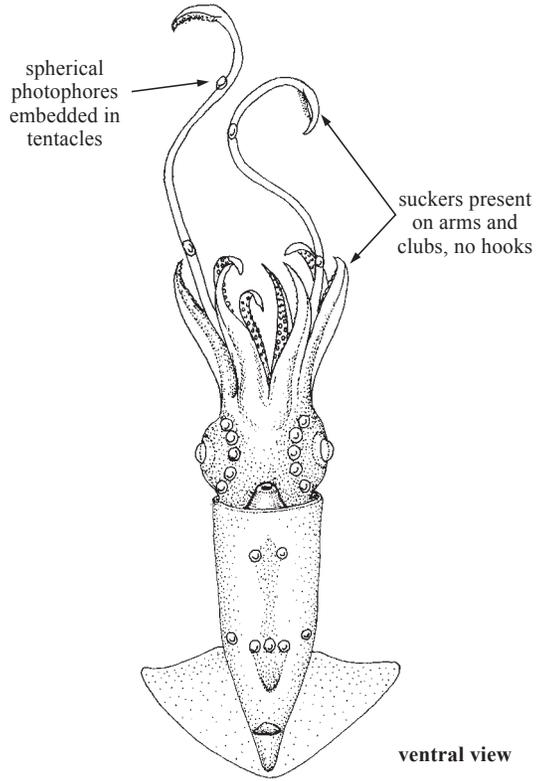


LYCOTEUTHIDAE

Lycoteuthids

Diagnostic characters: Mostly small, muscular squids. Suckers present on arms and clubs, hooks absent. **Four or 5 oval photophores on ventral surface of eyeball.** **Visceral photophores: anal, branchial, and postero-abdominal organs.** **Spherical photophores embedded in tentacles.** **Colour:** not distinctive.

Habitat, biology, and fisheries: Occupying mesopelagic depths during the day and migrating into near-surface waters at night. They are tropical and subtropical in distribution but are not known from the North Pacific. They possess a large variety of luminous organs. Strong sexual dimorphism in general morphology occurs in some species.



Similar families occurring in the area

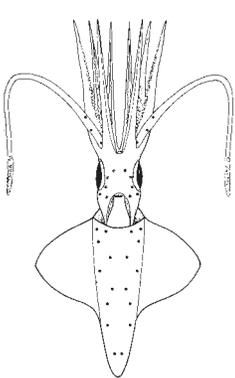
Ancistrocheiridae: lack photophores on the eyeballs and have large photophores on the ventral surfaces of the head and mantle.

Octopoteuthidae: lack tentacles.

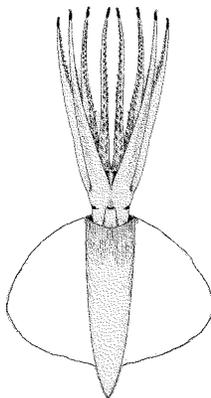
Pyroteuthidae: have hooks on arms.

Onychoteuthidae: have hooks on tentacular clubs.

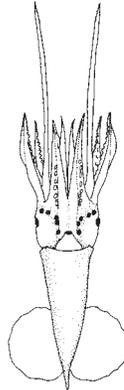
Enoploteuthidae: have hooks on arms; have photophores on ventral surfaces of head and mantle.



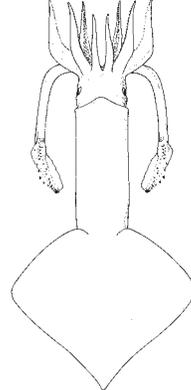
Ancistrocheiridae



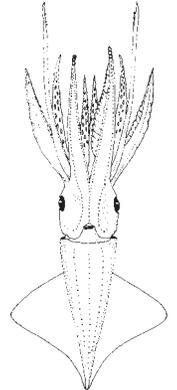
Octopoteuthidae



Pyroteuthidae



Onychoteuthidae



Enoploteuthidae

Key to the genera of Lycoteuthidae occurring in the area

- 1a.** Terminal posterior photophore located between fins *Selenoteuthis*
- 1b.** No terminal posterior photophore located between fins *Lycoteuthis*

List of species occurring in the area

- Lycoteuthis lorigera* (Steenstrup, 1875).
- Lycoteuthis springeri* (Voss, 1956).
- Selenoteuthis scintillans* Voss, 1959.

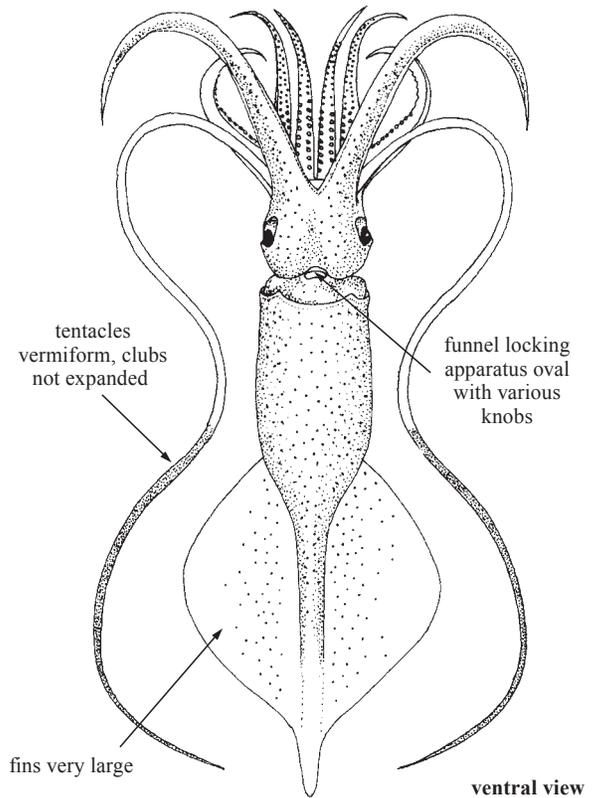
MASTIGOTEUTHIDAE

Whiplash squid

Diagnostic characters: Ventral arms elongate. Tentacles vermiform; clubs not expanded or slightly expanded; moderate in length to very elongate with minute suckers in many series. Funnel locking apparatus oval with various knobs (tragus, antitragus) affecting the shape of the depression in the funnel component in different species. Fins very large and positioned mostly posterior to the muscular part of the mantle. **Colour:** reddish; much of the red pigment is not in chromatophore organs but dispersed in other integumental cells.

Habitat, biology, and fisheries: Deep water pelagic or benthopelagic squids that are morphologically distinctive. Several species observed from submersibles were drifting just above the ocean floor and dangling tentacles very close to the bottom, presumably to capture copepods and other small plankters of the epibenthic zooplankton (Roper and Vecchione, 1997; Vecchione et al., in press).

Remarks: These squids are weakly muscled and have elongate fourth arms. Tentacles have a characteristic appearance but are often lost in capture. They are elongate and whip-like with tentacular clubs that are covered with thousands of extremely small suckers that, depending on the species, may be invisible to the naked eye.



Similar families occurring in the area

Chiroteuthidae: have elongate necks, and expanded tentacular clubs, usually with broad protective membranes, on which the suckers are not in more than 4 series; their fins are not as large as those of mastigoteuthids and they lack the red background pigmentation found in the skin of mastigoteuthids.

List of species occurring in the area

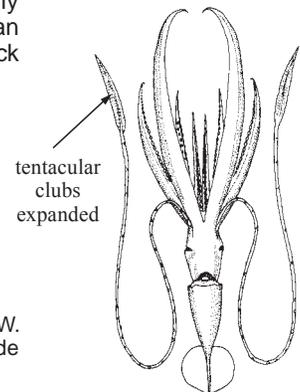
Mastigoteuthis agassizi Verrill, 1881.

Mastigoteuthis hjorti Chun, 1913.

Mastigoteuthis magna Joubin, 1913.

Reference

Vecchione, M., R.E. Young, A. Guerra, D.J.Lindsay, D.A. Clague, J.M. Bernhard, W.W. Sager, A.F. Gonzalez, F.J. Rocha, and M. Segonzac. 2001. Worldwide Observations of remarkable deep-sea squids. *Science*, 294:2505-2506.



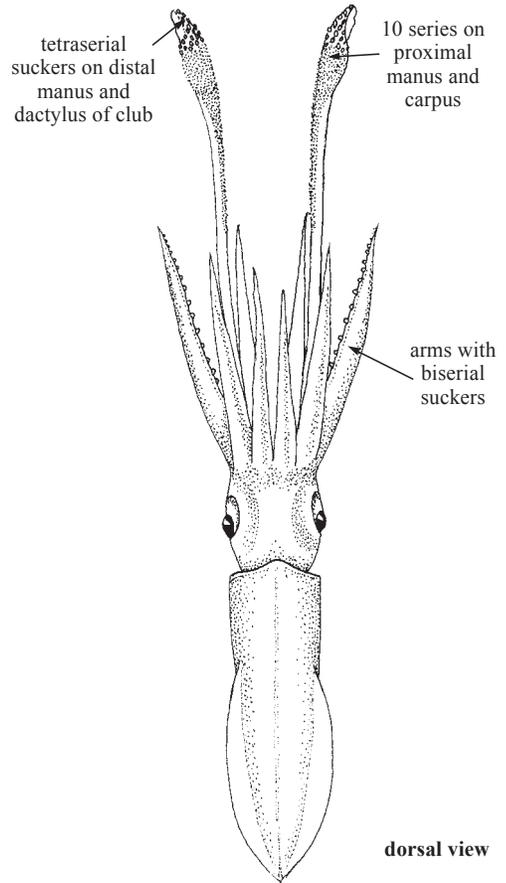
Chiroteuthidae

NEOTEUTHIDAE

New squid

Diagnostic characters: Weakly muscled species of small to moderate size (up to 27 cm mantle length). **Tetraserial suckers on distal manus and dactylus of tentacular club, greater than 10 series on the proximal manus and carpus;** carpal knobs in a single row or absent. Arms with biserial suckers. **Anterior fin lobes absent; posterior fin lobes free** (i.e., posterior edge of fin convex); fins attach laterally on mantle muscle. Buccal connectives attach to dorsal margins of ventral arms. Photophores absent. **Colour:** not distinctive.

Habitat, biology, and fisheries: Little is known about the biology of this group.



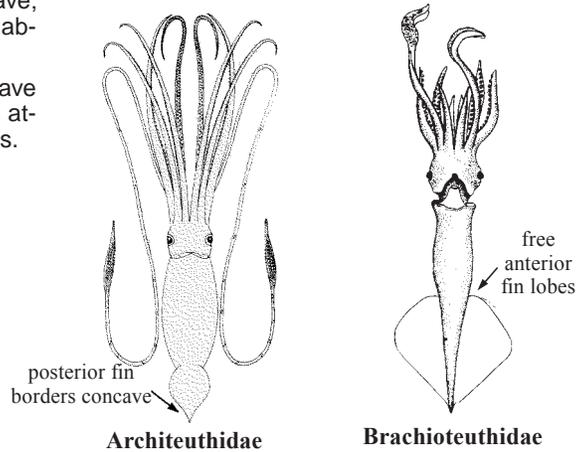
Similar families occurring in the area

Architeuthidae: posterior borders of fins are concave; carpal knobs in a cluster rather than a single row, or absent.

Brachyteuthidae: free anterior fin lobes and concave posterior fin borders; buccal membrane connectives attach to ventral, rather than dorsal, sides of ventral arms.

List of species occurring in the area

Neoteuthis thielei Naef, 1921.



OCTOPOTEUTHIDAE

Eight-armed squids

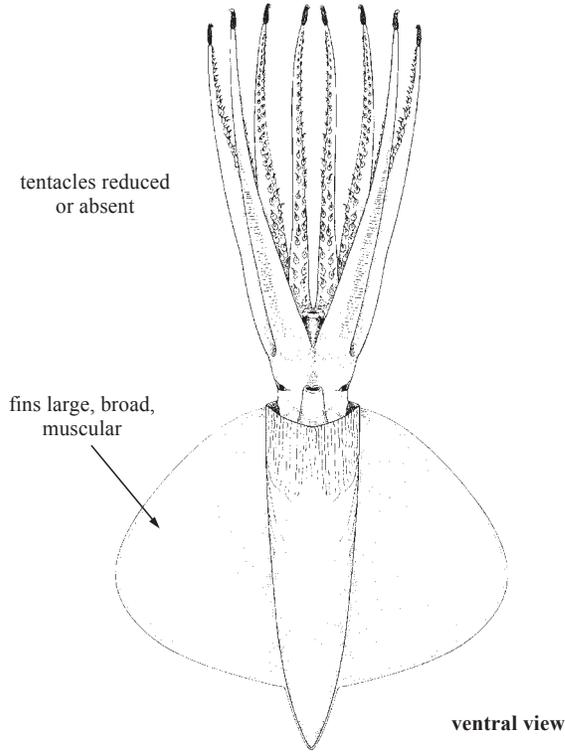
Diagnostic characters: Some reach a large size (160 cm mantle length). The mantle is broad and weakly muscled. **Tentacles reduced or absent in subadults and absent in adults. Arms with hooks in 2 series**, replaced by suckers near arm tips. **Fins large, broad, muscular; fused to one another along dorsal mantle midline; length nearly equals mantle length.** Some or all arms terminate in photophores. Mature males lack a hectocotylus but have a large penis that can extend well beyond the mantle opening.

Habitat, biology, and fisheries: Large muscular fins apparently provide most of the force for swimming (Vecchione et al., in press).

Remarks: Arm tips of *Octopoteuthis* are frequently lost during capture.

Similar families occurring in the area

Other families of large-finned squids (Ancistrocheiridae, Cycloteuthidae, Magnapinnidae, Thysanoteuthidae) have tentacles. Lepidoteuthids lack tentacles but have scales.



Key to the genera of Octopoteuthidae occurring in the area

- 1a. Dorsolateral arm tips with very large oval photophores; remaining arm tips without large photophores (Fig. 1) *Taningia*
- 1b. All arm tips with slender photophores; dorsolateral arm-tip photophores not particularly enlarged *Octopoteuthis*

List of species occurring in the area

- Octopoteuthis danae* Joubin, 1931.
- Octopoteuthis megaptera* (Verrill, 1885).
- Octopoteuthis sicula* Ruppell, 1844.
- Taningia danae* Joubin, 1931.

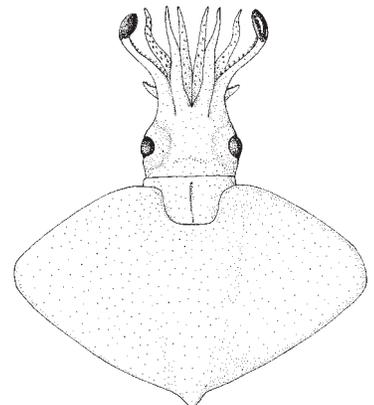


Fig. 1 *Taningia danae*