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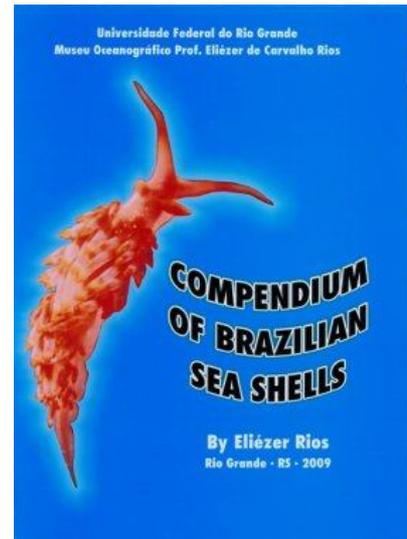
## CLASS CEPHALOPODA

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The cephalopods chapter in the first edition of "Seashells of Brazil" (Rios, 1985) by Haimovici (1985) included 26 species mostly based in bibliography (Voss, 1964, Palacio 1977, Roper et al., 1984) and a survey by Haimovici and Andriguetto (1986). In the second edition of Rios's "Seashells of Brazil, 2<sup>nd</sup> Edition" (Rios, 1994), by Haimovici, Perez and Santos (1994), the number of species increased to 42, due to additional information on the coastal cephalopod fauna of the continental shelf and upper slope of the Southern region and revision of museum collections (Haimovici and Perez, 1991a, 1991b, Haimovici, Perez e Costa 1990, Perez e Haimovici, 1991, 1993). This third edition includes 86 species. Most of the new records were from a survey on the upper and middle slope of Central Brazil (Haimovici et al 2007), the identification of cephalopods from stomach contents of a large number of marine mammals, fishes, seabirds and other cephalopods from Southern Brazil (Santos e Haimovici 2002) and Northeastern Brazil (Vaske, 2005), paralarvae collected in plankton surveys in Northeastern Brazil (Haimovici, Piatkowski and Santos, 2002), deep sea commercial fishing (Perez, Martins and Santos 2004), bottom and midwater surveys in Southern Brazil (Haimovici Santos and Fischer. em prep) shallow water octopods from the Oceanic islands along Northeastern Brazil (Leite and Haimovici, 2006). Two species species *Paraeledone charcoti* (Joubin, 1905) and *Paraeledone turqueti* Joubin, 1905), cited for Brazil in the former editions of Seashells of Brazil were excluded from the present list as the location of the stations in which they were collected was wrongly stated (Scarabino 2003).

Thanks are due to Acacio Tomás, Adriana C. Braga, Fabrizio Scarabino, Jose Angel Alvarez Perez, Paulo A.S. Costa, Paulo Mafalda Jr and Tatiana Neves Leite, for their contribution with material and information for this third edition and to Marcio A. Freire for his laboratorial support.

**General remarks on Cephalopods:** Symmetrical mollusks with well developed head that contains a circumoral



(surrounding the mouth) crown of appendages that bear suckers and/or hooks (except in *Nautilus*). Mouth has chitinous beak-like jaws and chitinous tongue-like radula. Shell variously modified. One pair of gills (two in *Nautilus*), central nervous system highly developed specially the large eyes. Cephalopods are soft-bodied animals, a funnel or siphon expels water from the mantle cavity providing propulsion and expelling waste products. Most forms have chromatophores and iridocytes and accommodate to rapid behavioral with changes in colors patterns.

The classification from orders to genera follow Roper and Sweeney (1998) and its actualization by Vecchione (2001 ver site), except when explicitly mentioned.

Descriptions of most of the cited species and on the biology, ecology, behaviour and fisheries of cephalopods can be found in Roper et al. (1984), Guerra (1992); Sweeney et al (1992); Okutami (1995), Nesis (1997; 1999), Voss et al., (1998), Hanlon and Messenger (1996); O'Shea (1999); Norman (2000), Nixon and Young (2003) and Boyle and Rodhouse (2005), .

Descriptions were mainly based the most evident morphological characteristic as mantle shape and consistence, arms and tentacles size, number of sucker and hooks series, fins shape, skin pattern, coloration in living and preserved specimens, etc. When available, a reference to the original descriptions or redescrptions was included. Size was expressed either as dorsal mantle length (ML) or as total length (TL). In the species with the mantle fused to the head the mantle length is measured from the posterior end to to the eyes.

#### **Subclass COLEOIDEA BATHER, 1888**

Includes all living cephalopods excepting the *Nautilus* (Subclass NAUTILOIDEA). Shell internal, enveloped in tissue, calcareous, chitinous or cartilaginous. One pair of gills. Funnel tube like. Eight to ten circumoral appendages.

**Order SPIRULIDA** Stolley, 1919

**Family SPIRULIDAE** Owen, 1836  
(one species)

1691 - *Spirula spirula* (Linnaeus, 1758)

Short and cylindrical body, surrounding completely a chambered calcareous shell coiled in a flat spiral usually less than 2.5 cm in diameter with up 40 chambers in adults. Arms short, connected by a web, long retractile tentacles. Mantle thick not fused to the head, fins small kidney-shaped and a large photophore between the fins at the end of the body. ML under 4.5 cm.

**Habitat and distribution:** Pelagic on continental and insular slopes and adjacent oceanic waters in all oceans. Shells appear on beaches along all Brazilian coast. Specimens caught with trawls at 600 to 1700 m along Central Brazil. Semidigested specimens were found in the stomach contents of large pelagic fishes caught along Northeastern Brazil (Palacio, 1977, Perez and Haimovici, 1991b; Haimovici et al. 2007, Vaske, 2005).

**Order SEPIOLIDA** Fioroni, 1981

Shell chitinous or absent. Eight arms and two tentacles retractile in pockets, suckers with chitinous rings; posterior fin lobes free, not connected at midline; eyes covered with a transparent membrane.

**Family SEPIOLIDAE** Leach, 1817

Small sized animals, never mantle length over 10 cm, mantle very short, fins lateral and semicircular, not connected posteriorly, bob-tailed. Eight short arms with 2 to 4 rows of suckers; eyes covered with corneal membranes; internal pen slender and thin or absent.

**Subfamily HETEROTEUTHINAE** Appellöf, 1898

Anterior ventral edge of mantle extended covering funnel from below. Fins large, 60-100% of mantle length. Gladius absent.



1692 - *Heteroteuthis dispar* (Ruppel, 1844) Plate 108 (*sin. H. atlantis* Voss, 1955)

Globular muscular mantle not fused with head on dorsal side. Ventral projections of the mantle reaches the level of arm bases. Fins attached to posterior half of mantle, not reaching its anterior edge. Relatively long arms with two rows of suckeres, 1st to 3rd arms conected by deep membranes. Long retractile wip-like tentacles with short club with 8 rows of minute suckers. A large bilobulates luminous organ on ventral side of ink sac. Luminous mucus can be ejected by the funnel by muscular contraction so that the animal can "shoot fire". Living animals with white fin bases and iridicent metallic color on the head and mante. Small species, ML under 4 cm.

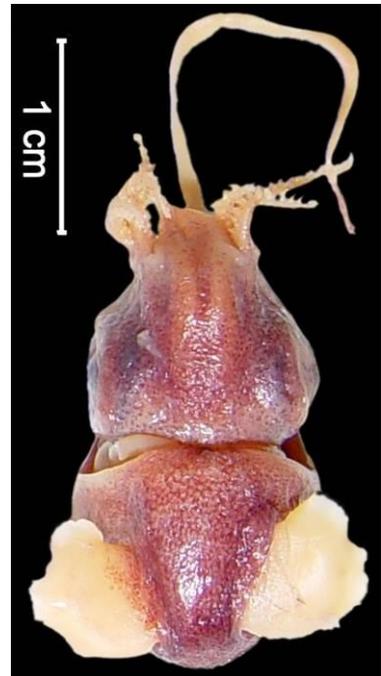
**Habitat and distribution:** Lower epipelagic, mesopelagic species in the tropical and subtropical Atlantic and Mediterranean. In Brazil it was recorded from Bahia to Rio Grande do Sul (Nesis, 1987; Haimovici and Perez, 1991b; Perez and Haimovici, 1993; Haimovici et al., 2007).



1693 - *Nectoteuthis pourtalesi* Verrill, 1883

Globular muscular mantle not fused with head on dorsal side. Anterior edge of the mantle reaches the level of arm bases. Fins large, attached to the middle of the mantle and extend beyond the anterior edge of the mantle. Luminous organ on the ventral part of the ink sac. Suckers in the distal part of the arms with long thick stalks, thicker than the suckers themselves. Tentacles with narrow club and small suckers. Small sized, recorded specimens were under 3 cm.

**Habitat and distribution:** benthic species recorded in the Western Atlantic from Florida to Bahia, in Central Brazil (Nesis, 1987; Arocha, 1991, Okutami, 1995, Haimovici et al. 2007).



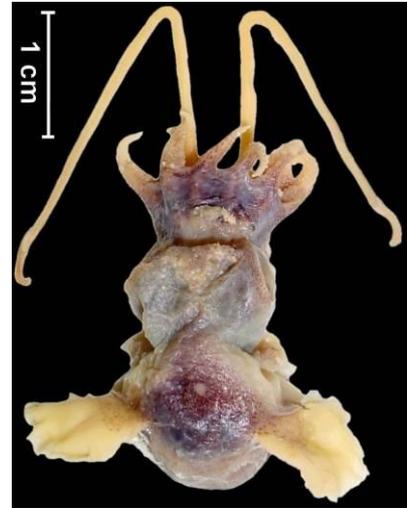
#### Subfamily SEPIOLINAE Appellöf, 1898

Anterior edge of mantle fused with head.

1694 - *Rondeletiola minor* (Naef, 1912)

Mantle short, rounded and fused to the head dorsally. Short kidney-like fins, much shorter than the mantle. The 1st and 2nd arms not connected by a membrane, 3rd arms bend inwards toward the mouth in males, tentacles with 16 series of suckers in the club. Large conspicuous photophore in the anterior part of the ink sac. A very small species with the ventral anterior part not covering the funnel. Small species, ML under 2,5 cm.

**Habitat and distribution:** usually benthic on inhabiting on the upper slope, reproductive adult may raise to the near surface layer. Formerly known from the Mediterranean Sea and tropical and subtropical Eastern Atlantic Ocean (Nesis, 1987, 1999). Recently a single specimen was found in Southern Brazil (Haimovici et al. 2008).



**Subfamily ROSSIINAE** Appellöf, 1898

Anterior edge of mantle not fused with head on the back and not extended ventrally. Gladius present.

1695 - *Rossia* sp.

Mantle almost as wide as long with large not fused to the head. Semicircular (rounded) fins longer than wide and not reaching the anterior edge of the mantle. Reduced chitinous gladius. Eye covered by a membrane. Arms with 2 rows of globose suckers.

Tentacular club not widened nor bent (curved) with around 10 transversal rows of small rounded suckers. Dorsal mantle gray in living animals. ML under 10 cm. Probably *R. bullisi* as described by Voss (1956)

**Habitat and distribution :** benthic, upper and mid slope from described from Florida. Collected from Southern Brazil by Perez et al., 2004 (identified as *R. tortugaensis*) and Central Brazil (Haimovici et al., 2008).



1696 - *Rossia tortugaensis* Voss, 1956

Mantle almost as wide as long not fused to the head. Large rounded fins not reaching the anterior edge of the mantle. Reduced chitinous gladius. Eye covered by a membrane. ink sac present without luminous organs. Arms with 2 rows of elongated barrel shaped-suckers. Both dorsal arms hectocotylized modified with glandular crest extends over entire arm length. Tentacular club not widened nor bent (curved) with around 10 transversal rows of small rounded suckers. Dorsal mantle redish



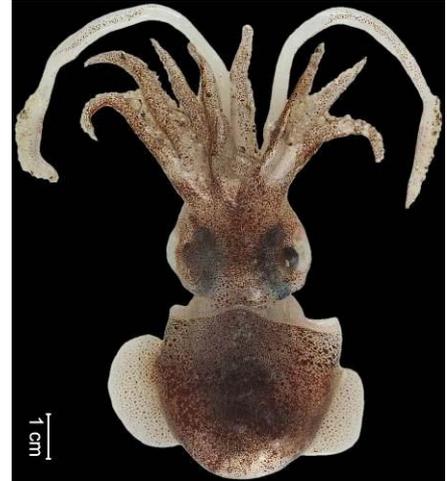
brown with a despigmented strip along anterior border.  
ML under 10 cm.

**Habitat and distribution:** benthic, upper and mid slope from Florida to Central Brazil (Voss, 1956; Okutami, 1995; Haimovici et al. 2007).

1697 - *Semirossia tenera* (Verrill, 1880)

Mantle almost as wide as long not fused to the head with large rounded fins. Reduced chitinous gladius. Eye covered by a membrane. Arms moderately long, with two rows of globose suckers much enlarged in the midsection. First left arm hectocotylized. Tentacular club expanded with a swimming keel and 6 to 7 rows of small suckers, the dorsal twice as large as the ventral ones. Pinkish to maroon colored in life. ML to 5 cm.

**Habitat and distribution:** Benthic on muddy bottoms of continental shelf and upper slope Northern Western Atlantic from Nova Scotia to Río Negro, Argentina, common in Rio Grande do Sul from 60 to 160 m (Roper et al., 1984; Haimovici and Andriquetto, 1986; Haimovici and Perez, 1991a).



### Order TEUTHIDA NAEF, 1916

Body elongated or saccularly elongated with terminal or subterminal paired fins. Internal simple feather-like chitinous shell called gladius. Eight sessile arms and two contractile tentacles; stalked or sessile suckers with chitinous rings and/or hooks.

### Suborder MYOPSINA ORBIGNY, 1841

Eye covered by a transparent corneal membrane. Suckers on buccal lappets present. Never hooks on tentacles clubs. Inshore, neritic squids, some estuarine forms.

### Family LOLIGINIDAE Lesueur, 1821

Variable shape, fins terminal or marginal but always united posteriorly. Funnel locking apparatus a simple strait groove. Two rows of suckers on arms and four rows on tentacular clubs.

1698 - *Loligo plei* (Blainville, 1823)

Mantle long and slender. Fins rhomboidal with sides fairly straight. Gladius with large raquis and narrow vane. Color dark reddish, brown dorsally, specially along the mantle dorsal midline. In adult males yellow longitudinal laterat stripes and cutaneous ridge along the ventral midline. Mantle length of males to 35 cm, females to 22 cm. (*syn. Doryteuthis plei*)

**Habitat and distribution:** New Jersey to Rio Grande do Sul, exceptionally to Mar del Plata in Argentina. In Brazil, fished from Rio de Janeiro to Santa Catarina in coastal artisanal fisheries and by industrial trawlers. Frequent as by-catch in shrimp trawling fisheries (Haimovici e Perez, 1991a, Costa and Haimovici, 1990, Perez et al., 1999, 2002).



1699 - *Loligo sanpaulensis* Brakonieccki, 1984

Mantle moderately long, cylindrical, with posterior end pointed; rhomboid fins, usually more than half the mantle length. Big eyes. Gladius with narrow raquis and wide vane. Reddish brown darker dorsally and less pigmented ventrally. Maximum mantle size around 20 cm. *L. brasiliensis* Blainville, 1823, is a synonym. A full description in Brakonieccki (1984).

**Habitat and distribution:** from Espirito Santo, Brazil, to Río Negro, Argentina. Common in coastal waters up to 100 m. (Juanicó, 1983; Haimovici and Andriquetto, 1986; Costa and Haimovici, 1990; Costa and Fernandes 1993; Andriquetto and Haimovici. 1991, 1996; Santos and Haimovici, 1998).



1700 - *Loligo surinamensis* Voss, 1974 Plate 108

Mantle moderately broad. Eyes not large. Fins rhomboidal, about 50-55 % of mantle length. More than 15 suckers on all buccal lappets, usually 40-60. Tentacular club expanded, with 38 to 40 transverse rows of suckers. Arms relatively long. Left arm IV of male hectocotylized. A full description in Voss (1974). ML to 20 cm.

**Habitat and distribution:** Neritic species from the Southern Caribbean Sea to the mouth of the Amazonas River. Specimens collected from Pará by G. Damasceno.



1701 - *Lolliguncula brevis* (Blainville, 1823) Plate 108

Mantle stout, bluntly, rounded posteriorly, widest in midpoint. Fins broad, wider than long, ellipsoid in shape. Small oval eyes. Arms short, unequal in size, fourth arm very short, long tentacles. Left ventral arm hectocotylized. Lightly colored mantle. ML to 12 cm for females and 8 cm for males. Tolerates low salinities and temperatures between 15 and 32 °C. A redescription in Simone (1997).

**Habitat and distribution:** Neritic coast species restricted to shallow waters. Specimens collected in the vicinity of estuaries in Brazil from Amapa to Santa Catarina (Palacio, 1977; Perez and Haimovici, 1991b)



1702 - *Sepioteuthis sepioidea* (Blainville, 1823)

Mantle broad, widest at the anterior opening, blunt posterior end. Fins occupy almost the length, elliptical to subrhomboidal, width about 65% of the mantle length. Purplish brown strongly pigmented dorsally. ML to around 20 cm.

**Habitat and distribution:** Tropical shallow water species associated with coral reefs and *Thalassia* grass flats. Bermuda, Florida, W. Indies, to Southeastern Brazil. Cited for Rio de Janeiro (Voss, 1974b; Begossi e Duarte, 1988; Haimovici et al. 1989, Haimovici et al., 2007).



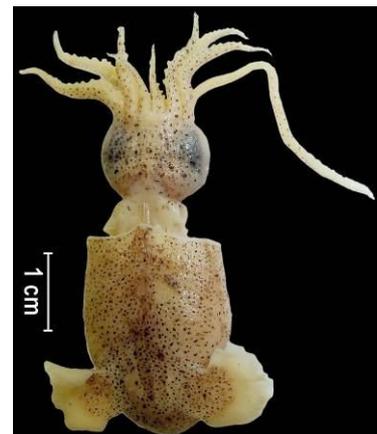
**Family PICKFORDIATEUTHIDAE** Voss, 1953

Small squids, mantle short resampling sepiolids. The fins are large, longer than wide, kidney-shaped, attached dorso-laterally in half of their length, posterior border convex. Two rows of suckers on arms and two rows in the manus of the tentacular clubs.

1703 - *Pickfordiateuthis pulchella* Voss, 1953 Plate 108

Mantle short and cylindrical. Head almost as wide as the mantle. Prominent eyes. Short and stout arms. Large bright red, brown and yellow chromatophores on the mantle, head and limbs. Fins colorless. ML under 3 cm. Eggs large and benthic.

**Habitat and distribution:** Shallow waters, grass flats from Florida to São Paulo. In Brazil recorded for Rio Grande do Norte, Rio de Janeiro and São Paulo (Haimovici et al, 1989; Perez and Haimovici, 1991, Leite et. al., 2005).



## SUBORDER OEGOPSIDA ORBIGNY, 1845

Absence of corneal membrane over the eye. Species of this suborder inhabit open sea from surface to great depth. Group very diverse in families and exhibits a wide variety of forms.

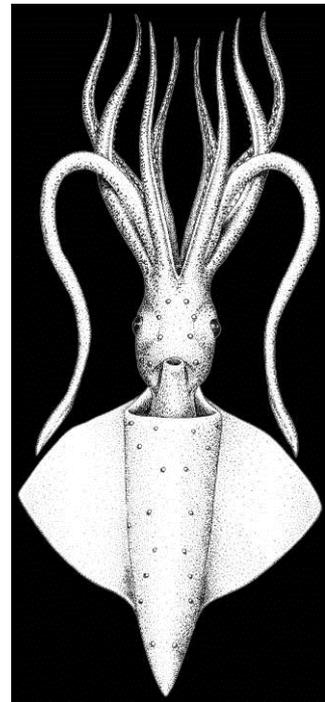
### Familia ANCISTROCHEIRIDAE Pfeffer, 1912

(one genus, one species)

1704 - *Ancistrocheirus lesueuri* (Orbigny, 1942)

Mantle conical, long and broad forming a tail, passing over posterior edge of fins. Fins thick, rhomboidal, long, about 70-80 % of mantle length, width about 80% of mantle length. Photophores on ventral side of mantle, arranged in transverse rows. Tentacle robust, with 12 photophores along the stalk; clubs unexpanded with a distinct carpal cluster; manus with two rows of hooks, the 7 or 8 of the ventral row being larger than the 8 of dorsal row. Arms robust, relatively short with two rows of hooks. ML to around 40 cm. *A. alessandrinii* (Verany, 1851 ) is a synonym. A review in Young et al. (1998).

**Habitat and distribution:** Cosmopolitan epimesopelagic oceanic species in tropical and temperate waters. Specimens and paralarvae collected from Northeastern to Southern Brazil (Nesis, 1974; Santos and Haimovici, 2001, 2002; Haimovici et al. 2002; Peres and Haimovici, 2003).

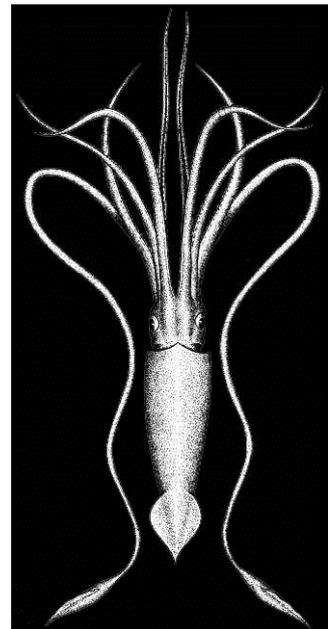


### Family ARCHITEUTHIDAE Pfeffer, 1900

(one genus)

1705 - *Architeuthis* . Steenstrup, 1857

Giant squids. Mantle muscular and narrow posteriorly acuminate and attenuate into a short tail. Fins small, semiround in the posterior end of the mantle. Head not wide. Absence of photophores. Locking cartilage simple. Gladius with a short and wide rachis and a small terminal cone. Arms very long with two rows of suckers. Tentacles extremely long, with four rows of suckers. Fixing-apparatus runs along the tentacular stalk over almost the entire length. Both arms (IV) are



hectocotylyzed. Mantle length up to 6 m and maximum total length recorded about 20 m. Taxonomy of the family still unclear for a review (Forch, 1998).

**Habitat and distribution:** Oceanic genus, occasionally found stranded worldwide. In Brazil, a specimen was recorded from off Santa Catarina (Arafelli et al. 1991); beaks were identified from stomach contents of the blue shark *Prionace glauca* (Santos and Haimovici, 2002). Unrecorded specimens were collected in Espiritu Santo (A.S. Martins, pers. com.) and Santa Catarina (J.A.A.Perez, pers. com.).

### Family BATHYTEUTHIDAE Pfeffer, 1900

Short and broad mantle. Short fins, subterminal kidney-shaped. Wide head with projected eyes. Funnel locking apparatus a simple strait groove. One photophore on the base of 1<sup>st</sup>-3<sup>rd</sup> arms, mainly distinguished in young. First to third arms with 2-4 rows of numerous and small suckers, often irregularly positioned and 4<sup>th</sup> arms with 2 rows. Long and slender tentacles, no distinct club with 8-10 rows of small suckers. ML to 7.5 cm.

1706 - *Bathyteuthis* Hoyle, 1885

Long arms attenuated with thin tips. 1<sup>st</sup>-3<sup>rd</sup> arms with more than 200 small suckers. Protective membrane of arms well developed. Does not fit with the described species for the Atlantic Ocean (Nesis, 1987).

**Habitat and distribution:** Meso and bathypelagic. One specimen of an indetermined species was caught with trawls at 600 to 1700 m along Central Brazil (Haimovici et al. 2007).

### Family BRACHIOTEUTHIDAE Pfeffer, 1908b

Small nektonic squids with a thin narrow, weakly muscular elongated mantle, posteriorly pointed. Relatively short terminal rhomboidal or heart-shaped fins. Head small. Long neck with dorsal hump, with single chamber. Funnel locking apparatus a simple strait groove. Arm crown stalk absent. Buccal connectives attach to the ventral borders of the arms IV. Arms with two rows of suckers. Numerous rows of small suckers on the proximal portion of the tentacular clubs. Paralarvae with characteristic long, slender necks.



1707 - *Brachiooteuthis riisei* (Steenstrup, 1882)

Fin length 35-50% of mantle length, width 45-60% of mantle length. Mantle with scarce chromatophores. Neck of moderate length. Eyes directed forward and laterally. Eyes photophores absent or present. Mantle length to 17 cm (Sweeney et al., 1992)

**Habitat and distribution:** epipelagic-mesopelagic in temperate waters of Southern Atlantic (Nesis, 1987). Paralarvae recorded in Southern Brazil (Santos & Haimovici 2007).

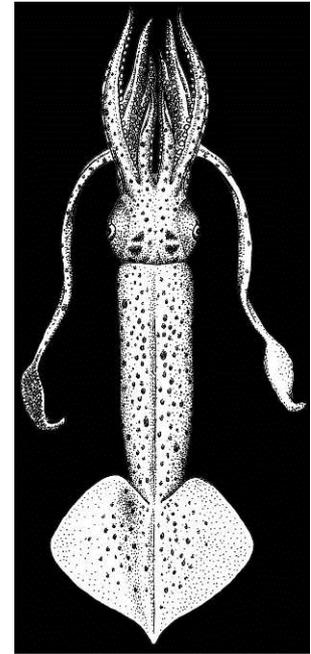
**Family CHIROTEUTHIDAE** Gray, 1849

Small to medium sized squids with gelatinous body. Mantle conical or sac like, attenuated into a thin and long tail, only preserved in paralarvae and juvenile. Funnel locking apparatus specialized. Head long and narrow. Fin small rounded. The 4<sup>th</sup> arms structures generally greatly different from those of other arms, and are much wider and longer than the other, covered with several small suckers, often arranged in one row or present only in basal part. Tentacles long, with a slender stalk, and usually with a widened club with 4-6 rows of suckers. Presence of photophores on eyeball, ink sac, 4<sup>th</sup> arms and on the club end. Some forms without photophores. A secondary fins or several small fins may be present in the paralarvae and juveniles of some species. Hectocotylus absent. Development is generally with conspicuous metamorphosis (Nesis, 1987; Sweeney et al., 1992).

1708 - *Chiroteuthis capensis* Voss, 1967

Mantle narrow conical to cylindrical in posterior part and passes beyond posterior edge of round fin, not fused with head. Mantle locking apparatus oval with projecting knobs. 4<sup>th</sup> arm much more longer and broad than other, without suckers. Photophores along 4<sup>th</sup> arm. No photophore on ink sac. Photophores on ventral side of eyeball in two parallel bands. Club very long and narrow along its entire length. Small to medium sized squids (Nesis, 1987; Sweeney et al., 1992).

**Habitat and distribution:** Meso-bathypelagic in the Atlantic tropical and subtropical Ocean (Nesis, 1987). Specimens caught with trawls at 600 to 1700 m along Central Brazil (Haimovici et al. 2007).



1709 - *Chiroteuthis veranyi* (Férussac, 1835)

Mantle wide and conical extending somewhat farther than posterior edge of fin, not fused with head. Mantle locking apparatus oval with projecting knobs. 4<sup>th</sup> arms very wide. Photophores along 4<sup>th</sup> arm. Two photophores on ink sac. Photophores on ventral side of eyeball in two parallel bands. Club widened with protective membranes divided into a proximal and distal part. Diameter of suckers in the middle of 3<sup>rd</sup> arm exceeding not more than twice the diameter of suckers of 4<sup>th</sup> arm. Small to medium sized squids (Nesis, 1987).

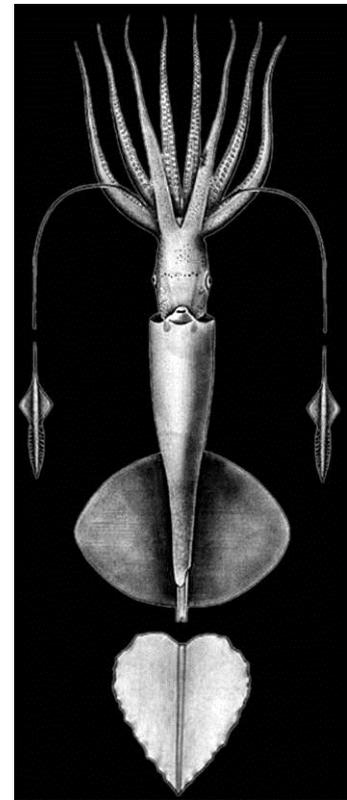
**Habitat and distribution:** Meso-bathypelagic in all tropical and subtropical oceans (Nesis, 1987). Beaks and semidigested animals were identified from stomach contents of marine mammals, tunas and sharks (Santos and Haimovici, 2002). Specimens caught with trawls at 600 to 1700 m along Central Brazil (Haimovici et al. 2007)



1710 - *Grimalditeuthis bonplandi* (Verany, 1839)

Narrow gelatinous conical mantle extending into a long tail. Fin round with length about 50% of mantle length, followed by a secondary fin heart-shaped, on a long tail. Head narrow fused with funnel but not with head in occipital area. Arms long, slender with 2 rows of suckers. Tentacles lost in juveniles. In adults, one elongated dark photophore on the end of the arms. Middle sized squids.

**Habitat and distribution:** Meso-bathypelagic in the tropical and subtropical Atlantic and Northern Pacific (Nesis, 1987). Semidigested animals were identified from stomach content of fished *Alepisaurus ferox* (Vaske, 2005).



**Family CHTENOPTERYGIDAE** Grimpe, 1922

Mantle width 40-60% of mantle length, with fringe-like fins extending along all or most of the mantle length, with a series of soft rays joined by a thin membrane. Wide head but not wider than the mantle. Locking apparatus simple. Short arms with suckers of 1<sup>st</sup>-3<sup>rd</sup> arranged in 4-6 rows in distal part. 4<sup>th</sup> arm greatly enlarged at the base. Tentacles narrow with a club not widened that looks as a oval platform that bears numerous tiny suckers in many rows. A large photophore on ventral side of ink sac. Hectocotylus is absent. In juveniles fins are short and separate dorsally. Eyes small, widely separated. (Nesis, 1987).

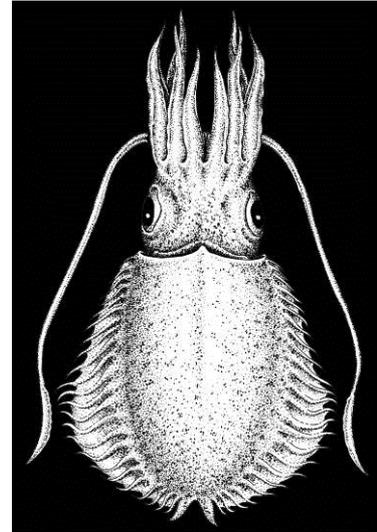
1711 - *Chtenopteryx sicula* (Verany, 1851)

Mantle width 40-60% of mantle length. ML up to 9 cm.

**Habitat and distribution:** Tropical to subtropical cosmopolitan meso to bathypelagic species (juveniles epipelagic). Paralarvae collected off Northeastern Brazil (Haimovici et al., 2002) and a juvenile in the slope of the Southern region (Haimovici et al. 2008).

**Family CRANCHIIDAE** Prosch, 1847

Small to giant squids with slender, coriaceous or semigelatinous mantle fused with funnel and head in the occipital area. Mantle surface is smooth or covered with cartilaginous tubercles and there is spacious coelom with a considerable quantity of  $\text{NH}_4\text{Cl}$  solution. Fins of very different shapes and does not exceed 60% of mantle length. Head short and narrow with big eyes. Arms with 2 rows of suckers. Long tentacles with slightly widened club with 4 rows of suckers, sometimes modified into hooks. Tentacle fixing apparatus developed. Photophores present on eyeball, sometimes on arm ends and on the liver. This family displays a special "larval" stage characterized by stalked eyes and a short to long arm-crown stalk (Voss, N.A. 1980; Nesis, 1987; Voss et al., 1992).



**Subfamily CRANCHIINAE** Pfeffer, 1912

Two or four rows of hyaline stripes present on anterior edge of ventral side of mantle covered with cartilaginous tubercles with a specific regular sequence. Eye photophores numerous, around eyeball as a ring or two arcs. Fins round, not extending into a long tail. One ventral arm hectocotyized.

1712 - *Cranchia scabra* Leach, 1817

Mantle and dorsal fins surface covered by cartilaginous tubercles, whose tops have 3-5 spines. Mantle barrel-shaped. Fins small and round. 14 photophores on eyeball. A large photophore on end of all arms in adult females. Funnel valve present. ML up to 15-20 cm.

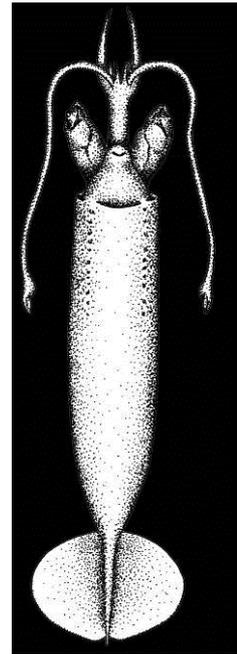
**Habitat and distribution:** Tropical to subtropical cosmopolitan, juveniles epi-mesopelagic, adults meso-bathypelagic (Nesis, 1987). A paralarvae was collected in plankton samples from the oceanic waters along Northeastern Brazil (Revizee Program, unpublished).



1713 - *Leachia atlantica* (group) (Degner, 1925)

Ventral surface of mantle with one tubercular cartilaginous stripe from each anterior apex of funnel-mantle fusion with length smaller than 20% of mantle length. Fin length 20-30% ML. In juveniles 5-6 photophores on eyeball and tubercular stripes with 7-8 large, rosette-shape tubercles with intervening small tubercles. ML to 15-20 cm.

**Habitat and distribution.** Tropical and subtropical Atlantic. Juveniles epipelagic, adults meso-bathypelagic. (Nesis, 1987; Voss et al. 1992). Found in plankton samples from all along Brazil by Haimovici et al. 2002; Vaske 2005 (as *L. cyclura*) and Santos and Haimovici 2007.



1714 - *Liocranchia reinhardti* (Steenstrup, 1856)

Mantle with a pair of hyaline stripes of tubercles with a “V” inverted shape and tubercles also present along the mantle dorsal median line. 14 photophores on eyeball. A large photophore on end of 3<sup>rd</sup> arms in mature females. ML to 20 -25 cm

**Habitat and distribution.** Tropical and subtropical cosmopolitan species meso-bathypelagic species (Nesis, 1987). Young specimens found from Southern and Northeastern Brazil (Haimovici et al, 2002, Haimovici et al., 2007, Santos and Haimovici, 2007)

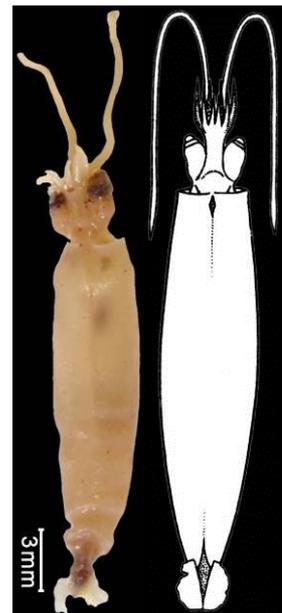


**Subfamily TAONIINAE** Pfeffer, 1912

No hyaline stripes with cartilaginous tubercles, only separate tubercles may be found at the mantle fusion sites. One or two (rarely 3) photophores on ventral side of eyeball. Fins of different shape, but not round, sometimes mantle extending into a long tail. There is no true hectocotylus.

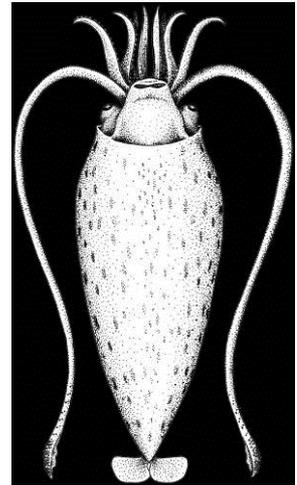
1715 - *Egea inermis* Joubin, 1933

Mantle attenuated into a long acuminate tail. Fins elongately lanceolate. Arm short with no conspicuous enlarged suckers. Funnel valve present. Tentacular club without hooks. Large photophore on ends of arms in adult females. No photophore on liver. In juveniles mantle enogate, spindle-shape. Fins small, terminal paddle-shaped with a diamond-shaped lanceola. Head with short, stout arm crown stalk. Eyes oval on short to medium stalks. Tentacles long, narrow with 2 rows of



carpal suckers, passing to 4 rows. ML to 42 cm (N.A. Voss, 1974)

**Habitat and distribution:** From epipelagic to bathypelagic, circumglobal in tropical and equatorial waters (Nesis, 1987; Voss et al., 1992). Juveniles were collected from Northeastern Brazil by P. Mafalda.



1716 - *Helicocranchia* sp.

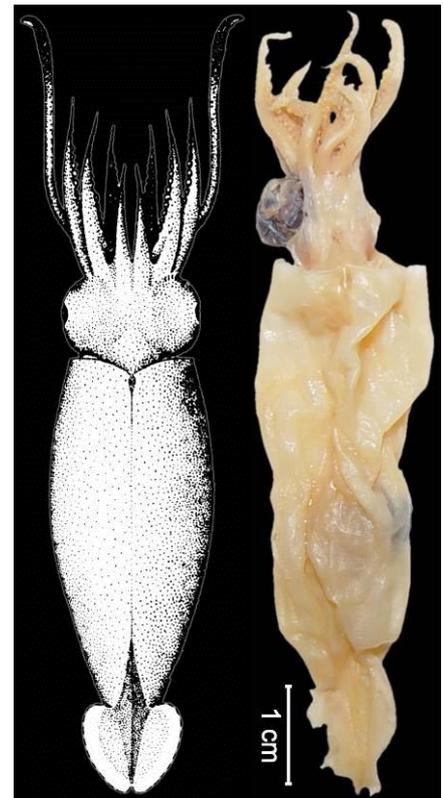
Mantle gelatinous not attenuated into a long tail, without cartilaginous tubercles. Fins short paddle- or tongue shaped. Funnel very large covering under side of head and passing the bases of 4<sup>th</sup> arms, without valve. One large photophore on ventral side of eyeball. ML to 8 cm.

**Habitat and distribution** Epipelagic (juveniles) to mesopelagic in tropical and subtropical waters (Nesis, 1987). Paralarvae were found on slope of Southern and Northeastern Brazil (Santos and Haimovici, 2007).

1717 - *Liguriella podophthalma* Issel, 1908

Mantle does not attenuate into a long tail, 2 small cartilaginous tubercles on anterior mantle-funnel fusion sites. Fins short semi-circular forming together an almost circle, with big lanceola. Funnel reaches the bases of 4<sup>th</sup> arms, without valve. Arms moderately long with enlarged suckers on distal part of lateral arms. Tentacular club without hooks. Two photophores on eyeball. In juveniles mantle stout, spindle-shape. Fins paddle-shaped and become oval with growth with a diamond-shaped lanceola on dorsal mantle end. Eyes oval on long stalks. Tentacles moderately long, widening on distal part. ML to 24 cm.

**Habitat and distribution:** Epipelagic (paralarvae) and mesopelagic (adults) circumglobally in subtropical and temperate waters of the Southern Hemisphere (Nesis, 1989). Only juveniles were found in Brazil on the continental slope and oceanic waters from Northeastern to Southern region (Haimovici et al., 2002, Haimovici et al, 2007, Santos and Haimovici, 2007).



1718 - *Megalocranchia maxima* (group) Pfeffer, 1884

Large squids with mantle attenuate into a long acuminate tail, up to 81 cm. Fins long lanceolate. Greatly enlarged suckers in distal part of 3<sup>rd</sup> arms. Funnel valve present. Tentacular club without hooks. Large photophore on the ends of 3<sup>rd</sup> or first three arms in adult females. Two large bilobulated photophores on liver. Juveniles with small terminal fins, long tentacles, long arm-crown stalks on head, and oval eyes on long stalks. ML to 81 cm.

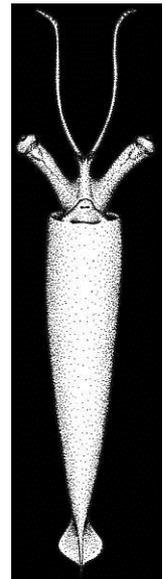
**Habitat and distribution:** Circumglobal in equatorial, tropical and subtropical waters (Sweeney et al., 1992). Adult specimens were caught with trawls at 600 to 1700 m along Central Brazil (Haimovici et al., 2007). Beaks are found in stomach contents of marine mammals and large pelagic oceanic fishes (Santos and Haimovici, 2001; Vaske, 2005)



1719 - *Taonius pavo* (Lesueur, 1821)

Mantle gelatinous attenuate into a long acuminate tail without cartilaginous tubercles, Fins long with anterior edges attached dorsally. Arms short. Funnel very large without valve. Tentacular club without hooks. No photophore on arms or liver. ML to 40-45 cm.

**Habitat and distribution:** Mesopelagic, widely distributed in Atlantic from North to Southern Convergence (Voss et al., 1992). Beaks and a 18 cm ML specimen were found in the stomach contents of large pelagic fishes along Northeastern Brazil (Vaske, 2005).



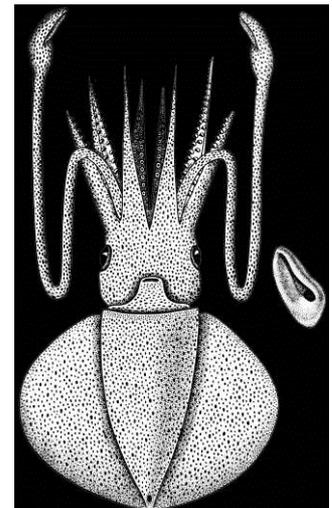
**Family CYCLOTEUTHIDAE** Naef, 1923

Medium sized squids with widely conical semigelatinous mantle, up to 60 cm, and a large rounded fin. Arms with 2 rows of suckers. Long tentacles with compact widened club, with 4 rows of suckers and fixing apparatus. Funnel cartilage triangular or irregularly oval. Photophores present. Hectocotylus absent (Young and Roper, 1969).

1720 - *Discoteuthis discus* Young & Roper, 1969

Mantle not extended into a tail. Very large fins almost equal or somewhat larger than mantle length. Club suckers of marginal rows very small and 4 pairs of suckers in middle rows greatly enlarged. No photophores on ink sac. A single photophore on ventral mantle near posterior end of body. Several photophores around pupil. No photophore near anterior edge of mantle or on head.

**Habitat and distribution:** Benthopelagic in the tropical and subtropical Atlantic (Nesis, 1987). Juveniles recorded from the slope of Southern and central Brazil (Santos and Haimovici, 2007; Haimovici et al., 2007).



**Family ENOPLOTEUTHIDAE** Pfeffer, 1900

Mantle muscular, small or rarely medium sized. Posterior end of mantle conical, not extended into an acute tail. Mantle-funnel locking apparatus simple. Hooks present in all arms. Tentacles club with one or two rows of hooks on the manus. Wide fins. Photophores present on surface of mantle, funnel, head and eyeball, absent in the mantle cavity and tentacles. A review in Young et al. (1998).

1721 - *Abraliopsis atlantica* Nesis, 1982

Small squids, mantle muscular, conical with fins occupying less than 70% of its length. Photophores on ventral side of head disposed in 7 longitudinal well-defined rows, median row unpaired. No additional photophores between lateral and 3<sup>rd</sup> rows of photophores on ventral side of head. A free from photophores stripe in the middle of ventral side of mantle exceeds gradually narrowing to the posterior end of mantle and is wide and clearly defined. About 10 pairs of hooks on 1<sup>st</sup>-3<sup>rd</sup> arms and large photophores. Ventral arms without suckers and large photophores in the tip. Tentacular club without distinct carpal membrane or keel and two rows of small hooks. Left ventral arm of male with widened ventral protective membrane. Both oviducts developed.

**Habitat and distribution:** Epi and mesopelagic in the slope and oceanic waters of the Tropical and subtropical Atlantic (Nesis, 1987; Young et al. 1998). Specimens caught with mid-water trawls along Central Brazil (Haimovici et al., 2007)



1722 - *Abraliopsis pfefferi* Joubin, 1896

Small squids. Mantle muscular, conical with large fins occupying 75-80% of the mantle. Photophores on ventral side of head and mantle disposed diffusely and not forming distinct longitudinal rows with a stripe without photophores in middle of ventral side of mantle. About 10 pairs of hooks on 1<sup>st</sup>-3<sup>rd</sup> arms and large photophores. Ventral arms without suckers and large photophores in the tip. Club with well developed keel and 4-5 pairs of long hooks and one of suckers. Left ventral arm in male not modified. Both oviducts developed.

**Habitat and distribution:** Epi and mesopelagic in the slope and oceanic waters Tropical and subtropical Atlantic and Mediterranean (Nesis, 1987; Young et al. 1998). Specimens caught in the slope of Southern Brazil (Santos and Haimovici, 2007)



1723 - *Abralia redfieldi* Voss, 1955

Small squids. Mantle muscular, conical with a small blunt tail. Terminal wide fins, less than half of mantle length. Five eyeball photophores round, 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> larger than 2<sup>nd</sup> and 4<sup>th</sup>. Hooks on tentacular club in one row. Right ventral arm hectocotylized. ML under 4 cm (Nesis, 1987; Perez and Haimovici, 1993).

**Habitat and distribution:** Epipelagic, mesopelagic and bathyal Tropical and Subtropical of both Eastern and Western Atlantic (Nesis, 1987). Present in the slope of Southern Brazil, sometimes co- occurring with *A. veranyi* (Haimovici and Perez, 1991; Santos and Haimovici 2007; Haimovici et al. 2007).



1724 - *Abralia veranyi* (Ruppell, 1844)

Small squids. Mantle muscular, conical with a small pointed tail. Fin length half of mantle length. Five photophores in the ventral part of the eye, 1<sup>st</sup> (anterior) photophore in adults oval, much larger than 3<sup>rd</sup> and only smaller than 5<sup>th</sup>. Three or four rows of tiny suckers on tips of 1<sup>st</sup>-3<sup>rd</sup> arms. Tentacular club with 1 row of hooks. Left ventral arm hectocotylized. ML under 4 cm (Nesis, 1987; Perez and Haimovici, 1993).

**Habitat and distribution:** Bathyal and midwater over slopes, sometimes pelagic in the tropical and subtropical Western Atlantic from New England to Argentina and Mediterranean Sea. Common in Southern and central Brazil (Haimovici and Perez, 1991; Haimovici et al. 2007; Santos and Haimovici, 2007).



1725 - *Enoploteuthis anapsis* Roper, 1964

Small squids, mantle muscular, conical with short flashy tail. Photophores on ventral side of mantle arranged on straight longitudinal rows, at least in anterior part. Four wide multiserial ill-defined longitudinal bands of photophores on ventral side of mantle. 8 ½ longitudinal rows of photophores on ventral side of head, unpaired median row of photophores formed by fusion of rows extending along inner edges of 4<sup>th</sup> arms and terminating at level of anterior margin of eyes, rest of head midline without photophores. Tentacles robust and very long, one and a half to two times the mantle length, club with many suckers in 4 rows on dactylus.



**Habitat and distribution:** Epi and mesopelagic in the slope and oceanic waters of the tropical Atlantic (Nesis, 1987). Specimens caught in mid-water trawls and present in stomach contents of pelagic large predators of Southern and Northeastern Brazil (Vaske, 2005; Haimovici et al. 2007, Santos and Haimovici, 2007).

1726 - *Enoploteuthis leptura* (Leach, 1817)

Small squids, mantle muscular, conical with relatively long flashy tail. Eight longitudinal rows of photophores on the ventral side of head; 2<sup>nd</sup> and 3<sup>rd</sup> lateral rows not joining on 4<sup>th</sup> arm bases. Midline of the head without photophores. Seven longitudinal rows of photophores on ventral side of mantle, the three median extending to the tail. Six rows of photophores on funnel. Tentacles are slender with a short club with few suckers in 2 rows on dactylus. Three rows of chromatophores on 4<sup>th</sup> arms.

**Habitat and distribution:** Epi and mesopelagic in the slope and oceanic waters worldwide (Nesis, 1987). Specimens caught in oceanic waters of Northeastern Brazil and found in stomach contents of large pelagic fishes (Vaske, 2005; Haimovici et al. 2007).



**Family HISTIOTEUTHIDAE** Verrill, 1881

Small to large sized ammoniacal squids, usually with short and conical gelatinous-cartilaginous mantle and large head. Small rounded fins, joined posteriorly. Asymmetrical eyes, with the left usually larger than the right one. Arms long with two rows of suckers. Long tentacles with 4-8 rows of irregularly sized suckers. Inner arms umbrella generally well developed. Mantle-funnel locking apparatus simple. Entire ventral surface of mantle, head and arms with numerous composite photophores. There are few photophores on the body dorsal side and no photophores on the fins and tentacles. There are a ring of photophores in a specific order around each eyelid. Both dorsal arms are hectocotylized. Full descriptions and review in Voss, N. (1969); Voss, N. et al. (1992;1998).

1727 - *Histioteuthis corona corona* (Voss & Voss, 1962)

Medium to large sized species, mantle short and conic with only large photophores distributed on it. Left eye greatly larger than right one with 17 photophores around right eyelid. Arm length around 150% of mantle length. Three rows of photophores in basal parts of 4<sup>th</sup> arms; Depth of inner umbrella less than 15% of length of longest arm; male genitalia normal.

**Habitat and distribution:** Meso and bathypelagic in the tropical and subtropical Atlantic and Indic Oceans (Nesis, 1987, Voss et al., 1992). Found in stomach contents of marine mammals, tunas and sharks as bycatch in bottom-trawl fisheries on the continental slope of Southern and Central Brazil (Perez et al, 2004; Haimovici et al., 2007; Haimovici et al. 2008).



1728 - *Histioteuthis meleagroteuthis* (Chun, 1910)

Small to medium sized species, mantle conical with photophores densely distributed (around 30 transverse rows of photophores). Left eye greatly larger than right one; on ventral side of the mantle, 19-21 photophores around right eyelid. Longitudinal rows of cartilaginous tubercles on anterior dorsal side of mantle and in basal parts of 1<sup>st</sup>-3<sup>rd</sup> arms. 8-9 longitudinal rows of photophores in basal part of 4<sup>th</sup> arms. A full description in Voss et al. 1998.

**Habitat and distribution:** Tropical and subtropical cosmopolitan species (Nesis, 1987). A single specimen was trawled in the continental shelf of Santa Catarina (Santos and Haimovici 2007).



**Family LYCOTEUTHIDAE** Pfeffer, 1908

Mantle muscular and conical. Photophores inside mantle cavity, on ventral side of eyeball, or on tentacular stalk. Fins rhomboidal, sometimes extended into a tail. Club of the tentacle with four rows of similar suckers.

**Subfamily LYCOTEUTHINAE** Pfeffer, 1908

Five luminous organs on ventral side of eyeball arranged in one row. Tentacular stalk with 2 and mantle cavity with 8-10 luminous organs. Male genital organs paired. Hectocotylus absent (Voss and Stephen 1992).

1729 - *Lycoteuthis lorigera* (Steenstrup, 1875)

Medium sized squids. No long tail in males. Five luminous organs on ventral side of eyeball, arranged in one row. Tentacular stalk with 2 and mantle cavity with 8-10 luminous organs. Hectocotylus absent. Mantle length in males up to 18 cm, females smaller.

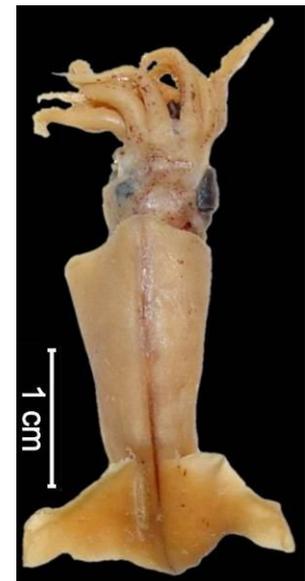
**Habitat and distribution:** Subtropical waters worldwide. Mesopelagic over the slopes and seamounts (Nesis, 1987). Recorded from Central to Southern Brazil (Haimovici and Perez (1991; Santos and Haimovici, 2007; Haimovici et al. 2007).



1730 - *Selenoteuthis scintillans* Voss, 1959

One large globular photophore on posterior end of body. Single globular photophore on tip of 2<sup>nd</sup> and 3<sup>rd</sup> arms only in mature males. Arm tips not attenuate. ML up to 4.5 cm.

**Habitat and distribution:** Mesopelagic ascending to epipelagic at night. Tropical and subtropical in the Atlantic, Gulf of Mexico and Caribbean Sea (Nesis, 1987). Specimens found on the slope of Central Brazil (Haimovici et al., 2007) and paralarvae around oceanic islands of Northeastern Brazil (Haimovici et al., 2002).



**Family MASTIGOTEUTHIDAE** Verrill, 1881

Medium sized squids with cartilaginous-gelatinous body. Anterior part of mantle cylindrical, posterior conical. Fin long, round, rhomboidal or heart-shaped, generally with length not less than 50% of mantle length. 4<sup>th</sup> arms as a rule longer than other arms. Club sucker in 2 rows. Long tentacles with a thin stalk not widened, covered with very numerous small suckers in many rows. Club without keel and fixing apparatus. Mantle locking apparatus specialized. Hectocotylus absent. Many species with photophores.

1731 - *Mastigoteuthis magna* Joubin, 1913

No stellate warts on skin. Fin rhomboidal, not reaching anterior edge of the mantle. Fin length about 67% of mantle length and fin width exceeds or equals fin length and comprises 70-80% of the mantle length. Suckers on 4<sup>th</sup> arms extending to the end arms. Tentacular club with suckers along its entire perimeter. Arms sucker ring smooth. Photophores absent.



**Habitat and distribution:** Bathypelagic species ascending at night to the mesopelagic zone in the tropical and Northern subtropical Atlantic, Indian oceans and Tasman Sea (Nesis, 1987). Specimens found on oceanic water of Central Brazil (Haimovici et al., 2007). Paralarvae of this family were found in Northeastern Brazil (Haimovici et a. 2002).

#### **Family NEOTEUTHIDAE Naef, 1921**

Medium and small sized squids with conical mantle and large head. Mantle-funnel locking apparatus simple. Arms with two rows of suckers. Tentacular fixing apparatus present. No photophores. Long fins with an incision on posterior edge.

##### 1732 - *Neoteuthis thielei* Naef, 1921

Fins length more than 50% of mantle length, with width much smaller than its length, gradually widening to posterior end and extending beyond mantle length. Tentacles long and strong with widened carpal part occupying 67-80% of its length. No arm hooks. ML up to 17 cm (Nesis, 1987)

**Habitat and distribution:** Meso-bathypelagic species in the Tropical and Subtropical Atlantic (Nesis, 1987). Specimens caught with trawls at 600 to 1700 m along Central Brazil (Haimovici et al. 2007).



#### **Family OCTOPOTEUTHIDAE Berry, 1912**

Medium and large squids. Body gelatinous. Mantle conical, more or less acuminate posteriorly. Fins very large, rhomboidal, extending along entire mantle, fused with the dorsal side of mantle. Head broad, arms short and thick. Two rows of short hooks on the arms. Sucker, if present, present only on tips of arms. Tentacles present only in paralarvae or juveniles. Mantle locking apparatus simple. Luminous organs are present on arm tips, sometimes tissues of head, arms and mantle, and inside the mantle cavity. Hectocotylus absent (Nesis, 1987).

1733 - *Taningia danae* Joubin, 1931

Large squids. Large composite photophores located on tip of 2<sup>nd</sup> arms. No photophores on other arm tips, on sides of anus, or at posterior end of mantle. Single large round photophore on ink sac. Rudiments of tentacles stalk present in adults. Mantle length up to 170 cm.

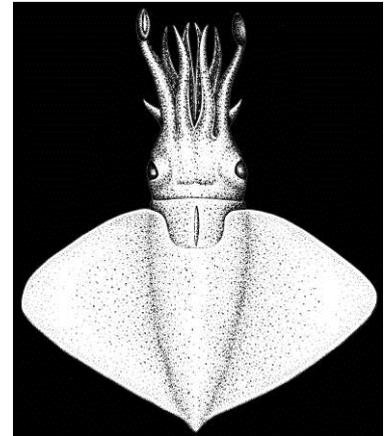
**Habitat and distribution:** Mesopelagic to bathyal. Tropical and subtropical cosmopolitan species (Nesis, 1987). Specimens and beaks recorded from stomach contents large pelagic predators in Southern and Northeastern Brazil (Santos and Haimovici, 2002).



1734 - *Octopoteuthis megaptera* (Verrill, 1885)

Fin not reaching posterior end of mantle. Fin length about 75% of mantle length. Tail long, acuminate, flattened from above. Tips of all arms with one elongated photophore. No photophore on ink sac. Tentacles totally reduced in adults. Mantle length up to 30-50 cm.

**Habitat and distribution:** Mesopelagic to bathyal ascending at night to the epipelagic zone. Tropical and subtropical cosmopolitan species (Nesis, 1987). Specimens caught with trawls on the slope of Central Brazil (Haimovici et al. 2007). Paralarvae of the genus were found in Northeastern (Haimovici et al. 2002) and adults in stomach contents from predators from Southern Brazil (Santos and Haimovici, 2001; 2002).



**Family OMMASTREPHIDAE** Steenstrup, 1857

Muscular squids with elongate mantle, tapering posteriorly, fins large and terminal; funnel locking apparatus T inverted-shaped. Two rows of suckers on arms and 4 to 8 rows on tentacular clubs, hooks never present.

**Subfamily ILLICINAE** Posselt, 1891

Funnel groove without foveola or side pockets. Light organs absent. Males with arms longer than in females. Eight rows of suckers in dactylus of tentacular club.

1735 - *Illex argentinus* Castellanos, 1960

Mantle long, widest in midpoint. Short and broad fins. Arms relatively long. Males with left arm IV hectocotylyzed along more than half of its length. ML up to over 40 cm.

**Habitat and distribution:** Southern Brasil to Southern Argentina. Sustains the principal squid fishery in Western South Atlantic. In Southern Brazil occurs from Rio de Janeiro to Rio Grande do Sul, it is the main cephalopod in the food chains of the upper slope and occasionally fished in large quantities (Haimovici and Perez, 1991a; Santos and Haimovici, 2002; Haimovici et al. 2006).



1736 - *Illex coindetti* (Verany, 1839).

Mantle long, widest in the anterior part. Short and broad fins. Arms relatively long. Males with left arm IV hectocotylyzed less than 33% of its length. ML up to over 30 cm.

**Habitat and distribution:** Neritic and slope species in the Eastern Atlantic Mediterranean Sea, Gulf of Mexico, Caribbean Sea and Southwest Atlantic up to Rio de Janeiro (Sanchez et al. 1998; Haimovici, 2007)



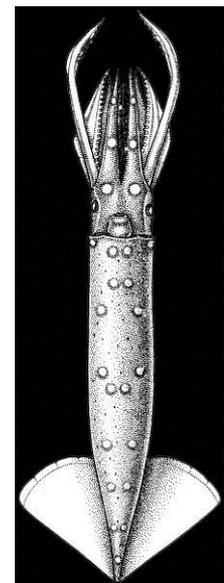
**Subfamily OMMASTREPHINAE** Steenstrup, 1857

Presence of foveola with side pockets in the funnel groove and presence of photophores deeply buried in tissue of mantle, head or arms.

1737 - *Hyaloteuthis pelagica* (Bosc, 1802)

Mantle muscular, cylindrical. Ventral surface of mantle covered with 19 photophores in a distinct pattern, primarily in pairs. Fins short and rhomboidal. Mantle and funnel cardriges not fused. ML up to 9 cm.

**Habitat and distribution:** Oceanic epipelagic and uppermost mesopelagic species, in the tropical and subtropical Atlantic and Pacific (Warneke-Cremer, 1986; Nesis, 1999). Records from paralarvae in Northeastern Brazil (Haimovici et al. 2002) and stomach contents (Santos and Haimovici, 2001; Vaske, 2005).



1738 - *Ommastrephes bartramii* (LeSueur, 1821).

Flying squid. Mantle robust with a long golden stripe along ventral midline. Muscular and wide fins. Short arms with large keels. Light organs under the skin of the ventral mantle and head surface. ML up to over 50 cm.

**Habitat and distribution:** Oceanic species in tropical and subtropical waters of Atlantic, Pacific and Southern Indian Oceans (Roper et al. 1984). Records from Northeastern Central to Southern Brazil (Haimovici and Perez, 1991; Vaske, 2005; Haimovici et al., 2007).



1739 - *Ornithoteuthis antillarum* Adam, 1957

Conical mantle narrowing in to a pointed tail. Wide fins with convex anterior and concave posterior edges. Funnel groove with foveola with 7 to 12 folds. Light organs on ink sac and rectum. Purplish maroon, darkest on dorsal surface. ML up to 30 cm.

**Habitat and distribution:** Oceanic species in the tropical and subtropical Eastern and Western Atlantic (Warneke-Cremer, 1986; Nesis, 1999; Santos and Haimovici, 2002, 2007; Vaske, 2005; Haimovici et al. 2007).



1740 - *Sthenoteuthis pteropus* Steenstrup, 1855

Mantle muscular, robust, not pointed posteriorly. Large muscular wide fins. A large oval orange patch on anterodorsal part of mantle consisting of numerous densely packed light organs. Scattered light organs in ventral surface of mantle, head and arms. Attains 60-65 cm. (Nesis, 1987).

**Habitat and distribution** Epipelagic oceanic species in tropical and warm temperate waters in both hemispheres of Atlantic, Gulf of Mexico and Caribbean Sea. In Brazil most common in the tropical regions (Warneke-Cremer, 1986; Santos e Leite, 2000.; Haimovici et al. 2002; Vaske, 2005; Haimovici et al. 2007).



1741 - *Symplectoteuthis luminosa* Sasaki, 1915

Mantle muscular, conical, tapering to moderately sharp tail. Mantle and funnel fused at locking cartilages. Pair of long stripes of luminous tissue along ventral side of mantle. Two oval luminous spots near anterior margin of mantle in front of each stripe, a large photophoric patch at base of each arm IV. Fins saggittate, length and width about 50% of mantle length. ML up to 22 cm (Nesis, 1987).



**Habitat and distribution** Epipelagic oceanic species. Subtropical worldwide and temperate North Pacific. Records from Central Brazil (Warneke-Cremer, 1986; Haimovici et al. 2007)

**Subfamily TODARODINAE** Adam, 1960

Mantle cylindrical. No photophores. Funnel groove with foveola, without side pockets.

1742 - *Todarodes filippovae* Adam, 1975

Mantle muscular, long, tapers to a pointed tail. Fins saggittate, length and width about 50% of mantle length. Tentacles very large and robust. Clubs occupying nearly entire length of tentacles with 4 rows of sucker on the dactylus, 2 very small. Arms relatively short. Maximum mantle length over 50 cm. Synonymy: *T. angolensis*. (Nesis, 1987).

**Habitat and distribution:** Slope and oceanic demersal species in subantarctic and temperate waters of the Southern hemisphere (Nesis, 1987). Records from Southern Brazil (Perez and Haimovici, 1991; Santos and Haimovici, 2007).



**Family ONYCHOTEUTHIDAE** Gray, 1849

Body muscular with pointed tail. Funnel-locking apparatus simple. Fin in the posterior part of mantle. Tentacular club with 2 rows of hooks and 2 marginal rows of suckers or suckers absent in adults. Two rows of suckers on arms. No hectocotylus. Fixing apparatus of tentacles very developed.

1743 - *Moroteuthis ingens* (Smith, 1881)

Mantle robust broad thick, muscular covered with fleshy warts. Fins rhomboidal, large and broad, about 50% of mantle length, not attenuated into tail. Tentacular clubs unexpanded with 28 to 29 hooks and a keel, first pair of arms shorter and third pair longer and with a keel. Color brown. ML up to 100 cm.

**Habitat and distribution** Oceanic epipelagic circumantarctic species (Nesis, 1987). Collected from commercial fishing off Southern and Central Brazil (Haimovici, 1997; Haimovici et al. 2007).



1744 - *Moroteuthis robsoni* Adam, 1962

Body very muscular and robust. Tentacles with hooks. Skin rugose covered with irregular flattened tubercles. Fin long heart-shaped with a greatly attenuated tail. Fin length about 67% and width 50% of mantle length. Without nuchal folds. Mantle length up to 75 cm

**Habitat and distribution:** Southern subtropical and notalian areas circunglobally (Nesis, 1987). Specimens caught over the slope with trawls at 600 to 1700 m along Central Brazil (Haimovici et al. 2007). Beaks found in stomach contents of marine mammals (Santos and Haimovici, 2002).



1745 - *Onychoteuthis banksii* (Leach, 1817)

Mantle muscular and robust. Elongate flap-like folds around the dorso-lateral surface of the neck. Patch-like photophore on the ventral surface of each eye. Two bulbous light organs on ventral midline of the intestine tract. Fins rhomboidal, about 50 to 60% of mantle length with posteriorly attenuated tail. Tentacular clubs with 19 to 23 large hooks in two rows. ML to 30 cm. (Roper et al., 1984).

**Habitat and distribution:** Mainly epipelagic oceanic species, worldwide in warm and temperate waters. In Brazil recorded from the South to the Central regions of Brazil (Haimovici, 1997; Haimovici et al. 2007).



**Family PHOLIDOTEUTHIDAE** Adam, 1950

Large squids with mantle covered by small papillae or scales. Rhomboidal fins. Two rows of suckers on arms, tentacles moderately long with slightly expanded clubs with suckers in 4 rows. With penis, no hectocotylized arm.

1746 - *Pholidoteuthis adami* Voss, 1956

Scales arranged in irregular rows, not serrate and closely contacting. Fins extended into a tail, with length 70-75%, width 60-70% of mantle length. ML over 90 cm and 10 kg (Haimovici et al. 2007).

**Habitat and distribution:** Tropical and subtropical Atlantic in depths of 500-2000 m (Nesis, 1987). Specimens caught with trawls at 600 to 1700 m to Central Brazil (Haimovici et al. 2007).



## Family PYROTEUTHIDAE Pfeffer, 1912

Small muscular squids. Mantle conical. Subterminal rounded, kidney-shaped fins. Tail not flashy, gladius ending in solid cone. Photophores present on viscera, eyeballs and tentacles and absent from mantle, fins, arms and head. Hooks present on at least arms I to III. Nidamental glands present, Unpaired oviducts (Young et al. 1998).

### 1747 - *Pyroteuthis margaritifera* Rüppell, 1844

Mantle conical with visceral photophores seen through ventral mantle. Head larger than mantle opening with globular eye which carries 12 subocular photophores and 10 visceral photophores. More than 13 hooks per arm. Hooks on all arms in two series. Tentacular manus with one row of hooks and three series of suckers. Right arm IV hectocotylized ML up to 3.5cm (Okutami, 1995).

**Habitat and distribution:** epi and mesopelagic species in the tropical-subtropical Atlantic, Indic and West Pacific Oceans and Mediterranean Sea (Young et al. 1998; Nesis, 1999). Recorded from Central and Southern Brazil (Haimovici et al. 2008; Santos and Haimovici, 2007).



### 1748 - *Pterygioteuthis giardi* Fischer, 1896

Mantle conical, ending in a solid cone of gladius. Visceral photophores seen through ventral mantle. Head large. Less than 8 hooks per arm, at most 2 hooks on the IV<sup>th</sup> arm. 14-15 photophores on the eyeball (ten large and 4-5 small). Tentacular club 4 series of suckers on the manus and without hooks. Oviduct present on right side only. Left IV arm hectocotylized with brown and orange glandular areas larger than the non-pigmentated tip with two hook-like tooth between them. ML under 3cm. (Nesis, 1987; Okutami, 1995).

**Habitat and distribution:** Epi and mesopelagic species in the tropical-subtropical Atlantic, Indian and West Pacific Oceans and Mediterranean Sea (Young et al. 1998; Nesis, 1999). In Brazil recorded from stomach contents and juveniles in plankton samples (Santos and Haimovic, 2002; 2007).



**Family THYSANOTEUTHIDAE** Keferstein, 1866

(one species)

1749 - *Thysanoteuthis rhombus* Troschel, 1857

Large nektonic squid with a strong muscular mantle and long broad rhomboidal fins extending along the entire mantle length. Arms short, with two rows of suckers and highly developed protective membranes dilated on long cirri-like trabeculate. Tentacles with 4 rows of suckers. Funnel cartilage T-shaped. Absence of photophores (except one supposedly at the ink sac). Pelagic egg mass looks like a long cylinder of transparent gelatinous mucus. Mantle length to 100 cm.

**Habitat and distribution:** Epipelagic oceanic species. Tropical and subtropical waters, worldwide. Paralarvae and adults cited from Southern to Northeastern Brazil (Ferreira, 1987; Haimovici et al., 1989; Haimovici et. al 2002; Santos and Haimovici, 2002).



**Order OCTOPODA** LEACH, 1818

Eight circumoral arms, no tentacles. Shell vestigial or absent. Subterminal or absent fins. Buccal membrane absent. Suckers without chitinous rings and without stalks, set directly on the arms.

**Suborder CIRRINA** Grimpe, 1916

Eight arms with suckers and papilla-like cirri. One pair of widely separated paddle-like fins. Shell a single saddle-shaped structure or absent.

**Família OPISTOTEUTHIDAE** Verrill, 1986

Body gelatinous and flattened along dorsoventral axis. Well developed primary web that may reach almost the tip of the arms. Secondary web absent. Shell vestige straight or slightly bent. Short lateral pad-like fins. Eyes well developed. Short cirri. Without radula and ink sac.

1750 - *Opistoteuthis agassizii* Verrill, 1896

The umbrella of the primary web reaches 2/3 of the arm length. In males two sets of enlarged suckers, the first the 5<sup>th</sup> or 6<sup>th</sup> to 10<sup>th</sup> or 11<sup>th</sup> and the second with two or three suckers beuining in the in 29<sup>th</sup> or 30<sup>th</sup>. at border of the umbrella. Short and thick lateral pad-like fins. Redish to chocolate-coloured. Males reach 48 cm and 6 kg and females 35 cm and 1.7 kg. Redescribed by Villanueva et al. 2002.

**Habitat and distribution:** Benthic species on the slope between 125 and 2250 m. Distributed in the Caribbean Sea, Gulf of Mexico and Western Atlantic from Bahamas to Central Brazil (Haimovici et. al. 2007).



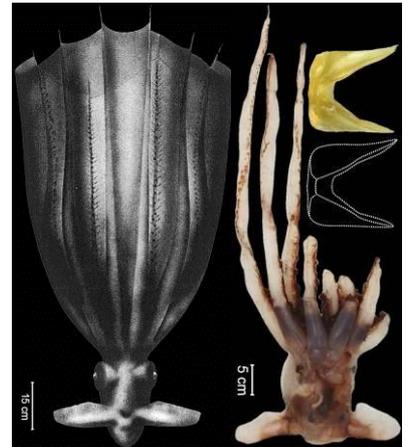
**Família CIRROTEUTHIDAE** Keferstein, 1866

Body gelatinous alongated with prominent head. Not compressed dorso-ventrally. Fins large, wide, longer than head width. Primary web reaching almost the tip of the arms. Secondary (intermediate) web present. Shell vestige thick, variable shape. Paleal opening small. Funnel thin and long. Arms with one row of sessile suckers and two rows of long cirri. Radula absent.

1751 - *Cirroteuthis magna* Hoyle, 1895

Eyes large well developed with lens and iris, double intermediate web. Butterfly-like shell. TL up to 130 cm, redescribed by Guerra et al. 1998

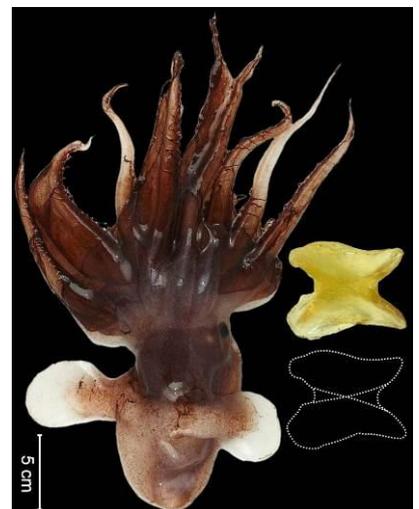
**Habitat and distribution:** deep sea in the Indic and Atlantic Ocean between 1300m and 3350 m (Guerra et al. 1998). Recorded for the slope of Central Brazil by Haimovici et. al. (2007).



1752 - *Cirroteuthis sp (muelleri)* Eschricht, 1838

Head as large as the mantle. Eyes large well developed with lens and iris. Single intermediate web. Saddle-shaped shell. Equal sized arms 3 to 4 times the mantle length. ML up to 22 cm and TL over 100 cm. Voss and Percy, 1990. redescribed *C. muelleri* and recorded it for deep waters of the Northern Atlantic and Pacific.

**Habitat and distribution:** The species that occurs on the slope of Central Brazil (Haimovici et. al. 2007) has similar shell and relationship between mantle and arms length as *C. muelleri*.



## Suborder INCIRRATA Grimpe, 1916

Arms without cirri. Fins absent. Shell vestige a pair of curved rods (or absent)

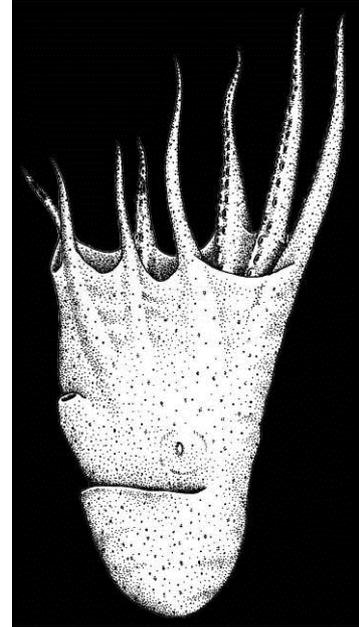
### Família ALLOPOSIDAE Verrill, 1881

(one species)

#### 1753 - *Haliphron atlanticus* Steenstrup, 1861

Body gelatinous, mantle short, head wide, not narrower than head with very large eyes. Arms relatively short with a very deep web. Suckers small in one row within the web, two rows outside the web and again one row in the tip of the arms. Third right arm hectocotylized developed in a sac in front of the right eye. Funnel embeded in the head tissue and opens in front of the eyes. Mantle length to 40 cm, total length to 200 cm. (syn. *Allposus mollis* Verrill, 1880)

**Habitat and distribution:** Adults bathyal and juvenile pelagic to bathypelagic. Cosmopolitan from boreal to notalial regions, mainly above slopes and submarine rises. (Nesis, 1987). In Brazil recorded in the slope of the central region (Vaske, 2005; Haimovici et al. 2007).



### Família AMPHITRETIDAE Hoyle, 1886

(one species)

#### 1754 - *Amphitretus pelagicus* Hoyle, 1885

Body gelatinous, semitransparent, envolved in a layer of gelatinous tissue. Mantle fused with a very long funnel. Mantle opening reduced to two small laeral slits. Eyes elongate, tubular directed upward. Stomach anterior to digestive organ (liver). Arms long with one row of suckers. Third arm hectocotylized.

**Habitat and distribution:** Meso-bathypelagic species, tropical in all oceans, to notalial in the Atlantic. Several subspecies described (Nesis, 1987). In Brazil recorded in the slope of the central region (Haimovici et al. 2007)



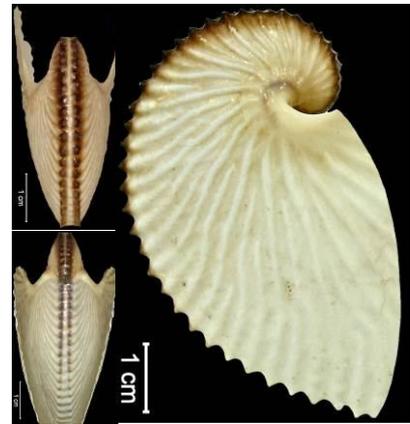
## Family ARGONAUTIDAE Naef, 1912

Pelagic octopuses with marked sexual dimorphism, firm consistency and biserial suckers on arms. Females with dorsal first pair of arms with broad membranous flap that secretes and holds a thin shell to which the eggs are attached. Dwarf males. Third left arm hectocotylied with very long filamentous tip, coiled in a sac below the eye. The hectocotylus self amputees after copula and remains with the female. Keys for shells and adult females morphometrics in Nesis (1987).

### 1755 - *Argonauta argo* Linnaeus, 1758

Fourth<sup>h</sup> arm much longer (1,5 to 2 times) than 3<sup>rd</sup> arm and 10 -20% longer than 2<sup>nd</sup> arm. Shell compressed diameter up to 30 cm, narrow keel width up to 6 % of the shell diameter. Ribs smooth, more than 50 in large shells, each rib terminating on the keel in an acute tubercle. Early part of shell stained with dark brown, the rest white. Sides of shell with projections or "ears". Diameter of the shell up to 25-30 cm in adults.

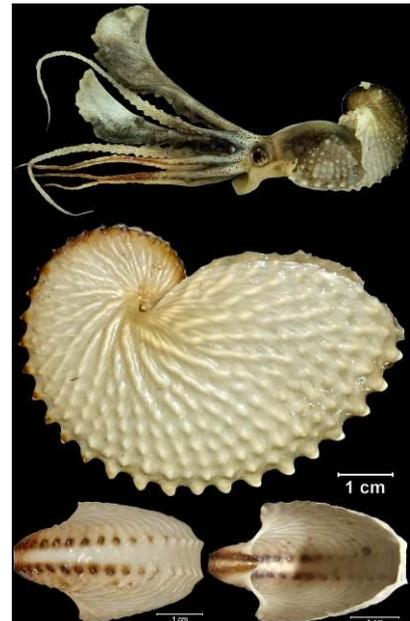
**Habitat and distribution:** Worldwide in warm seas. In Brazil shells collected off Sao Paulo and off Rio de Janeiro, by fishing boats (Perez and Haimovici, 1991).



### 1756 - *Argonauta nodosa* Lightfoot, 1786.

Fourth arm shorter than 2<sup>nd</sup> and not longer than 3<sup>rd</sup>. Shell inflated, up to 25-30 cm diameter in adults, broad keel width about 15% of the total diameter. Up to 30-40 ribs representing chains of separate tubercles or nodules (3 to 5 per 20 mm). Distinguished from *A. argo* by the wider keel.

**Habitat and distribution:** Worldwide in warm waters. Found mostly during summer in Rio Grande do Sul and Uruguay (Nesis, 1987; Haimovici and Andriquetto, 1986; Scalabrino, 2003, Demicheli et al., 2006).



## Family BOLITAENIDAE Chun, 1911

Deep sea octopuses, body gelatinous, pigmented. Arms short, 3<sup>rd</sup> pair is the longest. Umbrella of modest size, suckers in one row. Mantle aperture wide. Ink sac present. A luminous organ under the integument around the mouth in adult females (Nesis, 1987).

1757 - *Japetella diaphana* Hoyle, 1885

Eyes large, located on sides of head. Optic nerves short and optic ganglia near circumoral brain. Suckers large, distance between neighboring suckers shorter than sucker diameter. Maximum depth of umbrella 25-33% of longest arm. Brown tones dominate coloration. No hectocotylus, only some enlarged suckers in midline part of 3rd arm. Eggs small, connected by stalks. Mantle length to 10-15 cm. A description in Perez and Haimovici (1993).

**Habitat and distribution:** Bathypelagic species, tropical-subtropical cosmopolitan (Nesis, 1987). One specimen recorded from Rio Grande do Sul (Haimovici and Perez, 1991a).



1758 - *Eledonella pygmaea* Verrill, 1884

Eyes small, in adults less than 6% ML. Optic nerves long and optic ganglia near the eyes. Suckers small, distance between neighboring suckers larger than sucker diameter. 3<sup>rd</sup> arm left hectocotylized, with enlarged suckers after midline part of 3<sup>rd</sup> arm. Maximum depth of umbrella 33-50% of longest arm. Red tones dominate coloration. Mantle length up to 20 cm.

**Habitat and distribution:** Bathypelagic species, cosmopolitan tropical-subtropical. (Nesis, 1987). In Brazil recorded in the slope of the Central region (Haimovici et al. 2007).



**Family OCTOPODIDAE** Orbigny, 1845

Firm body. Water pores absent. Males with third right or left arm hectocotylized with spoon-like non filamentous tip. Web normal, reduced or absent.

**Subfamily BATHYPOLYPODINAE** Robson, 1928

Ink-sac absent. Skin on mantle, head and arms smooth not covered by warts.

1759 - *Benthoctopus oregonae* Toll, 1981

Stout, medium sized octopus. Arms 2.5 to 4 times the ML. Hectocotylyzed arm 25-33% shorter than oposite. Ligula 5-7% of hectocotylyzed arm length. Posterior salivary glands reduced. Crop present.

**Habitat and distribution:** Benthic, upper bathyal Southern Caribbean Sea to Central Brazil (Nesis, 1987; Haimovici et al. 2007).



**Subfamily GRANELEDONINAE** Voss, 1988

One row of suckers on the arms. Ink-sac absent. Dorsal mantle, head and part of the arms covered with papillae or warts. Very small gills. VV funnel organ. Hectocotylus small but clearly differentiated into ligula and calamus.

1760 - *Graneledone* sp.

Medium sized octopus with the head and base of the arms covered with permanent small papillae with 10 to 12 spines. Does not fit *G. verrucosa* (Verrill, 1881) described for the Northwestern, and redescribed by Allcock et al. (2003), that has 7-8 spines per papillae.

**Habitat and distribution** The genus is benthic in the lower bathyal and abyssal of all oceans (Voss and Percy, 1990; Guerra et al. 2000; Allcock et al. 2003). In Brazil one 10 cm ML specimen was collected with a trawl net in the lower slope of the central region (Haimovici et al. 2007).



**Subfamily OCTOPODINAE** Grimpe, 1921

Two rows of suckers on arms. Ink sac present and functional

1761 - *Octopus burryi* Voss, 1950

Small round papillae cover the dorsal mantle surface while ventral surface and oral web smooth. Purplish brown dark band extending over the inner dorsal surface of the each arm. Ocellus are present. Ligula index 4 to 5; 9 to 11 gill lamellae. Maximum mantle length around 7 cm.

**Habitat and distribution:** Associated to bottoms of sand, broken coral and shells from 18 to 200 m on lower continental shelf. Bermuda, Florida, Gulf of Mexico, Northern Brasil. Records from off Amapa at 58 m (Palacio, 1977) and specimens collected by R.L. Teixeira in Espirito Santo.



1762 - *Octopus defilippi* Verany, 1851

Mantle small in relation to the total length, very long arms, asymmetrical in length, first 4 to 5 suckers in a single row, the remainders biserial. Very small ligula. Very smooth mantle surface, pale colored with dark pigmentation lines arranged in irregular mesh becoming denser in the region of the neck and eyes. Maximum mantle size around 9 cm.

**Habitat and distribution:** Benthic species in sandy or muddy bottoms in coastal waters. Mediterranean Sea, Atlantic and Indic Oceans. Collected from Rio de Janeiro, (Palacio, 1977) to Northeastern Brazil and its oceanic islands (Leite and Haimovici, 2006).



1763 - *Octopus hummelincki* Adam, 1936

Small size, ocellus with a dark blue iridescent ring web. Protruding eyes surrounded by ocular cirri. Small ligula, gill lamellae 5 to 9, small eggs. Mantle length up to 7cm. Color reddish brown in recently caught animals. *O. filus* Howell, 1867 is considered a synonymy. A full description in Burgess (1966).

**Habitat and distribution:** Florida Keys, W. Indies, Northeast Brazil, Usually associated to calcareous bottoms, coral reefs and patches of Sargassum and Dictyola weeds. Recorded from Maranhão to Rio Grande do Norte and the oceanic islands of Northeastern Brazil (Palacio, 1977; Leite and Haimovici, 2006).



1764 - *Octopus insularis* Leite & Haimovici, 2008

Large size octopus with rugose reddish brown skin in preserved specimens. Relatively short, stout arms, 8 to 11 gill lamellae on the outer demibranch and small ligula. Eggs are small and the fecundity high.

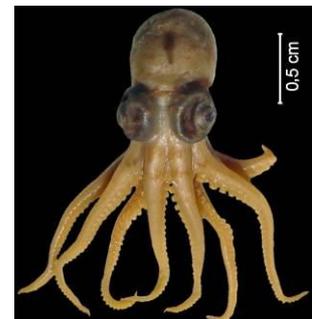
**Habitat and distribution:** Benthic in shallow waters and reefs of Northeastern Brazil and its Oceanic Islands (Leite & Haimovici, 2006)



1765 - *Octopus joubini* Robson, 1929

Very small species. Mantle globular, smooth without ocellae or papillae. Arms very short and subequal. Male with enlarged suckers near base of arms II and III. Hectocotylized arm shorter. Female lays 10 mm eggs in shells and brood them. Maximum total length around 15 cm.

**Habitat and distribution:** Benthic shallow water species. Tropical Western Atlantic to Brazil. Specimen collected off Espirito Santo and São Paulo (Palacio, 1977; Perez and Haimovici, 1991b).



1766 - *Octopus macropus* Risso, 1826

Large species with long arms, first pair are longer. Mantle surface very rugose with papillae also subequal rapidly tapering to sharp tip. Funnel small. 9 - 11 filaments in demibranch. Hectocotylus small with a short broad ligula and a wide, slightly folded calamus. ML to 18 cm.

**Habitat and distribution:** Shallow water tropical species occurring near the coast and in coral reefs in the Mediterranean Sea, Atlantic Ocean and Caribbean Sea (Mangold, 1998). In the Western Atlantic collected from Bermuda to Brazil (Palacio, 1977) collected in the oceanic islands of Northeastern Brasil. (Leite and Haimovici, 2006).



1767 - *Octopus tehuelchus* Orbigny, 1834

Small to medium sized species. Mantle globular with constricted neck. Mantle opening wide. Arms moderately long and thick frequently with enlarged suckers. Smooth skin with granulations around the eyes. Small ligula, gills filaments on outer demibranch. Large benthic elongated eggs of 15 to 17 mm longer diameter. Color reddish brown Maximum total length around 30 cm. *O. lobensis* Castellanos & Menni, 1969, is a synonym.

**Habitat and distribution:** Muddy and rocky coastal bottoms from Central Brazil to Golfo San Jorge in Argentina (Palacio, 1977; Haimovici & Andriquetto, 1986; Costa & Haimovici, 1990).



1768 - *Octopus vulgaris* Cuvier, 1797

Large species, ovoid wide mantle and head with prominent eyes. Rugose skin. Moderately long and stout arms, first pair shorter, second and third wider. Variable colours. 7 to 11 gill lamellae. Ligula small and inconspicuous. Small pelagic eggs (2 to 3 mm, longer diameter). ML up to 25 cm and over 8 kg in weight. A diagnosis in Mangold (1998).

**Habitat and distribution** Benthic neritic species cosmopolitan in tropical to temperate waters (Mediterranean Sea and Atlantic Ocean. In Brazil, records from Amapá to Rio Grande do Sul (Palacio, 1977; Haimovici & Andriquetto, 1986; Costa & Haimovici, 1990). Fished commercially in Southeastern and Southern Brazil.



1769 - *Scaevargus unicirrhus* (Orbigny, 1840)

Medium to small sized, one multifid supraocular cirrus. Mantle covered with rounded papillae or warts, surrounded by a peripheral ridge. Spoon-shaped conspicuous big ligula. Eleven to fourteen lamellae on outer demibranch of gills. Maximum mantle length around 6 cm.

**Habitat and distribution** Benthic species living from 100 to 800 m on sandy or coralline bottoms. Worldwide distribution in tropical and warm temperate waters. Recorded in Northern to Southern Brazil (Voss, 1964; Palacio, 1977; Haimovici et. al 2008).



1770 - *Pteroctopus tetracirrhus* Delle Chiaje, 1830

Medium sized, subgelatinous consistency, 2 long supraocular cirri. Wide mantle and head, no neck constriction. Deep web. First 4 to 5 suckers in single row, rest biserial. Hectocotylized arm short and stout with big broad ligula. Nine to ten gill lamellae in outer demibranchs. Maximum mantle length around 13 cm. Description in Guerra, 1992.

**Habitat and distribution** Benthic species, Mediterranean Sea, Cuba, and Atlantic Ocean from the latitude of North Carolina to Uruguay (Ropert et al. 1984). Lives on muddy bottoms up to 720 m, usually 200 to 400 m. Specimens recorded from Rio de Janeiro (Palacios, 1977) and central Brazil (Haimovici et al. 2007).



1771 - *Eledone massyae* Voss, 1964

Small sized octopus. Mantle oval, broad, lateral periphery surrounded by a cutaneous fold or ridge. Wide mantle aperture, no neck constriction. Stout arms with moderately deep web. Hectocotylyzed 3<sup>rd</sup> right arm shorter. Big spermatophores, up to 25 mm long. Big eggs 7 to 10 mm long excluding stalk. Eight to ten gill lamellae in outer demibranch. Mantle gray dorsally and withish ventrally. Maximum mantle length around 9 cm.

**Habitat and distribution** Benthic species. From Central Brazil and Trinidad Islands to Chubut, in Argentina (Perez and Haimovici, 1991b; Ré 1999). Abundant in outer shelf of Rio Grande do Sul (Haimovici and Andriguetto, 1986; Perez and Haimovici, 1991;1995)



1772 - *Eledone gaucha* Haimovici, 1988

Small species. Mantle oval, narrow head and constricted neck, wide mantle aperture. Smooth skin brownish gray dorsally and ventrally. Thin long arms decreasing in size from pair I to IV. Spermatophores 15 to 20 mm long, eggs up to 7 mm larger diameter. Seven to ten gill lamellae in outer demibranch. ML to 6 cm. A full description in Haimovici (1988).

**Habitat and distribution** Benthic species, in the outer shelf and upper slope from Rio de Janeiro to the Northern Patagonia. Sympatric with *E. massyae* (Haimovici and Perez, 1991a; Perez et al 1997; Ré, 1999)



1773 - *Vosseledone charrua* Palacio, 1978

Small octopod. Globular and wide mantle covered with well spaced papillose warts. No neck constriction, eyes prominents with 2 papillose cirri over them. Strong arms with large suckers. Hectocotylyzed arm with well defined ligula and deeply grooved calimus. Big eggs and spermatophores. Colour reddish. A full description in Palacio, 1978.

**Habitat and distribution:** Benthic species on the continental slope from Central Brazil to Uruguay (Palacio, 1978; Haimovici and Perez, 1991a; Haimovici et al. 2007).



**Family OCYTHOIDAE** Gray, 1849

(one species)

1774 - *Ocythoe tuberculata* Rafinesque, 1814

Firm body. Web greatly reduced. Ventral side of mantle in adult females with reticular sculpture of crossing skin ridges and tubercles at crossing points. One pair of water pores on ventral side of head. Funnel very short. No web and arm fringe. Arms long, 1<sup>st</sup> and 4<sup>th</sup> much longer than 2<sup>nd</sup> and 3<sup>rd</sup> arms. Suckers small, in two rows. Male small with the 3<sup>rd</sup> arm hectocotylyzed. Eggs developing in oviducts of female, hatched larvae extruded. Males often sit in empty tests of doliolids and salps. Mantle length up



to 30 cm in females and up to 3 cm in males (Roper and Sweeney, 1976).

**Habitat and distribution:** Tropical-subtropical, cosmopolitan (Nesis, 1987). Found in stomach contents of sharks and tunas caught along Southern and Northeastern Brazil (Santos and Haimovici, 2002; Vaske, 2005).

### Family TREMOCTOPODIDAE Brock, 1882

Firm body. Two pairs of cephalic water pores. Females larger than males. Suckers small, in two rows. Arms of first two pairs are connected by web continuing into a fringe on both sides of 1st arm and dorsal side of 2<sup>nd</sup>. No fringe on 3<sup>rd</sup> and 4<sup>rd</sup> arms, web between them is poorly developed. 1st and 2<sup>nd</sup> arms are much longer than 3<sup>rd</sup> and 4<sup>rd</sup> ones. Funnel of medium size. Males are very small. Third right arm, is hectocotylized.

#### 1775 - *Tremoctopus violaceus* Delle Chiaje, 1830 Plate 113

Mantle muscular and wide. Head narrower than mantle and bears laterally-directed eyes. One pair of water pores on dorsal surface of head, between the eyes and another pair ventrally, adjacent to the funnel. Arms I are the longest. Web is well developed. Thirteen to sixteen filaments in demibranch of female and nine to ten in males. Adult females dark blue-purple dorsally and light golden ventrally. Males and juveniles bright with small dark points. Eggs small carried by female on basal part of 1st arm. Maximum mantle length of females 50 cm. A full description in Thomas, 1977.

**Habitat and distribution:** Oceanic epipelagic species. Tropical and subtropical waters. Atlantic Ocean in both hemispheres (Nesis, 1987). Paralarvae to adults found off Northeastern to Southern Brazil, common in large pelagic predators stomach contents (Haimovici et al. 1989; Haimovici et. al 2002. Santos and Haimovici, 2002, 2008; Vaske 2005).



**Ordem VAMPYROMORPHIDA** Pickford, 1939

**Família VAMPYROTEUTHIDAE** Thiele, in Chum, 1920

(one genus, one species)

1776 - *Vampyroteuthis infernalis* Chum, 1903

Mantle and head fused, shell quitinous, thin, broad, 10 circumoral appendages, 2<sup>nd</sup> pair sensory filaments only. Arms with one row of suckers and two of papilla-like cirri. Wide web. Long and narrow paddle-like fins. Large eyes. Numerous small photophores covering mostly the ventral side of the head, mantle and arms; a large photophore in the base of each fin. All black pigmentation. Maximum mantle length 13 cm and total length 37 cm.

**Habitat and distribution:** Worldwide distribution in tropical and subtropical waters, adults found at depth between 700 and 1500m, juveniles in slightly shallower waters on the slope (Nesis, 1987; Guerra, 1992). Found in stomach contents in Southern Brazil and caught with trawls in Central region (Santos and Haimovici, 2002; Haimovici et al. 2007.)



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