

## PHYLUM: MOLLUSCA

### CLASS: CEPHALOPODA

#### Authors

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#### Citation

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## Phylum: **MOLLUSCA** Class: Cephalopoda

### Argonauts, octopods, cuttlefish and squids

#### Introduction to the Class Cephalopoda

Cephalopods are among the most complex and advanced invertebrates. They are distinguished from the rest of the Phylum Mollusca by the presence of circumoral (around the mouth) appendages commonly referred to as arms and tentacles. Cephalopods first appeared in the Upper Cambrian, over 500 million years ago, but most of those ancestral lineages went extinct. Only the nautilus (Subclass Nautiloidea) survived past the Silurian (400 million years ago) and are today represented by only two surviving genera. All other living cephalopods belong to the Subclass Coleoidea that first appeared in the late Palaeozoic (400-350 million years ago).

#### Subclass Coleoidea

Coleoidea are characterised by possessing eight or ten circumoral appendages armed with suckers, suckers modified into hooks in some Oegopsida; shell internal, reduced or absent. The family-level taxa of living cephalopods are well-resolved and accepted. However, although most families can be sorted into groups, there is considerable debate on the relationships between, and to a lesser extent within, these groups – see Jereb and Roper (2005) for several classification schemes that have been proposed. For fisheries purposes, length frequency data are recorded as mantle length (ML; Figures 1-3) measured in centimetres or millimetres.

#### Order Octopoda (Octopods)

Sac-like body with eight circumoral appendages armed with sessile suckers (without stalks) without chitinous rings. Arm pairs are numbered from dorsal to ventral (Figure 1). There are two suborders. Suborder Incirrata: suckers in one or two rows without cirri; body firm, well-muscled (all octopods in this guide) or soft and gelatinous; fins absent. Suborder Cirrata: suckers in a single row flanked by a row of cirri (Figure 4); body soft, semi-gelatinous; a pair of paddle-like fins.

The relative length of the arm pairs, an important identification character, is generally expressed as an **arm formula**, listing the arms from longest to shortest pair: e.g. III $\geq$ II>IV>I indicates that the two lateral arm pairs (Arms II and III) are of similar length and are longer than the ventral pair (Arms IV). The dorsal pair (Arms I) is the shortest.

#### Order Vampyromorpha (Vampire squids)

This order contains a single species. Body sac-like, black, gelatinous with one pair (two in juveniles) of paddle-like fins on mantle and a pair of large light organs at the base of the fins; the eight circumoral appendages have deep webs; a pair of long, thin, filamentous appendages that can be retracted into pits on the outer crown between Arms I and II; arms with a single row of stalked suckers lacking chitinous rings, flanked by a row of cirri on either side.

#### Order Spirulida (Ram's horn squids)

Ten circumoral appendages; internal shell well-developed, spirally coiled and chambered, visible externally; fins small, positioned on posterior edge of mantle.

#### Order Sepiida (Cuttlefish and bobtail squids)

Ten circumoral appendages (eight arms and two tentacles – Figure 2); **tentacles can be retracted into pockets** between Arms III and IV; eyes covered by a cornea. Cuttlefish (Sepiidae): shell straight, well-developed, calcareous or chitinous; fins long, fringing the dorsal-lateral edge of mantle. Bobtail squids (Sepiolidae): shell rudimentary; fins wide, rounded, attached about midway along mantle.

The structure of the club (Figure 5), presence or absence of suckers at the tips of the dorsal arms and whether the ventral mantle margin is entire or emarginated (Figure 6) are important field characters for identification of cuttlefish.

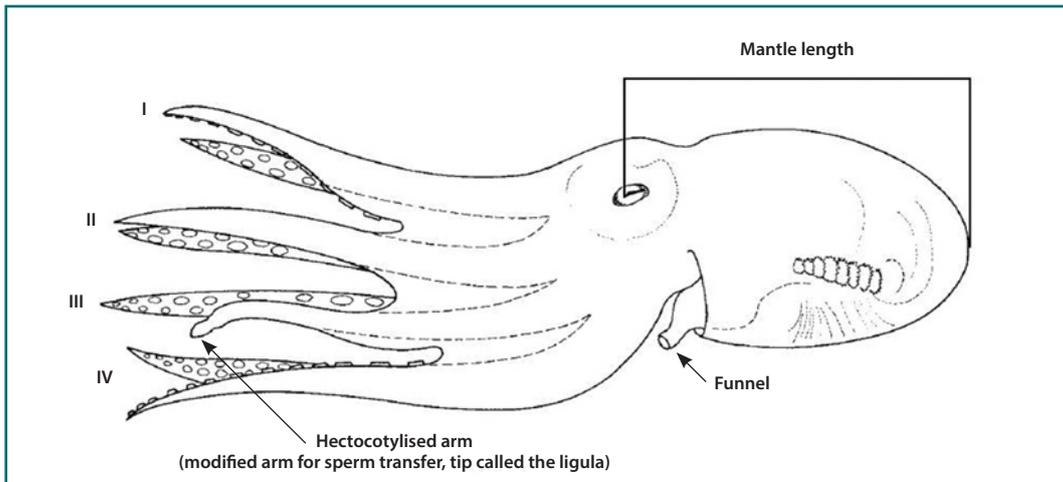


Figure 1: Schematic of a generalised incirrate octopus

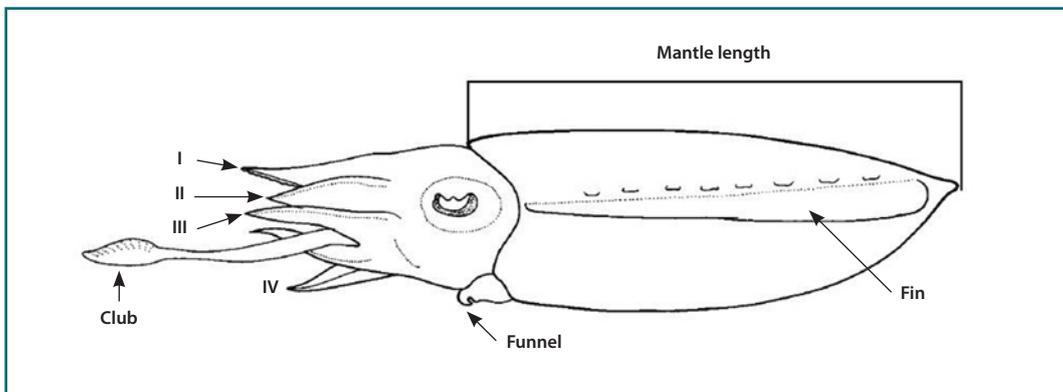


Figure 2: Schematic of a generalised cuttlefish

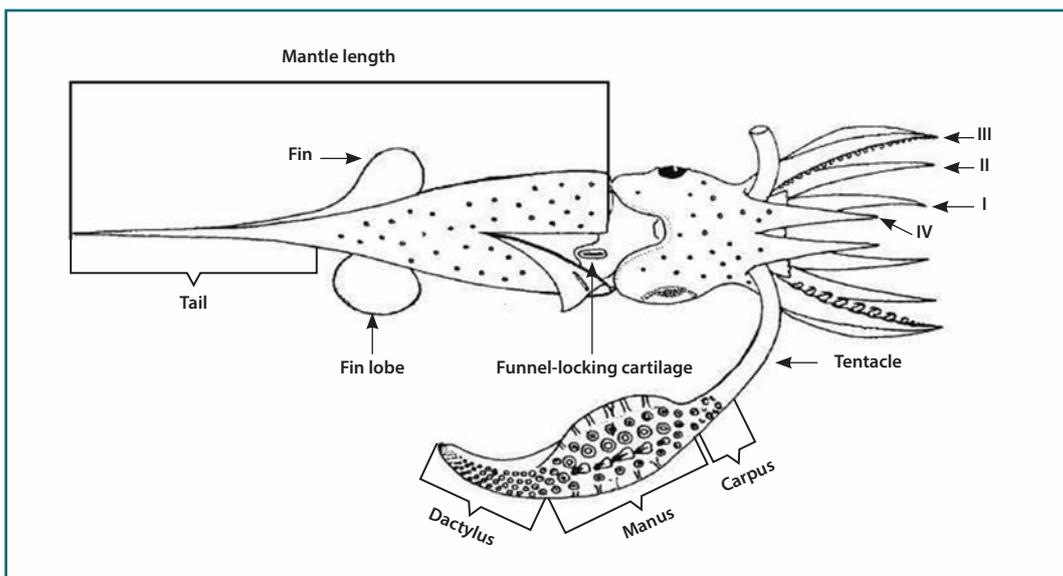


Figure 3: Schematic of a generalised squid

### Orders Myopsida and Oegopsida (Squids)

Two closely related orders (sometimes treated as suborders). Ten circumoral appendages (eight arms and two tentacles – Figure 3); **tentacles cannot be retracted into pockets**, reduced or absent in adults of some species; eyes covered by a membrane, cornea (Myopsida) or open to seawater (Oegopsida); stalked suckers with chitinous rings (modified into hooks in some species); photophores present in many species (on internal organs, externally in mantle, on the eyeballs or on the arms); mantle can be locked to the head and funnel using the nuchal and funnel-locking cartilages respectively (fused to head and funnel in some species).

The shape of the funnel-locking cartilage (Figure 7), found at the lateral corners of the funnel just under the ventral mantle margin (Figure 3), is an important identification character. Other important characters are whether the buccal connective is attached to the dorsal or ventral edge of the ventral arms (Figure 8),

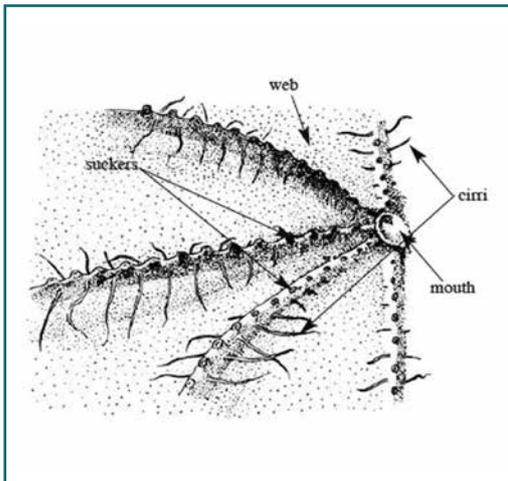
the number of buccal lappets (Figure 8), the number and position of photophores on the eyeballs, and the presence or absence of hooks on the arms and/or clubs.

### General

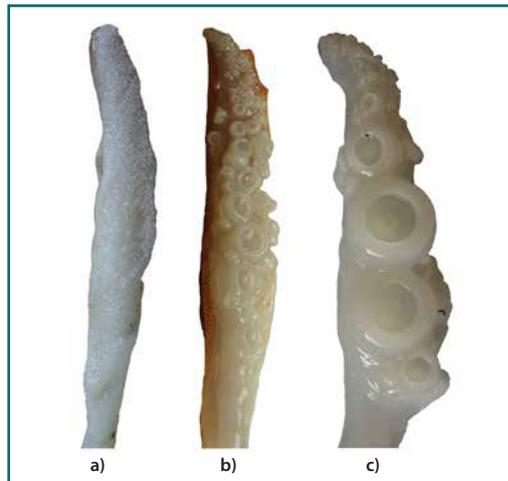
Distribution maps are based on records in the Research Survey database for surveys conducted between years 1986 and 2016 by the RS *Africana*, RV *Dr Fridtjof Nansen*, FV *Andromeda* and FV *Compass Challenger*. Records are augmented with specimens from Iziko Museum, Cape Town. All photographs, except where noted otherwise, are copyright of RW Leslie.

### Acknowledgements

Illustrations from the three-volume work, *Cephalopods of the World* (Jereb & Roper 2005, 2010; Jereb *et al.*, 2014) are used with permission from the Food and Agriculture Organization of the United Nations.



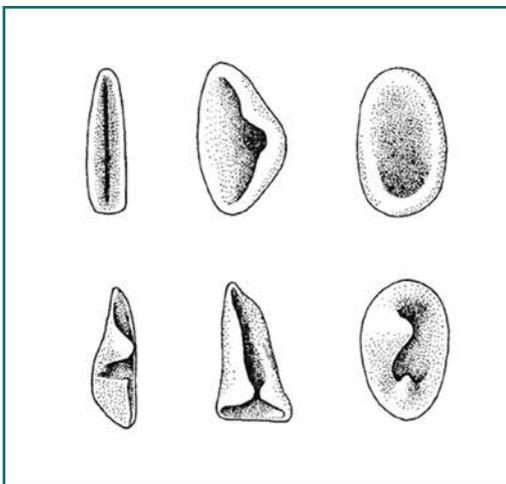
**Figure 4:** Oral view of typical Cirrate octopod showing suckers flanked by cirri



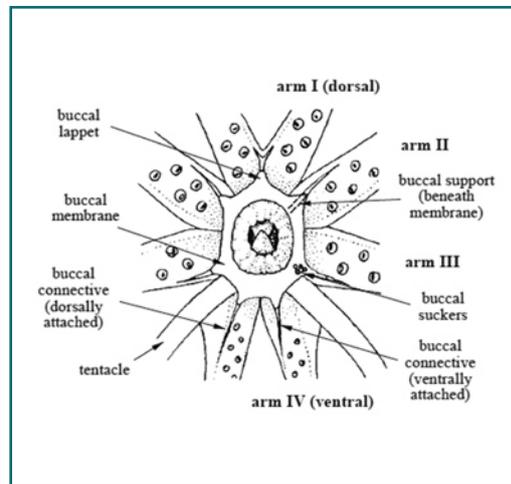
**Figure 5:** Example cuttlefish clubs with a) small subequal suckers, b) moderately enlarged and c) greatly enlarged medial suckers



**Figure 6:** Ventral mantle of cuttlefish showing entire (left) and deeply emarginated (right) ventral margin



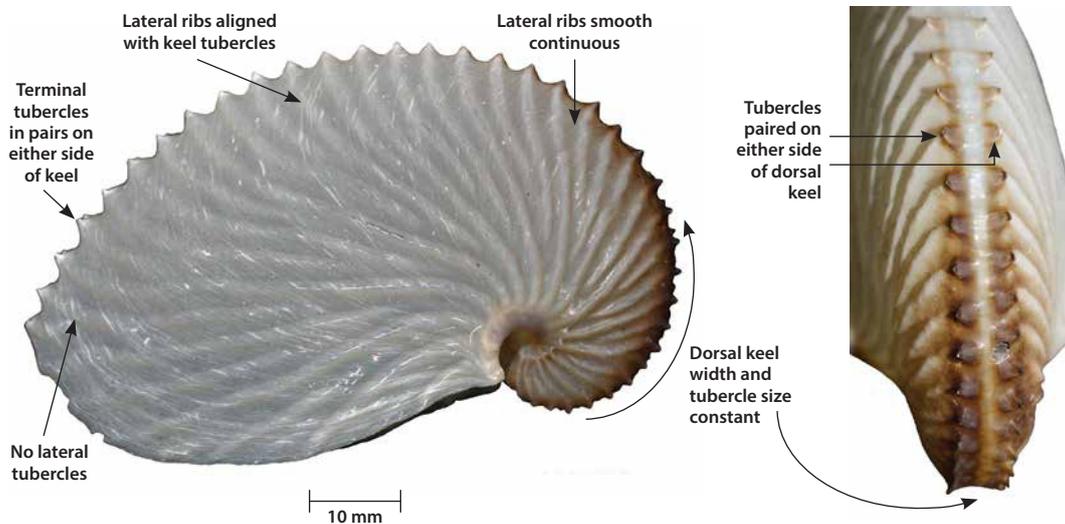
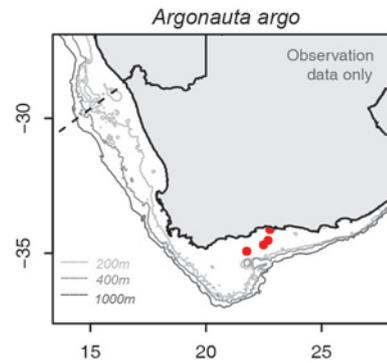
**Figure 7:** Examples of shapes of funnel-locking cartilage



**Figure 8:** Buccal anatomy of squids

### *Argonauta argo* (ArgArg)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Argonautidae
<b>Common:</b>	Greater argonaut (Paper nautilus)
<b>Alternate:</b>	-



#### Distinguishing features

- Head small, embedded within mantle. Eyes prominent, protruding and constricted at base.
- Ink sac present. All arms with two rows of suckers. Webs between arms shallow.
- ♀♀: Arms I thick at base, length variable, large membranous flap extending full length of arm. Arms IV more than 3x ML and 20-30% longer than Arms II. **Arm formula IV > II > III.**
- ♂♂: Small. 12-13 suckers on normal arms.
- Lateral ribs **smooth, continuous or branched from axis to keel**, aligned with keel tubercles.
- Dorsal keel **narrow and constant width** around circumference of shell.
- Keel tubercles **consistent in size and arranged in pairs** with a ridge across keel between pairs.

#### Hectocotylus

Left Arm III. Long, slender, self-amputating extension (almost as long as the arm) kept coiled in sac below left eye.

#### Size

Females attain 97 mm ML, 300 mm shell length. Males 9 mm ML.

#### Distribution

Circumglobal between 40° N and 40° S. Pelagic, surface to 200 m on both West and South Coasts.

#### Similar species

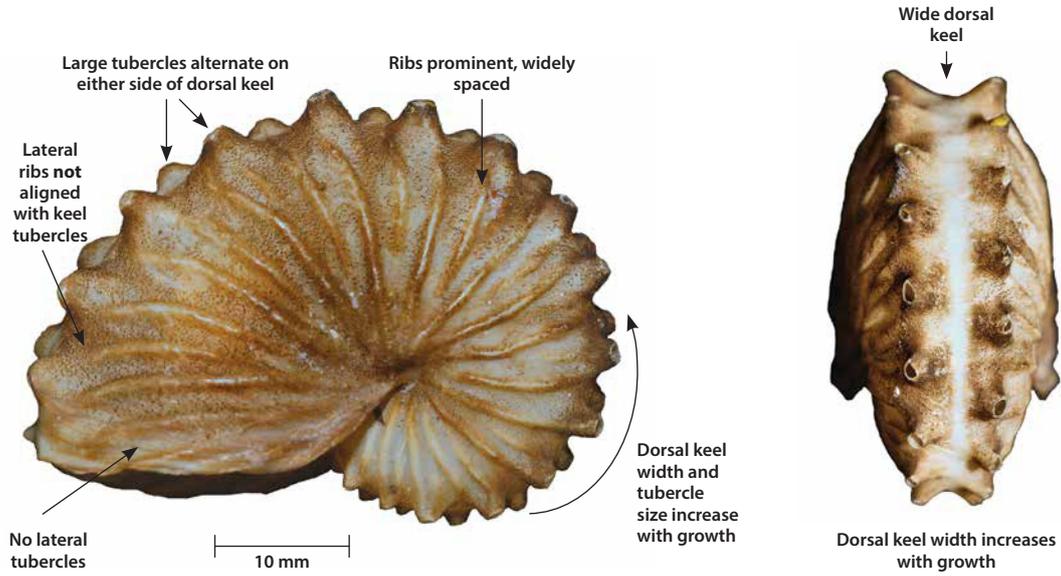
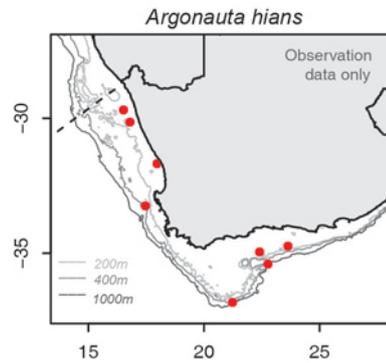
*A. hians* and *A. nodosus*: **Shell** dorsal keel width and tubercle size **increasing with growth**, i.e. from apex towards mouth. Keel tubercles **not paired**, alternating on either side of the keel. ♀♀: Arms IV shorter than Arms II; ♂♂ with 10-11 (*A. hians*) or 17-20 (*A. nodosus*) suckers on normal arms.

#### References

Jereb *et al.*, 2014; Nesis, 1987; Sanchez, 1988.

***Argonauta hians* (ArgHia)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Argonautidae
<b>Common:</b>	Lesser argonaut (Paper nautilus)
<b>Alternate:</b>	-



**Distinguishing features**

- Head small, embedded within mantle. Eyes prominent, protruding and constricted at base.
- Ink sac present. All arms with two rows of suckers. Webs between arms shallow.
- ♀♀: Arms I thick at base, length variable, large membranous flap extending the full length of arm. Arms II & III 1.4x to 2x ML and 20-50% longer than Arms IV. **Arm formula III ≥ II > IV.**
- ♂♂: Small. 10-11 suckers on normal arms.
- Lateral ribs prominent **smooth** without tubercles, **not aligned** with keel tubercles.
- Dorsal keel **width and tubercle size increase with growth** (i.e. from apex towards aperture). Tubercles **alternate** on either side of keel.
- Dorsal keel wide.

**Hectocotylus**

Left Arm III. Long, slender, self-amputating extension (almost as long as the arm) kept coiled in sac below left eye.

**Size**

Females attain 40 mm ML, 106 mm shell length. Males 7 mm ML.

**Distribution**

Oceanic on both coasts. Pelagic, surface to 200 m depth.

**Similar species**

*A. argo*: Lateral ribs smooth; dorsal keel narrow, width and tubercle size constant; keel tubercles arranged in pairs. ♀♀: Arms IV longest (more than 3x ML); ♂♂: 12-13 suckers on arms.

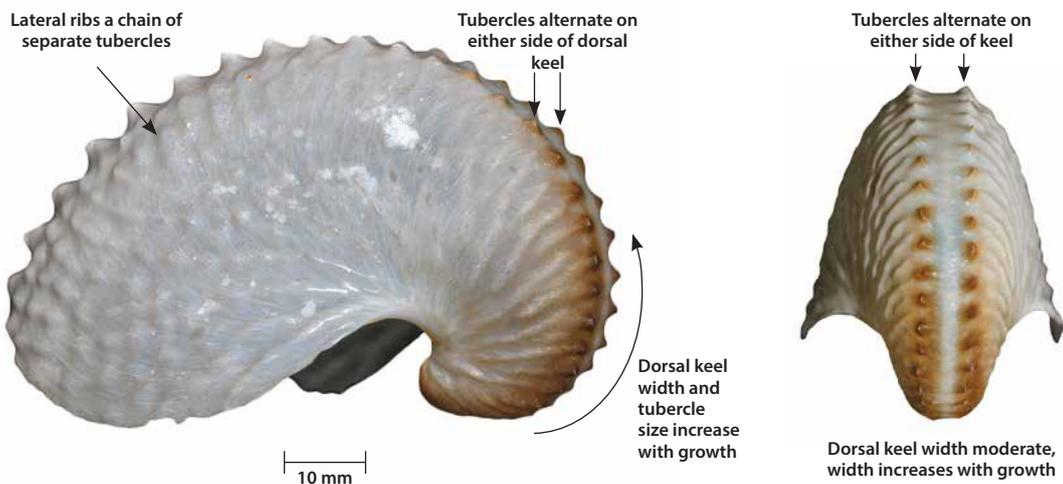
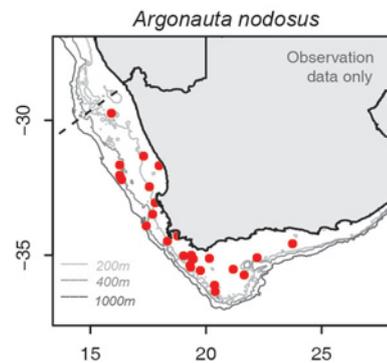
*A. nodosus*: Lateral ribs inconspicuous, ending in a chain of separate tubercles; shell white. ♀♀: Arms II longer than Arms III, 2.0 to 2.8 times ML; ♂♂: 17-20 suckers on normal arms.

**References**

Jereb *et al.*, 2014; Nesis, 1987.

### *Argonauta nodosus* (ArgNod)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Argonautidae
<b>Common:</b>	Knobbed argonaut (Paper nautilus)
<b>Alternate:</b>	-



#### Distinguishing features

- Head small, embedded within mantle. Eyes prominent, protruding and constricted at base.
- Ink sac present. All arms with two rows of suckers. Webs between arms shallow.
- ♀♀: Arms I thick at base, length variable, large membranous flap extending the whole length. Arms II 2.0 to 2.8 times ML; Arms III & IV subequal. **Arm formula II > III ≈ IV.**
- ♂♂: Small. 17-20 suckers on normal arms.
- Lateral ribs ending **in a chain of separate tubercles** terminating in an acute keel tubercle.
- Dorsal keel **width and tubercle size increase with growth** (i.e. from apex towards aperture). Tubercles **alternate** on either side of keel.

#### Hectocotylus

Left Arm III. Long, slender, self-amputating extension (almost as long as the arm) kept coiled in sac below left eye.

#### Size

Females attain 138 mm ML, 292 mm shell length. Males 11 mm ML.

#### Distribution

Circumglobal in southern hemisphere between 10° S and 44° S. Pelagic, surface to 200 m depth.

#### Similar species

*A. argo*: Lateral ribs smooth; dorsal keel narrow, width and tubercle size constant; keel tubercles arranged in pairs. ♀♀: Arms IV longest (more than 3x ML); ♂♂: 12-13 suckers on normal arms.

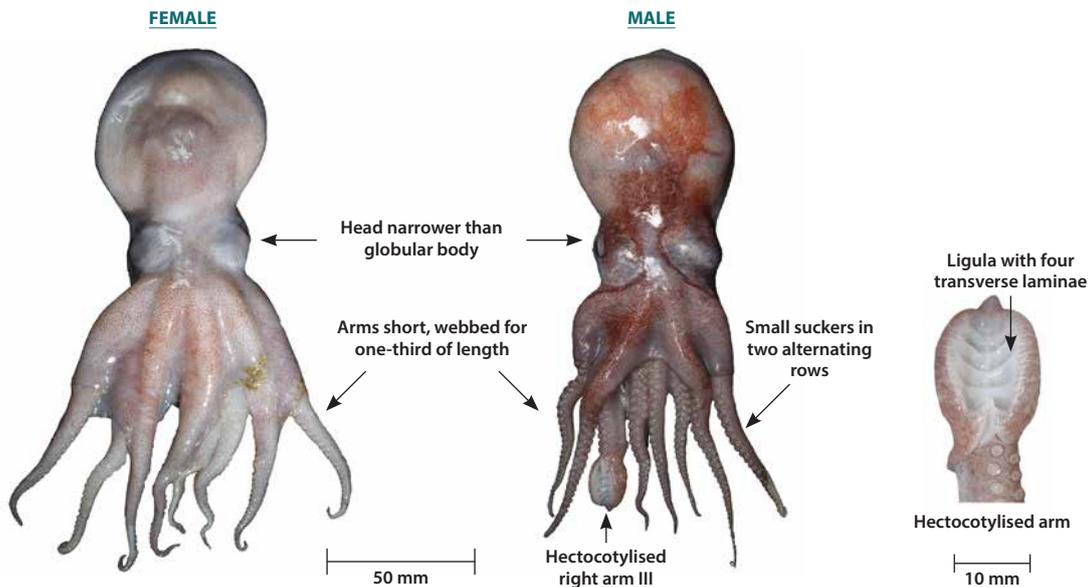
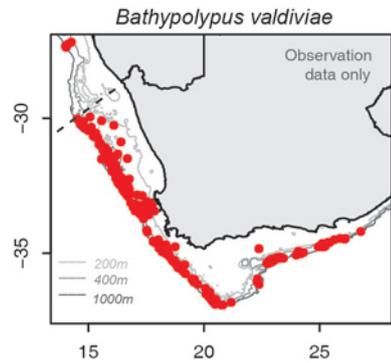
*A. hians*: Lateral ribs prominent, smooth, not terminating in keel tubercle; dorsal keel 20-30% of shell length. Shell off-white to brown. ♀♀: Arms II & III subequal, 1.4 to 2.0 times ML; ♂♂: 10-11 suckers on normal arms.

#### References

Jereb *et al.*, 2014; Nesis, 1987.

***Bathypolypus valdiviae* (BatVal)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Bathypolypodidae
<b>Common:</b>	-
<b>Alternate:</b>	-



**Distinguishing features**

- Ink sac absent.
- Small, smooth, purplish octopod with ovoid muscular mantle.
- Head narrower than body, eyes slightly protuberant.
- Interbranchial web pouches absent.
- A single papilla over each eye.
- Arms short, subequal with two rows of small suckers, webbed for 33% of length.

**Arm formula I ≈ II ≈ III ≈ IV.**

**Hectocotylus**

Right Arm III. Ligula a broad, rounded disc with a deep trough bearing four big transverse laminae.

**Size**

80 mm mantle length.

**Distribution**

Both coasts, but more common on West Coast. Generally 450 to 1000 m depth, but has been recorded at 200 m.

**Similar species**

*Enteroctopus* and *Octopus*: Arms moderate length (3.5-5.0 times mantle length); ink sac present.

*Benthoctopus*: Arms three to six times mantle length; large prominent suckers; ink sac absent.

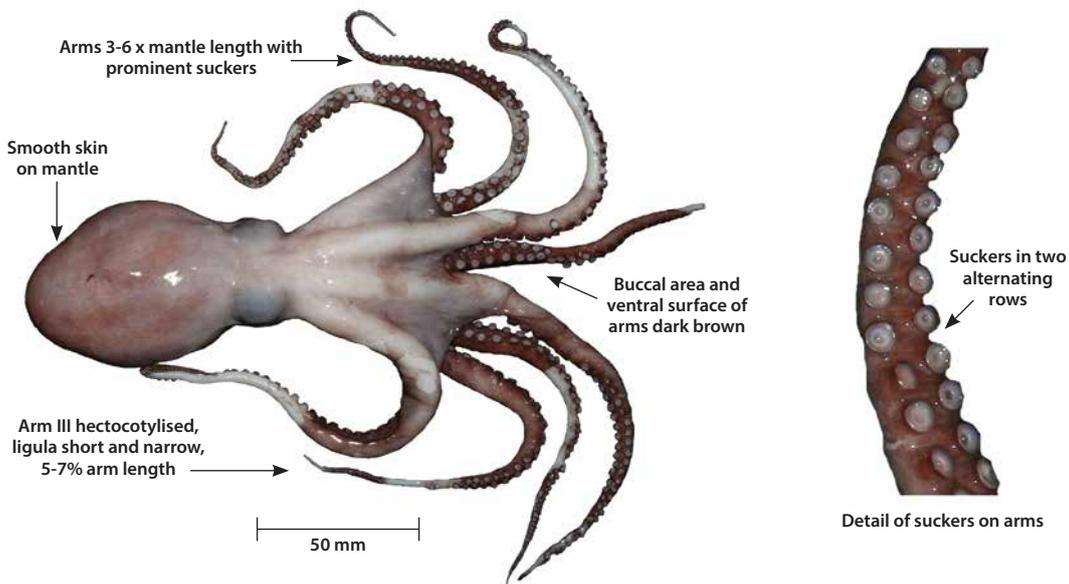
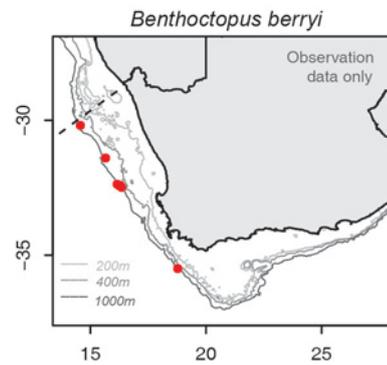
*Eledone schultzei* (inshore, under 20 m depth) and *Velodona togata* (KZN): Distinguished by single row of suckers on arms (to date neither have been recorded on demersal surveys).

**References**

Jereb *et al.*, 2014; Roper *et al.*, 1984; Nesis, 1987; Sanchez, 1988.

### *Benthoctopus berryi* (BenBer)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Octopodidae
<b>Common:</b>	Deepwater octopus
<b>Alternate:</b>	-



#### Distinguishing features

- Ink sac absent.
- Buccal area and ventral surface of arms chocolate brown.
- Suckers large, prominent, arranged in two alternating rows, i.e. not arranged in pairs.
- Arms three to six times longer than mantle. Arms I, II and III subequal in length and longer than Arms IV. **Arm formula: I ≈ II ≈ III > IV.**

#### Hectocotylus

Right Arm III. Ligula short, narrow 5-7% of hectocotylosed arm length.

#### Size

50 mm ML.

#### Distribution

Rare endemic. West Coast from 600-2 200 m.

#### Similar species

*Enteroctopus magnificus*: Ink sac present; characteristic fold of loose skin at end of mantle; lacks the dark pigmentation on the buccal area and ventral surfaces of arms; Arm formula II = I > III = IV.

*Octopus vulgaris*: Ink sac present; lacks the dark pigmentation on the buccal area and ventral surfaces of arms; Arm formula II = III > I = IV.

*Bathypolypus valdiviae*: Small, purple, with short subequal arms; ink sac absent.

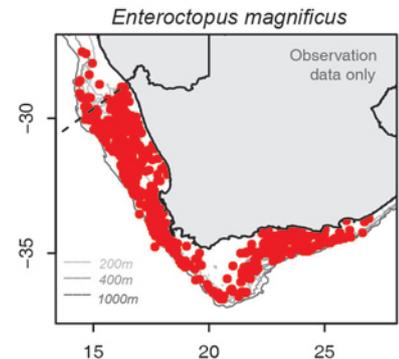
*Eledone schultzei* (inshore, under 20 m depth) and *Velodona togata* (KZN): Distinguished by single row of suckers on arms (to date neither have been recorded on demersal surveys).

#### References

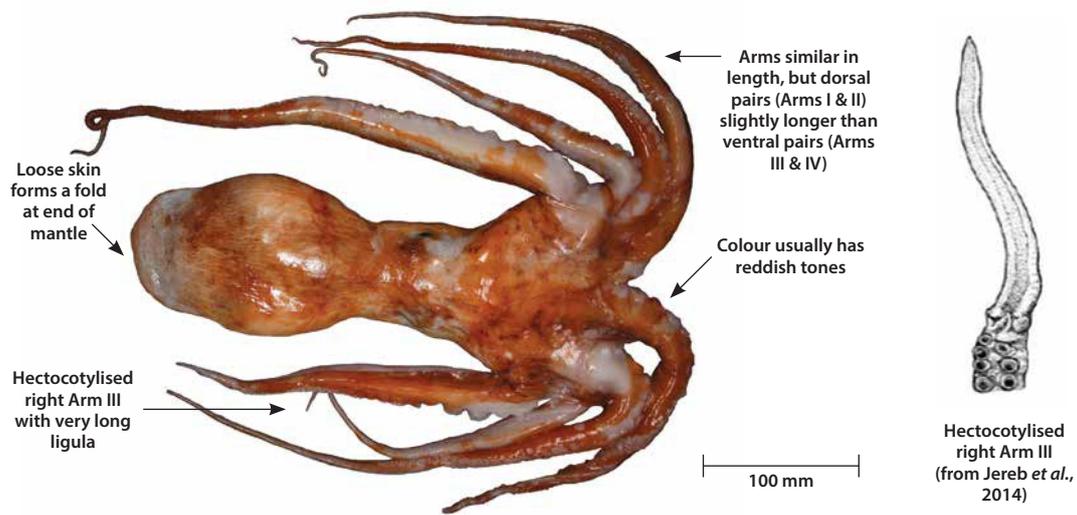
Jereb *et al.*, 2014; Nesis, 1987.

***Enteroctopus magnificus* (OctMag)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Octopodidae
<b>Common:</b>	Southern giant octopus
<b>Alternate:</b>	<i>Octopus dofleini</i> (in error); <i>Octopus magnificus</i>



Records from shallow waters may be the result of misidentifications



**Distinguishing features**

- Ink sac present.
- Large and robust, without enlarged suckers on arms.
- Arm length moderate 3.5-5.0 times ML; subequal in length. **Arm formula II = I > III = IV.**
- Colour usually with reddish tones; distinctive fold of loose skin at the end of the mantle.
- No large erectile papillae on dorsal mantle; single large papilla and three or four cirri over each eye.

**Hectocotylus**

Right Arm III. Ligula long (16-25% of length of arm), tapering to a blunt terminus.

**Size**

Up to 360 mm mantle length and more than 10 kg.

**Distribution**

West and South Coasts. Usually deeper than 100 m.

**Similar species**

*Octopus vulgaris*: Lateral arms distinctly longer than medial arms (III ≥ II > IV > I); two to three pairs enlarged suckers on lateral arms; generally smaller and found at shallower depths; colour usually greyish rather than reddish tones; lacks the loose skin on the mantle. Ligula small (only 2.5% of arm length) and spoon-shaped.

*Benthoctopus*: Ventral surface of arms dark brown; suckers prominent. Arm formula I = II = III = IV.

*Bathypolypus*: Small, purple with short arms; ink sac absent.

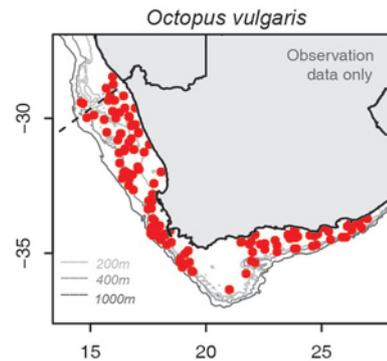
*Eledone schultzei* (inshore, under 20 m depth) and *Velodona togata* (KZN): Distinguished by single row of suckers on arms (to date neither have been recorded on demersal surveys).

**References**

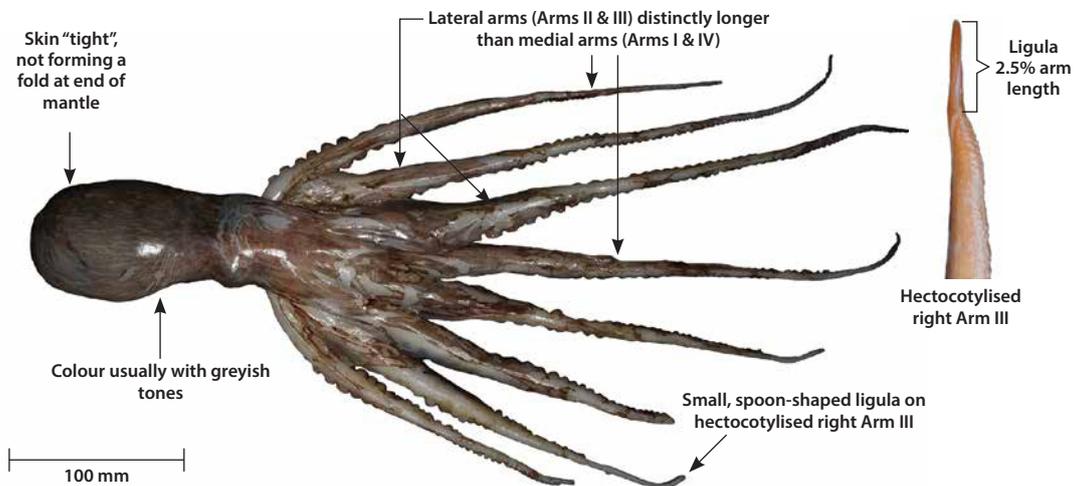
Jereb *et al.*, 2014; Nesis, 1987; Roper *et al.*, 1984.

### *Octopus vulgaris* (OctVul)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Incirrata
<b>Family:</b>	Octopodidae
<b>Common:</b>	Common octopus
<b>Alternate:</b>	<i>Octopus "vulgaris" type III</i>



Note: *Octopus vulgaris* is currently regarded as a single widely distributed species with a number of regional forms. These regional forms may be distinct species.



#### Distinguishing features

- Ink sac present.
- Large muscular species; arms long, 4x to 5.5x ML; lateral pairs distinctly longer than median pairs; **Arm formula III ≥ II > IV > I**.
- Both sexes with two to three enlarged suckers on lateral arms at level of 15th–19th proximal suckers.
- Colour usually with greyish tones. No loose skin fold at the end of the mantle.
- Four large erectile papillae in diamond arrangement on dorsal mantle.
- One to two supraocular papillae over each eye.

#### Hectocotylus

Right Arm III. Ligula small, spoon-shaped, 2.5% of arm length.

#### Size

Maximum weight 10 kg.

#### Distribution

West and South Coasts. To about 200 m, but generally less than 100 m.

#### Similar species

*Enteroctopus magnificus*: All arms similar length, lateral pairs (II & III) NOT distinctly longer than median pairs; no enlarged suckers on lateral arms; generally larger and found at greater depths; colour usually with reddish rather than greyish tones; characteristic fold of loose skin at end of mantle; ligula prominent, long (16-25% of arm length), tapering to a blunt tip.

*Benthoctopus*: Ventral surface of arms dark brown; suckers prominent. Arm formula I = II = III = IV.

*Bathypolypus*: Small, purple with short arms; ink sac absent.

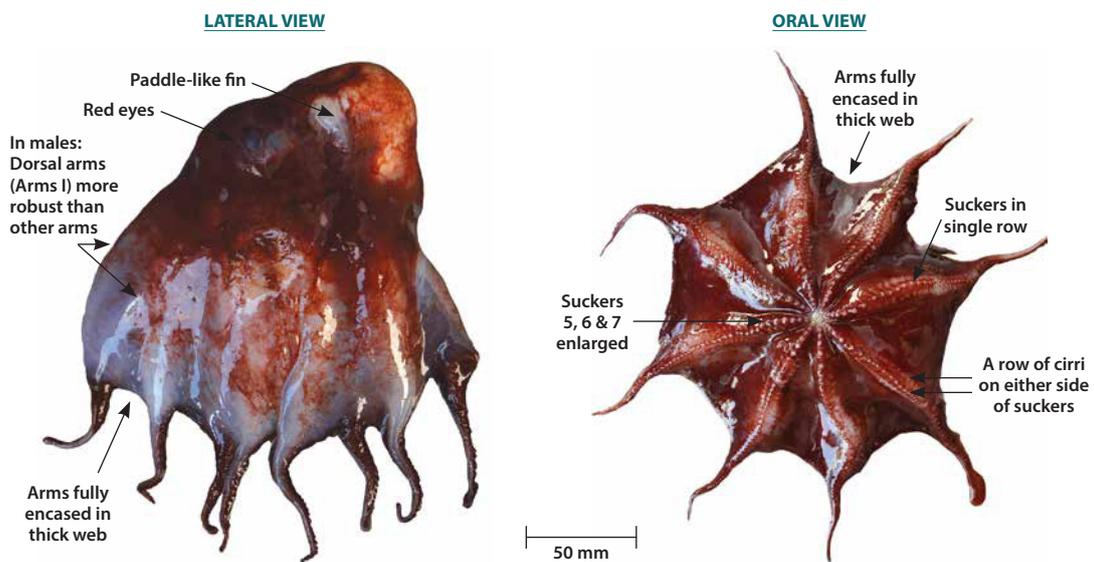
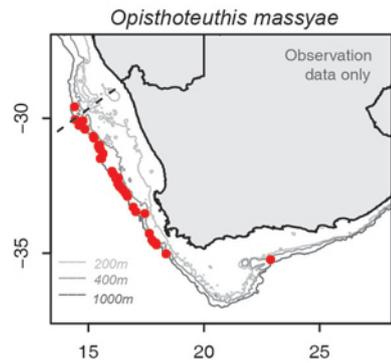
*Eledone schultzei* (inshore, under 20 m depth) and *Velodona togata* (KZN): Distinguished by single row of suckers on arms (to date neither have been recorded on demersal surveys).

#### References

Jereb *et al.*, 2014; Nesis, 1987; Roper *et al.*, 1984; Sanchez, 1988.

***Opisthoteuthis massyae* (Opisto)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Octopoda
<b>Suborder:</b>	Cirrata
<b>Family:</b>	Opisthoteuthidae
<b>Common:</b>	Umbrella octopus
<b>Alternate:</b>	<i>Opisthoteuthis vossi</i>



**Distinguishing features**

- Arms almost fully encased in a thick web with a single row of suckers to the tips, flanked by a row of cirri on either side. A pair of small fins near posterior end of mantle.
- It looks like a dark reddish-brown gelatinous blob, and it is only the eight rows of suckers on the oral side that show that it is a cephalopod.
- In males, the proximal four suckers on each arm are small, the next three to six enlarged, then decrease progressively to tips, but with a second field of enlarged suckers at the web margin.
- Dorsal arms (Arms I) of males thick, muscular and robust to web margin, distal 3rd attenuate and slender. Dorsal arms of females not different to the other arms.

**Hectocotylus**

None.

**Size**

70 mm mantle length.

**Distribution**

West and South Coasts between 500 and 1 500 m.

**Similar species**

Four nominal species have been reported from Namibia and South Africa: *O. agassizi*, *O. grimaldii*, *O. massyae* and *O. vossi*. Villanueva *et al.* (2002) revised the genus in the Atlantic, they designate *O. vossi* as a junior synonym of *O. massyae* and restrict *O. agassizi* to the Caribbean and *O. grimaldii* to the eastern Atlantic from Azores to northern Namibia. This leaves *O. massyae* as the only known species off South Africa. Male *O. grimaldii* lack enlarged dorsal arms, females difficult to distinguish from *O. massyae*. *O. grimaldii* may be confined to deeper water as all known specimens were collected between 1 135 and 2 287 m.

**References**

Jereb *et al.*, 2014; Sanchez, 1988; Sanchez & Guerra, 1989; Villanueva *et al.*, 2002.

### *Vampyroteuthis infernalis* (VamInf)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Vampyromorpha
<b>Suborder:</b>	-
<b>Family:</b>	Vampyroteuthidae
<b>Common:</b>	Vampire squid
<b>Alternate:</b>	-

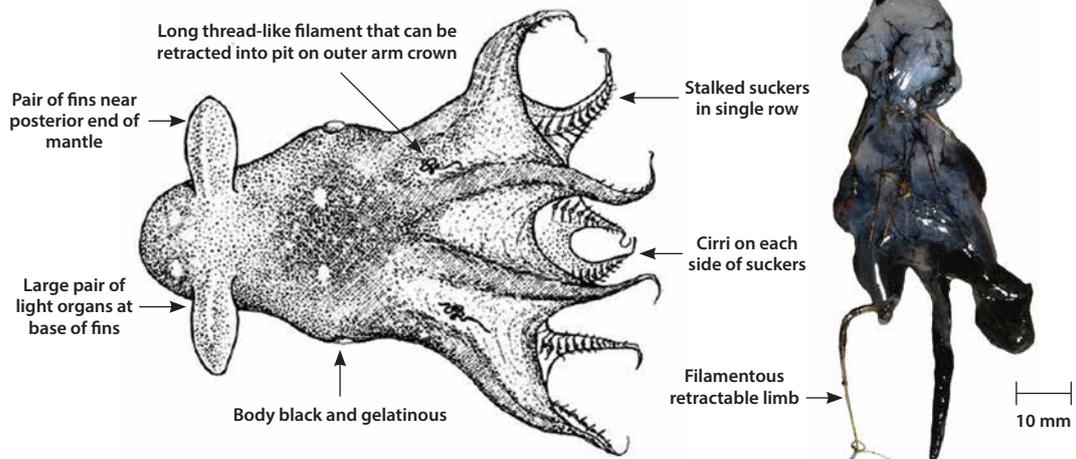
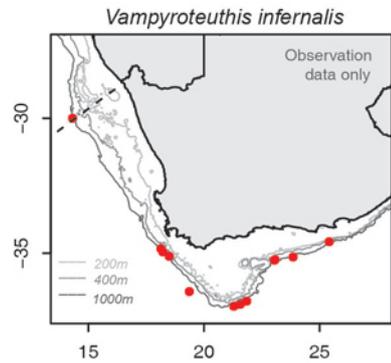


Illustration from Jereb *et al.*, 2014

Badly damaged specimen captured in 2015

#### Distinguishing features

- Eight arms, webbed for most of their length.
- Two long **filamentous limbs that can be retracted** into pits between Arms I and II.
- A single row of **stalked suckers** on distal 2/3 of arms, flanked by a row of cirri on either side.
- Body gelatinous with **black pigmentation**.
- A pair of small fins near posterior end of mantle in adults; juveniles with two pairs of fins.

#### Hectocotylus

None.

#### Size

Maximum 130 mm mantle length.

#### Distribution

Mesopelagic (600-1 200 m) on West and South Coasts.

#### Similar species

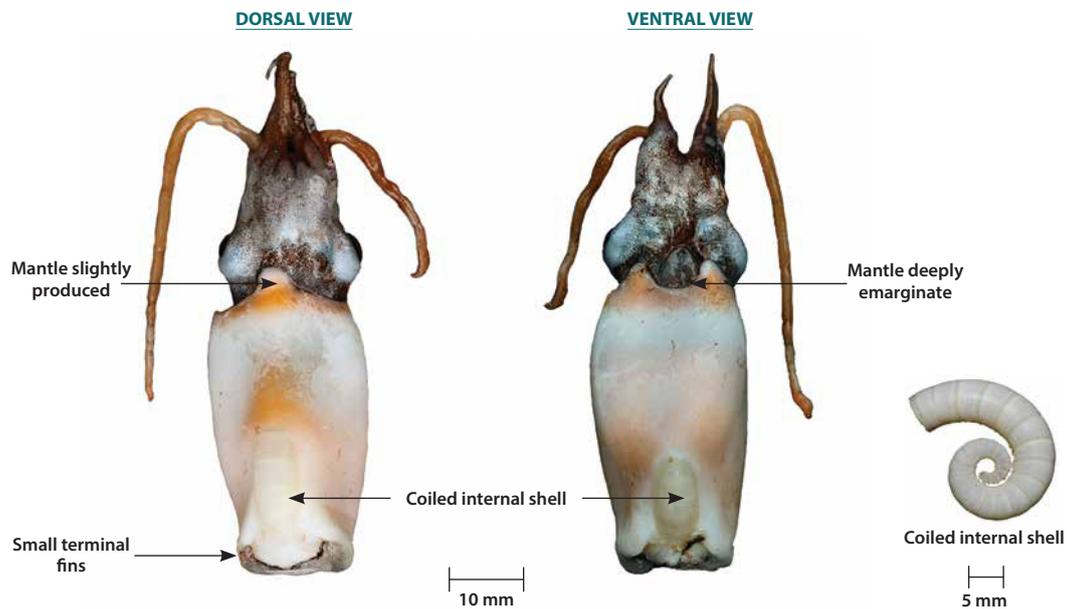
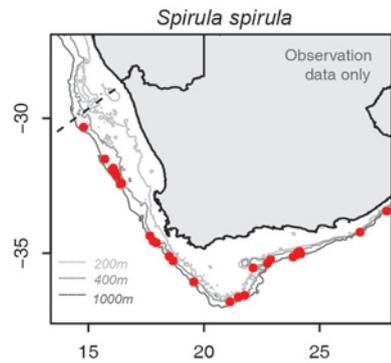
None, only known black octopod in the area.

#### References

Jereb *et al.*, 2014; Young, 2009.

***Spirula spirula* (Spirul)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Spirulida
<b>Suborder:</b>	-
<b>Family:</b>	Spirulidae
<b>Common:</b>	Ram's horn squid
<b>Alternate:</b>	-



**Distinguishing features**

- Tightly coiled, chambered shell. The shell is internal, but visible on both dorsal and ventral surfaces.
- Rectangular mantle with small fins at the posterior corners.
- Mantle margin produced dorsally and deeply emarginated ventrally.
- Colour dark reddish brown, but usually skinned during trawl capture.

**Club**

Small, marginally wider than the stalk. Suckers small, subequal.

**Hectocotylus**

Both ventral arms modified.

**Size**

Maximum size 45 mm mantle length.

**Distribution**

Pelagic in surface waters on West and South Coasts. Seldom captured on demersal surveys, regular on pelagic surveys.

**Similar species**

None.

**References**

Jereb & Roper, 2010; Nesis, 1987.

### Quick guide to the Genus *Sepia*

See Figure 6 (p. 325) for illustration of emarginated versus entire ventral mantle margin. If you are unsure of the species, but are sure that your *Sepia* is in the subgenus *Hemisepius*, then use the code “Hemisep”, otherwise use the code “Sepia”.

**Table 1: Large *Sepia* – mainly South Coast**

Character	<i>Sepia papillata</i>	<i>Sepia simoniana</i>	<i>Sepia tuberculata</i>	<i>Sepia vermiculata</i>
Dorsal margin	broadly produced	slightly produced	broadly produced	produced dorsally
Ventral margin	entire	entire	entire	entire (♂) or emarginated (♀)
Dorsal mantle	rough, densely covered with small tubercles	smooth, covered with fine papillae	densely covered with obvious tubercles	smooth; no tubercles or papillae
Wrinkled patches	present	usually absent; rarely present on mantle	present	absent
Diameter of largest club suckers	equal to or greater than width of club	no enlarged suckers	much less than width of club	much less than width of club

**Table 2: Medium-sized *Sepia* (but beware of small individuals of above and of large *Sepia faurei*)**

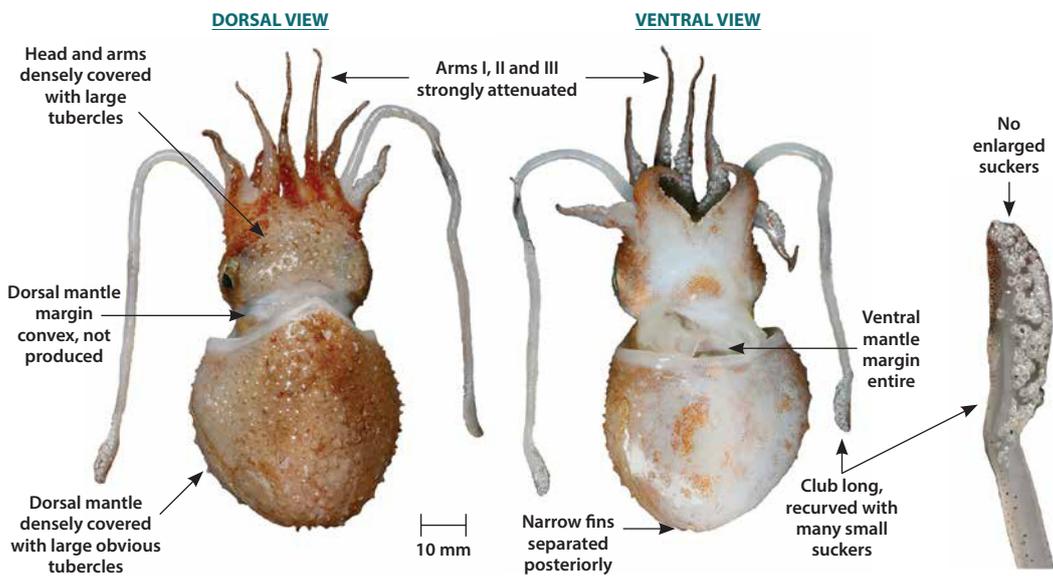
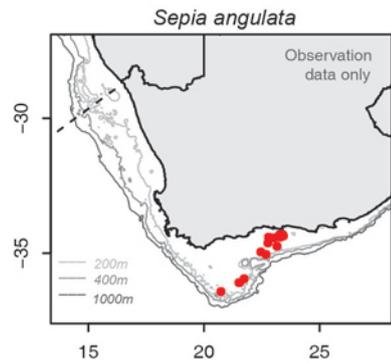
Character	<i>Sepia angulata</i>	<i>Sepia australis</i>	<i>Sepia hieronis</i> ♂	<i>Sepia hieronis</i> ♀
Dorsal margin	slightly produced	produced dorsally	strongly produced	produced
Ventral margin	entire	entire	entire	emarginated
Dorsal mantle	densely covered with obvious tubercles	smooth	smooth	smooth
Posterior spine	absent	large, obvious	absent	absent
Enlarged club suckers	absent	present	absent	absent
Arms I, II & III	long, strongly attenuated	not attenuated	not attenuated	not attenuated

**Table 3: Subgenus *Hemisepius*: Small to medium-sized, characterised by the presence of a fleshy ridge on sides of belly (visible as an iridescent blue line) and shell partially or completely chitinated**

Character	<i>Sepia dubia</i>	<i>Sepia faurei</i>	<i>Sepia robsoni</i>	<i>Sepia</i> sp. A	<i>Sepia</i> cf. <i>typica</i>
Dorsal margin	straight	straight or slightly convex	straight	slightly convex	slightly convex
Ventral margin	deeply emarginated	emarginated	emarginated	entire or emarginated	entire or emarginated
Dorsal mantle	sparsely papillose, 2 large wart-like growths	densely covered with papillae or tubercles	smooth	smooth or sparsely papillose	smooth
Ventral pores	absent	absent	absent	absent	present
Shell	hard calcified	hard centre, edges soft	completely soft	hard centre, edges soft	hard centre, edges soft
Dorsal arms	suckers to tips	tips devoid of suckers	distal ½ devoid of suckers	suckers to tips	suckers to tips

***Sepia angulata* (SepAng)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



**Distinguishing features**

- Mantle short and broad. Dorsal margin convex, not produced. Ventrally entire.
- Fins narrow, rounded. Separate posteriorly.
- Dorsal surface of mantle, head and arms densely covered with large, coarse papillae.
- Ventral surface of mantle generally smooth, with widely scattered large papillae.
- Arm suckers arranged in four series to tips.
- Arms I to III long and strongly attenuated.

**Club**

Long, slightly recurved, bearing numerous subequal small suckers.

**Hectocotylus**

Not described.

**Size**

ML up to 100 mm (♂) and 120 mm (♀).

**Distribution**

Coastal to 350 m on South Coast, but all research survey records 100-110 m.

**Similar species**

See Tables 1 and 2 (page 336).

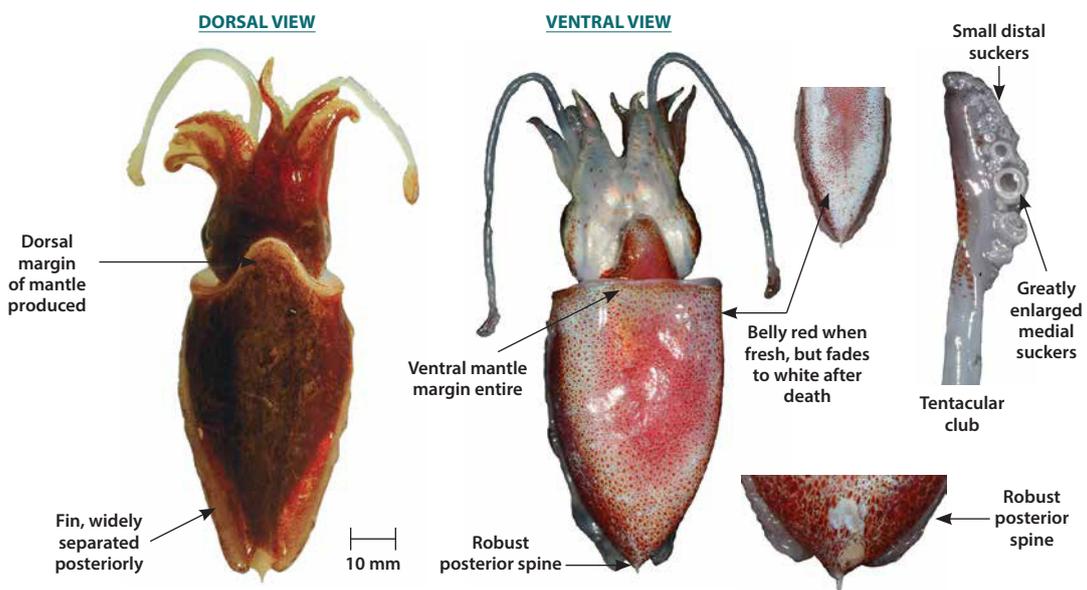
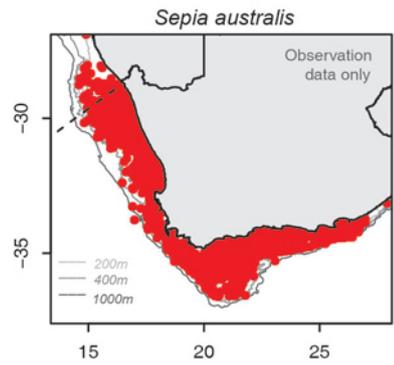
The combination of strongly attenuated arms and dorsal surface densely covered with large papillae distinguishes this species from all except *Sepia tuberculata*. Differs from *S. tuberculata* in longer, thinner arms, absence of wrinkled patches on the belly, and absence of enlarged suckers on the clubs.

**References**

None.

***Sepia australis* (SepAus)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	Southern cuttlefish
<b>Alternate:</b>	-



**Distinguishing features**

- Strong, robust spine on posterior end of cuttlebone.
- Mantle oval, dark purple dorsally. Ventral surface reddish-brown to orange when fresh, but on death fades to white with red centre.
- Mantle margin produced dorsally and straight (not emarginated) ventrally.
- Suckers on arms in four rows.

**Club**

Short, somewhat recurved. Suckers arranged in transverse rows, five suckers per row; size varies markedly, smaller distally and four greatly enlarged median suckers near proximal end.

**Hectocotylus**

Left ventral arm hectocotylised.

**Size**

Up to 85 mm mantle length, 5 gram.

**Distribution**

Common on both West and South Coasts to 500 m, but most abundant (90% of records) 60-200 m.

**Similar species**

See Table 2 (page 336).

Distinguished from other cuttlefish in the region by reddish belly and robust posterior spine.

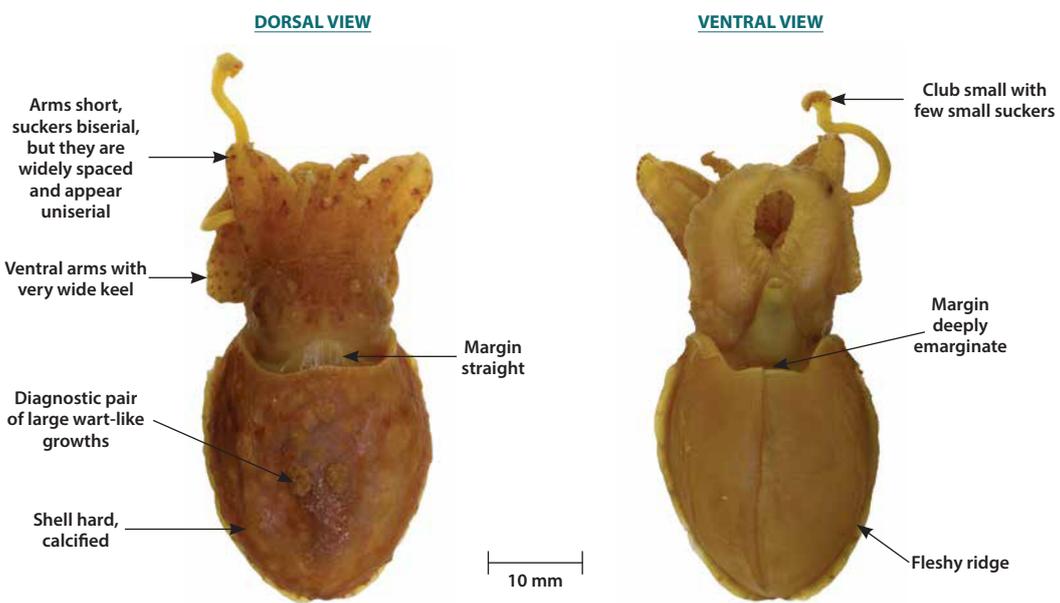
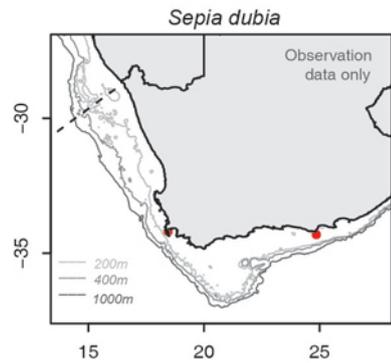
*S. elegans*: Recorded off Namibia is similar, has smaller spine and part of each arm (extent varies between sexes) with suckers arranged in two rows.

**References**

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972; Sanchez, 1988.

***Sepia dubia* (SepDub)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Hemisepius dubia</i>



**Distinguishing features**

- A fleshy ridge without pores on sides of ventral mantle typical of the subgenus *Hemisepius*.
- Shell hard, well-calcified, unlike any others in the subgenus *Hemisepius*.
- Mantle rounded, papillate, with **two large complex wart-like growths**.
- Mantle margin straight dorsally, deeply emarginate ventrally.
- Wide keels on ventral arms.
- Arms with small suckers to the tips. **Suckers biserial, but widely spaced so that they look as though they are uniserial.**

**Club**

Small, with few small subequal suckers.

**Hectocotylus**

Not described. Only known specimens are female.

**Size**

17 mm mantle length.

**Distribution**

Very rare, known from only two specimens, 150-200 m.

**Similar species**

See Table 3 (page 336).

Differs from all others in the subgenus *Hemisepius* in possessing a hard, calcified shell, wide keels on ventral arms and diagnostic skin growths. Additional differences are:

*S. faurei*: Dorsal mantle densely covered with small round papillae; tips of Arms I finger-like without suckers.

*S. robsoni*: Shell reduced, soft without hard centre; distal half of Arms I finger-like without suckers.

*S. sp A.*: Mantle broadly oval; dorsal margin convex; ventral margin entire.

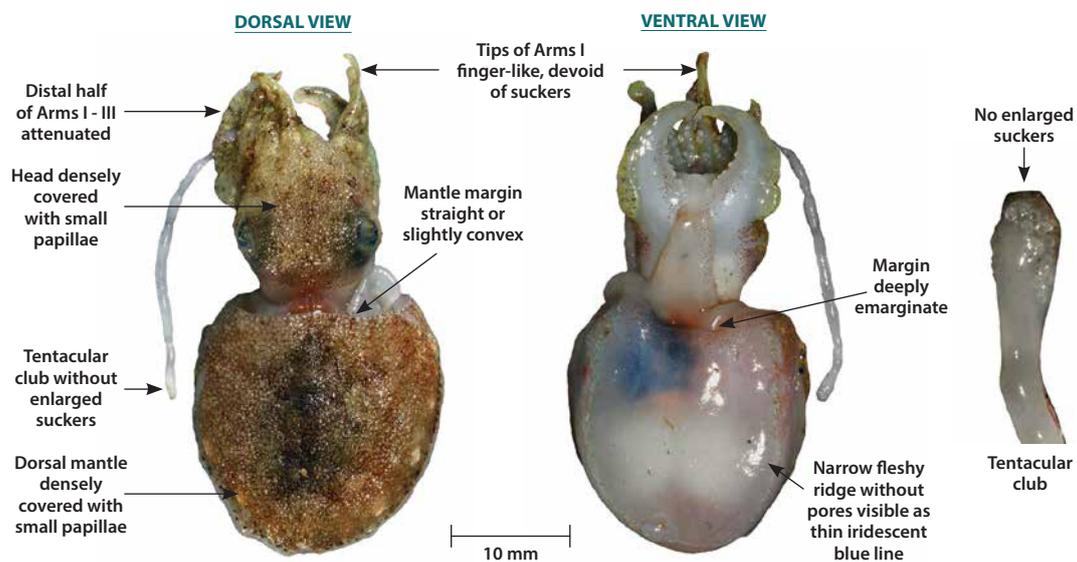
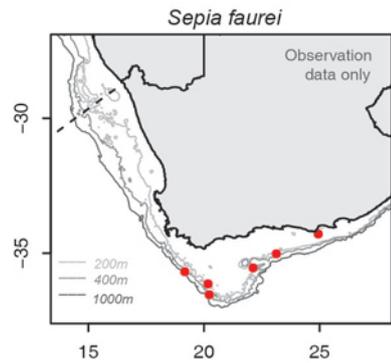
*S. cf. typica*: 10-12 diagnostic obvious black pores ventrally.

**References**

Adam and Rees, 1966; Roeleveld, 1972.

***Sepia faurei* (SepFau)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Hemisepius faurei</i>



**Distinguishing features**

- A fleshy ridge on sides of ventral mantle typical of the subgenus *Hemisepius* visible as a narrow iridescent blue line without pores.
- Shell thin, not calcified, but middle hard to the touch as in most *Hemisepius*.
- Mantle broad, almost round. Dorsal margin straight, deeply emarginate ventrally.
- Dorsal surface of mantle, head and arms brownish, densely **covered with small round papillae**.
- Arm suckers small, globose and biserial. Arms I attenuated for distal half, **tips finger-like, devoid of suckers**.
- Web between Arms I, II and III not reaching half of arm length.

**Club**

Broad and slightly recurved with 33 small suckers in transverse rows. Median suckers slightly larger than lateral suckers.

**Hectocotylus**

Not described.

**Size**

Most small (20-30 mm ML), but specimens of over 40 mm ML have been recorded.

**Distribution**

South Coast; from coast to 900 m. Rare and easily overlooked.

**Similar species**

See Table 3 (page 336).

Differs from others in the subgenus *Hemisepius* in densely papillose dorsal mantle and from all other *Sepia* in the region except *S. robsoni* in having tips of Arms I finger-like, devoid of suckers.

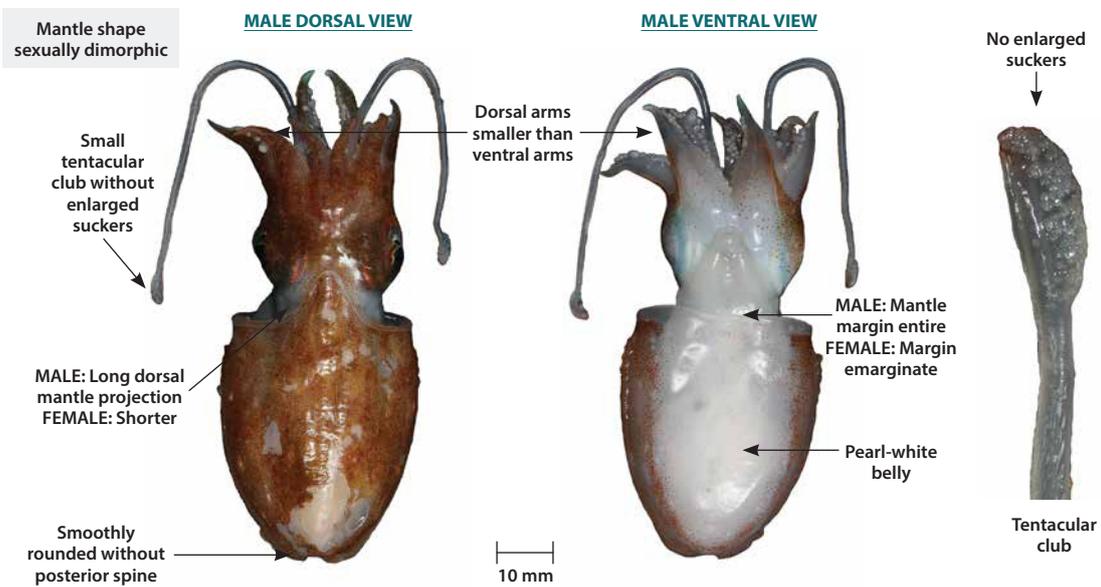
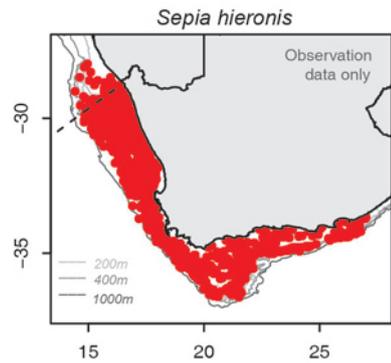
*S. robsoni*: Dorsal mantle and head smooth, or with few papillae around edges of shell. Shell thin, completely chitinous without hard central area.

**References**

Roeleveld, 1972.

***Sepia hieronis* (SepHie)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



**Distinguishing features**

- Dorsal projection of mantle in males long, reaching to between eyes, shorter in females.
- Ventral mantle margin entire in males, emarginated in females.
- Fins a very narrow, inconspicuous fringe along mantle, separate posteriorly.
- Dorsal arms shorter than ventral arms, with suckers to the tips.
- Suckers biserial on basal two-thirds of arms. Proximal 3rd biserial (females) or quadriserial (males).
- Dorsal colour reddish brown. Ventral colour white, with reddish or orange border near base of fins. No posterior spine.

**Club**

Small, curved with five to six transverse rows of numerous small subequal suckers.

**Hectocotylus**

Left ventral arm. Modified region about half of arm. Transversely wrinkled with minute lateral suckers.

**Size**

80 mm mantle length.

**Distribution**

West and South Coasts, between 40 and 550 m.

**Similar species**

See Table 2 (page 336).

This is the second commonest *Sepia* species after *S. australis*.

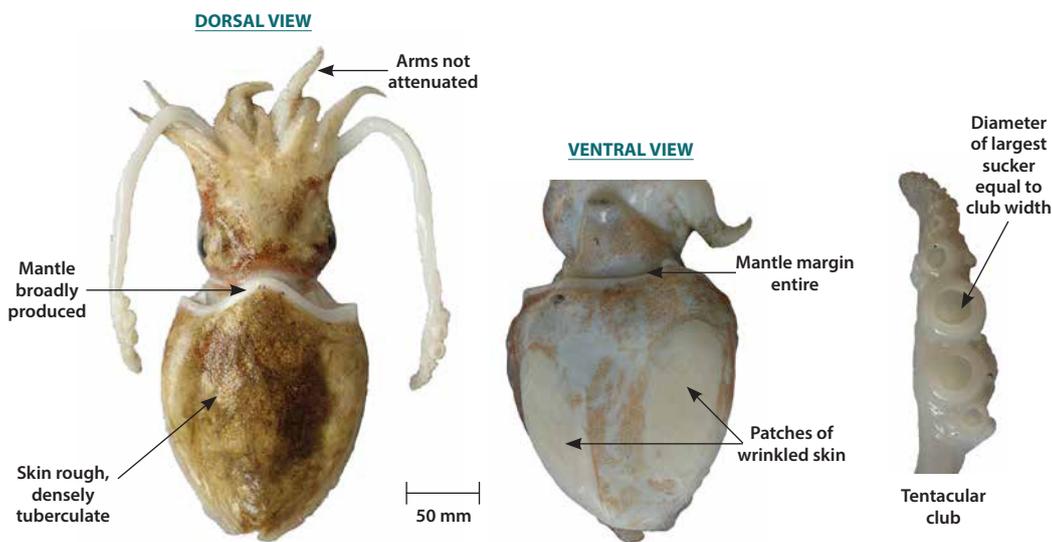
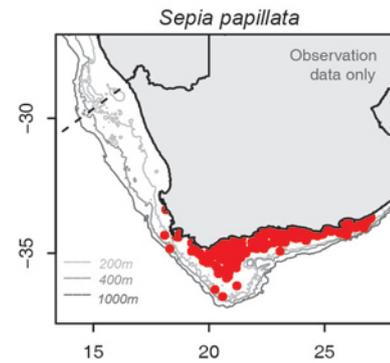
*Sepia australis*: Large, robust posterior spine. Fin wider. Belly red. Tentacular club larger with enlarged medial suckers. Suckers quadriserial for entire length of all arms.

**References**

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972; Sanchez, 1988.

### *Sepia papillata* (SepPap)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



#### Distinguishing features

- Mantle broadly oval. Mantle margin dorsally produced, ventrally slightly emarginated.
- Fins wide, rounded. Separate posteriorly.
- Dorsal surface of mantle, head and arms densely covered with small tubercles.
- Wrinkled areas on ventral surface of mantle and on outer sides of ventral arms.
- Arm suckers not globose, arranged in four series basally, in four (♀) or eight (♂) rows on distal ¼.
- Arms I to III not attenuated, webbed for about half of length.
- Colour: Dorsal dark reddish-brown to purple; ventral pale with scattered chromatophores.

#### Club

Long. Small suckers distally. Four enlarged medial suckers. Middle two extremely large, diameter approximately equal to width of the sucker-bearing surface of the club.

#### Hectocotylus

Left ventral arm. In modified region sucker rows two and three separated by naked area with transverse ridges.

#### Size

140 mm mantle length.

#### Distribution

Mainly South Coast shallower than 210 m.

#### Similar species

See Table 1 (page 336).

Wrinkled patches on belly unique to *S. papillata* and *S. tuberculata* and rarely *S. simoniana*.

*S. tuberculata*: Dorsal surface of head and body densely covered with large, coarse tubercles. Club long, enlarged median suckers less than width of club. Arms I-III attenuated suckers in four rows to tip in both sexes. Maximum size 82 mm ML.

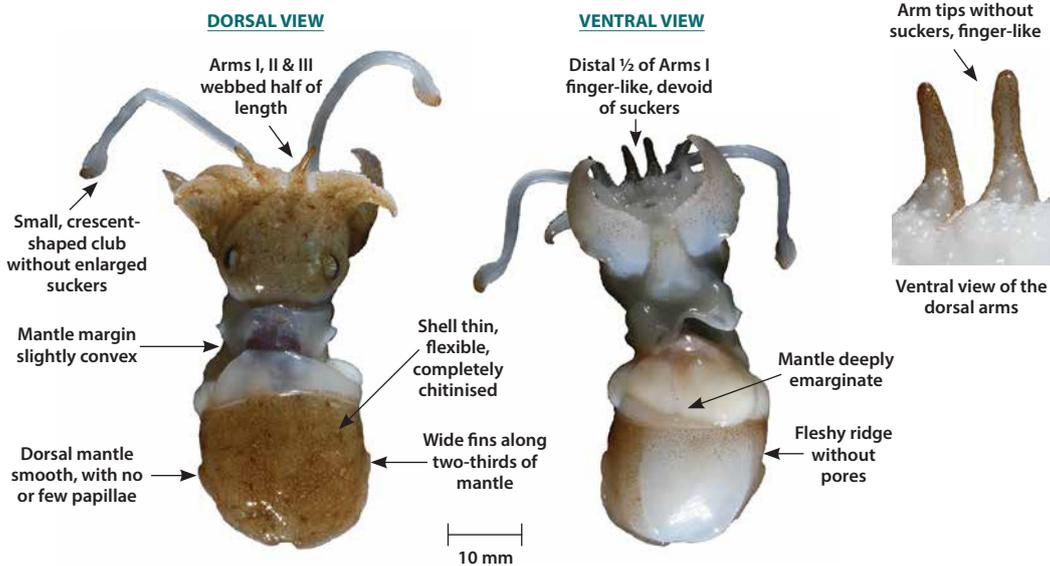
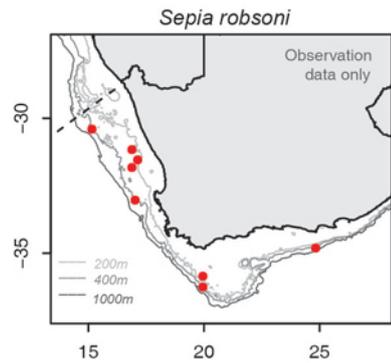
*S. simoniana*: Club very long, with numerous minute suckers. Normally lacks wrinkled patches on belly.

#### References

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972.

***Sepia robsoni* (SepRob)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Hemisepius robsoni</i>



**Distinguishing features**

- A fleshy ridge on sides of ventral mantle typical of the Subgenus *Hemisepius* visible as a narrow iridescent line without pores.
- Shell thin, completely chitinous, lacking the hard centre of other *Hemisepius*.
- Mantle broad; dorsal margin convex, almost straight; ventral margin deeply emarginate.
- Dorsal surface of mantle, head and arms brown, covered with small, round papillae.
- Arm suckers small, globose and biserial. Distal half of dorsal arms finger-like, devoid of suckers. Suckers to the tips of ventral and dorso-lateral arms.
- Arms I, II & III webbed half of arm length.
- Wide fin not reaching edge of mantle (along 60-80% of mantle) and separate posteriorly.

**Club**

Crescent-shaped, with about 53 subequal suckers in transverse rows of four to six.

**Hectocotylus**

Left ventral arm. Ten pairs of minute suckers in modified basal ¾.

**Size**

Maximum 20 mm.

**Distribution**

Uncommon on both West and South Coasts, from 300-500 m.

**Similar species**

Other species in the subgenus *Hemisepius* (see Table 3 on page 336).

*S. dubia*, *S. sp. A* and *S. cf. typica*: Shell with hard, calcified central area. Arms with suckers to the tips and not attenuated. In addition, *S. cf. typica* ten to twelve pairs of obvious black pores ventrally.

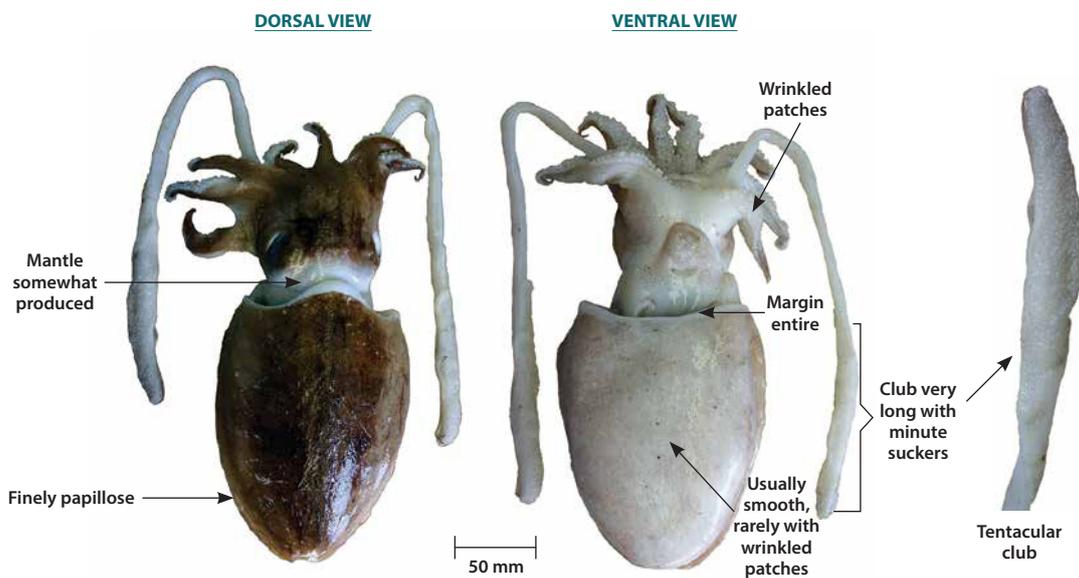
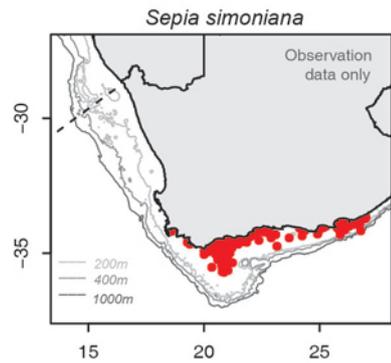
*S. faurei*: Centre of shell hard; dorsal surface of mantle densely covered with papillae or tubercles; distal half of Arms I-III attenuated and webbed for less than half of length; tips of Arms I devoid of suckers.

**References**

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972; Sanchez, 1988.

***Sepia simoniana* (SepSim)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



**Distinguishing features**

- Mantle broadly oval. Mantle margin dorsally produced, ventrally entire.
- Fins narrow, rounded. Separate posteriorly.
- Skin finely papillose on dorsal surface of mantle, head and arms.
- Wrinkled areas on outer sides of ventral arms and rarely on ventral mantle.
- All except ventral arms attenuated over distal quarter.
- Arm suckers not globose, quadriserial to tips of all arms in both sexes.
- Colour: Dorsal pinkish-brown; ventral pale with scattered chromatophores.

**Club**

Very long, more than half the length of mantle, with numerous minute suckers.

**Hectocotylus**

Left ventral arm. Modified region – two ventral and two dorsal rows of minute suckers separated by naked region with transverse ridges. Distal half normal.

**Size**

185 mm mantle length.

**Distribution**

Mainly South Coast. Recorded to 190 m, but usually less than 100 m.

**Similar species**

See Table 1 (page 336).

Long clubs with numerous small suckers are diagnostic.

*S. vermiculata*: Mantle broadly oval; slightly produced. Skin dorsal and ventral smooth. Arms I-III attenuated tips. Club large, enlarged median suckers 3x of marginal.

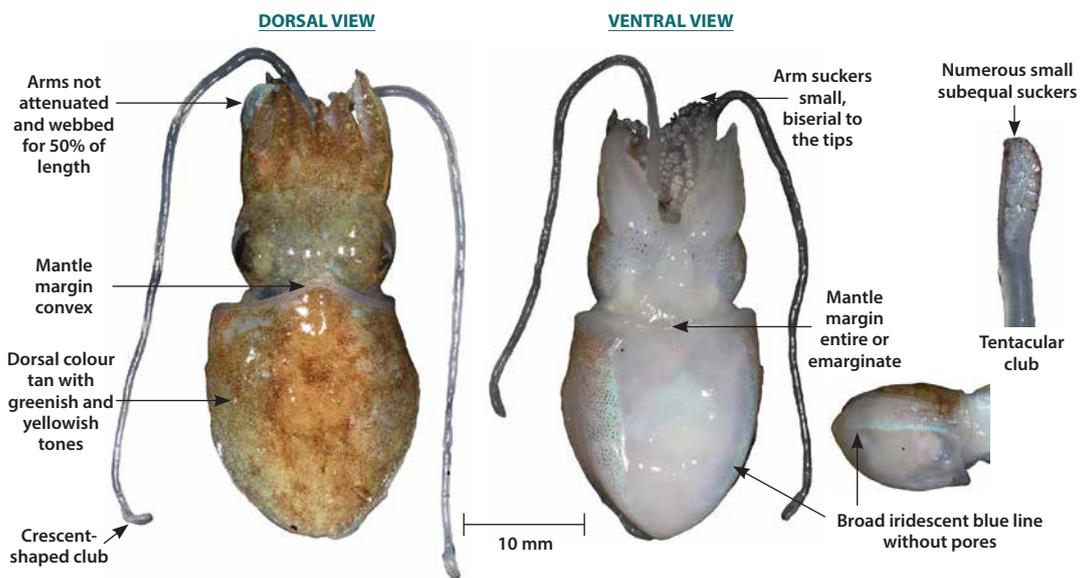
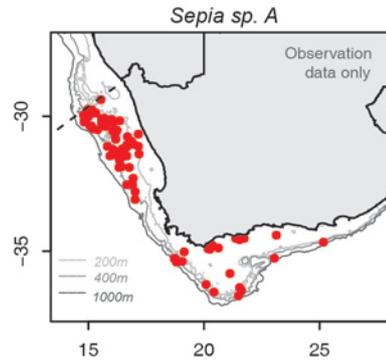
*S. papillata* and *S. tuberculata* have large wrinkled patches on the belly, and enlarged suckers on the clubs.

**References**

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972.

**Sepia sp. A (Sep001)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Hemisepius</i> sp. A



**Distinguishing features**

- A fleshy ridge on sides of ventral mantle typical of the subgenus *Hemisepius* visible as a narrow iridescent blue line without pores.
- Shell reduced. Middle hard to the touch, margins soft, chitinous.
- Mantle margin: slightly convex dorsally; ventrally entire or shallowly emarginate.
- Arm suckers small and biserial. Dorsal arms not attenuated and bearing suckers to the tips.
- Dorsal surface of mantle, head and arms greenish, with well-spaced round papillae.

**Club**

Small, crescent-shaped, thicker than tentacle, with numerous small subequal suckers.

**Hectocotylus**

Left ventral arm.

**Size**

Up to 17 mm mantle length.

**Distribution**

West and South Coasts, between 50 and 500 m.

**Similar species**

Other species in the subgenus *Hemisepius* (see Table 3 on page 336). For many years has been misidentified as *Sepia dubia*.

*S. dubia*: Very large keel on ventral arms; ventral margin deeply emarginated; dorsal mantle sparsely papillate with two large wart-like growths on dorsal mantle.

*S. faurei*: Dorsal mantle densely covered with small round papillae; tips of Arms I finger-like without suckers.

*S. robsoni*: Shell reduced, soft without hard centre; distal half of Arms I finger-like without suckers.

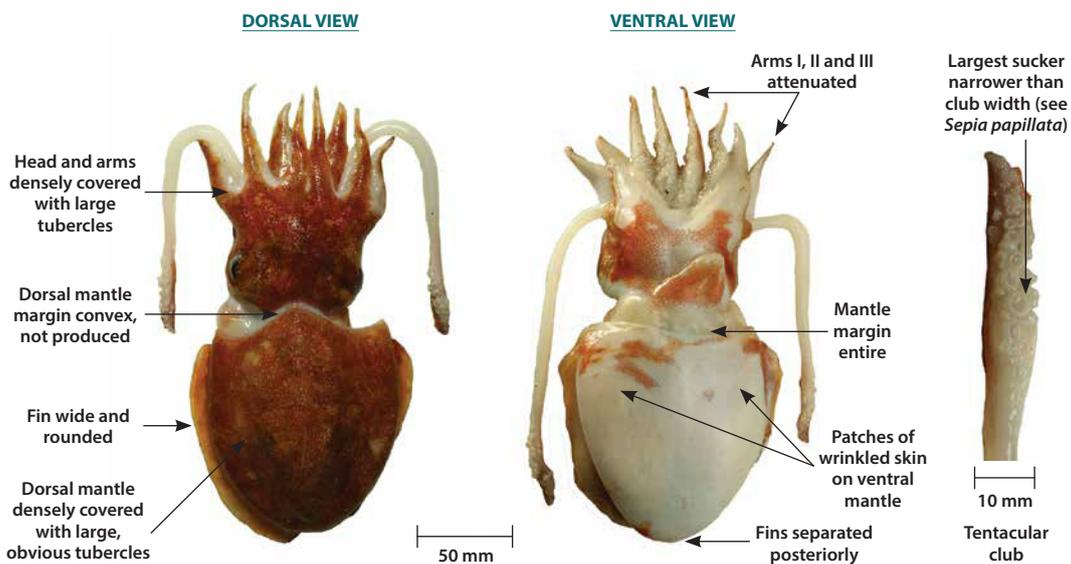
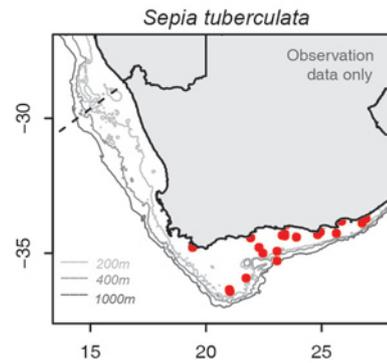
*S. cf. typica*: 10-12 diagnostic obvious black pores ventrally.

**References**

None.

### *Sepia tuberculata* (SepTub)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



#### Distinguishing features

- Mantle short and broad. Dorsal margin convex, not produced. Ventrally entire.
- Fins wide, rounded. Separate posteriorly.
- Dorsal surface of mantle, head and arms densely covered with large coarse tubercles.
- Large wrinkled patches on either side of otherwise smooth ventral surface of mantle and on outer area of ventral arms.
- Arm suckers not globose, arranged in four series to tips. Tips of Arms I to III attenuated, webbed for less than half of arm length.

#### Club

Long, slightly recurved. Small suckers distally with enlarged suckers proximally. Diameter of largest suckers less than width of the sucker-bearing part of the club.

#### Hectocotylus

Left ventral arm. The two dorsal rows of suckers normal, separated from reduced ventral suckers by a broad naked area with transverse ridges. Distal half of arm normal.

#### Size

82 mm mantle length.

#### Distribution

Shallower than 200 m on South Coast.

#### Similar species

See Table 1 (page 336).

Wrinkled patches on belly unique to *S. papillata* and *S. tuberculata* and rarely *S. simoniana*.

*S. papillata*: Mantle produced dorsally; slightly emarginated ventrally; arms not attenuated, suckers in 4 (♀) or 8 (♂) rows on distal ¼; club large, diameter of enlarged median suckers equal to club width.

*S. simoniana*: Club very long, with numerous minute suckers.

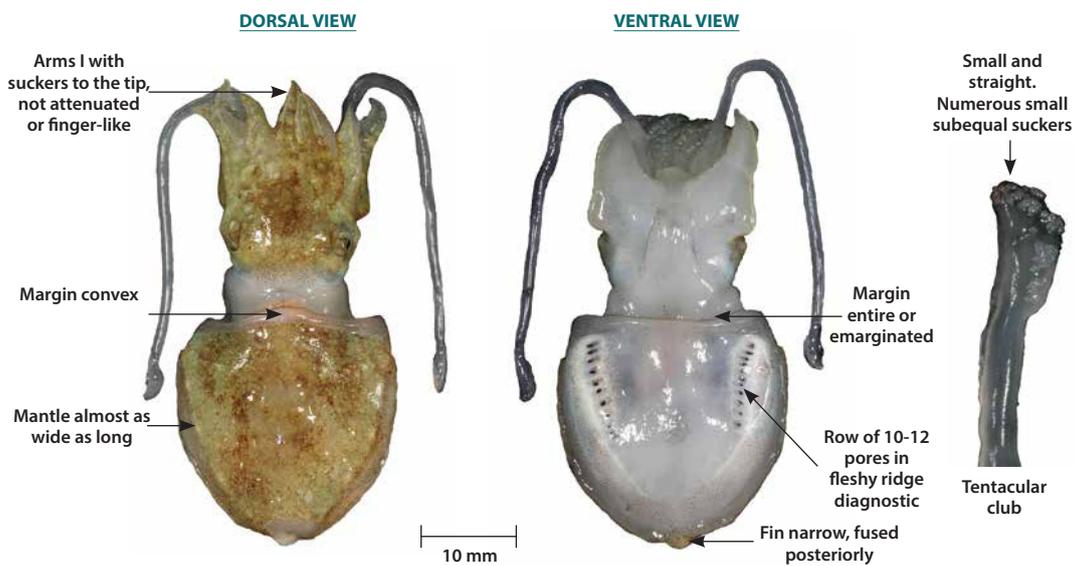
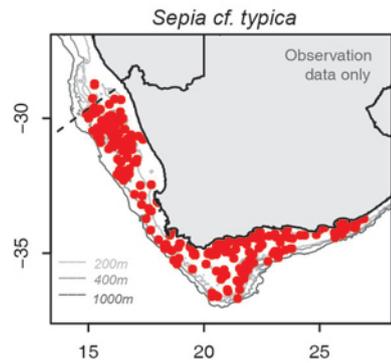
*S. angulata*: Also has large, obvious tubercles on dorsal, but lacks wrinkled patches on belly.

#### References

Augustyn *et al.*, 1995; Jereb & Roper, 2005; Roeleveld, 1972.

***Sepia cf. typica* (SepTyp)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Hemisepius cf. typica</i>



**Distinguishing features**

- A fleshy ridge on sides of ventral mantle typical of the Subgenus *Hemisepius*, with 5-15 (usually 10-12) diagnostic obvious black pores.
- Shell not calcified, very thin and fragile, but hard to the touch.
- Mantle very broadly oval, almost as wide as long; dorsal margin convex; ventral margin entire or emarginated.
- Dorsal surface of head and mantle greenish, sparsely papillose.
- Suckers globose, biserial and extending to the tips of the arms. Tips not attenuated.
- Arms short, subequal in length; interbranchial web between Arms I-III half arm length.
- Fins narrow, fused posteriorly.

**Club**

Small and straight, with numerous small subequal suckers in transverse rows of six.

**Hectocotylus**

Left ventral arm. Basal half modified. Suckers minute, widely spaced, separated by fleshy transverse ridges.

**Size**

25 mm mantle length.

**Distribution**

Both West and South Coasts, from coast to 600 m.

**Similar species**

See Table 3 (page 336).

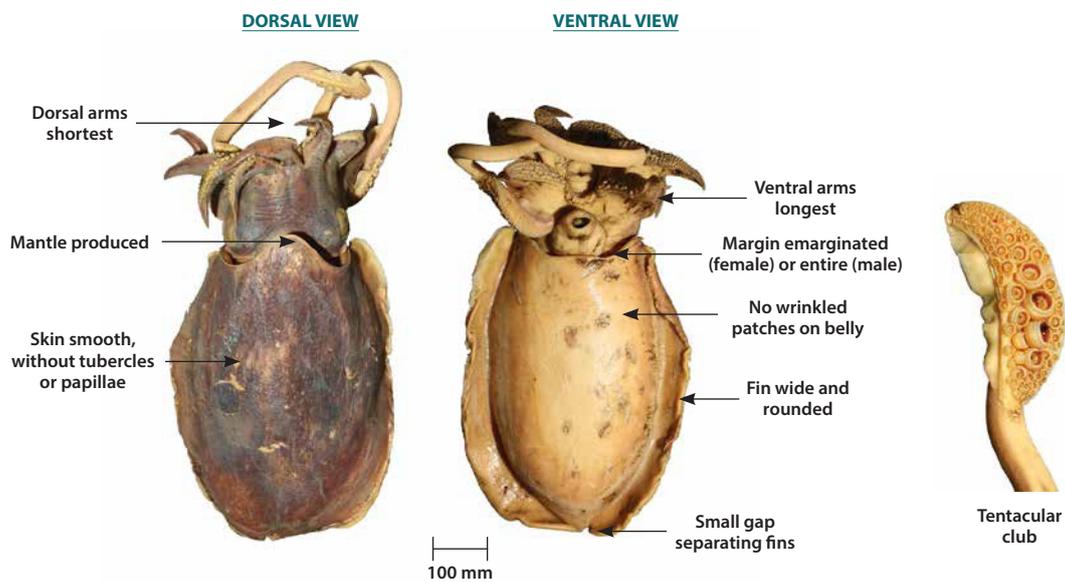
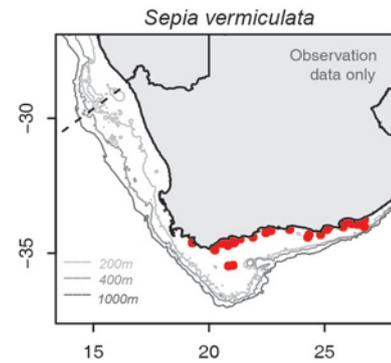
Distinguished from all others in the Subgenus *Hemisepius* (*Sepia dubia*, *S. faurei*, *S. robsoni*, and *S. sp. A*) by the presence of pores in the fleshy ventral ridge.

**References**

Roeleveld, 1972.

### *Sepia vermiculata* (SepVer)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Sepia officinalis vermiculata</i>



#### Distinguishing features

- Mantle broadly oval. Dorsal margin convex, somewhat produced, ventral margin entire (male) or emarginated (female).
- Fin wide, rounded. Along entire margin of mantle with small gap at tail.
- Skin smooth, both dorsally and ventrally, no obvious pores or wrinkled patches.
- Ventral arms longest, dorsal arms shortest. Arms III and IV keeled, joined by shallow web.
- Suckers on arms in four rows, extending to somewhat attenuated tips.
- Some individuals show diagnostic transverse zebra-like stripes on mantle and ventral arms.

#### Club

Large, one third of mantle length; distal suckers small in oblique rows of eight; proximal suckers in oblique rows of five, with median suckers 1.5-2 times and middle suckers 3 times the size of the marginal suckers.

#### Hectocotylus

Left ventral arm. Modified region with 9-12 rows of reduced suckers separated by transverse ridges.

#### Size

287 mm mantle length.

#### Distribution

Mainly shallow water on South Coast, but recorded to 290 m.

#### Similar species

See Table 1 (page 336).

Adults can be confused only with the other three large species, *S. papillata*, *S. simoniana* and *S. tuberculata*.

*S. simoniana*: Dorsally mantle more produced and skin finely papillose. Arms I-III attenuated and webbed for about half of length. Club very long, with numerous minute suckers.

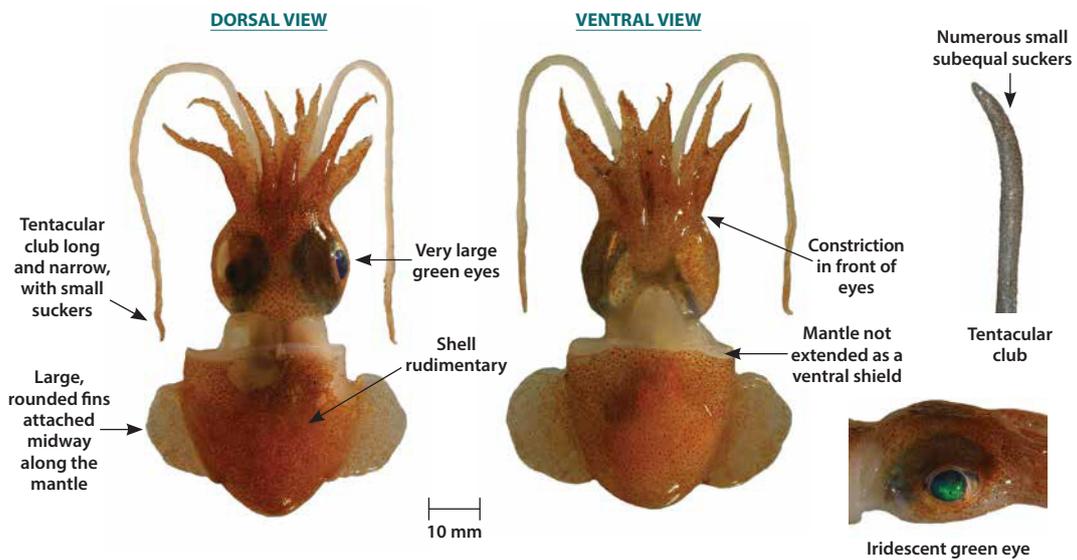
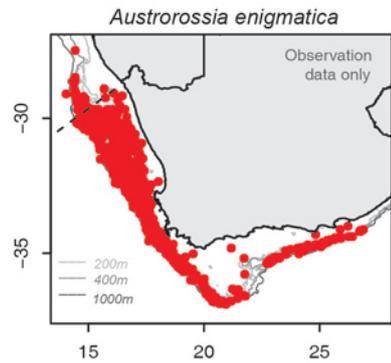
*S. papillata* and *S. tuberculata* have large wrinkled patches on the belly.

#### References

Jereb & Roper, 2005; Roeleveld, 1972; Sanchez, 1988.

***Austrorossia enigmatica* (RosEni)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiolidae
<b>Common:</b>	Bobtail squid
<b>Alternate:</b>	<i>Rossia enigmatica</i> ; <i>Austrorossia mastigophora</i>



**Distinguishing features**

- Shell rudimentary, chitinous, feels as though there is no internal shell.
- Fins large, rounded, attached about midway along mantle; broadly separated posteriorly.
- Anterior mantle edge not fused with head dorsally, not covering funnel ventrally.
- Head short and broad, constricted round crown of circumoral appendages anterior to eyes.
- Eyes large, prominent iridescent green.

**Club**

Narrow, not wider than tentacle. Suckers microscopic in 30-40 rows.

**Hectocotylus**

Both dorsal arms.

**Size**

40 mm mantle length.

**Distribution**

West (common) and South (uncommon) Coasts, between 200 and 500 m.

**Similar species**

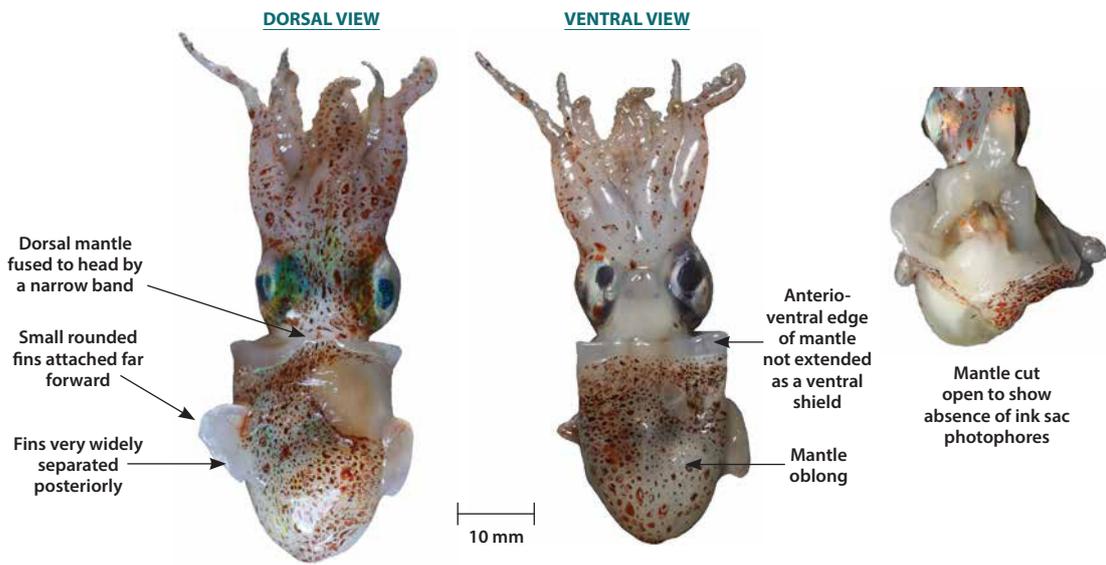
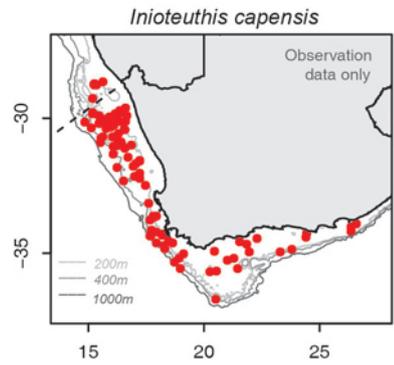
None.

**References**

Nesis, 1987; Sanchez, 1988.

***Inioteuthis capensis* (Inio)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiolidae
<b>Common:</b>	-
<b>Alternate:</b>	<i>Rondeletiola capensis</i>



**Distinguishing features**

- Shell absent.
- Fins small, rounded, attached mid-laterally to mantle. Broadly separated posteriorly.
- Mantle fused with head dorsally by a narrow occipital band.
- Funnel not covered by a forward extension of the antero-ventral edge of mantle.
- Body oblong, longer, less eyeball-like than *Stoloteuthis*.
- Ventral surface of ink sac without luminous organ.

**Club**

Small, slightly wider than stalk, with small suckers.

**Hectocotylus**

Left dorsal arm. Basal part modified into specialised copulatory apparatus.

**Size**

20 mm mantle length.

**Distribution**

Common in surface waters on both coasts, but seldom recorded on demersal surveys because of small size.

**Similar species**

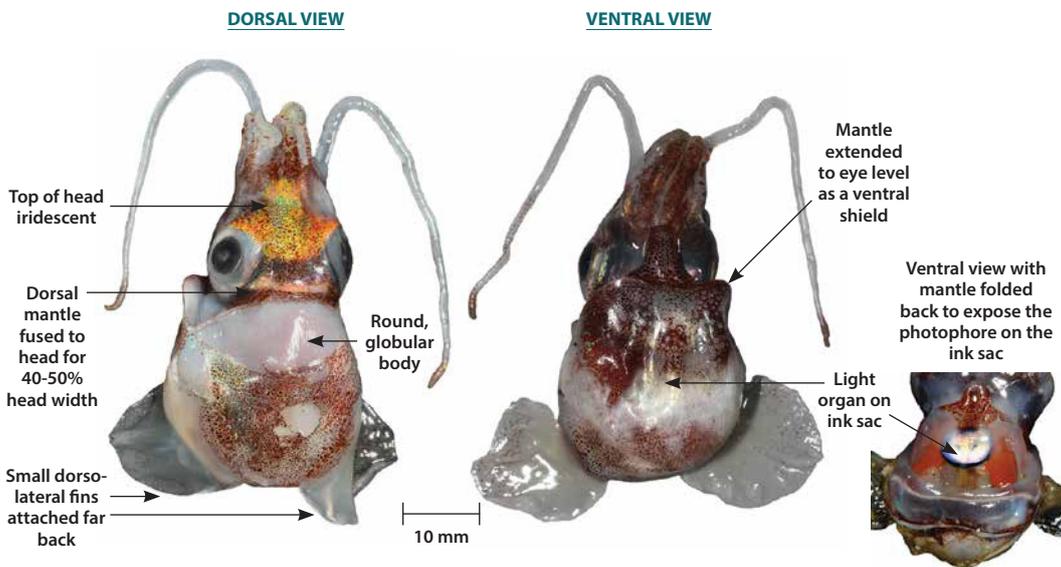
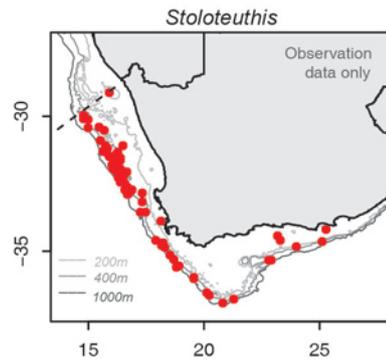
*Stoloteuthis*: Larger, more globular; dorsal mantle broadly fused with head (occipital band 40-50% head width); ventral mantle extended to form a ventral shield; luminous organ present on ink sac.

**References**

Nesis, 1987.

***Stoloteuthis sp. (Stolot)***

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Sepiida
<b>Suborder:</b>	-
<b>Family:</b>	Sepiidae
<b>Common:</b>	Eye-ball squid, Butterfly bobtail squid
<b>Alternate:</b>	-



**Distinguishing features**

- Shell absent.
- Fins large, ear-like, attached laterally to posterior half of mantle. Broadly separated posteriorly.
- Dorsal mantle edge fused to head by a broad occipital band 40-50% of head width.
- Anterior edge of mantle extended as a ventral shield to level with eyes.
- Body round, globular, looks like an eyeball. Top of head iridescent green.
- First three pairs of arms joined by a deep web. Suckers on arms in two series.
- A luminous organ on ventral side of ink sac.

**Club**

Not thicker than tentacle, with numerous small suckers.

**Hectocotylus**

Both Arms II.

**Size**

20 mm mantle length.

**Distribution**

Between 100 and 850 m, mainly on West Coast.

**Similar species**

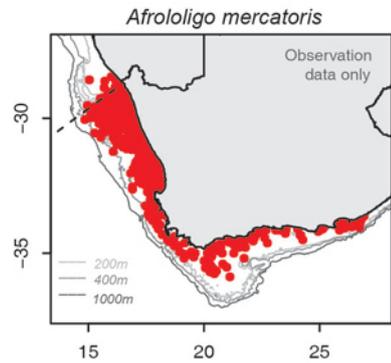
*Iniotheuthis capensis*: Smaller, body longer, less globular. Anterior edge of mantle not extended into a ventral shield. Mantle narrowly fused to head dorsally. No luminous organ on the ink sac.

**References**

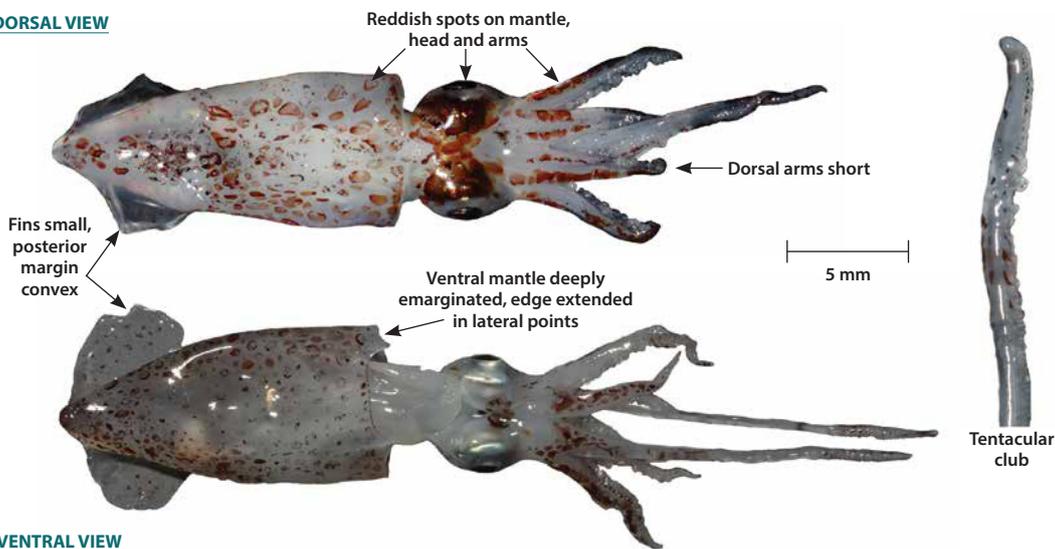
Nesis, 1987.

***Afrololigo mercatoris* (Lollig)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Myopsida
<b>Suborder:</b>	-
<b>Family:</b>	Loliginidae
<b>Common:</b>	African thumbstall squid
<b>Alternate:</b>	<i>Lolliguncula mercatoris</i>



**DORSAL VIEW**



**VENTRAL VIEW**

**Distinguishing features**

- Lens of eye covered by a cornea, not in direct contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Arms with two rows of suckers, clubs with four rows. No hooks.
- Dorsal arms (Arms I) much shorter than other arms.
- Fins translucent, short (40% ML) and rounded, with convex posterior margins.
- White, with irregular reddish-brown spots on mantle, head and arms.

**Size**

Males 50 mm mantle length, females 35 mm.

**Distribution**

West and South Coasts to 470 m.

**Similar species**

Juvenile *Loligo reynaudii* have longer, narrower fins with concave posterior margins; ventral mantle shallowly emarginated; and lack the irregular reddish spots. Clubs wider, with some enlarged suckers.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

**Club**

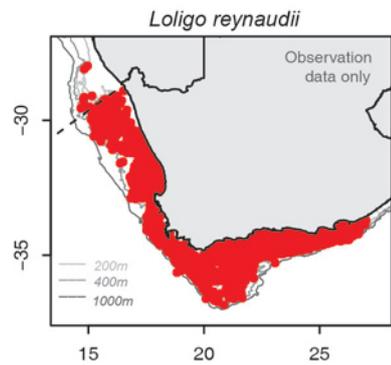
Narrow, small, with suckers arranged in four longitudinal rows; four to five pairs of medial suckers on manus enlarged, sucker rings with 15-25 teeth.

**Hectocotylus**

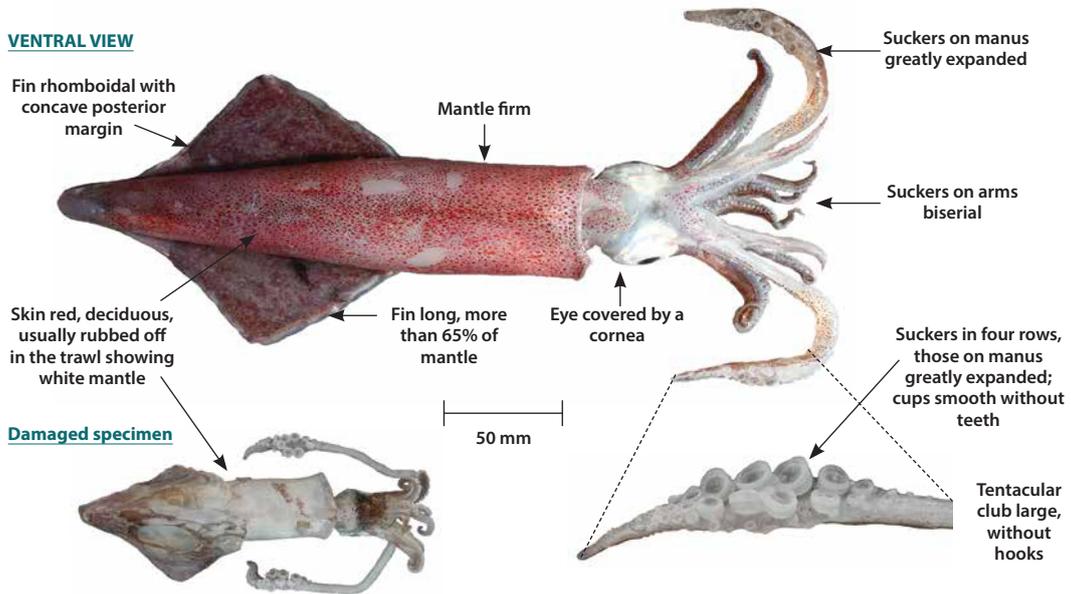
Left ventral arm. Basal half normal; distal half with elongate papillae.

***Loligo reynaudii* (CHOK)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Myopsida
<b>Suborder:</b>	-
<b>Family:</b>	Loliginidae
<b>Common:</b>	Chokka
<b>Alternate:</b>	<i>Loligo vulgaris reynaudii</i>



**VENTRAL VIEW**



**Distinguishing features**

- Lens of eye covered by a cornea, not in direct contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Arms with two rows of suckers, clubs with four rows. No hooks.
- Mantle narrow, firm and elongate.
- Skin red, deciduous, usually rubbed off in the trawl.
- Fins posterior, long, over 65% of mantle, rhomboidal in shape, with concave posterior margin.

**Club**

Tentacles long; clubs expanded; suckers in four series; suckers on manus greatly enlarged, cups smooth without chitinous teeth.

**Hectocotylus**

Left ventral arm. Basal part of arm with two series of suckers. Suckers on distal part reduced, but with elongated stalks to form papillae making a feathery tip.

**Size**

Males up to 400 mm mantle length. Females smaller.

**Distribution**

Widespread on both coasts but most common on South Coast, shallower than 200 m.

**Similar species**

Juveniles can be confused with *Afrololigo mercatoris* of similar size.

*Afrololigo mercatoris*: Short, rounded fins with convex posterior margin; ventral mantle deeply emarginated; clubs small, narrow, without greatly enlarged suckers on manus; mantle and arms with reddish spots.

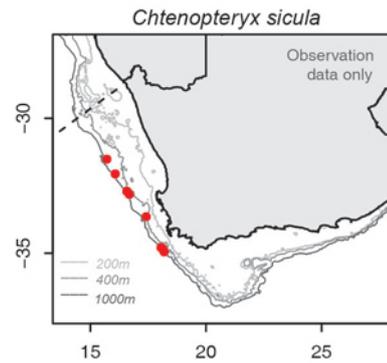
*Uroteuthis duvaucelii* from KwaZulu-Natal which has a wider club with four rows of enlarged suckers.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Ctenopteryx sicula* (CteSic)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	[Unassigned]
<b>Suborder:</b>	-
<b>Family:</b>	Ctenopterygidae
<b>Common:</b>	Comb-finned squid
<b>Alternate:</b>	<i>Ctenopteryx sicula</i> (common misspelling)



#### DORSAL VIEW

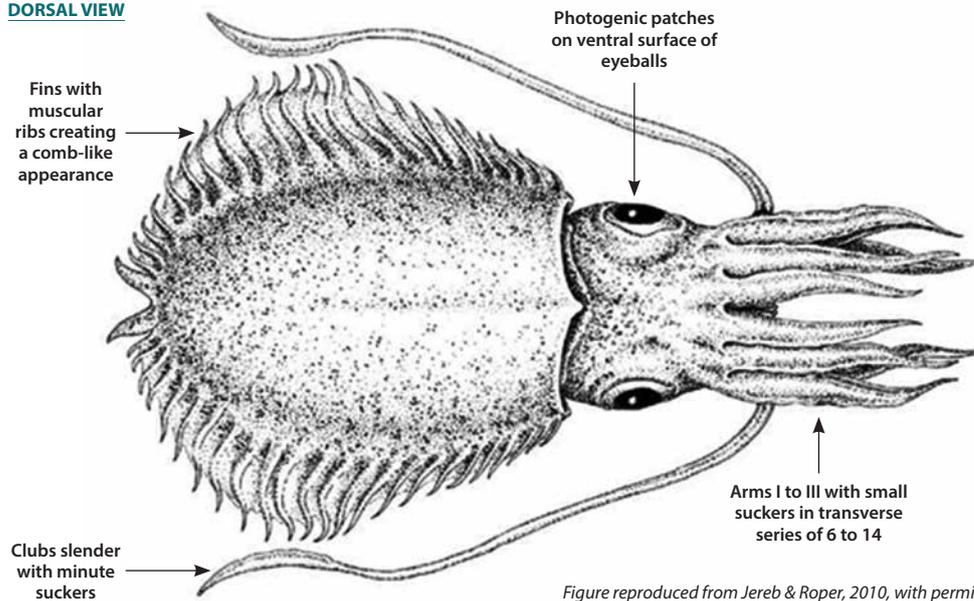


Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Mantle broadly rounded with fins along full length, similar shape to cuttlefish.
- Fins comprised of slender rib-like muscle bundles connected by membranes, giving a comb-like appearance.
- Arms I to III with suckers in transverse series of 6 to 14; Arms IV with a few small suckers in a zigzag pattern.
- Large photogenic patches on ventral surface of eyeballs.
- Minute suckers on lappets of the buccal membrane.

#### Club

Narrow, not expanded, with minute suckers in 8 to 20 irregular transverse series.

#### Hectocotylus

None.

#### Size

Up to 100 mm mantle length.

#### Distribution

Both West and South Coasts, from 500 to 1000 m.

#### Similar species

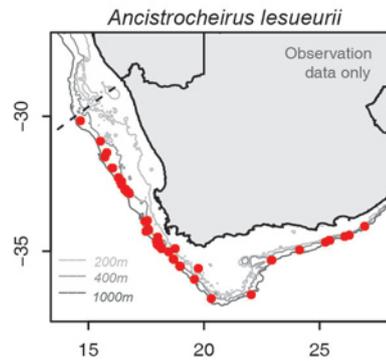
Comb-like fins are diagnostic.

#### References

Jereb & Roper, 2010.

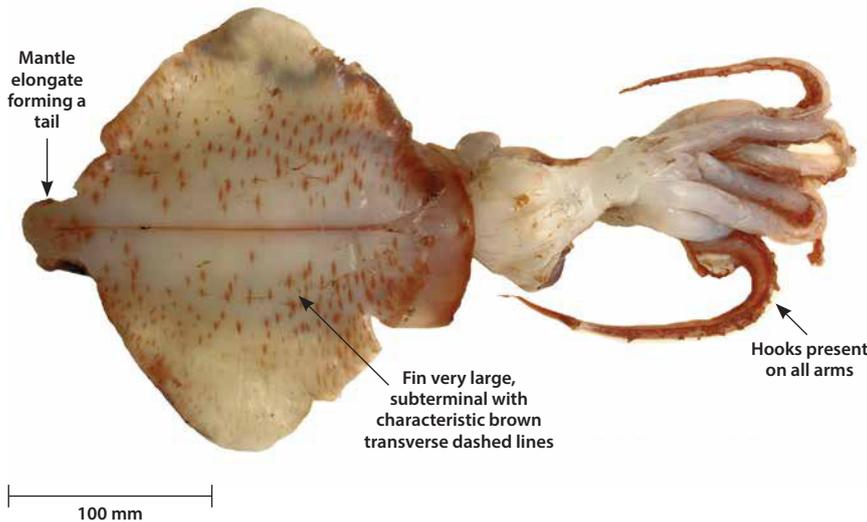
**Ancistrocheirus lesueurii (AncLes)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ancistrocheiridae
<b>Common:</b>	Sharpear enope squid
<b>Alternate:</b>	<i>Thelidoteuthis alessandrini</i>



**DORSAL VIEW**

Note: Usually badly damaged in trawl, completely skinned and the head usually separated from the body.



**VENTRAL VIEW**

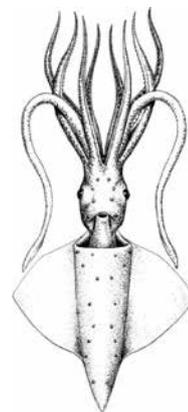


Illustration from Jereb & Roper (2010) showing 20-24 large scattered photophores

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Fin very large, rhomboidal, length 70-80% and width 80% of ML. Attached from anterior of mantle ending slightly subterminal. Dorsal surface with irregular brownish transverse dashed lines (photophores).
- Posterior end of mantle elongated, forming a tail.
- Arms robust with two series of hooks. Small suckers sometimes present on tips.
- Ventral surface of mantle studded with 20-24 relatively large separated photophores. No photophores on eyeballs or viscera.

**Club**

Tentacles robust, 12 photophores on aboral side of stalk. Clubs not expanded, two series of hooks on manus, no suckers. Discrete carpal cluster.

**Hectocotylus**

Right ventral arm.

**Size**

Attains 410 mm mantle length, and 3 kg.

**Distribution**

Mesopelagic and bathypelagic on West and South Coasts.

**Similar species**

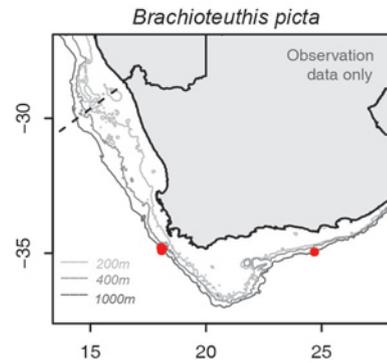
Octopoteuthidae also have very large rhomboidal fins, but lack the brown dashed lines on the dorsal surface, and the tentacles are reduced or absent.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Brachioteuthis picta* (BraPic)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Brachioteuthidae
<b>Common:</b>	Ornate arm squid
<b>Alternate:</b>	-



#### DORSAL VIEW

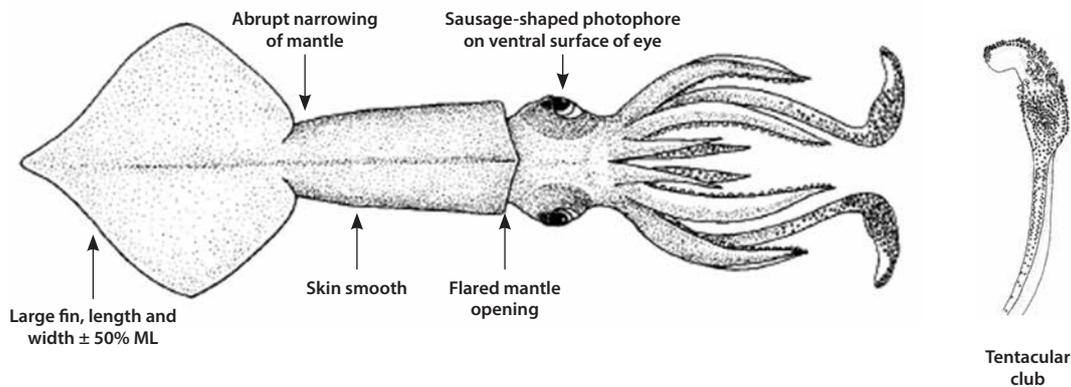


Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Mantle long and slender; slightly flared at opening; abruptly narrows anterior to fins.
- Fin almost as wide as long, length and width about 50% ML.
- A sausage-shaped photophore on ventral surface of each eye.
- Skin smooth in both sexes, never rough even in mature individuals.

#### Club

Manus greatly expanded, covered with numerous rows of small, long-stalked suckers; dactylus section with three to four rows of suckers.

#### Hectocotylus

Not described.

#### Size

90 mm mantle length.

#### Distribution

Oceanic on both West and South Coasts.

#### Similar species

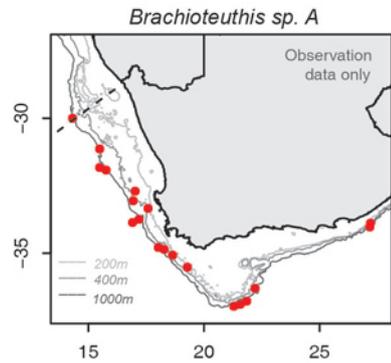
*Brachioteuthis* sp. A. has rough "warty" skin. Fin length less than 50% ML, width greater than length.

#### References

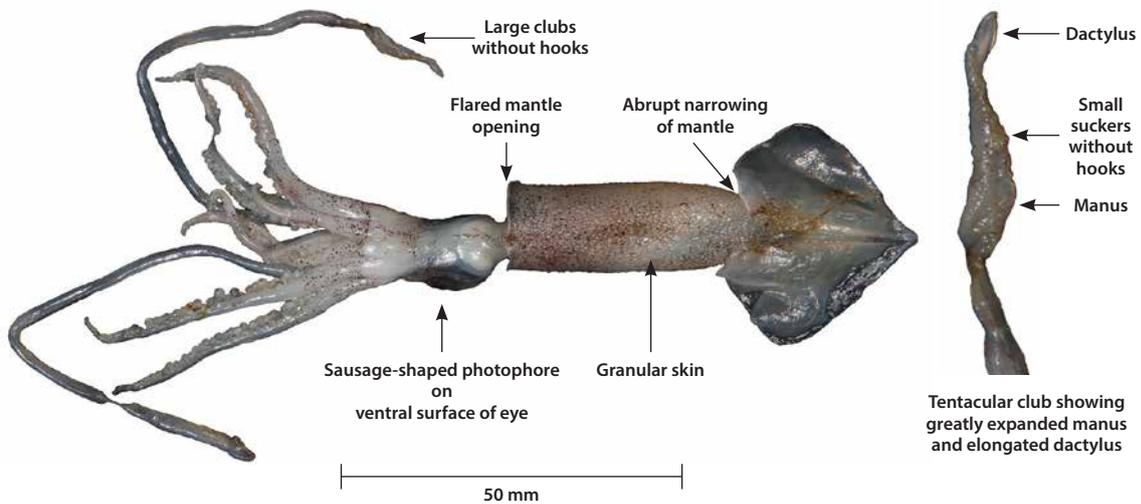
Jereb & Roper, 2010; Lipinski, 2001; Nesis, 1987; Sanchez, 1988.

**Brachoteuthis sp. A (Brachi)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Brachoteuthidae
<b>Common:</b>	-
<b>Alternate:</b>	-



**DORSAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Mantle long and slender; slightly flared at opening; abruptly narrows anterior to fins.
- Fin length less than 50% of ML. Width greater than length.
- A sausage-shaped photophore on ventral surface of each eye.
- Skin rough, granular.

**Club**

Manus greatly expanded, covered with numerous rows of small, long-stalked suckers. Dactylus section with three to four rows of suckers.

**Hectocotylus**

Not described.

**Size**

90 mm mantle length.

**Distribution**

Mesopelagic on both West and South Coasts, deeper than 300 m.

**Similar species**

*Brachoteuthis picta*: Smooth skin; fin length equals width, about 50% of ML.

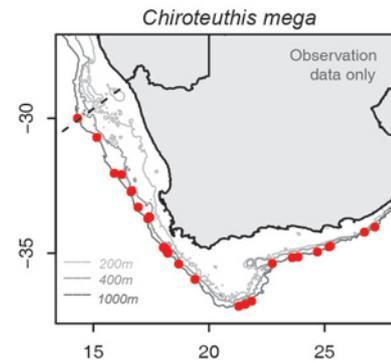
*Onykia* species also have rough, warty skin but differ in the presence of hooks on the clubs.

**References**

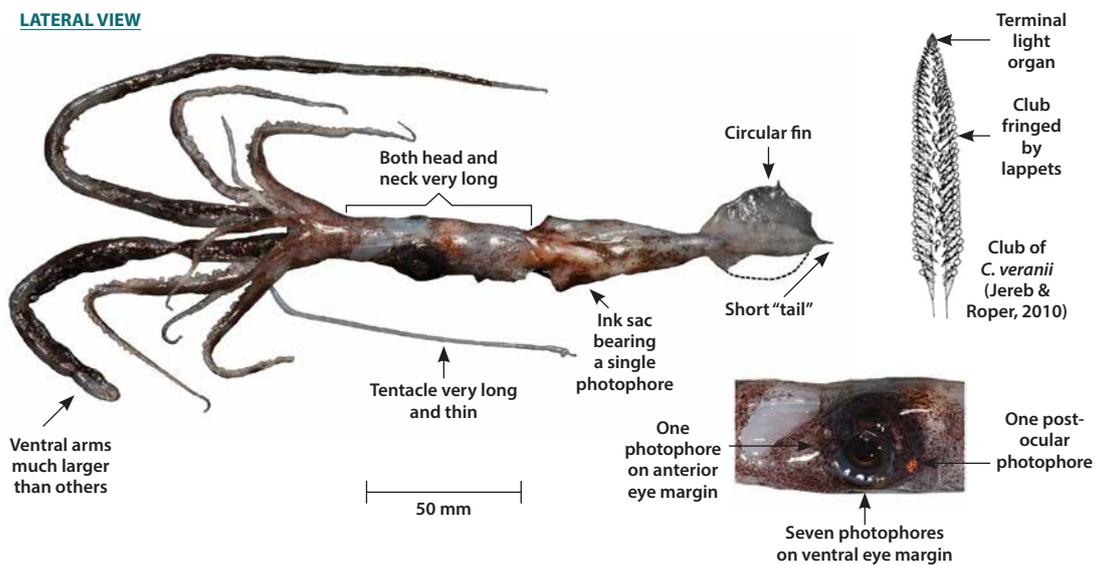
Jereb & Roper, 2010; Lipinski, 2001; Nesis, 1987.

### *Chiroteuthis mega* (ChrCap)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Teuthoidea
<b>Suborder:</b>	Oegopsida
<b>Family:</b>	Chiroteuthidae
<b>Common:</b>	Atlantic long-arm squid
<b>Alternate:</b>	<i>Chiroteuthis capensis</i>



**LATERAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage oval, with two knobs directed towards centre of the concavity.
- Head and neck long and tubular, but squarish near the eyes; head plus neck almost as long as mantle; eyes about midway between arm bases and mantle.
- Fins thick and fleshy, together circular, not lobed; gladius extends as a short tail past fins.
- Arms IV much longer and thicker than other arms; Arms II and III subequal; Arms I short.
- Eyeball with one photophore on anterior margin just above midline and one just below midline on posterior margin; a series of seven photophores on antero-ventral margin.
- A single photophore on the ink sac.

**Club**

Tentacles long and very thin; club fringed with lappets; suckers in four rows arranged in pairs at the base of each lappet; a long oval light organ at the tip of the club.

**Hectocotylus**

Absent.

**Size**

100-200 mm mantle length.

**Distribution**

West and South Coasts, from 700 to 1400 m.

**Similar species**

*Chiroteuthis veranii* (possible occurrence on South Coast) differs in having two photophores on the ink sac.

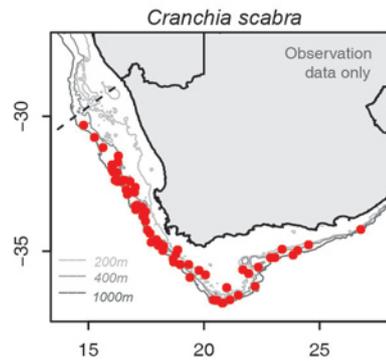
*Joubiniteuthis portieri*: Long slender tail (greater than ML) posterior to short round fin. Arms I - III very long, 2x mantle length and 3x length of Arms IV. Lacks photophores on eyeballs.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988; Voss, 1967.

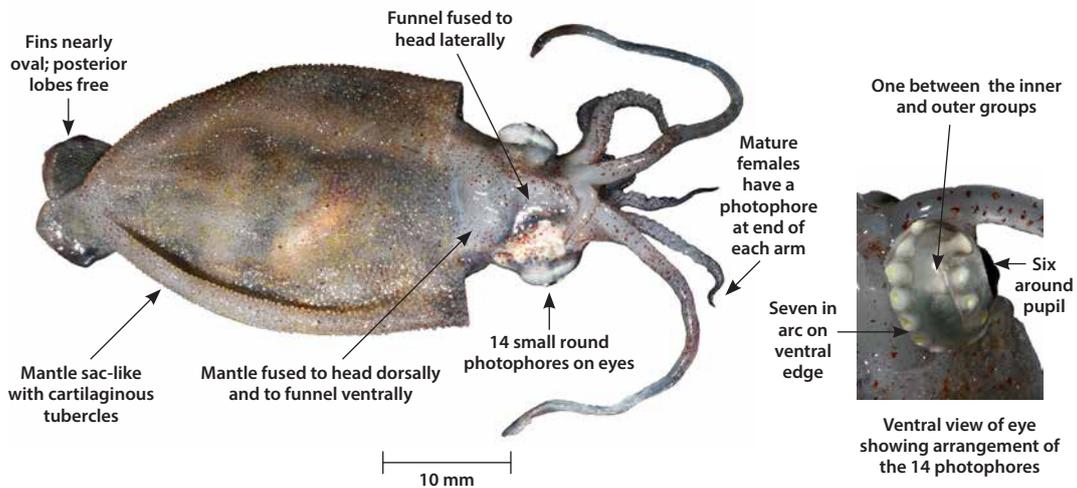
***Cranchia scabra* (CrnScb)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Rough cranch squid
<b>Alternate:</b>	-



**VENTRAL VIEW**

Ventral mantle with two cartilaginous strips extending from apex of each mantle-funnel fusion



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage.
- Ventral surface of mantle with two cartilaginous strips extending posteriorly from anterior apex of each funnel-mantle fusion; funnel fused to head laterally.
- Brachial photophore on end of each arm in mature females.
- Eyes with 14 small round photophores: an inner group of six around pupil; an outer group of seven in an arc on ventral edge; one between the inner and outer groups.
- Mantle a thin-walled sac covered in spiky, cartilaginous tubercles.
- Fins small (less than 25% ML) posterior. Each nearly oval with free posterior lobe.

**Hectocotylus**

Right ventral arm. Suckers in four series on midpoint of hectocotyliised arm.

**Size**

Up to 150 mm mantle length.

**Distribution**

Both West and South Coasts, from 400 to 1200 m.

**Similar species**

Monotypic genus. Cartilaginous tubercles scattered over entire mantle unique among Cranchiidae. *Sandalops melancholicus* similar in general shape, but with smooth skin and funnel free from head laterally.

**References**

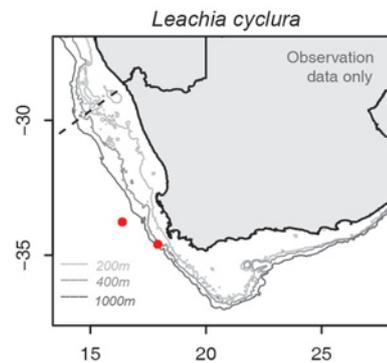
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

**Club**

Not expanded, with small sub-equal suckers. Alternating series of carpal suckers and pads for most of tentacle length.

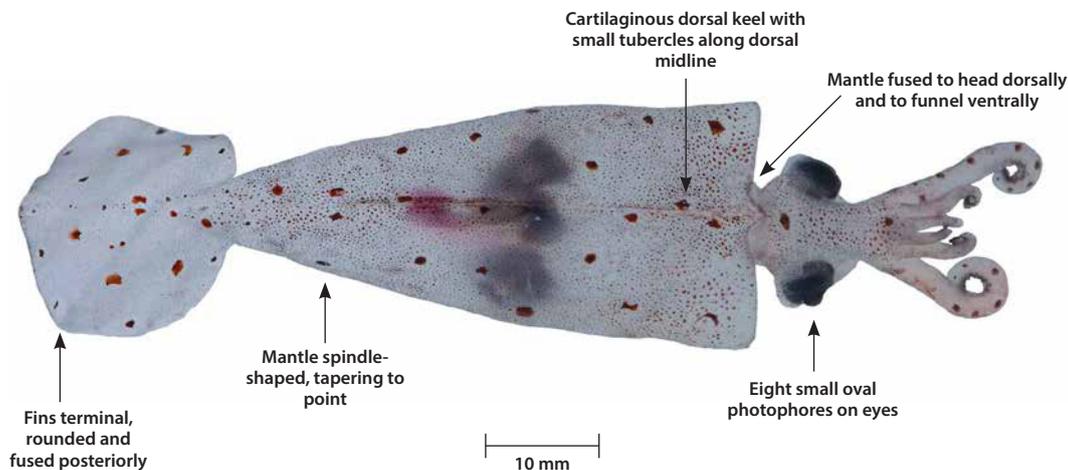
### *Leachia cyclura* (LeaCyc)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Leach's cranch squid
<b>Alternate:</b>	-



#### DORSAL VIEW

One cartilaginous strip extends ventrally for 20-30% of ML from apex of each funnel-mantle fusion



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage. Funnel fused to head laterally.
- Mantle spindle-shaped, tapering to sharp point, with a cartilaginous dorsal keel.
- Ventral surface of mantle with one cartilaginous strip extending posteriorly for 20-30% of mantle length from anterior apex of each funnel-mantle fusion.
- Body translucent with scattered chromatophores and three dark internal organs easily visible.
- Large elongate brachial photophore on tips of Arms III in mature females.
- **Eight eye photophores, five in outer row and three near pupil.**
- Fins terminal, rounded and fused posteriorly.

#### Club

Median suckers on manus greatly enlarged.

#### Hectocotylus

Not described.

#### Size

Maximum 150-200 mm mantle length.

#### Distribution

South Coast to west of Cape Point, from surface to 2 000 m.

#### Similar species

*Leachia atlantica*: Cartilaginous strip 14-15% of ML; six photophores on each eye (five outer and one near pupil).

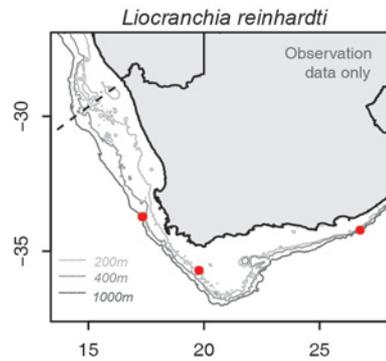
*Liocranchia* sp.: Head nearly as wide as mantle; either 4 or 14 oval photophores on eyes depending on species.

#### References

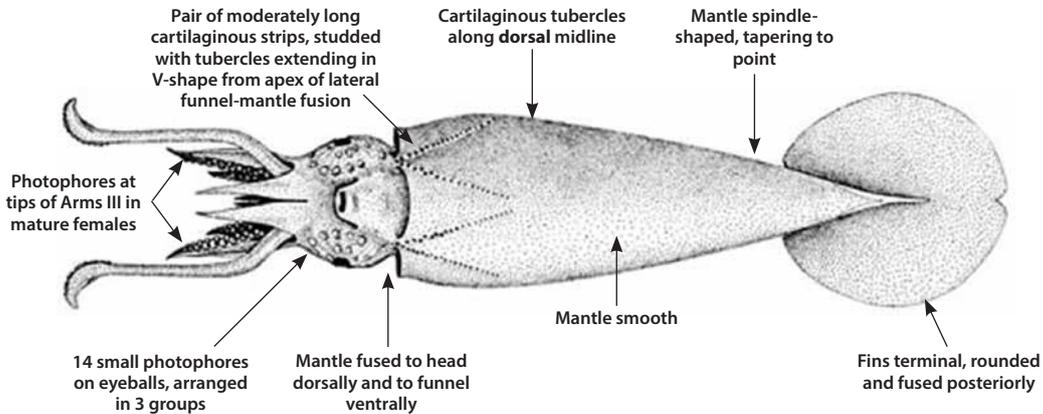
Jereb & Roper, 2010; Nesis, 1987.

***Liocranchia reinhardti* (LioRei)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Reinhart's cranch squid
<b>Alternate:</b>	-



**VENTRAL VIEW** If unsure of the species, use the code *Liocra* for *Liocranchia* sp.



Ventral view (Vos, 1980) reproduced with the permission of the Bulletin of Marine Science

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Mantle spindle-shaped, tapering to sharp point; **cartilaginous tubercles along dorsal midline**.
- Head fused to the mantle at the nuchal cartilage. Funnel fused to head laterally.
- Ventral surface of mantle with a **pair of cartilaginous strips**, studded with tubercles, extending posteriorly in a V-shape from apex of each lateral funnel-mantle fusion (four strips in total).
- Mature females with brachial photophores on tips of Arms III only.
- **14 small photophores around eyes:** four around pupil; eight in ventral arc; two between the two series.
- Fins terminal, rounded and fused posteriorly.

**Hectocotylus**

Right or left ventral arm. Suckers in two series on midpoint of hectocotylised arms.

**Club**

Slightly expanded with small, sub-equal suckers. An alternating series of carpal suckers and pads for most of tentacle length.

**Size**

Maximum 250 mm mantle length.

**Distribution**

Pelagic to mesopelagic on West and South Coasts.

**Similar species**

*Liocranchia valdiviae*: No cartilaginous tubercles on dorsal midline, four small round photophores on eyes.

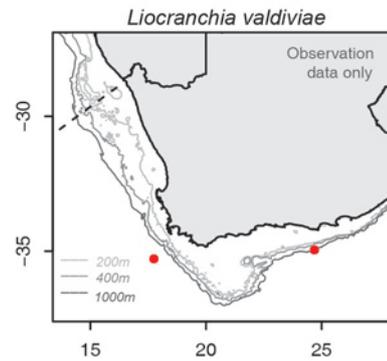
*Leachia* sp.: Head small, much narrower than width of mantle; one cartilaginous strip from each lateral funnel-mantle fusion; six or eight oval photophores on eyes depending on species.

**References**

Jereb & Roper, 2010; Nesis, 1987; Vos, 1980.

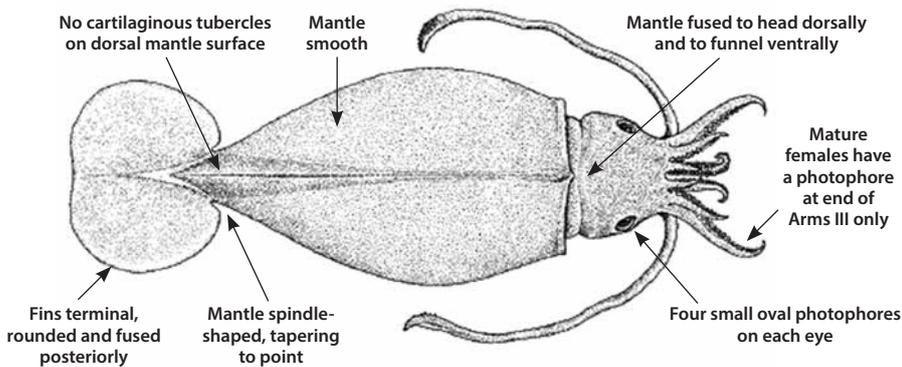
### *Liocranchia valdiviae* (LioVal)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Valdivia cranch squid
<b>Alternate:</b>	-



#### DORSAL VIEW

Ventral mantle with two pairs of moderately long cartilaginous strips studded with tubercles, one pair extending in V-shape from apex of each lateral funnel-mantle fusion. If unsure of the species, use the code **Liocra** for *Liocranchia* sp.



No illustration available, figure of *L. reinhardti* used to indicate features. Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage. Funnel fused to head laterally.
- Mantle spindle-shaped, tapering to sharp point, without cartilaginous tubercles along dorsal midline.
- Ventral surface of mantle with a pair of cartilaginous strips, studded with tubercles extending posteriorly in a V-shape from apex of each lateral funnel-mantle fusion (four strips in total).
- Brachial photophore only on Arms III of mature females. Eyes with four small round photophores.
- Fins terminal, rounded and fused posteriorly.

#### Club

Slightly expanded with small, sub-equal suckers. An alternating series of carpal suckers and pads for most of tentacle length.

#### Hectocotylus

Right or left ventral arm. Suckers in two series on midpoint of hectocotylised arms.

#### Size

Maximum 250 mm mantle length.

#### Distribution

Pelagic to mesopelagic on West and South Coasts.

#### Similar species

*Liocranchia reinhardti*: Cartilaginous tubercles along dorsal midline. Fourteen oval photophores on eye.

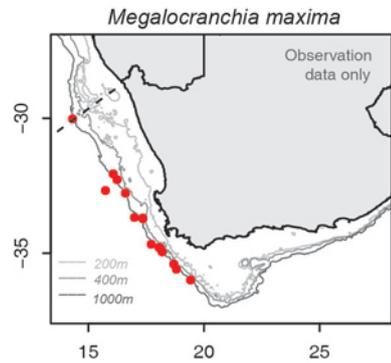
*Leachia* sp.: Head small, much narrower than width of mantle; one cartilaginous strip from each lateral funnel-mantle fusion, six or eight oval photophores on eyes depending on species.

#### References

Jereb & Roper, 2010; Nesis, 1987.

**Megalocranchia maxima (Megalo)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Large cranch squid
<b>Alternate:</b>	-



**VENTRAL VIEW**

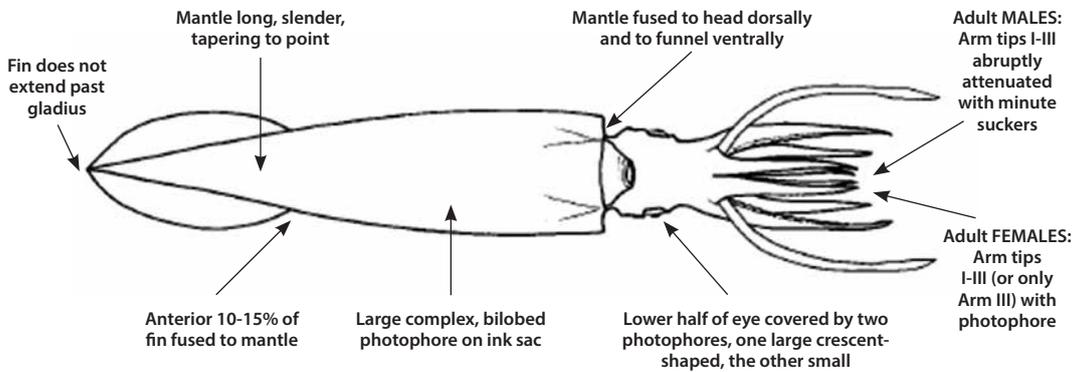


Figure reproduced from Jereb & Roper, 2010, with permission.

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage; funnel free from the head laterally.
- Mantle slender, elongate, tapers dramatically to thin sharp tip, lacking cartilaginous tubercles.
- Most of ventral hemisphere of eyes covered by two photophores, a large crescent-shaped posterior photophore and a smaller anterior photophore within its concavity.
- Large, complex, bilobed compound photophore present on ventral surface of rounded digestive gland and ink sac.
- Long lanceolate fins (50% ML) terminal-lateral without anterior lobes; anterior 10-15% of fin fused to lateral margins of mantle (unique to *Megalocranchia* and *Teuthowenia*).

**Club**

Carpal suckers in two series on tentacular stalk; clubs moderate, slightly expanded with suckers in four series.

**Hectocotylus**

Absent.

**Size**

1 800 mm mantle length.

**Distribution**

West and South Coasts, 600-2000 m during day; migrates to 100-700 m at night.

**Similar species**

Distinguished from other Cranchiids except *Teuthowenia* by fusing of anterior of fin to lateral mantle.

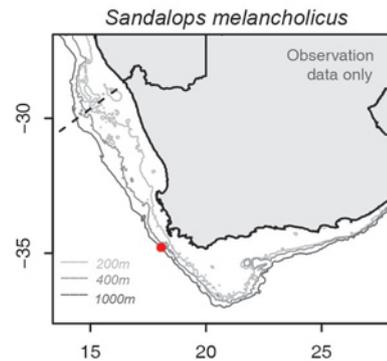
*Teuthowenia*: Lack photophore on ink sac, have three photophores on eyes and fin extends beyond gladius.

**References**

Jereb & Roper, 2010; Nesis, 1987.

### *Sandalops melancholicus* (SanMel)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Melancholy cranch squid
<b>Alternate:</b>	-



#### DORSAL VIEW

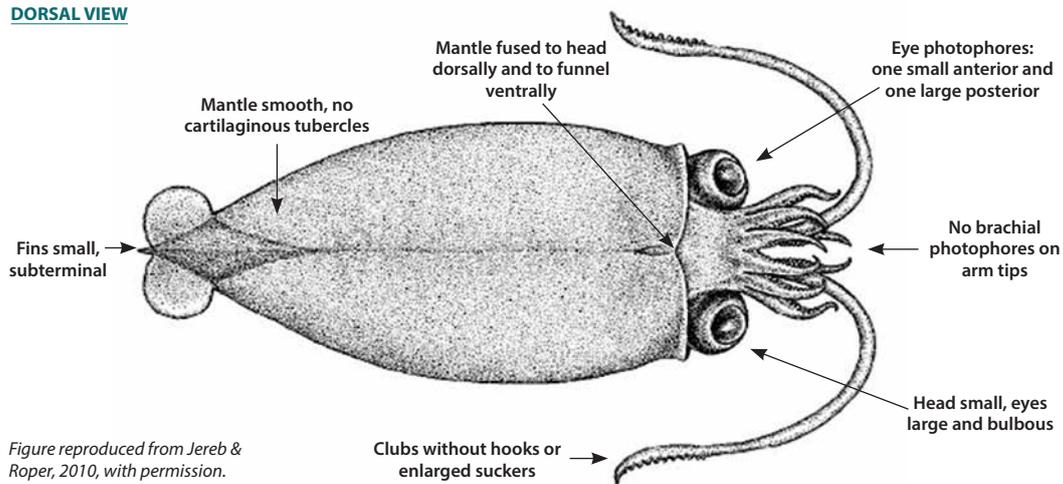


Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage; funnel free from the head laterally.
- Mantle without cartilaginous tubercles, **skin smooth**.
- Head small; eyes large, bulbous with two photophores (one large posterior and one small anterior).
- Arms with biserial, spherical suckers.
- Fins small (12-15% ML), rounded, subterminal.

#### Size

Maximum mantle length 110 mm.

#### Distribution

Mesopelagic and bathypelagic on West Coast.

#### Similar species

*Cranchia scabra* is superficially similar, but that species has rough skin, and funnel fused to head laterally.

#### References

Jereb & Roper, 2010; Nesis, 1987.

#### Club

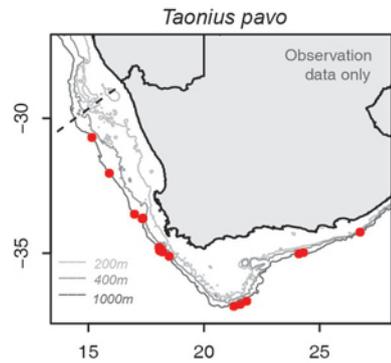
Club moderate, without enlarged suckers or hooks. Suckers in four series.

#### Hectocotylus

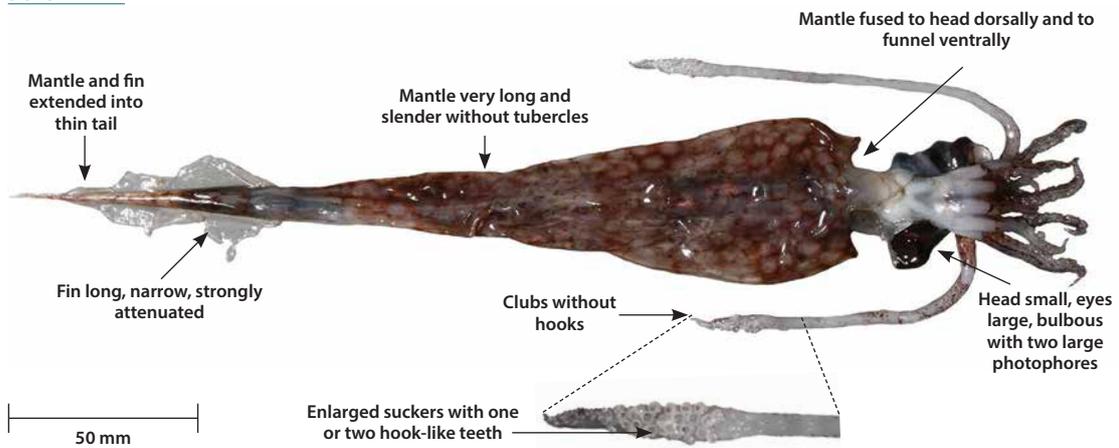
Absent.

***Taonius pavo* (Taonis)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	Peacock cranch squid
<b>Alternate:</b>	-



**DORSAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage.
- Funnel free from the head laterally.
- Mantle without cartilaginous tubercles, very long, slender, tapering to long thin "tail".
- Head small; eyes large, bulbous with one large posterior crescent-shaped photophore that engulfs the small anterior photophore.
- Arms with biserial, spherical suckers; without hooks.
- Fins long (50% ML), narrow, lanceolate, very attenuated posteriorly. Anterior lobes small.

**Club**

Moderate without hooks; enlarged suckers with one or two large hook-like teeth.

**Hectocotylus**

Absent.

**Size**

650 mm mantle length.

**Distribution**

West and South Coasts. Juveniles below 600 m, adults to 2000 m.

**Similar species**

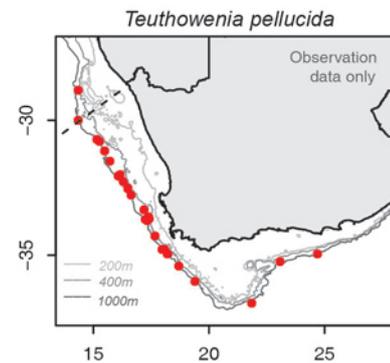
None.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Teuthowenia pellucida* (Teuthw)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cranchiidae
<b>Common:</b>	-
<b>Alternate:</b>	-



#### DORSAL VIEW

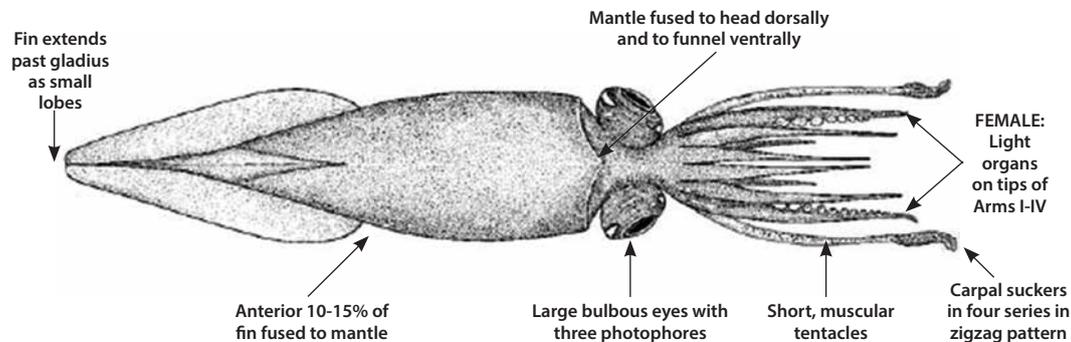


Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle fused to posterior-lateral corners of funnel, no funnel-locking cartilage.
- Head fused to the mantle at the nuchal cartilage.
- Mantle thin, leathery; funnel free from the head laterally.
- Funnel/mantle fusion cartilages small, oval with one to four cartilaginous tubercles at mantle margin.
- Head small; eyes large, bulbous, with three nested photophores – a large crescent-shaped posterior photophore, within its concavity a smaller crescent-shaped anterior photophore and a third small oval photophore.
- Brachial end-organ (photophore) on tips of Arms I-IV of mature females.
- Fins long, narrow, terminal-lateral, taper posteriorly, terminating in small lobes that extend posteriorly beyond the tip.

#### Club

Tentacles short, muscular; carpal suckers in four series in a zigzag pattern on stalk; club slightly expanded with suckers on long pedestals.

#### Hectocotylus

Absent.

#### Size

210 mm mantle length.

#### Distribution

West and South Coasts. Occur at greater depths with age; juveniles and subadults to 1 000 m; adults 1 000-2 500 m.

#### Similar species

Distinguished from other Cranchiids except *Teuthowenia* by fusing of anterior of fin to lateral mantle.

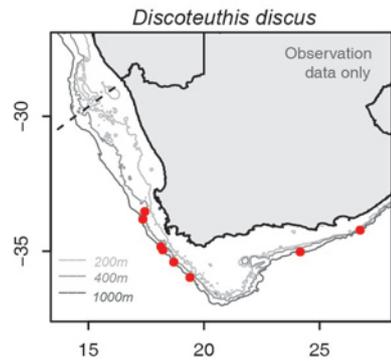
*Megalocranchia*: Has complex photophore on ink sac, and two on eyes; fin does not extend beyond gladius.

#### References

Jereb & Roper, 2010; Nesis, 1987.

**Discoteuthis discus (DisDis)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Cycloteuthidae
<b>Common:</b>	Discus squid
<b>Alternate:</b>	-



**DORSAL VIEW**

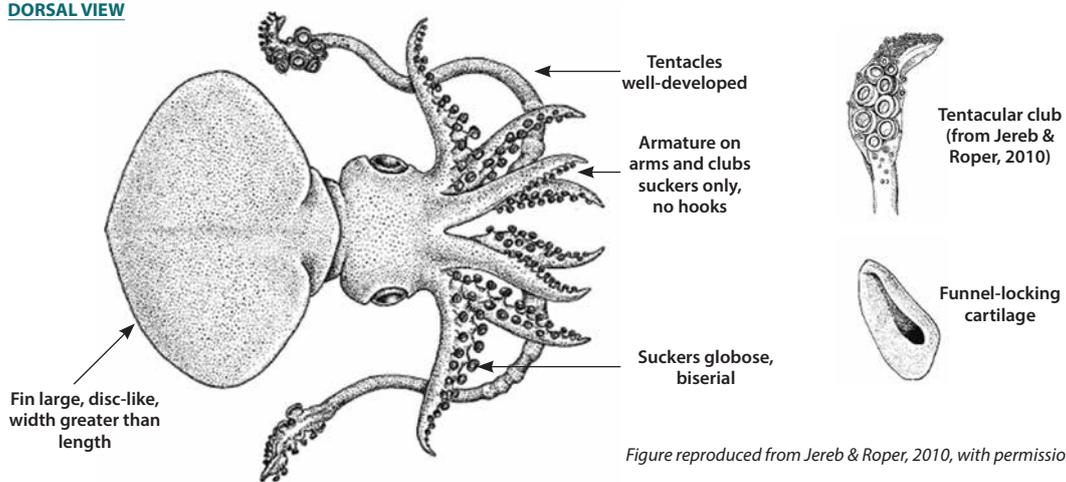


Figure reproduced from Jereb & Roper, 2010, with permission.

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- **Fin large, disc-like**, wider than long, equal to mantle length.
- Suckers on arms **globose**, biserial.
- A single photophore on ventral mantle near posterior end of body; no photophores on head or near anterior edge of mantle, or on ink sac.
- Funnel-locking cartilage triangular, with an oblique groove.

**Club**

Compact, widened, with four rows of suckers, two central rows greatly enlarged, globose.

**Hectocotylus**

Absent.

**Size**

600 mm mantle length.

**Distribution**

Rare. Possible on both West and South Coasts, 500 to 1000 m.

**Similar species**

Combination of large disc-like fin and globose suckers unique in area. Other species with large fin are:

*Mastigopsis hjorti*: Has small suckers, weak tentacles and two photophores on eyeball.

Octopoteuthidae (*Octopoteuthis sicula* and *Taningia danae*): Tentacle residual or absent; armature of hooks.

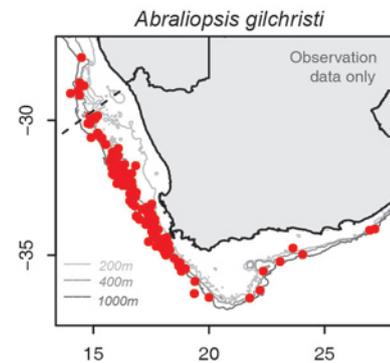
*Ancistrocheirus leseuerii*: Armature of hooks, diagnostic dashed brown line on fins.

**References**

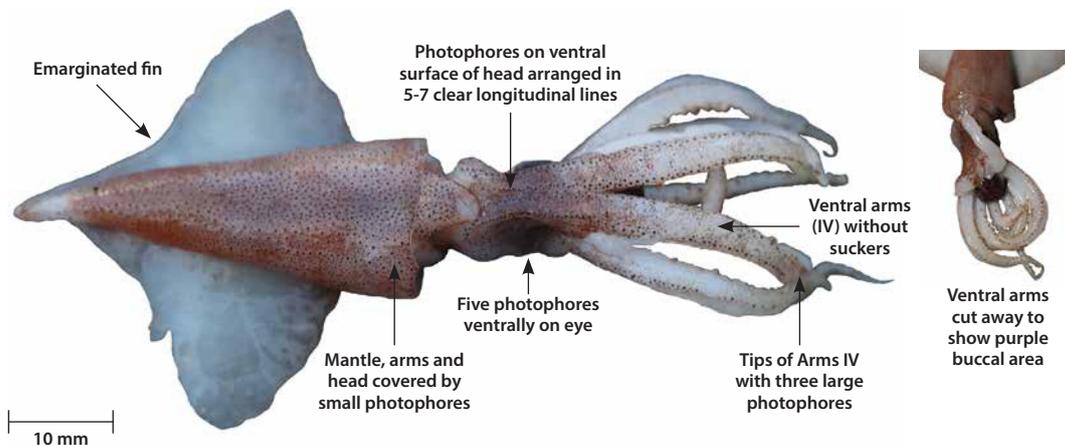
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Abraliopsis gilchristi* (AbrGil)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Enoploteuthidae
<b>Common:</b>	Gilchrist's enope squid
<b>Alternate:</b>	-



#### VENTRAL VIEW



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage a simple straight groove and ridge.
- Characteristic purplish buccal area contrasting with the whitish bases of the arms.
- Mantle, head and arms covered with small photophores visible as small spots.
- Photophores on ventral surface of head arranged in five to seven clearly defined longitudinal lines, no photophores between these lines.
- Arms IV without suckers, two to four (usually three) large photophores covered by black chromatophores on tips of arms.
- Eyeball with five photophores ventrally, anterior and posterior photophores enlarged.
- Fin strongly emarginated, lacking posterior lobes and not extending past end of mantle.

#### Club

Two series of hooks and one series of suckers on manus.

#### Hectocotylus

Right or left Arm IV.

#### Size

40 mm mantle length.

#### Distribution

Mainly northern parts of West Coast, 200 to 1400 m.

#### Similar species

*Abraliopsis hoylei*: Photophores on ventral surface of head diffuse, not arranged in clear longitudinal lines.

*Abralia siedleckyi*: Has one very large and four small photophores on eyes; Arms IV with suckers distally and without photophores; club with one row of hooks. Other *Abralia* sp. have 5-12 photophores on eyes.

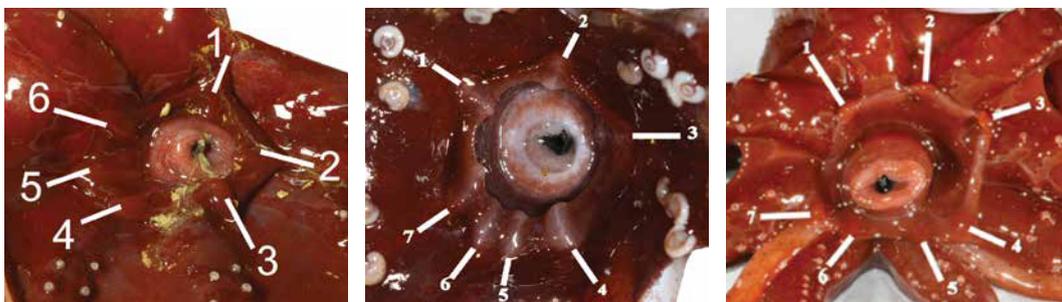
#### References

Jereb & Roper, 2010; Lipinski, 1983; Nesis, 1987; Sanchez, 1988.

Quick guide to the Jewel Squids, Genus *Histioteuthis*

**Table 4: Comparison of species in the genus *Histioteuthis*. If unsure of the species use the code "Histio".**

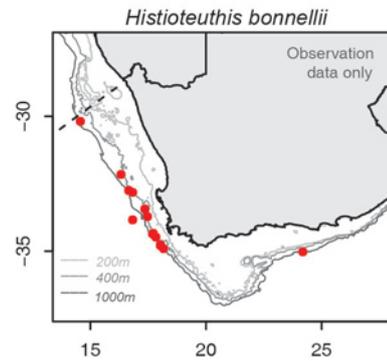
	<i>H. bonnellii</i>	<i>H. macrohista</i>	<i>H. meleagroteuthis</i>	<i>H. miranda</i>	<i>H. reversa</i>
Mantle length relative to head length	Much shorter than head	Much shorter than head	Shorter than head	Longer than head	Longer than head
Cartilaginous tubercles on mantle	None	None	Large obvious tubercles on dorsal midline of mantle and on Arms I-II	Small inconspicuous tubercles on dorsal midline of mantle and on Arms I-II	None
Large, elongate photophore on tips of Arms I-III	Present	Present	Absent	Absent	Absent
Inner webbing between Arms I-III	50% of arm length	50% of arm length	Less than 15% of arm length	Up to 15% of arm length	Vestigial
Number of photophores around left eye	17	16	19-21	16	18
Number of buccal lappets	6	7	7	7	7



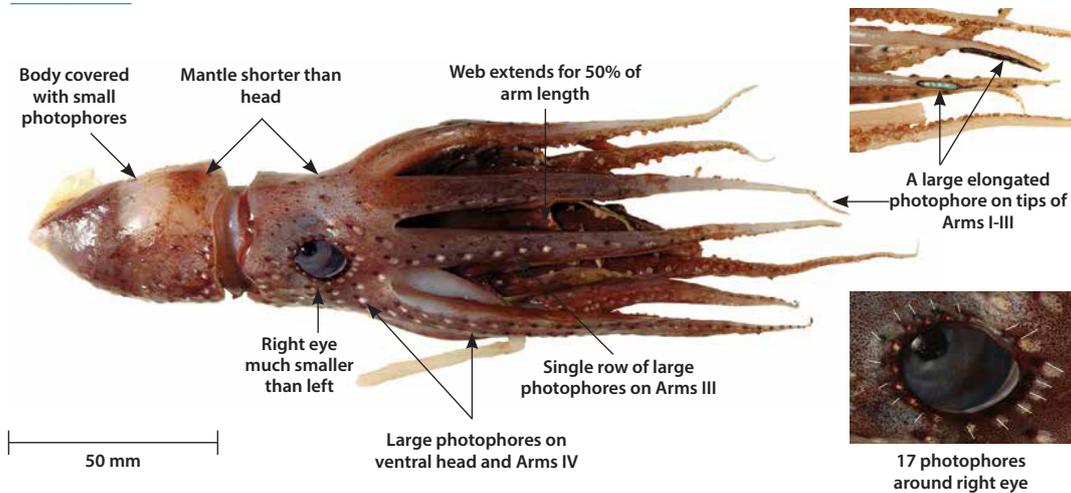
Examples of the buccal crown in *Histioteuthis* to illustrate the number of buccal lappets; either six (*H. bonnellii*, left) or seven lappets (*H. macrohista* and *H. miranda*, centre and right panels respectively)

### *Histioteuthis bonnellii* (HisBon)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Histioteuthidae
<b>Common:</b>	Ornate/Bonnelli's jewel squid
<b>Alternate:</b>	-



#### LATERAL VIEW



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Body covered with minute photophores.
- Left eye much larger than right.
- Mantle short, subequal to head length; no cartilaginous tubercles on mantle or arms.
- Arms joined by an inner web to 50% or more of arm length.
- Tip of each of Arms I–III bearing a single **large elongate photophore**.
- Buccal **membrane with six lappets** (see image on page 369); 17 (rarely 16 or 18) photophores around right eye.
- **Large compound photophores** on ventral surface of head and on Arms III and IV.

#### Club

Small, with four to eight rows of suckers of varying sizes.

#### Hectocotylus

Both dorsal arms.

#### Size

Up to 330 mm mantle length (largest *Histioteuthis*).

#### Distribution

Mainly on West Coast, from 500 to 1500 m.

#### Similar species

See Table 4 (page 369).

The only *Histioteuthis* sp. in area with six lappets.

*H. macrohista*: Mantle short; buccal **lappets seven**; right eye **photophores 16**; inner web >50% of arms; ventral surface of head and Arms III and IV **without** large compound photophores.

*H. meleagroteuthis*: Mantle short; buccal **lappets seven**; right eye **photophores 19–21**; inner web <15% of arm; single row of **large cartilaginous tubercles** on dorsal midline of mantle and of Arms I–III.

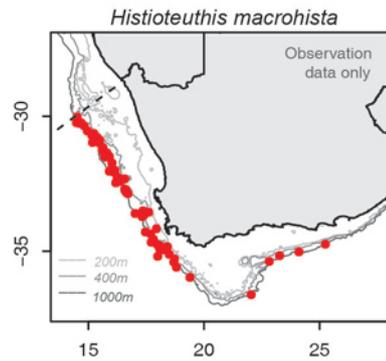
*H. miranda* and *H. reversa*: **Mantle long**; buccal lappets seven.

#### References

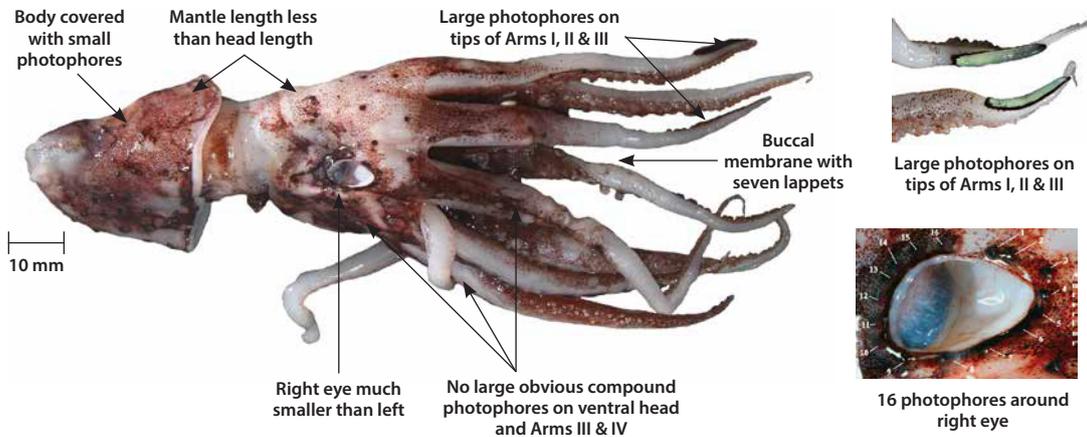
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

***Histioteuthis macrohista* (HisMac)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Histioteuthidae
<b>Common:</b>	Plain jewel squid
<b>Alternate:</b>	-



**LATERAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Body covered with minute photophores.
- Left eye much larger than right.
- Mantle short, less than head length; no cartilaginous tubercles on mantle or arms.
- Arms joined by an inner **web to 50% or more of arm length**.
- Tip of each of Arms I–III bearing a single **large elongate photophore**.
- Buccal membrane **with seven lappets** (see image on page 369); 16 photophores around right eye.
- Ventral surface of head and Arms III and IV **plain, without** large compound photophores.

**Club**

Small, four to eight rows of suckers of varying sizes.

**Hectocotylus**

Both dorsal arms.

**Size**

Up to 70 mm mantle length.

**Distribution**

Both coasts, but more common on West Coast; 100 to 1 000 m.

**Similar species**

See Table 4 (page 369).

*H. bonnellii*: Mantle short; buccal **lappets six**; right eye **photophores 17**; inner web >50% of arms; **large compound photophores** on ventral surface of **head and Arms III and IV**.

*H. meleagroteuthis*: Mantle short; buccal **lappets seven**; right eye **photophores 19–21**; inner web <15% of arm; single row of **large cartilaginous tubercles** on dorsal midline of mantle and of Arms I–III.

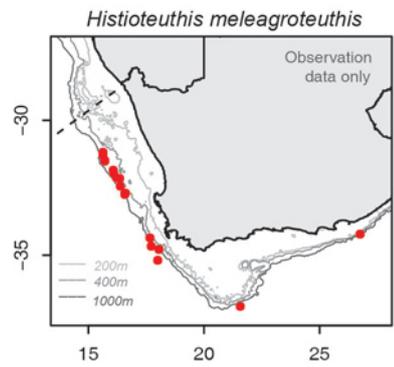
*H. miranda* and *H. reversa*: **Mantle long**; seven buccal lappets.

**References**

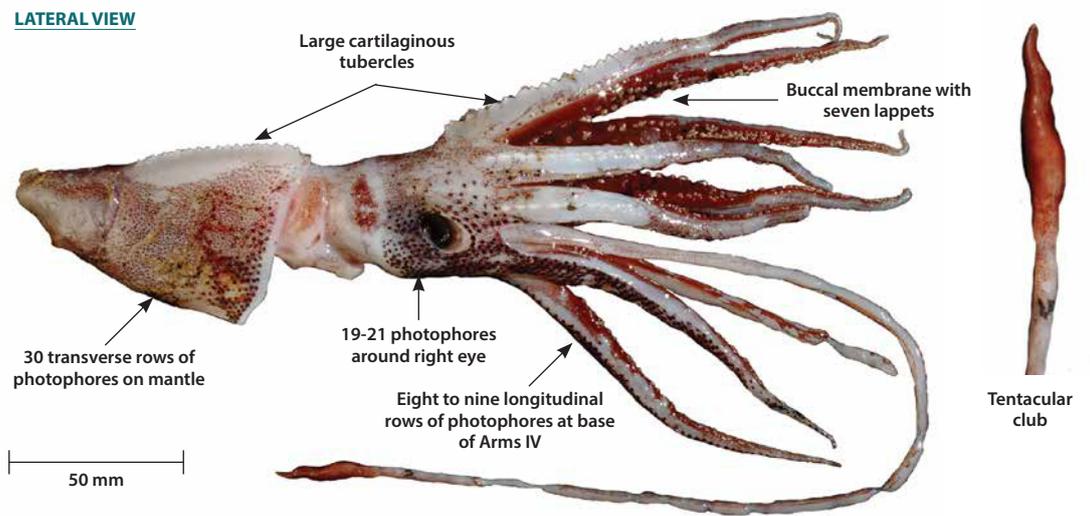
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

***Histioteuthis meleagroteuthis* (HisMel)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Histioteuthidae
<b>Common:</b>	Crested jewel squid
<b>Alternate:</b>	-



**LATERAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Body covered with minute photophores.
- Left eye much larger than right.
- Mantle short, subequal to head length; inner web between arms less than 15% of arm length.
- No large elongate photophores at the tips of arms.
- Buccal membrane with seven lappets; 19-21 photophores around right eye.
- Eight to nine longitudinal rows of photophores in basal parts of Arms IV; 30 transverse rows of photophores on ventral mantle.
- **Large cartilaginous tubercles** on dorsal midline of mantle and basal parts of Arms I-III.

**Club**

Small, with four to eight rows of suckers of varying sizes.

**Hectocotylus**

Both dorsal arms.

**Size**

Up to 114 mm mantle length.

**Distribution**

West Coast. Off the shelf in water column to over 1 000 m.

**Similar species**

See Table 4 (page 369).

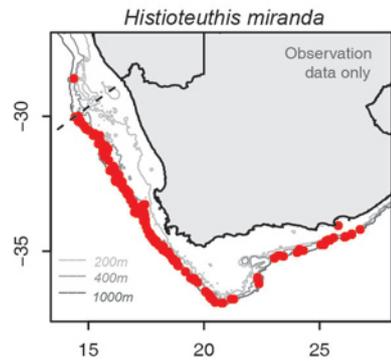
Distinguished from other *Histioteuthis* by large cartilaginous tubercles on dorsal midline of mantle and dorsal base of Arms I-III; 19-20 photophores around right eye.

**References**

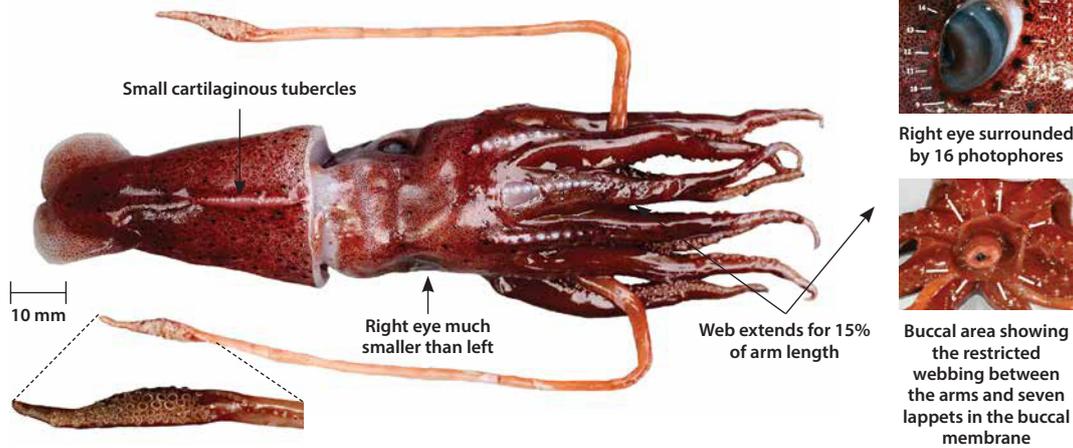
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

***Histioteuthis miranda* (HisMir)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Histioteuthidae
<b>Common:</b>	Common jewel squid
<b>Alternate:</b>	-



**DORSAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Body covered with minute photophores.
- Left eye much larger than right.
- **Mantle length greater than head length**, with small inconspicuous cartilaginous tubercles on dorsal midline of mantle and basal parts of Arms I-III.
- Inner web connects basal 15-25% of Arms I-III; outer web not developed.
- No large elongate photophores at the tips of arms.
- Buccal membrane with seven lappets; 16 photophores around right eye.

**Club**

Manus with closely packed suckers of varying sizes in six to seven series.

**Hectocotylus**

Both dorsal arms.

**Size**

Up to 270 mm mantle length.

**Distribution**

Most common *Histioteuthis* species in the region, on both coasts in 700 to 900 m.

**Similar species**

See Table 4 (page 369).

*H. bonnellii*, *H. macrohista* and *H. meleagroteuthis*: Mantle length less than head length.

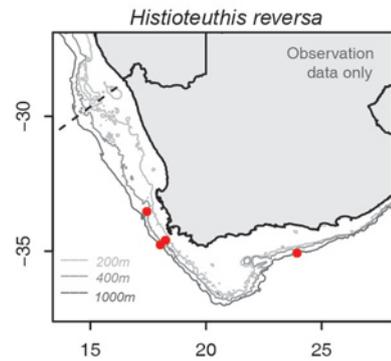
*H. reversa*: Lacks tubercles on dorsal midline and base of arms; 18 photophores around right eye; inner web between arms vestigial.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Histioteuthis reversa* (HisRev)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Histioteuthidae
<b>Common:</b>	Reverse jewel squid
<b>Alternate:</b>	-



**DORSAL VIEW**

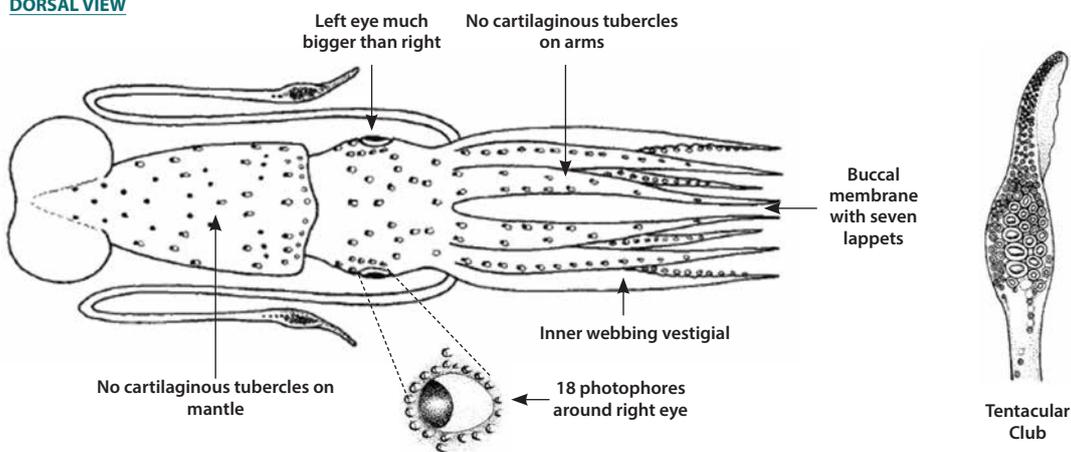


Figure reproduced from Jereb & Roper, 2010, with permission.

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Body covered with minute photophores.
- Left eye much larger than right.
- **Mantle elongate**, much longer than head, lacking cartilaginous tubercles on dorsal midline.
- Arms robust, of moderate length, without cartilaginous tubercles or terminal photophores.
- Inner web between Arms I-III low, vestigial.
- Buccal membrane with seven lappets; 18 photophores around right eye.

**Club**

Manus with deep longitudinal cleft on aboral surface; suckers in six diagonal series, median ventral series enlarged (three to four times marginal).

**Hectocotylus**

Both dorsal arms.

**Size**

Up to 200 mm mantle length.

**Distribution**

Occurs off Namibia; possible on northern West Coast; 300–1 000 m.

**Similar species**

See Table 4 (page 369).

*H. bonnellii*, *H. macrohista* and *H. meleagroteuthis*: Mantle length less than head length.

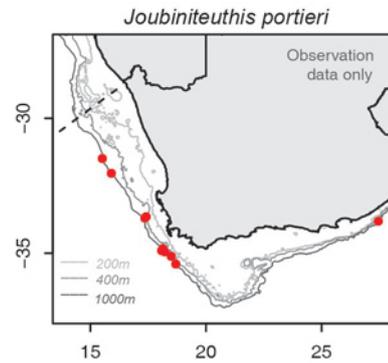
*H. miranda*: 16 eye photophores; inner web on Arms I-III <15% of arm; single row of small cartilaginous tubercles on dorsal midline of mantle and of Arms I-III.

**References**

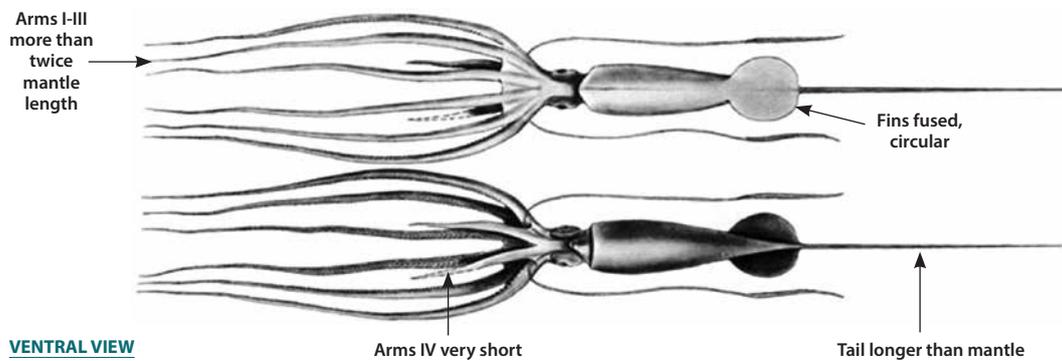
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Joubiniteuthis portieri* (JouPor)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Joubiniteuthidae
<b>Common:</b>	Joubin's squid
<b>Alternate:</b>	-



#### DORSAL VIEW



#### VENTRAL VIEW

Figure reproduced from Young & Roper, 1969, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage oval, without knobs.
- Arms I-III **very long**, more than 2x ML, with very small suckers in six series.
- Arms IV short (1/3 length of other arms), with suckers in four series.
- Head narrow, eyes small without photophores.
- Mantle long and narrow.
- Fin round, short (30% ML); **long thin tail** (longer than mantle).

#### Club

Long and laterally compressed; minute suckers in 5-12 transverse series; no carpus.

#### Hectocotylus

Absent.

#### Size

105 mm mantle length.

#### Distribution

West Coast, very rare. Meso- to bathypelagic from 500 m to over 3 000 m.

#### Similar species

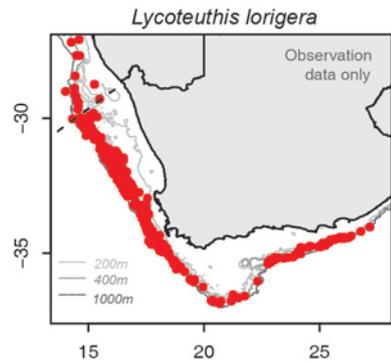
None. Combination of long Arms I-III and long tail diagnostic.

#### References

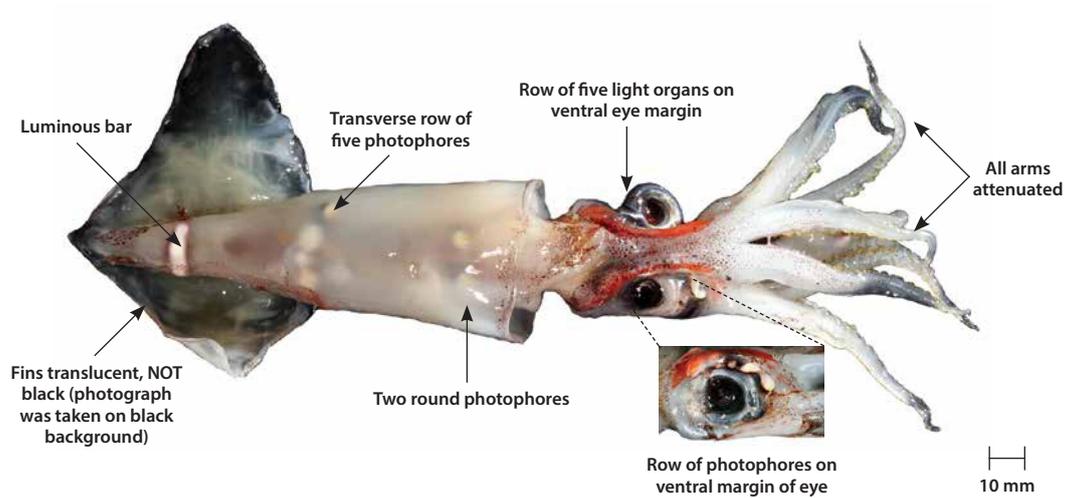
Jereb & Roper, 2010; Nesis, 1987; Young & Roper, 1969; Sanchez, 1988.

***Lycoteuthis lorigera* (Lycote)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Lycoteuthidae
<b>Common:</b>	Crowned firefly squid
<b>Alternate:</b>	<i>Lycoteuthis diadema</i>



**VENTRAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Large luminous organs in body cavity visible through the ventral mantle: Two round photophores near mantle opening; five round photophores in a transverse row across mantle anterior to edge of fin; a luminous cross bar near the posterior end of the mantle.
- Ventral side of eyeball with five luminous organs arranged in a single row.
- No hooks present. Suckers in two series on arms and four series on clubs.
- Males: Arms II greatly elongated, with a series of regularly spaced photophores; Arms III elongated, strongly attenuated.
- Muscular, conical mantle.
- Fins broad, rhomboidal.

**Club**

Four rows of suckers.

**Hectocotylus**

Absent.

**Size**

Males 190 mm ML. Females 110 mm.

**Distribution**

Both West and South Coasts. Deeper than 300 m.

**Similar species**

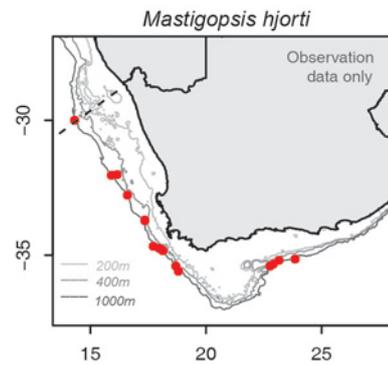
None. The three series of visceral photophores (visible through the mantle) diagnostic in the area.

**References**

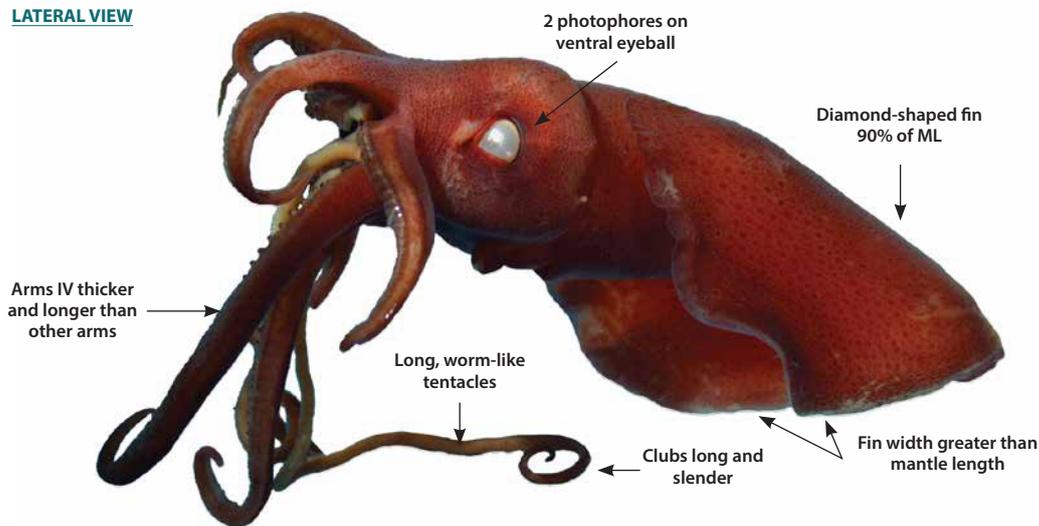
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Mastigopsis hjorti* (MasHjo)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Mastigoteuthidae
<b>Common:</b>	Hjort's whiplash squid
<b>Alternate:</b>	<i>Mastigoteuthis hjorti</i>



#### LATERAL VIEW



From Vecchione & Young (2014), reproduced with permission from RE Young

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage oval without knobs.
- Mantle weakly muscular, semi-gelatinous.
- **Two photophores on ventral surface of eyeball**; no other photophores on eye or body surface.
- Arm suckers biserial, no hooks; ventral arms thicker than other arms, greatly elongated.
- Fins very large, diamond-shaped, reaching almost to anterior edge of mantle (about 90% of ML); width greater than ML.

#### Club

Tentacles vermiform, extremely long, slender; club elongate, with numerous minute suckers arranged in more than 15 series.

#### Hectocotylus

Absent.

#### Size

100 mm mantle length.

#### Distribution

Both West and South Coasts. Oceanic pelagic or benthopelagic.

#### Similar species

*Octopoteuthis sicula*: Mantle produced posteriorly into a "tail"; armature of hooks; no photophores on eyeball; tentacles residual or absent.

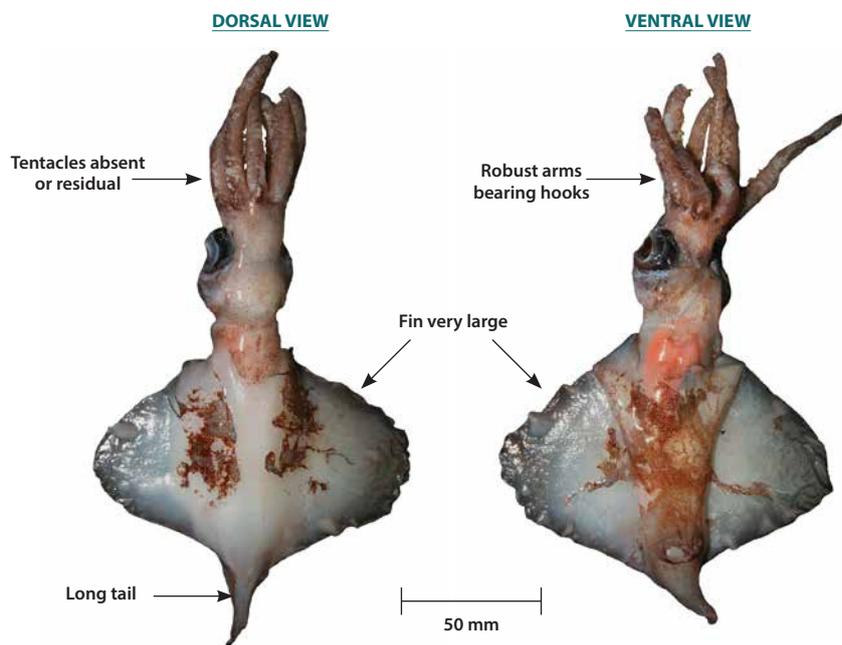
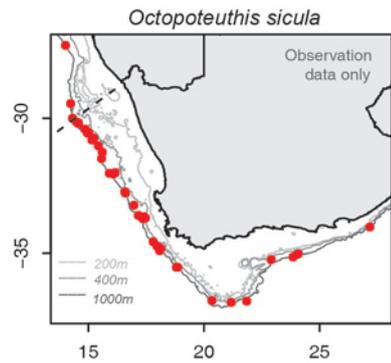
*Taningia danae*: Tentacles residual; no photophores on eyeball; arms with hooks; large, swollen terminal photophore at tips of Arms II.

#### References

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988; Vecchione & Young, 2014.

### *Octopoteuthis sicula* (Octhis)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Octopoteuthidae
<b>Common:</b>	Rüppell's octopus squid
<b>Alternate:</b>	-



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Arms robust, with **biserial hooks** enveloped in soft integumentary sheaths. Minute suckers only at tips.
- Small, black, spindle-shaped terminal photophore at the tips of each arm.
- One pair of photophores embedded in posterior mantle; and three pairs on lateral sides of funnel groove near neck.
- Fin large, length ca 90% ML, width ca 115% ML.

#### Club

Tentacles present in paralarval stage (up to 15 mm ML) only, absent in adults.

#### Hectocotylus

Absent.

#### Size

200 mm mantle length.

#### Distribution

Both West and South Coasts. Meso- to bathypelagic down to about 2 000 m.

#### Similar species

*Taningia danae*: Fin width much greater than ML; large, swollen terminal photophore at tips of Arms II; no terminal photophores on other arms.

*Ancistrocheirus lesueurii*: Armature of hooks, diagnostic brown dashed lines on fin.

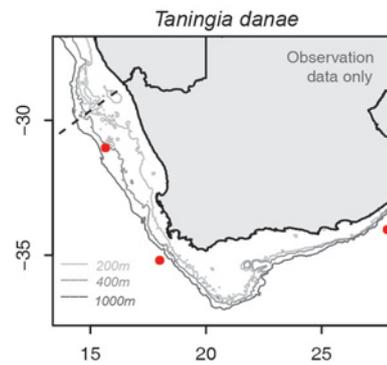
*Mastigopsis hjorti*: Tentacles present; armature of suckers without hooks; two photophores on eyeballs.

#### References

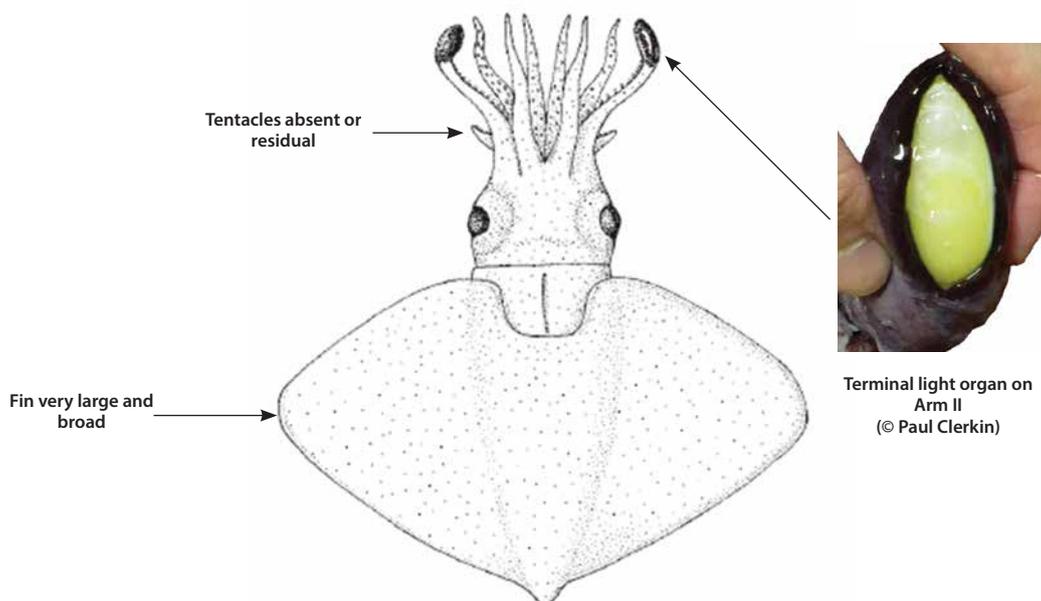
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Taningia danae* (TanDan)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Octopoteuthidae
<b>Common:</b>	Taning's octopus squid
<b>Alternate:</b>	-



#### DORSAL VIEW



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Arms robust, with large hooks in two series to tips. Minute suckers sometimes at tips.
- Tips of **Arms II with large, oval, swollen photophore**. No photophores on other arms.
- No photophores embedded in mantle or arms. One photophore on either side of intestine ventral to the ink sac.
- Fin very large, length ca 100% ML, width ca 130% ML.

#### Club

Tentacles present in paralarval stage (up to 45 mm ML) only, absent in adults.

#### Hectocotylus

Absent.

#### Size

1 700 mm mantle length, 161 kg.

#### Distribution

Both West and South Coasts. Meso- to bathypelagic down to about 2 000 m.

#### Similar species

*Octopoteuthis sicula*: Mantle extends as a tail posterior to broad fin; small, black, spindle-shaped terminal photophore at the tips of each arm.

*Ancistrocheirus lesueurii*: Armature of hooks, diagnostic brown dashed lines on fin.

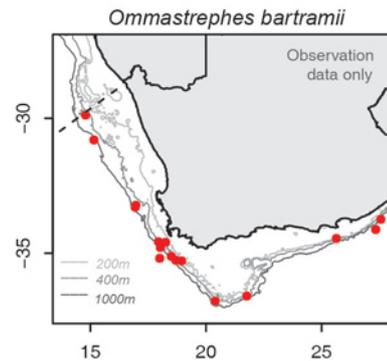
*Mastigopsis hjorti*: Tentacles present; armature suckers without hooks; two photophores on eyeballs.

#### References

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

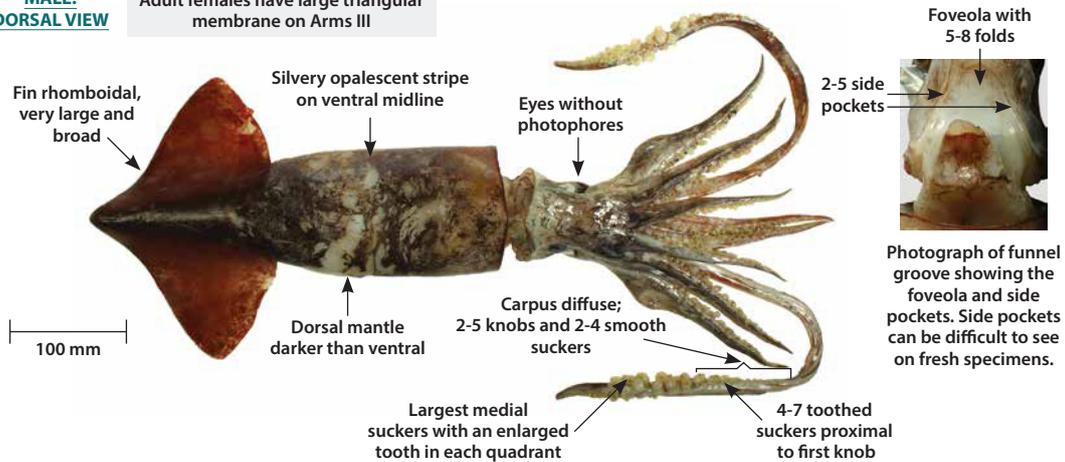
## *Ommastrephes bartramii* (OmmBar)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Neon flying squid
<b>Alternate:</b>	-



**MALE:**  
**DORSAL VIEW**

Adult females have large triangular membrane on Arms III



### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel groove: **Foveola** with **five to eight longitudinal folds**; **side pockets two to five** (usually three to four), distinct, but can be difficult to see on fresh, wet specimens.
- No ocular, intestinal or large dorsal photophores; small scattered subcutaneous photophores embedded in the mantle, head and ventral arms (not easily visible).
- Arms strong, not attenuated, bearing biserial suckers; swimming keels well-developed.
- In adult females, the ventral membranes of Arms III expand into large, triangular lobes.
- Colour red, dorsal surfaces typically darker than ventral; a long, wide, silvery or golden opalescent strip on ventral midline from mantle opening to the level of the fins.
- Fins terminal, large, rhomboidal, slightly attenuated posteriorly; length 40-50% ML; width 60-85% ML; **shorter and wider than *Todarodes***.

### Club

Dactylus with four rows of small suckers. Manus with enlarged suckers, **largest suckers with four large pointed teeth (one in each quadrant)**. Carpal-locking apparatus present.

### Hectocotylus

Right or left ventral arm, smooth without suckers.

### Size

(♂) 400 mm ML; (♀) 900 mm ML.

### Distribution

Oceanic, offshore of the 200-m isobath where sea surface temperature is 10-25 °C. Surface to 1 500 m, but not close to seabed.

### Similar species

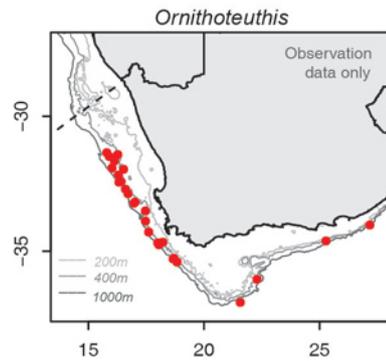
*Sthenoteuthis oualaniensis* and *Sthenoteuthis pteropus* very similar, distinguished by large obvious photophore anteriorly on dorsal mantle. Mantle fused to funnel in *S. oualaniensis*, not fused in *S. pteropus* or other *Ommastrephids*. See also *Ornithoteuthis* and *Todarodes*.

### References

Jereb & Roper, 2010; Nesis, 1987; Roeleveld, 1988; Sanchez, 1988.

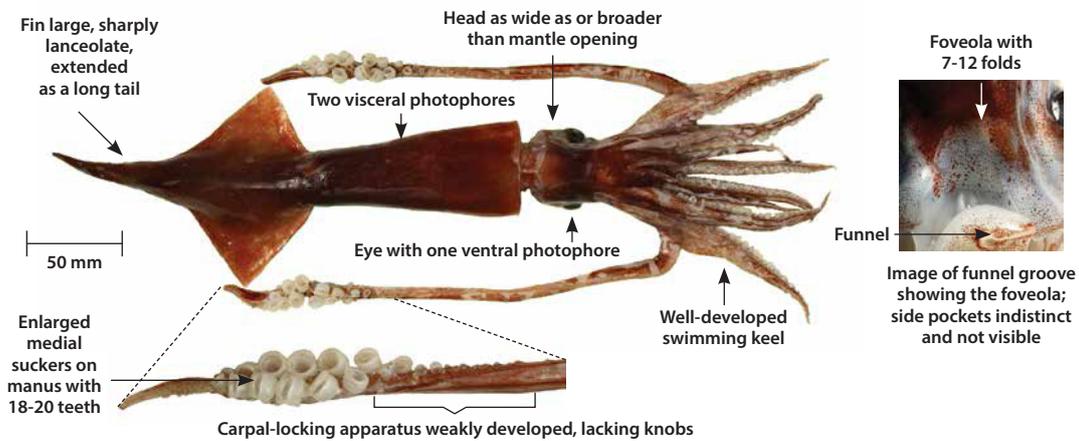
**Ornithoteuthis sp. (Ornith)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Atlantic and Shiny bird squids
<b>Alternate:</b>	-



**FEMALE: DORSAL VIEW**

Two very similar species that can be identified with certainty to species only by the structure of the hectocotylus. See next page for identification of males.



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle cylindrical and muscular, narrow, extending posteriorly as a **long thin tail**; head broad, equal to or broader than mantle width.
- Fins long, sharply lanceolate, posterior margins concave accentuating the long tail.
- Funnel groove: **Foveola with 7-12 folds; side pockets obscure** few or none.
- No external or subcutaneous photophores; **two visceral photophores**: one large, round, yellowish near the anus, other small, oval, white at posterior end of intestine, pinkish bioluminescent strip extends from the small photophore to posterior tip of mantle cavity.
- A single round **photophore patch on ventral surface of each eye**.
- Arms strong with well-developed swimming keels; suckers biserial with toothed rings.

**Club**

Suckers in four series. Medial manus suckers very large, with **18-20 equal-sized teeth**: carpal-locking apparatus weakly developed, lacking knobs.

**Hectocotylus**

Right Arm IV. Structure differs between species (see next page).

**Size**

300 mm mantle length.

**Distribution**

Both West and South Coasts, surface to 1 000 m.

**Similar species**

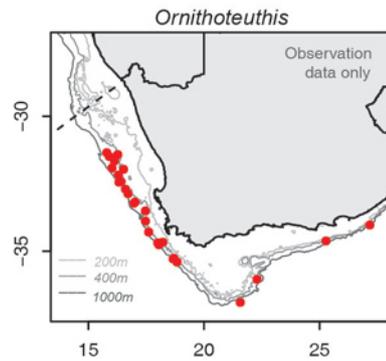
The Ommastrephid genera are distinguished by the structure of the funnel groove (see *Ommastrephes*, *Todarodes* and *Todaropsis*). See next page for differences between the two species in this genus.

**References**

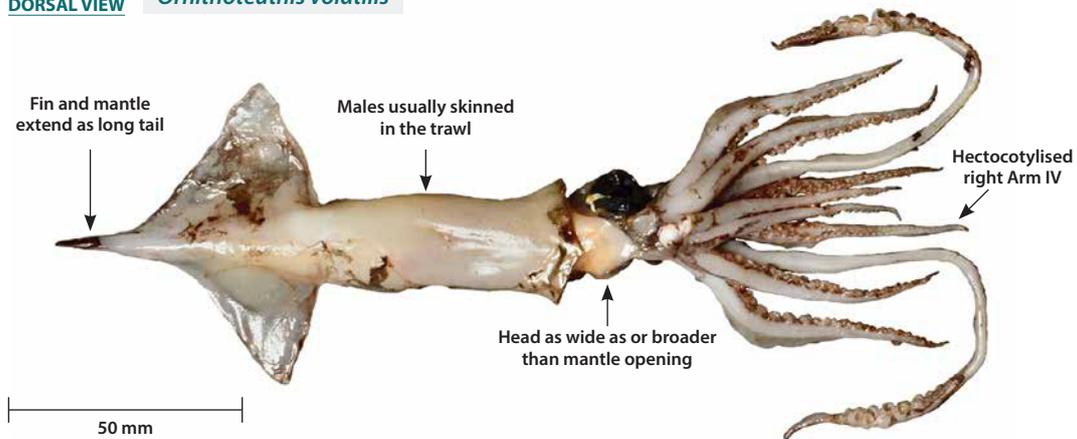
Jereb & Roper, 2010; Nesis, 1987; Roeleveld, 1988; Sanchez, 1988.

### Ornithoteuthis Males

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Atlantic and Shiny bird squids
<b>Alternate:</b>	-



**MALE: DORSAL VIEW** *Ornithoteuthis volatilis*



### *Ornithoteuthis antillarum* Atlantic bird squid (OrnAnt)

#### Hectocotylus



Ventro-lateral view of right Arm IV (figure reproduced from Jereb & Roper, 2010, with permission) showing:

Distal half with sucker stalks modified into papillae; honeycomb sculpturing along midventral surface consisting of **four or five** longitudinal columns of depressions and swollen ridges. There are **20 to 25 depressions** (pits or pores) in each column.

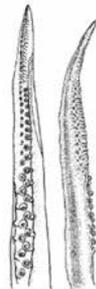
#### Distribution

Known global distribution North Atlantic south to at least 28° S off Namibia.

Possible off the northern West Coast.

### *Ornithoteuthis volatilis* Shiny bird squid (OrnVol)

#### Hectocotylus



Oral and ventro-lateral views of right Arm IV (figure reproduced from Jereb & Roper, 2010, with permission) showing:

Distal half with sucker stalks modified into papillae; honeycomb sculpturing along midventral surface consisting of **two or three** longitudinal columns of depressions and swollen ridges. There are **10 to 15 depressions** (pits or pores) in each column.

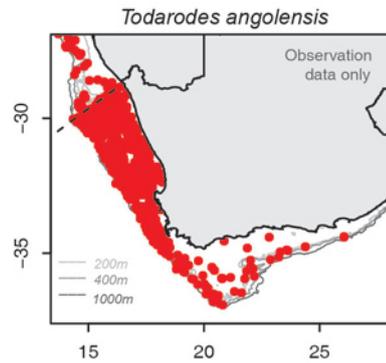
#### Distribution

Known global distribution Indo-West Pacific to east coast of Africa. Reported from the Benguela off South Africa and Namibia.

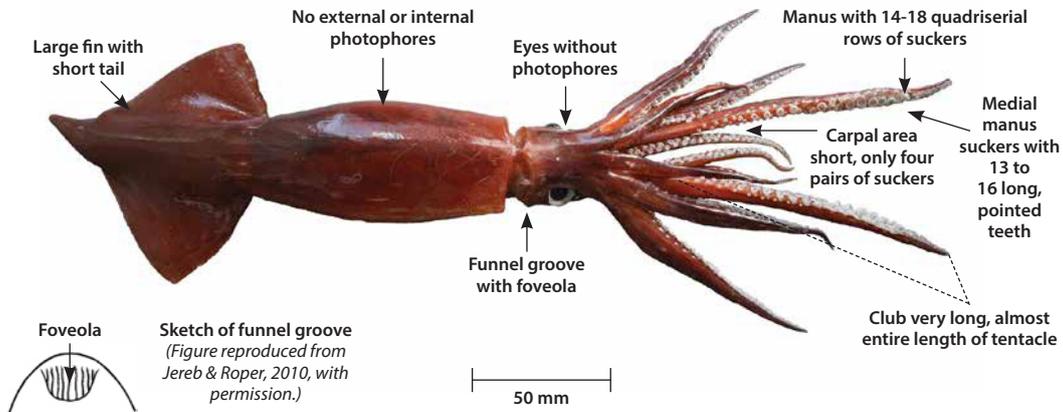
Possible off both West and South Coasts.

***Todarodes angolensis* (Toddes)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Angola flying squid
<b>Alternate:</b>	-



**FEMALE:  
DORSAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle cylindrical and muscular, narrow and tight in ♂♂, wider and looser in ♀♀.
- Trawl-caught males usually skinned.
- No light organs on eyes, viscera or mantle.
- Arms strong, with well-developed swimming keels. Suckers biserial, with toothed rings.
- Funnel groove with **foveola (containing longitudinal folds) only, side pockets absent.**
- Fin large; convex anterior margin; posterior margin attenuated to form short tail.

**Club**

Very long; manus with **14-18** quadriserial sucker rows, medial manus suckers enlarged, with **13-16** long pointed teeth. **Four pairs of carpal suckers.**

**Hectocotylus**

Right Arm IV long, with suckerless thick pedicels forming a feather-like fringe for distal 40% of arm.

**Size**

430 mm mantle length.

**Distribution**

Both South and West Coasts. Offshore of the 300 m isobath.

**Similar species**

Ommastrephid genera distinguished by the structure of the funnel groove: either smooth (*Todaropsis*); with foveola only (*Todarodes*) or; with foveola and indistinct (*Ornithoteuthis*) or distinct (*Ommastrephes* and *Sthenoteuthis*) side pockets.

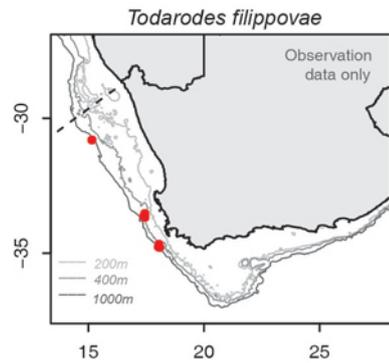
*Todarodes filippovae*: Club much shorter; with 12-14 quadriserial sucker rows; sucker rings with 7-13 teeth; carpus very short, only two pairs of carpal suckers; longer fin.

**References**

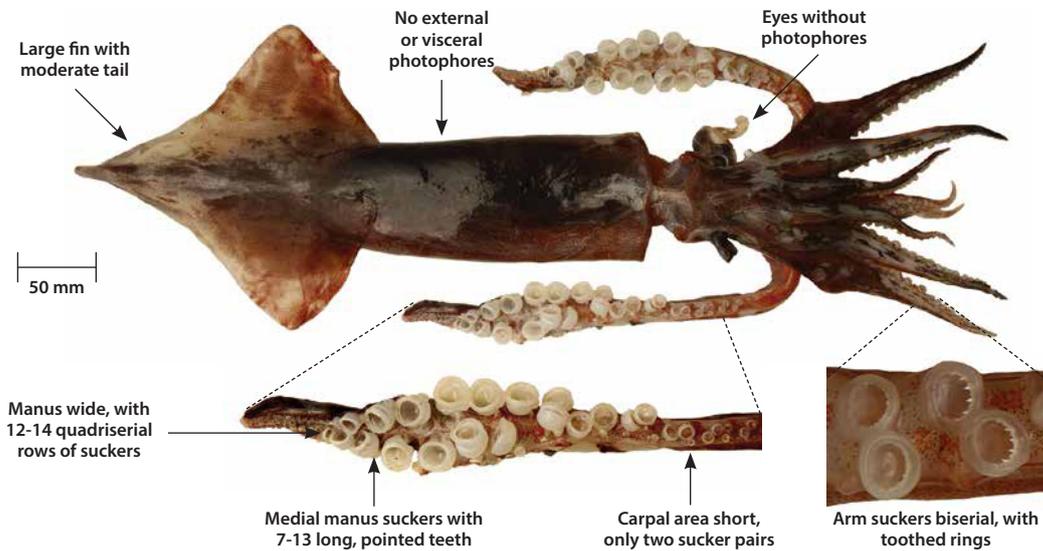
Jereb & Roper, 2010; Nesis, 1987; Roeleveld, 1988; Sanchez, 1988.

### *Todarodes filippovae* (TodFil)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Antarctic flying squid
<b>Alternate:</b>	-



**FEMALE: DORSAL VIEW**



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle cylindrical and muscular, narrow.
- No light organs on eyes, viscera or mantle.
- Arms strong, with well-developed swimming keels; suckers biserial, with toothed rings.
- Funnel groove with **foveola only, side pockets absent**.
- Fin large; convex anterior margin; posterior margin attenuated to form short tail.

**Club**

Short, well-developed; manus wide with **12-14** quadriserial sucker rows; medial manus suckers enlarged, with **7-13** long pointed teeth; carpus very short, only **two pairs of carpal suckers**.

**Hectocotylus**

Right Arm IV long, with suckerless thick pedicels forming a feather-like fringe for distal 21-36% of arm.

**Size**

Max female 540 mm, male 400 mm mantle length.

**Distribution**

Circumpolar south of 35° S. Rare on South Coast. Oceanic 300-1 200 m.

**Similar species**

Other Ommastrephids; genera distinguished by the structure of the funnel groove (see under *T. angolensis*).

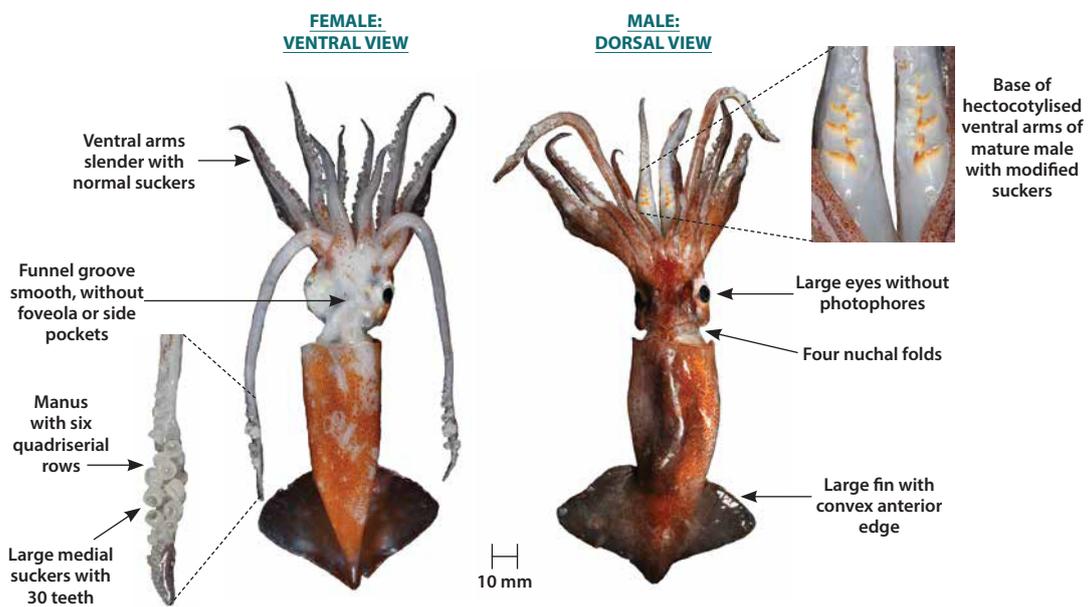
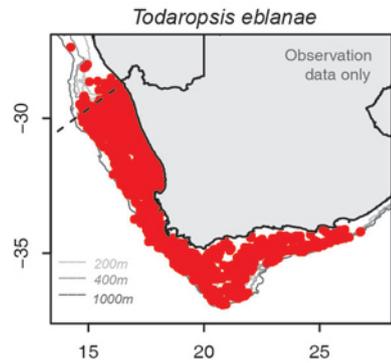
*Todarodes angolensis*: Club much longer, with 14-18 quadriserial sucker rows; sucker rings with 13-16 teeth; four pairs of carpal suckers; shorter fin.

**References**

Jereb & Roper, 2010; Nesis, 1987; Roeleveld, 1988; Sanchez, 1988.

***Todaropsis eblanae* (Todrop)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Ommastrephidae
<b>Common:</b>	Lesser flying squid
<b>Alternate:</b>	-



**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle robust, stout, but thinner walled and flabbier than *Todarodes*, especially in ♀♀.
- Head broad, with four nuchal folds on neck; funnel groove **without foveola or side pockets**.
- Arms strong, with well-developed swimming keels. Suckers biserial with toothed rings.
- Largest arm suckers with one large median tooth and three or four smaller teeth.
- No light organs on eyes, viscera or mantle.
- Fin large, broad, width about twice length, anterior edge convex.

**Club**

Dactylus with four rows of small suckers. Manus with six transverse rows of four suckers, medial suckers 4x larger than lateral suckers. Largest suckers with about 30 teeth.

**Hectocotylus**

Bases of both ventral arms with beak-like lappets, edges brown in mature ♂♂.

**Size**

290 mm mantle length in females; 220 mm for males.

**Distribution**

Both South and West Coasts, 20-850 m.

**Similar species**

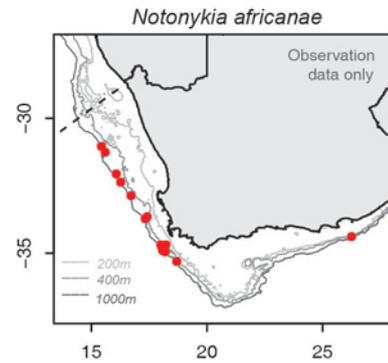
Distinguished from other Ommastrephids in the area by smooth funnel groove lacking both foveola and side pockets; absence of body, eye and visceral photophores; presence of nuchal folds and having both ventral arms hectocotylised.

**References**

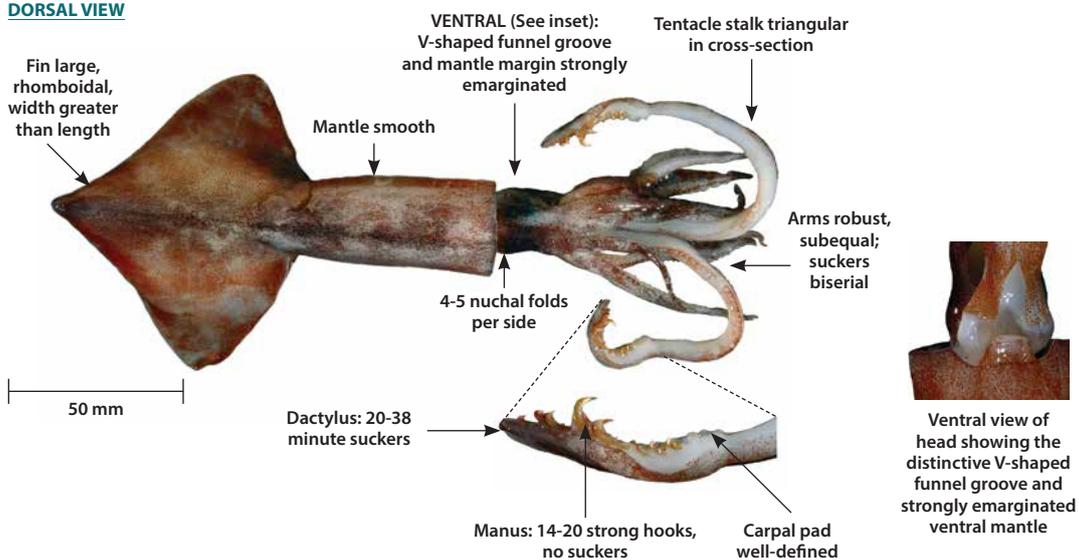
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Notonykia africanae* (NotAfr)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Onychoteuthidae
<b>Common:</b>	Benguela clubhook squid
<b>Alternate:</b>	-



#### DORSAL VIEW



#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle densely muscular, broad. Skin smooth, not rugose. Photophores absent.
- **Nuchal folds four to five** on each side of neck.
- V-shaped funnel groove without fleshy ridge.
- Arms robust, subequal (33-55% ML) with biserial suckers.
- Colour maroon to brick red, darker dorsally.
- Fin large, rhomboidal 58-66% ML, anterior margins slightly convex, posterior almost straight.

#### Club

Dactylus 20-38 minute suckers; manus narrow, two medial series of 14-20 (usually 17-18) strong hooks, no marginal suckers; carpus well defined, 6-12 smooth suckers plus knobs.

#### Hectocotylus

Absent.

#### Size

180 mm mantle length.

#### Distribution

Common on West Coast. Bathypelagic to 1 200 m.

#### Similar species

*Todarodes angolensis*: Superficially similar, but differs in the absence of hooks on the clubs, the lack of V-shaped funnel groove, and ventral mantle margin not emarginated.

*Onykia robsoni*: Skin very rough, "warty", no photophores; no nuchal folds; long slender tail.

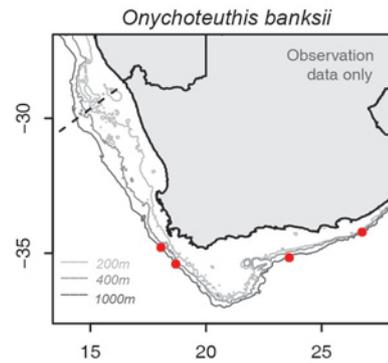
*Onychoteuthis banksii*: Skin smooth; two visceral photophores on ventral midline; large light organ on eyes; 9-10 pairs of prominent nuchal folds; 20-22 large medial hooks on club.

#### References

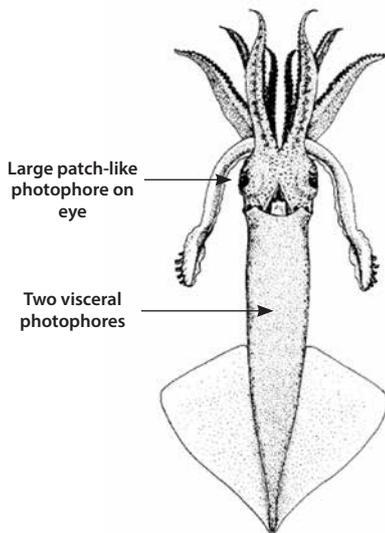
Jereb & Roper, 2010; Nesis *et al.*, 1998.

## *Onychoteuthis banksii* (OnyBan)

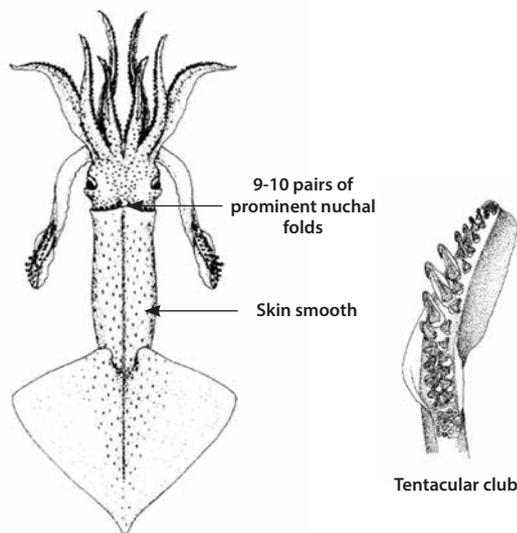
<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Onychoteuthidae
<b>Common:</b>	Common clubhook squid
<b>Alternate:</b>	-



**VENTRAL VIEW**



**DORSAL VIEW**



### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle very robust, densely muscular.
- Skin smooth, without warts or wrinkles.
- **Nine to ten** pairs of prominent, elongate, flap-like nuchal folds dorso-laterally on neck.
- A large bi-lobed, patch-like **light organ** on **ventral** surface of each **eye**.
- **Two large** bulbous **visceral photophores** on ventral midline, posterior 2x size of anterior.
- Fins moderate, rhomboidal, sharply pointed posteriorly.

### Club

Dactylus with 13-15 small suckers in four series. Manus slightly expanded with 20-22 large strong hooks in two medial series; no marginal suckers.

### Hectocotylus

Absent.

### Size

300 mm mantle length.

### Distribution

Possible on both South and West Coasts. Epipelagic, usually in surface 150 m, but has been recorded to 4 000 m.

### Similar species

*Notonykia africanae*: Skin smooth; no photophores; four to five pairs of nuchal folds; 14-20 medial hooks on club.

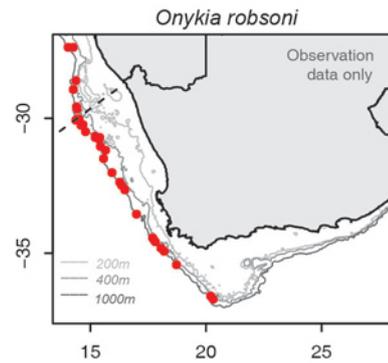
*Onykia species*: Skin very rough, "warty", no photophores; no nuchal folds.

### References

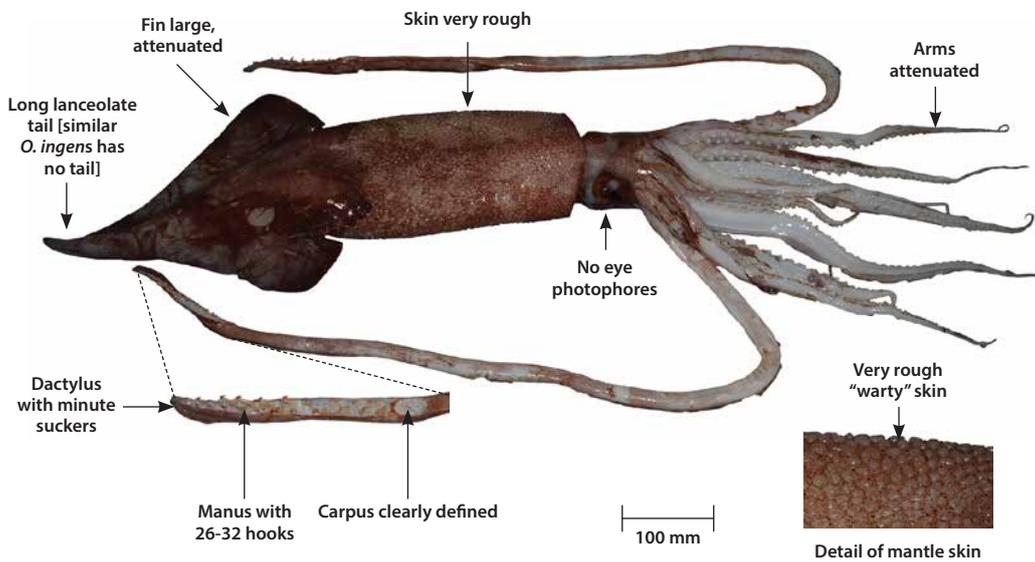
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

## *Onykia robsoni* (MorRob)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Onychoteuthidae
<b>Common:</b>	Warty squid
<b>Alternate:</b>	<i>Moroteuthis robsoni</i>



### DORSO-LATERAL VIEW



### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle robust, long and slender.
- Skin rugose, covered with flat, irregular warts.
- Photophores absent on mantle, eyes and viscera; no nuchal folds.
- Arms attenuated with two series of suckers; Arms IV longest.
- Fins heart-shaped, very long, attenuated, drawn into **long lanceolate tail**.

### Club

**Manus long, slender, not expanded**, 26-32 hooks in two medial series. No marginal suckers. Minute suckers on dactylus. Carpus clearly defined.

### Hectocotylus

Absent.

### Size

900 mm mantle length.

### Distribution

Both South and West Coasts in deep waters, 500 to 2 500 m.

### Similar species

*Notonykia africanae*: Skin smooth; no photophores; four to five pairs of nuchal folds; 14-20 medial hooks on club.

*Onychoteuthis banksii*: Skin smooth; two visceral photophores on ventral midline; large light organ on eyes; 9-10 pairs of prominent nuchal folds; 20-22 large medial hooks on club.

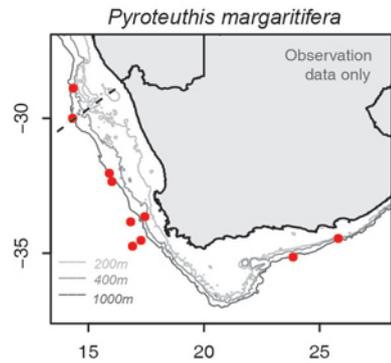
*Onykia ingens*: Very similar, but differs in lacking an elongated tail, arms not attenuated, and Arms II and III longer than Arms IV.

### References

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

***Pyroteuthis margaritifera* (Pyrote)**

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Pyroteuthidae
<b>Common:</b>	Jewel enope squid
<b>Alternate:</b>	-



**DORSAL VIEW**

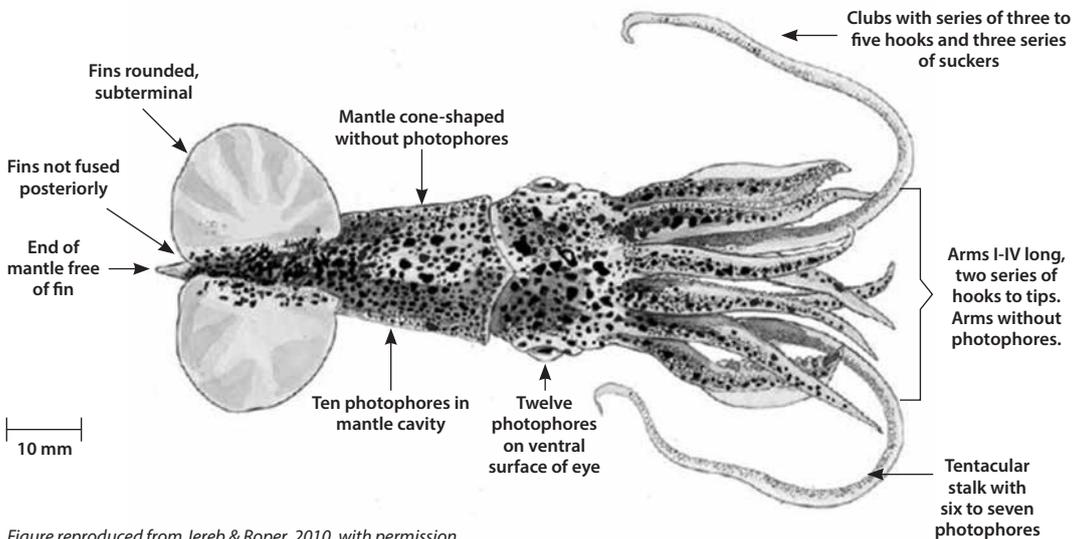


Figure reproduced from Jereb & Roper, 2010, with permission.

**Distinguishing features**

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Mantle without embedded photophores, cone-shaped. Head broader than mantle.
- Arms I-IV long and strong, armed with hooks in two series almost to tips.
- Arms without photophores.
- Ventral surface of eye with 12 photophores, nine large and three small.
- Ten photophores in mantle cavity, three in transverse row at level of the gills.
- Six to seven separated photophores embedded in tentacular stalk.
- Fins semi-circular, subterminal.

**Club**

Manus with a central series of three to five hooks and two series of suckers.

**Hectocotylus**

Right ventral arm, without tooth plate. Longitudinal membrane along 33% of arm.

**Size**

50 mm mantle length.

**Distribution**

South and West Coasts. Mesopelagic 400-800 m during the day, migrating to upper 200 m at night.

**Similar species**

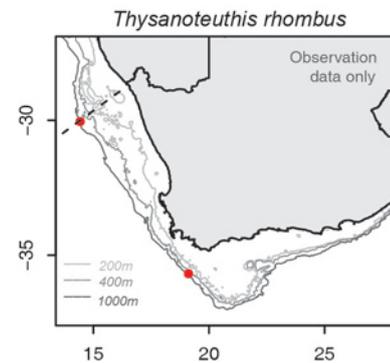
None.

**References**

Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

### *Thysanoteuthis rhombus* (ThyRho)

<b>Phylum:</b>	Mollusca
<b>Class:</b>	Cephalopoda
<b>Order:</b>	Oegopsida
<b>Suborder:</b>	-
<b>Family:</b>	Thysanoteuthidae
<b>Common:</b>	Rhombic squid
<b>Alternate:</b>	-



#### DORSAL VIEW

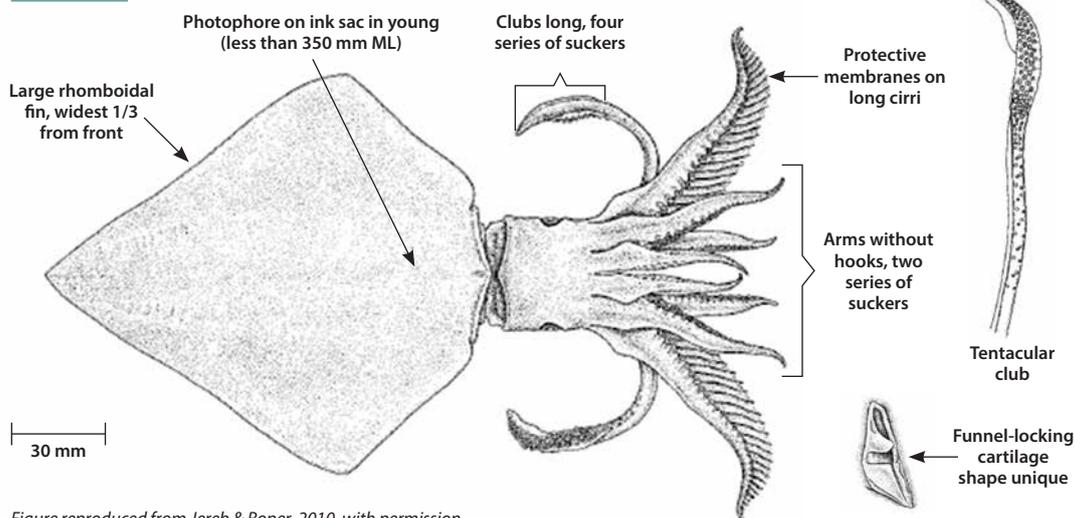


Figure reproduced from Jereb & Roper, 2010, with permission.

#### Distinguishing features

- Eye not covered by a transparent membrane, lens in open contact with seawater.
- Funnel-locking cartilage diagnostic, vertical groove that is joined by a transverse groove about halfway along its length in a †-shape.
- Mantle very muscular and powerful, bluntly rounded.
- Arms short, strong, biserial suckers, no hooks.
- Well-developed **protective membranes on long cirri-like structures on all arms**, but most obvious on Arms III.
- Arms I-III with distinct aboral keels.
- Young squid (60-350 mm ML) with a well-developed photophore on ink sac. Reduced, non-functional in adults.
- **Rhomboidal, muscular fin** 100% of mantle length, widest 1/3 from front.

#### Club

Tentacles relatively short, strong. Clubs long, widened with four series of suckers. Carpal-locking apparatus a series of alternating knobs and suckers on stalk proximal to clubs.

#### Hectocotylus

Left ventral arm (IV). Distal third modified. Small untoothed suckers.

#### Size

1 300 mm mantle length.

#### Distribution

Off the continental shelf (offshore of the 400 m isobath) on both South and West Coasts. Pelagic, usually found at or near the surface.

#### Similar species

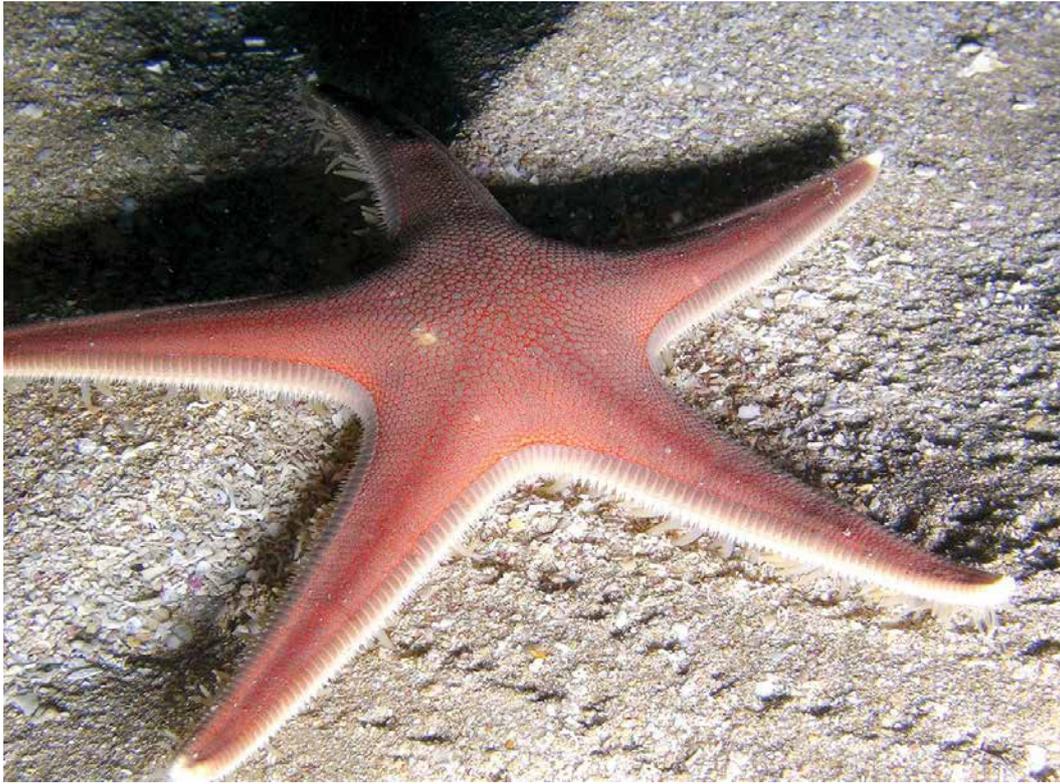
None.

#### References

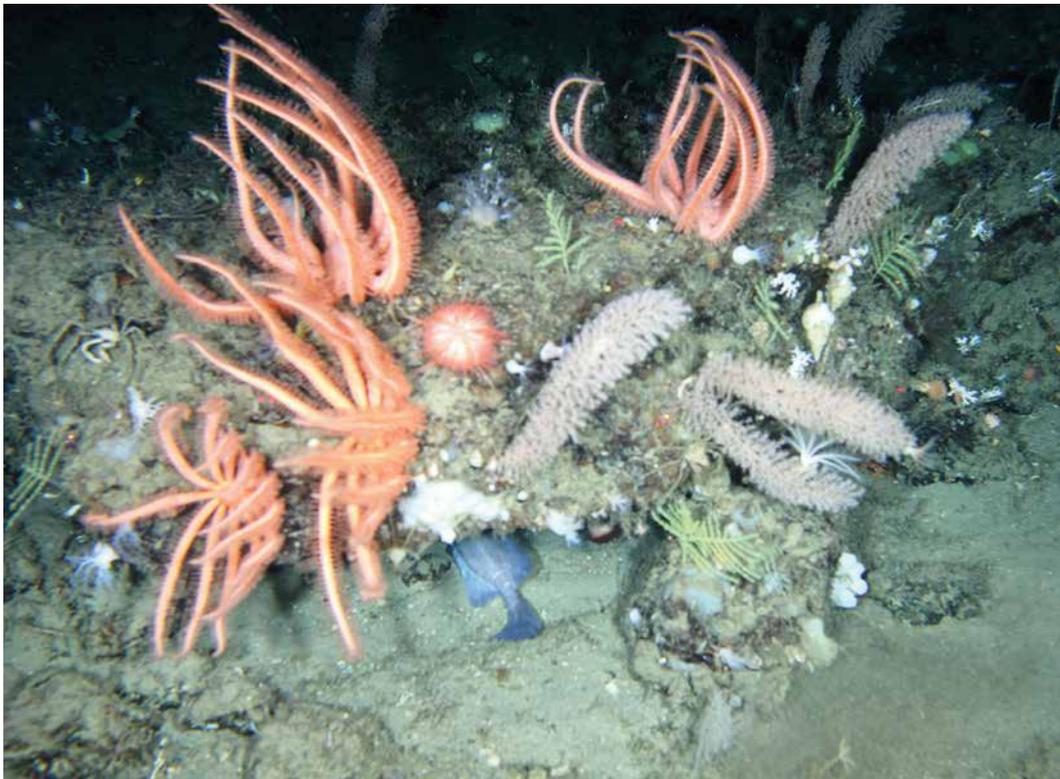
Jereb & Roper, 2010; Nesis, 1987; Sanchez, 1988.

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The tube feet of starfish leave tiny 'footprints' in soft sediments on the South Coast.  
Photo credit: ACEP Imida Frontiers Project



Brisingid seastars, pumpkin urchin (*Dermechinus horridus africanus*) and bottlebrush soft corals (*Thouarella* sp.) at 500 m in the proposed Marine Protected Area on the tip of the Agulhas Bank.  
Photo credit: ACEP Deep Secrets Project