

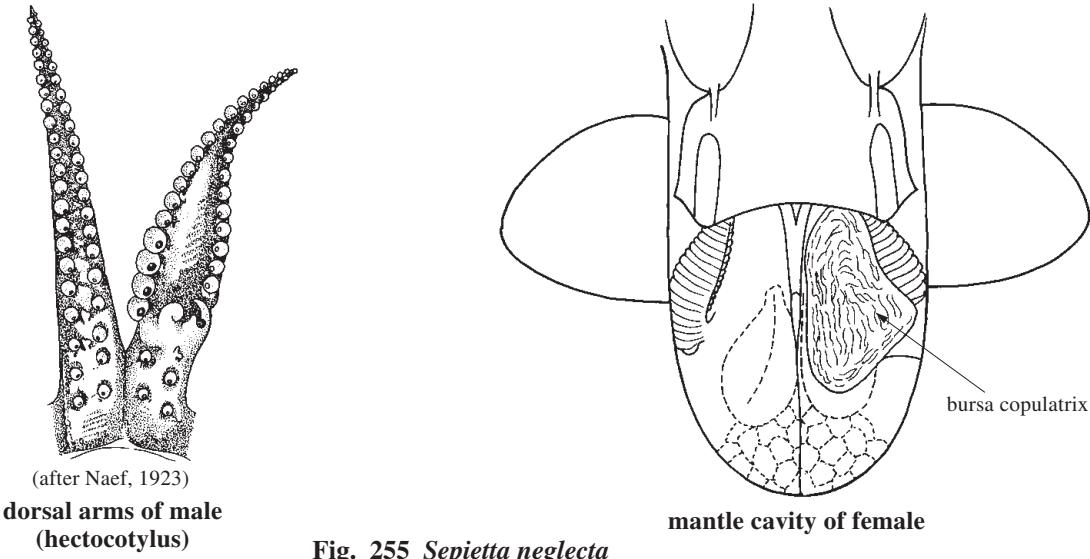
Sepiella neglecta* Naef, 1916*Fig. 255**

Sepiella neglecta Naef, 1916, *Pubblicazioni della Stazione Zoologica di Napoli*, 1: 9 [type locality: Tyrrhenian Sea].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Elegant bobtail squid; Fr – Sépiole élégante; Sp – Sepieta elegante.

**Fig. 255 *Sepiella neglecta***

Diagnostic Features: Fins rounded, **bluntly pointed laterally** rather than curved; short, do not exceed length of mantle anteriorly or posteriorly. Hectocotylus present, left dorsal arm modified: proximal end with fleshy pad formed from enlarged and/or fused sucker pedicels; copulatory apparatus a dome-shaped lobe medially and short, pointed, horn with smaller papilla between these; horn of copulatory apparatus slightly recurved, but does not form a small hole; base of hectocotylus proximal to fleshy pad with **4 normal suckers** (not modified); dorsal row of suckers distal to copulatory apparatus with first **3 or 4 suckers markedly enlarged**; arm broad, spoon-like. Tentacles very thin, delicate. **Club with 16 uniform-sized suckers in transverse rows**. Female bursa copulatrix large (extends posteriorly beyond gill insertion). Light organs absent.

Size: Up to 33 mm mantle length.

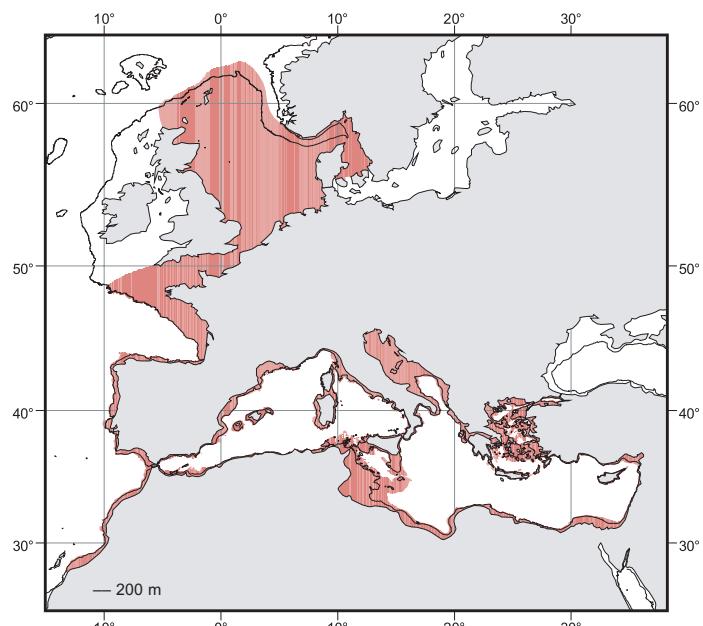
Geographical Distribution: Northeastern Atlantic and Mediterranean Sea: southern coast of Norway and Orkney Islands to Morocco; eastern and western Mediterranean Sea (Ligurian Sea, Strait of Sicily, Adriatic Sea, north Aegan Sea, Sea of Marmara and Levantine Sea) (Fig. 256).

Habitat and Biology: *Sepiella neglecta* lives preferentially on muddy substrates at depths ranging between 25 and 475 m. It is often associated with *Rossia macrosoma* and *Sepiella oweniana*. It spawns continuously throughout the year.

Interest to Fisheries: Even though less common, *S. neglecta* is caught along with other species of the genus and is sold and consumed locally.

Remarks: This species closely resembles *S. oweniana* (Orbigny, 1839–1841) and it can be difficult to distinguish females of the 2 species under a certain size (i.e. *S. oweniana* is larger). This is particularly true when the tentacle clubs are damaged or lost during fisheries operations. The clubs differ between the 2 species: the club is shorter, more delicate and bears smaller suckers in *S. neglecta*, than in *S. oweniana*. Males are easily identified by the structure of the hectocotylus.

Literature: Naef (1923), Boletzky *et al.* (1971), Guescini and Manfrin (1986), Orsi Relini and Bertuletti (1989), Bello (1990b), Guerra (1992), Bello (1995), Jereb and Di Stefano (1995), Volpi *et al.* (1995), Jereb *et al.* (1997), Lefkaditou and Kaspiris (1998).

**Fig. 256 *Sepiella neglecta***

■ Known distribution

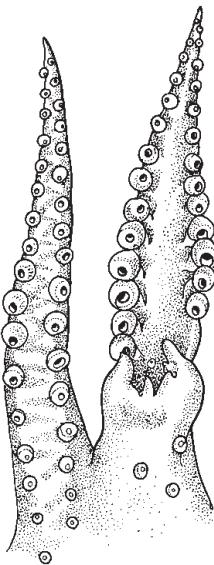
Sepiella obscura* Naef, 1916*Fig. 257**

Sepiella obscura Naef, 1916, *Pubblicazioni della Stazione Zoologica di Napoli*, 1: 4 [type locality: Gulf of Naples].

Frequent Synonyms: None.

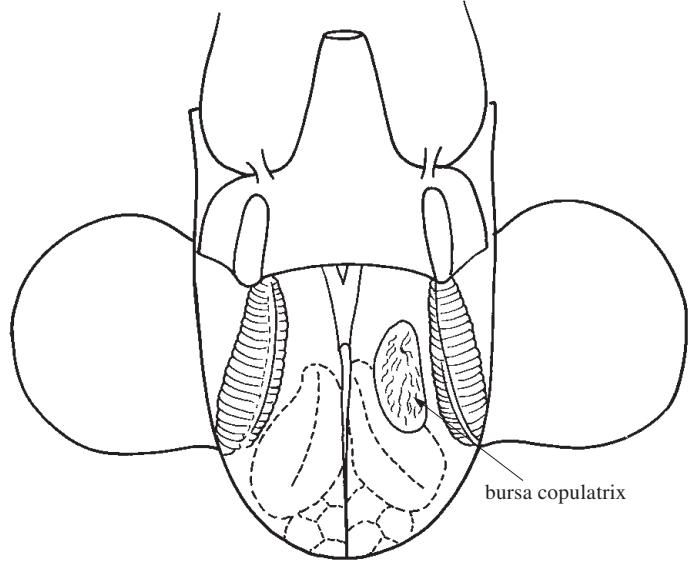
Misidentifications: *Sepiella oweniana* (Orbigny, 1839–1841); *Sepiola rondeleti* Leach, 1834.

FAO Names: En – Mysterious bobtail squid; Fr – Sépiole mystérieuse; Sp – Sepieta misteriosa.



(after Naef, 1923)

hectocotylus



mantle cavity of female

bursa copulatrix

Fig. 257 *Sepiella obscura*

Diagnostic Features: Fins small, short, almost circular, margin broadly rounded. Tentacles relatively robust; club with 12 suckers in transverse rows, dorsalmost suckers markedly enlarged. Arms II and III with 3 to 5 normal suckers proximally, followed by 2 larger suckers distally, then smaller ones continuously decreasing in size towards distal tip of the arm. Hectocotylus present, left dorsal arm modified: 3 normal suckers at base of the arm, followed distally by the copulatory apparatus: apparatus consists of a transverse 'crest' with four elevations, differing in development and outline, **the outer one usually more prominent, forming a separate, inward curved lobe**, the inner one with a simple edge. Distal to the copulatory apparatus, the first 2 suckers of the dorsal row are markedly enlarged, followed distally by smaller suckers decreasing in size; stalks of first suckers of ventral rows are elongate and often connected with each other. Distal part of the arm widened and spoon-shaped. Bursa copulatrix small, not extending beyond gill insertion. **Colour:** Reddish to dark brown.

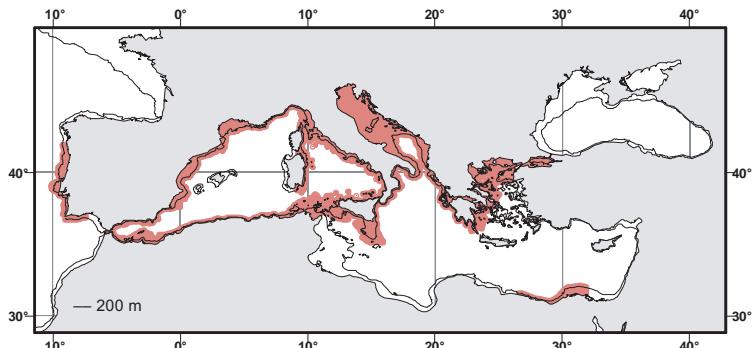
Size: Males up to 19 mm mantle length; females up to 30 mm mantle length.

Geographical Distribution: Mediterranean Sea, including Ligurian Sea, Tyrrhenian Sea, Strait of Sicily, Adriatic Sea, northern Aegean Sea and Levantine Sea. Northeastern Atlantic (off Portugal) (Fig. 258).

Habitat and Biology: *Sepiella obscura* lives preferentially on sandy and muddy bottoms, often colonized by *Posidonia oceanica* in coastal areas. Its depth range is 27 to 376 m. It is often associated with *Sepiola affinis* Naef, 1912, and both species seem to have gregarious habits. A benthic species, *Sepiella obscura* has, however, been captured by pelagic nets, confirming its capacity to leave the bottom and undergo significant vertical migrations. The smallest mature individuals measure 12 mm mantle length. The spawning season extends at least from spring to autumn in the Mediterranean. Females in aquaria were observed to spawn intermittently over a period of 2 weeks, and the animals died afterwards. The eggs are relatively large (3.7–4.5 mm diameter) but young hatchlings measure about 2 mm mantle length.

Interest to Fisheries: No statistics are available, but the species is frequently captured as a bycatch of trawl and purse seine fisheries, and can be a relatively abundant component of the bobtails marketed locally.

Local Names: ITALY: Sepiola misteriosa.

**Fig. 258** *Sepiella obscura*

■ Known distribution

Remarks: Nesis (1987), in his world review, considered *Sepiella obscura* a junior name for *S. petersi* (Steenstrup, 1887). However, Naef did not mention Steenstrup's work in his original description of *S. obscura* (Naef, 1916). This is very unusual considering Naef's accuracy and his otherwise detailed and very numerous references to previous workers. It is possible that he may have overlooked the description of *S. petersi* when determining the status of his supposed new *Sepiella* species. However, considering the current need for a revision of this group, including a proper (re)description of *Sepiella petersi*, *S. obscura* is here retained as the valid name for the species. Long considered a Mediterranean endemic, recent records of 2 specimens of *Sepiella obscura* from the waters off Portugal extend the distributional range of this small bobtail squid.

Literature: Naef (1923), Boletzky *et al.* (1971), Orsi Relini and Bertuletti (1989), Guerra (1992), Bello and Biagi (1995), Gabel Deickert (1995), Wurtz *et al.* (1995), Pereira (1996), Jereb *et al.* (1997), Salman *et al.* (2002).

***Sepiella oweniana* (Orbigny, 1839–1841)**

Fig. 259

Sepiola oweniana Orbigny, 1839–1841 (in Féruccac and d'Orbigny, 1834–1848), *Histoire Naturelle Générale et Particulière Céphalopodes Acétabulifères Vivants et Fossiles*, pl. 3 [type locality: Tyrrhenian Sea (uncertain)].

Frequent Synonyms: *Sepiola oweniana* d'Orbigny, 1840.

Misidentifications: None.

FAO Names: En – Common bobtail squid; Fr – Sépiole commune; Sp – Sepieta común.

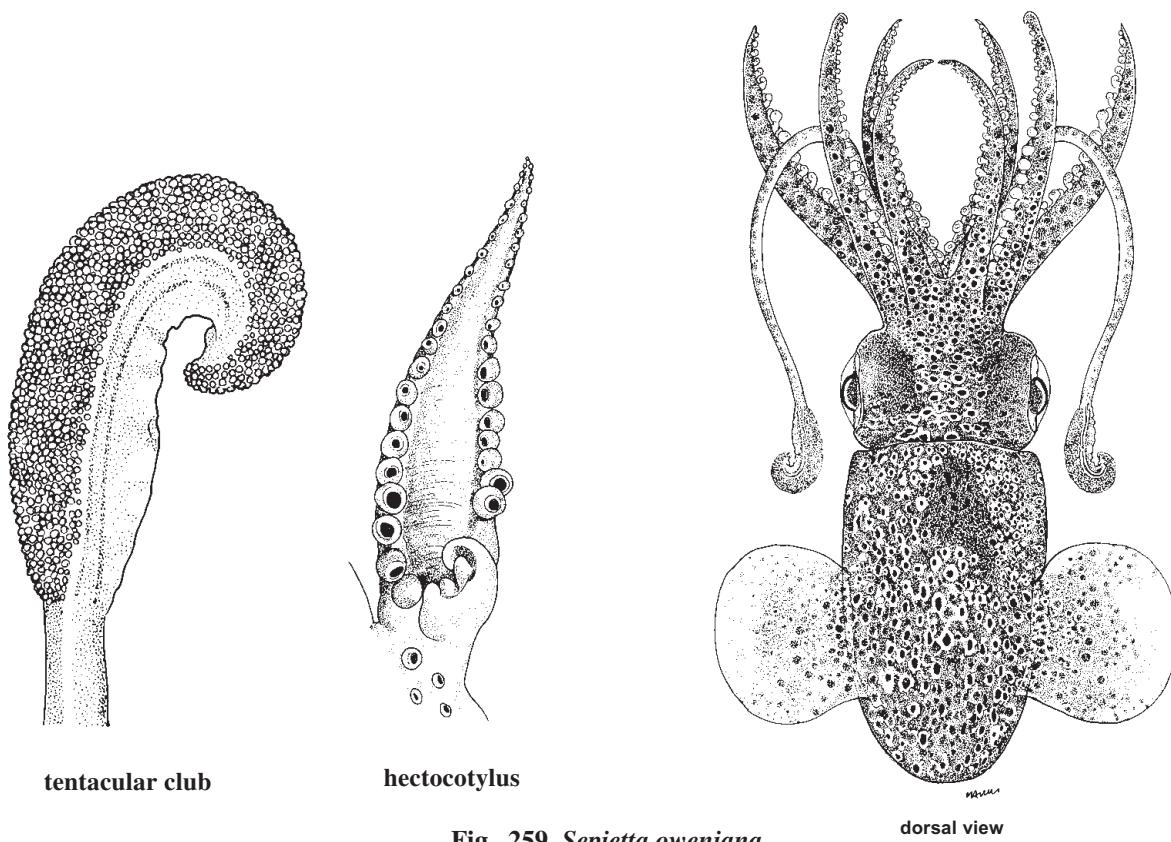


Fig. 259 *Sepiella oweniana*

Diagnostic Features: Mantle dome-shaped; posteriorly more rounded in females. Fins wide; rounded, semicircular; **with pronounced anterior lobes, or 'earlets'**; short, do not exceed length of mantle anteriorly or posteriorly; attached slightly obliquely at mantle midline. Arm suckers biserial. Proximal end of arms I fused in males. Hectocotylus present; left dorsal arm modified: proximal end with fleshy pad formed from enlarged and fused sucker pedicels; copulatory apparatus a fleshy transverse swelling with long, hook-like inwardly curved horn, deep cleft medially, flask-like rugose bulb, and swelling at dorsal edge; 2 rows of normal suckers on arm proximal to fleshy pad (usually 2 rows, sometimes 3, 5 or 6 suckers); **first 2 or 3 suckers in dorsal row distal to copulatory apparatus greatly enlarged, followed by 2 to 4 smaller suckers, then 2 enlarged**, then remaining suckers decrease in size to distal tip of arm; ventral rows with moderately enlarged suckers; oral surface of modified region broad; concave. Club long, well developed, with 32 suckers in transverse rows; all suckers of **similar minute size, giving velvety appearance**. Female bursa copulatrix large (extends posteriorly beyond gill insertion). Light organs absent.

Size: Up to 50 mm mantle length in the North Sea; males up to 35 mm, females up to 40 mm mantle length in the Mediterranean Sea.

Geographical Distribution: Eastern Atlantic and Mediterranean Sea: from Norway to the Faeroe Islands; Morocco and Madeira Islands south to Mauritania; Mediterranean Sea, including Ligurian Sea, Strait of Sicily, Aegean Sea, Adriatic Sea, Sea of Marmara and Levantine Sea. Indian Ocean: Visakhapatam (single record only) (Fig. 260).

Habitat and Biology: *Sepiella oweniana* is an epipelagic–mesopelagic species, occurring within a wide depth range, i.e. from close to the surface (8 m) down to over 1 000 m. In the North Atlantic it is most common between 50 and 300 m and in the Mediterranean between 100 to 200 and 400 m. It prefers soft, muddy substrates throughout its distributional range, and it is often found on shrimp fishing grounds. Tolerance to salinity variations seems lower than that observed in other bobtail squids and *S. oweniana* has never been found in brackish waters. Seasonal movements, related to reproduction, and vertical movements, mostly linked to trophic

relationships, have been reported for this species, both in the North Atlantic and in the Mediterranean. In the Mediterranean Sea, mature animals are found throughout the year, suggesting an almost continuous spawning season. Peaks in reproductive activity, however, are reported for several different areas of the Mediterranean. In the western Mediterranean, for example, onshore migrations of large individuals occur in late winter to early spring, followed by spawning in spring and early summer. In the Tyrrhenian Sea, summer spawning peaks have been observed, while in the Aegean Sea, peaks of spawning occur in April to May and October to November. Mating takes place head-to-head and spermatophores are placed in the female's bursa copulatrix. Spawning usually occurs in relatively shallow coastal waters, though records of egg masses in deeper waters (i.e. down to 200 m) do exist. Several subsequent laying events have been observed in aquaria. The eggs, spherical to lemon-shaped and greyish white in colour, are deposited on various solid substrates, both living and dead, with an interesting preference for ascidians (*Microcosmus*). The duration of egg development depends upon the water temperature: at 20°C they take about 30 days to hatch, while at 10°C this time range extends to about 2 months. Growth after hatching, however, seems relatively independent of water temperature, and quite rapid. Studies in the laboratory indicate that animals grow and mature within 6 months following hatching. The whole life cycle is, therefore, rather short and may range between 6 and 9 months, depending mainly on the time of embryonic development. Field data indicates that the mantle length at 50% maturity varies between the Atlantic and the Mediterranean female populations, and is greater in the Atlantic (i.e. 33 mm versus less than, or equal to, 30 mm). Within the Mediterranean populations, females from the eastern and central basin are mature at a slightly smaller size compared with those from the western basin (i.e. 28 and 26 mm respectively, versus 30 mm). Similar differences were not apparent in males, where the size at 50% maturity varies between 20 and 24 mm both in the Atlantic and in the Mediterranean. *Sepiella oweniana* has been cultured successfully in aquaria. Juveniles were fed on mysids (*Praunus flexuosus* and *P. inermis*), amphipods (*Ericthonius*) and large copepods. Adults fed on *Pranus flexuosus* and the shrimps *Palaemon elegans*, *Thoralus cranchii* and *Crangon crangon*. Animals in wild populations feed mainly upon crustaceans; a specific preference for the euphausiid *Maganyctiphanes norvegica* in north Atlantic waters and the decapod *Pasiphæa sivado* in the northern Tyrrhenian Sea has been observed, supporting hypothesized trophic migrations of *S. oweniana* in response to prey abundance and distribution. Feeding occurs primarily from dusk to dawn, with adult animals spending the day buried in the bottom substrate. *Sepiella oweniana* is preyed upon by several demersal fish and occasionally by cetaceans.

Interest to Fisheries: This is one of the most abundant bobtail squids throughout its distributional range and one of the most abundant cephalopods caught in some Mediterranean areas. It represents an important bycatch of many trawl fisheries, both multispecific and shrimp targeting. Specific statistics are not available, but the species is commonly sold on Mediterranean markets and it is valued as a delicacy in some areas (e.g. in southern Sicily). In the Mediterranean, catches are generally most abundant in summer and a marked seasonality has been observed in some areas (e.g. the northern Tyrrhenian Sea).

Local names: ITALY: Seppiola comune, Cappuccetto.

Remarks: Six specimens were recorded from Visakhapatam in the Indian Ocean (off the northeastern Indian coasts, in the Bay of Bengal) by Mohan and Rao in 1978. However, no subsequent records exist for the area, or in other parts of the Indian Ocean.

Literature: Joubin (1902a), Naef (1912b), Naef (1923), Mangold and Froesh (1977), Mohan and Rao (1978), Bergstrom and Summers (1983), Bergstrom (1985), Roper *et al.* (1984), Orsi Relini and Massi (1988), Orsi Relini and Bertuletti (1989), Guerra (1992), Bello (1995), Blanco *et al.* (1995) Jereb and Di Stefano (1995), Santos *et al.* (1995), Volpi *et al.* (1995), D'Onghia *et al.* (1996), Bello (1997), Jereb *et al.* (1997), Salman (1998), Sartor *et al.* (1998), Belcari and Sartor (1999a).

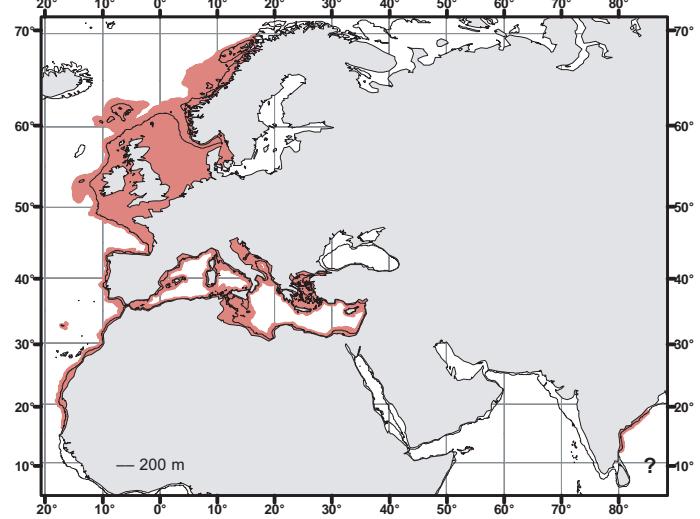


Fig. 260 *Sepiella oweniana*

Known distribution

**SPECIES OF NO CURRENT INTEREST TO FISHERIES, OR RARE SPECIES
FOR WHICH ONLY FEW RECORDS EXIST TO DATE**

***Sepiola aurantiaca* Jatta, 1896**

Sepiola aurantiaca Jatta, 1896, *Fauna und Flora des Golfes von Neapel*, 23: 130 [type locality: Tyrrhenian Sea.]

Size: Up to 20 mm mantle length (both sexes).

Geographical Distribution: Northeastern Atlantic, from southern Norway, and western Mediterranean Sea. Outer shelf and upper bathyal. Depth range possibly from 200 to 400 m. Rare.

Literature: Naef (1912b), Naef (1923), Guerra (1992), Bello (1995).

***Sepiola knudseni* Adam, 1984**

Sepiola knudseni Adam, 1984, *Atlantide Report*, 13: 157 [type locality: Atlantic Ocean: 06°17'N 03°27'E].

Size: Males up to 8.5 mm mantle length; females up to 18 mm mantle length.

Geographical Distribution: Eastern Atlantic: northwest and west Africa, from the Canary Islands to the Gulf of Guinea. Inner continental shelf. Depth range from 32 to 90 m.

Literature: Adam (1984).

***Sepiola pfefferi* Grimpe, 1921**

Sepiola pfefferi Grimpe, 1921, *Zoologischer Anzeiger*, 53(1–2): 4 [type locality: northeastern Atlantic: 53°53'N 00°32'E].

Size: Males up to 12 mm mantle length; females up to 13 mm mantle length.

Geographical Distribution: Northeastern Atlantic: Faeroe Islands and southern Norway to Brittany, France. Continental shelf. Depth range unknown.

Literature: Grimpe (1921).

***Sepiola rossiaeformis* Pfeffer, 1884**

Sepiola rossiaeformis Pfeffer, 1884, *Abhandlungen aus dem Gebiete der Naturwissenschaften, Hamburg*, 8(1): 8 [type locality: Java].

Size: Type 6.0 mm mantle length.

Geographical Distribution: Indo-Pacific: unknown.

Literature: Pfeffer (1884).

***Sepiola steenstrupiana* Levy, 1912**

Sepiola steenstrupiana Levy, 1912, *Archives de Zoologie Experimentale et Générale*, (series 5)9, *Notes et Revue*, 3: LVI [type locality : "Villafranca"].

Size: Up to 30 mm mantle length.

Geographical Distribution: Mediterranean Sea: including central Tyrrhenian Sea, Adriatic Sea, Aegean Sea and Levantine Sea. Red Sea, Gulf of Aden. Indian Ocean: Somalia.

Literature: Naef (1923), Guerra (1992), Bello (1995), Rocha *et al.* (1998).

***Euprymna albatrossae* Voss, 1962**

Euprymna albatrossae Voss, 1962a, *Proceedings of the Biological Society of Washington*, 75: 171 [type locality: Philippines].

Size: Up to 24 mm mantle length.

Geographical Distribution: Western Pacific: Philippines. Depth range unknown. Types collected using nightlight.

Literature: Voss (1963).

***Euprymna hoylei* Adam, 1986**

Euprymna hoylei Adam, 1986, *Bulletin de l'Institut royal des Sciences naturelles de Belgique*, 56: 133 [type locality: Sulu Archipelago].

Geographical Distribution: Tropical Indo-Pacific: western tropical Pacific and northwestern Australia.

Literature: Norman and Lu (1997).

***Euprymna hyllebergi* Nateewathana, 1997**

Euprymna hyllebergi Nateewathana, 1997, *Phuket Marine Biological Center Special Publication*, 17(2): 466 [type locality: Thailand: Andaman Sea, Trang Province, Kantang Fish Landing].

Size: Up to 35 mm mantle length.

Geographical Distribution: Eastern Indian Ocean: Thailand, Andaman Sea. Depth to 74 m.

Literature: Nateewathana (1997).

***Euprymna penares* (Gray, 1849)**

Fidena penares Gray, 1849, *Catalogue of the Mollusca in the British Museum. Part I. Cephalopoda Antepedia*, 95 [type locality: Singapore].

Geographical Distribution: Indo-Pacific: unknown.

Literature: Gray (1849).

***Euprymna phenax* Voss, 1962**

Euprymna phenax Voss, 1962a, *Proceedings of the Biological Society of Washington*, 75: 171 [type locality: Philippines].

Size: Type 11 mm mantle length.

Geographical Distribution: Indo-Pacific: Philippines, possibly East China Sea. Depth range unknown (collected at nightlight).

Literature: Kubodera and Yamada (1998).

***Euprymna scolopes* Berry, 1913**

Euprymna scolopes Berry, 1913, *Proceedings of the United States National Museum*, 45(1996): 564 [type locality: Hawaiian Islands].

Size: Up to 30 mm mantle length.

Geographical Distribution: Central Pacific: Hawaiian Islands. Shallow coastal waters.

Literature: Arnold (1972), Moynihan (1983a), Shears (1988), McFall-Ngai and Montgomery (1990), McFall-Ngai (1994), Fleisher and Case (1995), Montgomery and McFall-Ngai (1995), Anderson and Mather (1996), Hanlon *et al.* (1997), Norman and Lu (1997), Claes and Dunlap (1999).

***Euprymna stenodactyla* (Grant, 1833)**

Euprymna stenodactyla Grant, 1833, *Transactions of the Zoological Society of London*, 1: 85 [type locality: Mauritius].

Geographical Distribution: Indian Ocean: known with certainty only from Mauritius. Records from the Indo-west Pacific (Mascarene Islands to Queensland, Australia and Polynesia) are doubtful.

Literature: Joubin (1902a), Okutani (1995), Norman and Lu (2000).

***Sepiella petersi* (Steenstrup, 1887)**

Sepiola petersi Steenstrup, 1887, *Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger*, 1887: 58 [type locality: Adriatic Sea].

Geographical Distribution: Mediterranean Sea and Atlantic coast of Morocco (doubtful).

Remarks: Doubtful species, that has been considered the senior name for *S. obscura* Naef, 1916 (see remarks in *S. obscura*). A detailed redescription of all the anatomical features of this purported species is needed to solve the problem.

Literature: Steenstrup (1887).

***Inioteuthis capensis* Voss, 1962**

Inioteuthis capensis Voss, 1962b, *Transactions of the Royal Society of South Africa*, 36(4): 255 [type locality: South Africa].

Geographical Distribution: Southeastern Atlantic: South Africa, from Lüderitz Bay to Mossel Bay.

Literature: Voss (1962b).

***Inioteuthis japonica* (Orbigny, 1845)**

Sepiola japonica Orbigny, 1845 (in Féruccac and d'Orbigny, 1834–1848), *Histoire Naturelle Générale et Particulière Céphalopodes Acétabulifères Vivants et Fossiles*, 234 [type locality: Japan].

Size: Up to 20 mm mantle length.

Geographical Distribution: Western Pacific: Southern Japan, China and Taiwan Province of China.

Literature: Joubin (1902a).

***Inioteuthis maculosa* Goodrich, 1896**

Inioteuthis maculosa Goodrich, 1896, *Transactions of the Linnaean Society of London*, (series 2, Zoology), 7(1): 2 [type locality: Andaman Islands].

Size: Males up to 13 mm mantle length; females up to 14 mm mantle length.

Geographical Distribution: Indo-Pacific: northern Indian Ocean, Persian Gulf, India, Arabian Sea, Bay of Bengal, Andaman Sea, Taiwan Province of China, Philippines, Indonesia.

Literature: Nateewathana (1997).