3.2.3 Subfamily HETEROTEUTHINAE Appellöf, 1898

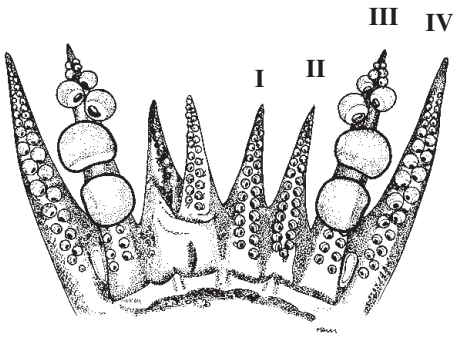
Heteroteuthis (Heteroteuthis) dispar (Rüppell, 1844) Fig. 279

Sepiola dispar Rüppell, 1844, *Giornale del Gabinetto Letterario di Messina*, 5(27–28): 133 [type locality: Italy: Sicily].

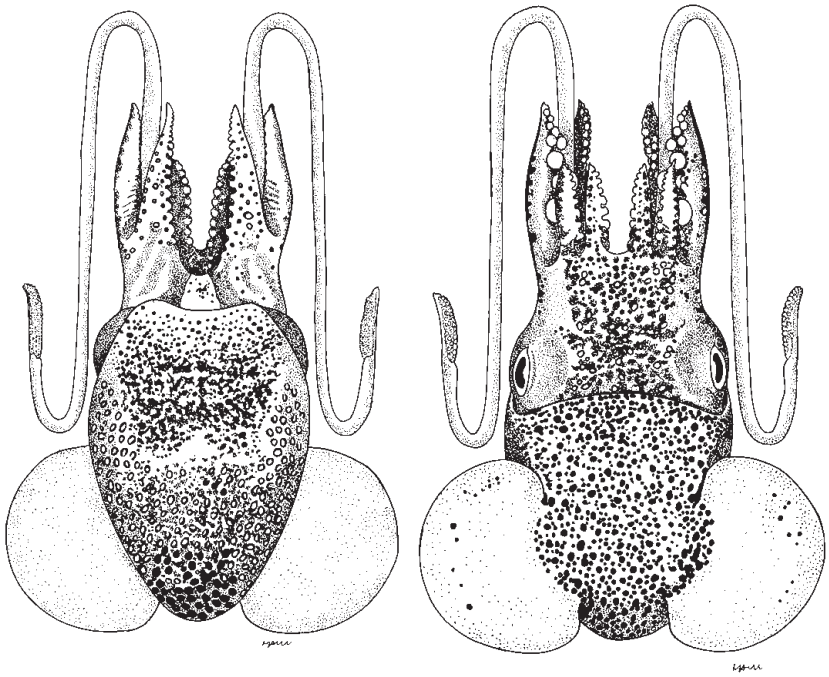
Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Odd bobtail squid; **Fr** – Sépiole différente; **Sp** – Globito aberrante.



arms of mature male



ventral view of male **dorsal view of male**

(after Naef, 1923 [1972])

Fig. 279 ***Heteroteuthis (Heteroteuthis) dispar***

Diagnostic Features: Dorsal mantle free from head (not fused to head). Ventral mantle strongly produced anteriorly, nearly covers funnel. Fins long; positioned posterior to the dorsal mid-point; anterior edge approximately at level of middle of ventral side of mantle. **Male and female arms differ in relative lengths: arms I and II equal in length and shorter than arms III and IV**. Right arms I and II connected from inner side by muscular band for half their length, depth of web between first arms in mature males 33 to 50% of arm length. Distal tips of arms I and II in mature females without suckers, tip of arm II slightly thickened with keel on oral side; **mature male arms III with enlarged suckers: 2 very large suckers (several times larger than rest)** attached at angle of 90º to each other, followed distally by three smaller suckers. **Tentacles very long** with more than 8 transverse rows of club suckers. Rounded light organ present inside mantle cavity on ink sac.

Size: Up to 25 mm mantle length.

Geographical Distribution: Amphi-Atlantic and Mediterranean Sea: from the Bermuda Islands, Caribbean Sea, to La Plata in the western Atlantic; from southwestern Ireland southward to the Azores Islands, Madeira Islands, Canary Islands and Guinea, in the eastern Atlantic; throughout the Mediterranean Sea, including Ligurian Sea, northern and southern Tyrrhenian Sea, Adriatic Sea, Aegean Sea and Levantine Sea. Also reported from Walters Shoals (southwestern Indian Ocean) and the Nazca and Sala y Gomez submarine ridges (eastern Pacific) (Fig. 280).

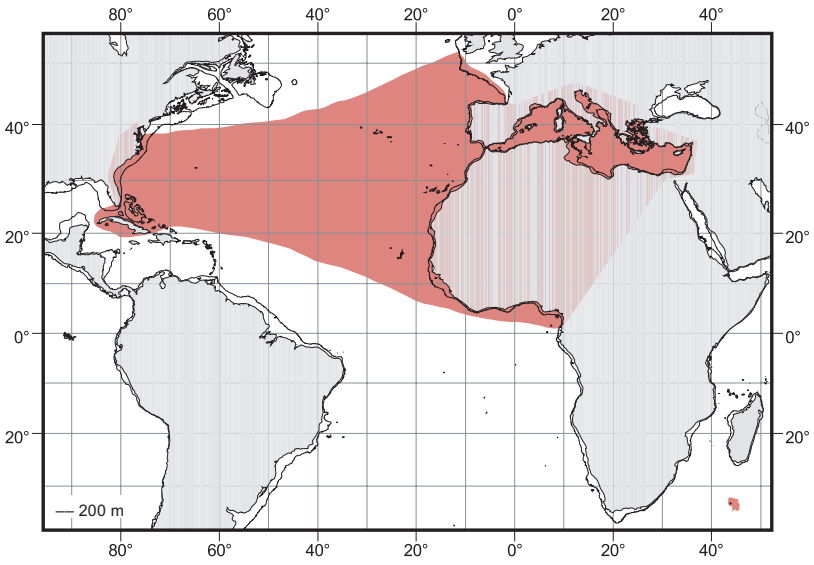


Fig. 280 ***Heteroteuthis (Heteroteuthis) dispar***
Known distribution

Habitat and Biology: Mesopelagic, or benthopelagic, but has also been collected on the bottom; depth range to 1 588 m. Spawning occurs on the bottom, on the slope. The paralarvae live in the mesopelagic and bathypelagic zones, often far from the coasts, with bottom depths ranging between 1 500 and 3 000 m. Adults live frequently in groups in the lower epipelagic and mesopelagic zones, most commonly in depths between 200 and 300 m. This is one of the most common pelagic species in the Mediterranean Sea, where it is often found in areas inhabited by populations of red shrimps. ***Heteroteuthis dispar*** represent a sizeable component of the diet of several predators at the top of the food web, including dolphins (e.g. *Grampus griseus*) sharks (*Etmopterux spinax*, *Galeus melastomus*, *Scyliorhinus canicula*), swordfish (*Xiphias gladius*) and tunas (*Thunnus alalunga*). Populations from the eastern and western Atlantic are probably isolated from each other.

Interest to Fisheries: Of no commercial interest because of the low quantities available to fisheries, ***Heteroteuthis dispar*** is caught by pelagic nets as well as by trawlers, mainly targeting shrimp, and it is marketed along with other bobtail squids.

Remarks: Another species, ***Heteroteuthis atlantis***, was described by Voss (1955). Nesis (1987) records ***H. atlantis*** as a synonym of ***H. dispar***, but other authors disagree (e.g. Guerra, 1992) and the name ***H. atlantis*** is still used in some publications. Until the taxonomy of the genus is studied in detail, the validity of ***H. atlantis*** remains questionable.

Literature: Joubin (1902a), Naef (1923), Nesis (1987), Bello (1990), Guerra (1992), Nesis (1994), Bello (1995, 1996, 1997, 1999), Orsi Relini (1995), Sartor and Belcari (1995), Volpi *et al*. (1995), Wurtz *et al*. (1995), Parin *et al*. (1997), Lefkaditou *et al*. (1999).

Stoloteuthis leucoptera (Verrill, 1878) **Fig. 281**

Sepiola leucoptera Verrill, 1878, *American Journal of Science and Arts*, (series 3) 16(46): 378 [type locality: USA: Gulf of Maine].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Leucoptera bobtail squid; **Fr** – Sépiole leucoptère; **Sp** – Globito leucóptero.

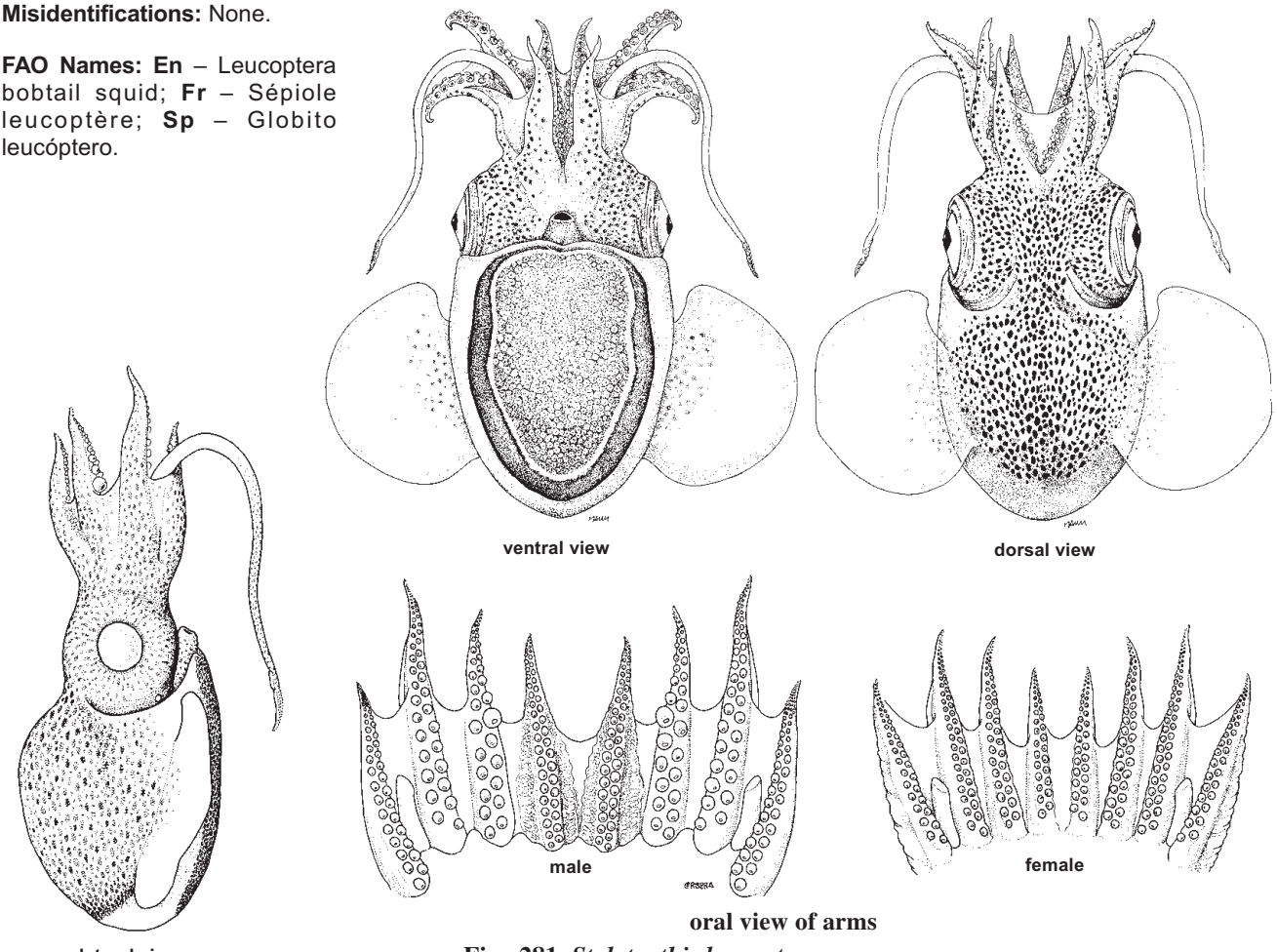


Fig. 281 ***Stoloteuthis leucoptera***

Diagnostic Features: Mantle with **marked median bulge dorsally**. Dorsal mantle fused to head, junction of mantle and head broad, **40 to 50% head width**; site of fusion lies considerably more dorsally than middle of eye level. Ventral mantle projects anteriorly only slightly, to about level of eyes. Ventral mantle broadly flattened into **dark shield-like structure**, with median anterior indentation. Fins long; positioned about midway along mantle; fin attachment short, fin length exceeds attachment length. Mantle-locking cartilage a simple straight ridge; funnel-locking cartilage a simple, straight narrow depression. Eyes small. Male and female arms short, muscular. All arms except ventral pair united by broad web. **First arm pair in males with thickened, cushion-like lateral membranes for 2/3 arm length and transverse bundles of finger-like structures adjacent to these** (function unknown). Arm sucker arrangement differs between sexes: in males, suckers biserial proximally, tetraserial at distal tips; in females, arm suckers biserial. Male **arms II with pair (3 rarely) of enlarged suckers at level of fifth and sixth sucker rows**. Club with 12 to 14 suckers in transverse rows. Club with lateral crest at base. Anal flaps well developed. Rounded light organ on ink sac, with 2 pores medially. **Colour:** In life brown on dorsal side of head, arms IV, central mantle and ventral shield, silvery laterally and posteriorly. **Blue along margin of shield, head and dorsum**. Fins large, almost transparent.

Size: Males up to 17 mm mantle length; females up to 18 mm mantle length.

Geographical Distribution: Amphi-Atlantic and the Mediterranean Sea: from the Gulf of St Lawrence to the Straits of Florida in the western Atlantic and in the Bay of Biscay in the Eastern Atlantic; Mediterranean Sea, including the northern and southern Tyrrhenian Sea, Ligurian Sea and Gorgona Island. Also recorded from the Benguela Current off Namibia. Possibly off eastern Tasmania (Fig. 282).

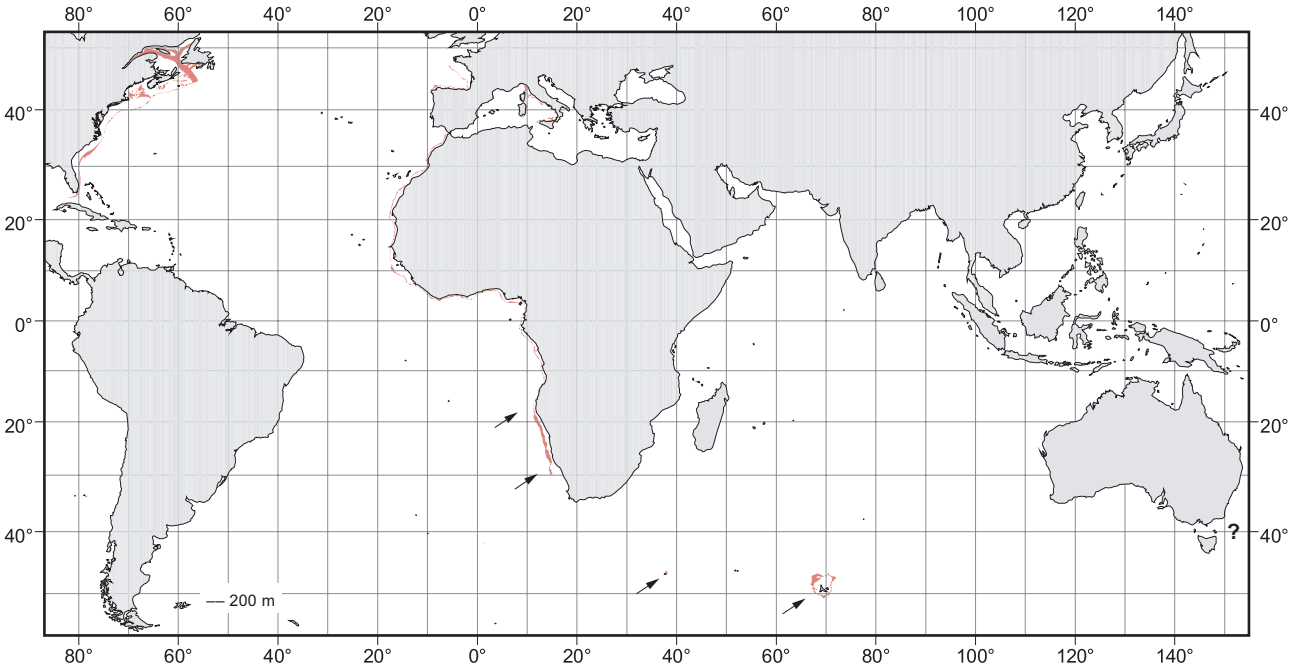


Fig. 282 ***Stoloteuthis leucoptera***
Known distribution

Habitat and Biology: Lower sublittoral and upper bathyal; depth range from 160 to 700 m. Possible diurnal activity in the upper mesopelagic.

Interest to Fisheries: Undetermined.

Remarks: Whether all recorded specimens of this widely distributed taxon are conspecific is unknown and needs to be investigated. A related, possibly identical, form has been found in the upper bathyal near the Kerguelens, Prince Edward Islands and on the Discovery Bank (southern Indian Ocean). There are only a few records of this species from the Mediterranean; it may be a recent introduction.

Literature: Joubin (1902a), Nesis (1987), Orsi Relini and Massi (1991), Guerra (1992), Villanueva and Sánchez (1993), Bello (1995), Volpi *et al*. (1995), Wurtz *et al*. (1995).

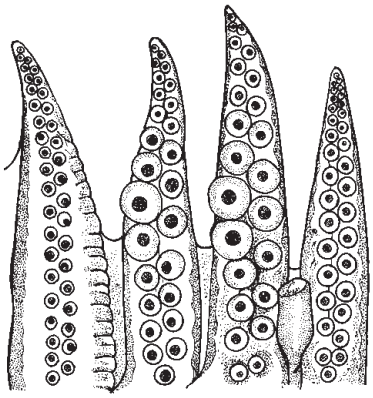
Sepiolina nipponensis (Berry, 1911) **Fig. 283**

Stoloteuthis nipponensis Berry, 1911b, *Zoologischer Anzeiger*, 37(2): 39 [type locality: Japan].

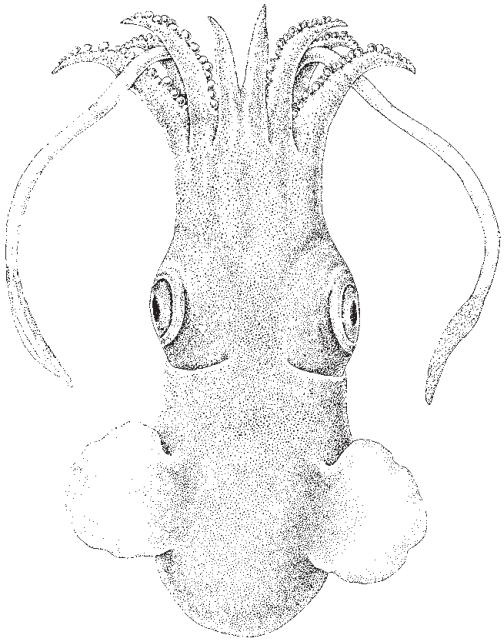
Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Japanese bobtail squid; **Fr** – Sépiole japonaise; **Sp** – Sepiolina japonesa.

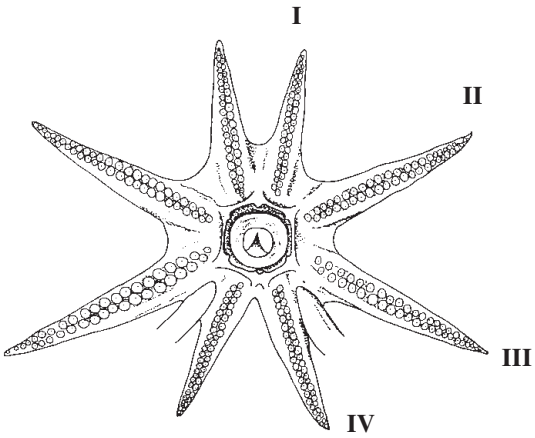


oral view of arms of male

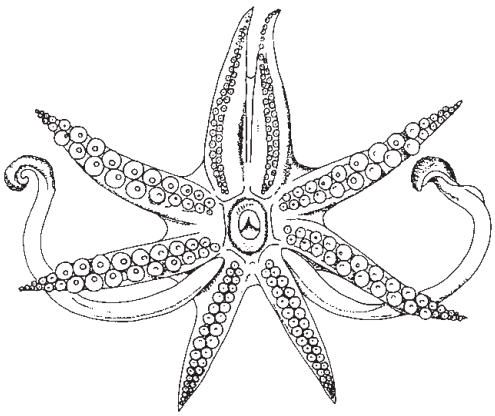


dorsal view

(illustration: K. Hollis/ABRS)



arms of female (oral view)



arms of male (oral view)

Fig. 283 ***Sepiolina nipponensis***

Diagnostic Features: Mantle oval, or dome-shaped. Dorsal mantle fused to head; junction of dorsal mantle and head narrow, approximately 3 mm. Fins wide, ovate, short, lobe approximately 60% mantle length. Non-hectocotylized arm sucker arrangement same in both sexes: arm suckers biserial; female arm suckers numerous, small throughout; **male suckers enlarged on arms II and III** and to a lesser extent on arms IV. Females with higher average sucker counts than males. Hectocotylus present, both dorsal arms modified: oral surface of modified region swollen, fleshy; with transversely grooved ridges; suckers in dorsal and ventral series widely spaced, small. Club straight, slender; sucker-bearing face convex; with **13 to 16 suckers in transverse rows**; all suckers of similar minute size; swimming keel of club extends slightly proximal to carpus. Rounded light organ inside mantle cavity, on ink sac, visible through mantle in fresh specimens; light organ secretes a luminous cloud instead of ink. **Colour:** Body with numerous small chromatophores; ventral pigment present, dark; **ventral mantle margin encircled by silvery iridescent band, approximately 5 mm wide**, chromatophores peppered over band.

Size: Up to 25 mm mantle length.

Geographical Distribution: Western Pacific: southern Japan, Taiwan Province of China, the Philippines and the Great Australian Bight (southern Australia) (Fig. 284).

Habitat and Biology: Neritic.

Interest to Fisheries: Undetermined.

Remarks: Based on its distribution, it seems likely that more than a single species is present. This requires investigation.

Literature: Roper *et al*. (1984), Okutani *et al*. (1987), Okutani (1995), Lu (1998b), Reid and Norman (1998).

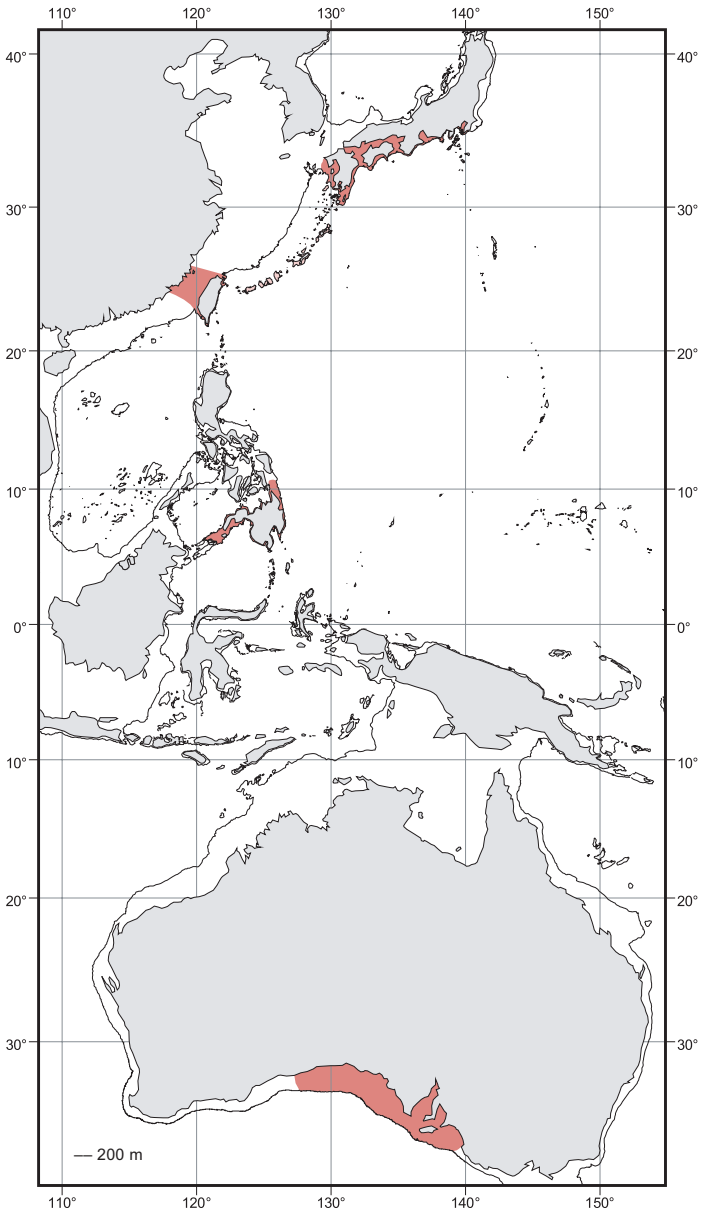


Fig. 284 ***Sepiolina nipponensis***
Known distribution

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

Heteroteuthis (Heteroteuthis) weberi Joubin, 1902

Heteroteuthis weberi Joubin, 1902a, *Bulletin de la Societe scientifique et medicale de l'Ouest*, 11: 401 [type locality: Indonesia].

Geographical Distribution: Indo-Pacific: central Indonesia.

Literature: Joubin (1902c), Nesis (1987), Reid and Norman (1998).

Heteroteuthis (Stephanoteuthis) dagamensis Robson, 1924

Heteroteuthis hawaiiensis var. *dagamensis* Robson, 1924b, *Report of the Fisheries and Marine Biological Survey of the Union of South Africa*, 3: 11 [type locality: South Africa].

Geographical Distribution: Southeastern Atlantic and southwestern Indian Ocean: western, southern and southeastern Africa.

Literature: Robson (1924b).

Heteroteuthis (Stephanoteuthis) hawaiiensis (Berry, 1909)

Stephanoteuthis hawaiiensis Berry, 1909, *Proceedings of the United States National Museum*, 37(1713): 409 [type locality: Hawaiian Islands: near Kauai Island].

Size: Up to approximately 30 mm mantle length.

Geographical Distribution: Central and western Pacific: Hawaii, Bonin, Ryukyu Islands, Indonesia, Great Australian Bight. Possibly southwest Pacific, Banc Combe, 12º14'S 177º28'W, 795 to 820 m.

Literature: Young (1995), Lu and Boucher-Rodoni (2001).

Heteroteuthis (Stephanoteuthis) serventyi Allan, 1945

Heteroteuthis serventyi Allan, 1945, *Records of the Australian Museum*, 21(6): 340 [type locality: Australia: New South Wales, Jervis Bay].

Geographical Distribution: Southwestern Pacific: southeastern Australia.

Literature: Allan (1945).

Nectoteuthis pourtalesi Verrill, 1883

Nectoteuthis pourtalesi Verrill, 1883, *Bulletin of the Museum of Comparative Zoology*, 11(5): 108 [type locality: Barbados Island].

Geographical Distribution: Tropical western Atlantic: Florida and the Antilles. Bathybenthic.

Literature: Joubin (1902a).

Iridoteuthis iris (Berry, 1909)

Stoloteuthis iris Berry, 1909, *Proceedings of the United States National Museum*, 37(1713): 410 [type locality: Hawaiian Islands: off south coast of Molokai Island].

Size: Males up to 24 mm mantle length; females up to 28 mm mantle length.

Geographical Distribution: Northern central Pacific: Hawaiian Islands; southeast and northwest Hancock, Colahan and Kammu seamounts, Ceram Sea (doubtful). Pelagic, found in the open ocean.

Literature: Harman and Seki (1990), Young (1995).

Iridoteuthis maoria Dell, 1959

Iridoteuthis maoria Dell, 1959, *Zoology Publications from Victoria University of Wellington*, 25: 410 [type locality: New Zealand].

Geographical Distribution: Southwestern Pacific: New Zealand, North Island, Cook Strait, Chatham Rise. Nazca and Sala y Gomez submarine ridges (eastern Pacific).

Literature: Parin *et al*. (1997).

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